Cosmology, especially Concepts of Space, Manifested in the Ceremonial Centers of the Classic Maya of the Peten

Nicholas M. Hellmuth
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FIG. 1—MAP OF THE MAYA AREA

Showing archaeological sites with hieroglyphic texts, and main linguistic divisions as they probably were in the sixteenth century. Some minor sites in Yucatan and Campeche omitted to avoid crowded lettering. The broken line marks the approximate area of lowland Maya speech. Note how all sites with hieroglyphic inscriptions are within that area.

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INTRODUCTION

> "One can never assume the obvious when dealing with the Maya, who excelled in the impractical but failed in the practical. What mental quirks (from our point of view) led the Maya intelligensia to chart the heavens, yet fail to grasp the principle of the wheel; to visualize eternity, as no other semi-civilized people has ever done, yet ignore the short step from corbelled to true arch; to count in millions, yet never learn to weigh a sack of corn." (Thompson:1954: p.l3)

The focus of this Harvard seminar has been on the cosmology of the Maya, past and present. This paper deals with cosmology as reflected in the ceremonial centers of the Classic Maya in the Peten. To clarify the goals of this report mention must be made of the papers preceding and following it, and to the scope of this paper itself.

Cosmology is the theory or philosophy of the nature and principles of the universe. In simpler terms it is world view. This seminar had divided its study of this phenomenon into three main groupings: cosmology as determined from ethnohistoric sources on the 16th century Maya; as determined from ethnographic studies of the present day Maya; and as determined from archaeological evidence. These main points have been further divided into areas, i.e. Yucatec, Maya, Guatemalan Highland Maya, Chiapas Highland Maya, Classic Maya in the Peten, and the Maya of Prehistoric Yucatan. Emphasis was then put on particular cosmological concepts of each of these time and space divisions. This particular paper will deal with "Cosmology, especially concepts of space, as manifested in the Ceremonial Centers of the Classic Maya of the Peten." The Maya culture lends itself well to such a discussion. Their world view was expressed in their religion; their religion was manifested in their architecture.

The subject matter of this paper encompasses at some point or other, every topic of the seminar. Ethnohistoric and ethnographic sources must be brought in to shed some light on patterns that are observed in the Classic Maya. For instance, the numbers 7, 9, and 13 occur quite frequently. It is possible to see what Bishop Landa said about the significance of these numbers to 16th century Maya in Yucatan. Villa Rojas and La Farge can be turned to to find the significance of these numbers to contemporary Maya. If the practices of the historic Maya fit into the same context as that of the

prehistoric Maya, then a possible explanation for the ritual significance of these numbers to the Classic Maya can be postulated. However, evidence is primarily sought from the archaeological data. Burials, caches, and sculpture must also be included in this study as they were often inseparable from the architectural remains of the ceremonial centers.

Cosmology has been briefly defined but the topic of this paper must be further analyzed to determine its exact scope. Cosmological concepts of time and space were the two main divisions made in this seminar. Time was used to include origin myths, death and afterlife myths, and the calendric computation of time. Space concepts included direction, distance, sequence, and the relationship of the natural world to these conceptions. Gods and religious concepts were a third area for discussion.

Concepts of time are mainly manifested in the calendar and in calendrical inscriptions such as those on stelae, But, the calendar was dependent on observation of the heavenly bodies, especially the moon and the planet Venus. Entire building complexes such as Group E at Uaxactun and the Caracol at Chichen Itza were dedicated to these astronomic observations. It is hard to explain or even to visualize the Mayan devotion to and dependance on their calendar. Even the most homely daily activity was regulated by it. Architecture, as monuments to the passing of this conception of time, is inseparable from cosmology.

Concepts of space are more obviously connected with ceremonial centers and this paper will emphasize spatial relationships within them. Space also encompasses the idea of direction, especially the cardinal directions, North, South, East, and West. Every Mayan center in the Peten area made some effort to orientate itself towards these points.

Settlement patterns of pre-Columbian civilizations differed throughout time and space. Even within the Maya territory there are noticeable regional differences. In general the ceremonial centers of Yucatan are different from those of the Peten. When a site is found, what then are the criteria qualifying it as a Classic, Maya, Ceremonial Center, and of the Peten. This definition is vital to an understanding of this paper, as the Peten style sites are found throughout the entire Maya area, at times in close proximity to later Toltec

influenced sites, and must be recognized.

A ceremonial center is a specialized group of buildings, mounds, and plazas which is believed to have served a primarily religious function. As religion and power were synonymous, a governmental role is presupposed. These buildings and mounds are usually orientated to the cardinal directions and rigidly grouped around plazas. Acropolis and courtyard complexes are the rule rather than single isolated buildings. There are, of course, a myriad of specialized architectural features, such as roof-comb and molding styles, which are attributes of these centers. Space limitations disallow their inclusion here. Stelae, carved monoliths bearing astronomical and historical data inscribed in Maya glyphs, are found in 99% of Peten style sites, and are a final architectural qualifying characteristic.

There has been much discussion as to whether the Maya sites were cities, i.e., true urban centers, or just sacred precincts, or a mixture of the two. One of the considerations is the still unanswered question as to whether the palaces were permanent living quarters. This is probably the most important unsettled problem relative to architecture and cosmology. Were they not used for permanent residence it would reinforce the view that all Mayan architecture was essentially "monumental", and the ceremonial center will emerge as the sites themselves are analyzed. All evidence uncovered in the course of research for this paper points towards the purely religious and governmental use of most sites.

The Maya were a Central American people originating in the Guatemalan highlands between 2000 and 1500B.C. Their exact providence and the earliest existence of what may be called pure Mayan culture are still unknown. By at least 500 B. C. they had settled in the Peten heartland around Tikal and Uaxactun. By 100 B. C. they were advanced enough to erect great ceremonial structures. Their political and religious institutions had matured enough to muster the labor for such construction. At this date their experience and intelligence produced the first known corbelled vault in Mesoamerica. This was recently found within a tomb in the North Acropolis of Tikal. By 292 A.D. they had progressed sufficiently in pure science to erect their first

time marker. The glyphs and astronomic information recorded on this stela would have required centuries for development. By 500 A.D. ceremonial centers were spread throughout southern Mexico, including Yucatan, all of Guatemala and British Honduras, and parts of Honduras and El Salvador (front piece). Suddenly around 900 A.D. hundreds of these immense sites were abandoned. All over Classic Mayan Mesoamerica progress halted. The centers in Yucatan, however, were not as affected and continued the culture. By this time foreign influence from the North had entered and introduced many new cosmological concepts. This is the Post-Classic Maya. This paper concerns itself with the Classic Maya, who reached their zenith in the Peten from 292 to 900 A.D.

As this paper is concerned with the spatial relationship between buildings and groups of buildings; buildings and their relationship to the land; and on a larger scale with the location of sites within a large area, geography must be considered. To determine which of two factors, geographic or cultural, influenced the location of cities and the structures within them, the geography will be considered at three levels. There are (1) the Peten; (2) areas within the Peten; and (3) specific sites and their geographical peculiarities. In this introduction the Peten will be defined in geographic as opposed to political terms. Peculiarities of particular sites will be mentioned in introductory site descriptions.

Politically speaking the Peten is strictly a Departmento or state in Northern Guatemala. It is characterized by relatively flat areas giving way to hills and low mountains and finally an extensive river system to the west, all covered by a dense tropical rain forest. As far as the Maya were concerned, they settled throughout this area and adjacent territory on all sides. To the east British Honduras is in part a continuation of the Peten. Here the Maya Mountains present the same fauna and flora as did the Peten. To the southeast the tropical rain forests reached as far as Copan, Honduras. To the south the boundary is formed by the savannas. To the west the Peten geographical similarities extend well into Chiapas. To the north the thick growth gradually yields to the characteristic scruffy trees of the Yucatan

peninsula. Therefore, in this study, the Peten will loosely be interpreted to mean the entire area populated by the Classic Maya in the tropical environment. More specific information pertaining to regional topography will be imparted in the introduction to particular sites.

There are over three hundred ceremonial centers in the area under consideration. In a particular site there may be as many as two thousand individual structures. This imposes a primary limitation on this study. A comprehensive study of every site, and every structure within same would obviously be impossible. Early in the process of reviewing all published site plans available for Peten sites I noticed certain similarities within sites of a particular area. As the task of analyzing all sites became increasingly impossible, an arbitrary selection of sites was weighted in favor of places in which patterns were immediately observed. This does not mean that ceremonial centers not corresponding to pre-selected criteria were eliminated, but through a time process they were never even considered.

The second limitation, which also favored the selection of one site over the other, is availability of information, primarily a complete, reliable site map, and secondly, published results of excavations. For instance, Uaxactun produces more concrete information with regard to patterns through time, than does Nakum. Consequently, more supporting facts can be gathered for Uaxactun material. With the hundreds of available sites, it was logical to use as many as possible for the better excavated ones.

So far very little study has been done on the cosmological significance of ceremonial center layout. Ruppert’s short essay on the occurrence of Uaxactun Group E type complexes in over eleven sites is one. He establishes that they do occur and mentions their possible significance but does not fit them into their place in Maya everyday life. Willey's editorship of "Settlement Patterns in the New World" is a useful contribution but was not concerned with specific functions of individual buildings. With these valuable but limited contributions to the subject, there is a need of future work in two areas. First is the accurate surveying of small and seemingly insignificant sites. Even a complete sketch map showing general topography would be of

inestimable help. Secondly is the need for excavation. With the Maya practice of continual rebuilding, certain buildings may be a hundred or more years older than another, and will reflect changing world view. Unless there are stelae associated with them, dates are hard to ascertain. Even this is not a foolproof method as stelae, and even lintels (Yaxchilan) have been reset. Pottery sequences and correlation of pottery sites of different sites is the best control over dating problems. To be able to specify what a certain building in a certain location would have been used for; using an established site pattern to be able to visit an unmapped site and locate Gall-courts, temples, plazas, etc. immediately; these are the possible results of a detailed analysis of settlement patterns of ceremonial centers.

TIKAL

Tikal, both in expanse and number of structures, is the largest ceremonial center in the Peten. Tikal, inhabited since 1500 B.C. and erecting a stela at 292 A.D., was the earliest Maya center yet known, and the first to have erected a stela. Throughout its long history Tikal was first and foremost in almost every endeavor. For instance, the use of the corbelled arch appeared at Tikal by 100 B.C., centuries earlier than recorded elsewhere. According to ail present evidence Tikal was the thriving hub of the Maya civilization until 900 A.D., far outstripping its nearest rival. As extensive trading and travel is known to have occurred throughout all of Meso-America it is reasonable to presume that Tikal had a considerable sphere of influence --both receiving and disseminating new ideas. For these reasons Tikal has been chosen as the first site to investigate for cosmological significance as expressed in its settlement pattern and in the architecture of individual buildings.

Tikal is in the central Peten, about 40 kilometers north of Lake Peten, Itza, Guatemala. In this immediate vicinity there are a large number of sites, including Uaxactun, whose temple tops were once visible from Temple IV at Tikal. The area is densely forested today and must have been exactly the same one thousand years ago. In fact the jaguars, parrots, monkeys and other jungle wildlife depicted on the ancient stelae, pottery etc., could only have lived in a tropical environment. Further proof is provided by the Mayans use of wooden lintels made from the Zapote tree. This is a giant among trees and grows only in virgin tropical forests. It is the hardest and most durable of tropical woods.

A noticeable feature of the Tikal-Uaxactun area is the number of bajos, hills, and the general rise and fall of the Peten. These bajos are at the present time seasonal swamps supporting scrubby growth. In the dry season they will often completely evaporate. During the rainy season they will support several feet of stagnant water. These bajos are the subject of much conflicting opinion. The question is whether these were once open lakes during the time of the Maya. In favor of the lake theory is that no building remains are ever

found on the bottoms; they always stop at a definite line that could have once been a shore. But, recent excavation in the Sante Fe Bajo, east of Tikal, by Cowgill disproves the lake theory. On the basis of this work Cowgill concludes that the bajo deposit during the last 11, 560 years was laid down in a seasonal swamp and not in an open water lake (Cowgill: 1963).

The hills and ridges were always utilized by the ancient Maya as building sites. The use of these natural heights was such an obsession that the axis of the hill often determined the axis of the building group. There-fore the additional effort expended to align a structure to the cardinal points is an indication of the special importance attached to these buildings. On the large site map, recently surveyed by the University of Pennsylvania, the relation between hill groupings and bajos can be visualized. This is the map utilized for this paper.

I have chosen to analyze the data on Tikal utilizing two main sources. The first of these is the information gathered by the University of Pennsylvania during the first years of a ten-year Tikal Project. This is available in the university's Tikal Reports and in their semi-popular magazine Expedition. These sources were augmented by personal communication with members of the Tikal Project staff. The second source is the information gathered during the two weeks I spent at Tikal, one week in June, 1963, the second week during August, 1964. Many other works have been written on this site, such as Tozzer's and Maler's. Lacking time and facilities and without excavation these writers were only able to contribute what is now useful as background material.

Various groups of buildings at Tikal stand out on the site map either because of their repetition or their extreme regularity. Rather than to try to fit these into preconceived notions as to what cosmological concepts should be found, these building groups will merely be described. When their position within the city and their architectural features give no clue as to their possible use then ethnohistoric and ethnological data will be introduced. An attempt will be made to clarify the significance of the particular pattern.

On the University of Pennsylvania site map a repetition of certain distinct groupings of buildings is immediately noticeable (fig. 1, 2). There are six of these groups: Complexes R, Q, and O to the North of the Great Plaza; Complex N near Temple IV; and Complex P and a yet unlettered complex adjacent to P, consisting of structures 98, 99 and 100. These have been designated "twin-pyramid complexes". As the six groups vary very little from one another, only one need be discussed in detail. Complex Q will be the one described as it is the largest, most complete, and its buildings have been consolidated.

Basically, Complex Q consists of four buildings, one at each of the cardinal points, orientated fairly accurately. On the east and west side are two identical pyramids, hence the name twin pyramid complexes. Each of these structures has stairways on all four sides. There is no evidence of there ever having been a structure on the top. The summit was a large square, flat, platform. In front of the eastern pyramid there is a row of uncarved stelae and altars. There is a single row of eight with one stela in the center forming a second row and completing the sacred number 9. This single stela is directly in line with the stairway. The east and west pyramids each have five terraces and 39 steps to a stairway.

On the North there is an arrangement which is unique in the Maya area. The main elements are a stela-altar combination surrounded on four sides by a low wall. Entrance is gained through an arched gateway. This enclosure is too large to have been roofed by a corbelled arch, and no vault stones, except for the doorway, were ever found. The stela and altar are carved in all cases except that of Complex O. On the south is another unusual building. It is a long narrow structure with nine doorways. True pillars, a late architectural development are used.

This is an ideal grouping and there are only minor differences among the other five. The unlettered complex might be the oldest one, as during later construction the south component was removed. This occurred during the building of the Maudslay Causeway which cuts off this complex in favor

of Complex P, erected in 9. 16. 0. 0. 0. The other differences lie in the number of stelae, always uncarved, in front of the east structure. The number varies from 3 in the unlettered group, to five in Complex P, to six in Complex N, and four for Complex N and O. This is not significant. Stelae were constantly being moved around. Nine was a full quota and the desired number.

The dating of these complexes is interesting and the space sequence in which they were built:

COMPLEX	ENCLOSURE	MONUMENTS	DEDICATORY DATE
--	Structure 99	Stela 30/ Altar 14	?
N	Structure 72	Stela 16/ Altar 5	9.14. 0. 0. 0
O	Structure 86	Stela El/ Altar El	uncarved
P	Structure 95	Stela 20/ Altar 8	9.16.0.0.0
Q		Stela 22/ Altar 10	9.17.0.0. 0
R	Structure 81	Stela 19/ Altar 6	9.18.0.0.0

As stated previously, I believe the Stela 30/ Altar 14 complex is the earliest, but as yet I have no information on a date for the stela. The next complex was constructed a good distance away, near the opposite end of the causeway. Then construction shifted to another sector when Complex O was erected. By this time the Temple IV causeway (Maudslay's Causeway) had been built over part of the Stela 30 Complex, and then Complex P was built. Later in 9. 17. 0. 0. 0 Complex Q was erected, again in a different location. This and Complex R are somewhat larger and more carefully orientated. Complex R was then placed alongside Q. Then, just as suddenly, as this building type arose, no others were ever built. Their occurrence only at Tikal; their utilization of several quite unusual architectural features; and their struct orientation to the cardinal points makes them worthy of further discussion.

Before cosmological implications are discussed there is another unprecedented development connected with these complexes. On the Temple IV sector map, near the bottom there is a row of 3 plain stelae and two plain altars in exactly the correct position for a new twin pyramid complex. Also,

in the place where a stelae enclosure should occur there is a single uncarved stelae and altar. There are no mounds in the vicinity indicated on the map. Was this to have been the 9. 19. 0. 0. 0 complex? This is another of the mysteries prevailing over the ruins.

From a study of these twin-pyramid complexes several motivating factors are evinced in their construction. First is the orientation toward the cardinal points and the relative importance attached to each of these. The largest platforms are those on the east and west. They are identical except that the eastern one has the stelae. The equality would indicate a devotion to the rising and setting sun. The exact significance of the stelae enclosure and the nine door structure is not clear. The enclosure is on the north and is the more important of the two. A detailed analysis of the subject matter and glyphs of the enclosed stelae could possible elucidate this problem.

Secondly, the dedicatory dates on the stelae indicate that these complexes were erected every katun, or twenty-year period. Were they dedicated to time as an abstract idea? This is rather doubtful when the ritual significance of the katun is analyzed. This will be dealt with later when all visible and tangible explanations have been mentioned.

Several of these complexes are located along causeways. Perhaps an analysis of their position relative to other centers of activity would shed some light on their use. Complex P seems to have some connection with the Temple IV causeway. Likewise Complex R lies alongside Maler's Causeway. Several factors need investigating before this idea may be accepted or rejected. First, there is a difference in elevation between Complex R and the causeway. On the map there is provision for a grand stairway running from the causeway to the complexes. If the modern jeep road has not destroyed this too much perhaps evidence of steps may be found. If so, this would indicate that these groups were visited by ritual processions from the main centers. However, Complex O remains separated from any causeway and indeed from any other group. Unless some small causeway can be found to connect it with the major ceremonial roadways, some further

explanation must be sought for.

Some light could be shed on the function of these groups if a parallel were to be found at other sites. Except for a completely dissimilar type of stelae enclosure at Coba in Yucatan, there are no reported occurrences of this type. The small southern temple with its nine doorways is unusual in its size and shape and the fact that it is not raised very far off the ground on any kind of platform. The only element traceable to other sites is the platform with four stairways. There is quite often one such pyramid type at every ruin. A study of this architectural type to see, for example, if temples normally are absent from four stairwayed pyramids, would be helpful.

But, as the single sculptured stela in each complex warranted a special enclosure, the secret lies in them. Perhaps either the iconography or the glyphic material may throw some light on this problem. A comprehensive study of twin pyramid complexes has been undertaken by Clins Jones of the Tikal Project Staff, although nothing has yet been published.

References to ritual observance of the katun are found in the Chilam Balam of Tizimin. All quotations are taken from Makemson's translation (1951) and are found in her Chapter four.

"Good and virtuous shall be 7 kan and a day of great rejoicing. The people assemble to hear Ah Pop and Ah Zam interpret the path of the katun**...** then the aspect of the sustaining heavens changes, with the apparition of the Sun in the eastern sky, the ruler of the kingdom." Ah Pop and Ah Zam are priests representing the calendrical deities. The celestial heavens are the underlying force behind the katuns. The passage of the years could only be calculated through observations of the evening and night sky. The Mayans visualized time as a path through the heavens. Therefore, a building complex with structures at the cardinal points is appropriate for the observation of the katun.

From this and other sources it is told of the prophesies connected with the passing katons. Great ceremonies would be held to assure the good fortune of the next katun. From the murals at Bonampak and references from

Landa it is known that dancing was a prominent feature of the festivals. This is one possibility, as the flat tops of the twin-pyramids would make small but useable dance space.

To construct a complex as large, and as precise, as they are, would probably have taken years. Merely leveling off an area for them would require a great expenditure of labor. Even if it was not known from other sources that the calendar was important, this would be a good indication. La Farge's observation of the present day Maya demonstrates how deeply rooted in the Maya culture is this devotion to and dependence on the calendar.

> "We have here the calendar controlling the whole life of the people in two ways. First indirectly, through the religious organization, as only the 'ahbe' can name the time for a ceremony… secondly, directly, by the same divination he controls almost every action of the common people, advising them whether they should marry, if the site for a new house is well chosen, etc." (La Farge: 1931: p 166)

Several other buildings or building groups stand out either because of their repetition throughout the site or because of their obvious coherence as a unit. One such cluster is the so called "Seven Temples" group, to the west of the Southern Acropolis (fig. 3). The significant aspects of this row are: (1) the seven temples are a distinct architectural element obviously planned and built as a unit; (2) the center structure is larger than the others; (3) the temples on either side of the central one are practically identical; (4) there is a single uncarved stela in front of the central building; (5) this group is an integral part of a larger complex which contains other unusual assemblages, i. e.: the only triple alley ball court yet known, and the more common single mound triple temple arrangement; and (6) there is an elaborate frieze on each of the buildings.

As usual, the one element which could help decipher the riddle of this group has been investigated but not yet published. These are the friezes which encircle the buildings. Certain of these are clear enough to be recorded and this had been done by the University of Pennsylvania. Elaborate friezes occur frequently throughout Tikal. A similar one is on Maler's

Palace on the Central Acropolis. This is the only way to date this group, i.e. through stylistic data. Peter Harrison, who has been investigating the Central Acropolis believes that certain elements within the frieze may refer to the lineage and/ or patron deity who would have been connected with the particular structure. As soon as the frieze designs are made available they could be analyzed in light of this.

The presence of a stela is indicative of several things. First, the majority of plain stelae are Late Classic. This was established because a large number of the plain stelae at Tikal are associated with twin-pyramid complexes which are all Late Classic. Secondly, any stela is indicative of ritual activity. Stelae are usually found in front of only the most important structures.

The number seven is a number of possible religious significance. Thompson equates the jaguar deity and consequently the god of the underworld with the number. (1960:134). However, the significance of this number should not be relied on too heavily to explain the Seven Temples group. Unless this number of temples occurs elsewhere, the number 7 might merely be coincidental.

The only other complex which might possibly support a similar arrangement is found in the North Zone. The general plan is a courtyard surrounded on all sides by various structures. On the east side there is a long platform which might have supported seven different structures. There is evidently not enough standing architecture remaining to indicate what type of construction was there. Palaces are the general type associated with the courtyard arrangement. From this lack of information few conclusions may be drawn. The Seven Temples group is probably late Classic and undoubtedly served some special ritualistic purpose, as yet unspecified.

Several other points about the buildings in the vicinity of the Seven Temples are worth mentioning. The entire southern group including the Southern Acropolis is the second largest concentration of structures at Tikal, ranking after the Great Plaza complexes. The triple alley ballcourt has not

yet been thoroughly investigated. Ball courts are almost a universal occurrence throughout the Maya area. There must have been a direct correlation between the ball-court and the cosmological concepts of the Maya. Blom has hinted at this with his connection between the ball game and astronomical concepts. This will be dealt with in connection with the Yaxchilan ball court. The other ball court at Tikal is next to Temple I, the heart of ceremonial activity.

The next occurrence of possible cosmological significance is the Southern Acropolis itself. This consists of a courtyard surrounded on all four sides by palace structures. The palaces are on a large square acropolis platform. This would be a commonplace arrangement were it not for a large temple-pyramid which fills up nearly all the courtyard and faces North, overlooking the acropolis' main stairway and looking towards the Great Plaza. If ever the temple-palace relationship could be sorted out, this group offers the greatest possibilities. Many ideas for the possible uses of palaces have been advanced. It is still too early to definitively state their use, but hypotheses may always be offered.

Tozzer states that amongst the Lacandon Maya each settlement consists of a sacred hut where all religious observances are carried out, and where the gods of the families are kept, a smaller hut or shelter where the food is prepared for offerings made to the idols, and one or more domestic huts (Tozzer: 1907: p. 39). The absence of fire places has often been used to discredit the idea of palaces as living quarters. Still, it is quite possible that priests would have stayed in these structures during religious festivals, to fast and prepare for future ceremonies. Also the idea of a school has been put forward. With the incredible number of religious structures, and the known emphasis of the Maya on religion it is not unreasonable to expect a large priest population. Because of the intricacies of glyph reading, and astronomic calculation some sort of training period would be logical. The Southern Acropolis would be an excellent location. These ideas are introduced to emphasize that an open mind on these questions is needed. Until further excavation is undertaken it is premature to accept or reject any

particular theory.

That this entire area is a late Classic stronghold is amplified by the presence of a large four stairwayed pyramid, possibly without a temple structure. In front of this is a relatively large low flat platform. This is a late Classic feature and of foreign origin. It is surprising that no stelae have yet been found associated with this, or the adjacent temple.

Another conspicuous and inexplicable group is found in the East Plaza. It consists of a large rectangular mound completely enclosing a rectangular courtyard (fig. 4). Within this courtyard are four more mounds arranged in a rectangular pattern. Of significance are the pronounced pyramids on the intercardinal points of the exterior rectangle. The ordering of the courtyard mounds might have some special meaning, but without any more information available than the ground plan, it is difficult to come to any specific conclusions.

Other than the buildings, the most striking feature on the site map is the causeway system (fig. 1). So far five major and one smaller causeway have been found. Except for detached group of Morley's causeway, every major ceremonial area is linked to every other one by one of these grand avenues. In general, these causeways are from 20 to 40 meters wide. There was a low wall running along both sides. These roadways are relatively straight and are connections between various ceremonial areas. They are not orientated to any cardinal points, but to the larger buildings they connect. So far no causeway has been found connecting Tikal with Uaxactun, 2' kilometers away. In view of the extensive causeway systems around Coba and Uxmal; and the thick jungle growth of the Peten area, some such road must exist but has not yet been found.

An understanding of the causeway system and how it fits into the ceremonial life of the city is not yet a reality. As with other occurrences, both more excavation and a study of all causeways within the Peten would help. For now, only the regularities at Tikal will be investigated, with a few examples from other sites. Being such a fragile construction, two parallel

low walls are ridiculously difficult to find on the jungle floor.

The so called "Morley Causeway" is the shortest of the five and the only one which does not connect any two particular groups (fig. 5). Whatever ceremonial use it might have had is intimately bound up with its own religious precinct. The causeway is about 120 meters long and 20 meters wide. It connects a large open plaza to a small shrine of some sort. Whether this small mound ever supported any masonry structure would be of interest to know. Its placement as the focal point is indicative of some special importance.

Although the other end seemingly goes merely from the plaza it is in fact intimately bound up with the interior courtyard. Whatever sacred processions solemnly marched along would have originated in the interior courtyard of the acropolis. This particular courtyard has both temples, a large palace, stelae, and a ceremonial platform mound. These are all indications of religious and ceremonial activity. Leading outwards from this courtyard the procession would pass between double temple pyramids on both sides; down a monumental stairway, into the plaza where the populace might be gathered; then down a second grand stairway and, flanked by the faithful, the priests and musicians would march towards the small platform to give public sacrifice to the patron deity. Many such processions are depicted on graffiti throughout the Peten; musicians, sacrificial animals, and priests borne on great litters.

One of the more typical causeways is that connecting Temple VI, the Temple of the Inscriptions, with the main concentration of the ceremonial center. This runs for about one kilometer and is 50 to 60 meters wide. As is usual, low mounds, the remains of low standing walls, flank it on both sides. Temple VI is the logical starting point, but for some reason the causeway actually starts some 50 meters to the north. There are several possible explanations for this. First, Temple VI is orientated east, not towards the Main Plaza, as are the other five major temples. Secondly, there seems to be some importance attached to a small platform at the end of a causeway. Because here, just as with the Morley Causeway, there is a low rectangular platform set carefully at the focal point of the causeway.

At the other end there is no particular building associated with the causeway. Therefore, any procession on this path would probably originate in the East Plaza and finish up at Temple VI. This structure must have been of some importance as its roof comb is covered with glyphs. As this building was only discovered recently there is a scarcity of published material on it.

Maler's causeway leads from the East Plaza to H Group. There is no platform mound at either end. At its Northern terminus a large temple of H Group is the obvious focal point. The Maudslay causeway goes from another building in H Group to Temple IV and connects up with the Tozzer causeway to run into the Great Plaza. There is a small unnamed causeway leading away from a group near the Southern Acropolis. It goes directly south through a distinctive narrow opening in the enclosing mounds of this group. There is a small mound at its end, similar to that found for other causeways.

Many other sites in the Peten have causeways, but the site maps are usually not complete enough to reach any conclusions. La Honradez has one running west from the Main Plaza to another plaza concentration. Nakum has a similar one running North to a small acropolis. Ixkun has a very pronounced north-south roadway. There are two small mounds at each end. Uaxactun has causeways connected all its major groups. In the majority of other ceremonial centers either plazas are interconnected, such as Piedras Negras, and there is no need for causeways; or else connecting links have not yet been discovered.

Monumental roadways are indicative of several cosmological concepts. First is the realization that a great site like Tikal was not a static entity. These causeways linked each diversified part into a pulsating whole. These were not roads or paths in our sense of the word. Maya cities are plaza orientated unlike our Western civilization which designs for the street. The size of Maya roadways would provide for a procession of considerable size. Graffiti throughout the Maya area depict elaborate processions (fig. 6). This is one of the few indications available demonstrating the relationship between the common man and religion. Temples and palaces are completely

sacred precincts and only servants, as often depicted on pottery, etc., would be admitted of the general populace. Here on the great causeways would be an opportunity for the peasant to watch or perhaps even join in the procession.

The Maya have left us a more intimate record of their world view in their stelae subject matter, carved wooden lintels, pottery decorations, and designs scratched into the walls of their buildings. These remains are not as susceptible to misinterpretation as the cold outlines of mounds on a site map.

Graffiti, or wall designs, have been found in a large number of Maya sites in the Peten. When seen for the first time the natural reaction is to attribute them to clever tourists. There are, however, four ways to prove their authenticity. First, graffiti have been discovered in Early Classic temples which were completely buried under later additions and discovered first by archaeology. Graffiti have been found on buildings dated back perhaps as early as 100 B.C. (Webster: 1963: p. 37). Secondly, where plaster has partially flaked off, it is possible to see impressions of graffiti on earlier layers. Third, only someone intimately connected with the iconography of the Classic Maya could have produced some of these beautiful drawings. Finally, graffiti are found at a large number of remote, untouristed sites.

The graffiti here at Tikal and elsewhere are of extreme value in the study of world view because they give an insight into representations of daily life that are not clouded by the rigidity of stelae art. It is not known who among the Maya drew these graffiti. Probably the people who used the particular building would have made the drawings. The common people probably did not have access to such places as Temple II, and as mentioned before, only someone well versed in Maya ritual and art could have produced some of these. The religious and general symbolic subject matter of palace graffiti hints at a religious as opposed to a domestic occupation. The first type of graffiti I will illustrate are those related to buildings and architectural design. Secondly graffiti depicting ceremonial processions; then the "looming jaguar" motif; and finally the astronomical game board design will be mentioned buildings, whether temples or houses, seem to be the largest single type of motif and predominate the wall surfaces in Temple II and Maler’s Palace.

Nowhere are palace type structures illustrated, and most of the temples or houses have thatch roofs. Two of the pyramids illustrated on the walls of Maler's Palace have nine terraces. Three terraces for a pyramid is also common. As Temple I, IV, V, and III all have nine terraces and Temple II has three terraces these representations could either be copies or rough sketches for such buildings. Since a definite architectural sketch was found on the walls of Temple VI perhaps this is the answer. A second possibility is that "nine terraces" had a ritual significance. As almost all the motifs drawn have close parallels in stelae art, pottery decoration, or in lintel art the walls of these buildings could represent plans for various activities.

Maler (I901: p. 205) illustrates a large number of graffiti carved onto a large rock shelf. This occurs near the conjunction of the Lacantun and Usumacinta rivers. Of interest are the detailed architectural sketches showing a courtyard or plaza design plan. This is a large design almost five meters long. This suggests that in fact plazas or building groups may have been planned as a unit. The St. Andrews Cross is a common design at the Usumacinta River Sites. Other designs seem to represent stelae. This rock is the closest thing to an ancient Mayan drafting table in existence.

Many graffiti show processions, dancers, and even an execution. All these scenes indicate that much of the ritual activity took place outside the temple (fig. 6). It would be impossible to get such groups to fit inside a temple such as Temple I. These activities took place on the causeways, in the plazas, or on the low mounds.

A third motif which occurs several times at Tikal is the "looming jaguar", (fig. 9). This is identical to the theme of the wooden lintel carving in Temple 1. The ruler is shown as being on the top of a low platform. The jaguar deity looms ominously over the priestly figure. Surely such a figure in real life must have been held in awe by the Mayan peasantry. The relationship between priest-ruler and patron deity is vividly expressed. Another common design on walls and floors is what might be a form of

game board. Similar designs are found throughout the Maya area, and also in non-Maya parts of Mexico. Basically it consists in one large square divided into quadrants (figs. 10, 11). Each of the divisions itself is formed from squares. Various authors have commented on the possible significance of this game but none have equated it to an astronomic diagram. As of yet I do not have enough examples to conjecture whether the number of squares had any significance. Nine and thirteen are the only numbers which fit the two designs shown. This is the number of squares forming a cross-piece. It may be purely coincidental. The true significance of this graffiti type is illustrated in an example from Room 49 of Structure A-V at Uaxactun. Amid the various other designs a clear example of this form appears. Except here, instead of squares THERE IS AN PLANETARY BAND. This is a familiar Mayan motif. A good example of it is found on two sides of the sarcophagus cover at Palenque. This design usually appears only in highly symbolic locations, such as the tomb of the priest-ruler of Palenque. This might pass unnoticed were it not for another possible example from Tikal (Maler: 1911: fig. 10). Here is the top part of this game, nine connected squares in a row. Sun and other astronomic signs fill some of these squares. Fitting in with the astronomical explanation of this game is its possible connection with the ball court. Tozzer mentions that an identical design, plain squares, appears on p. 19 of the "Tonalamatl Aubin" in connection with the god Xochiquetzal and a ball court. As will be seen in the section on Copan, the ball court was connected with the sky and the four cardinal directions.

On several other graffiti from various sites, a possible origin for the "spool" design may be found. This is an architectural motif which occurs in Puuc style architecture and on the wooden tie-beams in the Palace of the Five Stories at Tikal. In at least four instances an identical motif is represented as the thatched and/or corbelled roof of houses and temples. This I mention merely to illustrate what an insight graffiti can give into the thought process of the Maya.

A final cosmological manifestation which may be investigated at Tikal is the great temple type, i. e. Temple I through V (fig. 12). These are five

unusually tall structures ail Late Classic (9. 12. 0. 0. 0 to 9.1 8. 0. 0. 0) and all designed on a similar pattern. Four have nine terraces, not counting the temple platform. Temple II has three or possibly only two terraces. Temple I, the Temple of the Jaguar is typical of this giant temple category, and is the only one to be completely excavated. Carved lintels depicting the "looming jaguar" deity and his priestly protege give it its name. Temple IV has a similar motif expressed on its lintels. Within the mound of Temple I there was found another temple and an elaborate burial. Evidently the earlier temple was penetrated, a funeral chamber constructed, and then Temple I was constructed as a death monument. The tomb was on the axis of the earlier structure. This is immediately reminiscent of the Temple of the Inscriptions where a large nine terraced temple was constructed over the burial of a priest ruler.

Death and afterlife was one of the primary concerns of the Maya- one which is often overlooked. There is considerable amount of material in the ethnohistoric sources which can possibly explain such large funerary construction, and whether in fact these temples are monuments to the dead. The following is a quote from Bishop Landa's observation of 16th century Yucatec Maya.

> "The people had a great and excessive fear of death, and they showed this by the fact that all services, which they performed for their gods, were for no other end nor for any other purpose than that they should give them health and life and sustenance...They buried them inside or in the rear of their houses casting into the grave with them their idols, and if he was a priest, some of his books...As for nobles and persons of high esteem, they burned their bodies and placed their ashes in great urns, and they built temples above them." (Tozzer: 1941: p. 129)

> "They dress him afterwards in rich and figured clothes, in the style that he wore in life, with the same insignia which he wore reigning...After ceremonies and words of farewell by the priests, they place him in the tomb...they placed within it the corpse and the jewels and the plumes...and they covered it with a flagstone...Above it they raised a little mound, more or less high according

> to the status of the dead man and this is made of stone and mud...When this was finished with great ceremony of mournful songs, they made a small statue or a large one of the buried lord; with another group of ceremonies...they placed it with great veneration on the top of the mound and there offered it flowers, incense, sacrificing to it birds, rabbits and small animals;...it remained a sacred site from that day. In this way, if it were a king or a lord, the burial site was an adoratory; because they attributed deity to the statue, thinking that as he had governed in life, he cared in death for their property and temperal goods." (Miles: : p.749)

Embodied in the five great Tikal temples are exactly the same beliefs in the afterlife as expressed by 15th and 16th century Maya. No matter what secondary reasons there may have been, these temples were constructed over the tombs of rulers, out of respect and possibly out of fear of the now deified ruler. These structures did not then become idle monuments as did the pyramids of Egypt. As the resting place of a great priest, and spokesman for the gods, great religious significance was attached to the building. The remaining priests and rulers in his lineage would certainly wish to maintain this as a temple. It would greatly enhance their own image and power. Great symbolism was attached to these shrines. Surely the lowest peasant could never comprehend all the intricacies of this now venerable structure. To him the mere height and magnificence of this monument would hold him in awe.

It is well documented that mountains were considered as deities.

> "Of equal importance as deities with the saints are the 'Guardias de los Cerro.' Wherever natural formation, or even cultivation, has emphasized a geographical spot – a peak of a mountain, a cluster of trees, a spring, or a promontory overlooking a valley – there is likely to be a shrine. (Wagley: 1949: p. 55)

> "Did you pass, perchance, to the rocky knoll which slopes to the door of heaven" (Roys: 1933: p. 129)

> "The Mayan peoples seem always to have ascribed power
> and influence of one kind or another to the hills." (La Farge: 1931: p. 131)

That the ancient Maya ascribed religious significance to this class of natural phenomena, is indicated by Dr. Bullard's recent discovery in British Honduras. On a mountain ridge he found (1) a large granite outcrop of monumental appearance with a low bench built in front; (2) a platform structure with a stairway on its north side facing the outcrop, and (3) a naturally rounded boulder placed in front of the platform stairway (Bullard: 1963: p. 98). The axis of this small group was north-south.

From all the sources available it is evident that the Maya could have equated large temple pyramid with mountain. This is especially so since most pyramids are built on the tops of hill or mountain peaks and ridges.

Tikal is such an extensive site that much more could be written about cosmological manifestations within it. And the ones I have chosen to mention could be explored in much greater detail. Some of this future exploration I have tried to indicate in this paper. Much of what is said here may be disproved through future excavation. The intention has been to demonstrate the wealth of knowledge that can be extrapolated from a well surveyed site map, Many of the architectural examples used have parallels at other sites. Such a study of one thing, i. e. causeways, as manifested throughout the Peten is not possible at the present time. Too little is known about the majority of sites. What I have tried to do is magnify one site so that this information may be of some help for future workers. For instance, if two large plaza complexes are discovered buried in the jungle it would be helpful to know the general causeway pattern. Once known it will be easier to find new ones.

Rather than go further into the mysteries of Tikal, the neighboring site of Uaxactun will be discussed. Most of what was mentioned about Tikal was concerned with the Late Classic. Uaxactun allows a look at the somewhat earlier settlement patterns of the Classic Maya.

UAXACTUN

Uaxactun is 21 kilometers north-east of Tikal and 43 kilometers west of the Guatemala-British Honduras border. The terrain is similar to that of Tikal as is the tropical environment. The site lies on a rise of land bordering the western margin of a very extensive logwood swamp. These high points rising above the bajos were utilized for the six building complexes, Groups A through F. Between 1926 and 1931 Groups A and E were excavated by the Carnegie Institution of Washington. The summary of this work is contained in two volumes (Ricketson: 1937 and Smith: 1950). I visited the site for one day but the vegetation is so thick that little could be seen.

Uaxactun has several cycle 8 stela. The two excavated groups yielded early-Classic architectural remains. From this, it is possible to trace the evolution of ceremonialism during the first centuries of the Classic Maya civilization. The majority of structures discussed at Tikal were late-Classic. The entire Classical cultural span may be encompassed by these two sites. Group A was so thoroughly excavated and reported that the entire architectural sequence from early to late is graphically portrayed in the Carnegie monograph. As soon as more published material is available on the North Acropolis work at Tikal, vital comparisons may be made. This was a center of early-Classic activity at Tikal. Group E was similarly worked on, and as it presents parallels found at other sites, will be mentioned last.

Group A is the largest complex at Uaxactun. It is perched on a flattened hilltop, connected to the other groups by causeways. During the early history of Uaxactun, Group E was the area of prime ceremonial importance. It is during the Late Developmental Period that construction on a large scale was initiated in Group A. The sequence of buildings is best illustrated by the reconstruction drawings of Tatiana Proskouriakoff. They are fairly self explanatory and no lengthy discussion will be entered into. Further details are available in Smith:1950: p. 13-26.

The first stone structures are shown in the upper left-hand corner. The temple type is well known and it is their position which is of significance. Temples E-V, VI and IV present an identical arrangement (fig. 18).

In the North Acropolis at Tikal, structures number 23, 22 and 24 follow this pattern. I am not sure of the exact dates for the Tikal example, but the majority of early activity seems to have been at this spot.

A cosmological interpretation of this cluster is aided by certain secondary construction. Three examples of a unique design were found scratched into the courtyard floor (Smith; 1950: p. 21). Two concentric circles and two intersecting lines are formed by small holes or dots. The lines divide each of the two circles into quadrants. The design is orientated to the cardinal directions and has been called a "calendar circle". Only the number of dots forming the lines seems to have been of importance. From the center there were ten dots then the arc, four dots, the second arc, and then four more dots. The number of dots in a circle seems to have been an arbitrary number. Smith mentions that it is similar in outline to the wheel in the Book of Chilam Balam of Kaua (Smith: 1950: p. 22).

By the fifth stage of construction the palace type has begun to assert itself and by the final stage it is dominant. Much has been written concerning palace use but usually the evidence cited is incomplete or fanciful. Kubler makes a wonderful statement about the Palenque palace romanticizing as far as the palace guard idea (Kubler:1962: p. 133). Many Mayanists have claimed that the Palaces are too damp and uncomfortable. This may be true, but after all, any 1200 year old building covered by creeping jungle life would tend to be so. Also, what they are expressing is a matter of personal opinion. The Maya would probably consider our dwellings ghastly. The nights I have spent in palaces have been quite pleasant. But something as serious as projected palace use should not be subjected to such unscientific criteria. As is pointed out whenever palaces are mentioned in this paper, there are more objects of ceremonial use found in palaces than of domestic use. For instance, caches, which had a deep religious significance. Caches are found in temples, palaces, platforms, and under stelae, but never in house mounds. The great majority were in temples (Smith: 1950: p. 91). Connected with the ceremonial use of palaces were their utilization as retreats during certain religious festivals. From Miles' observations on ethnohistoric data it is

known that amongst the 16th century Maya this was so. "Also near the temple were the dormitories or retreats for continent men participating in religious activities, for novice priests and boys sent to school." (Miles: 1957: p. 769). This development from early-Classic temples to Classic palaces is paralleled at Tikal. The earliest temple construction at that site dates from before Christ in the North Acropolis. Specific dates and correlated buildings have yet to be published, but in a recent New York Times article corbelled tombs were dated at 100 B. C. Directly across the Great Plaza is a large temple-palace acropolis currently under excavation. Hopefully this will yield a sequence similar to that for A-V at Uaxactun. Whatever their use, palaces and their related religious significance did not appear for several centuries after temples.

Just as Tikal has its Twin Pyramid Complexes, Uaxactun has Group E. This group is perhaps the most famous in all the Classic Maya area due to the early E-VII-sub pyramid and the entire grouping's astronomical, significance. Ricketson has identified similar groups at eleven other Maya sites and has written an original, although not exhaustive, report on them. At several sites discovered since his time I have identified this complex. In order to better judge the supposed astronomical significance of each case, it will be necessary to go into some detail with this, the type site, at Uaxactun.

From the complex plan (fig. 17) and the somewhat simplified reconstruction (fig.16) the arrangement should be fairly clear. The components are: on the east side, one main mound supporting three separate temples; on the west side an observation mound and observation stela; there are usually stelae, in front of the east mound as well. Blom was the first to suspect possible astronomical significance here. On his recommendation Ricketson excavated throughly the entire complex. The results established the ground plans and exact orientation of the temples oncerned. It also reaffirmed the early-Classic date. Stela 18 has a date of 8.19.0.0.0 as does Stela 19. Stela 20 is dated at 9. 3. 0. 0. 0. Here is the earliest known building group that demonstrates cosmological views. Only the North Acropolis at Tikal

promises to yield still earlier material.

Two hypotheses have been offered by Ricketson. First is that this was a true observatory; second is that this marks the already known directions of the significant annual positions of the sun. As two crossed sticks and an accurate system of counting and keeping time are all that is needed to make observations, the first theory is ruled out. Although the three known Maya codices have no representations of observatories, pictures of them are found in the Mexican codices. These consist merely of crossed sticks (Brainard 1956: p. 281). Ricketson then concludes that these buildings were placed in their respective positions as temples dedicated to the four most significant positions of the sun in the course of the solar year (Ricketson: 1937: p. 108). The occurrences of this complex at more than eleven other sites reinforces the above interpretation. At the majority of sites the regularity of Uaxactun is not strictly adhered to. At several the three eastern temples are not in a straight line. Seemingly such groups could not have been used as observatories, even in the way of Uaxactun Group E. Rather the group seems to have been the stage for some religious ceremony related to the sun.

One type structure intimately connected with religious observance is the low platform mound. Because of their seeming insignificance little has been written concerning them. All the ceremonies depicted in the Bonampak take place on terraced mounds. A wall painting in room 49 of Complex A-V shows fancily dressed celebrants walking down from a low stepped mound (Smith: 1950: fig. 109). Almost every procession whether on graffiti, pottery decoration, or murals takes place outside, often in conjunction with platform mounds. The wall panels at Piedras Negras and ‘elsewhere show groups around thrones, which are found in Palace structures. There is little information on temple activity. On the south side of E-VII is a large platform, three meters high. No post holes or other indications of a superstructure was found. Mound E-VIII, a nine terraced pyramid, likewise never served as a substructure for any stone construction. These areas would be excellent locations for whatever ritual dances were held in conjunction with Group E. Uaxactun, as Tikal, has many other manifestations of cosmological

significance. However, in the interest of covering as much of Peten as possible, emphasis will now shift to a new site and a new problem. At both Tikal and Uaxactun individual complexes were studies. It is my belief that the site as a whole and the main plaza in particular may have had cosmological connotations. Copan is a site exemplifying this belief and will be discussed next.

Ruppert's discovery that one type of building assemblage occurred in numerous sites within a certain area, coupled with Dr. Bullard's suggestion that similar patterns might exist elsewhere, triggered the following investigation of Maya settlement patterns. Surely any such widespread pattern must have great cosmological significance. Traits, like the occurrence of E-Group Type, which persisted so long in both time and space, must be related to the fundamental beliefs of the Maya.

After visiting Copan and Quiriqua during the summer of 1963, I was puzzled by the similarity of two stelae, one at each site, which were different from any I had ever seen before. Stela H at Quiriqua, with a date of 9. 16. 0. 0. 0, has a unique criss-cross pattern of the glyphs. Its counterpart at Copan is Stela J, dated 9. 13. 10. 0. 0. This, and the general similarities of the two plaza layouts, hinted at a connection between the two sites. The results of research on the parallelism between these two sites led me to the idea of dominance areas and the cosmological significance which may be attached to them.

Copan is not in the Peten and is the furthest south eastern major Maya site. Yet its abundance of dated stelae; its large sphere of influence; its early date; its acropolis style architecture; the tropical environment; and orientated structures places Copan in the Classic Peten class of site.

The ruins are located in the fertile valley of the Copan River in western Honduras, close to the Guatemalan border. The region was originally buried in a dense tropical forest. This is how Stephens and Catherwood found it in 1839. The sacred jaguar, the monkey, and the brilliant hued jungle birds, such an integral part of Maya art and religion, once lived in this region. Today, however, there is very little to remind one of this. Lately the valley has been subjected to intensive agriculture. Locking from the plaza farmers may be seen tilling maize on the tops of crumbled pyramids.

The entire valley seems to have been sprinkled with buildings. Even the hillsides and mountain tops were terraced, and not only the main valley,

but also the adjoining ones, were intensively occupied (Morley: 1920: p. 6). When speaking of Copan two locations must be dealt with. First is the familiar Copan with its beautiful stelae, plazas, and hieroglyphic stairway. The second is the modern village of Copan which is built over the mounds of the earliest Maya habitation in the valley. The exact extent of ruins in this area has never been adequately surveyed. Much profitable work could be done in the valley and surrounding hills finding and mapping new groups.

Topography is an important factor in the consideration of the Copan settlement pattern. In the immediate area of the ceremonial center there were no hills or other natural obstructions. For once the entire site could be expanded according to an abstract plan. Thus Copan is probably one of the best sites in which to seek cosmological information. As will be emphasized later mountains and hill tops were sought after as building sites. The fact that Copan itself is on the valley floor does not mean that mountains were entirely neglected. The valley was ringed by hills and they were terraced. Also two hills with a commanding view of the valley were utilized as giant monuments. Stelae were placed, one on the top of each hill. The east-west line created by this arrangement had some significance as will be illustrated later. The river which flows by Copan does not seem to have had any influence on the pattern of the site. The river has changed its course slightly since 900 A.D., eating away part of the acropolis.

The Peabody Museum of American Archaeology and Ethnology and the Carnegie Institution of Washington have provided the necessary information on Copan in two monumental publications. Harvard's contribution was the result of four field seasons work inaugurated in 1891, and was presented in Gordon's monograph on that site (1896, 1898, 1902). The Carnegie information was the result of Sylvanus Griswold Morley’s study of that site and it stelae. His contribution is embodied in his "Inscriptions of Copan" which is the most comprehensive stud of one thing at one site ever published. Stephens, Catherwood, and Maudslay have also done research at Copan. Spinden's monograph on Mayan art was based primarily on Copan and was of use in this study. I visited the site for one day during the summer of 1962.

Copan is one of the few Mayan ceremonial centers that may be considered as a single architectural unit (fig. 15). This is a result of topography. Here at Copan the land was flat for several miles. All the structures and building groups could be physically as well as visually connected. This is in contrast to the Peten ceremonial centers. There depressions, hills, bajos, and rock outcroppings limited to some extent the unification of the site. To counteract this the Peten Maya architects connected the distant groups visually and through the use of causeways. At Copan everything is compacted into a relatively small area and each structure has a definite spatial relationship to its neighbor and to the site as a whole. The validity of this claim is further proved when viewing Quiriqua, which presents an identical overall unity.

SPECIFIC SITE FEATURES: AN INTRODUCTION

Copan is a Classic Maya site and as such possesses certain basic Maya traits, i. e. stelae, corbelled arches, ball courts, elevated temples and palaces; etc. There are, however, enough local peculiarities to say that Copan is not "the same" as other Classic centers. There should be reasons behind these variances, and by selecting various traits as particular to the Copan style is a first step to the ultimate explanation as to reason.

In dealing with individual sites, and with dominance areas, I have evolved a method of enumerating the criteria for a type site. Location, topography, general site plan, stelae placement, plaza and court arrangement, isolated pyramids, building groups, palaces grouping are a few of the many things to be looked for. A list is made of everything which occurs at the site which can be seen or inferred from the site plan. The site plan includes architectural drawings. From this general list groupings of occurrences are formulated to facilitate comparison with another site, i. e. the spatial relationship between temples and palaces will be included with palace thrones as in the class of Palace Characteristics. Then, dates and temporal relationships must be considered. Usually all the site visible today was not built at one time. This is often difficult to do as many sites have not been excavated. However, only through careful dating of the site components can any useful comparisons be made.

LOCATION:

1. On a river
2. In a flat valley
3. Surrounded by

TIME SPAN:

9. 2. 0. 0. 0 --9. 19. 0. 0. 0

PLAZA FEATURES:

1. Plaza runs north-south
2. Majority of stelae are in plaza as compared with being directly in front of buildings.
3. Plaza contains ball court, at south end
4. There is a "U" shaped architectural unit at both ends.
5. There is a string of low mounds on the east and west sides.
6. There is one isolated mound, without any building, in the middle.
7. Almost the entire edge of the plaza was stepped or terraced.
8. The plaza is the largest open space at the site.

ACROPOLIS FEATURES:

1. Acropolis is located at south end of the plaza.
2. The ball court is visually and physically connected with it.
3. North end is formed into a shallow "U" shape.
4. Stelae are associated with specific buildings.
5. Buildings are grouped around sunken courts.
6. Acropolis has small, independent, structures with no rambling palaces.

The location and topography of the valley have already been mentioned so time span of the site as a whole will be considered. Morley divides the history of the site into three periods: The Early, The Middle, and The Great. His Early runs from 9. 0. 0. 0. 0 (Altar J) to 9. 10. 0. 0. 0; Middle from 9. 11. 0. 0. 0 (stela 12) to 9. 14. 0. 0. 0 (stela 5); and the Great Period which runs from 9. 15. 0. 0. 0 to 9. 18. 10. 0. 0 (Altar G). For dating this site I relied primarily on Morley and on the assumption that a building was contemporaneous with an associated stelae. Stelae movement and resetting are a common occurrence as has been suspected for a long time and now proved at Tikal. EARLY PERIOD: All of the earliest stelae or fragments were found in or originally came from what Morley calls Old Copan, the site of the present village. Here there was a “group of mounds on an artificially leveled terrace

cut from the lower slopes of the foothills" (Morley: 19: p. 123.). All the stelae of this period record Initial Series dates. The Acropolis site also was the locus for building activity as can be seen where the river cut through. MIDDLE PERIOD: The crowning architectural achievement of this period seems to have been the building of the Great Plaza, the laying out of which took place sometime after 9. 12. 5. 0. 0 (Morley: 19 :p. 129). Also erected in the beginning of this period are the famous Piedras Pintadas of Copan. These are stelae, one on the summit of two hills. The line between them corresponds to N 86° 48'W magnetic and is possibly related to the equinoxes, as well as to the delineation of one side of the acropolis (Morley: 19: p. 133). More will be said of this arrangement later, as it has obvious cosmological significance. Based on stelae dates Morley theorizes the development of the acropolis and plaza as the dominating ceremonial center of the entire valley. By 9. 11. 0. 0. 0 no less than seven stelae were erected, at widely scattered points in the valley. This, and the large number of associated mounds, hints at an intense population. Shortly after the erection of the two Piedras Pintadas the main center of Copan began to grow and soon outstripped every other place in the vicinity (c. 9.13.0.0.0) (Morley: :p. 210-211). This sudden spurt of activity is contemporaneous with the flowering of stelae art at Quirigua. The Great Period saw the completion of the Hieroglyphic stairway and many of the elaborate temples of the Acropolis. Also many sites in this area, with an artistic affinity to Copan flourished.

The Great Plaza, Middle Court, and Court of the Hieroglyphic Stairway on Morley1s map (Morley: 19: Plate 6) are to be considered as an architectural unit of open space, what will be called the Main Plaza. The definition of a plaza, as differentiated from a courtyard, I will use is: a large, usually rectangular, flat open space which may or may not have buildings in it; and which usually has the ball court in it; a plaza need not be completely encircled by temple mounds. A courtyard is smaller, usually square, completely surrounded by buildings, is often associated with palace groups

and usually does not have any building in it.

The north-south axis of this plaza is of importance primarily because Quirigua and Los Higos, both have his same pronounced arrangement. Probably more striking are the U-shaped indentations corresponding to Morley's Great Plaza to the North and the Court of the Hieroglyphic Stairway to the South. This is very pronounced at both ends of the Plaza and is accentuated by monumental stairways. To further delineate the plaza area low mounds are arranged along the sides. The effect produced can only be appreciated by standing in the great plaza. Here the full emotional impact of the arrangement is apparent. If the common people were permitted to enter the sacred compounds the plaza would be the most likely spot. There-fore much work was spent on arranging the space to serve the needs of whatever ceremonies took place.

Connected with ceremonial uses of this area is the pyramid (No. 4) in the center and the ball-court. This construction never supported any stone temple but was probably just a platform. The absence of a building would open its activities to the public eye. Again, the occurance of a similar mound in a parallel situation at Quirigua hints at some special use.

The ball court is placed in the plaza in a strategic position, next to one of the principal buildings in Copan, the Hieroglyphic stairway. Here, however, appearances are extremely deceptive. The present ball-court is actually the third such construction on exactly the same spot. When the first ball court was built the hieroglyphic stairway was not even a dream. This persistence of location indicates that there was a reason for placing the ball-court where it was. The first ball court was laid out sometime around the beginning of Baktun 9, at the same time that the acropolis was started (Stromsvik:1952: 198). The next activity was in 9. 4. 0. 0. 0 when ball-court H with its three markers was constructed (Stromsvik: 1952:196). This date is on stylistic evidence, as is the date for the ball court in its final form, 9. 12. 0. 0. 0 (Stromsvik: 1952: 189). From this evidence, it is seen that the ball-court started and grew with the acropolis, intimately connected with it during all periods.

I have yet to see a ball court elevated on a platform of its own. Almost always they are found in the most important plaza (i.e. the ball-court of Tikal is in the Great Plaza next to Temple I). This proximity to large temples is indicative of the ritual importance of the game. The location of ball-courts in relation to the rest of the site can more clearly be seen by its placement in the large open spaces of the plaza. It was accessible, possibly to the common man, as opposed to the lofty temples which surely must have been reserved for the priest. Bed coloring was found in the South-west corner of the east bench. This Stromsvik equates to the possibility that each quarter was associated with a particular color (Stromsvik: 1952:197). Evidently this is how ball-courts are pictured in the Codex Tonalamatl. This could certainly be true and would relate the colors to the four world directions. However, red coloring was the favorite Maya color for architectural embellishment. Had the color found been black or green some importance could be accorded it, but so far evidence is not complete. The ballcourt is orientated North-south, as is more often than not the case.

One of the last notable features of the plaza is its possession of the majority of stelae. Some are connected with temples, as is the Peten practice, but the rest are arranged throughout the open space of the plaza. A.s stelae were an integral part of Maya ceremonial life, the position which they face might be important. The stelae were oriented as follows: A, B, E, 4 face east; F, H, I, J, M, P, 6 face west; C and S face east and west being double-faced; D faces South; N and 3 face north and south. East and west, where the sun rise and set, are certainly more important directions in light of this. Nothing conclusive can be drawn from this, but these facts are reinforced by similarities at Quirigua.

Some of the elements observable in the acropolis I cannot interpret as yet. I only mention them because parallels exist at Quirigua, and because traits are often different than other Peten sites. Qualities relating it to Quirigua include: its location at South end of plaza; and connection or proximity to the ball-court; is shape of a shallow U. Architecturally the sunken courtyards stand out. Somewhat as in the Plaza, all four sides of the court are

walled or covered by stairways: Relatively small buildings flank the Eastern Court as opposed to the rambling type palaces of the Peten.

What Morley labels the Western Court is actually more like a small plaza, as there are stelae and altars in it and mounds protruding into its area. Again, it is characterized by its sunken appearance, with monumental stairways on all sides. Special significance seems to have been attached to stairways at this site. The hieroglyphic stairway is probably the best example. This staircase of around 90 steps had glyph carved on every single step to form the longest Maya inscription found together. A landslide has obliterated it before the Peabody Museum Expedition found it, and much of the text was lost. Remnants of this can be seen in the Peabody Museum. Today, the second most magnificent stairway is that in the Eastern-Court, known as the Jaguar Stairway. This is so named because of the monumental figures of Jaguars depicted in almost free -standing sculpture, one on each side. A third stairway is that approaching Structure II from the south. This has a few hieroglyphic steps and more monumental sculpture flanking the staircase. One possible explanation for the proliferation of stairs as opposed to pure terraces, is the fine quality of the stone. It seems to have been easier to work or else occurs naturally in a form rendering it useful for stair building, which requires a rectangular stone.

It would be useful for a study of cosmology, to attempt to trace out the pattern and direction of movement within the site in general, and the acropolis in particular. It is known that the Maya loved processions (the Bonampak Murals). Presuming that processions were customary with burials, perhaps locating some of the larger burials and then seeing how a large number of people could get near there would be instructive. Something on this order could only be surveyed while actually at the site, where the setting is more realistic and immediate.

One last occurrence is possibly connected with the acropolis and probably connected with the sun. This is the location of the two Piedia Pintada, mentioned previously. Stela 10 and 12, dated 9. 10. 19. 13. 0 and 9. 10. 15. 0. 0

respectively, stand 7 kilometers apart, each on the top of a hill, overlooking the Main Group. A line drawn from Stela 12 to Stela 10 passes across the southern end of the Acropolis bearing N 86° 46'W (magnetic) (Morley: :133). Both these stelae antedate anything in the Main Plaza so conceivable the location of the. Main Plaza could have been dictated by their placement. It would be useful to look for similar stelae at Quirigua. Prof. R.W. Wilson of the Harvard Astronomical Department analyzed the relative bearing etc. of these stelae and discovered that the sun, as seen from Stela 12, would set behind Stela 10, 20.3 days after the vernal equinox and 20. 6 days before the autumnal equinox (Morley: :133).

In closing the discussion of the physical aspects of Copan I would like to introduce one plaguing question. From which site or area was Copan founded? Copan has very few archaic traits. What archaic pottery was found related to native non-Mayan inhabitants of the valley. It was quite suddenly that the fully developed Classic Maya culture took over as the dominant form. The stelae appear in a competent form around 9. 0. 0. 0. 0. The early architecture has been of almost no help in solving this problem. Most construction of this time period is now buried by either the modern village of Copan or the Acropolis. Even the glyphic evidence is fragmentary as old stelae were reused as fill, foundation stones, etc. Even a pottery analysis has not been as helpful as would be expected. At the time when the study was undertaken not enough comparative material was available. What was deduced was that early Mayan-Copan pottery influence came from Teotihuacan derived Kaminaljuyu (Longyear; 1962: p. 270) and the Peten-British Honduras area. No one particular site is singled out as possible ancestor.

A second question relates to the other half of Copan's existence, how big was its sphere of influence, i.e. when Copan was large and prosperous, what was the pattern of colonization. From a study of the surrounding area it is possible to postulate how the political situation might have been patterned. In Landa there are references to pilgrimages. The offerings in the sacred Cenote at Chichen-Itza are proof of this.

Methodology is a consideration here because I don't believe that two sites have ever been compared in all fields of endeavor: stelae for stelae and building by building. I am presuming that influence went from the larger and usually earlier site to the smaller and from the earlier to the later. Large sites usually contain more than one archaeological group, for instance groups A through H at Uaxactun. It is often difficult to sort them according to relative date and to the importance inherent at any one time. At the smaller sites, however, there is usually only one complex. It usually seems to be based on a sinple abstract plan. If an architect from a large, prosperous site were called upon to master mind a satellite's building plan, he would attempt to synthesize the most important elements of the parent city into the limited resources of the new one. Whatever element was transplanted might be dedicated to a "patron deity" of the region. For instance, if a large number of sites within a small area all had a specialized type of temple, I would surmise that these all served a common purpose.

It has long been thought that Quirigua was colonized from Copan on the basis of general similarities but as of yet, no detailed study has been made and no conclusions have been drawn. Usually the other sites of the area have been neglected. The map (fig.17) shows clearly the chain of sites northeast of Copan, Santa Rita, Rio Amarillo, Paraiso, Los Higos, and Quirigua, all of which drew their inspiration from the great southern metropolis, and all of which were probably colonized there from (Morley: 1920: p. 381).

Quirigua is the largest in this chain and on the basis of its proliferation of beautiful monuments is a major site. The site is on the Motagua River, south of the Gulf of Honduras. It is easily accessible by train from Guatemala City or Puerto Barrios. The immediate topography is similar to that of Copan, tropical and flat with hills surrounding the valley on two sides. The only remains of the once dominant tropical forest is a grove set aside within the Quirigua Park.

The Archeological Institute of America spent several seasons excavating the ceremonial center. The information presented here is a result of their work and my own observations during the one day I spent there in 1962.

The first monuments erected at Quirigua were not erected in the main group, but in front of a building in Group A. These are stela T, 9. 13. 0. 0. 0 and Stela U, 9. 14. 0. 0. 0. From these dates it is seen how much later this site is than the earliest buildings at Copan. This is a little after the building of the Plaza at Copan. By 9. 15. 15. 0. 0 building activity had shifted to another close by area, Group B. Then around 9.16.0.0.0 the emphasis shifted to the main ceremonial center as found y.

The first monument erected in the main Plaza was the uniquely designed Stela H. On its back the glyphs are arranged in an unusual criss-cross or mat formation. Stela J at Copan is the only other one in the Maya area with a similar design. With this direct artistic link I will make a list of the architectural traits present at Quirigua, visible from the site plan.

LOCATION:

1. On a river
2. In a flat valley
3. Surrounded by hills

All incidental qualities

TIME SPAN:

9.13.0.0. 0 to 9.

PLAZA FEATURES:

1. Plaza runs north-south.
2. There is a U-shaped element at south end.
3. There is a string of mounds along east side.
4. The encircling arms of the acropolis are stepped.
5. The Plaza is the largest, organized open space at the site.
6. Plaza contains ball-court at south-end.
7. There is one isolated mound-minus building in the middle.
8. Majority of stelae are in plaza as opposed to being directly in front of build.

ACROPOLIS FEATURES:

1. At South end of plaza.
2. Connected with Ball Court
3. Formed into shallow U shape at North End.
4. Has stelae associated with specific buildings.
5. Has small, independent, structures, with no rambling palaces.
6. Buildings are grouped around sunken courts.

The parallels between Copan and Quirigua are so strong, and the time element during which these similar patterns were being followed is so long,

as to indicate some guiding force behind these two sites which was deeply rooted within the Maya of at least this region. As there are other sites between Copan and Quirigua, these can be investigated to explore their compatibility with the Copan criteria. These sites are Rio Amarillo, Paraiso, Los Higos, and La Union. Artistic inspiration from Copan is a certainty at all of these sites and Morley believes they are all colonies of Copan (Morley: 1920: p. 381-382).

The ruin of Los Higos is a second example of a satellite city. "This site is located on the west side of the Chamelecon River, 80 kilometers northwest of Copan. The city was built just where the ground begins to rise from the flood-plain, and its long axis runs north and south. " (Morley: 1920: p. 385) Interest here centers in the stela which very closely resembles Stela B at Copan. It is dated as 9.17.10.7. 0 9 Ahau (3 TzecHMorley:1920: p. 385).

"The main temple H has stairways on all four sides, but the temple itself faced west toward the river (Morley: 1920: p. 385). This site is, unfortunately, not a duplication of Copan or Quirigua. The basic principles of Copan architectural layout was nevertheless adhered to. First, the stela is in the great plaza and not associated with any particular building. It is at the north end facing east and west and is close to building 1, which is the plaza platform mound analogous to that found at Quirigua and Copan. A great surprise came to me when I found that stela B at Copan, its look alike, occupies exactly the same position. It is unfortunate that Stela 1 of Los Higos was found in pieces. If the figure in the front were facing the same direction as that on Stela B at Copan there would really be an uncoincidental connection. In fact, perhaps a study of which direction stelae faced would be useful. Area patterns could be traced from city ot city. Secondly, the main plaza at both Quirigua, Copan and Los Higos runs North-South.

Third, the temple types at Los Higos, especially number H and J correspond to similar ones at Copan (more so than to Quirigua).

What seems to be lacking is a clearly defined acropolis area. From the map it is a little difficult to see elevations. Perhaps there was such an

arrangement. This site warrants another visit to clarify these points. Copan is believed to have been an influential site, especially in the field of astronomy. Morley's main interest was stelae inscription and descriptions are slanted in this direction. This site would seem to have been related directly to Copan rather than to Quirigua.

Paraiso is located in a valley between Quirigua and Copan- The site is evidently quite large and the remaining sculptured heads showed rather closer affinities with the art of Copan than with that of Quirigua (Morley: 1920: p. 381). Sapper provides a sketch map (Sapper: :p. 5, fig. 4) but what he illustrates is evidently on the acropolis. This is an assumption based on several factors. First, Morley said the site was quite large and the Sapper plan does not fit this description. Secondly, the type of mounds establishing the Copan-Quirigua type of plaza would probably not be illustrated on a site map, i.e. they would be small and deemed unnecessary on a rough map. Sapper evidently made a map of only what he considered to be the most important parts, i.e. the acropolis with its large mounds. What Sapper does illustrate conforms perfectly with the Copan-Quirigua sunken-acropolis-courtyard architectural style. Should future exploration be made in this site, it would be easy to ascertain whether or not there was a North-South plaza to the North of the acropolis.

La Union illustrates a similar case where exact information is lacking. The site map (Stromsvik: 1952: fig. 7) shows a site with a clear cut North-South axis. But, topography is not indicated and it is impossible to determine which is an acropolis grouping as opposed to just a group of mounds. The ball-court runs north-south and is enclosed in a U-shaped group, similar to that of Copan-Quirigua. But, a river flows over one corner of the ballcourt and possibly has erased what once was a plaza extending from the northern end of the ball-court.

The site of Rio Amarillo is hemmed in between hills and a river. The site plan is inconclusive, and the topography seems to have disrupted any large plazas. From available information it is impossible to say how it fits

into the Copan type. Two altars showing Copan stylistic tendencies of the Great Period are found at this small site (Morley: 1920:383).

Copan is generally considered to be the southernmost Maya center of importance and is ranked a Class I site by Morley. It is regarded as one of the more influential centers with regard to keeping in touch with astronomic and glyphic developments, and is thought to have been the locus of development for new astronomic theories. Tangible evidence of the extreme. range of influence has already been presented for the Maya area. In its geographical position on the southern frontier it was also in a position to influence, and to be influenced by, foreign cultures. Proof and explanation of this sphere of influence is found in the realm of pottery. Sources are Longyear's "Copan Ceramics"; "Archaeology of the North Coast of Honduras" and "The Ulua Valley and Lake Yojoa" by Doris Stone; and others. In reading this material it became apparent that there was a considerable amount of trading between Copan and its neighbors to the South. This was reinforced by Spinden's comment that "along the Uloa River the influence of Copan and Quirigua may be seen in the arrangement of mounds and courts." (1913: p. 96).

The site of Travesia is a case in point (fig. 33). This ruin was built on the Ulua River in north-eastern Honduras. The Maya influence has been established by use of certain architectural and pottery features. Dressed stone was used in some of the buildings (Stone: 1941: p. 94), and the smallest temple excavated was found to be similar in plan to the least elaborate structures at Copan (Stone: 1962: p. 389). Certain pottery forms at Travesia had parallels at Copan (Stone: 1941: p. 94). What is nowhere mentioned is the similarity between the Traversia site plan and that of Copan. The most obvious links are the concentration of major architectural activity in a single acropolis; a ball court related to both acropolis and plaza; and only one main plaza in front of a large acropolis grouping. Also, within the acropolis there is a system of inner-sunken courtyards and related buildings. This is reminiscent of Copan. Assuredly there are other similarities within this site and others and much profitable work may be done in this area.

In summary, we have seen how one large group of Maya sites may be grouped together as one, geographically, architecturally, artistically, and through pottery. The next step is to surmise that they could have also been a political unity. Such a unity would be a logical conclusion in view of the obvious colonies of a parent site. Just as these colonies were dependent in their humble beginnings, so also would they remain.

Secondly, a dominance area has special cosmological significance. That building complexes as a whole have a deep religious significance has been established in the Uaxactun Group E. case. The Maya have always regulated their sites as a group, rather than a conglomeration of individual isolated buildings. The plaza is a guiding architectural force in Maya city planning. All present evidence suggests great symbolism attached to every monumental structure. It is my thesis that particular site plans had specific cosmological significance. What exactly this is for every dominance area is a study beyond the aspiration of this paper. Only through a concentration on one area, and on site mapping and study could this be accomplished.

YAXCHILAN-BONAMPA K DOMINANCE AREA

Yaxchilan is situated on the banks of the Usumacinta River, in the rain forests of Chiapas, Mexico. The river is a large one, being over 150 meters across during the rainy season. Yaxchilan is easily spotted on a map because it is inside an omega shaped bend in the river, on the Mexican site. The Department of Peten is directly across the water and Yaxchilan is in exactly the same tropical environment as is Tikal. As there has never been any extensive excavation here, the jungle has completely overgrown the site.

Its location on such a large river requires further elaboration. From numerous decorations showing dugout canoes it is evident that any large river was an important trade route. Indeed, the uniformity of the Maya culture throughout its large area is indicative of the contact between ceremonial centers. The Usumacinta is not only long but also has many tributaries. One of the more accurate maps showing this river system is the front piece in the Carnegie I. of W. Publication on Bonampak (Ruppert: 1955). From this its relative proximity to Piedras Negras is visible. Unnavigable rapids between the two sites effectively eliminated canoe traffic between them. More specific information will be given when Bonampak and its dominance area is discussed. For now it is enough to realize the large number of small sites that are in the area with Yaxchilan as the nearest big site, and therefore the closest site capable of direct influence.

The noticeable topographical features at Yaxchilan are the hills and the flat area along the river. From the river there is a steep climb up the bank to the plaza area. Then there is a relatively flat space paralleling the river. Around seventy meters from the river irregular hills start with quite steep grades further back. The summits are generally also irregular, but flat enough for several structures. Maler claims that the river has eaten away a considerable swatch of land along the Mexican (Yaxchilan) side. It would not seem to unreasonable to expect this to have happened during the 1,000 years that the site has been abandoned.

Yaxchilan has never been excavated to any extent. This casts severe

limitations on much of what may be said concerning the city. Morley only excavated enough to find lintels and a few building ground plans. The useful information which he gathered is presented in Vol. II of his "Inscriptions of the Peten". This volume also contains the invaluable commentary of Bolles who surveyed the site for the Carnegie Institution of Washington for Morley's monograph. These are the two basic references I utilized, as well as the information gathered during the five days I was at the site in August, 1964. Maler and others have also led and written on this city but their contributions have been used merely for general background reading.

It will be observed from Bolles map (Morley: 1938: pl. 201) that Yaxchilan is orientated rot towards the cardinal directions. This is due to the course of the river and the desire of the builders to orient their structures so as to form plazas, a task that would have been difficult at such a site had they kept rigidly to the cardinal points (Morley: 1938: p. 351). Besides the river the ancient Maya had another formidable obstacle to contend with -- the hills. Yaxchilan is built on the hilliest terrain of any Maya site I have ever visited. Walking from the Main Plaza to Temple 41 involves a considerable climb. Just going from one group to another is a real undertaking due to the landscape.

The tops of hills were often selected as building sites. Here at Yaxchilan there was such a phobia about placing the buildings on extreme heights as to suggest a deep religious significance. Once having seen the location it is obvious why they were chosen. First is the monumental approaches to these lofty heights. From Bolles and others' descriptions it seems that all the hill sides were terraced and stairways went the whole height of the hill. Therefore, a front-on view would be incredibly impressive, especially to the common man in the plaza below. Secondly, from the top, a magnificent view of the site, the river, and the surrounding countryside could be had.

The following is a list of criteria for a site of the Yaxchilan dominance area as typified at Yaxchilan.

PLAZA FEATURES:

1. Plaza is limited by topography.
2. There is an acropolis at the head of the plaza.
3. Plaza contains the ball-court; one of which is connected with other buildings, one of which is isolated.
4. Single stelae on small platforms are focal points of plaza sub-divisions.
5. Sides of plaza are defined by rows of mounds, etc., often long and narrow with no building remains. Significant that they are here and not with temples.
6. Besides stelae just mentioned, the other stelae which are in the plaza are associated with buildings.
7. Twin Pyramid platform.

COURTYARD FEATURES:

1. There are only two at the site.
2. Their shape is distorted by topography.
3. The buildings surrounding the courtyards are not of the large, rambling Piedras-Negras or Peten types.

GENERAL ARCHITECTURAL FEATURES:

1. Extensive hill terracing.
2. Rows of Temples and/ or palaces
3. Stelae on top of pyramids (Mound 18)
4. Memorial Temples.

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The plaza is the largest open space at the site and. has the largest concentration of structures surrounding it. Its upper limit is defined by an acropolis grouping and its lower limit has no definite ending, at least on the map. According to Bolles there are more structures along the riverbank to the southeast, which would extend the plaza in this direction. The length of this plaza is unparalled in Maya sites. It was, however, not all one unit to the Maya, and was divided architecturally by them into several smaller spaces. This division in several cases was noticeably deliberate, i. e. Structure 3 and 4 effectively block any continuation of open space. From this I conclude that intimate plazas were the ideal form and that the buildings

surrounding a particular plaza were connected with the activities that may have gone on within them.

As all the buildings in the vicinity are orientated toward the plaza as opposed to the cardinal points, the plaza must have been an inherent and important characteristic of a ceremonial center. The obvious importance attached to plazas would warrant a close study of plaza layouts in all Maya centers. From this perhaps it could be determined what v/ere ideal plaza features and what features of plazas, as we see them today, were determined by topography.

One ostentatious feature of Copan-Quirigua type plazas was the acropolis at the head of it. As these plazas were built on flat land, they could be expanded according to an ideal pattern if such existed. The presence of such an acropolis, indeed possibly the only one at Yaxchilan, is further proof that an acropolis is an integral part of a plaza orientated Maya ceremonial center.

This acropolis is distinct from what I call a hill-grouping-acropolis. An example of the former are the mounds 19, 76, 77, 19 and 78 at the head of the plaza; of the latter two examples stand out, buildings 84, 85, 86 and unnumbered ones close by; and structures 43 thru 51: A true acropolis is a large artificially raised platform supporting more than three buildings which are systematically arranged. In some cases there are courtyards within the acropolis, such as at Copan. This construction seems to have been a late feature, as at Copan. Stela 18 has a date of 9. 16. 0. 0. 0 (Morley: 1938: Vol. II: p- 559). Altar 1 in front of building 19 on the acropolis has a date of 9. 15. 15. 0. (p, 513).

As is the case in every Classic Maya site with a ball-court, the examples at Yaxchilan are situated in the main plaza. One of them (Str 14) is connected with other structures; while the other, the South east court, is in the middle of the court. The Northwest ball-court has five sculptured markers including the common midcourt ones. Although too weathered for precise dating, Morley places them in the early Great Period, around 9. 16. 0. 0. 0, on

stylistic evidence (Morley: 1938: vol. II p. 597). All five present the same design which features a seated figure surrounded by a band of astronomical glyphs with the Venus glyph repeated four times, once in each quadrant. This representation of celestial motifs if further proof for Blom's theory on the cosmological significance of ball-courts.

> "In tomb 7 at Monte Alban was a pectoral of gold which represents the sky, the sun, the moon, and the earth. The sky is represented by the outline of a ball-court, and in applique of gold thread are two players holding their rubber-game-ball. The sun is depicted with the usual sun-disk and the moon and earth by their Aztec glyphs."
> (Blom: 1932: 517).

> "Some of the drawings of courts found in the codices show the floor of the courts painted in sections of four different colors, which in some, but far from all cases, coincide with the cardinal points." (Blom: 1932: p. 513)

The south-east ball court has no markers and no associated dated monuments.

The fourth thing present in the Yaxchilan plaza is the occurrence of single stelae on small platforms in the center of sub-plazas. (Stela 24 is a stela reused as a stone in a wall and is not in this class, as would appear on the map). Stela 1 is associated with a small platform in the center of what I will designate as the Plaza of Stela 1. Stela 3 is the focal point for the Plaza of Stela 3.

The Plaza of Stela 1 is surrounded by structures containing a large number of sculptured lintels, useful for dating. Structure 9 on the river side has the earliest contemporaneous date yet found at Yaxchilan, stela 29, in front of it (Morley: 1938: p. 363, vol. 11), Stela 2 and 28 date from the end of the early period (p. 405). These are directly across the plaza from Stela 29. There is not room to go into great detail concerning the remaining buildings in this plaza, as Bolles and Maler have adequately described them. For this study it is useful to know their relatively early date and the general type of building. Structure II, on the river side, has a ground plan identical to the famous Structure 1 at Bonampak.

Southeast of mound 8 lies the plaza of Stela 3. The namesake is dated as 9. 16. 10. 0. 0. As this entire plaza was seemingly arranged around this one stelae, perhaps a detailed analysis of its design will give a clue as to the possible ritual significance of this particular large meeting space. Associated with this plaza, and as will be seen later, with stela 3 is the row of four sculptured monuments in the western side of the plaza, stelae 4, 5, 6, and 7.

Three of these stelae 3, 4 and 7, have identical designs: figures and glyphs on the two broad opposite faces, the two narrow sides being dressed but plain (Morley; 1938: p. 574, vol. II). The exact Initial Series date is destroyed or missing on all of these and stylistic dating is used to place them.

The classification of buildings, exclusive of ball-courts and sweathouses, is usually divided into "palaces" and "temples". Palaces are usually on low platforms and are multi-roomed. Temples are on higher mounds; often have stelae and/or alters associated in front; and have three rooms or less.

At Yaxchilan the structures defy immediate classification. Structure 33 presents such a dilemma. The site plan illustrates a long narrow building divided into three rooms and five niches. Looking at the design on a site map it would appear to be a palace. But from my personal observation of this while at Yaxchilan and from the more detailed ground plan of Morley (1933: fig. 79: vol. II) it seems unsuitable as a palace.

First, in general appearance it is such an imposing structure. It has a conspicuous location on the summit of a high natural hill, overlooking the Main Plaza. It is further raised on a large platform with a magnificently modeled monumental stairway. At the base of the stairway are two altars, one carved, one plain.

This structure carries one of the largest, most embellished, and complicated roof-comb rising some 18 feet above the main facade. The interior is so structured as to carry the weight. Large buttresses along the back wall create niches into one of which is a large stone idol. This anthropomorphic seated stone statue is one of the few cases of a large idol being found in sito within a Maya building. There is a date on the back of the idol of 9. 16. 6. 0. 0

(Morley: p. 551). Three finely executed stone lintels span the doorways. The exact function of this building may never be known. But, I am sure that a study of the subject matter of these lintels and the stone altar, combined with the idol, would shed some light on this problem. Miss Proskouriakoff has already done a study of this type on Piedras Negras stelae and a yet unpublished study of certain of Yaxchilan monuments. In conclusion, I believe these should be classed under the general heading of temples, but are more of memorial type buildings, such as the Bonampak mural building is a memorial of a battle and sacrifice ritual, partly religious, partly historical. If the stone idol could be identified as a god or as a ruler perhaps this question could be solved.

Therefore, Yaxchilan is lacking the square palace enclosures of Tikal and the acropolis palace groupings found at Palenque, Piedras Negras, and Comalcalco. Similarly, at Bonampak, and all other known sites in the Bonampak-Yaxchilan dominance area this Maya architectural feature is conspicuously absent. Probably the extensive structures along the plaza served a similar purpose but the familiar form is still lacking. This particular Yaxchilan-Bonampak feature reinforces my belief that this area was separate architecturally and was not dependent on Piedras Negras.

The fifth plaza feature, as previously enumerated, is that sides of plazas are in part defined by rows of mounds, often long and narrow with no building remains. This is significant because of direct parallels at Bonampak. These mounds could have been used for ritual dances as vividly depicted on the Bonampak murals. Mound 4 supports a double temple and is surmounted by stairways on two sides. I know of no immediate parallels in the vicinity but mentioned it because of its unusualness.

Courtyard features are difficult to ascertain because of the limitations imposed by topography. In general, the emphasis seems to have been on plazas, especially the stelae grouping type.

General architectural features furnish the best link between Yaxchilan and Bonampak. First is extensive hill terracing. This is probably employed

universally yet it is emphasized in the reports on both Yaxchilan, Bonampak and in related sites visited by Giles Healy. A second characteristic is rows of temples as opposed to courtyard grouping. Whether required by topography or not, it is a common feature in this area. Narrow stone lintelled doorways furnishes another parallel between sites here. Not only this, but the doorways are often corbelled. Mural decoration is found at Bonampak, Yaxchilan, and the caretaker at Yaxchilan swore he knew of a nearby site with better ones than Bonampak. Various constructional techniques and other architectural features may be held in common. The above list is not exhaustive.

Probably the best contribution towards an understanding of Yaxchilan has been made by Tatiana Proskouriakoff. Her interpretation of historic data on Yaxchilan and Piedras Negras stelae opens up vast new areas for cosmological interpretation. What a difference it would make to know this building was dedicated to one ruler, that building a memorial, etc. Taking the risk of misinterpreting her I will present her argument.

Similarities in design in a sequence of Piedras Negras stelae led Miss Proskouriakoff to the discovery that certain dynasties were depicted. She found glyphs of the linages and birth, ascension, and death dates recorded. Yaxchilan presented similar sequences. Here, because of the lintels, the dynasties may be more accurately correlated with particular structures.

Yaxchilan is such a large and relatively unexplored site that much work has yet to be done on it. In working on the Bonampak site plan, however, certain similarities became apparent. It is known that among the 16th century Pokoman Maya the town was the basic political unit, with smaller villages as dependents (Miles: 1957: p. 771). Therefore, discussion will now center on this perhaps dependent site of Bonampak.

> "The affiliations of Bonampak are very definitely with the Yaxchilan…Ties to Yaxchilan are so strong as to suggest that Bonampak may well have been a provincial center in an area dominated politically by Yaxchilan." (Ruppert: 1955: p. 7).

Bonampak is in the Lacanha River valley, nestled in the hills, 30 kilo-

meters southeast of Yaxchilan. The topography is similar to the parent site, except that the site is not directly on a river. The map of Bonampak (fig. 23) provides about the best description. The Carnegie Institution of Washington published a comprehensive monograph on this site (Ruppert et al: 1955) and I have visited the site twice, once in 1962, then in 1964.

Bonampak's dependence on Yaxchilan in the realm of art motifs and sculptural and architectural techniques have been pointed out by both Ruppert and Proskouriakoff, in the above-mentioned publication. It is also identical in the general grouping of buildings. It parallels the Copan-Quirigua relationship.

The first noticeable feature here is the absence of orientation to the cardinal points. As at Yaxchilan the main plaza was the focal point of the entire site. Then there is the use of the hillside to create a sensation of height. The architects took advantage of this ready made acropolis, terraced it, and built upon it. A missing element is the intimate plaza concept, best exemplified at Uaxactun. The plaza at Bonampak is relatively large and not hemmed in by high rise pyramids. Low mounds are used to delineate the ceremonial area. It is unfortunate that no ball court as yet has been discovered. All the important buildings face the same way, towards the plaza. Bonampak is completely lacking palace structures. Probably a primary characteristic of Bonampak is the row type construction, exemplified best by structures 4 through 8. This arrangement where buildings run in parallel rows up a hill occurs elsewhere in other areas, i. e. Tonina. It might be purely dictated by topographical conditions, but I doubt it. This is one form of layout which has not been thoroughly investigated.

Bonampak is such a small compact site that it lends itself to the "sphere of influence" type analysis. The features found at Bonampak are as follows and may be compared to those of Yaxchilan.

PLAZA FEATURES:

1. Plaza is determined by topography.
2. There is concentration of buildings on hill acropolis at head of plaza.
3. --- (no ball court yet discovered).

1. Stelae on small platforms are focal point for plaza.
2. Sides of plaza are defined by rows of mounds, often long and narrow, some without building remains.
3. Stelae are in front of stairway and buildings.

COURTYARD FEATURES: None

GENERAL ARCHITECTURAL FEATURES:

1. Extensive hill terracing.
2. Temples built in rows.
3. Memorial temples (Mural temple built to commemorate some battle and resulting sacrifice). There is little room for any activity inside.

SPECIFIC ARCHITECTURAL FEATURES:

1. Stone linteled doorways (often carved).
2. Corbelled doorways.
3. Mural decoration
4. Thrones.

An elaboration of these features will not be necessary, as they are similar to those at Yaxchilan. Instead an analysis of sites in the surrounding area will attempt to see how far this pattern holds true. Oxlahuntun, a settlement on the San Pedro River, has three standing buildings and one in shambles. According to Giles Healy, their discoverer, their doorways all face south onto a large plaza, in whose center is a truncated cone altar. Glyphs in stucco give the date 9. 13. 0. 0. 0. Stone lintels were used but they are uncarved (1948: p. 130). Up the river is the Miguel Fernandez ruin, which seems to have been a large site. Here narrow doors, stone lintels, corbelled doorways and the general description seem to fit the Bonampak-Yaxchilan pattern. In this area is the site of La Lucha, with buildings on hill sides, overlooking a large plaza (Healey: 1950: p. 15). The site of Stephens (fig. 24) has a stela dated 9. 8. 0. 0. 0.

Without more information, especially as to dates, it is still premature to come to any conclusions on site layout. On the basis of sketchy information there seems to be a correspondence of all sites to a basic plaza oriented pattern - as exemplified by Bonampak. At which time periods one of these sites might have been dependent on Piedras Negras and/or Yaxchilan cannot be known at this time. Much profitable research could be accomplished in this area.

Landa provides a precedent for the politically united dominance area.

> "In this month of Pax they celebrated a festival called Pacum Chac, on occasion of which the lords and the priests of the lesser villages joined those of the more important towns; and when they had thus come together they kept watch in the temple of Cit hhacloh five nights in prayer… Before these five days had passed they went all together to the houses of the captain in their wars… And they bore him in great pomp as if he were an idol, to the temple, where they seated him, and burned incense to him as if he were an idol." (Tozzer: 1941: p. 164).

PIEDRAS NEGRAS

Maler grouped Piedras Negras with other sites in the central portion of the Usumacinta River (Satterthwaite: 1943: p. 7). Morley and Brainard grouped Palenque, Yaxchilan, and Piedras Negras as cities of the Usumacinta Valley (Brainard: 1956: p. 306). In general, because Piedras Negras and Yaxchilan are close to one another on the Usumacinta River, and because both produced some of the greatest Maya sculptural art, they have been grouped together in archaeological references. Through architectural investigations, especially site layout and building types, I hope to differentiate between Piedras Negras and Yaxchilan. Both shared basic Mayan architectural principles. Because of their close proximity to one another certain minor traits, such as thrones, were held in common. However, the emphasis on a certain palace type at Piedras Negras, and the lack of it at Yaxchilan suggest a divergence at some time period.

Piedras Negras is located on the Guatemalan side of the Usumacinta River, 45 kilometers downstream from Yaxchilan. It is approximately twice that distance southeast of Palenque. The ruins are on the edge of the political boundary of the Peten of Guatemala, but the geographical area of which it is a part, extends as far into Mexico as Palenque. The most noticeable geographic features of this area are the hills and the river. These heights and the ravines between them influenced the arrangement of the site. Structures were oriented around plazas rather than to the cardinal points.

Piedras Negras has a relatively short modern history, as it was not discovered until 1894. Maler (1901) and Morley (1938) both visited the site. Both of their descriptions were without the benefit of excavation, so this material has only been used for background reading. The majority of information used is the result of Satterthwaite's excavation from 1931 to 1934 and publications and the map by Parris. Miss Proskouriakoff has also helped by supplying me with the first-hand knowledge she gained while working at the site. I have never been to Piedras Negras but have flown over it twice. With this general introduction to the site, the specific groupings and

individual buildings will be investigated. Two results are hoped to be gleaned from this description. The most important is the cosmological significance of these buildings to the ancient Maya, and secondly the date or time relative to other buildings. Only through a knowledge of time can these structures be put in their proper perspective. Perhaps it will be possible to discover changes and trends in the religious and political thought of the Maya.

Palace buildings will be dealt with first, as there are similar palace groupings in Palenque and Comalcalco, sites which will be mentioned later and Uaxactun. From the site map two distinct kinds of palace buildings, and two kinds of palace grouping may be seen. The palace types are what I shall call single arcade and double arcade types which all seem to be grouped around small courtyards or else on one side of a plaza. These distinctions can be grasped by looking at the ground plans of these types: Both examples are from the great palace acropolis. The second way they seem to be grouped is singly on one side of a plaza, i. e. Palace R-7.

Palace type I included Palace J-2, J9-J-12-J-11, J-B J-18-J-21, J-20, and J-19 all on the acropolis. Palaces P-7 and R-7 lack the end rooms and are not grouped around courtyards but plazas. Palace J-2 will be used as the type-palace because more information is available on it. The basic criteria for this type are: a long room or arcade with a large number of doors, (almost always an odd number, in this case 9); and an end room running the width of the building. Palace J-2 has nine doorways in front and seven in the rear. Palace J-12 originally had nine doorways on both front and back, as often happened, some were later filled in. Palace R-7 has 9 doorways front and back. Palaces J-9, and J-11 have room for 9 doors on each side, and the doors that are indicated have the correct spacing for 9. However, on the site plan the number varies between 3 and 5. Photographs (Plate II, B, Satterthwaite: 1935) show a doorway filled in. During the week I spent at Palenque measuring the door to pillar ratios etc. I noticed the same phenomenon. Not only were doors filled in but new walls were put in the interior to form new rooms, etc. This is not of importance in this study, except to point out that site plans must be interpreted carefully.

Palace J-13, J-21, J-19, J-20, and J-23 are of this first “double-arcade-end room type" but are a sub-type in that they are uniformly smaller J-19 is just indicated as a mound, but its position and size mean that it could only have been a palace of this type. Palaces of this type have from two to four doorways. Three doorways are the most common however, and this seems to have been the number aimed at.

The second of Satterthwaite’s palace types consists of one long gallery and no end room. Structures, J-6, J-8, J-10, J-22, S17, and S18 conform to this description. Mound P6 looks as though it too once supported a palace of this type although no masonry is indicated on the map. Often several maps of a site exist, each based on knowledge known up to the time. When an early-preexcavation site map is compared with one showing building details are compared, through experience it can be seen what types and locations of mounds turn out to be what kind of buildings. This is of special help in sites that have never been excavated. Palace S-18 has 9 doorways; Palace S-17 has 5 doorways. The other palaces of this type are irregular or have been so added on to that it is hard to get any data on the number of doorways at any one time. In general the evidence is inconclusive as to a ritualistic number of doorways for this palace types. One characteristic of these palaces is that they rarely turn a corner. The ones in the Peten often did.

Dating these palaces is difficult because information is available on so few of them. Indications are, however, that J-9 (the heaviest palace), is the oldest, J-2 and J-6 came later. The throne in J-6 is dated as 9. 17. 15. 0. 0 (Satterthwaite: 1935: p. 58). Palace J-2 could be as old as Altar 2 (9. 16. 0. 0. 0) (Satterthwaite)

Cosmological information relative to palaces is present in Landa and in the various Chilam Balams. The following quotes are long, but necessary. They are provided to illustrate the following points: (1) the Maya, especially the hierarchy, was divided into lineages, these lineages were of great significance; (2) lineages would often trace their beginnings to deities; (3) Palaces may have been associated with lineages, probably ritually and used in preparation for religious ceremonies; throne rooms, etc. (4) ruler

and priest were perhaps separate but interchangeable. (5) Power, whether religious or secular, moved through lineages.

(1) "They were particular about knowing the origin of their families, especially if they were descendants of some family of Mayapan, and they find this out from the priests, since this is one of their sciences." Landa, (Tozzer: :p.98)

(2) "Important personages bore the name of the rain god and we may infer that he figured as the representative of the god." (Roys: 1933: p. 67)

(3) "Now the representative of Ah Mex Cue was declared ruler. The eagle, they say, was his mother. Then they say he was sought on his hill. Then they began to take the prophecy of this ruler after it was declared. Then they began to set aloft the house on high for the ruler. Then began the construction of the stairway." (Roys: 1933: p. 75)

"Kinship groups are patrilineal and patrilocal and for the most part, its members inhabit contiguous houses." (Wagley: 1949: p. 11)

"The houses of these 'families' are generally confined to one local and quite commonly they cluster about a common yard." (Ibid: p. 13)

(4) "The second Priest Chable was their ruler. Cabal Yiu was their priest. Uxmal Chac was their commander; formerly he was their priest."

(5) "…the ruling men of noble lineage have walked abroad …they are placated in the fullness of their hearts when they are told to go and take the chiefdomship of the towns." (Roys: 1933: p. 93)

Of more direct bearing on the place held by palaces in Maya world view is a discovery by Satterthwaite. Working at the site of Benque Viejo in British Honduras, Satterthwaite uncovered a palace with monumental astronomic decoration. This was in the form of an elaborate stucco facade decoration two meters high. Signs for the planet Venus, the moon, and other celestial symbols, as well as what Satterthwaite calls a giant sun god mask were

found. It provides proof that the great masonry buildings were built for astronomer priests, but the size, elaborateness, and symbolic subject matter argue against the common notion that 'palace' buildings like this were priestly dwellings (Satterthwaite: 1950: p. 222).

Temples at Piedras Negras are a separate study in themselves. They show no relationship to any yet known at Palenque. Earlier ones show Peten influence. Ball court K-6, one of two, is almost identical to the ball court at Uaxactun. Both were built sometime after 9.11.10.0.0 (Smith: 1950: p.61)..

Piedras Negras is an important site. It has been excavated. Tatiana Proskouriakoff has suggested that the stelae, as at Yaxchilan, depict dynastic and historic information, along with ritual divinations. A site the size of this was certainly the center of an important dominance area, as yet undefined. This ceremonial center has been included because, on the basis of palaces alone, I originally believed it to have dominated Palenque. In fact, Palenque seems to have broken off at an early date and established a sphere of influence of its own. Nevertheless, the palace here is an important group, as it precedes or is directly related to that of Palenque, and follows the tradition established by Tikal, Nakum, and Uaxactun. Finally, it is hoped that further investigation and exploration in this area will bring to light the missing dependent sites.

PALENQUE

The first settlers of Palenque chose a range of hills rising above the swampy Tabasco lowlands. From here to the Usumacinta River is about 50 kilometers of gradually hillier terrain and increasing tropical vegetation. With the open lowlands available to them, the architects utilized the more impressive position of a shelf abutting on the first range of hills. The view both from the side overlooking the extensive lowlands and from the bottom land looking toward the gleaming white citadel is truly impressive. The shelf chosen allows some orientation toward the cardinal directions. To the south several hills impinged on the site. The sides of the hills were utilized to achieve greater height for the temple structures. The Temple of the Inscriptions presents a monumental front but the Temple itself rests on the hill slope. There is a very shallow back, with only three terraces.

The main groupings at Palenque may be seen on the site map. As of yet I have not analyzed it to discover what might be an underlying pattern. Rather than cover the entire site I have chosen to concentrate on the palace and the sanctuary temples. This allows a more detailed investigation into origins and possible cosmological significance.

Palenque has no early Classic Maya remains. It appears to have been founded well after the Maya culture had crystalized into its full Classic form. The exact patterns of Maya colonization has never been treated. All evidence clearly points toward direct and actual colonization. Quirigua is certainly a colony of Copan. Bonampak is so closely related to Yaxchilan that colonization is presumed. From all available ceramic and architectural evidence, Palenque appears to have been founded from Piedras Negras. "Whether this was direct or whether part of a spread of cultural ideas throughout the area is uncertain. Once Palenque became fully established it seems to have become independent and started out on its own. This explains the divergence between pottery forms after a certain date, and the emergence of a specialized temple form at Palenque. Palenque soon started its own sphere of influence. This spread of Palenque influence is documented by architectural evidence and through pottery analysis. This occurs in Rands publications on Palenque

pottery (1957, 1959). The palace presents the original connection between Piedras Negras and Palenque.

The Palace is an agglomeration of smaller palaces and arcaded hallways (fig. 29). These components consist of several types. First is the double gallery which forms a giant capital U around the northern half of the acropolis. This is characterized by the use of wooden lintels spanning a multitude of wide doorways. Almost two distinct arcades are formed by the dividing median wall. This is only pierced once or twice on each side. Stucco reliefs adorn the pillars on the exterior. The interior gallery fronts on the two inside palace courtyards. House C forms the double faced gallery for the two courtyards.

The second palace structure types are found on the southern half of the acropolis. Small rooms as opposed to open galleries are the hallmark. Benches and thrones are found inside, indicative of ceremonial use. Gatherings of nobles in a throne room is depicted in one of the Piedras Negras wall panels. Other throne and ruler presentations may also be found on Yaxchilan lintels, the Bonampak murals, and Tikal pottery. Kubler perpetuates the mistaken assumption that the crowded southern half may have housed the servants and a palace guard; the northern courts and galleries, for persons of higher rank (1962: p. 133). A sweat bath was found within the palace complex. These baths, now known from Tikal, Piedras Negras, and Quirigua, are believed to have been for ritual purification. This would reinforce the idea of palaces as a place for preparation for religious ceremonies; ritual fasting; and generally connected with religious as opposed to secular uses.

From a cosmological viewpoint the presence of all palaces on one common sub-structure links it with similar examples at other sites, and indicates specialization. There is a sequence of palace evolution, originating at Tikal; spreading through Nakum and Uaxactun; reaching Piedras Negras; coming into Palenque along with Piedras Negras pottery techniques; and dying out at Comalcalco.

Just as Tikal has the first Maya stela, the first corbelled arch, and the

first temple, evidence indicates that palaces too may have originated here. Excavation is currently being carried out in the Central Acropolis at Tikal. This complex is across the Main Plaza from the North Acropolis – where the earliest architecture has been discovered. Many of the large Tikal palaces exhibit archaic traits, such as incredibly thick walls and small rooms (fig. 25). However palaces may have originally evolved, this is the first consistent form. Both single and double gallery forms are found.

As constructional techniques were improved and as religious necessities changed, new palace forms evolved. Structure A-V at Uaxactun illustrates the next general step (fig. 26). Here the two end rooms have been retained and room size has increased. Piedras Negras offers the next form (fig. 28). Here both the individual building and the group as a whole recalls structure AV. Palenque was the final stage in palace development for this area. Unfortunately, the emphasis of the Mexican government was on restoration rather than excavation. Therefore, little can be said concerning the original forms of the palace at Palenque.

Such similar building complexes, i.e. similar structures and similar arrangement, must have been connected with a well-defined religious concept. What this may be can only be discovered through a more detailed analysis of the evolution of this interesting Maya structural type. The Tikal Project has initiated a study of palace development which may provide the missing information.

For those unconvinced on stylistic evidence only there is further supporting material:

> "Among the earliest forms recovered at Palenque is a single polychrome tripod basal flange bowl. This is virtually identical to the orange ware tripod basal-flanged bowls in the earliest Acropolis period in Piedras Negras." (Rands: 1957: p. 146)

> "The Early Classic is not well represented at Palenque but on this general horizon certain secure ties do exist with Piedras Negras… following an early period of correspondence with Piedras Negras, at least in respect to certain ceramic features, Palenque seems

> to have diverged markedly from that middle Usumacinta site." (Rands: 1957: p. 146)

There is similar supporting material for the Piedras Negras-Uaxactun pottery similarities (Butler: 1935: p. 25).

Reinforcing my belief that the earliest Piedras Negras palaces were the direct predecessor of those at Palenque is the following observation by the excavator:

> "These palaces are essentially the same in plan as the palace buildings at Palenque, with the addition of transverse end rooms, so common in the Peten. They differ in many ways from anything at Yaxchilan." (Satterthwaite: 1936: p. 60) "This is seen in size, basic plan, absence of interior buttresses, and especially in wide doorways with wooden lintels as opposed to the narrower doorways with stone lintels which characterize most of the Yaxchilan buildings… The two double-range Piedras Negras palaces…seem to be much less advanced structurally than any in the palace at Palenque, having both thicker walls and narrower rooms." (Ibid: p. 62)

Exact dating of both the Palenque and the Piedras Negras palaces is not reliable enough to help. A complete ceramic study of Palenque is being undertaken at the moment by Dr. Rands. His final monograph has not yet been published and he was still working at Palenque this summer. As for sculptured material, the dates on the Palenque palace structures seem to indicate a date of 9. 8. 16. 10. 19 as a date for the inner courtyard. The arcaded halls on the exterior of the whole group presumedly are the latest as they are the most advanced architecturally. On these there is yet no date. Near House A, on the sculptured panels flanking the courtyard stairway there is an Initial Series date of 9. 8. 16. 15. 13. In House C, on the stairway under the side cornice is another I.S. date, 9. 8. 16. 10. 19 (Morley: l938: Vol. IV: p.370). In the Peabody Museum of Harvard University there is a wall tablet from House E with a possible date of 9. 12. 0. 0. 0.

All the temple structures at Palenque are so nearly identical in plan that cross site comparison is easy. Basically, it consists of two parallel spaces divided into one room taking up the first space. The second space has

a sanctuary in the middle against the back wall, flanked by two small rooms. One subtype has three doorways, the other has five. Both have elaborate roof combs running lengthwise down the middle. Stucco figures ornament the pillars, the roof comb, and the sloping roof of the interior sanctuary. The temples of the Sun, the Cross, the Foliated Cross, and Conde illustrate the first subtype (fig. 30). The temple of the Inscriptions is an example of the second. These examples date from 9. 13. 0. 0. 0 (Brainard: 1956: p.306).

This temple type has no such immediate ancestor as the Palace. None of the Piedras Negras temples exhibit any Palenque features. Therefore this is a local architectural response to various ceremonial necessities. The interior sanctuary is an intergral part of many Classic structures. Uaxactun temple E-l exhibits such a sanctuary. The builders at Palenque seemed to have adapted this concept to their ability to construct a more open building. The similarity among many buildings at one site and the scattered occurrence of identical constructions in the area indicates a localized religious observance This ritual activity would necessitate a temple incorporating certain features. The requirements seem to have been an open yet intimate shrine incorporated within the main temple.

Two things may help establish a possible use for this temple type and its position within Mayan cosmology. First is the excavation of all the Palenque examples undertaken by the Mexican government's Instituto Nacional de Antropologia y Historia. Secondly is an analysis of the sanctuary tablets and the iconographic material in the Ruz tomb.

Excavation in the Temple of the Cross substructure revealed three offerings immediately below the floor. These were small chambers big enough for the offerings of pottery containing stingray spines and conch shells. One bowl was decorated with an astronomic band (Ruz: 1958: fig. 11). Digging did not penetrate very deep and no burial was discovered. It was Ruz's belief that any elaborate tomb would have indications close to the surface (Ruz: 1958: p.76). Similarly no tomb was found within the Temple of the Foliated Cross (Ruz: 1958: p. 85) but the large Palenque urns were found there. In Temple XVIII-A there was a burial very similar to that of

the Temple of the Inscriptions. There was a vaulted tomb with a "soul tube", a small shaft extending from the tomb to below the temple floor. There was a jade mask and three stone pendants, just as found in the Temple of the Inscriptions. There were various sacrificial victims buried in close proximity (Ruz: 1962: p. 89).

The Temple of the Inscriptions was probably constructed for two reasons. First as a resting place for some great priest-ruler, and secondly as either a shrine or a temple in his name or his patron deity's. The secret may never be unraveled but certain insights may be gained from an analysis of the sarcophagus cover. This is carved in a most complex design both physically and religiously speaking. There is enough material for a separate dissertation, but for this study only the basic meaning is pertinent.

Basically the design consists of a Quetzal bird surmounting a tree of life; below this is a semi-reclining figure resting on the top of a large earth monster mask. This is surrounded by bands of astronomic glyphs of the sun, moon, Venus, the North Star, and various unidentified forms. The Maya death symbol % is on the headdress of the earth monster. There were 9 of these glyphs on each side.

With the discovery of the areal patters of Copan and Yaxchilan it was logical to assume one for Palenque. The entire Chiapas-Tabasco region has numerous sites and a Tulane University Expedition visited many of them (Blom: 1926). That such a pattern might exist was further bolstered by Spinden's statement: The mapping of principal Maya ruins has disclosed several styles of assemblage of the city as a whole, each of which seems to have a fairly definite geographical distribution and at the same time a topographical explanation* (1913: 96)

Unlike the previous discussions on dominance areas which dealt with the whole site, this section will consider only a particular temple type. Space and time limitations necessitated this. The Tabasco-Chiapas region has many unique features at its sites. Being unusual it is easy to spot their occurrence at other sites. Human figures carved in the full round and a

sanctuary temple type are two features unique to this area.

In their monumental stone carvings the Maya preferred a relief technique. Stelae in particular show this trait. However at the ruins of Chuctiepa, Tortuquero, Tonina, and Palenque, stelae occur with humans in statue form. Not only is their carving different, but also, the figure is in a full front presentation. The usual position was a side view or a front view with the feet in side view. Copan is the only site where the relief is deep and it has been thought that perhaps Palenque-Toninia sculpture was derived from here. This question has never been proved one way or another.

The sanctuary temple has been described with regard to Palenque.

In the mountains of Tabasco, about 40 kilometers west of Palenque, Blom discovered the ruins of El Retiro. The only standing building at this small site is identical to the Temple of the Foliated Cross, etc. at Palenque (fig. 31).

Twenty kilometers southeast of Palenque lies the ruined city of Xupa. Here facing east is a temple of the interior sanctuary type. Again this is the only standing structure.

The ruins of Tonina lie several kilometers from the town of Ocosingo, in the hills of Chiapas. The general layout of the site does not fit any pattern yet encountered. All the major buildings are built in receding rows on the side of a hill. The site axis is north-south, with the plaza and ball court at the southern end. Of importance at this site is not the site pattern, but the occurrence of a Palenque type temple. This is listed as House A by Blom (1927: Vol. II: p. 265). The ground plan is identical to the specialized Temple of the Sun type. Once there were painted stucco figures adorning the walls and a moan bird, on the roof-slope of the sanctuary. This is similar to one found in Palenque over a doorway in House E, and on the roof slopes of the sanctuaries of Temples of the Sun, Cross, and Foliated Cross. Dates on stelae run from 9. 6. 0. 0. 0 to 9. 19. 0. 0. 0 (Blom: 1927: Vol. II: p. 304). The date 9. 13. 0. 0. 0, so important at Palenque is represented here.

Comalcalco has enough architectural similarities to be called a dependency of Palenque. The Palace has two parallel galleries with doorways in

the same manner as Palenque. There is a sunken courtyard within this complex. There is a large and elaborate burial found near temple 2. Within are nine stucco figures. Their rendition is probably the best of this medium in the Maya area. The burial itself was so destroyed by fallen stone and moisture that little grave furniture was left. A clam shell necklace was the only artifact mentioned as being in the tomb. Temple I has a ground plan similar to the Temple of the Beau Relief, including the basement room. Therefore, although the site layout is different than Palenque's, parallels in building types indicates a common devotion to certain patron deities.

SUMMARY

With hundreds of major sites known in the Peten area, there are probably many more dominance areas than those mentioned. In most cases, more accurate mapping and better description of architectural remains is necessary. Without this knowledge there is little to do except mention possible areas.

What Morley speaks of as the Ixcan Valley may contain, a small group of related sites. These are about 25 kilometers north of Holmul. The sites of La Honradez, Ymakabatun, and Chochkitam all have stelae dating from the same period, the last quarter of baktun 9, which are practically identical in design. They feature a figure standing on a mask panel (Morley, 1938: p. 321: Vol. I). Maps of these sites are not complete and the similarities are only general. Ball-courts are placed to one side of a plaza, and temples flank the main plaza on all sides. Perhaps with more accurate maps and closer study, parallel building groups may be discovered.

The city of Coba, in Yucatan, has a very definite Peten pattern. Its layout around a single main plaza is very distinct. This site, even though in a generally Post-Classic area, is a pure Classic Peten site as far as settlement pattern. There are stelae and what few Post-Classic buildings there are are evident. Tuluum, usually considered an extremely late and decadent site, has on stela dated at 9. 6. 10. 0. 0 (Thompson: 1932: p. 193).

Cosmology as expressed in Classic Maya ceremonial centers of the Peten is still an open and unexplored subject. In doing research on the vast number of sites, certain aspects had to be selected over others, as stated in the introduction. The points I have tried to make are: Tikal was the focal point for much of what went on in the Classic Maya region; There are cases where one large site colonized and possibly controlled smaller sites within a specific area; Palace development may be traced from Tikal, through Nakum, Uaxacton, Piedras Negras, and Palenque to Comalcalco; The place of palaces in Maya life may be known through more research; graffiti give an insight into ritual activity; Certain types of building arrangement,

Group E, early-Classic triple temple complex, palaces, sanctuary temples, etc. may be traced throughout many sites; Their frequency and regularity of occurrences suggests great significance; ball courts, as Blom suggested, have an astronomical significance; And finally, the plaza was often the organizing feature of Maya sites.

> "The study of architecture, as an archaeological procedure is directed toward the recovery of history. It is founded upon the principle that the building remains reflect certain aspects and attributes of the culture that created them." (Brain: 1960: p. 3)

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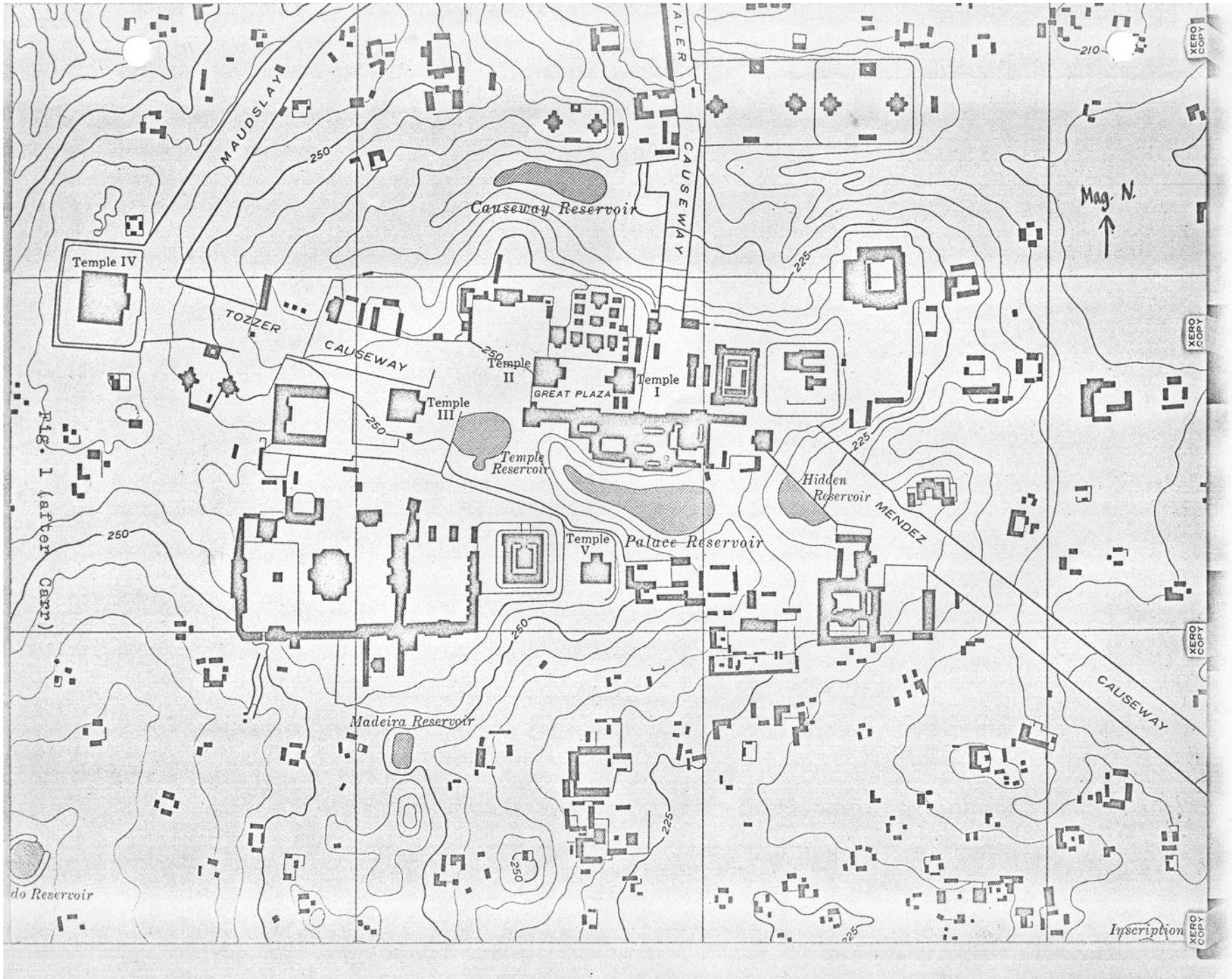


Fig. 1 (after Carr)

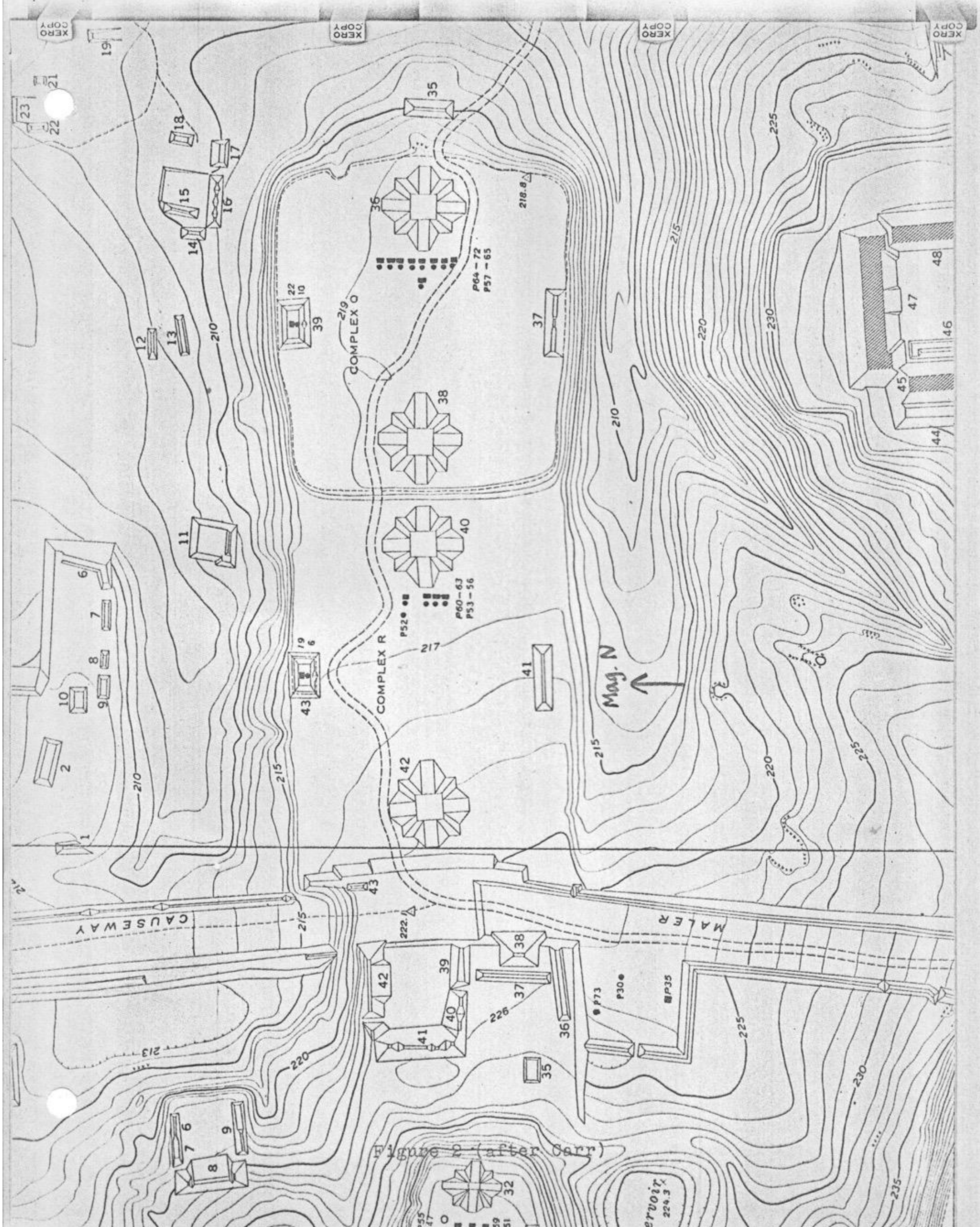
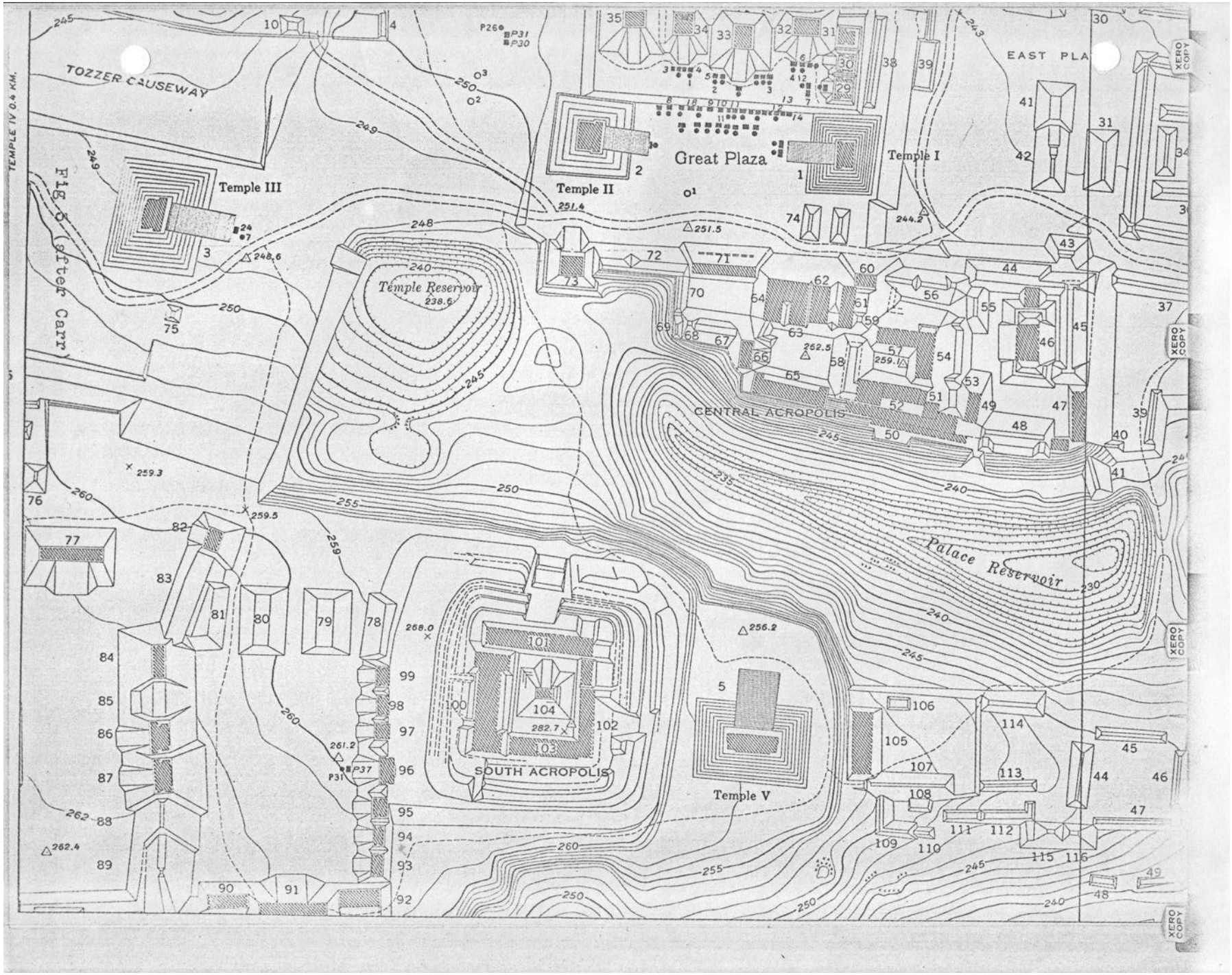


Figure 2 (after Carr)


TEMPLE IV 0.4 KM.
TOZZER CAUSEWAY
Fig. 3 (after Carr)
Temple III
Temple II
Great Plaza
Temple I
EAST PLA
Temple Reservoir
238.6
CENTRAL ACROPOLIS
Palace Reservoir
SOUTH ACROPOLIS
Temple V
XERO COPY

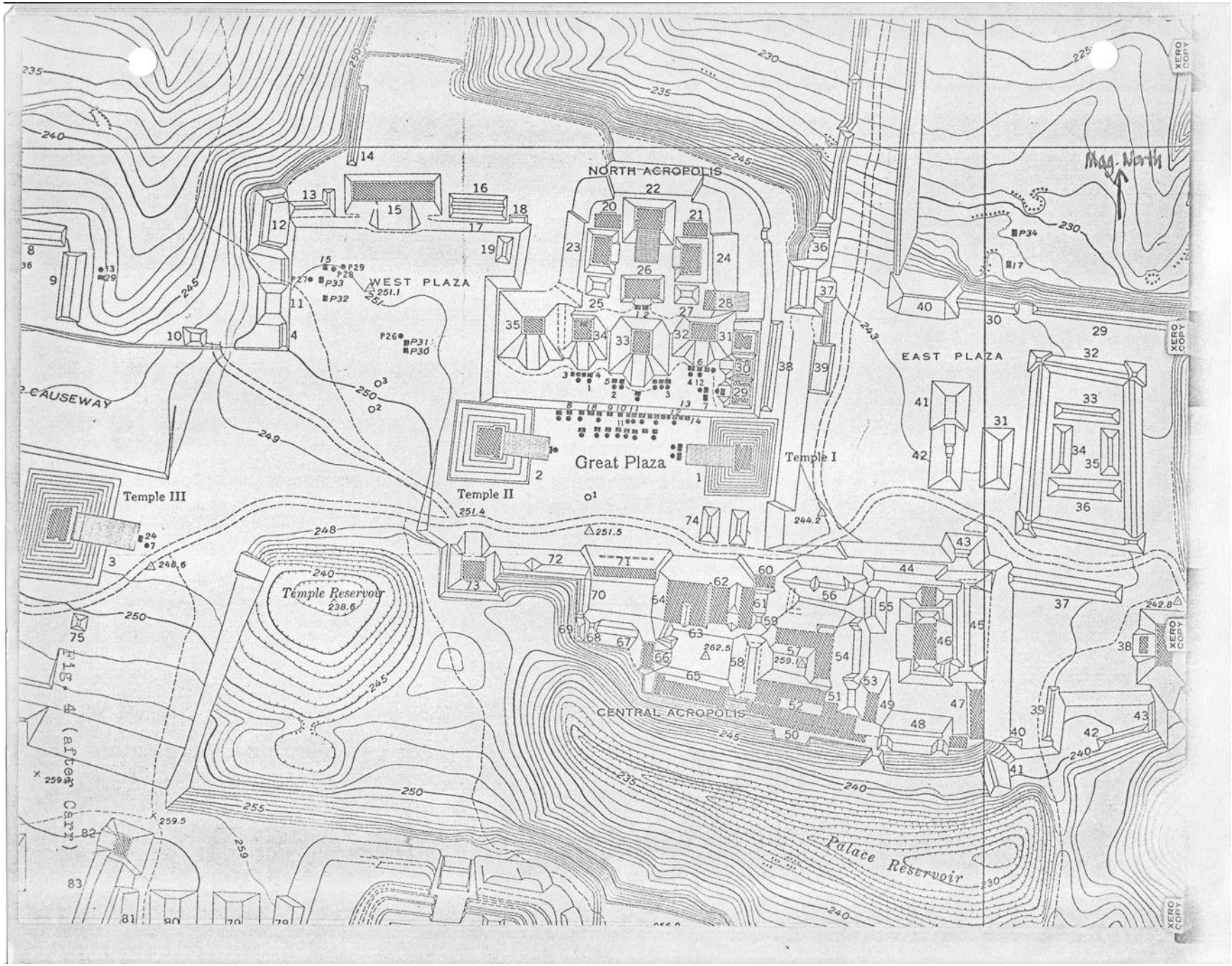


Fig. 4 (after Carr)

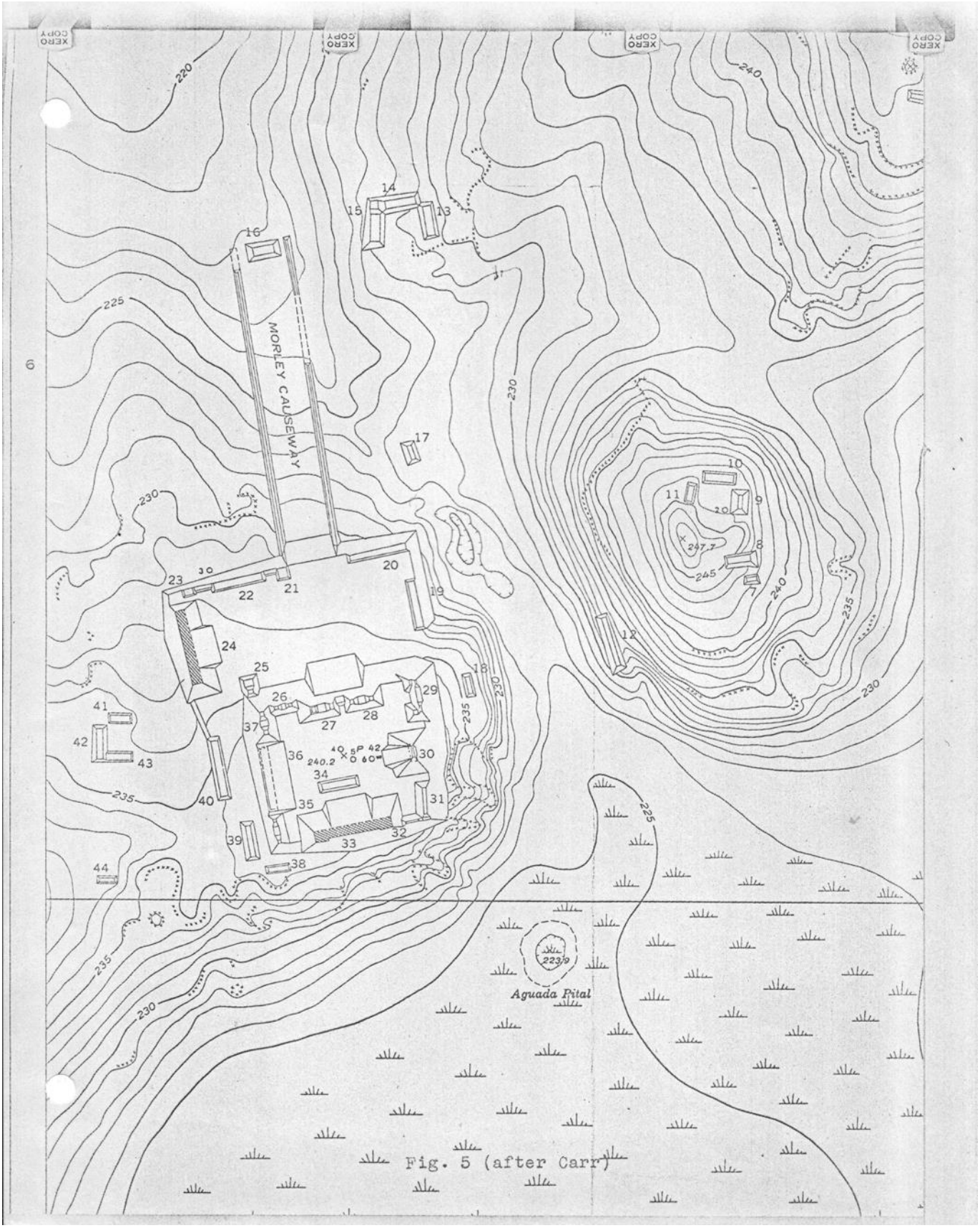
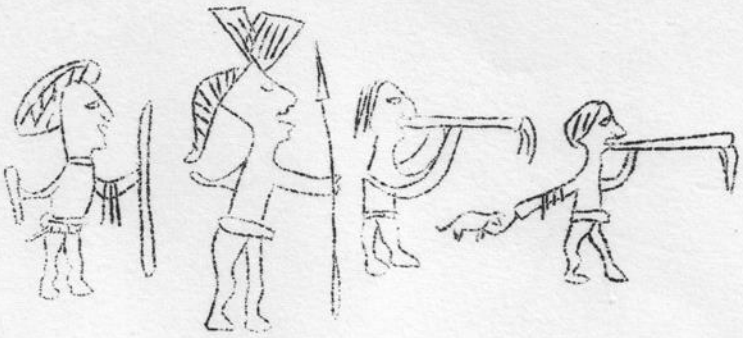


Fig. 5 (after Carr)



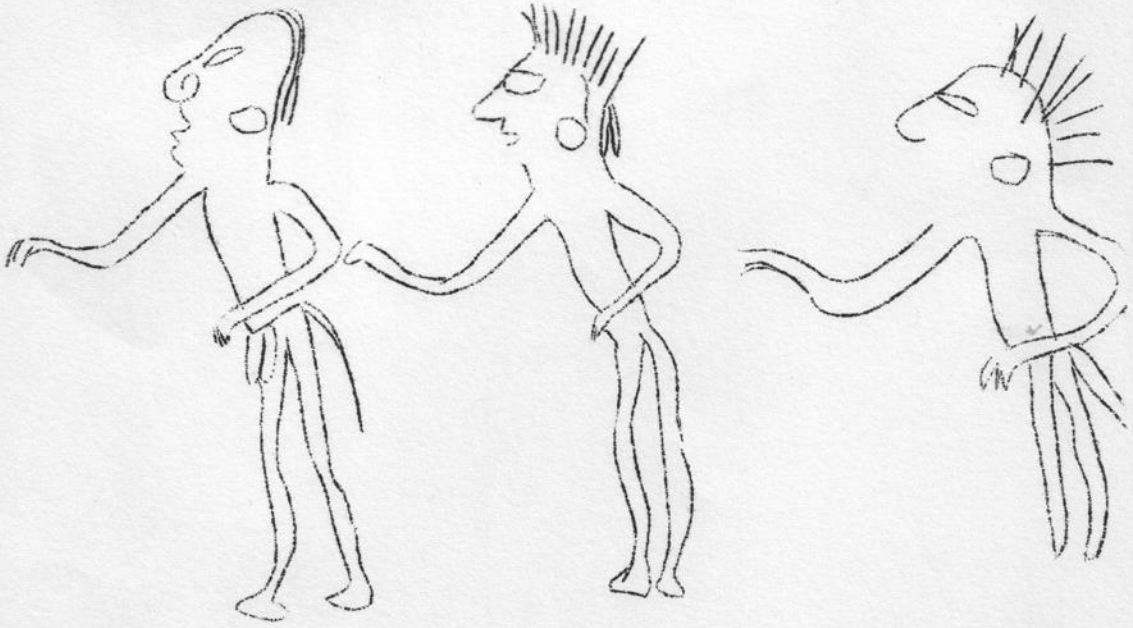


Fig. 6 (after Webster)
Processional graffiti at Tikal

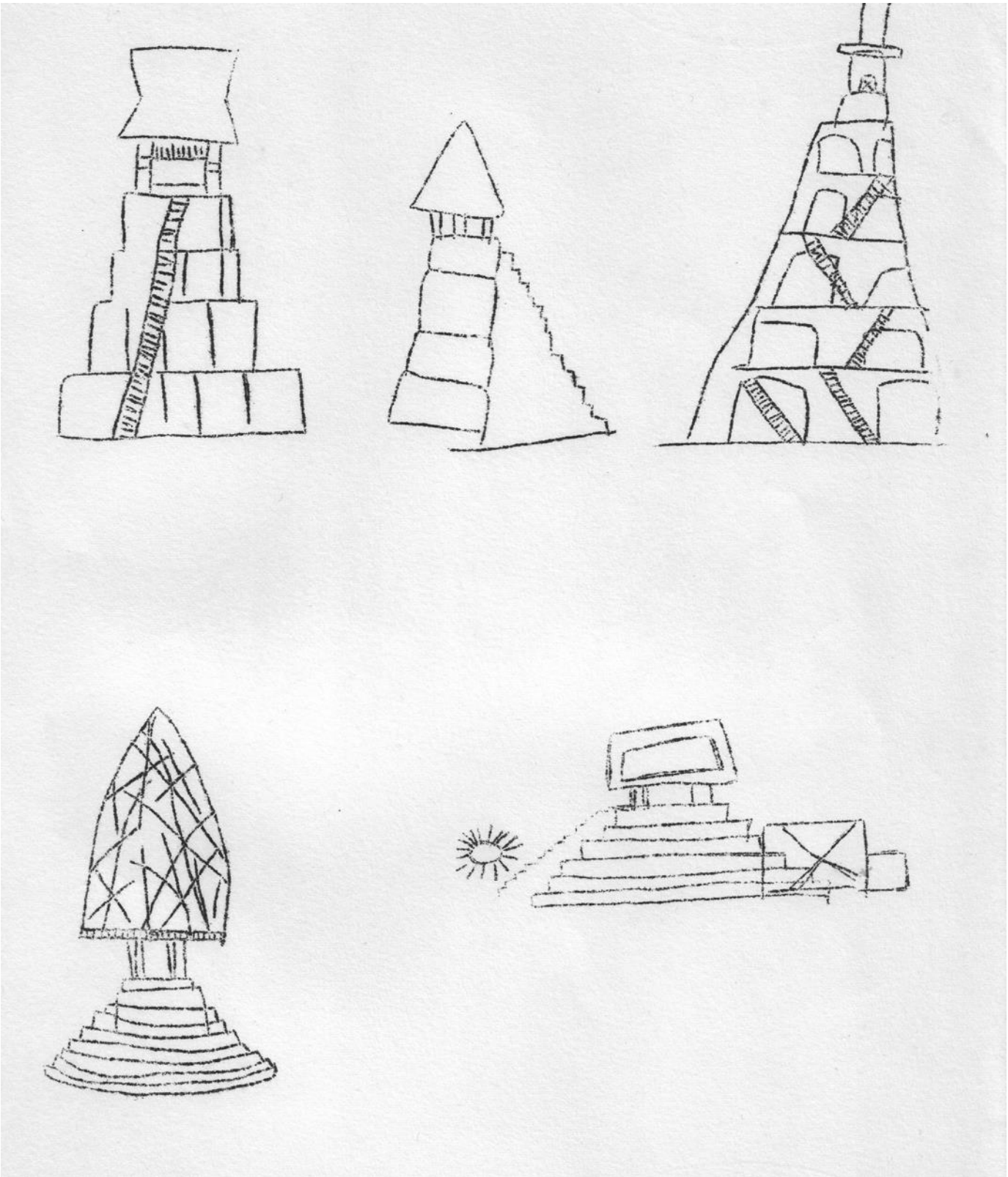


Fig.7 (after Maler)
Temple graffiti Tikal

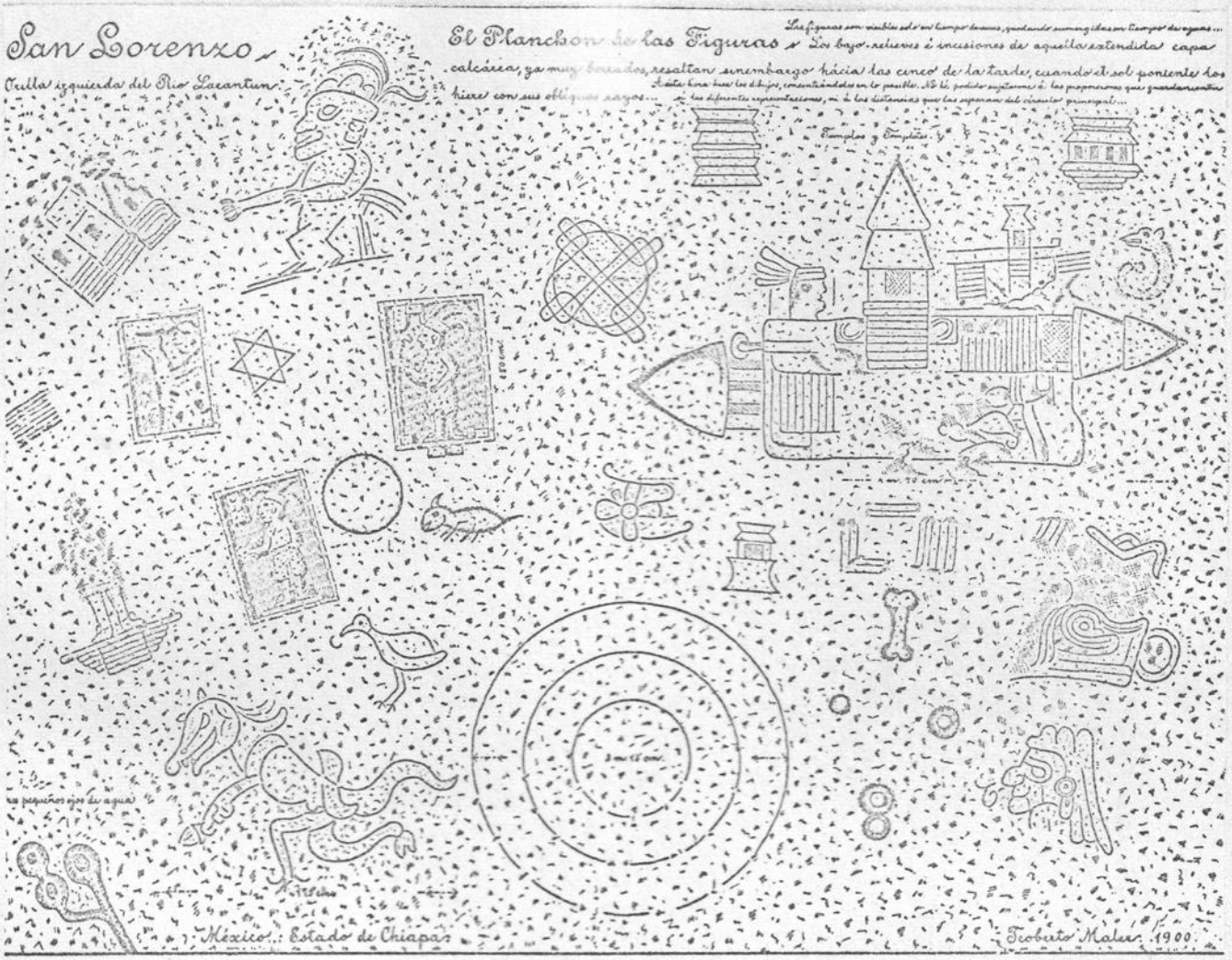


FIG. 67. — ROCK CARVINGS: SAN LORENZO.

Fig. 9 (after Maler)
Looming jaguar motif, Tikal Graffiti

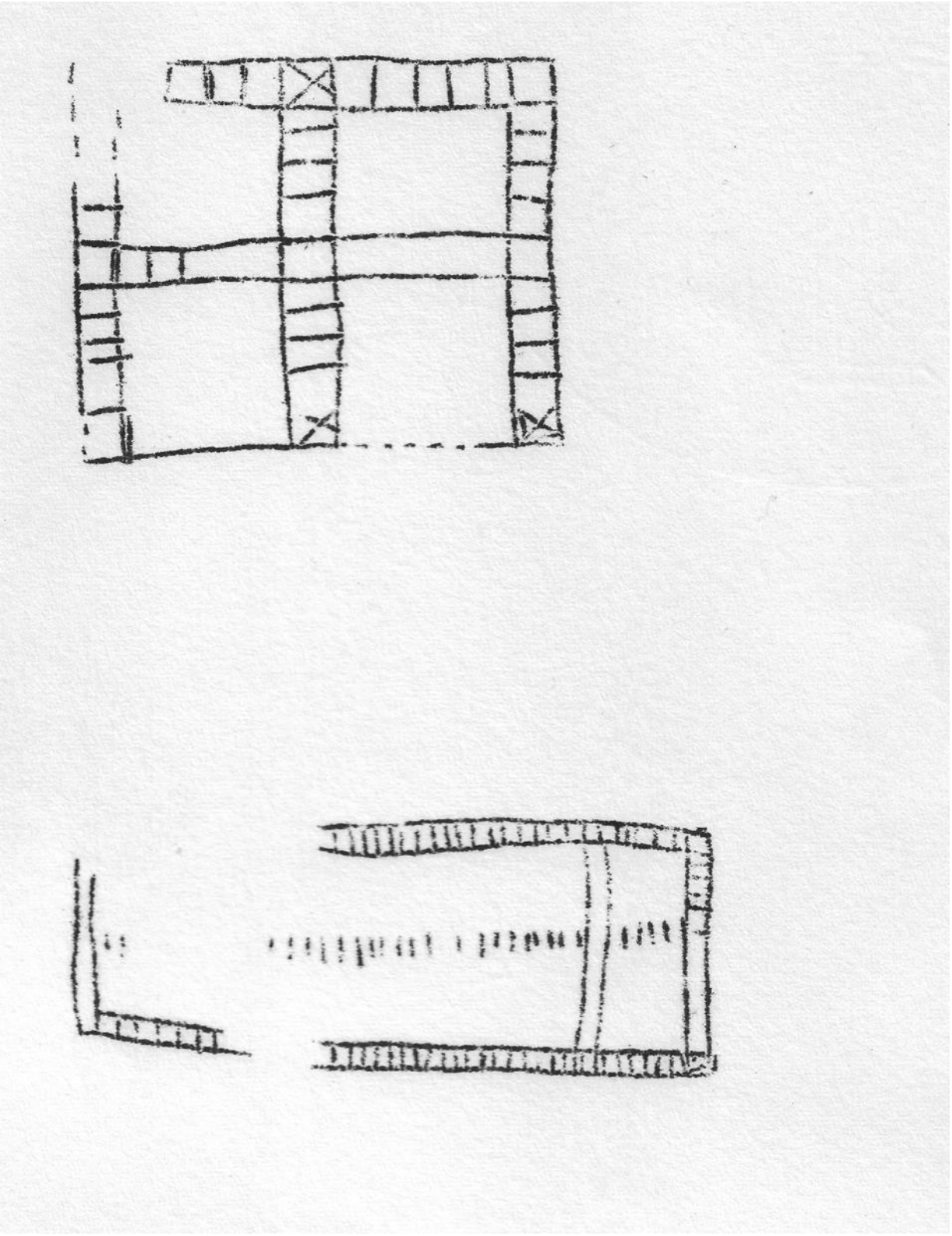


Fig. 10 (after Tozzer)
Graffiti at Nakum

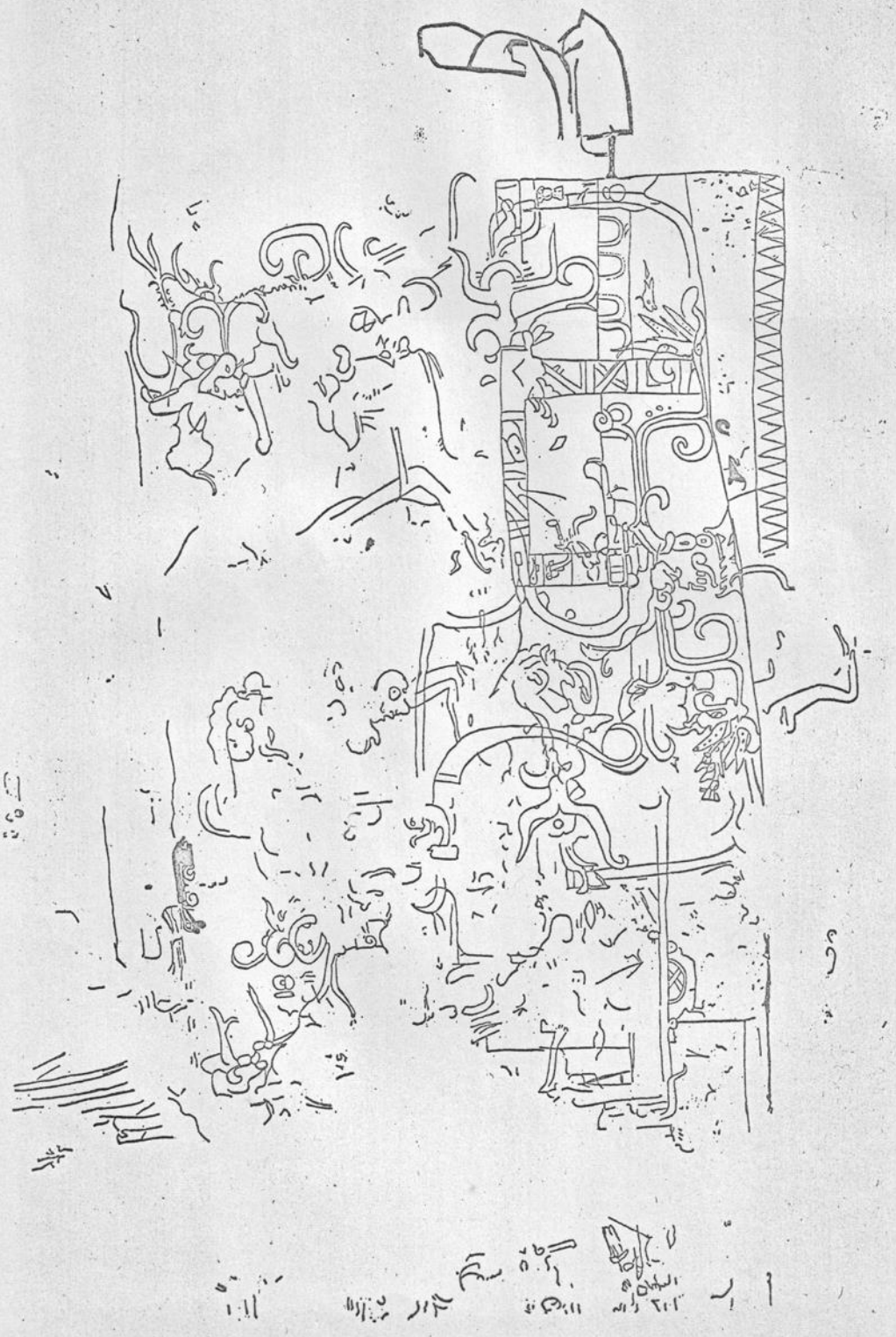


FIG. 110—WALL PAINTING FROM STRUCTURE A-V
Part of painting on south wall of Room 49. One third actual size

Fig. 11 (after Smith)

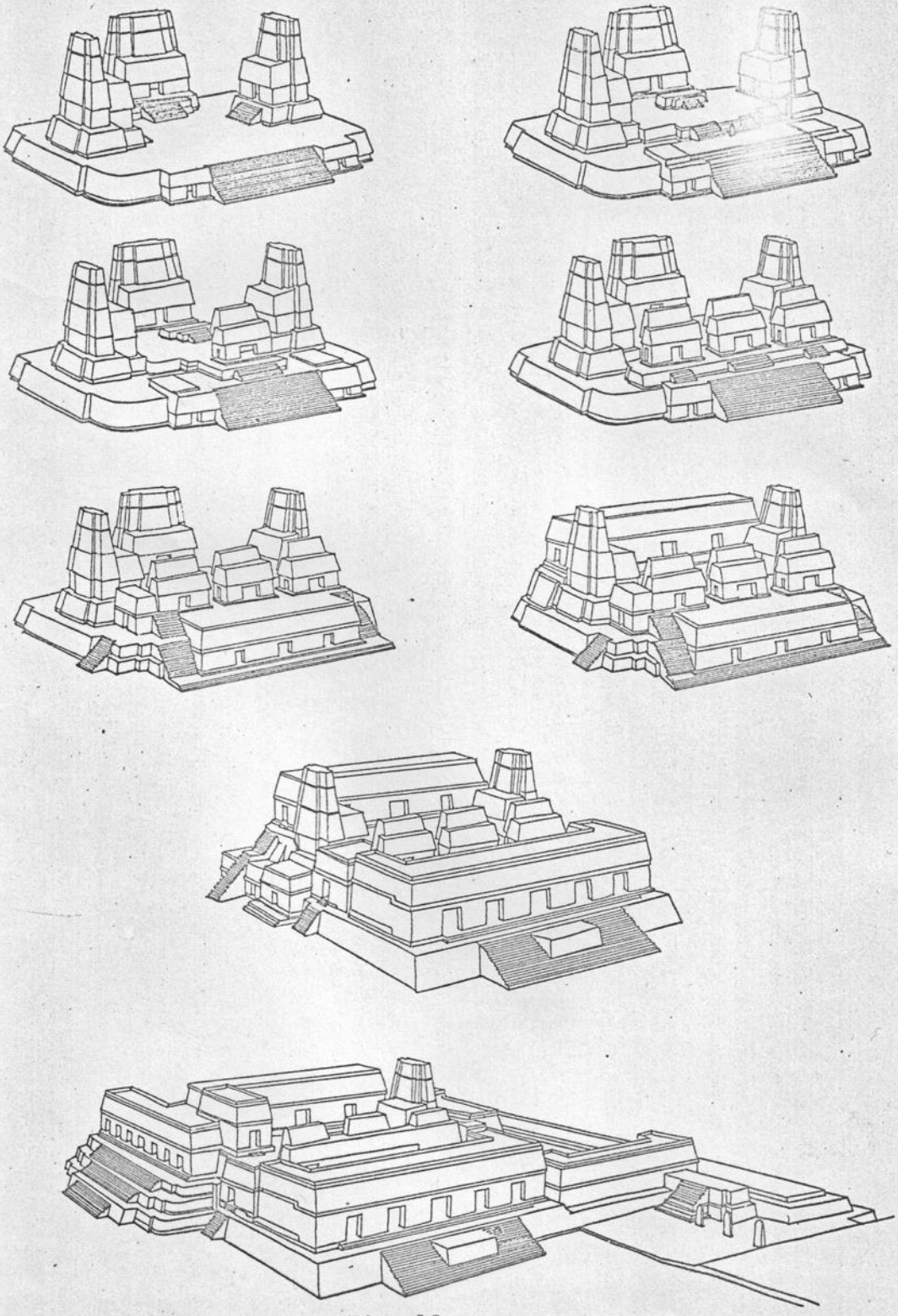


Fig. 12

Lám. 154.—Estudio de la forma en que se fueron superponiendo las diversas estructuras en el Grupo A-V de Uaxactún. Según Tatiana Proskouriakoff.—*(Instituto Carnegie de Washington.—Dibujo de J. A. Gómez R.)*

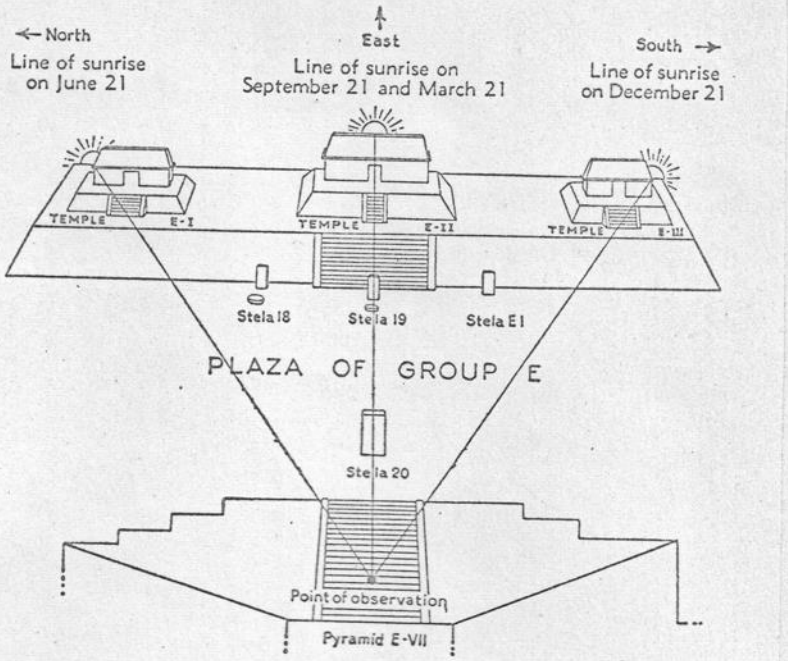


FIG. 33.—Diagram of the astronomical observatory at Group E, Uaxactun, Peten, Guatemala, for determining the dates of the solstices and equinoxes.

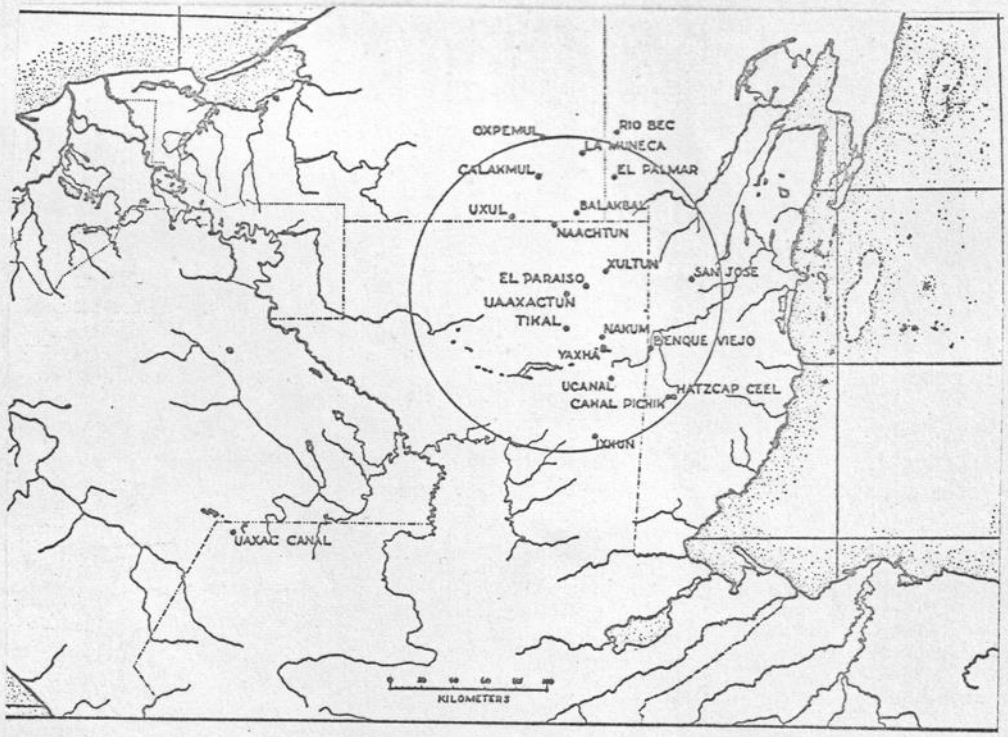


FIG. 15. MAP OF MAYA AREA SHOWING DISTRIBUTION OF SPECIALIZED ASSEMBLAGES

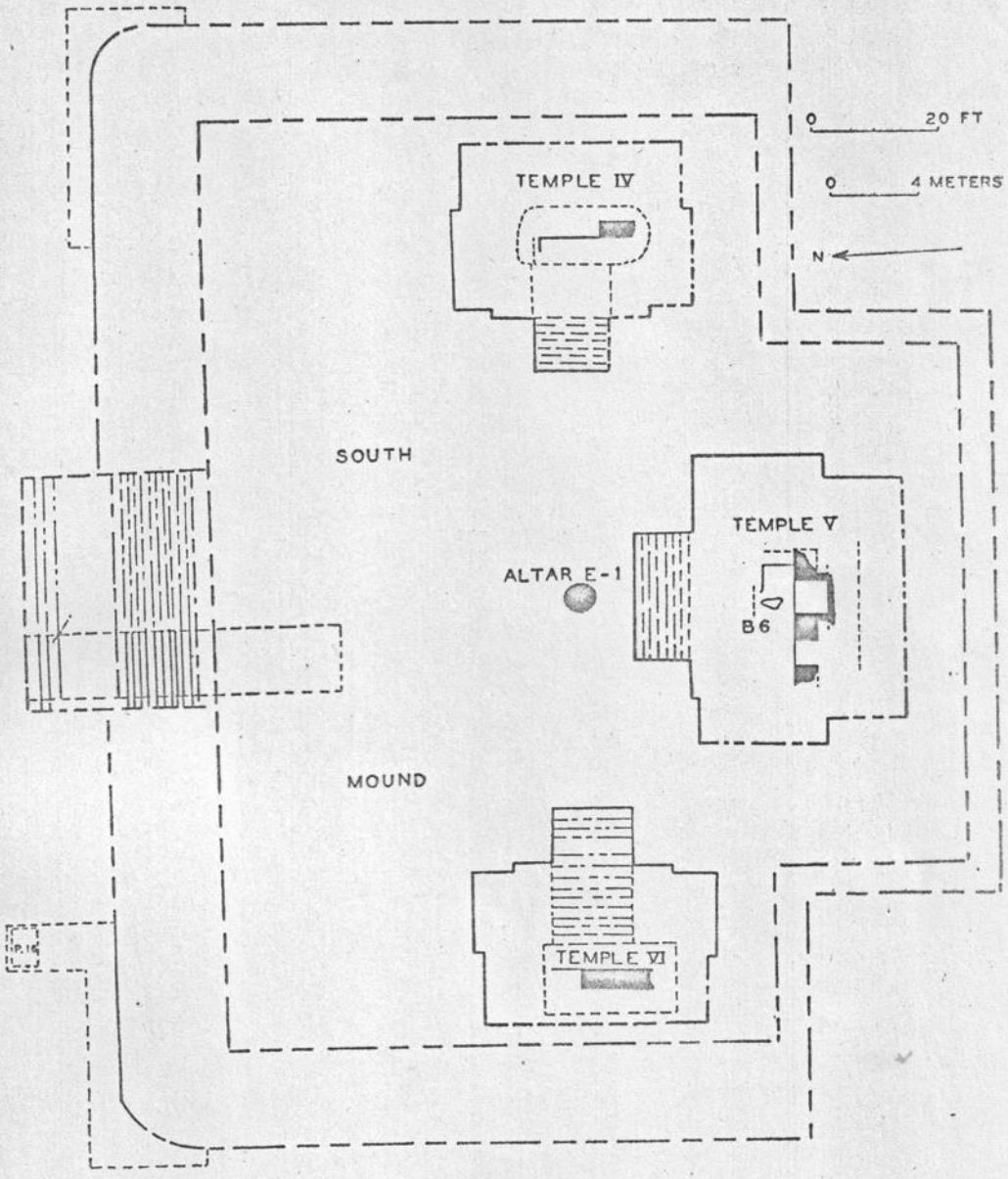


FIG. 21—SOUTH MOUND AND TEMPLES E-IV, E-V, AND E-VI, GROUND PLAN

The South Mound is ascended on the north by a stairway with a landing 2.7 m. wide, which leads to the court on top, enclosed on three sides by three small temples, each on its own platform. The rounded corners of the South Mound, as excavated at the northeast and northwest, should be noted, as well as the extension projecting south. Little can be said of the temples themselves owing to their dilapidated condition. In each case only a fragment of the central wall was standing (shown in solid black). They were all, therefore, two-chambered and faced around the court as shown. The dotted lines around the standing walls indicate the broken edges of interior floors; the outer walls had in every case completely fallen. The location of Burial 6 (B 6) is indicated, as is the presence of the secondary stairway (dotted line) and the primary stairway (black line) ascending the northern margin of the South Mound.

Fig. 14 (after Ricketson)

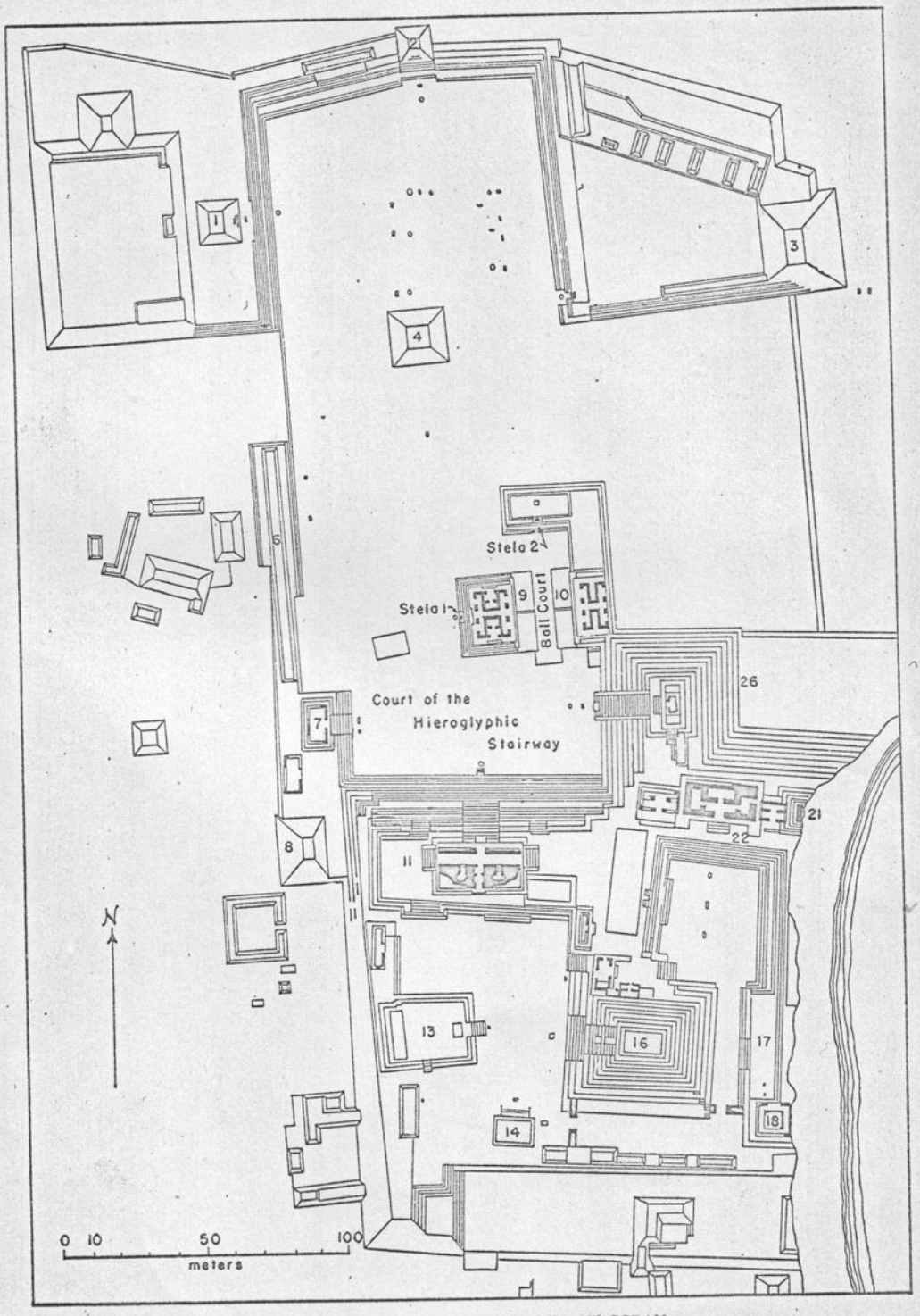
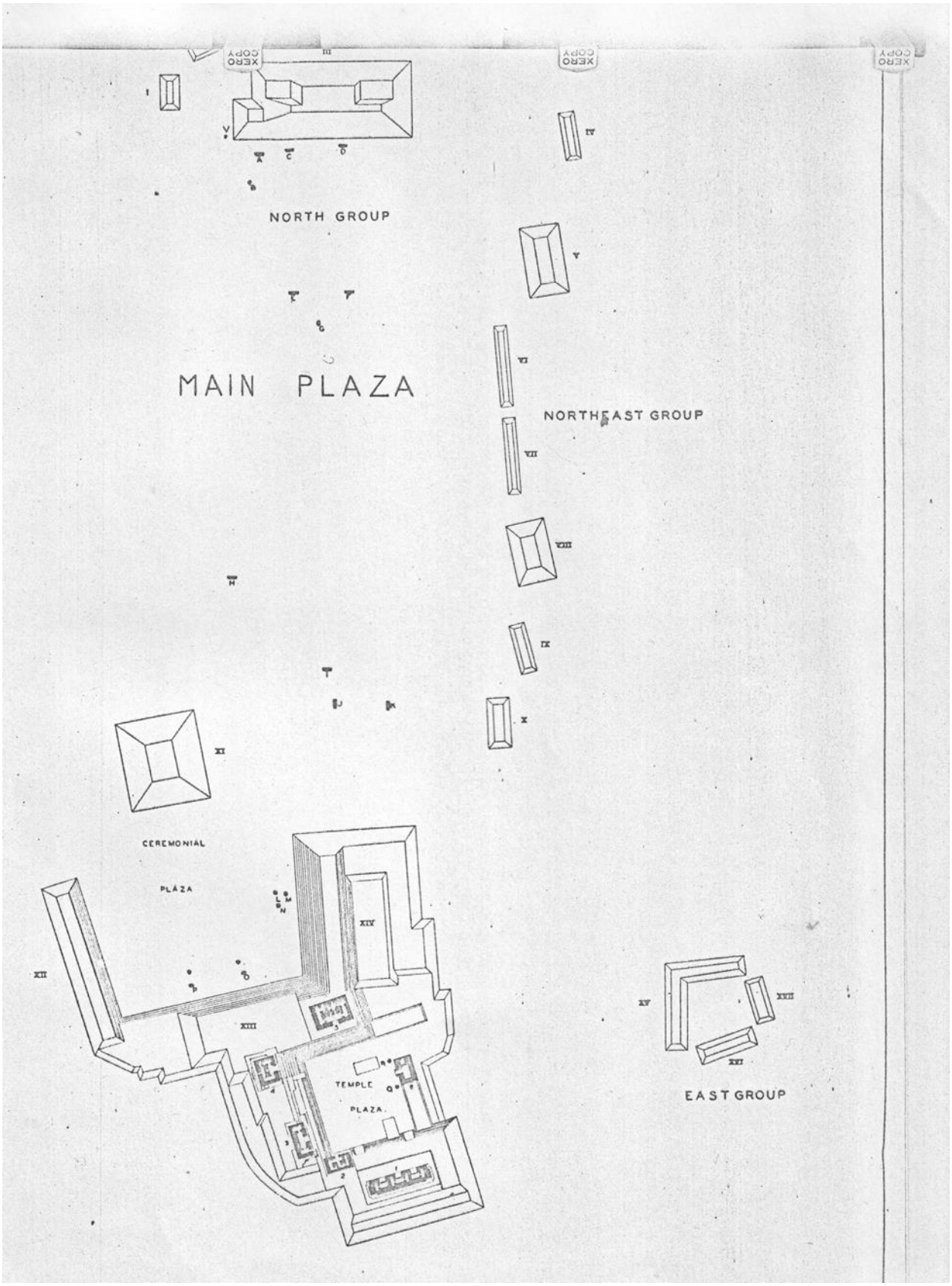
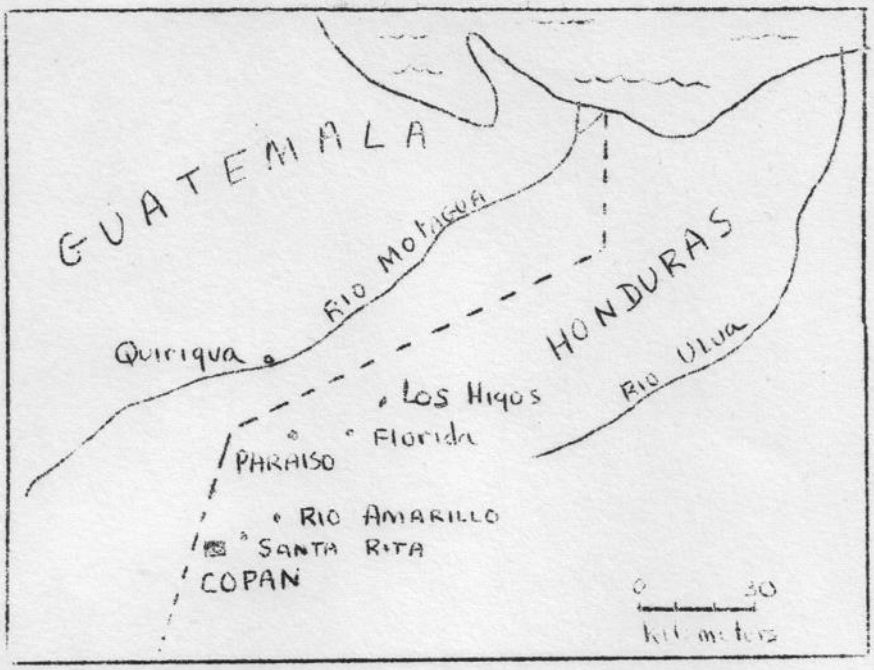


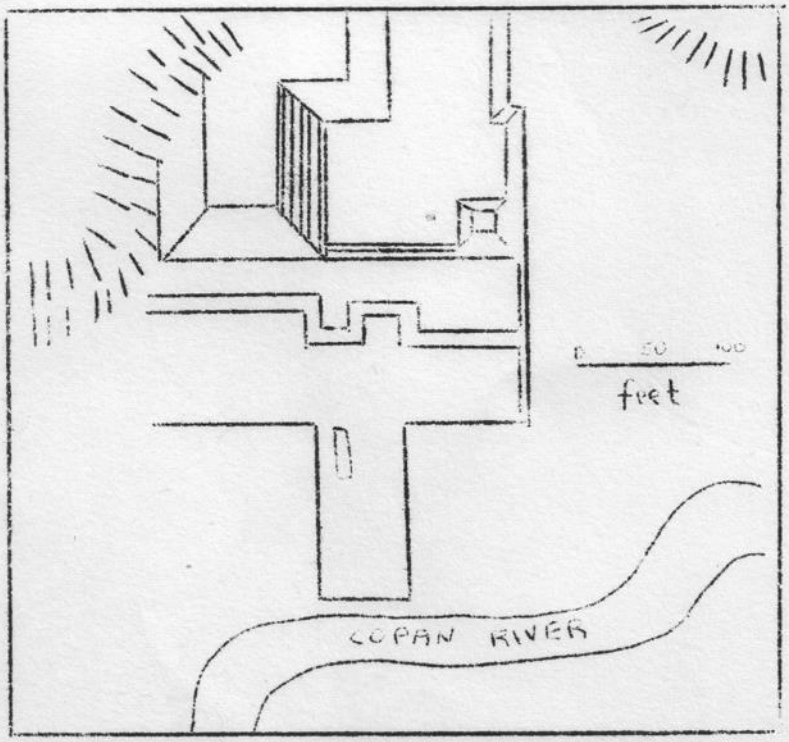
FIG. 1—MAP OF THE MAIN GROUP AT COPAN

Fig. 15 (after Stromsvik)

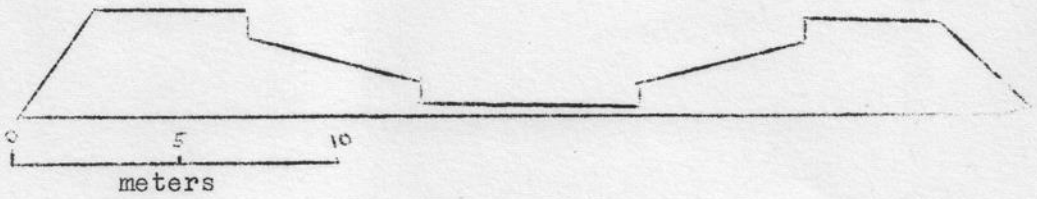

NORTH GROUP
MAIN PLAZA
NORTHEAST GROUP
CEREMONIAL
PLAZA
TEMPLE
PLAZA.
EAST GROUP



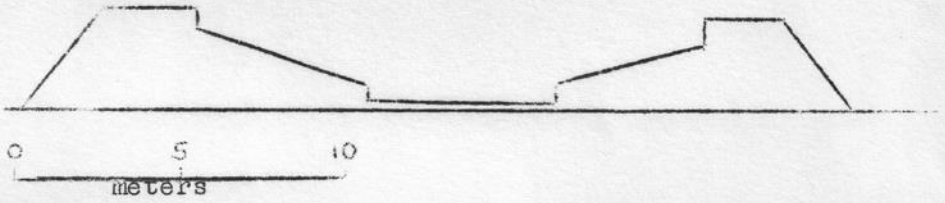
.ap of Copan Dominance area



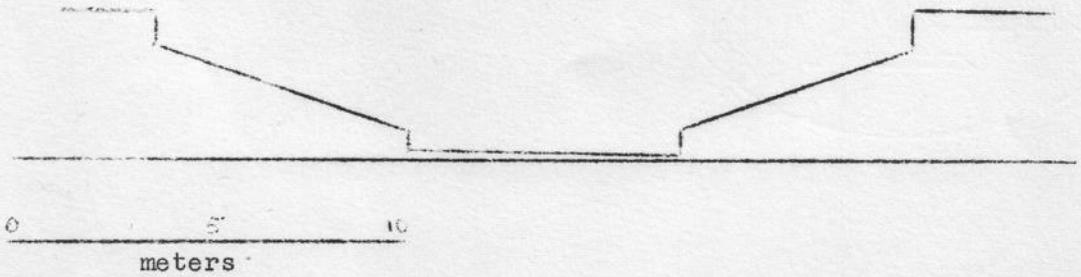
Site map of Rio Amarillo
Fig 17 (after Morley)



La Union, Department of Copan, Honduras, Ball court



Quirigua, Ball court



Copan, Ball Court

Fig. 18 (after Stromsvik)

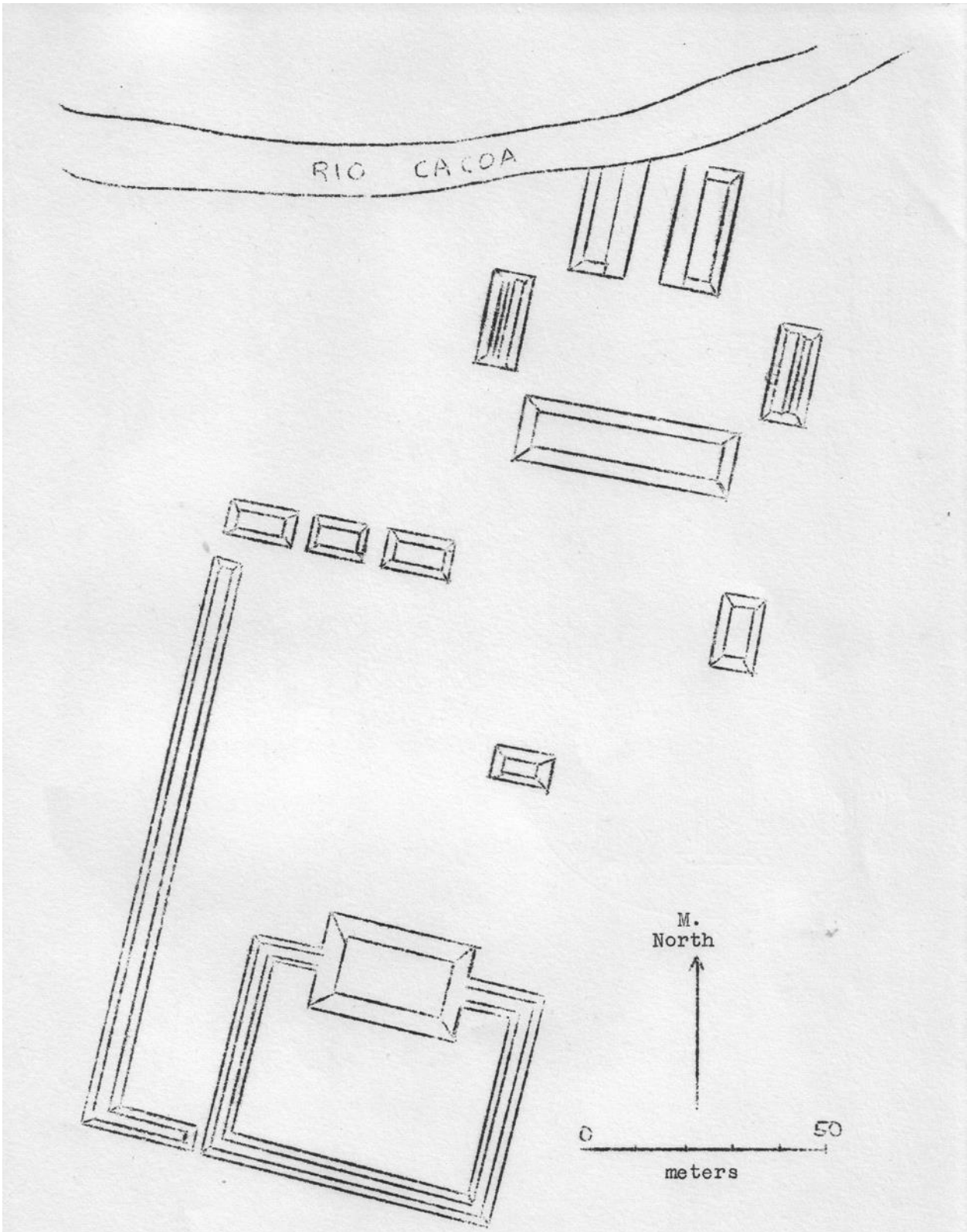
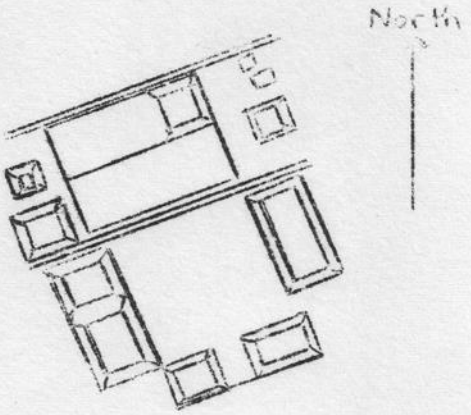
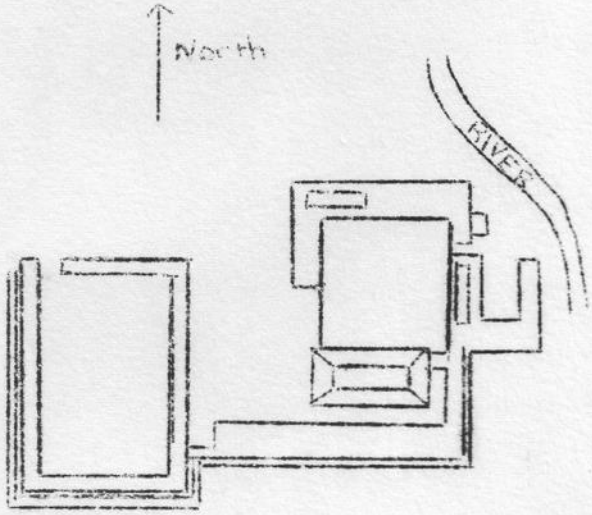


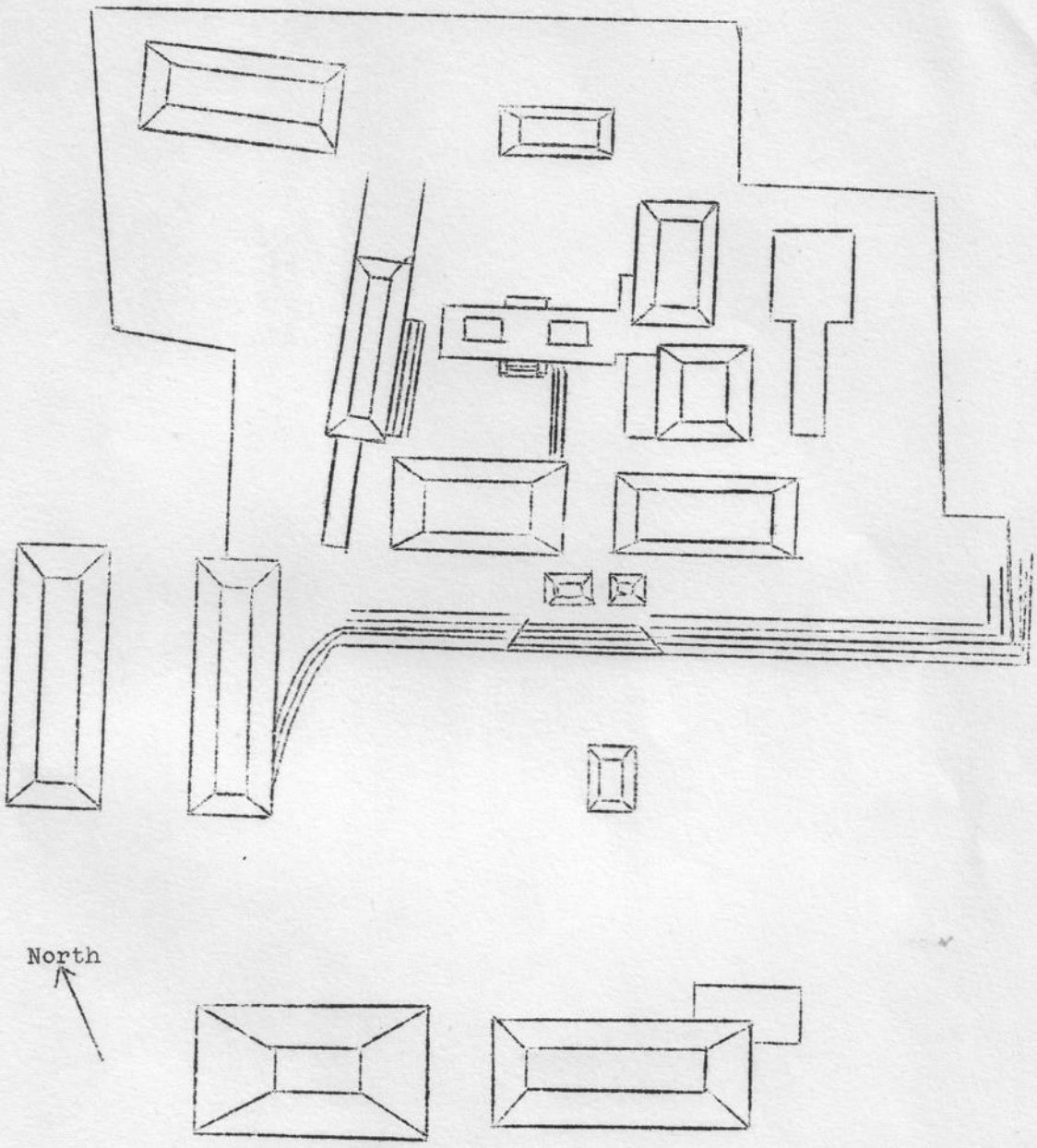
Fig. 19 (after Stromsvik)
Map of Main Group at La Union



Ruins of Piedra Pintada (Dept. of Copan, Honduras)
scale 1:1200



Ruins of El Paraiso (Honduras)
scale 1:2400



Ruins of Travesia, Ulua Valley
(Honduras)
scale 1 inch = 17 meters

Fig. 21 (after Stone)

Lám. 210.—Yaxchilán, Chiapas. Plano general de la ciudad, según Maler y Bolles, situada en las márgenes del río Usumacinta; los edificios se distribuyen a lo largo de la playa y forman grupos separados en las mesetas del lomerío.—*(Dib. A. Arroyo G).*

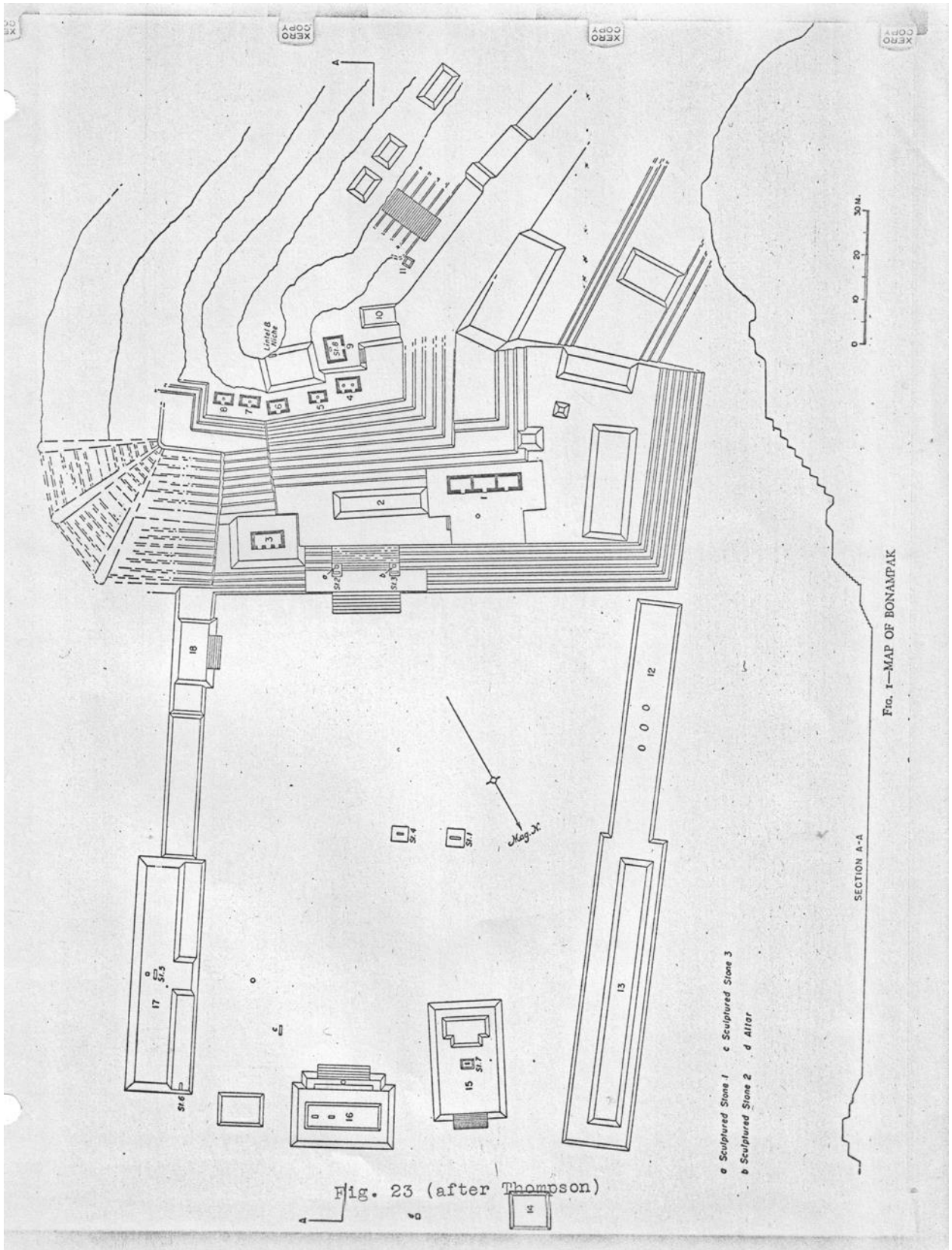


FIG. 1—MAP OF BONAMPAK

Fig. 23 (after Thompson)

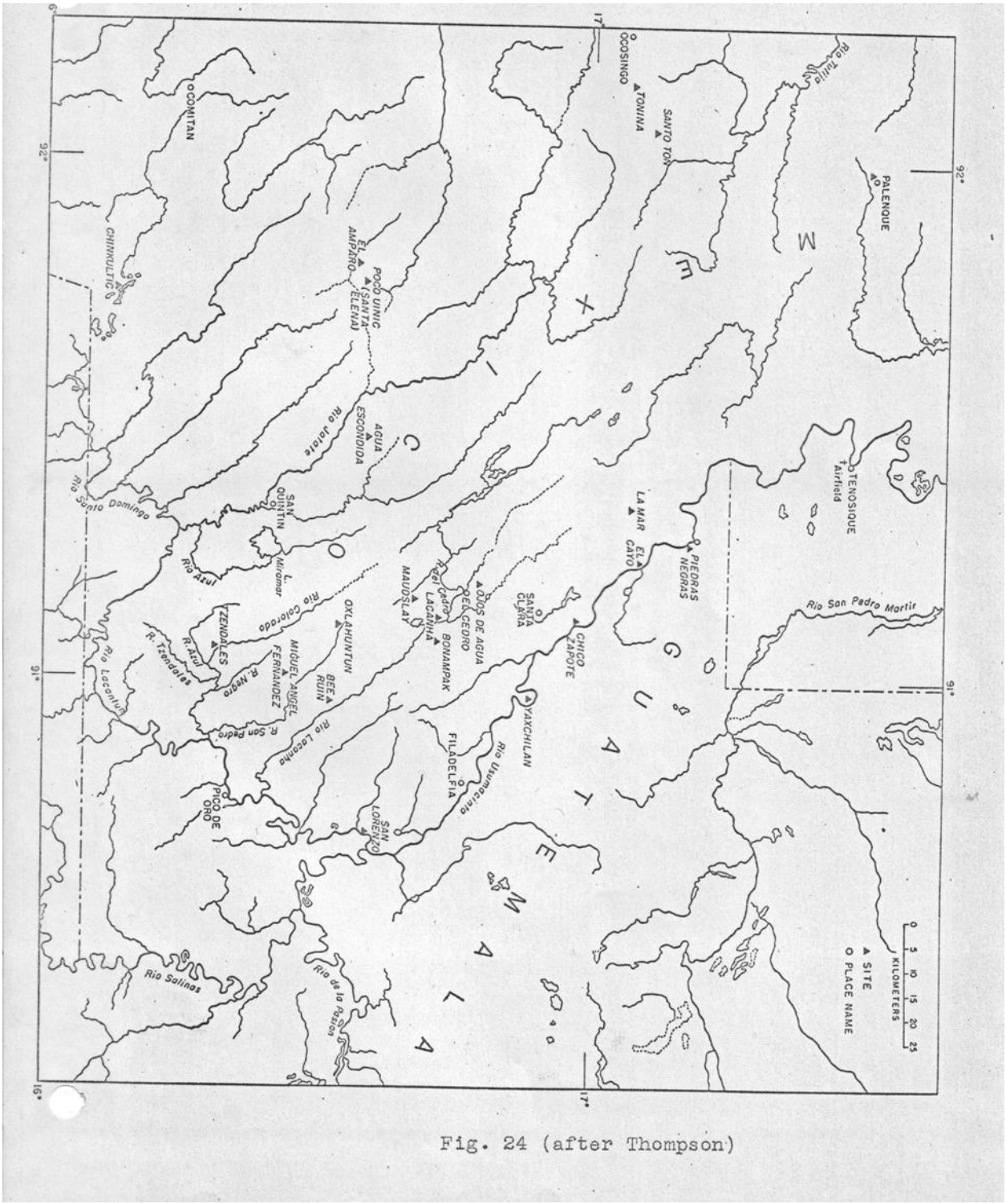


Fig. 24 (after Thompson)

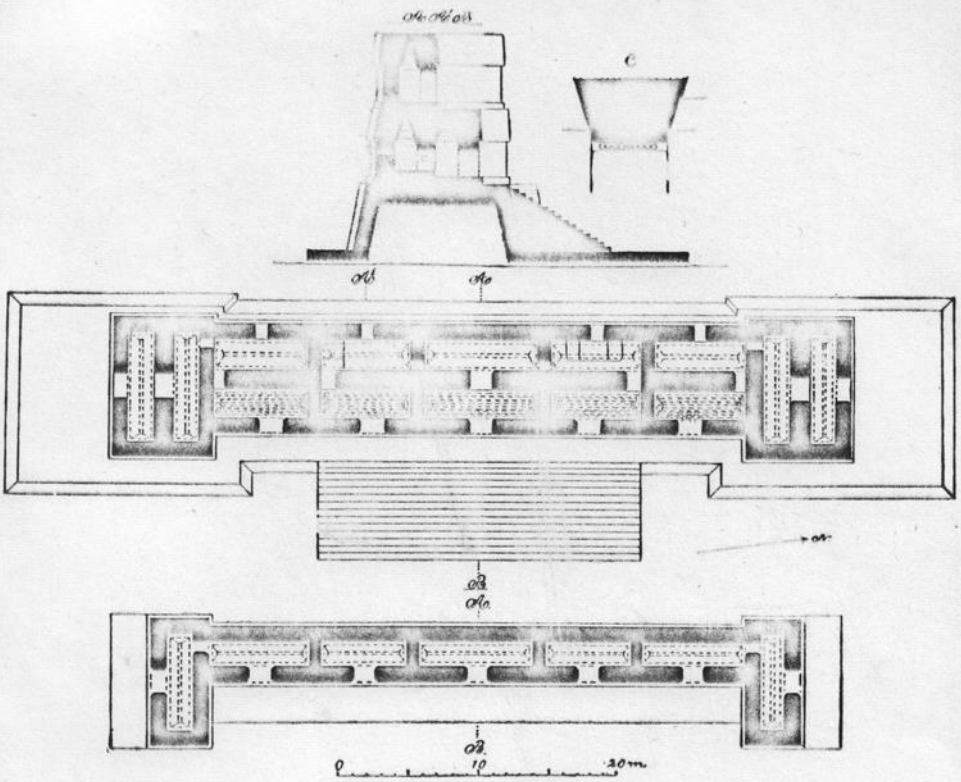


FIG. 6. — TIKAL: Plans and Sections. Palace of Two Stories and 21 Chambers in Rear of Temple III.

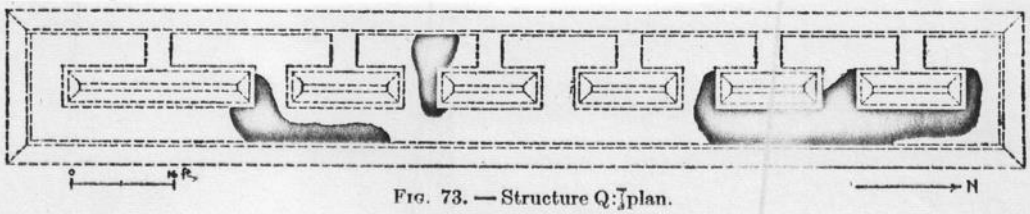
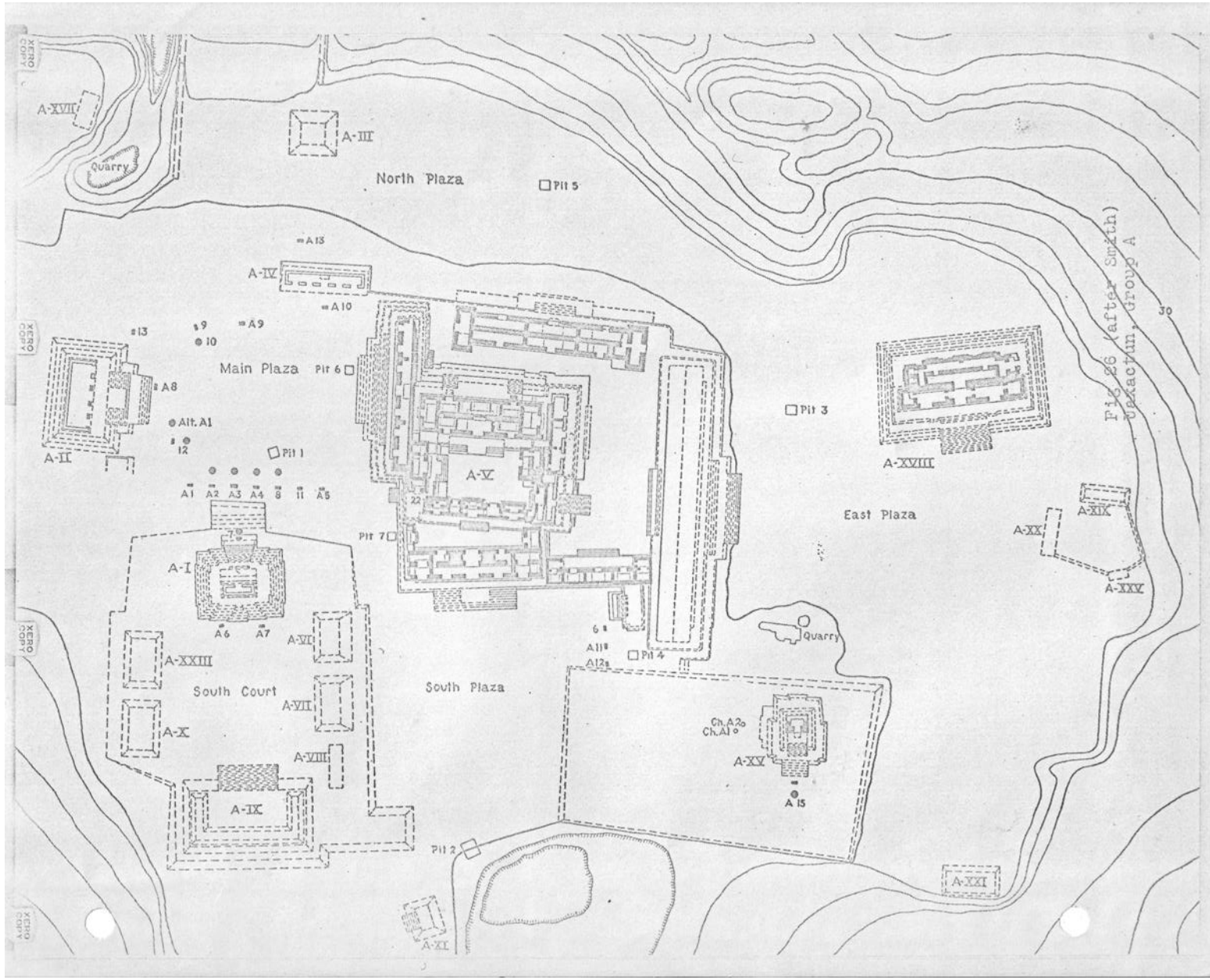


FIG. 73. — Structure Q: plan.


A-XVII
Quarry
A-III
North Plaza
Pit 5
A 13
A-IV
A 10
A 9
13
9
10
Main Plaza
Pit 6
A 8
Alt. A1
12
A-II
Pit 1
A1 A2 A3 A4 8 11 A5
A-V
22
Pit 7
A-I
A6 A7
A-VI
A-XXIII
South Court
A-VII
A-X
A-VIII
A-IX
South Plaza
A11
A12
Pit 4
Quarry
Ch.A2
Ch.A1
A-XV
A 15
Pit 2
A-XI
A-XXI
Pit 3
A-XVIII
East Plaza
A-XIX
A-XX
A-XXV
30
Fig. 26 (after Smith)
Uaxactun, Group A

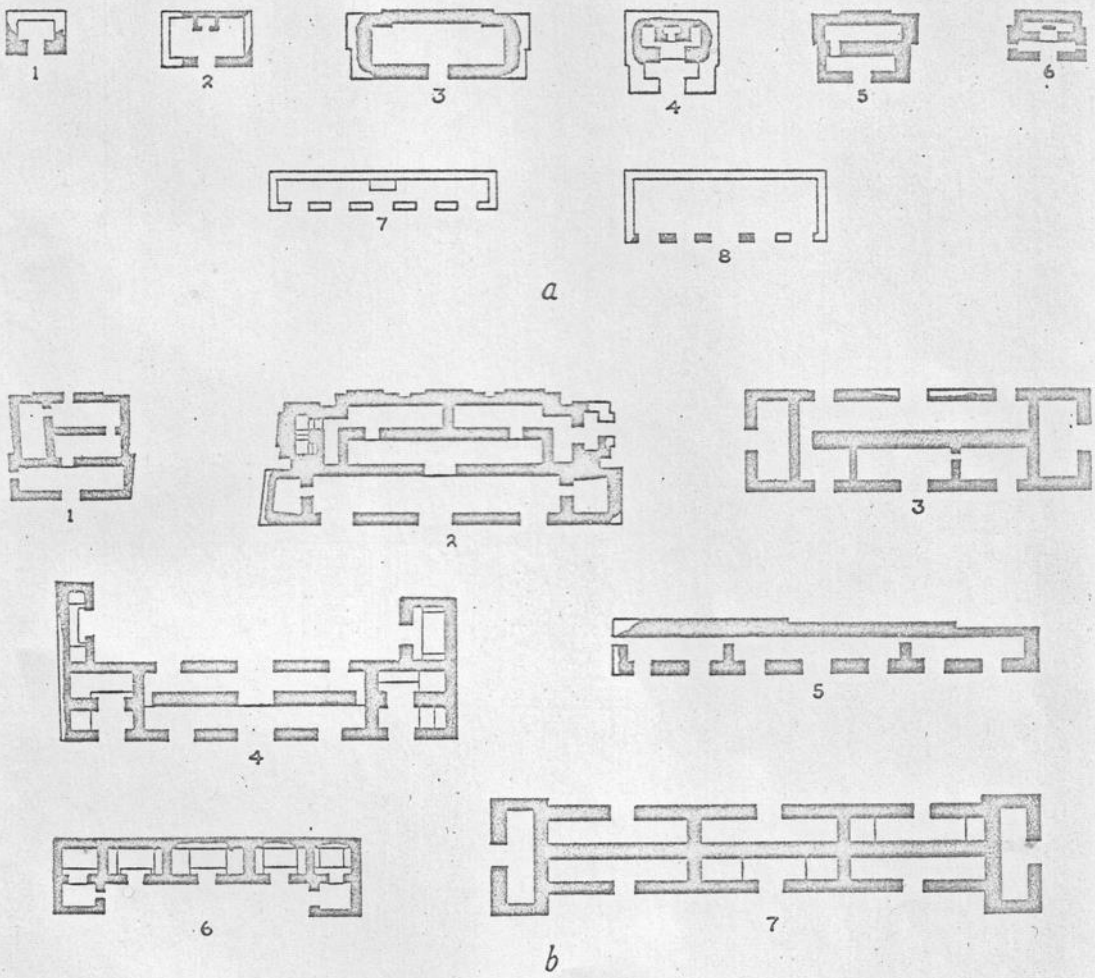


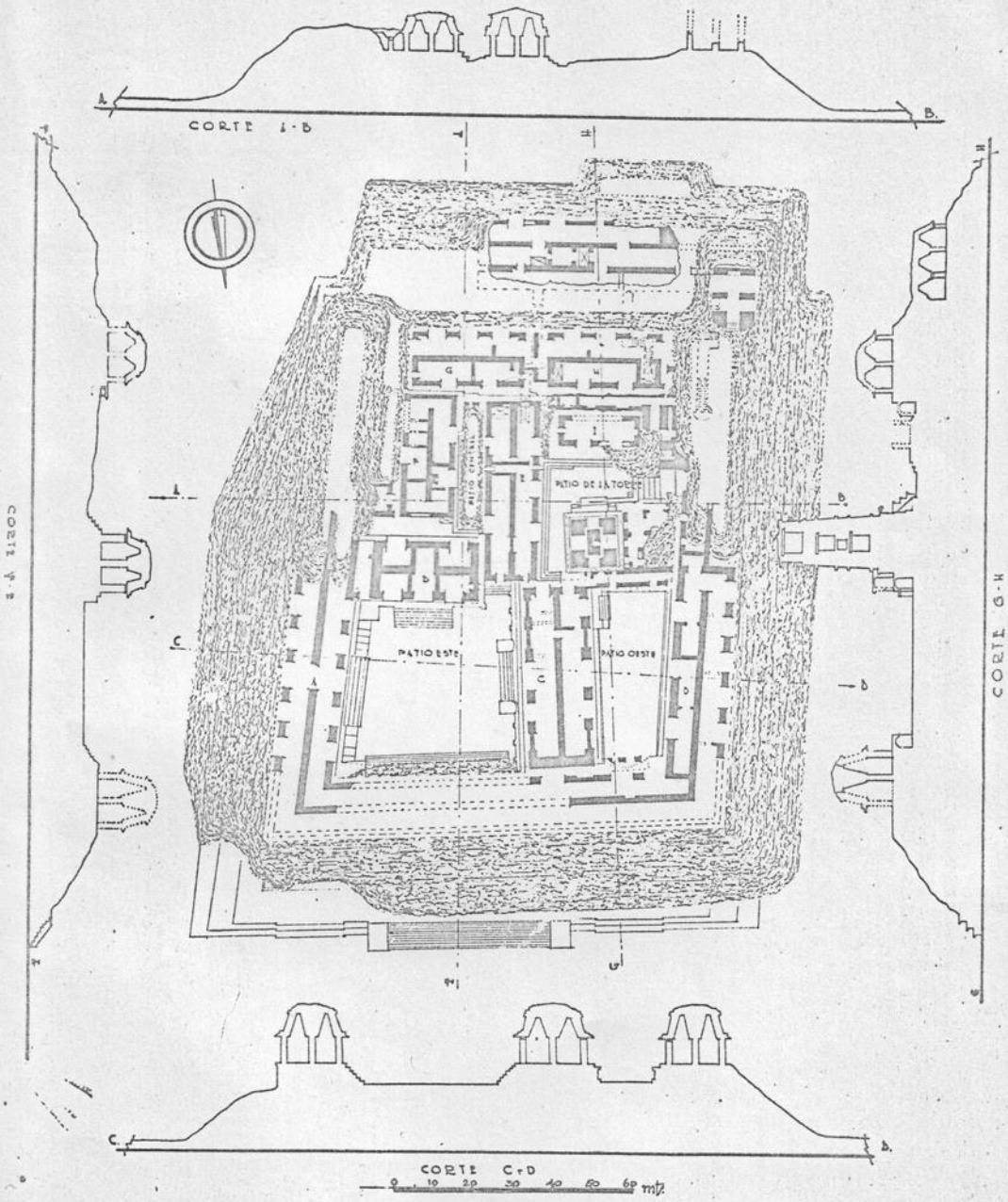
FIG. 106—GROUND PLANS AT UAXACTUN

a: Temple types. 1, Structure A-XV. 2, Structure A-I, Temple F, Phase *b*. 3, Structure E-X, Phase *a*. 4, Structure E-I. 5, Structure A-V, Vault I*c*, Construction C. 6, Structure A-V, Construction H. 7, Structure A-IV. 8, Structure A-II.

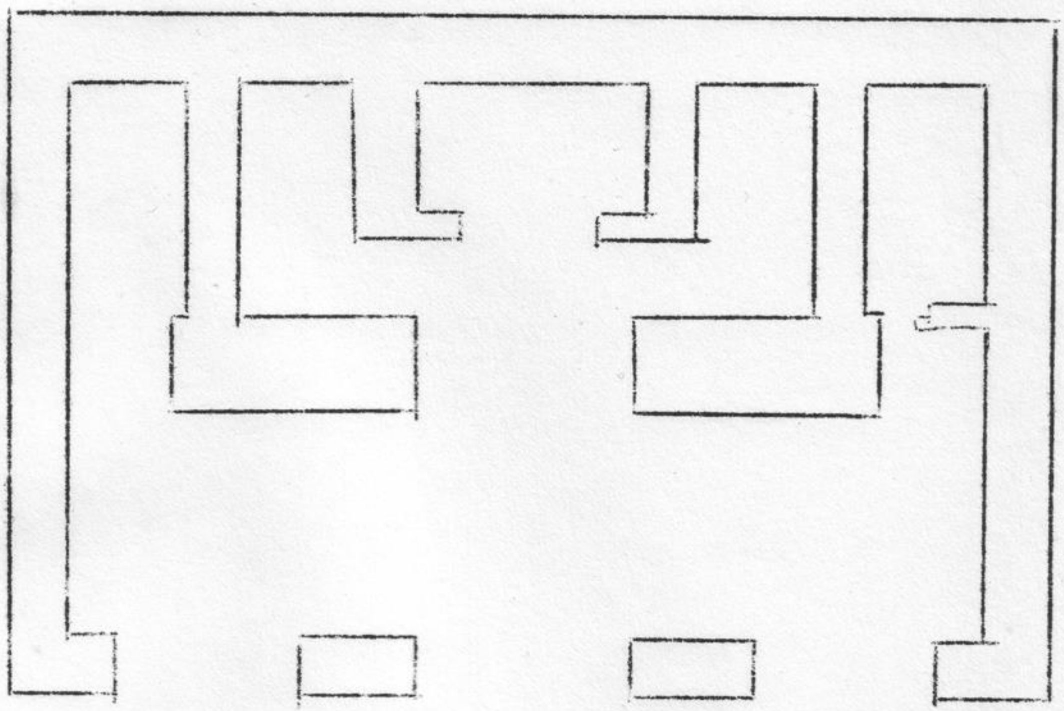
b: Palace types. 1, Structure B-XIII, Phase *a*. 2, Structure A-XVIII before addition of secondary walls. 3, Structure A-V, Vault II*c*, Construction L. 4, Structure A-V, Vault II*d*, Construction M. 5, Structure A-V, Vault II*f*, Construction R. 6, Structure A-V, Vault II*g*, Construction T. 7, Structure A-V, Vault II*h*, Construction W.

Fig 27 (after Smith)

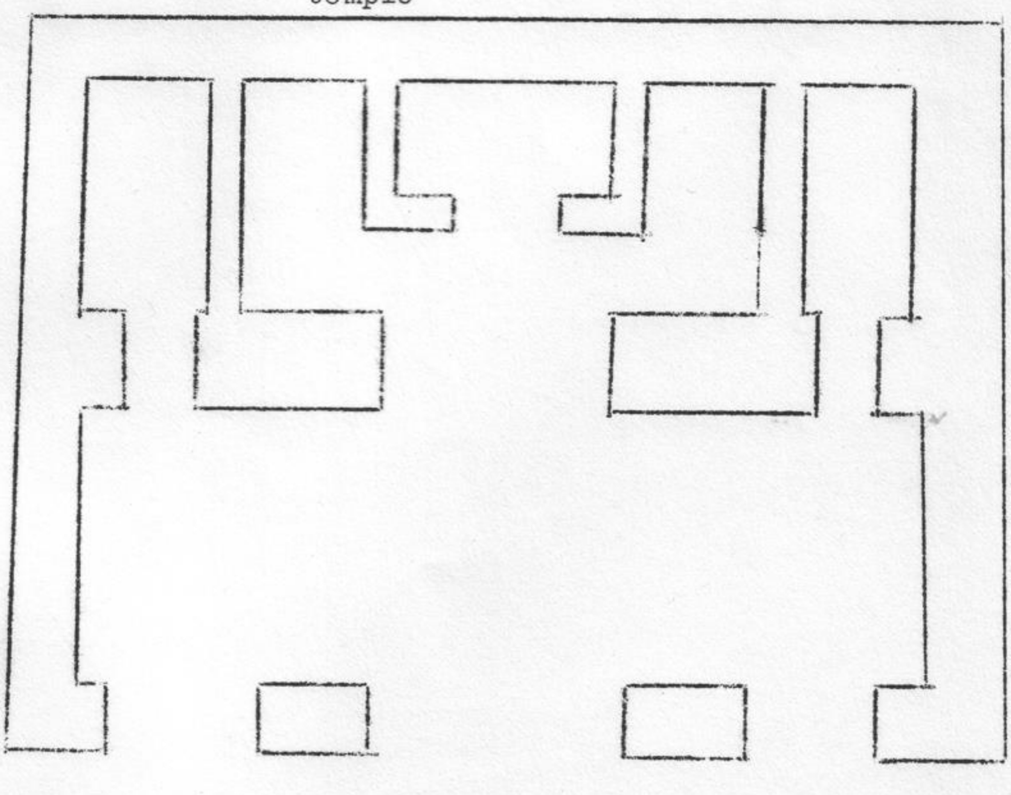
Fig 28
Piedras Negras Palaces



Lám. 186.—Plano general y secciones del conjunto de edificios, llamado El Palacio. Según Maudslay.—*(Dib. A. Arroyo G.).*



Palenque, Temple of the Cross
typical sanctuary
temple



0 3 meters

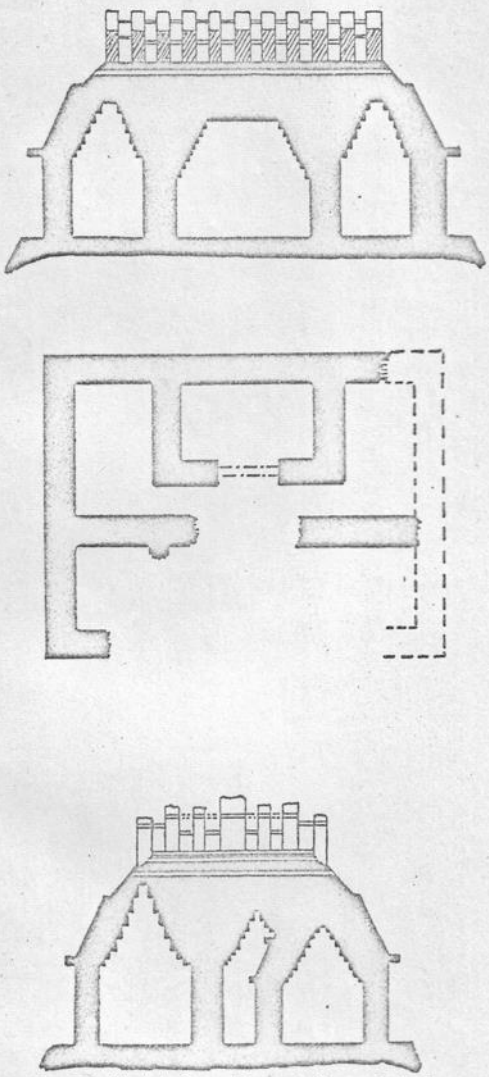


FIG. 207—Toniná, Chis. House A. Plan and Section. (Scale 1:200).

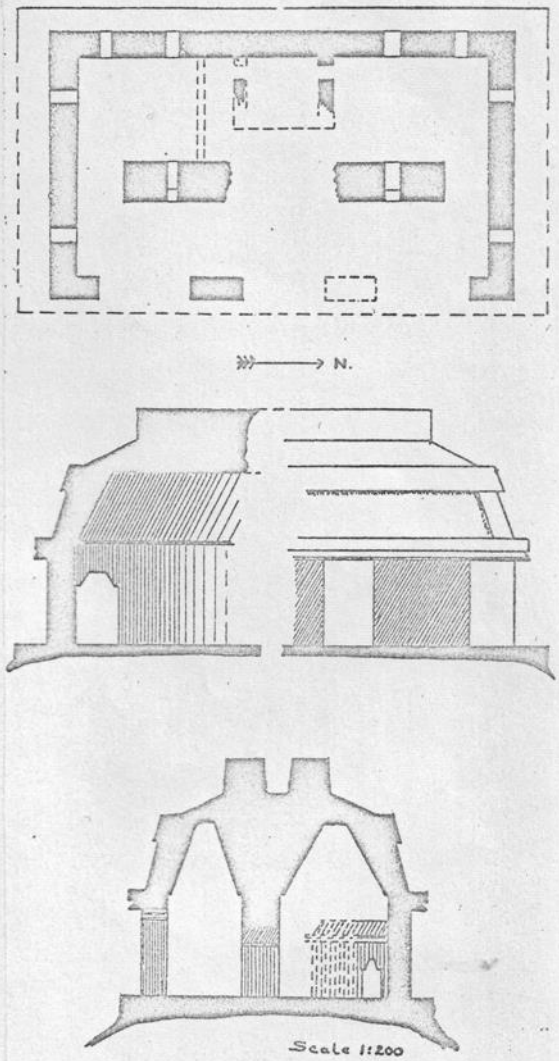


FIG. 126--El Retiro, Chis. Ground plan and section of the Temple. Scale 1:200.