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## EDITOR'S NOTE

The present collection of papers appears almost one and a half years after its originally scheduled date of publication. To contributors who submitted papers as long as two years ago, I wish to extend my sincerest apologies for the exasperating and quite unforeseen delays. Budgetary problems, a shift from the University Printing Office to a commercial reproduction service, personnel changes in the staff of the Archaeological Research Facility, my own absence from Berkeley for much of the preceding 18 months, and other technical matters have all contributed to the lengthy ensuing delay. Readers should bear in mind, therefore, that most of the papers constituting this volume were submitted almost two years ago, and some no doubt were written considerably earlier still. Consulting a paper's bibliography may indicate the approximate date of writing although it should be noted that material originally cited as "in press" has been corrected in those instances where these titles are now published.

Turning from the past and the present to future publication, I am pleased to announce the initiation of a new publication series under my editorship: Ballena Press Studies in Mesoamerican Art, Archaeology, and Ethnohistory. The first volume of the new series is a monograph by Dr. Christopher Corson, MAYA ANTHROPOMORPHIC FIGURINES FROM JAINA ISLAND, CAMPECHE, and will appear in January of 1976. A second volume, a collection of papers, is now being assembled. Orders for Dr. Corson's monograph, or standing orders for the series, may be placed with the publisher, Ballena Press, P.O. Box 711, Ramona, California 92065. The series will have a format resembling the Contributions, making it possible to offer volumes at minimal cost.

As this note is being prepared, news arrives of the death of J. Eric S. Thompson, contributor to the present and past volumes of this series. Eric's death brings the deepest sadness to his many friends, and I wish with all humility to dedicate this present volume to his memory. Aside from his many great contributions to our discipline, which need not be chronicled here, I and perhaps other fellow younger colleagues will always remember and be grateful for his unfailing kindness and patience with our errors.

John A. Graham

Berkeley, California
September, 1975

# THE GROLIER CODEX

J. Eric S. Thompson

The Grolier codex came to public notice in April, 1971, when displayed as part of the exhibition "Ancient Maya Calligraphy" at the Grolier club, New York. Its survival was hailed by Michael D. Coe as "nothing less than a miracle" (New York Times, April 21, 1971). Where, when, and under what circumstances this supernatural event took place has never been revealed, but it is said to have been found with a jade, turquoise, shell and tortoise shell mosaic mask, now in Dumbarton Oaks Collection and previously published by von Winning (1968, Plate 333) who assigns it to Yucatan. He writes me that was the provenance given the piece by the seller. In that case the asserted find-spot of Codex Grolier would also be in Yucatan.

Now, with its publication (at very slightly over half size) in the Grolier Club's sumptious and most beautiful book by Michael Coe, The Maya scribe and his world, 1973, Grolier codex can be studied. I have not seen the original.

The codex is a fragment comprising eleven incomplete and damaged pages of bark paper with stucco surface painted only on one side. Pages average 12.5 cm. wide, and the length of the longest incomplete page is 18 cm. One gets a strong impression that the missing lowest parts carried no design or glyphic text. Colors are red, black and blue green (very little) together with red to brown washes.

As Coe notes, the fragment illustrates part of a Venus table with a general resemblance to pages 46-50 of the Maya Dresden codex, which treat of the same subject, but there are several important differences. One is that whereas in Dresden codex pictures accompany only dates marking appearance of the planet as morning star after inferior conjunction, Grolier codex has illustrations for all four stations of Venus, the above heliacal rising after inferior conjunction, disappearance (approximate), 236 days later, before superior conjunction; reappearance (approximate), 90 days later as evening star, in the west (day 326); and disappearance, 250 days later, before inferior conjunction (day 576). This is followed 8 days later by another heliacal rising as morning star, thus completing the synodical revolution which averages 584 (actually 583.92) days. Far and away the most spectacular of these stations is that of Venus' appearance as morning star; disappearance and reappearance before and after superior conjunction are tame in comparison. For that reason the scribes of Dresden codex and of three codices from the Mexican "mainland" rated only appearance of morning star as worthy of an accompanying illustration.

Because after 5 revolutions Venus will rise on the same day name, but with a different number, Dresden codex devotes 5 pages to the planet's revolutions, with helical rising as morning star, accompanied by pictures and augural glyphs, occupying

nearly 2/3 of each page on the right. The other three stations without pictures occupying slightly over 1/3 of each page on the left side, a clear indication of their far lesser importance.

In Grolier codex each station has a page to itself with no indication at all that morning star station is so much more important. Clearly, the complete Venus cycle would have occupied 40 pages of Grolier, each with its own illustration. The columns of days are the same as those in Dresden codex.

Grolier codex gives the same intervals between stations as in Dresden, these being, as noted, 90, 236, 150 and 8 respectively. Numbers above 20 are expressed in the vigesimal system, but the twenties are not written as bars (each representing 5) and dots (for 1), but only as dots. That is 236 is shown as 11 dots for 220 (11 x 20) plus 16 expressed as 1 dot over 3 bars. Such a system is neither Maya fish, Nahuatl fowl nor Mixtec red herring.

Twenties in proto-historic and early colonial Mexico outside the Maya area were represented by the international symbol, a flag, examples may be seen in Codex Mendoza (Aztec), Codex Sierra (attributed to the Chocho of Oaxaca), the town book of Santiago Guevea (Zapotec), and codice de tributos de Mizquiahuala (Otomi?). The flag symbol was even used in southern Guatemala as Fuentes y Guzman reported. Accordingly, were Grolier codex a product of cultural hybridization, as Coe supposes, one would expect 11 banners, not 11 dots, to record 220.

More disturbing are the first digits expressed as bars and dots within rings tied at the top. That peculiar arrangement is frequent in Dresden codex but found nowhere else. Except in one almanac (pp. 71 a -73 a), where its function is not understood, it encircles the lowest digit, that of the days, of a count ranging from merely a few days and 20-day "months" up to 140 years which invariable leads forward from a date, here called X which lies that same distance before the Maya era, here designated Y. The Maya era is the position 13.0.0.0.0 4 Ahau 8 Cumku which lay some 4,000 years in the past when Dresden codex was painted.

The tied ring around the number of days serves as a warning that Date X lies the distance of the total count before the era (Y). In fact, the position of 4 Ahau 8 Cumku is invariably recorded as such or in the abbreviated form 4 Ahau immediately below the ringed number. That is the tied ring functions practically as the B.C. in our English calendar.

The ringed number count always appears in conjunction with a second and much longer count (of 3,000 to 4,000 years), the starting point of which is again Date X. The terminal of this second count(Z) is followed by the day name and number and sometimes the accompanying month position reached. Such an equation would be the equivelant of, for example one in our calendar reading "From a date X, 12 years, 3

months and 8 days before January 1, A.D. 0 (Y), count forward 1986 years 11 months and 9 days to reach August 2, A.D. 1974 (Z). Without the ringed number warning, the reader might take the terminal date to be in 1986. I suspect the tied ring stands for the root tab carrying the idea of a tie, link or companionship (cf. tabal, expressed as tie sign and the glyph (23) al, which designates the Lords of the Nights; tabal signifies companion, a term used in Mexican sources for those same deities because they are the acompañados of the days).

Significantly, in one place (Dresden p. 51a) the starting point of such a count lies not before 4 Ahau 8 Cumku, but 8 days later. The tied loop is not present.

The appearance of the tied loop in records of the distance from one station of Venus to another is nonsensical. It is as though we wrote "From appearance of Venus as morning star to its disappearance is 236 days B.C.; from disappearance to reappearance is 90 days B.C." etc.

Early sources inform us of the important role Venus played as morning star.

When it /the morning star/ newly emerged, much fear came over them; all were frightened. Everywhere the outlets and openings /of houses/ were closed up. It was said that perchance /the light/ might bring a cause of sickness, something evil, when it came to emerge. But sometimes it was regarded as benevolent (Sahagún, 1950-70, bk. 7, ch. 3).

The Memoriales con escolios of Sahagún, in repeating the above, adds that when the planet began to be visible in the east, they slew captive men in reverance, and offered it their blood, spattering it toward /the star/ with their fingers. The Anales de Cuauhtitlan (Codex Chimalpopoca, 1945, para. 51) also from Central Mexico, details the planet's evil effects:

They /the old men/ knew when / Quetzalcoatl as morning star/ appears, on what particular numbers and what particular signs he shines. He casts his rays at them and shows his anger toward them. If it / appearance as morning star/ falls on 1 Cipactli, he spears the old, men and women equally. If on 1 Ocelotl, if on 1 Mazatl, if on 1 Tochtli he spears the children. If on 1 Actl he spears the great lords, and just the same on 1 Miquiztli. If on 1 Quiauitl, he spears the rain and it will not rain. If on 1 Ollin he spears the youths and maidens; if on 1 Atl everything dries up. For that cause old men and old women venerated each of those signs.

Flechar here translated to spear, in fact means to kill with arrow or dart, that is by a hurled weapon. As will be seen, the weapon was a dart propelled by an atlatl. From the above it is clear that the rays of the planet were regarded as the darts or arrows with which he slew categories. Indeed, in Nahuatl the sun's rays are called tonamitl: tona, contraction of term for sun; mitl, arrow or dart.

Mendieta (1879, bk. 2, ch. 5), perhaps drawing on Andrés de Olmos, writes that Quetzalcoatl's soul became a star, "and it was that one that at times casts a ray like a lance or spear [lanza], and sometimes in this land that star or comet has been seen, and after it pestilences among the Indians and other calamities have been observed to follow." As is well know, Quetzalcoatl became the morning star and as such he was called Tlauizcalpantecutli, Lord of the dawn.

Association of the morning star with sickness was apparently accepted by the Indians of San Miguel Sola, Oaxaca, as late as the middle of the 17th century. To prevent a recurrence of sickness members of a household, after preliminary fasting, bathed in a river for nine mornings when the morning star rose (Berlin, 1957: 27).

Dresden codex shows Venus as morning star hurling his darts with an atlatl, and as noted, does not consider other stations of the planet worthy of either augural glyphs or pictures. Venus as morning star, complete with darts, atlatl and his slain victims, is depicted in Codex Borgia (pp. 53-54), Codex Vatican B (pp. 80-84) and Bologna (pp. 9-11), in each case five times to form the period of 2920 days, as in Dresden codex. In Codex Bologna Venus is shown with a skull, undoubtedly a reference to his having just emerged from the underworld, land of the dead, in his transit from west to east in changing from evening to morning star (cf. Tlalchitonatiuh, the sun at rising, similarly depicted with death symbols).

All sources, then, are in accord in recognizing Venus as of paramount importance only at heliacal rising as morning star, and in emphasising that it was then the planet inflicted death and pestilence with his rays. No source mentions Venus at any other station; that is understandable for at the remaining three positions Venus is not a star -- she is in the back row of the chorus.

In Grolier the situation is very different. There is no pattern. Instead, the arrangement is one to make any Maya priest tear his long hair.

Venus gods pierce a temple with a dart hurled at helical rising as morning star (p. 8) and at disappearance before superior conjunction (p. 5), at a now lost target at reappearance as evening star (p. 10), and at water or some creature in the water at disappearance before inferior conjunction (p. 11). He holds a roped prisoner at helical rising as morning star (p. 4), at reappearance after superior conjunction (pp. 6 and probably 2), at disappearance before superior conjunction (pp. 1 and 9) and at disappearance before inferior conjunction (p. 3). Once he stands, spear in hand, facing a tree at disappearance before inferior conjunction (p. 3).

Only once of the four times in which the Venus impersonator hurls darts at victims is the act correctly assigned to appearance as morning star. One occasion is appearance as evening star; the other two are disappearance of the planet before inferior and superior conjunction. How, one wonders, can the planet hurl his death rays when he disappears from sight. Such representations make nonsense of the whole

body of evidence concerning Middle American beliefs about the planet.

In five scenes, possibly six, Venus is shown holding a bound captive. There is no basis for this in surviving tradition. Indeed, as a resident of the skies such action would be extremely difficult, if not impossible. One such scene (p. 4) represents Venus' appearance as morning star, when he should be hurling his rays at victims. On page 8 the Venus god carries both a spear and an atlatl, having discharged his one dart left-handedly, a decidedly anomalous arming with long spear and atlatl.

The speared temple as victim (pp. 5 and 8) is not found on the Venus pages of Mexican codices or Dresden codex. Indeed, as a common Mexican symbol of conquest it would seem out of place here. Venus' victims fall into categories; the slaughter of the whole community does not fit the pattern, although, admittedly Seler thought he recognized the symbol for atepetl, town, combining that with the warriors as victims, but his argument is unconvincing (Seler, 1904-1906, 2: 151-157).

As to the Venus gods in Grolier, none resembles any of those in Dresden codex. God K appears twice, but on both occasions with human incisors which is incorrect; they should be ophidian fangs. There are three death figures and five human faces without marked characteristics (two have Roman noses and one of these seems to be wearing a woman's quechquemitl and has a cleft in his head between two frets -- enough to frighten any good Maya or Mixtec out of his wits).

The three recognized Maya codices are books of divination or prophecy. Except for a few almanacs treating of offerings and apparent orations, every page gives the good and bad luck of certain days in connection with mundane activities such as farming, hunting, bee-keeping, idol making, disease and so on. Glyphic texts are supplemented with pictures. Sometimes a text lacks pictures; there are no pictures without texts, demonstrating the over-riding importance of the divinatory glyphs. Years and katuns (20-year periods) are similarly listed with their glyphs of good and bad luck as well as tabulations of dates on which eclipses might be expected each with glyphs recording what was then in store for mankind, for eclipses were much apprehended as during them the world might end. The same is true of the Venus pages in Dresden codex. Hieroglyphs name the Venus god, the supervisory deity, and the victim at each first appearance of the morning star, and the catastrophes to be expected according to the day of appearance. "Woe to the corn fields, misery, death, affliction of war, disease" is the glyphic refrain with variations on the sad theme (Thompson, 1972: 70).

The Maya excelled in astronomy, but that was the means; the ends were astrological. The astronomical material was set down in order that the priests might know from the accompanying glyphic passages what fate awaited mankind at that most dreaded moment of Venus's first appearance as morning star. Day of appearance was important because of the fate -- almost invariably evil -- associated with that particular day. The tables are the equivalent of a modern farmer's almanac. The interest is primarily in what is foretold for specific occasions or dates.

In the Grolier codex there are no accompanying glyphs to warn man of his fate. It is the Farmer's Almanac with September blank -- no prophecy of hurricanes that month or of political upheavals in Washington. It is true that Mexican codices have no divinatory glyphs on their Venus pages. That is so because the more backward peoples -- so far as writing is concerned -- of Central Mexico had not learned to employ divinatory glyphs. But Grolier codex purports to be basically a Maya codex, as the lay-out of the Venus tables, the Maya day signs and the appearance of the Maya God K, although incorrectly portrayed, clearly demonstrate. Thus Grolier codex fails to conform to Maya standard practice in hieroglyphic ritual codices, that is to supply the divinatory data in writing, employing pictures merely to supplement the text. That failure lays the codex open to grave suspicion as to its authenticity.

A fragment of paper attached to Grolier codex has produced a Carbon 14 date of A.D. 1230 $\pm$ 130 years. This however, does not authenticate the codex. In recent years large quantities of plain sheets of pre-Columbian bark paper have been found by looters operating in caves in the dry region stretching south and east of Tehuacan.

My friend and colleague José L. Franco, whose knowledge of Mexican pre-Columbian artifacts is perhaps unequalled, writes me that some years ago he examined in Mexico City loot in the hands of a dealer from caves in the dry region at the bottom of the Tehuacan Valley. Found with authentic pre-Columbian pieces was a very large number of bundles of amate (bark) paper, very well made and smooth surfaced or polished (terso). The bundles were all of about the same size, about 20 cm. x 10 cm., but varying in thickness from less than 1 cm. to 2 cm., and all carefully tied with bow or knot. Each leaf was folded in four. Most of the thicker bundles were of undecorated paper; the thinner ones were splattered with rubber, and thus of the type used in offerings, particularly to the rain gods, according to 16th-century ethnological descriptions. The paper was found with crude pottery figures of such deities as Tlaloc, Xochipilli, etc., and damaged textiles.

Late in 1966 Señor Franco examined two bundles of rather crude amate paper about 25 x 30 cm. and some 18 cm. thick. The owner, an antique dealer, said they had been brought to him by looters as samples of several hundred such bundles found in a cave in the Sierra Madre of Guerrero, together with bundles of herbs and many pottery vessels. Señor Franco was absolutely certain that the paper was pre-Columbian. He adds that he has heard of several other finds of amate paper in areas more or less under Mixtec influence.

I have been told that some who have seen the Grolier codex have been struck by the contrast between the apparent freshness of the paint and the aged appearance of the paper. Clearly a forger would have no trouble in obtaining pre-Columbian amate paper. Indeed, it is said to be a drag on the market; buyers of looted material are not interested in it.

Señor Franco informs me that in the last 8 to 10 years he has seen at least six fake codiees of the same type as the Grolier codex.

Faking is big business; a falsified hieroglyphic book, or even a fragment of one, can fetch a very high price if the buyer be persuaded the piece is genuine. A faker, playing for high stakes, would have no trouble in getting information on Maya handling of the Venus cycle. The Venus pages of Dresden codex have been illustrated and described in detail in various available publications. In this case he did not heed Alexander Pope's warning "A little learning is a dangerous thing; Drink deep or taste not the Pierian spring." Shallow draughts, whether from the springs of Urania and her fellow Muses or from the cenotes of Maya astrologers, intoxicate the brain, and the ignoramus falls headlong to disaster.

The little learning of the composer of Codex Grolier was insufficient to save him from the pitfalls noted above and summarized below:

1) As 20's are not written Maya fashion, they should conform completely to Mexican style which calls for banners, not dots, to represent vigesimes.

2) The practice of ringing numbers which serves to indicate distances before the Maya era, are completely out of place and stultify counts of days between stations of the synodical revolution of Venus.

3) Early sources are unanimous that Venus hurled darts, that is its rays of light, only at first appearance as morning star. In Grolier codex darts are hurled once correctly at appearance as morning star; once at appearance as evening star; and twice at disappearance before conjunction when its rays would be extinguished!

4) Venus holds bound captives in 5, possibly 6, pictures. Sources tell us nothing of Venus capturing prisoners. Indeed, being confined to celestial journeys, such a task presumably would be impossible. One such scene marks the planet's appearance as morning star, when, all sources are agreed, he should be hurling his darts.

5) Once Venus has a long spear in one hand, an atlatl in the other, a combination never found, to the best of my knowledge in Middle American art.

6) The speared temple, twice depicted, is a Mexican symbol of conquest; it is out of place in these pages which do not deal with conquest.

7) The only recognizable deity, other than a death god, is the Maya God K who appears twice. In both places he has a row of human incisors instead of the ophidian fangs he should display. Neither he nor a death god is among Venus deities portrayed in Dresden codex.

8) Codex Grolier lacks divinatory glyphs, but the recording of those was the main purpose of Maya ritualistic codices. Yet this book is primarily Maya in contents and presentation. The Venus table is expanded from the five pages of Dresden codex to 20 pages, nevertheless, the main purpose of the table, the astrology is omitted.

9) Easy access to pre-Columbian bark paper vitiates the Carbon-14 date as an argument for the genuiness of the codex.

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# ARCHAEOLOGICAL INVESTIGATIONS AT TULUM AND TANACH, QUINTANA ROO, MEXICO: A PROGRESS REPORT OF THE 1974 SEASON

Arthur G. Miller

Supported by The National Geographic Society, The Center for Pre-Columbial Studies of Dumbarton Oaks, and The Brooklyn Institute of Arts and Sciences, the third season of The Quintana Roo Mural Project continued its recording of extant mural painting in the Tulum-Tancah region, located on the Central East Coast of the Yucatan Peninsula. The 1974 Season, which extended from February-June, included the beginnings of an intensive and extensive archaeological study of the site of Tancah, located four kilometers north of Tulum. This took the form of intensive excavations of Tancah Structure 44, its platform and associated structures. The initial purpose of the Tancah investigations was to test the validity of the sensitive chronological implications of mural painting. The most significant result of the excavations this season is the definition of the Early Classic Period to the Colonial Period at Tancah on the basis of architecture and its ceramic associations.

Tulum Murals. Chief project artist Felipe Davalos G. completed his recording of the mural painting decorating Structure 16 at Tulum, also known as the Temple of the Frescoes. The west wall and its north wall extension as well as isolated fragments of other walls have been carefully studied and recorded. This represents over one half of the original painted design associated with the inner Temple of the Frescoes. Virtually all of the extant murals painted on Structure 16 have now been recorded and the final renderings based on the field sketches are currently being made.

A major problem in the recording of the Temple of the Frescoes murals is the copious overpainting made by Miguel Angel Fernandez's restoration program at Tulum during 1937. Davalos was confronted not only with the usual problems of walls faded by time and the natural elements, but also with the added problem of having to distinguish original Maya painting from the overpainting of the restorer Fernandez. Devalos's final result is more complex and richer than what one sees of Fernandez's restoration. We believe that Davalos's version accurately renders the original painting and will stand as the definitive recording of these remarkable wall paintings.

An interesting iconographic discovery regarding the Structure 16 murals resulted from Davalos' work. The system of twisted cords enframing the figures shown on the walls of Structure 16 emerges from the open mouth of an earth monster and terminates with a diving god shown at the exact center of the composition. That the twisted cords enframe scenes of the underworld and sky as well as the earth is confirmed by this discovery.

Project artist Kees Grootenboer applied his talent to the task of recording

the surviving pieces of the murals associated with Structure 1-Sub at Tulum. Enough of the fragments from this relatively early building at Tulum have now been recorded to show conclusively that this Tulum painting is related in style and iconography to the painting from Structure B-12 at Tancah. This, along with architectural evidence, makes us more convinced that B-12 at Tancah and 1-Sub at Tulum are contemporary (Miller 1973a). Grootenboer also recorded the black line on blue ground murals decorating the columns of Structure 1 at Tulum before they were stuccoed over, painted red, and altered into serpent columns at a later period. We believe these painted columns to represent a transitional period at Tulum between that of Structure 1-Sub paintings and those associated with Structures 5 and 16.

The Tanach Cenote Cave. The rock carvings associated with the Tancah Cenote Cave have now been completely recorded by Kees Grootenboer. Project time and funds were devoted to this remarkable cave for several reasons. Principal among them is the fact that the style and iconography of parts of the cave carvings are remarkably similar to like representations found carved in caves of highland Mexico, particularly to those found in the basin of Mexico (Cook de Leonard 1955: Fig. 8; Miller 1973b). Another reason for our interest in the cave is the unusual fact that, unlike most cenote caves on the East Coast with evidence of pre-Columbian worship, the Tancah cave contains salt water and therefore could not have been revered by the Maya because the cave produced a source of drinking water. We discovered that the cave is connected to the sea (about 700m to the east by an underground tunnel). The water in the cave is subject to the same tides as the sea. We also noticed that the orientation of the cave is due north-south with its open mouth facing upward towards the east. Its dark watery depth is to the west. We believe this directional orientation to be significant and related to the iconography of the carvings.

Most striking among the motifs of the cave is a crudely carved full Lamat glyph which can be seen as representing the heliacal rising of Venus in the eastern sky. The carving of the Lamat glyph is on the east wall.

In the course of our investigations of the Tancah Cenote cave, it became apparent that the depth of the water is at places quite great. We believe that it is probable that offerings were thrown into the water. Plans are currently being made to organize a properly supervised diving team equipped to cope with the formidable task of systematically exploring a lightless underground body of water. We believe that recovery of objects thrown into the cenote will enable us to be more specific about its period of use and will indicate to us more about the significance of the cave to the Maya.

Tancah Structure 44. Operating under an archaeological concession granted by the Instituto Nacional de Antropologia e Historia, we excavated a complex of Postclassic buildings, one of which is a range type structure decorated with mural paintings rendered in the style and iconography of the Codex Madrid. This building, previously referred to as Tancah Structure X (Miller 1973b), is designated as Tancah Structure 44.

With the help of three workers, three and one half months of intensive excavation of Structure 44 and its associated buildings and subplatform have produced an architectural construction sequence (based on ceramic lots sealed beneath platform floors) extending from the first part of the Early Classic Period to the Colonial Period.

The construction sequence beneath Structure 44 begins with a possible Formative Period platform. It is a small, low, two tiered platform built directly upon the limestone bedrock. The platform was thickly stuccoed and painted red. Because the platform was damaged by the Early Classic Maya in the course of subsequent building stages, we were unable to collect any sealed ceramic lots associated with this platform.

Just above the possible Formative Period platform lies an immense Early Classic platform associated with six burials containing a total of seven whole vessels dating from the early part of the Early Classic Period. One of these vessels is a basal flanged bowl which is probably related to Tixcacal Orange Polychrome. A similar vessel found at Dzibilchaltun is Early Tzakol or Early Piim in the Dzibilchaltun sequence (Andrews V: personal communication).

A subsequent Late Classic platform which covers the Early Classic platform has also been identified. This, on the basis of sealed ceramic lots and four whole vessels from three burials found between the Early Classic floor and the Late Classic floor. One vessel from a multiple burial intrusive into our Late Classic platform floor is an example of Puuc Slate Ware. The type is Chumayel Red on Slate (Andrews V: personal communication). Another vessel from the Late Classic architectural context is an example of Puuc Red Ware, and it is a good example of Teabo Red, Teabo Variety (Andrews V: personal communication). At Dzibilchaltun the curved vertical fluting evident on the Puuc Red vessel is a Pure Florescent marker; there is a 90% chance that this vessel from Tancah is post 10.0 or equivalent to Copo 2 (Andrews V: personal communication). Associated also with the multiple burial producing the Chumayel Red on Slate is a high curved bowl. It is Puuc Red Ware with a black interior slip and chevrons and lines on red on the exterior. This vessel probably dates to Copo 2 in the Dzibilchaltun sequence, i.e., certainly after A.D. 700 and probably after A.D. 830 (Andrews V: personal communication).

Two subsequent phases within the Postclassic Period have been tentatively defined at Tancah on the basis of the chronological implications of platform floors, architectural style and mural painting style, and ceramics associated with architecture. We believe that we now have convincing evidence to demonstrate that Tancah Structure 44 represents a phase within the Postclassic Period which predates the phase of major architectural activity at Tulum.

Evidence of Post Conquest occupation was found in front of Structure 44 in the form of a head of a horse crudely carved out of coraline limestone and a Spanish Olive Ware sherd worked as a sinker. These objects were both found on the surface of the latest occupation floor.

Jade Burial Goods. Several objects carved out of jade were encountered associated with three burials during the excavation of the earlier platform beneath Tancah Structure 44. Two of these burials were intrusive into the Early Classic platform; one of them was intrusive into the Late Classic platform.

The jade from the Early Classic burials proved to be the most interesting. One of these produced a single cheerio-shaped apple green jade bead about 11.5 mm in diameter. The most spectacular jade offering came from a secondary burial sealed in a oval shaped crypt which was intrusive into the Early Classic platform.

This burial contained a carved blue green jade, an apple green jade bead, a complete Early Classic bowl with a kill hole and a stone of unworked chert. The skeleton, as with all our burials, was in a very poor state of preservation. Sexing was impossible but from the bone fragments it was evident that the skeleton was that of a mature adult.

The apple green jade bead measures 21.5 mm by 15.5 mm by 13 mm while the carved blue green jade measures 44.5 mm wide by 54 mm high by 16 mm. The carved jade is perforated through its upper width rendering it a pendant jewel to be worn around the neck. The carving represents a face. Superimposed upon the face carved in low relief are incisions representing eyes and eyebrows and a mouth. These are later incisions probably made just before the piece was enterred (c. 450 A.D.). It is probable that the crude later incisions were made by people who had no tradition for carving jade, i.e., the Early Classic Maya of Tancah.

There is a vague Olmec quality to the style of the piece, although it appears to be more Costa Rican, but not Olmec/Costa Rican (Elizabeth P. Benson: personal communication).

A Late Classic multiple burial containing two Puuc Slate vessels was associated with two cheerio-type beads made of green serpentine. One measures 11 mm in diameter and the other 7 mm in diameter.

Other Burial Goods. An extraordinarily finely polished piece of pyrite was found in association with one of our Early Classic burials. It measures 25x20x4 mm. The pyrite probably formed part of a mosaic plaque of the types described by Kidder, Jennings, and Shook (1946: 126-133) from Kaminajuyu during the Early Classic Period. We also found part of a worked Spondylus shell of local Caribbean variety associated with one of our Late Classic burials.

Virtually all of the burials we encountered included a sting ray spine. These are readily available all along the East Coast of the Peninsula. Most of these were in very poor states of preservation. All of our Early Classic burials exhibited a feature which can be regarded as an offering from the sea. These are small marine mollusks

filling the inside of the upside down pot, usually placed over the skull.

Ceramic Study. Most of the whole vessels from burials found this season have been illustrated by Felipe Davalos. The major task of analysing 250 sherd lots collected from the Structure 44 excavations is currently being carried out. The sherd lots contain ceramics from the Formative Period to the Colonial Period. Currently, the 1974 collections are being compared with those of Sanders made in 1954. Lots are being numbered consecutively using the Carnegie-M.A.R.I. system. The Tancah type collection will be kept in the ceramic bodega of the Instituto Nacional de Antropología in Merida. The collection begins with the designation Q-510.

Obsidian. Twenty-one partially broken blades of obsidian were found in the excavations of Tancah Structure 44. These blades were found in all levels but are far more frequent in the final occupation levels. There are two types: a dull streaky grey and a grey which has a slight pinkish hue. Plans are being made to have the obsidian analysed for its place of origin.

Manos and Metates. Six manos and five metates were found on the final occupation levels of the Structure 44 complex. There are two types of manos: simple cylinders carved out of limestone rock and simple cylinders carved out of coral. There are also two types of metates: limestone rectangles with a trough-like depression on one side and limestone rectangles which are slightly concave on one side. Judging from the archaeological contexts of the manos and metates found, we believe that the limestone manos and trough worked limestone rectangles are contemporary with the erection of the standing architecture of Structure 44 and that the coral manos and slightly concave rectangular metates are colonial. These kitchen tools as well as the abundance of utility wares found certainly suggest that Structure 44 was a residence.

Animal Bones. Numerous animal bones were found in the Structure 44 excavations. Deer and parrot fish were commonly found. The parrot fish bones and the tremendous number of notched sinkers made out of small sherds suggest that fishing was a major food gathering activity of the Tancah Maya. Species identification of all our animal bones is planned.

Stucco and Mortar Samples. Four separate floors corresponding to Formative, Early Classic, Late Classic and Postclassic building platforms in the Structure 44 complex were collected during the course of the 1974 season. It is possible to determine with the naked eye that all four floors are different from each other in thickness and density. We plan to have the stucco floor samples analysed to determine the degree to which Maya mortar techniques change in time. If such change can be scientifically detected, systematic collections of mortars may provide a means of measuring time.

Consolidation. The consolidation of Structure 44 was carried out with the cooperation and logistic support of the Centro Regional del Sureste, Instituto Nacional de Antropología

e Historia. Thanks to the financial contribution of an anonymous donor we are able to do more than our legal responsibility. Preservation of the surviving mural painting by sealing Room 1 from sun and rain was uppermost in our consolidation priorities. With the valuable assistance of University of Toronto student Thomas Morgan and Master Mason Antonio Sierra along with three workers, we have rebuilt the root damaged walls associated with Room 1 and have stabilized the root damaged vault. An immense Mato Palo tree growing out of Structure 44 had to be removed and damaged masonry replaced and consolidated. The upper facade of Structure 44 was rebuilt on the basis of in situ masonry. The terracing in front of Structure 44 was consolidated. In addition, we stabilized the stones forming the base of the small temple shrine facing Structure 44. We believe that our consolidation program at Tancah contributes to a public understanding of Maya archaeology.

Area Map. A map of the structures forming part of Tancah not included in Lothrop (1924) or Sanders (1960) was begun by Anthony P. Andrews during part of June and July. Preliminary survey of the western most area of the site of Tancah reveals a dense system of house mounds and low walls (possibly garden plot walls). This area extends 5 kilometers further west that the western most extension of Sander's 1960 map and has a north-south extension of six kilometers.

Andrews is preparing a map showing the relation of the site of Tancah with the new coastal highway. His map will also include the location of the Tancah cenote cave and four standing buildings to the west of Structure 44 omitted from Sander's 1960 map.

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# A MAYA 'POCKET STELA'?

Norman Hammond, David H. Kelley and Peter Mathews

This paper considers one of the several hundred mould-made pottery whistle-figurines recovered between 1925 and 1927 and again in 1970 from the Late Classic ceremonial center of Lubaantun, Belize (formerly British Honduras); many of these have been illustrated at one time or another (Gann, 1925; Joyce, 1926, 1933; Joyce, Cooper Clark and Thompson, 1927) and a definitive corpus is in preparation (Hammond, in prep.), while a preliminary statement on the contexts and method of manufacture of the whistle-figurines is in press in the final Lubaantun excavation report (Hammond, in press).

The example discussed here was recovered in 1970 during the most recent excavations at the site, directed by Hammond and sponsored by the University of Cambridge, the Peabody Museum of Harvard University, the British Museum and the Wenner-Gren Foundation for Anthropological Research Inc.; it was illustrated in the preliminary report (Hammond, 1970, Plate XXXIII (b)), and the original is now in the Belizean national collection at Belmopan, while casts are available at the British Museum, Peabody Museum and Cambridge University Museum of Archaeology and Ethnology.

The object consists of two elements, a flat plaque with a moulded design on the front and a plain back, and, attached to the back, a whistle-chamber of 'hog-snout' form; this form of construction is standard for the Lubaantun whistle-figurines, with the design differing in almost every case. The present example has lost most of the whistle-chamber and part of the plaque; it was recovered, in two fragments, in lot L26 of the 1970 excavations, from a layer of mixed humus and collapsed masonry and earth fill (layer 8-B-1) that also yielded 142 sherds, 21 other figurine fragments and part of a mould and sundry lithic debitage and mollusca (Hammond, in press, Appendix i, Operation 8B). The structural context was a collapsed low stair leading down from Plaza IV into Plaza III (Fig. 1). This stair was the last of a series of extensions of the higher Plaza IV level which has moved southwards, encroaching on the lower level until finally Plaza III was left as merely the northern end-zone of the south ball-court (Hammond, in press, chapter 5).

The sherds from lot L26 included Turneffe Unslipped, Puluacax Unslipped, Remate Red, Belize Red and Lazaro Red types (Hammond, in press, Appendix iii); all are of Late Classic date, the closest comparisons being with the Spanish Lookout phase at Barton Ramie (Willey, Bullard, Glass and Gifford, 1965), Tepejilote and early Bayal at Seibal (Sabloff, 1969) and Late Pasión and Boca at Altar de Sacrificios (Adams, 1971). The whole of the Columbia Ceramic Complex at Lubaatun relates most closely to the

Pasión sites, and the Pasión Zone proposed by Culbert (Culbert, Ed., 1973, Fig. 1) should clearly be extended eastwards to embrace the southern part of Belize.

The earliest known pottery from Lubaantun, occurring in middens on bedrock covered by later construction, dates to the late 7th or early 8th century A.D. (i.e. equivalent to early Tepeu 2 at Uaxactun; this implicitly accepts the Thompson correlation (11.16.0.0.0) but one of us (D.H.K.) would like to disassociate himself from this (Kelley and Kerr, 1973: 189, 194-195). Rands (1973: Fig. 6) suggests a range from 9.12.0.0.0 (A.D. 672) to 9.14.0.0.0 (A.D. 741) for the beginning of Tepeu 2 at Uaxactun and possibly 9.11.0.0.0 (A.D. 652) for Tepejilote at Seibal. Lot L26 comes from the fifth of the five major phases of construction at the site and its date of deposition on both ceramic and stratigraphic evidence falls well within the 9th century (i.e. Tepeu 3), confirmed by subsequent excavation in the same level when lot L238 yielded a further 19 figurine fragments and 84 sherds, including part of a Fine Orange bowl of Cedre Gadrooned type (Sabloff, 1970: 377-381, Figs. 57-58) dated by Sabloff to not earlier than 10.0.0.0.0 (A.D. 830) and possibly not earlier than 10.1.0.0.0 at Seibal. It is however possible that some of the material in lots L26 and L238 could have come from reused middens elsewhere on the site, although this would mean that both the Fine Orange and Lazaro Red sherds were admixed at the time of deposition; it is thus theoretically possible that the figurine is as early as A.D. 670, but most likely that it dates after A.D. 830. That it was made at Lubaantun seems probably in view of its technical consonance with the many other figurines and moulds found at the site and only rarely at any distance from it; we hope to confirm its local origin by neutron-activation analysis of the fabric and comparison of the trace-element composition with those of Lubaantun utilitarian ceramics and local clays (this work is at present in progress at the Brookhaven National Laboratory, Upton, N.J., under the direction of Garman Harbottle).

The design on the front of the plaque (Fig. 2 and Plate 1) depicts an enthroned male figure, facing forwards with the legs parallel and the feet resting on the surface in front. He wears a plain maxtli, which hangs to his ankles, plain broad anklets and wristlets, and a flexible object around his neck with the ends loosely crossed in a half-knot. In his hands he cradles a long ceremonial bar, held with the right-hand end higher; the bar has a shaft divided in its central portion, with two ball-like ribbed ornaments and a decorated and expanded terminal at the upper end. The man's head is missing.

He sits between the profile heads of two saurian or ophidian monsters who face outwards and seem to form part of the throne; of that to his right only the lower jaw and eye remain, while that to the left has lost part of its crest and the outer fang in both upper and lower jaws. The monster's eye is set in a heavy circular orbit; above are two crests, the rearward with parallel ridges, the forward fan-shaped. The jaws are wide open, each with two teeth set together halfway along and formerly with a triangular fang at the front (present only on the lower jaw of the right-hand monster). The gums are defined by a raised ridge, as though the skin of the jaw were drawn back,

and there are two excrescences on the snout. At the corner of the mouth a sickle-shaped flat element with a raised margin emerges, slightly different in shape on each monster.

Man and monsters rest on a U-shaped throne, highly conventionalized in form and with two small feet, one now missing; the front has a recessed panel within a raised margin, containing eleven glyph blocks. Two, smaller than the others, are in the arms of the U, the other nine are arranged in three columns of three blocks each. Each block is carefully and distinctly modelled, with every indication that the glyphs were intended to be comprehensible and comprehended.

The combination of an enthroned figure and a hieroglyphic inscription is one found mainly on stelae, notably at Piedras Negras where it has been shown to commemorate dynastic events (Proskouriakoff, 1960). This plaque, the best-preserved of a number of similar depictions from Lubaantun, could perhaps be interpreted as a "pocket stela," a mass-produced, miniature, portable and domestic folk-art adaptation of the public monuments, or at Lubaantun, where stelae are absent, a substitute for them.

Whatever its exact function, whether domestic icon, pilgrimage souvenir or merely plaything, the existence of an apparently coherent hieroglyphic inscription on such an object is of great interest both because of its rarity and because of the scant attention that such non-glyptic and non-codical objects have received until very recently (but see Coe, 1973). Our transcriptions and some speculations on the significance of the inscription follow.

The text is read, in accordance with usual Maya conventions, in a double column in the order A1, B1, A2, B2, A3, B3 and then the remaining single column, C1, C2, C3. The two glyph blocks, A' and C' are considered separately. We do not know how they should be integrated with the main text.

| Glyph block | Transcription (system of Thompson, 1962) | Comments |
|---|---|---|
| A1 | VII. 510? or 504?? : 125? or 126?? | "7 Lamat" T504 (Akbal) less likely than T510 (Lamat). subfix appears closer to 126; context calls for 125. |
| B1 | VIII. 122? : 563a? | "8 Fire" VIII. 16?? : 528 ?? (8 Yax) is a far less likely possibility. There seems to be no way of reconciling the numeral prefix with the standard Maya calendar round notation since Lamat calls for 1, 6, 11 or 16 as |

| | | |
|---|---|---|
| | | a month coefficient and the text has 8. |
| A2 | 59.87 : 515 : ?? | We accept T515 as chu. Possibly the subfix is 228 or 229. |
| B2 | 61.568 (??) | The prefix is closer to the codex glyph 62. There definitely appears to be an infix in the 'main sign.' Possibly this is the 'battan' as in the Venus tables of the Dresden codex, with the reading hul. |
| A3 | 751a. ?? | The ear is very typical of the jaguar head glyph 751 though the snout does not look much like a jaguar. The postfix does not appear to be any of the glyphs in any of the catalogues. |
| B3 | 683c.178:178 | "kalal" |
| C1 | ?? : ?? : 515?? :87? | Very odd prefixes. Main sign most uncertain. |
| C2 | 38-(35).168 = 630 | "Lubaatun Emblem Glyph" The Thompson system does not adequately account for the variations in the EG prefixes. The basic form is that of T38 but the lower part is like T35. The ahpo ("ben-ich") superfix is expected above T630. The form of the superfix is not very similar to this. Since fine internal detail is not easy to produce in ceramics, we suppose that the 'scribe' merely suggested the outline. |

| | | |
|---|---|---|
| C3 | 202??:25.178:178 | "?-cal"<br>No doubt of the last three glyphs. |
| A' | 228?? : ?? | |
| C' | III?:504 ?? | 3 Akbal ??<br>Little can be made of these two glyph blocks. Another day name is unexpected in C'. |

The detailed transcription of the Lubaantun whistle inscription into the numbers of the Thompson Catalog of the glyphs (Thompson, 1962) was based on a careful examination of an enlarged photograph and two different casts, in varying lights, by both Kelley and Mathews. Clay worked at this scale is not an ideal way of representing the intricate detail of Maya glyphs and even where context and general character make a transcription virtually certain, it may be impossible to justify from internal detail.

Our text contains as many non-calendrical glyph blocks as are found on many stelae; the calendrical data are much less full. Columns A and B have what at first sight appears to be a Calendar Round date. The day-name is probably 7 Lamat but might be 7 Akbal. Either would demand the month positions 1, 6, 11 or 16. The number actually found with the presumed month glyph is 8. The glyph itself has the 'smoke-curls' prefix and a not entirely clear main sign. It is Kelley's belief that the two together are the 'fire' compound and that either 'Fire' was a month name in the local area or, more probably, that reference is made to eight ceremonial or calendrical fires. A verb with the root chu appears in A2 and in B2 perhaps the object of this verb. The main sign in B2 could be lu but no interpretation can be suggested here. A3 is a jaguar head and apparently is the family name of the ruler who is discussed in the inscription. B3 contains the 'moon sign' with affixes, which may be read kalal (or possibly kalalal). This is a rare Maya title for 'king, ruler,' previously noted principally from inscriptions of 'Bird-Jaguar' at Yaxchilan. In the latter examples, the title appears in a form which should be transcribed ah kal (chac?) and probably translated 'the great (?) ruler.' In C2 is a glyph which, from context and affixes, should be the Emblem Glyph of the place ruled by the individual mentioned on the whistle. It is reasonable to propose that the whistle refers to the local ruler and Hammond has presented evidence (supra) that the whistle is a product of Lubaantun so it is natural to assume that this glyph (T630) is the Lubaantun Emblem Glyph.

As will be shown, the identification of T630 as an Emblem Glyph leads to conclusions of such importance for the political structure of the late Classic Maya that one would like to have supporting evidence both for the political importance of the site identified by T630 and for the assumption that the inscription refers to Lubaantun.

For the latter, there is still only the internal evidence. The throne itself gives some support to the view that its occupant was of more than local political importance. The ruler represented on the throne is flanked by two gigantic monster heads. The identity of the two heads is not certain. This hinges on whether the eyes are to be regarded as lidded or not. If lids are actually present, the heads probably represent iguanas and the crests are iguana crests. If lids are absent, the heads probably represent snakes and the crest is a feathered crest of the mythical Feathered Serpent. Inspection alone does not certainly solve the problem. If the heads are those of iguanas, the throne may represent a claim to the power of Itzamna, 'Iguana House,' one of the most important Maya deities. If they are Feathered Serpents, they could indicate a claim to derivation from the Feathered Serpent, revered as the ancestor of most of the important ruling families of Mesoamerica.

The indications are that throne symbolism involved a carefully graded hierarchy. At the bottom, local rulers of cities or towns had a mat throne without a back (Maya pop). Somewhat higher in status were rulers with a jaguar throne. Both kinds are frequent in the Mixtec codices. Most previously recognized Maya rulers apparently had the status indicated by a jaguar throne. Water-lily ('lotus') thrones, as depicted particularly at Palenque, can not be fitted into a hierarchical scheme at this time. In the late period, backed mat thrones are associated in the codices with the rulers of Tenochtitlan and a number of Maya rulers are shown on table-like backed thrones on which they sit cross-legged. The topic is worth a much fuller and more detailed study. The rarity of depiction of saurian or ophidian thrones and the repeated assertions that descent from the Feathered Serpent was a necessary attribute of legitimate rule strongly suggest that the ruler shown here is in a higher hierarchical position than jaguar-throne rulers.

The position of the ruler depicted on the whistle supports this view. Leg position seems to have been an important indicator of status in Mesoamerica. In this case, the ruler is sitting in what we would regard as a normal sitting position with legs in front of him, not crossed, and feet flat on the floor. The position is very rare. The great lintel 3 of Temple I at Tikal (revised assignment following Coe, Shook and Satterthwaite, 1961) shows a ruler seated in this position, with a giant jaguar towering behind him. The context there is certainly compatible with great importance in the hierarchy. As will appear, glyphic evidence also associates this ruler with our text.

However, the primary evidence of the hierarchical importance of the individual of the whistle throne and of his predecessors and successors comes from the inscriptions. Here Thompson (1962: 247) has drawn attention to the repeated combination of T630 and T181. The fact that T181 could be read kal, 'ruler' was not demonstrably significant until the inscription on the whistle revealed that T630 was an Emblem Glyph. Proskouriakoff (1964: 194-196) has referred to the 'Moon-sign family' and 'Moon-sign ruler' at Yaxchilan but the full importance of the family could not be recognized, until the 'royal' nature of the title was known. Now that we know that this title, apparently

rare in other contexts, and this glyph, as an Emblem Glyph, are associated together on the whistle, the repeated occurrence of the two glyphs in conjunction at Copan, Tikal, Piedras Negras, Palenque and other Maya sites takes on much greater importance. The absence of Emblem Glyph prefixes in these inscriptions is no substantial objection to regarding them as referring to a place, since 'foreign' Emblem Glyphs frequently lack these prefixes.

On the grounds of the local provenance of the whistle and the clear Emblem Glyph at C2, we would not normally have hesitated to regard this as the Emblem Glyph of Lubaantun. The only other interpretation which seems at all likely is that a "monument" (even a small portable one) commerating a superordinate ruler might be made anywhere within the area that his authority was recognized. To avoid the constant repetition of such cumbersome phrases as "ruler of Lubaantun or some other, unknown but superior, site," in the following discussion of occurrences of the glyphs at other sites, we transcribe T630-181 simply as 'Lubaantun?-ruler.' This is not intended to close discussion of the identification before it has started and an appropriate degree of doubt should be maintained.

At Yaxchilan, Lintel 14 gives an account of a woman whose names and titles include (at C3) 1000.630-181, 'woman-Lubaantun?-ruler.' The date is 4 Imix 4 Mol. Thompson (1950: fig. 56) suggests the date 9.15.10.0.1 while Proskouriakoff (1964: 199) believes that it is 9.18.1.13.1 (?). It seems likely that the kal title appeared at Yaxchilan through inheritance from some female. If this one, it would have to be the earlier of these possibilities, since the kal title is not borne by Shield-Jaguar, but Bird-Jaguar, ruling from 9.16.1.0.0., is repeatedly called ah kal chac (?), 'the great (?) ruler.' Lintel 3 shows him in association with a man who is apparently called 'Lubaantun?-ruler' (F4). Proskouriakoff has referred to these people as members of the 'moon-sign family,' an accurate description if the title kal ('moon-sign') was usually borne only by members of the family of the rulers of Lubaantun.

Other texts refer to 'woman-Lubaantun?-ruler' at Copan, Palenque, Naranjo, and Kuna. On Stela M at Copan, IS 9.16.5.0.0 8 Ahau 8 Zotz, the title appears in a passage following the Copan EG, a quite unusual position for a text several glyph blocks long. At Palenque, 'Lubaantun?-ruler' is mentioned in a generally accepted context of personal names on the famed 'sarcophagus' from inside the Temple of the Inscriptions, dated somewhat before 9.13.0.0.0 (apparently the earliest approximately dated occurrence of the two glyphs together). The name of a woman with the same title appears at J3-K1 of the Tablet of the 96 Glyphs, dated at 9.17.13.0.0, over 90 years later, and the identification of the glyphs, in which we tentatively follow Thompson, is less certain.

Naranjo Stela 8 at 9.18.10.0.0 depicts a figure with a short skirt and a spear standing on a bound captive. The accompanying glyphs are those of a woman, among whose name glyphs appear what seems to be 'woman-three-Lubaantun?-ruler.' The meaning of the intrusive three is unclear but the context is again that of a human female.

It should be pointed out that the names of women frequently contain foreign Emblem Glyphs without Emblem Glyph prefixes. In none of these examples of female names which include T630 is there any other known Emblem Glyph present. This re-enforces the contention that T630 is here functioning as an Emblem Glyph.

Although we know that women inherited rule in the Mixteca and this apparently happened also at Palenque, the relative frequency of the combination 'woman-Lubaantun?-ruler' suggests rather that this combination merely indicates membership in the ruling family of Lubaantun.

On Lintel 3 of Temple I at Tikal, previously referred to, a mighty jaguar rears above the head of a ruler who, alone among the rulers of Tikal, bears as his most prominent name or title 'ruler of Lubantun?.' Now that we know from the whistle that 'Jaguar' was the name of the ruler of Lubaantun (probably a family name), the association of the jaguar with this particular ruler re-enforces the conclusion that we have interpreted the meaning of the combination T630-181. This ruler celebrated his fish-in-hand ritual on 9.13.3.9.18 12 Etz'nab 11 Zac. His name appears also on the carved bones from Tikal showing animals and the corn god in a canoe. He is, by far, the most prominent ruler mentioned in the inscriptions of Tikal. This same ruler is apparently mentioned at a somewhat later date at Piedras Negras (Lintel 3, V'1).

On Quirigua Stela 1, there is discussion of an individual who is referred to in C8 as 'Lubaantun?-ruler' and in D9 there is a further reference to Ah kal. The context seems to be one of personal names but is not not clear as in other cases. The name appears in a passage following the Quirigua Emblem Gluph, corresponding in this relatively unusual arrangement with Stela M at Copan. The nature of the connection with Quirigua is unclear. The date is terminal Classic.

This distribution may be contrasted with that of the Emblem Glyphs of Tikal, Copan and Palenque. The Tikal Emblem Glyph appears once at Copan, once at Silan and probably on a vase from Chiapas (Culbert, 1965: 22) but is generally restricted to the Peten and middle Usumacinta (Thompson, 1962: 195). Occurrences of the Copan Emblem Glyph (T756d, a bat-head with haab infix) outside Copan are hard to recognize because the bat-head glyph is apparently used in a number of other ways and the haab infix may not be a necessary part of the Emblem Glyph outside of Copan itself. It may appear among the bones texts from Tikal (drawings made available to me by Linton Satterthwaite). Use of the bat-head referring to Copan seems rare at all sites other than Copan and Quirigua. The Palenque Emblem Glyph (T570) appears at Toruguero, Copan, Tikal and fairly clearly at some other sites. Again, use of the glyph in other ways means that we can not always distinguish references to Palenque. It seems to be more widespread than the Tikal or Copan Emblem Glyphs but is not nearly as widespread as the Lubaantun Emblem Glyph. Thus references to Lubaantun (or, at least, the site indicated by T630) seem to be more widely distributed and more frequent than the Emblem Glyphs of the most important Maya sites.

We are still unable to determine whether other occurrences of glyph T630, unassociated with T181, should be regarded as referring to Lubaatun. Given the distribution we have mentioned, it might be expected that there would be a mention of Lubaantun on Copan Stela A, which has the Emblem Glyphs of Tikal, Calakmul and Palenque with the Copan Emblem Glyph itself. T630 does occur in H10 but the kal title is absent and there are no Emblem Glyph prefixes, although they are found with the other Emblem Glyphs on the stela. This, however, is true of all occurrences of T630 except on the whistle. If Lounsbury (1973) is correct in thinking that the "ben-ich" Emblem Glyph superfix is to be read as ahpo, 'chief,' it may be that the use of the (higher?) title kal generally obviated the need for reference to other titles. At Lubaantun, itself, it would be natural to give a fuller set of titles. The occurrence of T630:1000-181 at D7 of Copan Stela A is not noted by Thompson, but the form of T630 is identical to that at H10 which he does list. At D7, T630 is preceded by an unusual and puzzling glyph and by the head of the sun god. The combination of female head and moon glyph in this context has usually been interpreted as referring to the mood goddess. The reading ixkal, 'woman-ruler' might not be incompatible with such a view, but 'moon-woman' is a reasonable interpretation. However, the following pair of glyphs in E7 is found as a human title (batab?) on the Tikal bones texts and elsewhere.

This survey of some of the more important occurrences of T630-181 on inscriptions throughout the Maya area shows that no occurrence is certainly incompatible with use as the part of a personal name or title indicating geographical origin and in many cases interpretation as part of a name clause seems certain. These references have the same general contextual nature as other Emblem Glyph references but the frequency of reference, the geographic extent of the references, the apparent prominence of some of the individuals referred to and the repeated use of a title which seems to be rare except in composition with T638. There seems to be little reason to doubt that T630 identifies a site of unique political importance to the Maya. There is equally little doubt that the whistle was manufactured at Lubaantun. The Emblem Glyph prefixes are normally found in 'home' inscriptions and are frequently absent in 'foreign' inscriptions. Hence the use of these prefixes in the whistle inscription and their complete absence in all other Maya inscriptions strongly suggests that T630 is the Emblem Glyph of Lubaantun. The chronological spread of the identified references runs from about 9.13.0.0.0 to about 9.18.10.0.0. The beginning coincides well with the earliest likely date for the foundation of Lubaantun, which continued to flourish well past the latest recognized and dated reference into cycle 10.

If the Emblem Glyph was that of Lubaantun, then the role of Lubaantun must be reassessed. In spite of its local importance (Hammond, 1972), the archaeological evidence alone would not have suggested to any of us that its hierarchical importance equalled, let alone exceeded, that of Tikal, Palenque or Copan, or indeed, of many lesser sites. It is, of course, true that hierarchical status need not be directly correlated with effective political control and neither one needs to imply economic dominance. The marginal location of Lubaantun with respect to the major Classic Maya sites is comparable in some ways to the marginal location of Tula, Hidalgo during the

Toltec period. Tula was a major political power, but its importance as an outpost against the barbarians is comprehensible. Lubaantun, on the other hand, controlled a major source of cacao which is more than adequate to explain its local importance but does not seem to justify the extremely high status suggested by the inscriptions. It is not impossible, particularly in view of the late foundation of the site, that the dynasty in Lubaantun arrived there from some other site which would better fit our a priori ideas of what a major site should be, but we have no evidence of this. In that case, the name represented by the Emblem Glyph might have come with them and it could even be possible that the main line of the dynasty stayed behind. The fact that the presumed family name of Jaguar is also found at Yaxchilan and that the dynastic title, kal, also recurs there may suggest some special connection with that area. Certainly, the ceramics of Lubaantun affiliate it to the Pasion-Usumacinta zone, but Yaxchilan has its own Emblem Glyph, completely different from that presumed for Lubaantun. The importance of Lubaantun indicated in the texts can not be explained as derivative from Yaxchilan or any known site. Pusilha, the nearest major site to the southwest, monumentally more impressive than Lubaantun, has a known Emblem Glyph -- found only at Pusilha.

Most occurrences of T630-181 fall into three areas: the Pasion-Usumacinta basin; northeast Peten and the Copan-Motagua drainage. The ceramic affiliations of Lubaantun with the former have already been noted and links with the other two in the presence of Belize Red pottery on the one hand and Motagua valley jade and Ixtepeque obsidian on the other are also apparent (Hammond, in press, chapter 8). It seems significant that, with the exception of mention at Xcalumkin, the distribution of the presumed Lubaantun Emblem Glyph in the inscriptions and the directions of Lubaantun's external contacts should be the same. However, only fuller interpretation of already known texts and discovery of new texts can certainly solve the problem of the role of the site indicated by T630 and show whether it is or is not identical with Lubaantun.

PLATE 1. The decorated front of the plaque /height 92 mm/, depicting an enthroned ruler clasping a ceremonial bar, between the heads of two monsters and seated on a hieroglyphic throne.

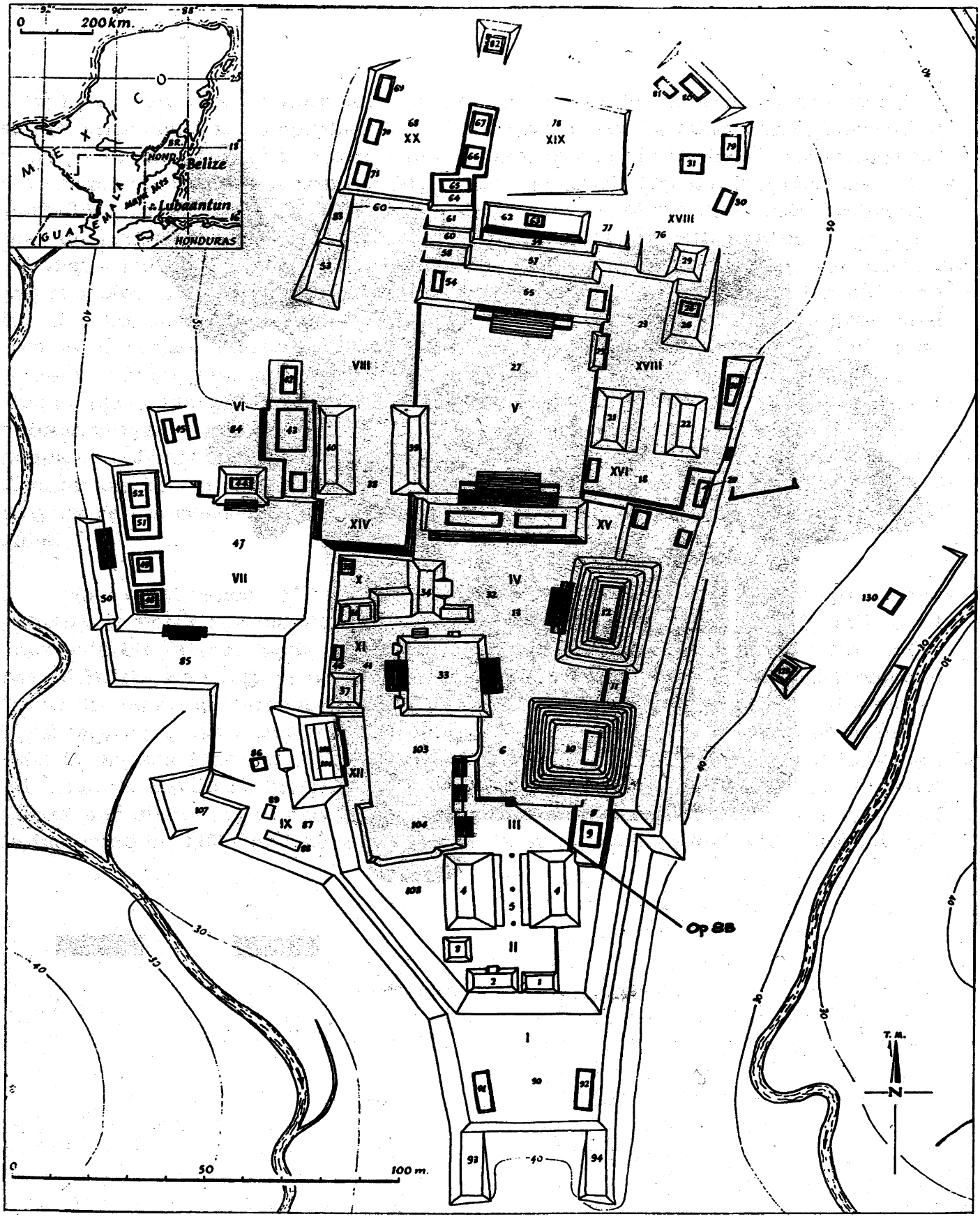


FIGURE 1. Plan of the ceremonial center of Lubaantun, showing the location of Operation 8B where the figurine was excavated.

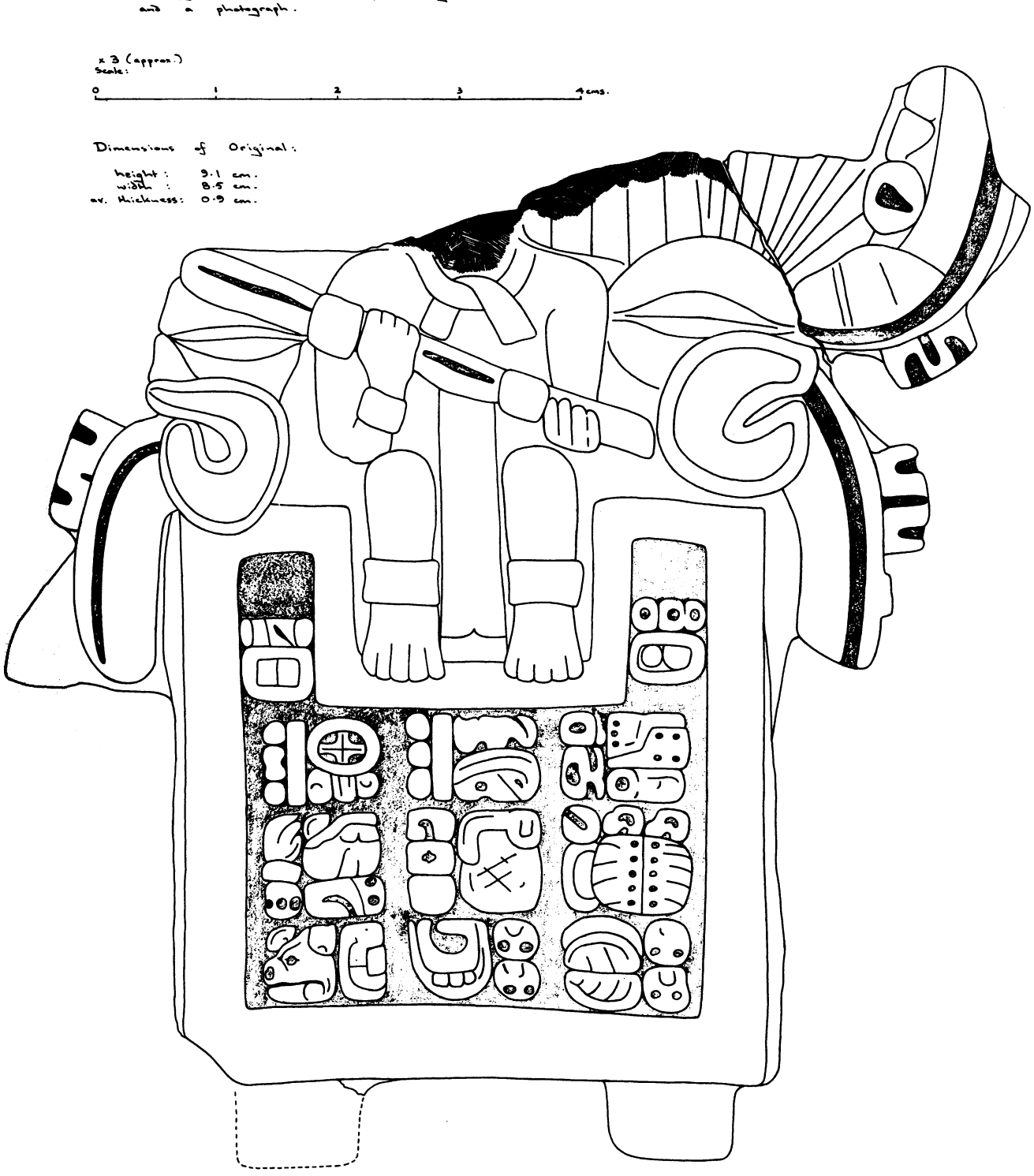


FIGURE 2. Line drawing of the design in Plate 1.

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# CUI ORANGE POLYCHROME:

# A LATE CLASSIC FUNERARY TYPE FROM CENTRAL CAMPECHE, MEXICO

Joseph W. Ball

One of the most frequently encountered polychrome ceramic styles of the Chenes and northwestern Yucatan peninsula regions is typified by red and black on orange tripod plates bearing aviamorphic central designs, generally identified as representations of the Moan bird (figure 1). Other fully or semi-naturalistic to highly conventionalized designs, most notably deer, dogs, and warriors, occasionally appear on these plates as well, however, the stylized aviamorphic patterns vastly outnumber them. The plates occur in considerably quantities among private and institutional collections in Europe, the United States, and Mexico; and I have observed as many as a dozen examples in more than one Meridano's private assemblage. There is a general consensus among Merida and Campeche City dealers and collectors that the finest examples derive from looted graves in the Chenes region of central Campeche; however, I have seen a substantial number of pieces among the materials deriving from mortuary contexts at Yaxcopoil, Yucatan (Cervera Collection, Merida 1973; personal observation), and Islas Jaina, Piedras, and Guaymil in Campeche (typological collections, Instituto Nacional de Antropologia e Historia, Merida 1973: personal observation). A large percentage of the Late Classic (Early Period II) polychrome sherds recovered at Dzibilchaltun, Yucatan also pertain to this type (Ball and Andrews 1973). George W. Brainerd's survey collections from Santa Rosa Xtampak and Dzibilnohac, both large Chenes sites, contain a good representation of Cui Orange Polychrome sherds. By contrast, five seasons of surface collection and extensive excavation at sites in the Rio Bec region failed to produce so much as one sherd of this type (Ball 1973). It would seem reasonably certain, therefore, that Cui Orange Polychrome had its center of origin somewhere north and west of the Rio Bec region and a sphere of distribution which encompassed the western halves of Yucatan and Campeche but did not extend south of the Chenes zone.

Chronologically, the type is at the moment best placed on the basis of its stratigraphic associations at Dzibilchaltun (Ball and Andrews 1973). There it occurs together with polychrome sherds of Rio Bec and Peten origin for which approximate temporal values have been established. The Dzibilchaltun data suggests that Cui Orange Polychrome most probably falls within the range of ca. 9.8.0.0.0. (A.D. 593; G-M-T correlation) to ca. 9.15.0.0.0. (A.D. 731; G-M-T correlation). This is in reasonably good accord with data from the Chenes which indicate the presence at Becanchen in that region of a stylistically anticipatory polychrome type on the basal-flanged bowl, Tzakol horizon (Plate 1).

The general association of Cui Orange Polychrome with mortuary contexts in the Chenes, on the off-shore Campeche islands, and at Yaxcopoil together with the common association of Late Classic polychrome tripod plates and funerary contexts

throughout the southern Maya lowlands (Culbert, quoted in Sharer and Sedat 1971: 34) strongly suggests that the type most probably represents a ceramic category produced specifically for funerary purposes. Such an ascription requires a re-evaluation of the supposed iconographic nature of these plates' central figures.

The proper mythological associations of the Moan bird are rain and clouds rather than ill omen (Thompson 1960: 114-115). Thompson (1960: 115) indicates that the general misconception that the Moan bird is a symbol of death originated with Schellhas, who mistakenly identified a death-connotative glyph with this bird (Beyer 1929). The Moan bird, therefore, was a celestial deity symbolic of the cloud-filled heavens rather than a portent of death.

The bird depicted on Cui Orange Polychrome plates, however, is very closely associated with death. In the first place, a conventionalized percentage sign, an attribute of the death gods, is invariably present in one or more representations as head, chest, or waist adornments of the painted birds. In figure 1, it occurs three times: twice as a head adornment and once as a throat or chest medallion. Figure 2 shows at least two representations of this sign; one at the rear of the head and one at the juncture of body and legs. The association of this sign with the Cui Orange Polychrome birds indicates their association with death. Further suggestions that the birds are linked with the death gods are present in the occasional presence of fleshless skulls on some plates. These may occur as secondary border designs, as in figure 1, or, more rarely, may actually replace the bird as the central theme of the plate (figure 3). Finally, the very contexts of those plates recorded *in situ* suggest an association of the type with death and the afterlife. I believe, then, that it is more reasonable to see the bird so repetitiously portrayed as one of the Maya death deities rather than as the celestial Moan.

Identification of the actual bird represented is surprisingly easy. The frequently repeated percentage sign often serves as the symbolic form of the day glyph for *Cimi*; the personified glyph form for the same day is the fleshless skull (Thompson 1960: 76). *Cimi*, the day presided over by the god of death, derives its name from the same root as the Yucatec word *cimil*: "death," "to die" (Thompson 1960: 75). The day's augural animal is the *cui* owl, a bird which the Maya belief is a portent of ill omen and death (Thompson 1960: 75,115; A. Barrera Vasquez 1972: personal communication). There seems little reason for doubt, therefore, that the being portrayed on the Campeche plates is, in fact, the *cui* owl of the Yucatec: augury of death.

As to the actual biological species involved, there appears to be a general consensus of opinion that the Moan bird is most probably to be identified with the Vermiculated Screech-Owl (*Otus guatemalae*) (Thompson 1960: 113; Blake 1953: 213-214; Smithe 1966: 81, 84). The *cui* is very possibly the Ferruginous Pygmy-Owl (*Glaucidium brasilianum*) (Blake 1953: 216-217), skeletal remains of which have been found in burials and caches at Tikal, Guatemala (Smithe 1966: 84) and Chicanna, Campeche.

Having discussed the known distribution, probably age, and iconographic aspects of Cui Orange Polychrome, I will now proceed to present a formal typological description of it, establishing it as a recognized ceramic type. The following description is based upon some 300 sherds and 43 whole vessels from several sites in Campeche and Yucatan. Their general consistency in form, decorative style, and technological attributes strongly suggests that a single variety is involved.

* * * *

Cui Orange Polychrome: Cui Variety
Established as a type and/or variety: present study
Ceramic group: unspecified
Ceramic ware: unspecified
Ceramic sphere association: Copo sphere
Chronological position: ca. 9.8.0.0.0. (A.D. 593) to ca. 9.15.0.0.0. (A.D. 731).
Areal distribution: Presently known from Santa Rosa Xtampak and Dzibilnohac in the Chenes (typological collections, I.N.A.H., Merida 1973: personal observation); Islas Jaina, Piedras, and Guaymil (typological collections, I.N.A.H., Merida 1973: personal observation); Acanceh (typological collections, I.N.A.H., Merida 1973: personal observation), Yaxcopoil (Cervera Collection, Merida 1973: personal observation), and Dzibilchaltun (Ball and Andrews 1973) in Yucatan.
Description: Medium textured, light red (Munsell 2.5YR6/8) or red (2.5YR5/8) to light gray (10YR7/2) paste. Volcanic ash temper. Interior surfaces and lips are slipped glossy orange (reddish yellow 5YR6/8). Exterior surfaces, including plate bottoms, walls, and supports, are unslipped but smoothed. Their color varies from pale brown (10YR6/3) to pinkish gray (7.5YR6/2). Decoration consists of naturalistic and conventionalized designs on plate floors and interior walls and bands of geometric designs on plate rims. The designs are executed in red (10R4/8) and very dark gray (10YR3/1) to black (10YR2/1).
Form: Basal angle tripod plates with everted or direct (rare) rims, convex or flat (rare) bottoms, and hollow or solid (rare) supports. Lip diameter: 25 - 40 cms., average 33 cms.; height (excluding supports: 4.5 - 7 cms., average 6 cms.; wall thickness: 0.7 - 1.0 cms., average 0.7 cms.

Figure 1: Cui Orange Polychrome plate from Dzibilnohac. Central design shows a cui owl.

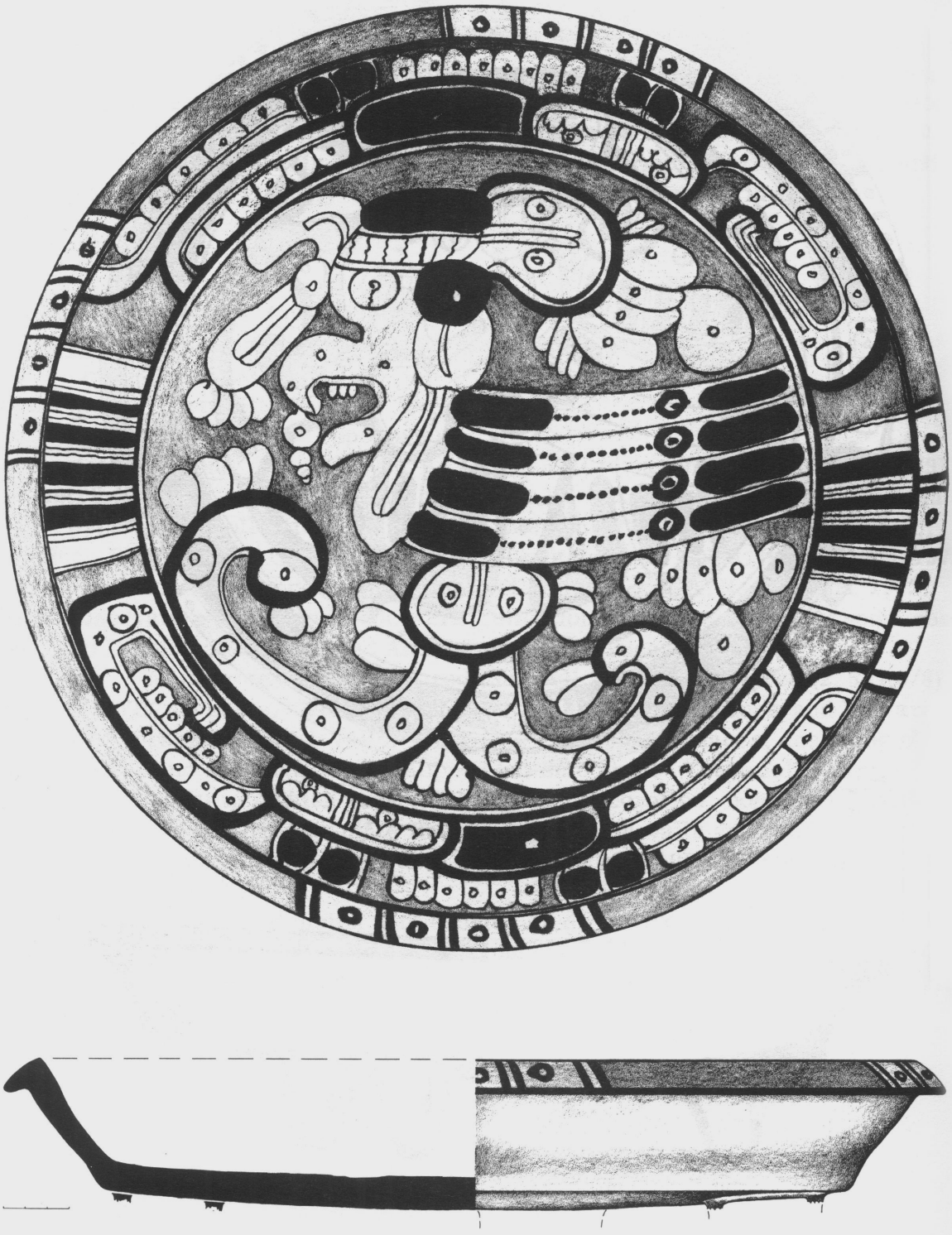

Figure 2: Cui Orange Polychrome plate from Dzibilnohac. Central design shows a cui owl.

Figure 3: Cui Orange Polychrome plate from Dzibilnohac. Central design shows a stylized skull.

Plate 1: Basal-flanged, annular-based bowl from Becanchen. Central design probably depicts a cormorant.

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# MAYA SETTLEMENT HIERARCHY IN NORTHERN BELIZE

Norman Hammond

The truism that not all Maya sites were of equal size, complexity or past political importance was first made explicit by Morley (1937-1938, IV, Table 102; expressed visually in Morley 1946: Plate 19), who ranked sites with inscribed monuments in a hierarchy of four levels from "metropolis" through "cities" and "large towns" to "small towns." The existence of lower-order sites lacking monuments but still more than simply house-mounds was recognized in the Belize Valley survey of 1953-1956 (Willey, Bullard, Glass and Gifford 1965), where a linear hierarchy was noted, the more important centers being the more widely spaced and less common. Bullard, who had carried out the survey work in the Belize Valley, applied this notion in two dimensions in his work in northeastern Peten in 1958, and proposed a spatial hierarchy of three levels, the house-ruin, the minor ceremonial center and the major ceremonial center (Bullard 1960). House ruins were estimated to occur in clusters of 5-12 within an area of 4-9 hectares, with the clusters spaced perhaps 200 m apart, and the occasional presence of a larger structure of apparently specialized purpose. The "zone" around a minor ceremonial center was estimated to contain 50-100 house ruins over an area of about 1 $km^2$ where topography was not too irregular. The major ceremonial center controlled a "district" estimated as 100 $km^2$ of upland, together with bajo. Minor centers were distinguished from house-ruin clusters by the possession of one or more pyramidal structures, presumably temples, arranged with lower structures around 1-3 plazas; stelae, altars and ball-courts were absent and vaulted buildings occurred singly, not in compounds. Major centers were distinguished from minor both in degree, being larger and with more elaborate masonry vaulted buildings, and in kind, possessing stelae, altars, ball-courts, multi-roomed "palaces" and often more than one group of structures linked by sacbeob.

This three level hierarchy has remained the accepted model, but it is not precise enough to be used with the more sophisticated analyses of interactions between sites in an overall network which are now being carried out with the aid of locational theory and recent advances in epigraphy: if primary, secondary and tertiary ranks were recognized by the Maya (as is claimed by Marcus, 1974) or superordinate centers were extending dynastic control over subordinate, as proposed by Molloy and Rathje (1974), then we shall need to look more closely about the relative size and complexity of sites as recorded archaeologically in order to appreciate the distinctions.

It was with the aim of examing the relationship of different levels of a site hierarchy to each other and also to topography, resources and communications that the British Museum-Cambridge University Corozal Project began an area survey in northern Belize (formerly British Honduras) in 1973 (Figure 1), and this work has led us to

propose a site hierarchy of nine levels within the area. Each level is defined in fairly general terms so that the system may be more widely applicable, and a type site for each level has been contour-mapped, with a theodolite (Figure 9 is an example) and then converted to a conventional plan (Figures 2-8, 10).

The lowest levels, 1 and 2, are the single isolated house-platform and the house-compound or plazuela; the former scarcely needs definition or illustration, while the latter is basically what Bullard called a "cluster," a 2-6 platforms grouped around a patio which is often also the upper surface of a common basal platform, with more than 4 platforms in the compound being rare. Both types of site are found in isolation, forming these lowest levels of the settlement hierarchy, but also constitute in agglomeration the majority of residential structures in the settlement areas surrounding ceremonial centers; in fact lower-order site types often occur within the purlieus of the larger sites, as noted below.

Level 3 is termed the informal cluster, and is defined as an aggregation of mounds, essentially undifferentiated in size and apparent function and usually 6-12 in number, sited around a central open space lacking obvious limits. The type site for this level of the hierarchy is the Hipolito Group (Figure 2) between San Estevan and Chowacol, which consists of 9 mounds below 2 m in height, those numbered 3 and 4 being very low; Structure 1 has a small frontal stair and Structure 5 a small (and probably Late Postclassic) superimposed platform. The space roughly enclosed by Structures 1, 5, 2, 8 and 9 is too indefinite to be called a patio or plaza.

Level 4, the formal cluster differs from Level 3 in having mounds clearly differentiated in size and probably function, with the largest likely to have been shrines or elite residences, arranged round an explicit plaza with definite limits. The number of mounds is not necessarily larger than in the informal cluster, but their organization is coherent. The type site is the Martinez Group, 1 km north of the Hipolito Group (Figure 3), which has 12 structures, several of them with more than one component, around a coffin-shaped plaza divided by the low Structure 6. The two highest mounds, Structure 1 and 4, face each other across the broader northern section, and may represent the lowest level of ceremonial center elaboration (cf. Bullard 1960: 367; Flannery 1972: 38) or grandiose residences for a microlocal elite. This latter function probably applies in any case to Structures 8 and 11 which face each other across the narrower southern end of the plaza, although the multiple levels of Structure 8 are an unusual feature.

Level 5, the minimal ceremonial center, is by this title acknowledged as having a ceremonial (i.e. religious/political/economic control) function, marked archaeologically by the presence of one structure too large to be residential, together with features found in Levels 3, or 4. The major structure is usually over 5 meters in height and pyramidal in form, facing on to an open area or formally defined plaza. The type site is Santa Rita (Figure 4), which has a single pyramid some 12 meters high on the north side of a plaza enclosed by low range structures, but no adjacent plazas and no concentrated settlement (Hammond, ed., 1973: Figure 73).

Level 6 is the minor ceremonial center proper -- as Bullard described it, the small-scale version of a major center -- distinguished from Level 5 by the possession of 2 or 3 defined plazas, each containing at least one major structure, and with evidence of differentiation in plaza function, with one forming the focus of religious activity and one or two others having elite residences and/or administrative buildings. The type site is Chowacol (Figure 5), 2 km south of the San Estevan major ceremonial center, which has two raised and separated plazas on a massive common basal platform, the southern dominated by a 10 meter high pyramid, Structure 1, the northern by a "palace" substructure 35 meters long (Structure 5) with an impressive frontal stair. Sites of Level 6 seem to occur commonly in the vicinity of major ceremonial centers of Level 8 and above to service the outlying population, and at least three such, San Victor, San Luis and Platform 143 Group (Figure 6) are known within the 20-25 $km^2$ settlement area of Nohmul, the latter two being at a distance of 1.75 - 2 km from the main ceremonial precinct, the former 3 km further out in a detached zone beyond a band of swamps.

Level 7, the small major ceremonial center, possesses at least one pyramid over 10 meters in height and at least one ballcourt. Stone monuments would probably appear at this level, or at Level 6 sites within the ambit of major centers, in other parts of the lowlands, but northern Belize has so far yielded no definite in situ monuments (a plain stela was suggested by Bullard (1965: 14) at San Estevan; another, more probably a roof slab, by Gann and Gann (1939: 3) at Nohmul; part of a carved stela reset in Postclassic times was found at Chan Chen in 1974 (R. Sidrys, personal communication) and may have been transported from elsewhere). At this level substantial circumambient settlement begins to concentrate around the ceremonial precinct, whereas at lower levels it has been fairly diffuse. The type site, Colha, has a plaza barely large enough to hold the ballcourt and a ceremonial precinct overshadowed by hugh compounds of administrative or elite residence structures (Figure 7, groups 35 and 40), but a large and dense settlement area clearly resulting from the site's idiosyncratic status as a major flint-implement factory (Hammond, ed., 1973: 55-60, Figures 64-70).

Level 8, the medium major ceremonial center, has two or three pyramids over 10 meters in height, at least one ballcourt, several ceremonial and elite residence plazas with a differentiation into religious, other ceremonial and residential plaza functions (cf. Hammond 1972). There is a substantial circumambient settlement perhaps containing minor centers of Levels 5-6 and formal clusters of Level 4 as low-level ceremonial foci. Sites of Levels 7 and 8 are widely enough spaced to indicate that each exercises control over a number of minor centers existing also beyond the settlement area as lower-order service centers (Figure 1; cf. Hodder 1972: 897-903). The type site is San Estevan (Bullard 1965), with six plazas, three ceremonial and three residential, three major and three minor pyramids, a ballcourt and several enclosed elite-residence courts and plazuela groups adjacent to the ceremonial precinct (Figure 8). The Hipolito Group, Martinez Group and Chowacol sites all lie within the region of control of San Estevan, which from the spacing of contiguous equivalent-level centers probably covered an area of 250-325 $km^2$.

Level 9, the highest in this regional settlement hierarchy, is that of the regional ceremonial center; it is differentiated from Level 8 by having larger and more numerous ceremonial structures, but particularly by their division into two groups linked by a sacbe, with either or both groups including an elevated acropolis supporting further structures. The type site is Nohmul (Figures 9-10), where the eastern group includes the acropolis and ballcourt, and a second Level 9 site seems to exist on the southern boundary of our research area at El Posito, only cleared and explored for the first time in 1974, where both groups consist of acropolises but the sacbe is apparently discontinuous.

Neither of these sites is of more than medium size when compared with those of the Peten-Campeche heartland -- a smallish Peten center such as Dos Aguadas would be a Level 8 site -- and the typology outlined above would need another two or three higher levels to accommodate large sites such as Seibal and Nakum, Yaxha, and the "supersites" of Tikal, El Mirador and Calakmul. The range of site types is also of course a continuum within which any selected "threshold" feature will occur over a substantial vertical distance, quite apart from any horizontal bias resulting from the consideration of sites within a small area, and this typology merely seems to isolate apparently salient features of the increasing size and internal differentiation in order to make characterization more accurate and comparison of site status as based on archaeological data more valid. These features reflect the increasing complexity of social process operating in higher-order centers: the beginnings of collective effort on perhaps only an extended-family level documented in the common basal platform underlying many Level 2 sites (see below), the imposition of conscious planning and structural differentiation for secular or religious presitge in Level 4, the larger collective effort involved in the erection of public buildings from Level 5 upwards, with the associated skills of architectural design, quantity surveying, labor organization, quarrying and transportation of materials, the erection of masonry structures and their embellishment with stucco, sculpture and fresco, and the overall conceptual direction of such a programme. The tributary population within the realm of a Level 8 center such as San Estevan may have been around 20,000 persons, that within the settlement area alone of a Level 9 center such as Nohmul in excess of 3,000, so that an adequate pool of labor and potential craftsmen certainly existed. A single substantial house-platform such as that of Structure 139 at Nohmul, excavated in 1973-74 and found to be built up of about 10,000 locally-quarried soft limestone blocks, could be erected by six men in six weeks, allowing for two cutting stone and four carrying and placing the blocks, a rate of 6 blocks/man/hour and a 10-hour working day, so that fairly ambitious construction programs could be executed by a local population over a single season.

Such ergonomic estimates are not however the purpose of this paper, although they show how easily settlement and construction data may be translated, using explicit criteria, into an approximation of the degree of organization and labor recruitment and support required. I have merely tried to show that the settlement hierarchy in at least one corner of the Maya lowlands is more complex than present schemes allow, particularly at the lower levels, but that this complexity can be defined and divided in such a way as to provide valid intersite, and perhaps interarea, comparisons.

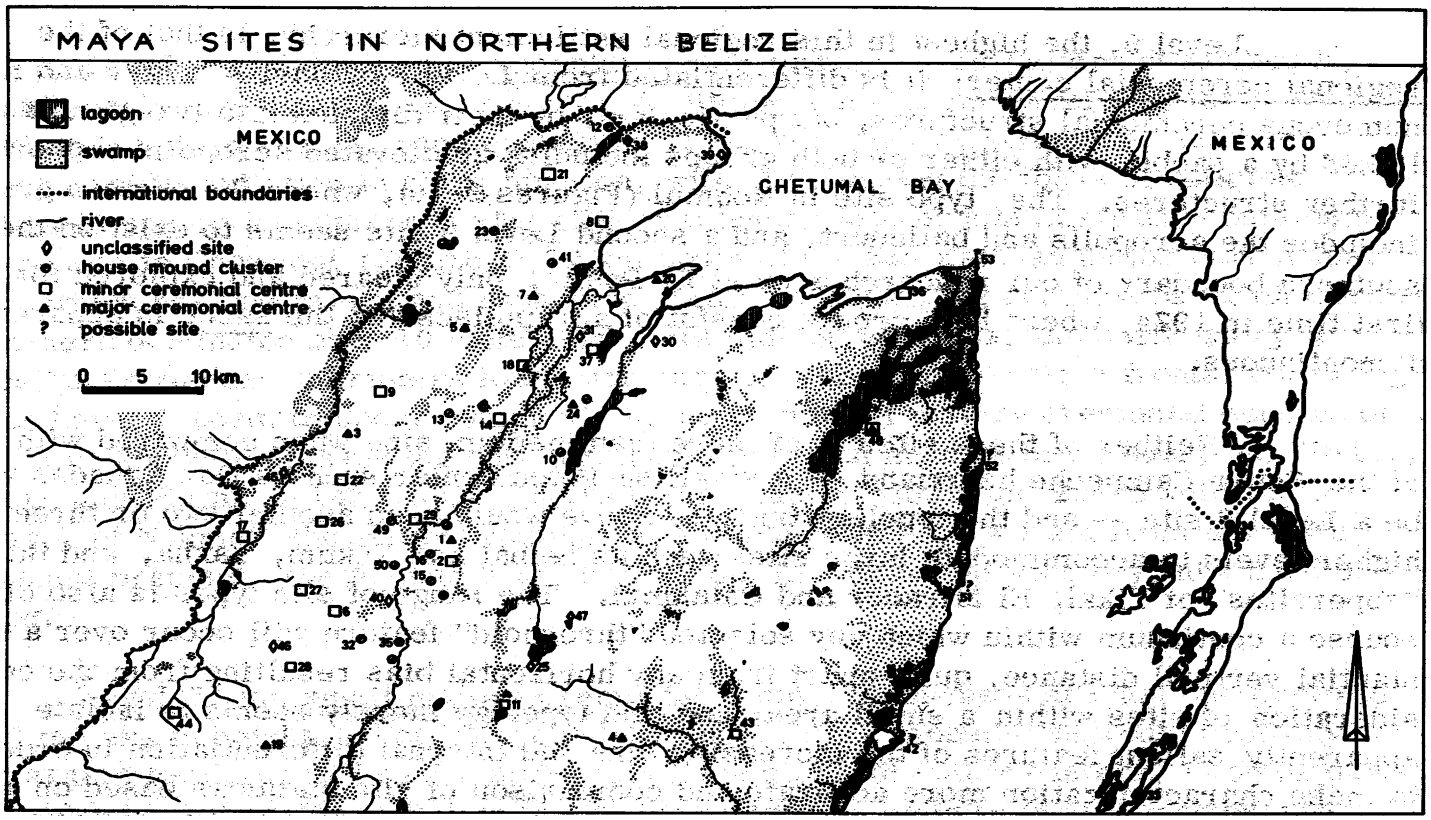


FIGURE 1: Maya Sites in Northern Belize, classified on Bullard's hierarchy (list below)

1. San Estevan
2. Chowacol
3. Nohmul
4. Colha
5. Louisville
6. Cuello
7. Avenutra
8. Santa Rita
9. San Victor
10. Progresso I
11. Kichpanha
12. Santa Elena
13. Buena Vista
14. Caledonia
15. Hipolito Group
16. Martinez Group
17. San Antonio
18. Benque Viejo [Santa Cruz]
19. El Posito
20. Cerros
21. Chan Chen
22. San Luis
23. Patchchacan
24. Progresso II
25. Honey Camp [Laguna de On]
26. San Lorenzo
27. Yo Creek
28. San Lazaro I
29. Barklog
30. Chunox
31. Pueblo Nuevo
32. Chan Pine Ridge
33. San Pedro Ambergris
34. San Juan Ambergris
35. Bound to Shine
36. Sarteneja
37. Saltillo
38. Sajomal
39. Consejo
40. Orange Walk
41. Carolina
42. Spainsh Point
43. Yakalche
44. August Pine Ridge
45. San Roman
46. San Lazaro II
47. Chiwa Lagoon
48. Shipstern
49. Mile 70
50. Indian Hill
51. High Bluff
52. Condemned Point
53. Rocky Point North

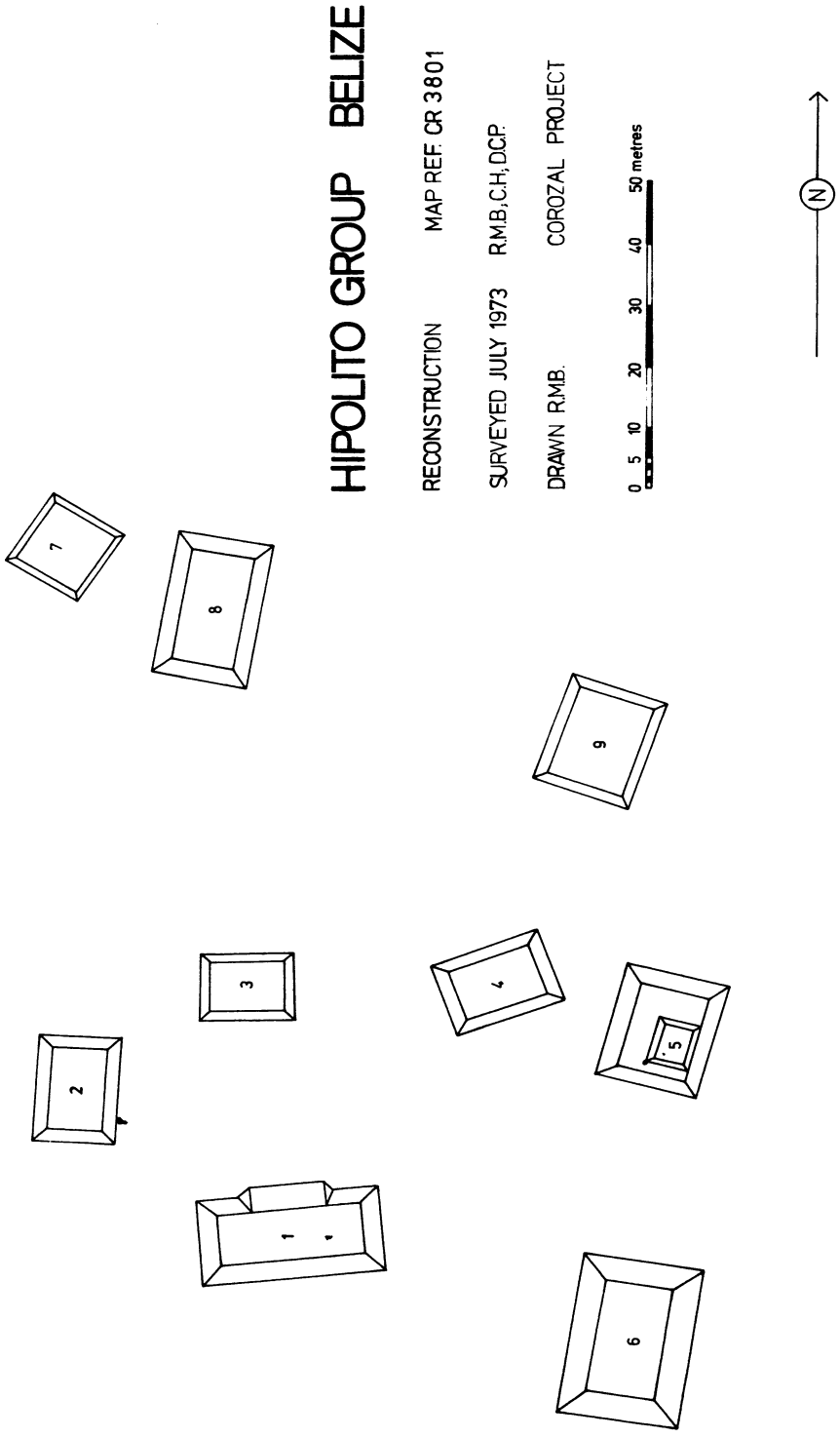


**Figure 2: Plan of Hipolito Group, a Level 3 site.**

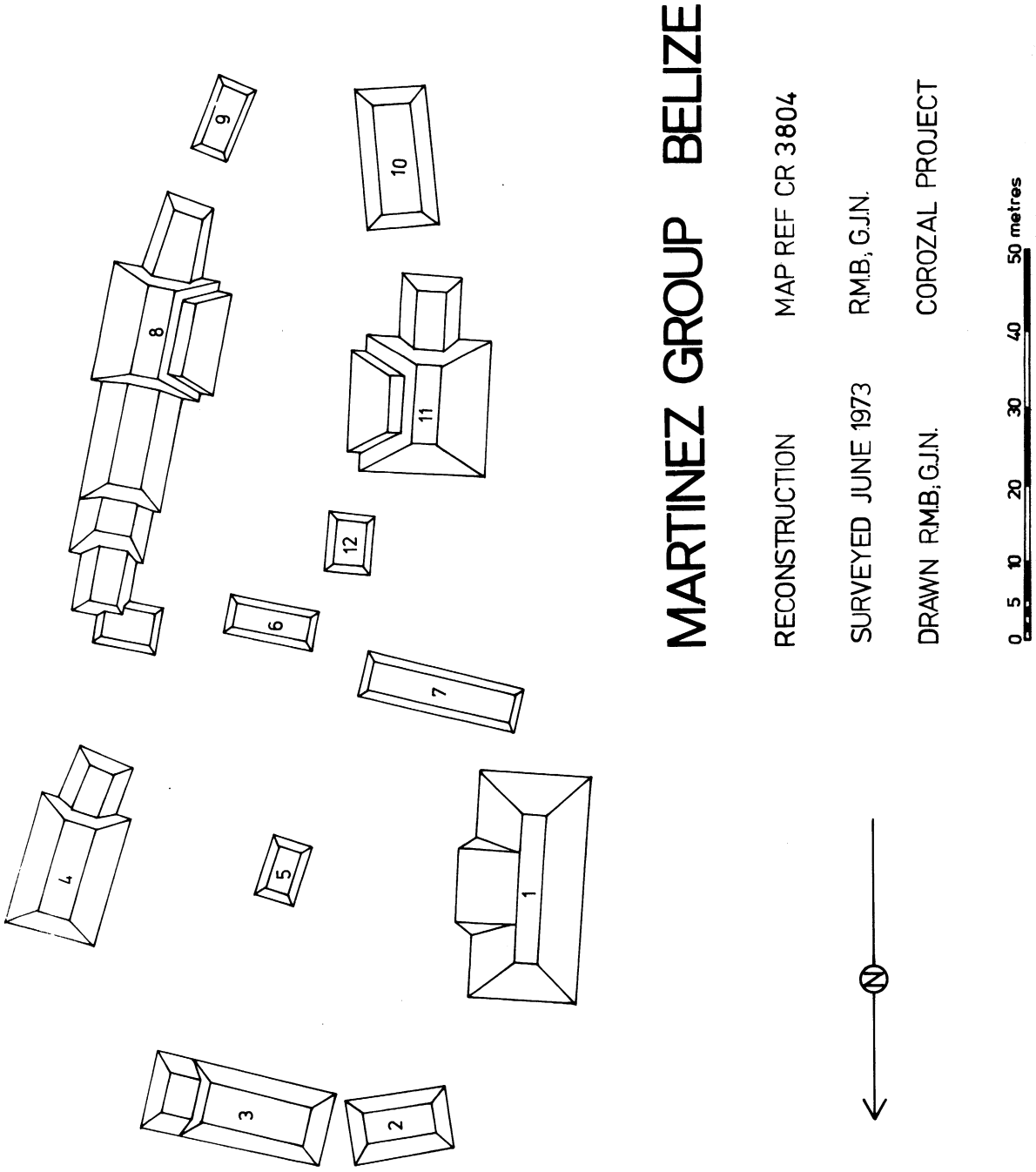


Figure 3: Plan of Martinez Group, a Level 4 site.

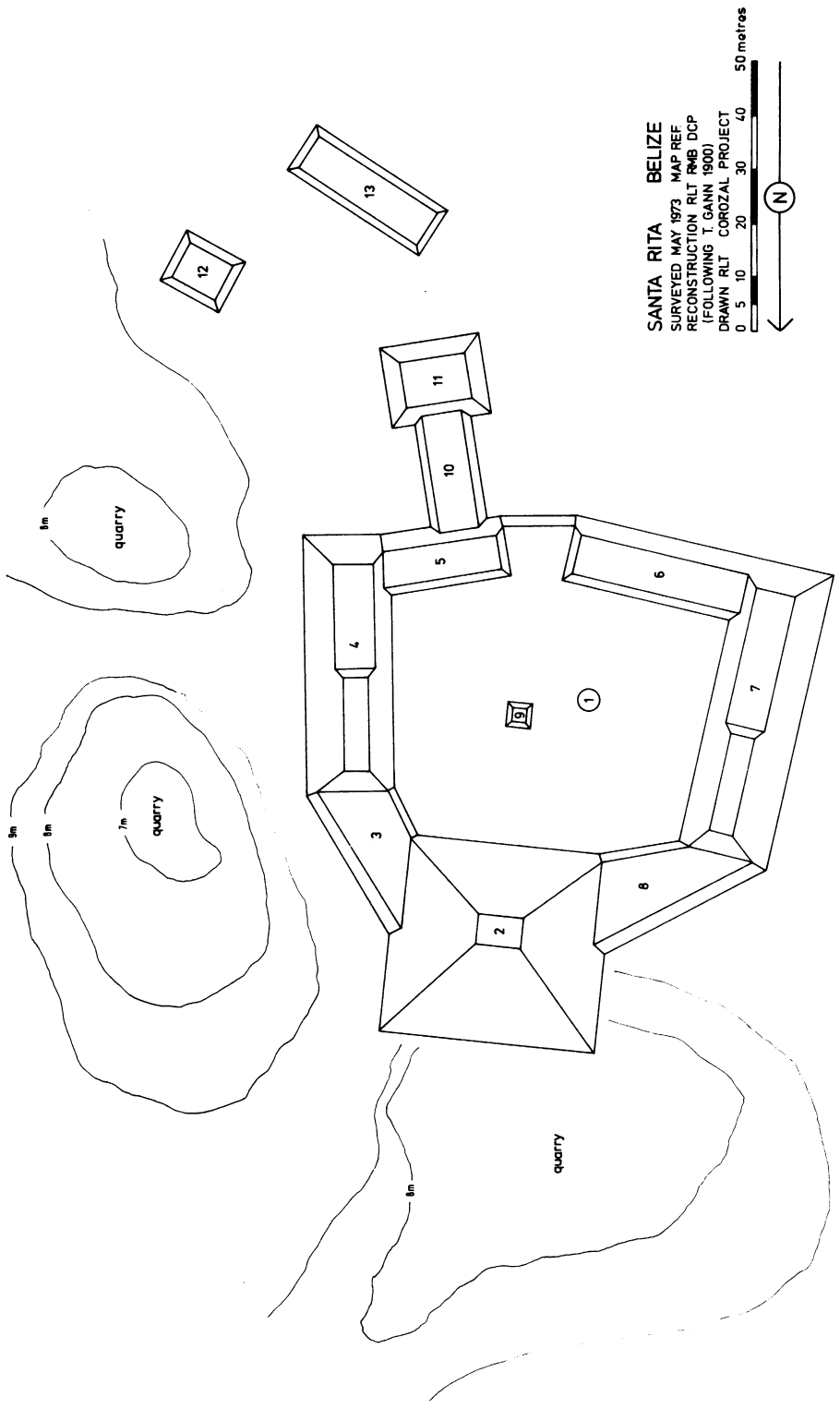


**Figure 4: Plan of Santa Rita, a Level 5 site.**

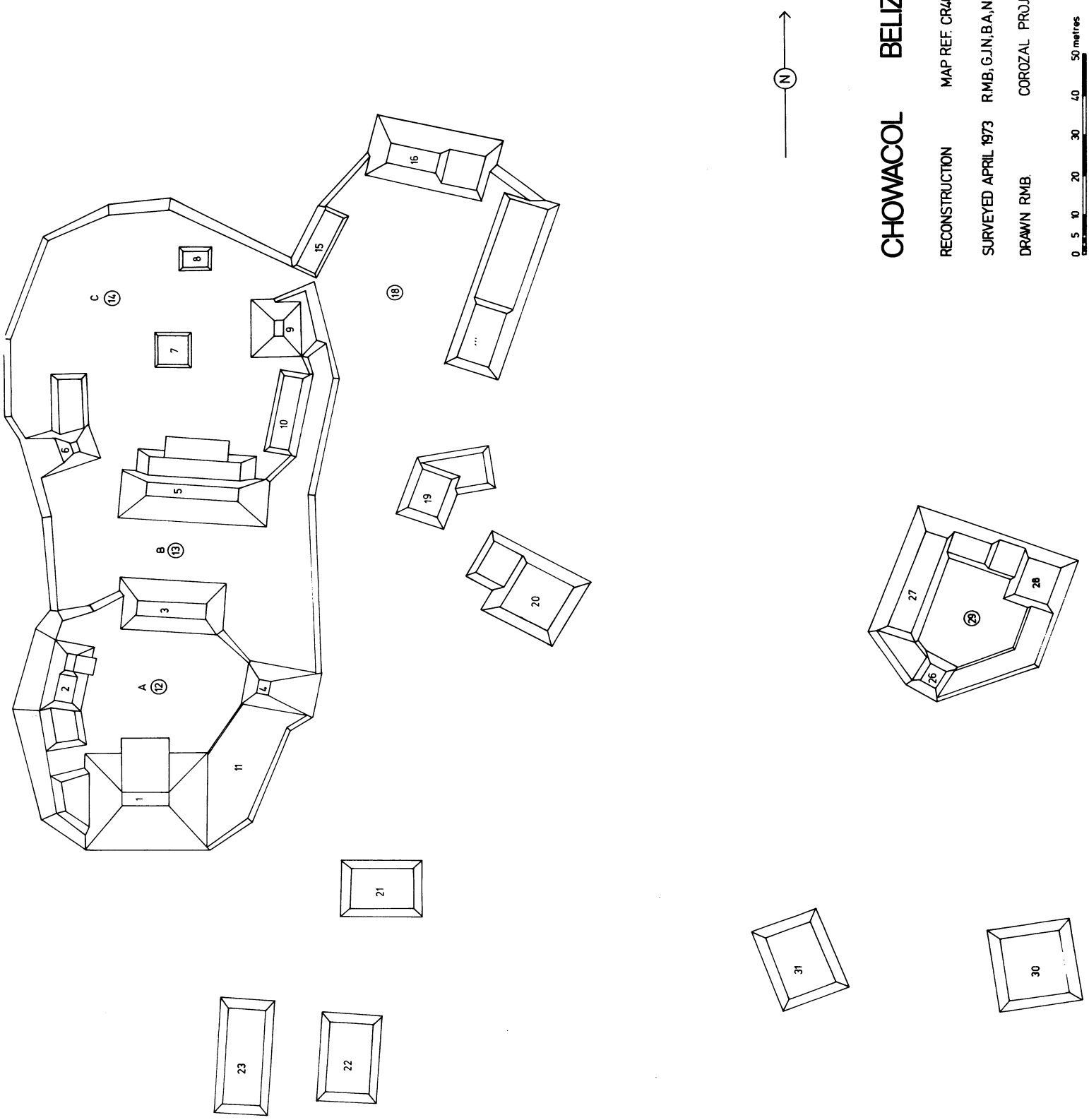


Figure 5: Plan of Chowacol, a Level 6 site.

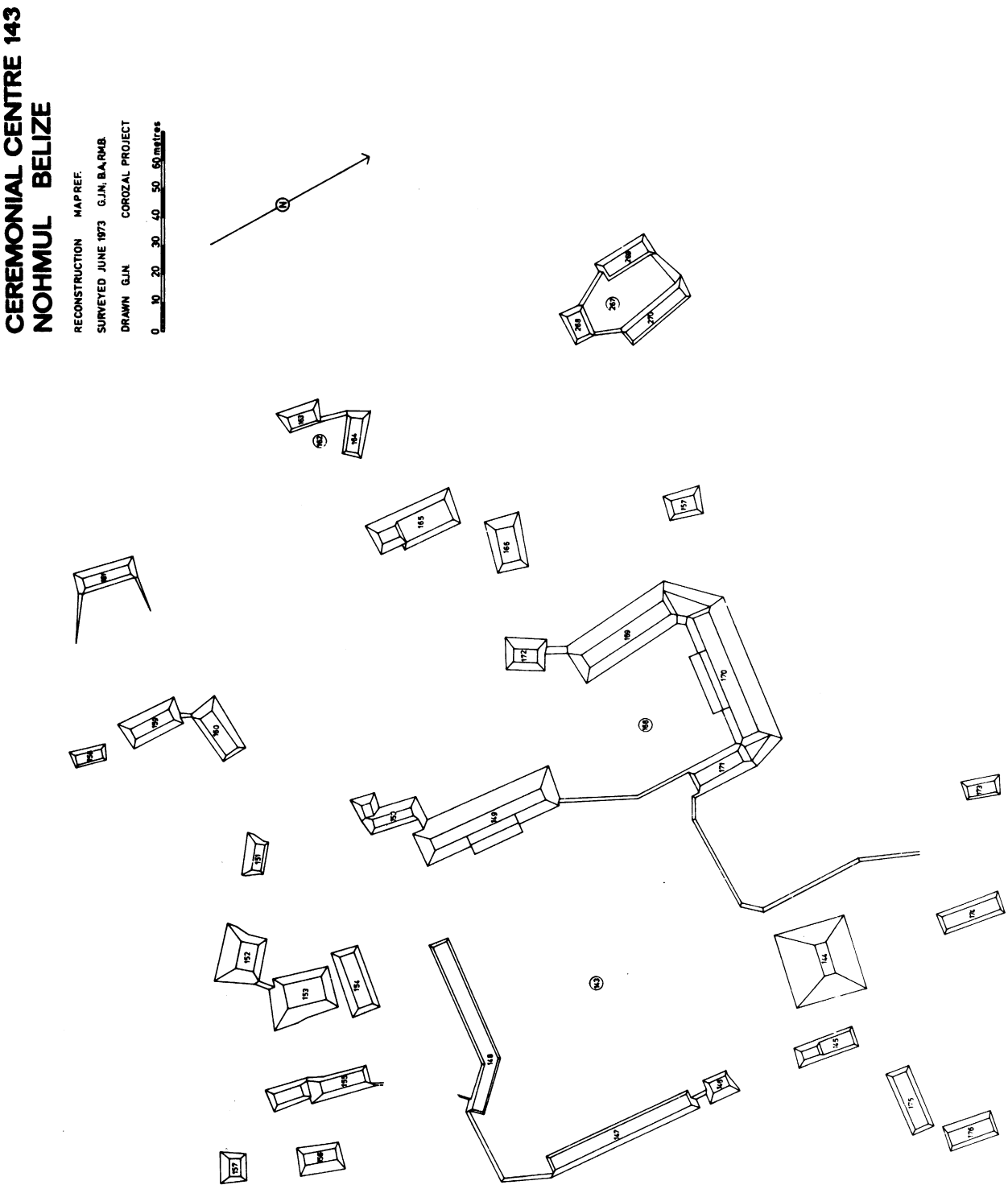


Figure 6: Plan of Platform 143 Group at Nohmul, a Level 6 site in the settlement area of a Level 9 site.

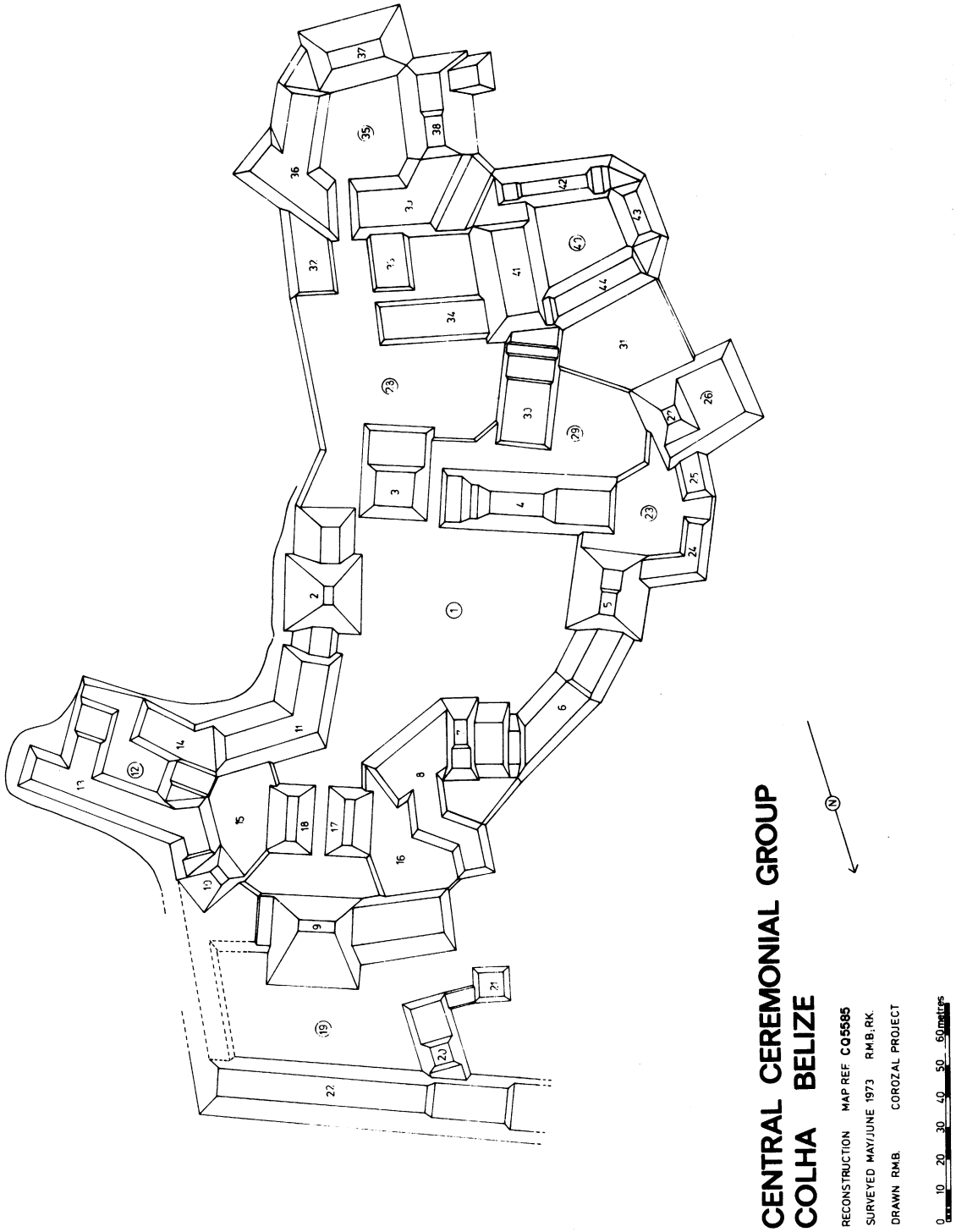


Figure 7: Plan of Colha, a Level 7 site.

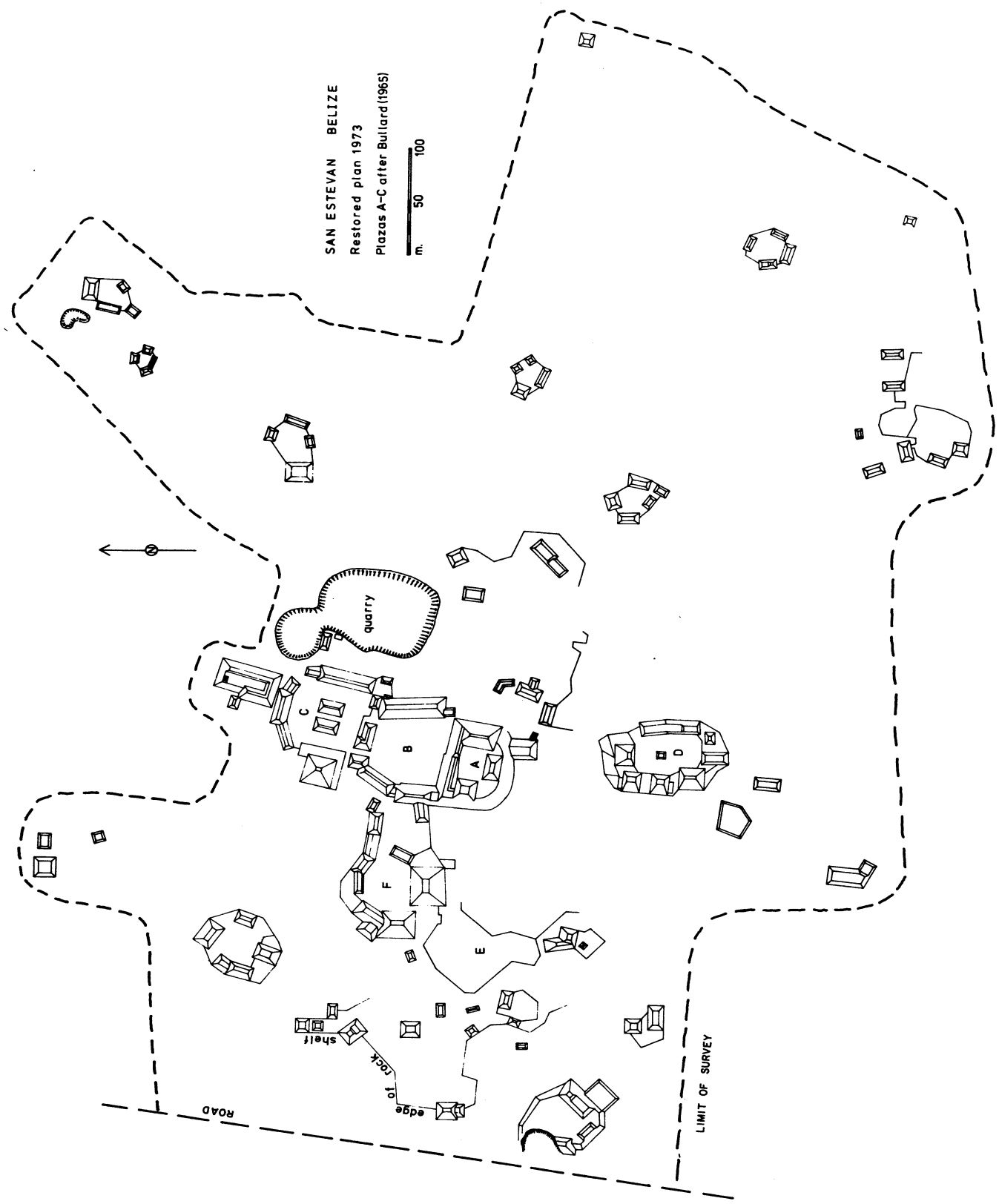


**Figure 8: Plan of San Estevan, a Level 8 site.**

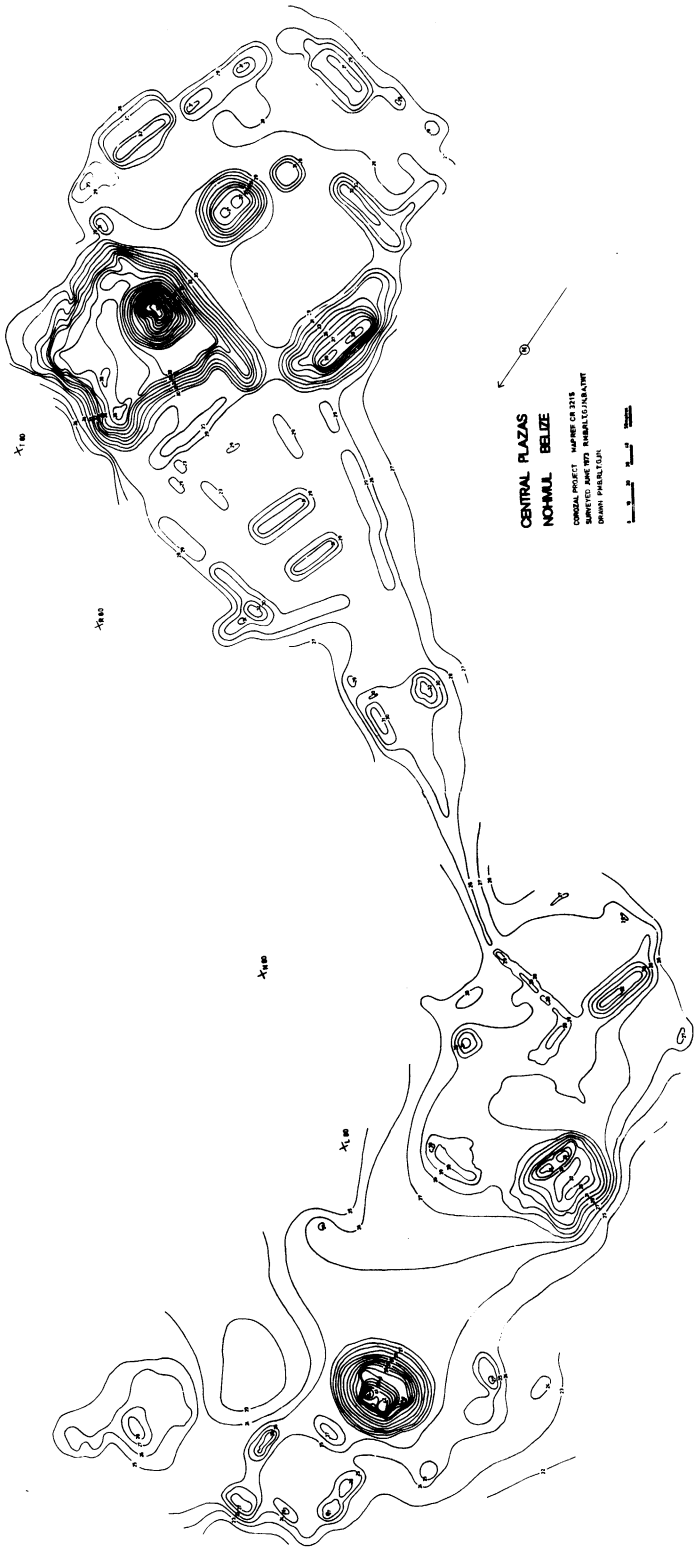


Figure 9: Contour plan of the center of Nohmul, a Level 9 site.

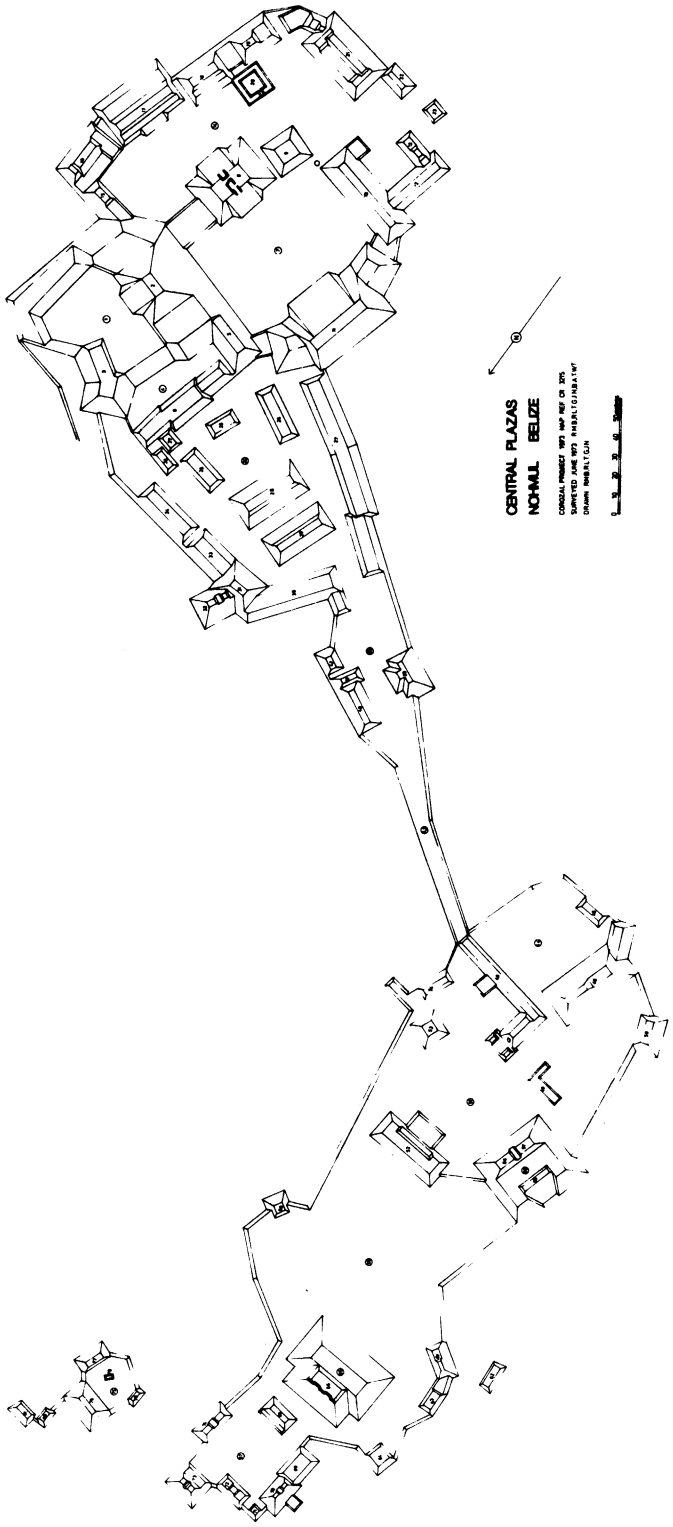


Figure 10: Conventional plan of the center of Nohmul, adapted from Figure 9; Figures 2-8 were similarly adapted.

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# ANCIENT AGRICULTURAL FARMSTEADS IN THE RIO BEC REGION OF YUCATAN

Jack D. Eaton

## Introduction

The subject of this report is the description and analysis of Maya farmsteads of Classic period date in the Rio Bec region of Yucatan (Fig. 1). The farmsteads are associated with artificial field ridges and hillside terraces. These probably had both agricultural and non-agricultural functions.

Hillside terraces, or ridges, were first reported in the Rio Bec region by Ruppert and Denison (1943: 13, 50). These land features were noted in the southern part of the region and were simply referred to as "check dams." Ridges and terraces were also noted by me during explorations in the region during 1966-67, and again in 1970 when the ruins of Chicanna were excavated (Eaton 1974a: 51). In 1971 I continued reconnaissance (Eaton Ms.), which coinsided with one of the most ambitious seasons of milpa clearing in the region in modern times. This was a result of a marked increase in the regional population, notably roadside settlements that appeared with the construction of the new trans-peninsula highway (HWY 186).

After the milpas were burned, field ridges and hillside terracing suddenly became manifest in nearly every field examined. This clearly demonstrated what was previously suspected; that there had been an intense development of the land surface throughout the region in ancient times. Also noted in the fields, and clearly associated with the land development, were the remains of ancient structures. These included platform mounds and the base walls of small houses. The platforms and the houses were found individually and in groups, and certainly represent farmsteads.

The 1969-71 National Geographic Society-Middle American Research Institute project under E. Wyllys Andrews IV concentrated on the civic centers of Becan and Chicanna near Xpuhil (Adams 1974). It was not possible to handle the problems of ancient agriculture and settlement patterns at the time. In 1973 an ecological research group consisting of ecologists and archaeologists attacked the general problems of man-environmental relationships, especially as they apply to the collapse of Maya Classic civilization (Culbert 1973).[1] A part of the project focused on the patterning of Maya households and land use relating to the Late Classic period. The farmsteads selected for investigations are located east of Xpuhil, Campeche, which is located at KM. 153 on the Escarcega-Chetumal highway, and are believed to be representative of ancient rural settlement of the Rio Bec region. Situtated on artificially terraced hillsides, and at considerable distance from the monumental centers, these farmsteads were part of a region-wide form of intensive agriculture practiced from about 600 to 830 A.D.

During the 1973 field season I concentrated on a study of certain hillside farmsteads. Bill Turner, a cultural geographer, mapped and tested the terraced hillsides upon which the farmsteads are located (Turner 1973). The investigations were not only designed to obtain information relating to culture and chronology, but were also focused on collecting ecological diagnostics that might pertain to climate, climatic change, and agricultural production. The results of subsequent laboratory analysis of collected ecological materials, including soil samples, were not known at this writing.

The chronological framework is based on the regional ceramic sequence developed by Joseph W. Ball (Ball 1972). All pottery excavated during the season was analyzed by Ball, who provided the chronological interpretations in this report.

Each area studied was given an Operation number, and the separate excavations within an area were assigned a sub-Operation letter. This report will describe Operations 10, 17, and 21. These operations were selected as representing a few of what seems to be a rather large variety of structures noted to be associated with the remains of agricultural land modifications in the region. Included is a small one-room house (Op. 17 B), a larger one-room house with fenced enclosure (Op. 17 A), a one-room house with fenced enclosure adjacent to a platform (Op. 10 A, B, C, D), a relatively large one-room house of possible specialization (Op. 21 D), and an open house compound with fenced enclosure (Op. 17 C, D, E), and an open house compound on joining split-level platforms (Op. 21, A, B, C).

Attention has been given to a fairly detailed description of the actual construction and dimensions of the houses. It is felt that these data should be presented, even though they may be tedious to wade through, since so little is actually known of the constructional details of simple Classic period houses in the Maya lowlands.

## DESCRIPTION OF THE SITES

OPERATION 10: This operation includes excavations of a small farmstead situated on top of a hill located 3 km east of Xpuhil crossroads and south of the Escarcega-Chetumal highway. The hill's north face has a steep rise which displays a series of ancient artificial terraces. The terraces were mapped and studied by Turner simultaneously with the excavations of the associated house structures.

The farmstead investigated consists of a small one-room house of rectangular plan, a fenced enclosure adjacent to the house, and a raised platform with rounded corners (Figure 2).

Sub-Operation A was the excavation of a 1 x 3 meter trench located just to the south of the enclosure wall. The purpose was to sample sub-surface materials and to note the depth of the soil before excavating the structures. Apparently this had been a refuse dump area, since a large collection of potsherds, and some lithic debitage

was obtained here. Much of the pottery was eroded, but all identified sherds belong to the Bejuco ceramic phase (Ball 1972). This is an early phase in the Late Classic period (ca. 600-730 A.D.).

Sub-Operation B included the excavation of Structure 1, the one-room rectangular house forming the west side of the complex. After bushing the site, and before excavations began, the outline of the house walls could be made out rising slightly above fallen stones and accumulated forest debris (Plate 1, a). This is typically how all of the structures identified as houses were found.

Only the inside of the house was completely excavated. The house is of rectangular plan with the long axis north and south. The actual orientation seems to be about 18° east of true north. The magnetic declination here is 6.5° east. The walls are built of stones and slabs, some of which are roughly formed. The walls appear to have been dry-laid, although any mortar used could well have been leached out. There is no evidence of wall plaster inside or out. The walls are about 50-60 cm. in thickness and now stand about 45-70 cm. high above the floor. They probably originally rose to a height of around 1.7 m., judging by the amount of fallen stones. The walls probably supported a roofing of palm or grass thatch as shown in the suggested restoration drawing (Figure 2).

In contrast to the rather crude construction of the walls, the room floor is a thick, hard, lime plaster. The upper surface of the floor, which originally had been level and smooth, was found to be surprisingly durable, although worn and cracked. The plaster is 2-3 cm. in thickness. It was laid on a layer of fine grouting, which in turn rested on a mixture of gravel fill and dirt deposited on bedrock. The construction of the floor is identical to floors examined in formal buildings of approximately the same Late Classic (Bejuco phase) period in nearby monumental centers. Perhaps the same masons were involved.

At the north end of the room is the remains of a raised bench. This had been a later addition, since the floor runs under the bench. The bench is made of gravel fill behind a retaining wall, which forms the bench's leading edge, and has a plaster surface. The bench measures 33 cm. high and 1.20 m. deep. This was probably a sleeping bench.

The house doorway is nearly centered in the east wall and is about 70 cm. wide. The jambs are built of relatively large stone slabs which have been roughly faced within the doorway. The room inside dimensions are about 2.10 m. wide by 4,85 m. long. These are mean dimensions since the room is not a perfect rectangle.

Excavation of the room required the removal of about 60 cm. of material overburden covering the floor. This was removed in two distinct levels. Covering the floor was approximately 20 cm. of gray (Munsell 10YR 6/1) dirt containing some scattered pottery fragments and fallen wall stones. Also found was a gray obsidian prismatic blade. Covering the floor midden was about 40 cm. of dark gray (10YR 4/1) surface humus.

After the room had been cleared out and recorded, a large trench, including most of the floor area, was dug below the floor to limestone bedrock. Most of the pot-sherds collected from both above and below the floor were badly eroded; however, the identifiable sherds seem to belong to the Bejuco ceramic phase.

Sub-Operation C included excavations within the walled enclosure on the east side of Structure 1. This is an almost square area formed by the front of Structure 1 on the west, the retaining wall of Structure II (the platform with rounded corners) on the east, and two parallel walls forming the north and south sides. The mean internal dimensions are about 3.55 m. by 4.0 m. There is an entrance passway 90 cm. wide at the northeast corner of the enclosure. The parallel walls are built of crude stones and slabs similar to the house walls, but perhaps not as well laid. No trace of mortar was noted. The walls had been built up from bedrock and presently stand about 40-70 cm. in height, and are about 50-60 cm. thick.

The entire enclosure was excavated following three natural levels. The lowest level. laying upon bedrock, was a fill of gravel and dirt for leveling the enclosed space, which is built on a slope. The top of this level was the actual flooring of the enclosure. Found upon the flooring, and mostly near the walls and corners, were sherds of utility vessel representing many large pots and jars. The large amount of pottery and also flint debitage found here, within a 20 cm. deep floor midden, suggests that this was a storage or work area. Covering the floor midden was about 30 cm. of surface humus. Although much of it was badly eroded, the pottery from above and below the flooring seems to belong to the Bejuco phase.

Sub-Operation D includes Structure II, the platform on the east side of the complex. Forming the east side of the enclosure is a wall built of roughly cut slabs. It presently rises about 1.30 cm. above bedrock and is the west retaining wall of the platform crowning the hilltop. The platform is terraced with two levels on the south side, and three levels on the south side, and three levels on the north (down slope) side. The main platform is about 6.90 m. long, in the east-west axis, by about 4.90 m. wide, and has rounded corners. The south side of the platform rests upon bedrock, while the north side joins the lower terrace. Rising 20 cm. above the main platform is a smaller platform believed to be the base and floor of a house. This upper platform is about 4.0 m. wide by 5.0 m. long. It has rounded ends and appears to be apsidal in plan. A distinctive flooring was not noted, but this is not surprising since the platform has been subjected to weathering for a long time.

It is only a guess that a house with apsidal plan once stood on top of the plat-form or that is was built of wattle-daub and thatch roof similar to modern houses seen in northern Yucatan. This is the only house platform known to have been examined to date in this region which has a plan of this shape. The apsidal house shown in the restoration drawing (Figure 2) is only a suggestion.

The platform walls were trenched to establish the form, and a test pit was dug through the center top. The terrace retaining walls are built of laid slabs without any trace of mortar. The structural fill is gravel with lots of dirt built up from bedrock. Most of the potsherds recovered from excavations here are very badly eroded, but the identifiable sherds seem to belong to the Bejuco phase. The orientation of the platform is about 18° east of true north.

OPERATION 17: This operation includes the excavations of two separate house structures and a house complex. These farmstead houses are situated on an artificially terraced hillside located 5 km. east of Xpuhil crossroads, and north of the highway. The terraced hillside was examined by Turner during this work in the area.

Sub-Operation A was the excavation of a house situated on the eastern part of the study area (Figure 3). This is a one-room house facing south and has a fenced enclosure along the front and west sides. The house is rectangular in plan with the long axis running east and west. The actual orientation is about 18° east of true north.

The walls of the house are built of crude stones and slabs, and are roughly 60 cm. in thickness. No trace of mortar was seen, but it could have been leached out. Also there is no indication of wall plaster. The walls presently stand about 50-80 cm. in height above the floor, but probably were originally around 1.7 m. high. The roofing was most likely grass or palm thatch as shown in the suggested restoration drawing (Figure 3).

There is one doorway 85 cm. wide approximately centered in the south wall. The jambs are built of large slabs which are better cut and fitted than the stones in the rest of the wall.

The original dimensions of the room are 2.40 m. wide by 5.90 m. long. A partition wall had been added which closed off the western end of the room. It is built upon the floor and presently rises to about 50-60 cm. This wall has no doorway and is constructed of crude stones similar to the house walls. The exact purpose of this wall is not clear. It seems a little high to be a retaining wall for a bench, although this cannot be ruled out. If it had been a bench one would expect to find the enclosed space filled with gravel, as is the usual practice. The enclosed space was found filled with the same type of dirt as described below for the main room. No cultural materials were found within this walled-off enclosure.

The room floor has a hard lime plaster surface that was found in excellent preservation. The floor construction is identical to floors found in the regional monumental buildings of approximately the same date. Although the house is built on a hill slope, the floor is quite level. The plaster surface of the floor is around 3 cm. thick with an underlay of fine grouting. Below this is 45 cm. of gravel fill with lots of dirt. As noted in the section drawing (Figure 3) the house was built upon the ancient ground surface which is about 35 cm. of dark gray (10YR 4/1) surface humus covering the limestone baserock.

The room floor was found covered with 40 cm. of dirt overburden. This included 20 cm. of light gray (10YR 6/1) dirt covering the floor surface, and an overlay of about 20 cm. of dark gray (10YR 4/1) surface humus. Upon the floor, and near the east wall, were fragments of three large pottery jars. The jars belong to the Bejuco ceramic phase. Nothing else was found in the room. Subfloor trenching did not produce a single potsherd.

The outside enclosure walls are built of stones and slabs much like the house walls, except that they probably did not stand as high. The walled enclosures are obvious additions to the main building. The walls were built upon the ancient ground surface and the space between the walls and the house was filled with gravel and dirt to a few centimeters below the house floor level. The surface seems to be packed sascab.

As noted in the restoration drawing (Figure 3) part of the stone fencing is built upon a platform which extends south from the building. This platform, which is about 2.40 m. wide and rises roughly 1 m. above ground level, extends down-slope from the house and seems to be part of the hillside artificial ridge network. Found within the extended part of the walled enclosure was an extremely dense deposition of broken pottery utility vessels. Most of the vessels are large storage jars belonging to the Bejuco ceramic phase. Some circular stone lids for the jars were also found. Apparently this had been a storage area, and possibly associated with the local agricultural production.

Sub-Operation B is a small one-room house located approximately 50 meters southwest of sub-Operation A. The house is rectangular in plan and faces south (Figure 6). The building is oriented about 21° east of true north. The walls are built of crude stones that appear to have been laid dry. A doorway 65 cm. wide is approximately centered in the south wall. Forming the door jambs are large slabs which are roughly faced. The walls presently rise about 60-80 cm. above the floor level, but originally were probably around 1.7 m. in height. They are roughly 60 cm. in thickness and give no hint of wall plaster. The walls probably supported a thatch roof as shown in the suggested restoration drawing (Figure 4).

The room inside dimensions are about 2.20 m. wide by 4.0 m. long. The flooring in the house seems to be a packed layer of sascab over a dirt and gravel fill, which was built up from bedrock. Covering the floor was about 35 cm. of surface humus, but no indication of a floor midden. The floor was trenched to bedrock and produced only a few very eroded potsherds. Although pottery dating could not be made here, the basic house construction and orientation suggests contemporaneity with other nearby Bejuco phase buildings.

Sub-Operations C, D, E, and F comprises a farmstead complex with one-room houses forming three sides of a walled court (Figure 5). The complex is situated roughly 150 meters west of Sub-Operation B and occupies a local hilltop.

Sub-Operation C; Structure I, forming the north side of the complex, is a one-room house with a doorway facing the court. The house walls are built of rough stones and slabs which appear to have been laid dry. There is no evidence of wall plaster. The walls are presently about 70 cm. to 1.0 m. in height, but originally were over 1.5 m. high. The thickness is about 60 cm. The house roofing was probably thatch. The doorway is 90 cm. wide and is built of large slabs which are cut flat to form the jambs. The west doorjamb presently stands 1.5 m. high. The room inside dimensions are 2.45 m. wide by 5.45 m. long. The long axis is east and west, but actually oriented roughly 20° east of true north (Plate 1,b and Figure 5).

The room floor surface is lime plaster which is unusually thick and extremely hard, and in quality, equals floors found in the monumental centers. The flooring was built with a slight down-slope to the doorway from all corners of the room, and would provide very good drainage. The door-sill is ramped down and out to the paved court, instead of having a step, as is the usual practice. The floor surface is about 5 cm. thick with a grouting underlay. Below is gravel fill with lots of dirt. Two distinct sub-floor levels were noted. From floor surface to about 40 cm. is gravel with gray dirt containing sherds and chips of flint. Below to bedrock, which is roughly 70 cm. below the floor surface, is a level of dark gray (10YR 4/1) dirt with gravel. This is hard packed and contains a relatively large deposit of sherds and lithic debitage. This lower level, which underlies the whole complex, appears to represent an earlier occupation strata upon which the compound was built. All identified subfloor materials apparently belong to the Bejuco ceramic phase.

The room floor was found covered with about 40 cm. of dirt in two distinct levels. The upper 20 cm. level was dark gray (10YR 4/1) surface humus. Underlaying this was a light gray (10YR 6/1) floor midden. The midden produced a relatively large collection of Bejuco phase pottery fragments and some lithic debitage. The sherds and flint were scattered throughout the midden, but tended to be most dense near the western end of the room. Also uncovered was a brown flint projectile point and a fresh water mollusk shell (Sp. unknown).

Several incised lines, undoubtedly representing part of a graffito or game pattern, were noted on the floor in the southwest corner of the room.

Sub-Operation D; Structure II is a one-room building forming the west side of the complex and faces the court. It is separated from Structure I by about 60 cm. The room is 2.10 m. wide by 4.30 m. long. There is a bench at the south end of the room, and the remains of a bench built over the floor at the north end of the room. The walls are built of crude stones and slabs as described for Structure I, and are about 60 cm. in thickness. The doorway, which is 95 cm. wide, is about centered in the east wall. The walls probably supported a roof of thatch. The building's long axis is north and south, and oriented about 20° east of true north.

The room floor is surfaced with hard lime plaster. The sub-surface construction

is as described for Structure I. Entering the doorway is a step-up of 6 cm. in line with the outside wall. About 40 cm. inside of the room there is another step-up of 8 cm. to the room floor. The double-stepped floor feature is also found in Bejuco phase monumental buildings in the region (Eaton, MS in preparation).

The bench at the south end of the room measures 1.23 m. deep and 18 cm. high. It was built simultaneously with the floor, as the floor does not extend under the bench. The bench has a lime plaster surface identical to the flooring, and is in excellent preservation. The badly destroyed remains of an added bench were uncovered at the north end of the room. This bench was originally over 1 m. in depth and roughly 20 cm. high. These were probably sleeping benches.

Covering the floor has been about 40 cm. of overburden. The top 20 cm. was surface humus. Below was gray dirt floor midden containing eroded potsherds, a clear gray obsidian prismatic blade, a small clay head of a feline creature, and a marine (oliva sp.) shell. Sub-floor trenching produced only a few eroded potsherds. The identifiable sherds seem to belong to the Bejuco phase.

Sub-Operation E; Structure III forms the south side of the group. This is a relatively smaller one-room structure facing north onto the court. It is felt that this was a storehouse, whereas the other two buildings were domestic houses. This building is obviously a structure added to the group, and is attached to Structure II as shown on the plan (Figure 5). The building's long axis is east and west, but with an orientation of roughly 20° east of true north, in line with the whole complex.

The inside room dimensions are 3.5 m. long and 2.0 m. wide. The walls are constructed of crude, dry laid slabs, and are about 60 cm. thick. The walls probably supported a thatch roof. The flooring, although much destroyed, seems to have been packed sascab.

The floor was found covered with about 30 cm. of dirt overburden. Most of this was surface humus, with a few centimeters of gray dirt covering the floor. Found upon the floor was a relatively large amount of broken pottery, some flint debitage, and two percussion flaked, core bifaced flint celts. The pottery was concentrated near the west end of the room and consisted primarily of large Bejuco phase utility jars.

Sub-floor trenching exposed a structural fill consisting of sascab and gravel, and included a few very eroded sherds.

Sub-Operation F: The court is bordered on three sides by buildings, and on the east by a dry-laid stone fence. The internal dimemsions of the court are 3.75 m. by 4.95 m. It had been paved with lime plaster, now badly destroyed by roots. The entrance to the court is at the northeast corner where there is an opening roughtly 70 cm. wide. Excavations in the court consisted of clearing along the walls, and with some testing in the center. Dense deposits of potsherds were uncovered everywhere within the court,

but the deposition was particularly deep along the east wall. The pottery recovered consists mostly of large Bejuco phase utility pots and jars.

OPERATION 21: This operation included the study of a house complex, and a separate large house, located 3.5 km. east of Xpuhil crossroads. The houses are south of the highway and situated on a gently sloping hillside which displays a network of artificial ridges. The house complex consists of three small structures situated on split-level raised platforms which face a lower level open court (Figures 6-7). This complex might be considered a plazuela group. The separate large house is located to the south of the complex and stands alone (Figure 8).

Sub-Operation A; Structure I is a one-room house forming the north side of the complex. This structure occupies the highest of the three split-level joining platforms. The long axis of the house is east-west, and is oriented about 20° east of true north.

The house walls are built of crude stones and slabs as described for the other houses in the area. Small amounts of mud mortar, possibly hardened with lime, were noted in crevices in the west doorjamb. This is the only evidence of the use of mortar in house wall construction so far recorded. The front doorway is 1.20 m. wide, and the jambs are constructed of large stacked slabs that are cut flat facing the doorway. The west jamb presently stands 1.65 m. above the door-sill. The building walls probably rose a little higher that this originally and supported a thatch roof. Only the lower part of the front and east walls remain standing. The west and rear walls have completely collapsed, and much of the flooring there has sloughed off. The room's original dimensions were about 2.50 m. wide by 7.70 m. long. A dividing wall had been added which closed off the eastern part of the room. The wall, which has no doorway, presently stands around 50 cm. high and was built over the floor. The problem here is the same as noted in Operation 17-A. The enclosed space contained no structural fill, such as gravel, as would be expected in the case of bench construction. When the enclosed space was excavated it was found to have two distinct levels of dirt overburden -- a top humus level, and an underlying floor midden -- that has been found in excavating all of the houses. Sherds of several large Bejuco phase pottery jars were recovered from the floor of the enclosure. Perhaps this was a store-room.

The house floor was originally surfaced with lime plaster, now mostly destroyed by roots. The floor construction is the same as recorded in the other houses.

Upon entering the front doorway from the terrace there is a step-up of 10 cm. to the door-sill. Within the room is another step-up to the floor. This double step-up entering the room has already been noted to be a characteristic of Bejuco phase monumental buildings.

The platform upon which the house is situated rises nearly 2 meters above the ancient ground surface. It is constructed of retaining walls built of crude stones

enclosing a gravel fill. The relatively large collection of potsherds recovered from sub-floor excavations suggests a Bejuco phase construction.

Sub-Operation B; Structure II forms the west side of the complex. It is situated on a platform which joins Structure I platform at right angle, but at a lower level. This is also a one-room house with walls built of curde stones and slabs as noted for Structure I. Only about 50 cm. of the wall remains standing above floor level. These walls probably supported a thatch roofing. The building's long axis is north-south with an orientation about 18° east of true north.

The room measures 2.60 m. wide by 5.10 m. long. The entrance doorway is 1.20 m. wide, and is about centered in the east wall. A wall roughly 50 cm. thick had been constructed over the floor just south of the doorway. This wall is built of crude stones, but faced on the north side by carefully cut veneer slabs. Apparently these are reused facing stones taken from a nearby monumental building. This was almost certainly the retaining wall of a bench which stands 55 cm. in height. No bench surface remained, but behind the retaining wall was structural fill of gravel.

The room flooring is a thick, lime plaster with grouting underlay, and with gravel fill below to bedrock. When excavations began there was about 45 cm. of dirt overburden covering the floor. This included around 20 cm. of dark gray surface humus over a light gray floor midden. Only a few eroded sherds were recovered from the floor. The floor surface was found to be in excellent preservation. There is a double step-up entering the room as described for Structure I.

Sub-floor excavations produced a fairly large collection of potsherds. Apparently the house and platform, which is actually one structural unit, was built during the Bejuco ceramic phase.

Sub-Operation C; Structure III is a small one-room building on the south side of the group. This was a later addition built out from the southeast corner of Structure II terrace wall. The room measures 1.90 m. wide by 2.20 m. long. The doorway is 75 cm. wide. The walls are built of crude stones and slabs in the same tradition as the other houses, and probably had a thatch roof. This structure was built upon the lower court, and the room floor is level with the plaster surface of the court, which is 70 cm. below Structure II terrace.

Covering a badly decomposed plaster floor was 30 cm. of surface humus with a thin underlay of light gray dirt. Only a few eroded potsherds were found on the floor.

Structures I and II were certainly domestic houses; however, Structure III might have been a storehouse. The house group was built upon the ancient ground surface, rather than upon bedrock.

Sub-Operation D; A large one-room house is located approximately 100 meters south of the complex described above (Figure 9). The building faces south with

the long axis running east and west. The actual orientation is about 13° east of true north. The room measures 2.40 m. wide and 15.10 m. long. This is an unusually long room and there were no partition walls. Three front doorways are spaced in the south wall. The center doorway is 1.20 m. wide, while the flanking doorways are 70 cm. and 90 cm. wide. There is a step-up of around 12-15 cm. entering each doorway from the outside.

The building walls are about 60 cm. thick and are built of crude stones and slabs, but finished on the exterior with carefully cut (but poorly fitted) blocks and veneer slabs. These are reused facing stones taken from some nearby formal building. This is the only house recorded to date that is faced on the exterior with reused cut stones. The walls presently stand around 60-80 cm. above the floor, but probably originally were at least 1.7 m. high and had supported a roof of thatch.

The room floor was surfaced with lime plaster, which was found badly decomposed and destroyed by roots. In the northeast corner of the room is the remains of a platform 45 cm. high. This appears to have been a bench. Covering the floor was about 30 cm. of surface humus, and under this was a thin layer of gray dirt. The entire room was excavated, but not a single sherd, or other cultural materials, was found. Apparently the room had been left quite clean by the last occupants. Sub-floor trenching produced a small collection of potsherds, some of which seem to belong to the Chintok ceramic phase (Ball, personal communications). This is a later phase in the Late Classic period (ca. 730-830 A.D.).

The unusually long dimension of this one-room structure, and the placement of the three front doorways, differs considerably from the other buildings studied in the area. Perhaps it had some function other than domestic within the farming community.

## SUMMARY AND IMPLICATIONS

The ancient buildings described in this report were only a few of the seemingly numberless stone houses noted scattered across the central southern part of the Yucatan peninsula. The houses are everywhere found associated with evidence of a specialized form of intensive agriculture which employed the use of hillside soil traps, forming terraces, as well as other linear walled structures, apparently designed to modify land use and improve irrigation. This land surface altering by the ancients to intensify man-land relationships is described by Turner (1973).

The small buildings, including single houses, and composite groups of houses, comprise the farmsteads of a region wide farming community that flourished during the Maya Late Classic period.

The term farmstead has been given to the houses, and clusters of houses, which have ground plans of obvious specialization and are integrated with intensive

land development. The farmsteads studied are one-room stone built houses with rectangular plans, are usually elevated only slightly from the ground surface, and often include fenced enclosures. These houses are in marked contrast to the endless parade of house mounds noted throughout the Maya lowlands which are raised platforms upon which once stood structures built of perishable materials (Willey and Bullard 1965; Wauchope 1938).

Operation 10 (Figure 2) is the only example studied which displays the two structural types (the platform mound and a house with stone walls) in close proximity. In this example it has only been assumed that the platform (Structure II) had supported a house. Perhaps it served some other utilitarian function within the farmstead complex.

House (platform) mounds, and the partly standing walls of stone houses, were both noted in the region. Just what the relationships between these differing structural types were is not known, and chronological differences may be involved.

A review of the building drawings in this report (Figures 2-8) will show that although the farmsteads differ somewhat in layout, the individual houses are basically similar in size and construction. The rooms average around 2.40 m. in width and somewhere around 5.0 m. in length, although the length dimension is the most variable. Average room dimensions of the houses are remarkably similar to average room dimensions within the monumental buildings in the regional civic-religious centers (Ruppert and Denison 1943; Eaton Ms. 1972).

Another common house feature is the exceptionally well built plaster floors. It has already been pointed out that the house floor are essentially identical to floors in the formal monumental buildings. It is therefore likely that the masons who laid the monumental building floors were farmers who built their own houses to the same dimensions.

Some of the houses have benches, while others do not. Operation 17-D house has a built-in bench, while Operations 10-B, 17-B and 21-B houses had masonry benches added to the rooms. The benches possibly functioned as sleeping platforms. If this were the case, then perhaps sleeping platforms built of perishable materials were once provided in rooms without masonry benches. It is interesting to note that benches occur in many monumental buildings as well, particularly those classified as palaces and possibly interpreted as elite residences (Adams 1970).

The walls of the farmstead houses are built of rubble stones and roughly formed slabs. The stones used were not of any uniform size and varied from handsize to occasional large slabs. The walls were, however, laid to a fairly uniform thickness, which was maintained at around 50-60 cm. House walls were found to be built up from either the ground surface or from bedrock. The practice seems to favor the latter. It is possible that mud mortar was used in the construction of the walls, but only a small amount was noted in one of the houses (Operation 21-A). Nowhere was there even a hint of wall plaster.

The crude stone walls contrast sharply with the finished plaster floors. This is an understandable contrast of practicality. Walls built of laid stones, and supporting a thatch roof, would allow the house to "breathe," and consequently be more comfortable in tropical climate with respect to tight all-masonry buildings.

Every house investigated was initially found with the remaining walls rising slightly above the forest debris, delineating the room and position of a single front doorway. Considering the amount of fallen wall stones, found both inside and outside of the rooms, the walls must have originally stood somewhat less than 2 meters, probably closer to 1.7 meters, in height above the floor. Regarding the construction and thickness of the walls, with restricted load carrying capacities, as well as the location within a tropical area, it seems most likely that the roofing of the houses were built of poles overlaid with grass or palm leaf. Perhaps both thatching materials were locally available in ancient times and it might have simply been preference. A grass thatch provides a much better roofing lasting many years longer than palm leaf when properly installed. Modern Indians in the region prefer to build their house roofing of palm thatch, but more frequently of carton de lamina, which is a cheap, oil impregnated, corrugated cardboard. All agree, however, that a good grass thatch is best by far, but it takes much more time and effort to build.

In profile the roofs of the farm houses probably rose to a peak as shown in the suggested restoration drawings. It is probable that the actual construction of the roofing was as described by Wauchope (1938) for modern Maya houses. Further evidence for this type of house roofing being used in ancient times in the Maya lowlands is depicted on the facades of monumental buildings (Wauchope 1938; Pollock 1965; Eaton 1972b), on wall murals (Morley 1946; Proskouriakoff 1965), as well as wall graffiti Webster 1963; Eaton 1974 and ms. 1974).

In addition to domestic houses in some of the farmsteads there are smaller, one-room structures that might have functioned as store-rooms. Examples are noted at Operation 17-E (Structure III) and Operation 21-C (Structure III). In both examples the relatively smaller structures were additions to the compounds, were not as carefully constructued, and when excavated produced relatively large quantities of utility pottery vessels.

The farmsteads at Operations 10 and 17 have walled enclosures adjacent to the houses. These enclosed areas provided a private walled courtyard through which one must pass when entering or leaving the houses. Excavations have shown that these walled enclosures were used as storage or work areas. This is demonstrated by the concentrations of utility pottery vessels, and flint tools and debitage found there. These walled courts served as restricting, or protective, buffer zones between the house entrances and the outside world. This seems to suggest a concern for privacy and stability of residence. A design for defense cannot be ruled out.

What stratified position within Classic Maya society did the people of the

farmsteads occupy? The answer to this is purely speculative in view of what little is actually known of ancient lowland Maya social structure. The masonry construction of the houses, with private courtyard providing controlled access, is suggestive of elevated social status, when compared to the vast numbers of open house platforms also in the area. The house platform, with its assumed perishable superstructure, seems to have been the most common form of domestic architecture throughout the Maya lowlands. In modern Yucatan, masonry construction has distinct status over pole construction. The development in the monumental centers from open access in the Early Classic, to more and more restrictive access in the Late Classic, as the elite residence grew and became more distant from the peasantry, is demonstrated in the excavations of Structure A-V at Uaxactun (Smith 1950).

The farmers who built the houses described here were not just accomplished masons, they were skilled at building floors that in some cases equal those in the finest monumental buildings. The evidence here supports the view that the skills employed to build the great centers were drawn from the surrounding countryside. A specially skilled farmer would conceivably have status over a simple subsistence farmer.

That countryside farmers supported the monumental centers, which in return provided the civic-religious leadership, is widely accepted. Luxury pottery recovered from the farmsteads suggests that the farms not only provided subsistence for the farmers, and required civic-center support, but also produced a surplus for market trade. The produce of the farmlands, whether it was corn, root crops, orchard cropping, or other, is yet undetermined.

Reviewing the structural drawings in this report, and remembering that these represent only a tiny sampling of those in the area, one is immediately confronted with a variety. These range from a simple one-room house, to house compounds with stone fences, and also house complexes upon split-level platforms. There is also an unusually long house (Operation 21-D), but this could possibly be interpreted as a lodge or temple. That we are confronted with functional, as well as class, distinctions, is probable.

The arrangement of the house compounds suggests a social organization consisting of nuclear family groups. These may have been extended families as suggested by architectural modifications and expansions. Extended families seems to have been a characteristic of the Late Classic (Sanders 1973). Predominately male responsibilities, for example in land development for agriculture, and in already noted masonry skills, suggests that these were patrilocal extended families. This is often associated with a patrilineal rule of descent.

A study of the floor area and arrangement of the houses in a compound, including the sleeping benches, allows for a maximum extended family residence of around 8 to 10 persons. This is in line with the figure given by Sanders (1973) for ancient Maya extended families.

A formal settlement pattern study of the farmlands was not undertaken during the current research. Prentice Thomas is independently making such a study, but no results have been disseminated to date. Turner (1973) noted in his terraced hillside surveys that there were, on the average, one house mound for every 0.75 hectares of terraced hillside. No distinction was made regarding platform mounds versus stone walled houses. By extension of calculations and applied factors Turner has come up with an estimated, or potential, population ceiling of around 150 persons per square kilometer for the central Rio Bec region. Although this is speculation with very limited data, it does fall somewhat in line with Sanders' (1973) peak population estimate for the Maya lowlands.

Excavations of the farmsteads has produced fairly large collection of pottery for analysis. Much of the collected pottery was badly eroded, but the identified sherds seems to belong principally to the Bejuco ceramic phase (ca. 600-730 A.D.), and a few to the Chintok ceramic phase (ca. 730-830 A.D.). These two ceramic phases are Late Classic in date (Ball 1972), a time of apparent population increase, with a corresponding architectural development that produced most of the impressive monumental buildings in the region. This period immediately preceded the collapse of Classic Maya civilization (ca. 830 A.D.) in the central lowlands.

Potsherds belonging to a later (Postclassic) ceramic phase were not identified from the farmstead collections, but some were apparently found in certain terraced hillside collections. Although this might be due to limited sampling or incomplete analysis of eroded sherds, the inability to demonstrate occupation of the farmsteads beyond the Classic period, and only sporatic presence, but not necessarily occupation, of the farmlands in the early Postclassic, is of some significance.

The data suggests that the farmsteads, and the associated intensive agricultural production, were abandoned at about the same time that monumental building activity ceased (ca. 830 A.D.). Perhaps this was when Maya Classic society terminated. The apparent absence of Postclassic construction and occupation of the farmsteads, and only a scattering of probably Postclassic materials out on the farmlands, contrasts strikingly with the large deposits of early Postclassic period (Xcocom phase) materials found at the civic centers of Becan and Chicanna (Ball 1972; Eaton 1972b and MS 1974).

The apparent drastic reduction in population after the collapse of the Classic way of life, accompanied by reduced demands for subsistance, civic center support, and possibly agricultural trade produce, probably was a factor in the abandonment of intensive farming. The practice of intensive, high productive, and probably diversified farming might have terminated rather quickly after the collapse of the civic centers. The survivors of the catastrophe evidently reverted to basic subsistence farming. The shift to subsistence farming - probably milpa - would not require the full time occupation of the farmlands as in earlier times. The data suggest that the civic centers were occupied in Postclassic times by simple agriculturalists practicing elementary subsistence farming which left little material evidence out in the countryside. This would then complete the

reversion back to a near static state similar to what is seen in the rural areas of Yucan today.

## ACKNOWLEDGMENTS

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## END NOTE

1: Work was funded under a grant from the National Geographic Society. Personnel from the University of Wisconsin and the University of Texas at San Antonio participated. R.E.W. Adams acted as Project Director and I was Field Director for most of the season. James Stoltman was Field Director during the early part of the season. Field work was done under the auspices of the Mexican Instituto Nacional de Antropología e Historia.

Plate 1a: Remains of house at Operation 10 before excavating. This is fairly typical of houses found in the region. Note the standing doorjambs.

Plate 1b: Interior of house at Operation 17-C. Note wall construction and plaster floor. Shown here is a typical farmstead house of the region.

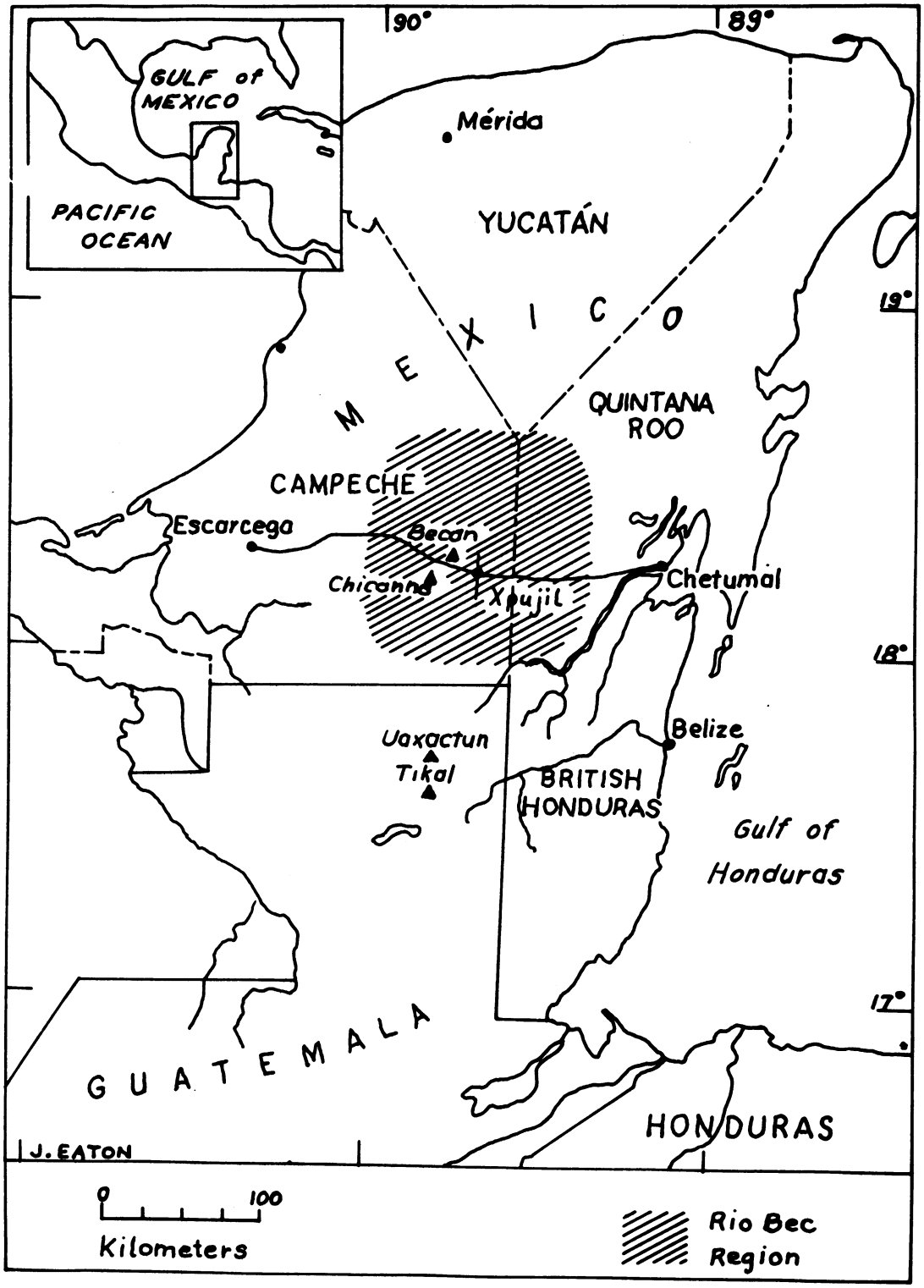
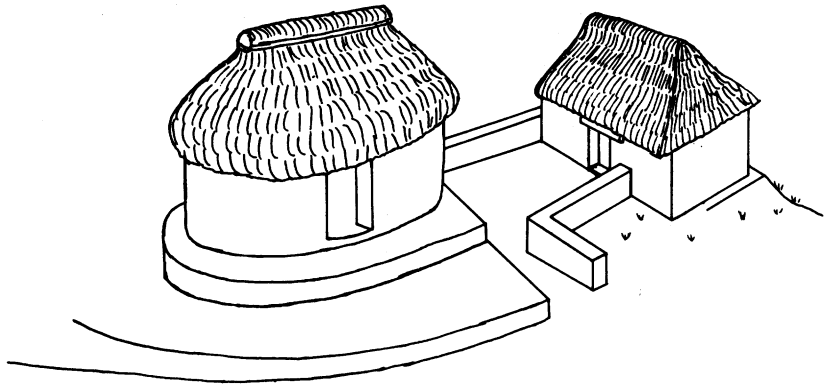
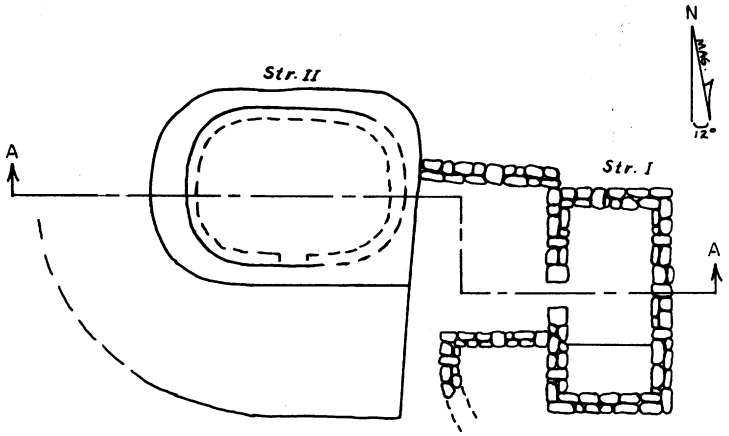



Fig. 1 Map of Yucatan delineating the Rio Bec region.



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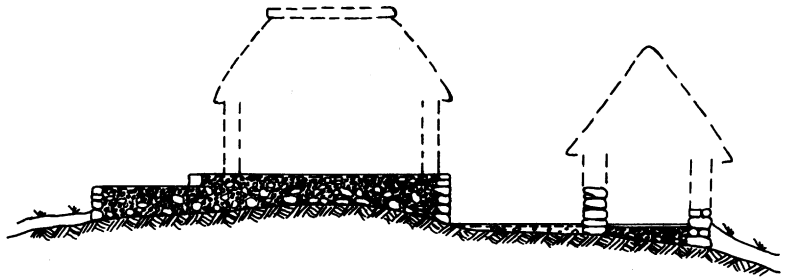


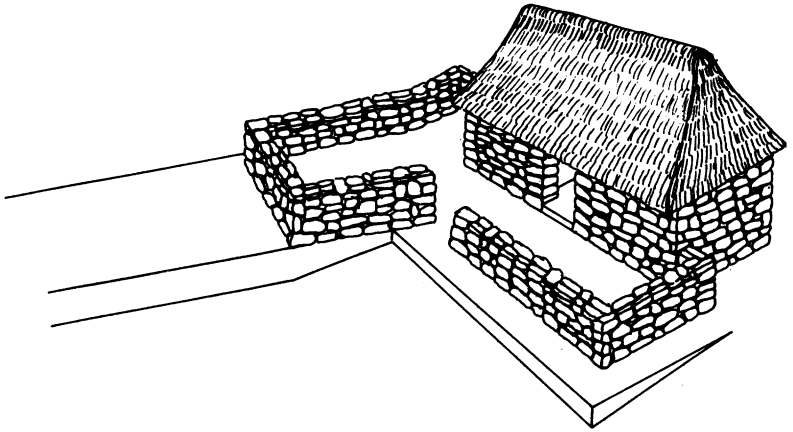
SECTION A-A

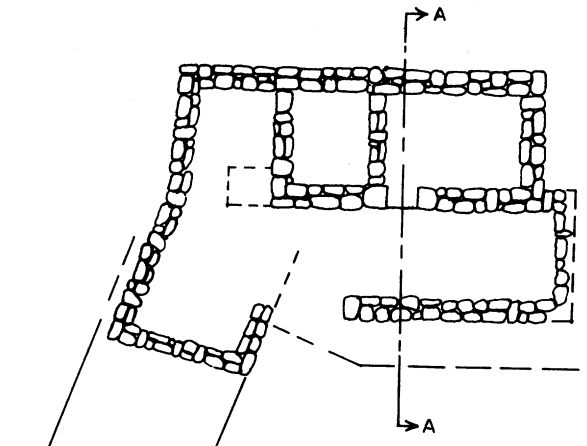
OPERATION 10 A,B,C,D
House complex at Km.156
East of Xpuhil

0 1 2 3
Meters

Campeche, Mexico

Jack Eaton
March 1973

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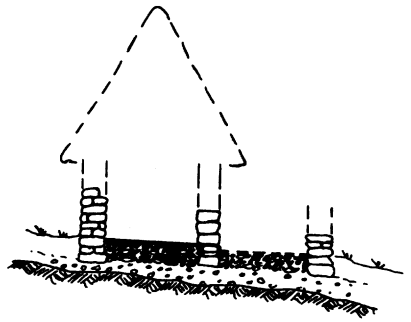
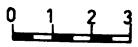


SECTION A-A

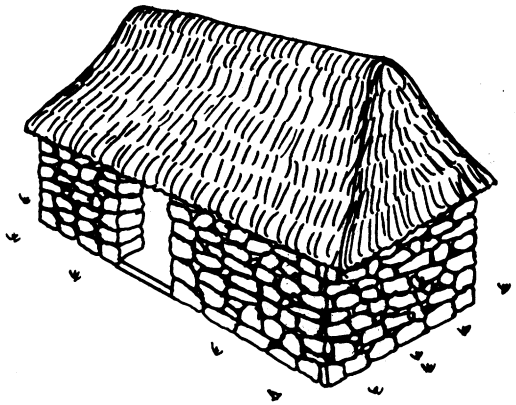


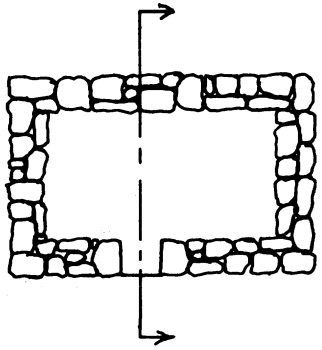

OPERATION 17A
House complex at Km 158.2
East of Xpuhil

Campeche, Mexico

Figure 3

Jack Eaton
April, 1973



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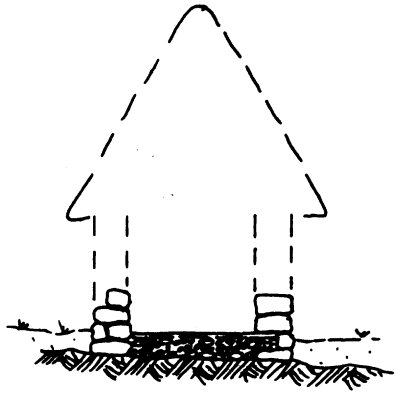
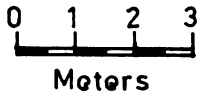


SECTION

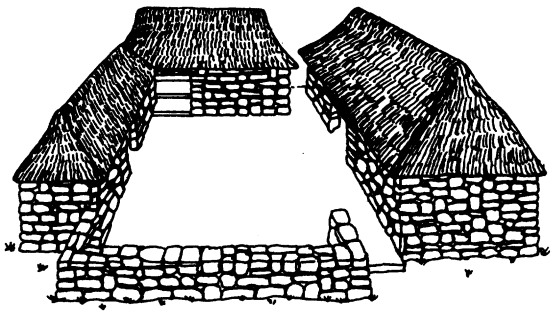
OPERATION 17 B
House at Km 158.2
East of Xpuhil

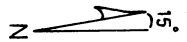


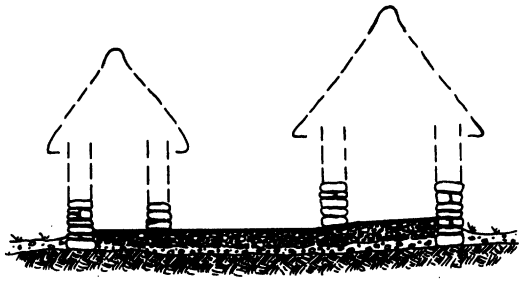

Campeche, Mexico

Jack Eaton
April 13 1973

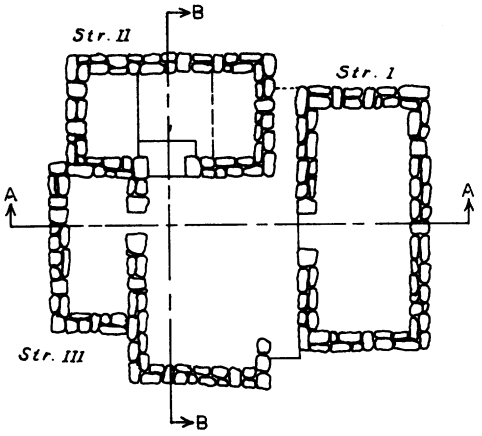
Figure 4



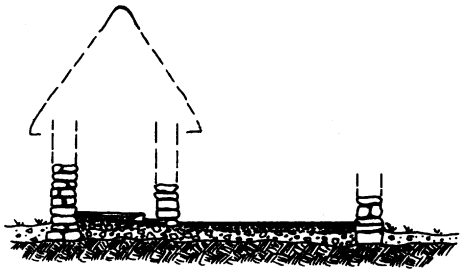


Section A-A

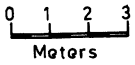



Plan



Section B-B

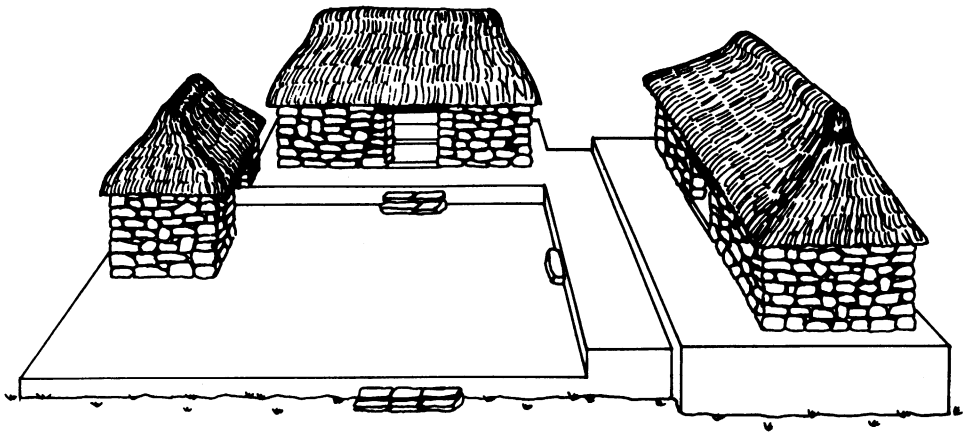
OPERATION 17 C-D-E-F
House complex at Km.158.2
East of Xpuhil

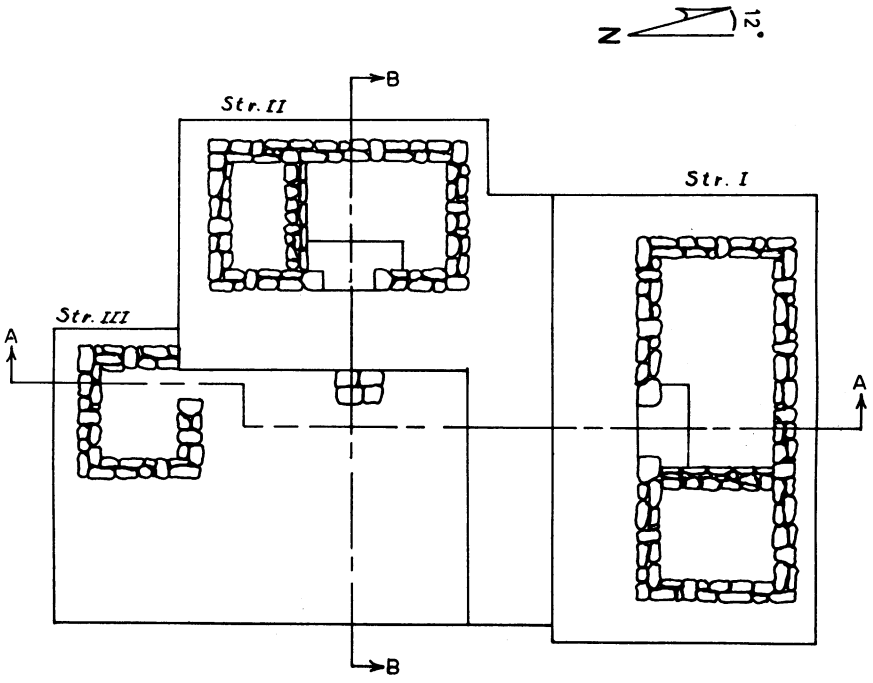



Campeche, Mexico

Jack Eaton
April 16, 1973

Figure 5






PLAN

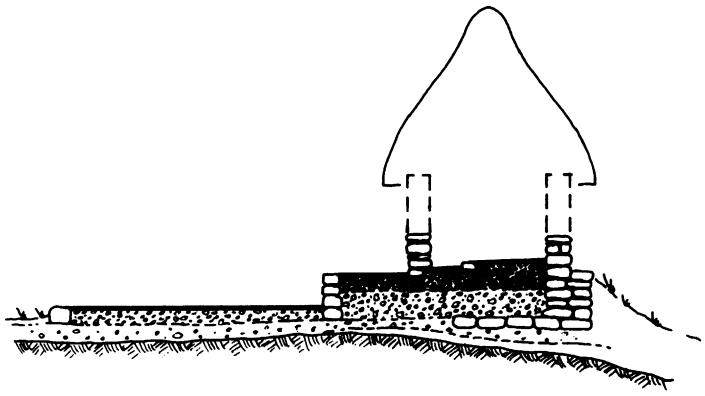
OPERATION 21 A, B, C
House complex at Km. 154.5
East of Xpuhil

0 1 2 3
Meters

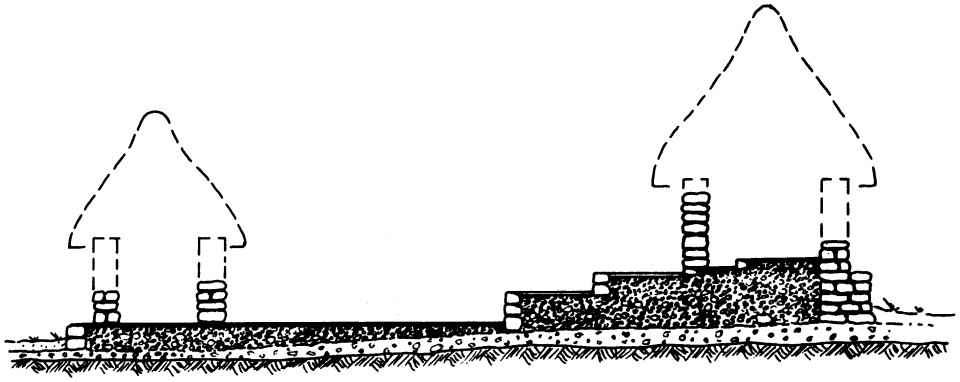
Campeche, Mexico

Jack Eaton
May 1 1973

Figure 6



Section B-B



Section A-A

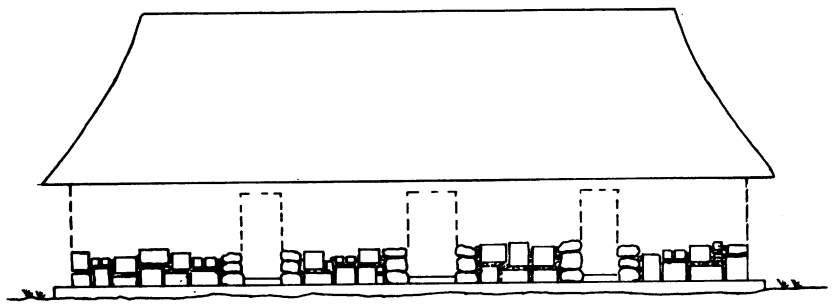
OPERATION 21 A,B,C
House complex at Km.156.5
East of Xpuhil

0 1 2 3
Meters

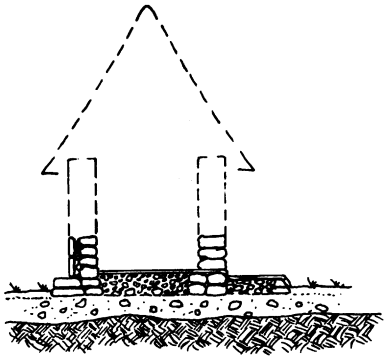
Campeche, Mexico

Jack Eaton
May 1, 1973

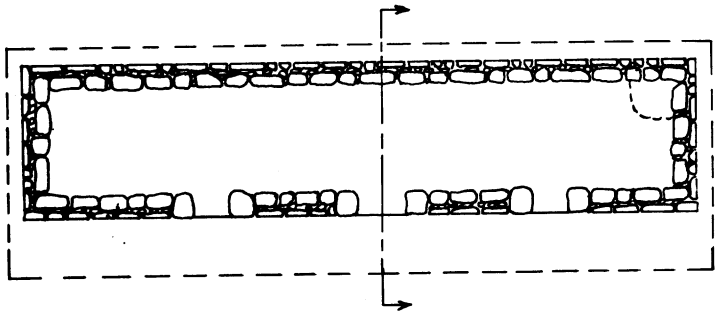
Figure 7



Elevation



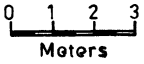
Section



Plan


OPERATION 21 D
House at Km.156,5
East of Xpuhil

Campeche, Mexico




Jack Eaton
May 2, 1973

Figure 8

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# A PAINTED CAPSTONE FROM THE MAYA AREA

Christopher Jones

## Introduction

Mesoamerican archaeology is in an exciting period of synthesis, in which many scholars are making attempts to understand their particular areas or sites as parts of the complex development of civilization in the Americas. The spirit of synthesis has often re-exposed the shakiness of the scaffolding on which some of the most trusted chronologies are based. One of the frustrating chronological controversies at present is that of the architectural styles of the Yucatan Peninsula, with its strongly regional nature and its apparently sudden changes and abandonments. Attempts have seemed to fail so far to reconcile differences of viewpoint in such major matters as the correlation of the Northern and Southern Maya Lowland sequences (see Willey and Shimkin 1973: 471- 473 for a recent statement), and even the basic outline of the architectural sequence at Chichen Itza (Parsons 1969: 172-184).

The present paper is written for two purposes. The first is to illustrate and describe a hitherto unpublished painted Maya capstone from the peninsula and present a reading of its inscription. The second is to review our knowledge about capstone dates and scenes in the belief that these small paintings can contribute toward a resolution of some of the above-mentioned controversies, as well as toward a better understanding of the complex religious beliefs of the area.

## The University Museum Capstone: The Artifact

William R. Coe, curator of the American Section of the University Museum, has kindly furnished the following comments upon the physical appearance of the University Museum Capstone as well as a photograph (Plate 1), a drawing of the painted scene (Figure 1), and a drawing of the capstone as an object (Figure 2).

"In 1965 the University Museum received as a gift an intricately painted slab of limestone. It was accompanied by the most vague attribution of 'Yucatan.' There is no reason to doubt that this object originally functioned as a capstone, that is, one of a series of the horizontally, transversely set stones forming the ceiling of corbel-vaulted chambers in Maya architecture.

"This capstone (Catalogue No. 65-44-1) is incomplete lengthwise, measuring 60 cm. Its intact width is 33 cm. Seen in terms of its painted surface, its bottom edge does seem to retain a short span of original surface. The space from this edge to the base of the painting is 19 cm. Doubling this and adding the length of the painting, i.e., 35.8 cm., we arrive at 74 cm. as the approximate original length of the capstone.

Traces of raised, secondarily applied plaster form a transverse line across the face of the stone at a point 7 cm. below the painting. This line should mark the uppermost edge of one vault face. If we double this gap and add again the length of the painting, the visible span of the stone installed was about 50 cm.

"Longitudinally, the face of the stone is essentially flat, but with a slight convexity side-to-side. The whole underside of the piece has been recently removed by a combination of round-chiseling from the sides and sawing. This has left not more than 5.5 cm. of the original thickness. The stone was anciently beveled from its face to its rear, buried in situ top. These sides were pecked, then rough-smoothed. Though we have little left with which to judge, its ends probably were flat rather than beveled.

"Turning to the painting, this was done on a thin (a matter of millimeters) hard smooth cream plaster that entirely sizes the face of the capstone. The poorly squared painting was executed in a red specular hematite paint. Two brushes appear to have been used, one 2 mm. wide and a second about 1 mm. wide. The smaller one was often used in a double-stroke fashion to achieve relatively wide lines. The immediately surrounding rectangular frame consists of outer and inner thin specular red lines that originally carried entirely across the face of the stone. These lines and the lateral edges of the stone bound the frame proper. This frame was painted a variably opaque orange-red rather than specular red. An important point is that three circular drops of orange-red occur within the line-work proper; in one case, the orange drop overlaps specular red. We can thus be fairly certain that the whole painting was carried out before the installation of the capstone, since the drops must have fallen downward.

"Following its placement across the gap of the vault, finger-daubed plaster was applied to the four visible peripheries of the face of the stone. This plaster survives today as low plaster lips along the sides and below the painted frame. The 'left' lip is very pronounced in its 'lift.' This lip clearly overlies the original edge of the specular red transverse outer frame line, again indicating that the painting preceded installation. Both left and right plaster lips were painted red-orange to match the coloring of the interior of the frame.

"The curvature of the left longitudinal lip of plaster might suggest that the capstone occurred at an end of a row of such stones but is more probably an indicative of an imperfect alignment to a neighboring capstone, since painted capstones were usually placed centrally above a doorway. The sectional conformation of right hand plaster does suggest that masons filled the interstice between this capstone and the adjacent one. What remains of this secondarily applied plaster is also painted orange-red. Presumably the application of color to these lateral lines of plaster was only carried as far as the sides of the stone proper. At issue here is whether the rest of the line of capstones and the vaults proper were painted orange-red as well. We can only note that the vestiges of transverse secondary plaster (below the frame) were left unpainted, a fact indicative of plain vault soffits.

"The ends of the stone appear to be old break-lines. The heavily faded area in the lower right quarter of the painting might be the result of water damage. Two deep and old-appearing nicks, each about 3.5 cm. long, occur on the painted face (Figure 1: at Glyph A2 and to the left of A4 and A5). These features indicate that the capstone was recovered from collapsed vault debris. To lighten the piece, the back of the stone was removed in the manner already indicated.

"The painting proper is primarily illustrated here (Figure 1) by blackened and stipple-shaded lines which follow the relative intensities of the surviving specular red paint. Broken-line restoration is used only in the case of Glyph A2. Water damage, as we have noted, probably accounts for the weakness of line work in the lower right of the panel. The inked rendering of the scene was traced on a full-scale photograph and then carefully checked against the original. Glyphic material has been referenced in the system of the Tikal Project. It is necessary to note that Glyph wA1 refers to the sign painted on the shoulder of the left personage; Glyph xA1 to that carried in his hands; and yA1 to the sign on which he directly sits. The 'planetary band' of the right 'bench' has not been labeled."

## The Scene and Glyphs

The scene on the University Museum Capstone depicts two figures in profile seated close to and facing one another. J. Eric Thompson, in a recent study of the Sacnicte capstone (1973: 60), has identified the left-hand figure here as the maize god (God E of Shellhas, 1904). The deity is depicted with his characteristically youthful face and maize headdress. The headdress, which Shellhas says is derived from an ear of maize, emerges from a "curved-line" glyph, 617 in Thompson's Catalog (1962) instead of the usual kan glyph (506) of the codex representations. Under the ear of corn, the god is wearing a tied cloth headband, the ends of which project forward in the same manner as on much Late Classic Maya pottery painting (cf. W.R. Coe 1967: 52). The feathers projecting out behind the sash are also arranged like Late Classic headdresses. The figure wears a flaring-edged "ear spool," wristlets made of beads, and a bead necklace. A small pendant on his necklace has the projecting nose of the rain god (God B) or the beak of the screech-owl, both of which occur as pendants at Tikal (cf. Tikal Stelae 5, 22 , 16 and Temple IV Lintel 3).

The figure appears markedly hunchbacked, as indicated by the shortened torso, the strong curved line under the shoulder blade, and the excessive distance between the arm and backbone. In his recent study of the Sacnicte Capstone, Thompson (1973: 60-61) points out on that stone a hunchbacked dwarf facing another standing figure. He states that dwarfs and hunchbacked figures are associated with hallucinatory drugs and the resultant divine messages in Maya folklore. Such a context is in keeping with the glyphic message of abundant food (see below) which the figure holds up in his hands, but in this case, the hunchbacked figure is not a dwarf and seems to be the god himself presenting the message. Some of the gods on Chenes capstones have similarly protruding backs (see below).

Hunchbacks and dwarfs occur among the many figurines from the island of Jaina off the Campeche coast. Corson (1973: 60-61) notes that hunchbacks occur exclusively in Jaina I and dwarfs exclusively in Jaina II. Although time limits for the two periods were not offered in the cited paper, this observation does support the contention below that the University Museum Capstone is early in the Late Classic - Terminal Classic - Postclassic sequence of the western Yucatan.

The figure of the maize god wears a glyph on his shoulder (Glyph wA1 of Figure 1), a clear kan cross (281MS) surmounted by two bars and the visible traces of a centrally placed dot (see Table 1 for a listing of the glyphs on the capstone). The scrolls and a single dot on both sides of the glyph are probably not numerical. Thompson (1950: 276-277) thinks that the kan cross has the general meaning of "precious" as well as "yellow" and can be freely substituted for symbols for green, jade, shells, and completion in his "water group" of affixes. The number 11 above the glyph is represented at times in its head variant form by Thompson's God R. Thompson (1950: 131) says that "God R is benevolent, and his associations are with the maize god" and also that God R might be the god named Buluc-Ch'abtan in the colonial period Chumayel Manuscript. Roys (1933: 134) translates the name as "11 penances" or "11 times fortunate." On the capstone, the name would read, "11 precious things" or " 11 yellow," both fitting names for the maize god. With such associations, the sign would be appropriate as a name for the maize god, written on his shoulder in the same way as names seem to be written on the skin of some figures on Late Classic monuments.

The glyph held in the hand of the left figure has been identified by Thompson (1973: 60) as cauil meaning "second helping" or "abundance of food" (Thompson 1968: 85-87). The glyph appears as an offering in the Maya codices in contexts of plenty, for example on Dresden Codex p. 27, where it is an offering in a ceremony of the new year.

The god is seated on a glyph or cushion decorated with the Maya day glyph Ik (503). The Ik sign is also used as a glyphic seat on a Late Classic plate from Tikal (W.R. Coe 1967: 104) and might have a glyphic meaning or might simple represent the manner in which some Maya bolsters were made. The jaguar-skin cushions below and in back of the figure are surprisingly similiar in construction to a cushion on another vessel from Late Classic Tikal (W.R. Coe 1967: 52).

Attached to the front of the cushion is a profile human head decorated with three oval pendants in the Classic Maya manner.

The figure on the right side of the capstone scene has a grotesque face commonly found in Maya art. A long nose projects straight out from the face and curls up slightly at the end. The gaping mouth exposes a large curved front fang and a molar. The rounded lower jaw sports a tuft of beard. The eye is large and square, with the interior hooked line characteristic of sky deities. The front of the forehead is hollowed out as if pierced by a hole. Projecting from this is a long tubular object with two scrolls

| Glyph | Catalog Numbers | Interpretation |
|---|---|---|
| A1 | IX.513:125 (reversed) | 9 Muluc |
| A2 | 544?.116:142 (rev.) | kin?, wing, dots ("the day") |
| A3 | XI.95.552 (coeff. rev.) | 11 Uo |
| A4 | 1047a.126 | death head, scrolls and dots |
| A5 | ?.682 | eroded prefix, moon sign |
| B1 | IX?.528? | 9? (or 8, 13, 14?), haab? ("Tun 9 (10)?") |
| C1 | II?.533 | 2? (or 1, 3, 4, 5?), Ahau ("in Katun 2 Ahau?") |
| vA1 | I?.526?:23 | 1?, Caban, al (hun cabal?) |
| vB1 | I?.508:23 | 1? Chicchan, al (hun canal?) |
| wA1 | 144.XI:281MS.144 | 11, kan, flanking scrolls (Buluc Kan?) |
| xA1 | 144:16.281MS | scrolls (or 1,2?), yax, kan (cauil?) |
| yA1 | 503? | Ik? (or non-glyphic?) |
| zA1 | 526?:23 | Caban, al (Cabal?) |
| zB1 | I?.?:23 | 1?, ?, al (...al?) |
| zC1 | I?.508:23 | 1?, Chicchan, al (hun canal?) |

TABLE 1: Hieroglyphs on the University Museum Capstone

curving out of the end. A feather headdress, a tied bead with features, a bead necklace, beads or vertebrae showing on the back, and a loincloth and wide belt complete the costume.

The figure can be positively identified as that of Shellhas' God K, by the up-turned nose, the large squared eye, the fang, and especially by the object protruding from the forehead. In the codices, the figure of God K is always drawn with a huge branching and upturned nose, but, as Thompson (1970: 224) says: "In the codical glyph of God K, this branching nose is absent. Instead, there projects from the forehead a circular or wedge-shaped object from which, in turn, issues a double flame-like motif."

The nature of God K has apparently not been agreed upon by scholars. Thompson has said that he is a fertility god, as shown by the vegetal scrolls issuing from the hole in the forehead, and suggested by similarities to a god called Bolon Dzacab ("nine generations" or "eternal") who is described as seed in the Colonial Period books of Chilam Balam (Roys 1933: 99; Thompson 1972: 90). God K's fertility powers might have been extended at one time to human generation and the continuance of the Classic Period dynastic lineages as suggested by Michael Coe (1966: 153).

Thompson (1970: 224ff.) has also stated that God K is a manifestation of Itzam Na, the serpent who is both earth and sky together. This suggestion would fit well the similarity of representation of God K, God B (the rain god and sky serpent) and God D (Itzam No). In the codices, these three are drawn with the same hair or headdress, the same large squared eye and loop under the eye. Often the only differences exist in the shapes of the upper mouth.

Morley (1946: 229-230), following some earlier scholars, suggests that God K might be the wind god, Ehecatl, whose huge branching and upturned mask is worn by Quetzalcoatl in Aztec mythology. Morely points out that the Aztec Ehecatl sweeps the way for the rain god, and the Maya God K is pictorially similar to God B (the rain god) in the Maya codices. This is a complex subject, as can be observed by reading Thompson's recent attempt to understand Itzamna (1970) and Henry B. Nicholson's recent summary of the difficult Mexican pantheon (1971). Nevertheless, it would seem that God K is celestial rather than earthly, and associated with the weather or the stars.

The object protruding from the god's forehead is identified by Thompson as vegetation, but it looks more like a flaming torch. For comparison with a similar tubular object with volute scrolls, see the "cigar" or pipe smoked by the old man on the sanctuary of the Temple of the Cross at Palenque (Thompson 1970: Figure 1 after Maudslay) and examples from Uaxactun and the Codices Madrid and Dresden cited by Thompson (1970: 106-107). The torch and the wind are intimately connected in the cycle of traditional Maya agriculture. When the brush and trees have been felled and allowed to dry out during the spring, the Maya farmer must pick a day for the burning. This must be done with care; after the brush is dry but before the summer rains arrive. If burned too soon , weeds will choke the crops. Sometimes an offering of corn meal

is given to the wind before burning. At the moment of setting the torch to the piles of dried brush, the farmers whistle a special wind tune and shout for the winds to whirl up the flames and make an intense consuming fire (Redfield and Villa Rojas 1934: 132-134; 118-119). Redfield and Villa Rojas note that the choosing of the day of burning and summoning of the winds is a cause of special anxiety in the modern Maya farmer. It is the only occasion mentioned in which the people of Chan Kom count the days in order to predict an event. Thus, in the context of the scene on the capstone, it would be very meaningful to portray the wind god face to face with the maize god.

God K on the capstone holds two objects in his hands, from which emerge long curving dotted scrolls decorated with intermittant clusters of short loops. These would appear to be maize ears and leaves, since they look like simplified versions of the maize god's headdress and also resemble the "maize affix" (84/85) (Thompson 1972: 151). However, the scrolls are also like the dotted scrolls (rain clouds?) which the gods ride on several Late Classic monuments (i.e. Ixlu Stelae 1 and 2; Greene 1972: Plate 170-171).

The figure of God K sits cross-legged on a rectilinear hard-surfaced "celestial throne," as Thompson (1972: 67) calls it. The throne is decorated along its borders with the "celestial band," which here contains cross-bands glyphs (552), kat, meaning "crossing, or celestial or sexual conjunction" (Thompson 1972: 48-49) and the curved-line glyph (24). The former sign is seen on the wide belt of God K. The latter is a common prefix to the glyphic names of the maize and death gods (Gods E and A) in the codices and occurs on the capstone painting on the headdress of the maize god and on the bodies of both figures.

Glyphs above the maize god (Figure 1: vA1 and vB1) and within the rectangle of the celestial throne (zA1, zB1, zC1) might serve to further identify the two deities. All the glyphs have the same partial cartouche as the identifiable day sign at A1. In addition, they carry the al (23) subfix. Four of them are prefixed by a dot and two scrolls which might represent the number one. Two of the signs are unmistakably the glyphs for the Maya day Chicchan (508) at vB1 and zC1. Two others (vA1 and zA1) are probably the day-signs for Caban (526) or possibly Cauac (528). In his study of the Dresdan Codex, Thompson (1972: 152) translates the subfix al (23) as "in" or "at," as in the phrases ti caanal (59.561:23) "there on high," and u cabal (1.526:23) "his below." Along these lines, the glyphs on the capstone might refer to one or both of the deities in the painting, saying something like hun cabal "the one in the earth" (maize) and hun canal "the one in the heavens or in the sky serpent" (the day Chicchan is the sky serpent, called can in Yucatec Maya) (Thompson 1950: 75). The presence of the al subfix makes it fairly certain that these are not day notations.

## The Hieroglyphic Date

The principal set of hieroglyphs, on the central top portion of the painting (Table 1 and Figure 1: A1-A5, B1, C1) surely make a calendric statement. When the

capstone arrived in the University Museum in the spring of 1965, Linton Satterthwaite, then curator of the American Section of the University Museum, kindly allowed me to try my hand at decipherment. We recognized the reversed day and "month" glyphs at A1 and A3, which clearly read 9 Muluc 11 Uo. Subsequently, Satterthwaite and I recognized the winged kin glyph at A2, a characteristic placement for this sign in the "Yucatecan Method" of Maya dating first deciphered by Thompson (1937; 1950: 197-203; Figures 38, 39) on inscriptions from Cichen Itza. We then realized that B1 read as a haab glyph with a coefficient and C1 as an Ahau sign also with a coefficient, making the inscription a full statement (with the exception of certain affixes noted below) of the Yucatecan Method, in which a Calendar Round (day and "month" position) is stated in a text as occurring within a numbered haab or tun (360-day period) and within a Katun (twenty tun period) ending at a numbered Ahau day.

The day Muluc would normally fall on 12 Uo in Classic Maya texts instead of the clearly stated 11 Uo. Such a shift of one day in the month position, called the "Puuc Style" of dating or the "Shifted Classic" is found in inscriptions from Campeche and Western Yucatan from as early as 9.12.0.0.0 (A.D. 670), in the Madrid Codex, and in occasional texts from Yaxchilan, Bonampak, and Dos Pilas (Thompson 1950: 127-128, 304-305; 1952; J. Graham 1973: 208).

All the positions of 9 Muluc 11 (12) Uo in Baktuns 9 through 11 were considered (22 positions in all). It was decided by inspection that the coefficient of the haab sign (B1) could only be 8, 9, 13, or 14 and that Ahau coefficient must be 5 or less. Even without these broad parameters of possibilities, only one day within the Baktuns 9, 10, and 11 (from A.D. 435 to approximately A.D. 1617) fulfills all of the above-stated conditions: 10.8.13.5.9.9 Muluc 11 (12) Uo, in 14th Tun of Katun 2 Ahau (A.D. 1001).

Another reading is possible: 9.15.9.12.9 9 Muluc 11 (12) Uo in 10th Tun of Katun 2 Ahau (A.D. 741). In a memo sent to epigraphers, Satterthwaite (Memo 2, 1965) writes: "The position may be made possible by choosing 9 rather than 14 as the recorded haab coefficient, and then correcting it to the required 10. One could argue that the Maya priest was accustomed to elapsed-time tun numbers in dividing his katuns, but forgot to shift to current-time style for this special "Yucatecan Method" which gives the current tun (as 'haab') as well as the current named katun." Memos on the dating were circulated in 1965 (Memo 2) and 1972 (Memos 3 and 4).

Thompson (in a letter to W.R. Coe, 1972) objects to an acceptance of either of the above two dates. He points out that the haab and Ahau glyphs of the "Yucatecan Method" dates normally carry their own sets of special affixes which make a linguistically proper Maya phrase out of the statement, something like: "in the journey of Tun 10 within a Katun 2 Ahau " (Thompson 1950: Figures 38-39).

While I share Thompson's wish for caution in assigning a fixed date to this important painting, I should point out that the haab and Ahau glyphs do not always

take affixes in known examples of Yucatecan Method dating outside the Chichen Itza area. For example, in the Xcalumkin "Temple of the Inscriptions" text (Ruz 1945: Figure XXIV), dated by Thompson (1950: 199) at 9.15.12.6.9, the Ahau glyph lacks the important ben-ich (168) superfix, even though the haab carries the usual crosshatched (89) prefix. On one of the capstones from the Nunnery at Uxmal (discussed below) the haab has no affixes, although the Ahau seems to have the proper ben-ich superfix and the bil (130) subfix. Both of these stones come from the Puuc-Chenes area from which the University Museum Capstone probably originates. The Uxmal capstone is dated by Thompson at 10.3.17.12.1 (1973: 61-62), contemporary with the many properly stated Chichen Itza examples. It seems likely that the method was more strongly established at Chichen Itza than in the Puuc and Chenes area, where the affixes were sometimes dispensed with.

The reversal of the calendric glyphs at A1 and A3 is interesting. It involves the positions of the coefficients but not always the ordering of the main sign elements themselves. The prefix of the month sign Uo at A3, for example, is in its proper position, even though the wing postfix at A2 is not. Glyph reversal is rare but not unknown in Maya writing. It occurs on Temple 11 at Copan and on Stela 6 at Uaxactun (in order to keep the coefficients of the dates toward the front of the monuments, according to Morley (1920: 311-314)), on Lintel 25 at Yaxchilan (apparently for the same reason, if the top of the scene rested on the right jamb of its doorway, as occurs on the companion Lintel 26 from the same structure (Maler 1903: 151-153, Plates 58, 59), on Stela 2 from Jimbal, near Tikal (perhaps for balance), and on pages 23-24 of the Paris Codex (perhaps to conform to a reversed order of reading: Gates 1910: 30-34). In the case of the capstone, the coefficients would not face the outside of the building, since the painting was positioned transversely in the ceiling of the room. I have wondered if the reversed placement of the coefficients might have been occasioned by a desire to direct the significance of the date to the maize god on the left instead of to God K, since the normal placement of a date in a Late Classic scene makes the left-to-right order of reading of the inscription carry the viewer's eye into the face of the principal figure on the stone, who usually faces the inscription from the right. However, this interpretation of the glyph reversal conflicts with my suggestion that the right hand figure (God K) is indeed the focus of the whole scene (see below).

Two hieroglyphs follow the date below the month sign (A4 and A5 of Figure 2 and Table 1). They are, respectively, a death head (1047a) and a moon sign (682). They are probably not reversed like the glyphs above them, since the affix of the death head (126) is in its more usual position as a postfix. Both signs are in the so-called codex form. This does not mean, however, that the capstone was painted as late as the codices, for these glyphic forms are also very similar to glyphs found on Late Classic carved bones and pottery from Tikal (cf. Trik 1963: Figures 9a and 12, Mt-39: B and Mt-29; also W.R. Coe 1967: 52, Mt-176).

As has been stated, several aspects of the scene on the capstone suggest an agricultural theme: the maize god with his maize ear headdress, God K as the god of

the wind or of fertility, the glyph in the maize god's hand, translated by Thompson as "abundance of food," and the maize ears in the hands of God K. The associations with farming suggest that the written date might be significant in terms of the agricultural year. Therefore, I have tried to determine where the date fell within the solar year.

The month position 11 (12) Uo is a day in the Maya "vague year" of 365 days. This year does not contain a built-in correctional system similar to our leap-year. Therefore 9 Muluc on the day 11 of the month Uo fell on March 9 of the Gregorian calendar in A.D. 741 (the 9.15.9.12.9 corrected position) and on January 3 in A.D. 1001 (the 10.8.13.5.9 position). Redfield and Villa Rojas (1934: 44) reported that in the modern Yucatecan town of Chan Kom: "burning usually begins in early March, is at its height in April, and continues into the first part of May." Thus, if one is to believe that God K is associated with the wind and with crop-burning, the scene on the capstone could involve a prognostication of a good harvest for the new agricultural year. It is possible that the recorded date is actually the officially approved day of burning, written either in anticipation or after the fact. If so, then the earlier position, in March of A.D. 741, would be the better date for burning.

It would appear that the scene on the University Museum Capstone is a religious rather than a dynastic one. Dynastic themes seem to dominate the art of Late Classic cities of the Southern Maya Lowlands. Even the roof-combs of the major temples at Tikal seem to portray the rulers as the center of their compositions. In this respect, the capstone scene differs from the art of Late Classic Tikal and follows the pervading religious themes of the Maya Postclassic. However, it should be noted that "idols" similar to the God K of the stone were found in a Tikal tomb (Coe 1967: 57).

There are many stylistic similarities between the scene on the capstone and the art of Late Classic Tikal: the bound headdress of the maize god, the head of God K with his characteristic forehead ornament, the details of the jaguar-skin seat, the three pendant shells hanging from the head on the jaguar cushion. The glyphs also resemble Late Classic forms. The wing affix (116) at A2, for example, differs considerably from the codical form, with its long row of dots, and resembles closely one ont Mt-57 from Burial 116 at Tikal (W.R. Coe 1967: 30). The al (23) subfix of glyphs vA1, etc. are also similar in form to subfixes on Tikal bowl (Mt-2 and Mt-232, unpublished). I have already mentioned that the death-head at A4 and the moon glyph at A5 have their stylistic counterparts in Late Classic Tikal pottery painting.

I have compared the style with Tikal pottery partially because it is more familiar to me than is the art of other sites. However, it does appear that the resemblance to Tikal pottery is far closer to Imix ceramic Complex vessels of the 8th and 9th centuries A.D. than to the preceding Ik Complex or the succeeding Eznab Complex. Thus, from the standpoint of this somewhat restricted stylistic comparison, the capstone would appear rather to belong to the 8th century A.D. and the earlier 9.15.9.12.9 date than to the later 10.8.13.5.9 date of the beginning of the 11th century. However, as we shall see, it is difficult to define and compare Maya art styles of the 10th and 11th centuries A.D. because of a paucity of glyphic dates and much confusion about sequence.

## Other Maya Capstones: Introduction

Now that the scene and glyphs on the University Museum Capstone have been described, we can turn to the question of origins. As I have mentioned, the "Puuc Style" of dating on the stone is commonly found in the western Yucatan and Campeche, although scattered texts have appeared from the riverine sites to the southwest. The "Yucatecan Method" has been found only on the inscriptions of Yucatan and Campeche, specifically at Chichen Itza and outlying sites, at Uxmal, and Xcalumkin, and possibly also at Kabah and Labna near Uxmal, and Tulum on the east coast (Thompson 1950: 199). All these sites are in the Northern Maya Lowlands.

A comparison of scenes, glyphs, and styles of the known Maya painted capstones can help narrow down the probable origin of the capstone even more. Table 2 lists as many of the capstones as I have been able to find mentioned in print. They are listed by architectural associations, with the Chichen Itza stones first, then those from sites with predominately Puuc architecture, then those from Chenes style sites, and finally the University Museum Capstone, of as yet unknown origin. Lists of occurrences of capstones have previously been published by Morley (1946: 420) and Thompson (1950: 20; 1973: 59-60). The present list adds only four to Thompson's survey: the ones mentioned by Pollock (1970) from Dzibiltun, El Tabasqueno, and Hochob. There are 34 known painted and carved Maya capstones, of which sixteen have not been illustrated in publication, although the six unillustrated Uxmal stones have apparently been drawn by Blom (1933: 56).

The following discussion will treat each capstone in turn, focusing on hieroglyphic dates and the content and style of the scenes for comparative purposes. References and illustrations of the capstones are listed on Table 2 and often omitted in the text.

## Chichen Itza Capstones

Morley (1920: 520) first noted the possibility of a year-bearer date on the capstones from a tomb on the outskirts of Chichen Itza (Table 2: #1). He suggested that the third and fourth glyphs on the top band read 6 Kan 9 Tun, recording 6 Kan as the first day in a new 365-day year, falling within a ninth Tun (360-day period). He stated (correctly) that these conditions were met twice only in Baktuns 9 through 11:

10.3.8.14.1 6 Kan 1 Pop (A.D. 897 by the 11.16.0.0.0 Correlation)

11.12.8.13.4 6 Kan 1 Pop (A.D. 1469)

Morley preferred the later date (correlating it to A.D. 1210 by the then-preferred 12.9.0.0.0 Correlation) because he believed that the shift of one day in the 365-day cycle (allowing Kan to be one of the four-year bearers instead of Akbal) had not occurred as early as 10.3.8.14.4. As noted above, the shift had actually occurred as early as 9.12.0.0.0. Morley's date was repeated without challenge by Beyer (1937: 169) and Thompson (1937: 186), but the year-bearer method of dating in the Maya inscriptions

has apparently not been accepted as demonstrable, since Thompson does not mention the Chichen Itza capstone, or the method in his otherwise exhaustive Maya Hieroglyphic Writing (1950). This lack of acceptance is probably justified in view of the fact that the capstone has stood as the only example of a year-bearer date in Maya writing, even though the method (without the use of the Tun) was widely spread in Central Mexican manuscripts.

In the 1937 paper cited above, Thompson identified the glyph preceding 6 Kan as 10 Sky, the name of a god Lahun Chaan, one of the more ferocious aspects of the planet Venus as the morning star, an identification well suited to the threatening pose of the figure on the stone. This is Venus as the spearer of the young, the aged, the lords, the crops, etc., as recorded in the mythology of the conquest period of Mexico and as read in the Dresden Codex Venus Tables on pp. 46-50 (Thompson 1950: 217-218; 1972: 62-71).

A confirmation of Morley's reading of a year-bearer date and Thompson's reading of the god-name might be provided by the glyphs in the top band of the capstone from the Temple of the Owls at Chichen Itza (Table 2: #2). A similar set of four opening glyphs are found: 1) a non-calendrical glyph, featuring an animal head with gaping mouth (transferred to a prefix in the tomb capstone, and a wing subfix; 2) a name for a god connected to the Planet Venus (in this case 1 Ahau or Hunapu); 3) a day (here 10 Muluc) in the "shifted-classic" or "Puuc Style" or year bearers (Kan, Muluc, Ix, Cauac;4)a glyph with a coefficient (here 13). The two published drawings of the Owls capstone differ considerably in the rendering of these last two glyphs. The Muluc is clear only in Willard's drawing (in Tozzer 1957). The fourth sign is indistinct in both, but could be read as a winged haab in Morley's version. If the Owls Capstone is read as 10 Muluc within Tun 13 in the same manner as the tomb capstone, a pair of dates are the only ones possible for the stone within Baktuns 9 through 11, each date only about 35 years distant from the two tomb Capstone readings:

10.1.13.5.9 10 Muluc 1 Pop
11.10.12.12.9 10 Muluc 1 Pop

The first reading, however, must assume a current rather than elapsed-tun notation of Tun 13, as was considered possible in the University Museum Capstone reading.

The weakest part of the year-bearer-tun reading for the two stones lies in the tun glyph. As I have mentioned, the glyph on the Owls Capstone is non-committal. On the Tomb Capstone, the glyph is clearly a winged Uinal (521) or Chuen (520). Thompson (1962: 125) notes that: "piles of uinal signs, usually with numerical coefficients, found in Codices Dresden and Madrid, still conceal their function and meaning." Such a study has not been attempted for this paper, but might reveal demonstrable proof of the correct way to read these capstone year-bearer dates. Although the uncertain tun reading casts doubt on the Long Count positions for these stones, the similiar opening glyphs, the deity names, and the day-signs within the same set of year-bearers suggest that the dating method on the two stones is the same, setting them apart from other Chichen Itza inscriptions and the Uxmal capstones.

| A: # | B: Location | C: References (illustrations underlined) | D: Architecture | E: Date | F: Method | G: Glyph Placement | H: Scene | I: Artistry |
|---|---|---|---|---|---|---|---|---|
| 1 | Chichen Itza, "Tomb" (Halakal). | Morley 1920: 520, Fig. 77; Beyer 1937: 169, Pl. 13a; Thompson 1937: 186-7; 1941: 106-8; 1945; 1950: 199; Morley 1946: Fig. 53; Tozzer 1957: 24, 35, 86, 156, 158, Fig. 540. | Chichen II?, IV? | 10.3.8.14.4?? or 11.12.8.13.4?? | Year-bearer, "Puuc Style" | top and bottom bands | warrior throwing spear (Venus, named Lahun-Chan) | Fine (Toltec?) |
| 2 | Temple of the Owls. | Beyer 1937: 162; Willard 1926: 248; Morley 1946: Fig. 52; 1927: 235; Tozzer 1957: 35, 122, 127, 175, Fig. 384. | Chichen II? | 10.1.13.5.9?? or 11.10.12.12.9?? | Year-bearer, "Puuc Style" | top band | God K rising from serpent mouth (Venus?, named Hunahau) holding bowl | Fine |
| 3 | Temple of the Warriors, N. Colonnade. | Tozzer 1957: 78, 150, Fig. 616. | Chichen III | - | - | no glyphs? | standing figure | Fine |
| 4 | Temple of the Warriors. | Thompson 1973: 59. | Chichen III | - | - | - | - | - |
| 5 | Uxmal, Nunnery, East Building, NW Chamber. | Blom 1934: 56, Fig. 3; Morley 1920: 510-1, Fig. 74; Thompson 1937: 194-5; 1941: 106-8; 1973: 61-2, Fig. 2. | Puuc (Pure Florescent) | 10.3.17.12.1 | "Yucatecan," "Puuc Style" | top and bottom bands | dancing figure | Fine |
| 6 | Uxmal, Nunnery, Building Y. | Blom 1934: 56, Fig. 4; Thompson 1937: 194-5; 1973: 61-2, Fig. 3. | Puuc (Pure Florescent) | 10.3.8.7.12? or 10.3.18.9.12? | "Yucatecan" | top and bottom bands | dancing figure | Fine |
| 7-12 | Uxmal, Nunnery. | Blom 1934: 56 (unillustrated) | Puuc (Pure Florescent) | - | - | - | - | - |
| 13 | Sacnicte. | Kutscher 1971: Pl. 24; Thompson 1973. | Puuc | - | "Puuc Style" | top and bottom | standing figure facing dwarf | Fine |
| 14 | Xkichmook, Ch. 11. | E. Thompson 1898: 227, Fig. 34. | Puuc (w/Chenes) | - | - | infixed | seated figure (facing another figure?) | Careless |
| 15 | Xkichmook, Ch. 4. | E. Thompson 1898: 227 (unillustrated) | Puuc (w/Chenes) | - | - | bottom band | seated god | Careless |
| 16 | Xcalumkin-Holactun. | Morley 1946: 420 (unillustrated) | Western Puuc | - | - | - | - | - |
| 17 | Dzibilnocac, Str. 1, West Room. | Pollock 1970: 25-7, 29, 82, Figs. 32a, 32c: Seler 1916: Figs. 49, 50; Coggins 1972: 16. | Chenes | 10.10.2.11.4?? | Year-bearer, "Puuc Style" | infixed | seated God K holding inverted basket | Careless |
| 18 | Dzibilnocac, Str. 1, East Room. | Pollock 1970: 29, Figs. 32b, 32c; Seler 1916: Figs. 49, 50. | Chenes | - | - | no glyphs | seated God K holding bowl | Careless |
| 19 | Santa Rosa Xtampak, Palace, Outer Room | Pollock 1970: 57, Fig. 74a. | Chenes | 10.3.5.10.9?? or 11.12.5.7.9?? | Year-bearer, "Puuc Style" | infixed | seated god (God K?) holding object | Careless |
| 20 | Santa Rosa Xtampak, Palace, Inner Room | Pollock 1970: 57, Fig. 74b. | Chenes | - | - | no glyphs | seated god (God K?) holding bowl? | Careless |
| 21-3 | Santa Rosa Xtampak, S.E. Quad. | Pollock 1970: 59 (unillustrated) | Chenes | - | - | - | - | - |
| 24-8 | Santa Rosa Xtampak. | Morley 1946: 429 (notes 10 from Santa Rosa Xtampak). | Chenes | - | - | - | - | - |
| 29 | Hochob, Str. 2. | Pollock 1970: 13 (unillustrated) | Chenes | - | - | - | - | - |
| 30 | El Tabasqueno | Pollock 1970: 21 (unillustrated) | Chenes | - | - | - | - | - |
| 31-2 | Dzibiltun | Pollock 1970: 25 (unillustrated) | Chenes | - | - | - | - | - |
| 33 | Kiuic (carved) | Morley 1946: 420 (unillustrated) | Chenes | - | - | - | - | - |
| 34 | University Museum | Thompson 1973: 60; Present Paper. | unknown | 9.15.9.12.9? or 10.8.13.5.9? | "Yucatecan," "Puuc Style" | infixed | God K holding maize facing God E holding glyph meaning "bountiful harvest" | Fine |

TABLE 2: A List of Painted and Carved Capstones From the Maya Area

Instead of the threatening Lahun Chan of the Tomb Capstone, the Owls Capstone presents a god with upturned snout, rising from a coiled serpent, bearing a bowl-full of objects and surrounded by large beads and conch shells (or cacao beans in Willard's drawing). The upturned, branching mask (of Ehecatl, the wind?) the conch shells, the ascension from the earth-serpent, and the gifts, suggest that this is the complex deity Quetzalcoatl, who in Mexican stories became the morning star (Nicholson 1971: 428-429). Here, he is called by the Maya name 1 Ahau, the Hunapu of the Quiche Maya book, the Popol Vuh, whom Thompson (1950: 218-219) believes also became the planet Venus. In the above-cited discussion of Venus, Thompson suggests that Lahun Chan was the original Maya malevolent deity of the rising planet, fused in the Colonial Period Chumayel Manuscript with the Mexican idea of Quetzalcoatl as Venus (see also Thompson 1970: 22 for Quetzalcoatl as 1 Ahau). Perhaps "Maya" and "Mexican" are not the correct contrasting terms here, since our knowledge of the malevolent aspect of the star comes from Mexico as well as from the Dresden Codex, and the Venus Table pages of the codex are markedly more "Mexican" in style than in the remainder of the manuscript. At any rate, it is interesting that the two capstones, which appear to be roughly contemporaneous with each other, are portraying opposed aspects of Venus, one threatening, the other bearing gifts. The latter comes from a building, as do the object-holding deities on the Chenes capstones (see below). Perhaps the threatening aspect of Venus on the capstone from the Halakal tomb has something to do with the death of the person entombed there.

The third stone from Chichen Itza (Table 2: #3) is a beautiful piece in several colors, portraying a standing figure wearing a necklace and a medallion. It was found in the ruins of the North Colonnade of the Temple of the Warriors. Stone #4 is from the Temple of Warriors itself and unpublished.

The architectural associations of the Chichen Itza capstones is not at all clear. The tomb capstone comes from the outlying group called Halakal, which contains a "Puuc-style" temple (Tozzer 1957: 23), but the capstone itself is placed by Tozzer in his post-Puuc Chichen II period (1957: 35). Tozzer (1957: 33-35) puts the Temple of the Owls in his Chichen II period as well (ca. 948- ca. 1145 A.D.). On the other hand, Proskouriakoff (in Tozzer 1957: 44) thought that the temple may belong in Tozzer's Chichen IV (1280-1450 A.D.). The Temple of the Warriors and the North Colonnade appear to be from the Chichen III period.

In Table 3, in the three columns to the right, I have listed conflicting views on the temporal placement of the architectural styles associated with the Chichen Itza capstones: Tozzer's (1957) scheme of four numbered periods; Thompson's (1970: 3-47) view, essentially similar to Tozzer but with differing transition dates; and Parson's (1969: 172-185) sequence, which puts Thompson's first "Itza" period (Tozzer's Chichen II) back into the 7th century A.D.

The two early "year-bearer" dates from Chichen Itza (10.1.13.5.9 and 10.3.8.14.4) are too early for Tozzer's Chichen II period, and would suggest that these

Table 3 Chronological Positions of Yucatecan Architectural Styles and Hieroglyphic Dates from Maya Capstones (by the 11.16.0.0.0 Correlation).

| Maya Date | A.D. Date | Peten (Rands 1973) | Rio Bec (Ball 1974) | Chenes / Puuc (Capstones in parens.) | Chichen Itza (Tozzer) | (Thompson) | (Parsons) |
|---|---|---|---|---|---|---|---|
| 11.15.0.0.0 | (1521) | | | (Santa Rosa??) | | | |
| | | | 1450 | | 1450 | | 1450 |
| 11.10.0.0.0 | (1422) | | Late Post-classic | | (Chichen Itza Capstones??) | | |
| 11.5.0.0.0 | (1323) | | | | Chichen IV | | Mayapan Period |
| 11.0.0.0.0 | (1225) | | 1200 | | 1280 | 1200 | 1200 |
| | | | Early Post-classic | | Chichen III | | Tula-Toltec Chichen |
| 10.15.0.0.0 | (1126) | Early Post-classic | | | 1145 | 2nd Itza | |
| | | | 1000 | (Dzibilnocac??) (University Museum?) | Chichen II | | 1000 |
| 10.10.0.0.0 | (1027) | | | | | 987 | 950 |
| | | 948 | | | 948 | 1st Itza | |
| 10.5.0.0.0 | (928) | Terminal Classic | Terminal Classic | | | 918 | Puuc Chichen |
| | | | | (Santa Rosa??) (Uxmal) | (Chichen Itza Capstones??) | | |
| 10.0.0.0.0 | (830) | 830 | | | Chichen I | Early Chichen | 750 |
| | | | 770 | | | | 700 |
| 9.15.0.0.0 | (731) | Late Classic | Late Classic | (University Museum?) | | | Teotihuacan-oid Chichen |
| 9.10.0.0.0 | (633) | | | | 600 | | |
| | | 593 | 550 | | | | 550 |
| 9.5.0.0.0 | (534) | | | | | | |
| | | Early Classic | | | | | |
| 9.0.0.0.0 | (435) | | | | | | |

paintings come from the Chichen I or Puuc period. This would be supported by the presence of a Puuc-style temple near the tomb at Halakal, and by the other early Baktun 10 dates on other capstones from the Puuc and Chenes areas (see below). Perhaps the trait of capstone-painting came in to Chichen Itza from the Puuc area during this period in conjunction with other Puuc architectural traits. The early "year-bearer" dates certainly cannot be ruled out by the somewhat "Mexican" character of the drawings, since Tozzer's dichotomy between "Mexican" and "Maya" at Chichen Itza has become more and more difficult to correlate with a succession of time periods.

## Puuc Capstones

The hieroglyphic dates on two capstones from the Nunnery Quadrangle at Uxmal (Table 2: #5 and #6) have been read with some certainty by Thompson (1941 and 1973) as:

10.3.17.12.1 5 Imix 18 Kankin (A.D. 906)

and:

10.3.8.7.12? 4 Eb 15 Ceh (A.D. 897)

or 10.3.18.9.12? 4 Eb 5 Ceh (A.D. 907)

Thompson (1973: 62) notes a confirmation of these dates by a radiocarbon from a Nunnery lintel at 885 A.D. plus-or-minus 100 years. Andrews (1973: 253) felt that this radiocarbon date should be discarded in favor of the fourteen dates averaging 662 A.D. from the Rio Bec area to the south, which he supposed to be contemporary with the Puuc. Recent reports on the excavations at Becan, in the Rio Bec area, however, (Potter 1974) make it clear that the Rio Bec architectural styles began in the Classic and are in part considerably earlier than the Nunnery at Uxmal. Thus the glyphic dates here may well be contemporary with the erection of the Uxmal Nunnery.

The dancing figures on the two Uxmal Capstones cannot be identified as divine or human. They are drawn in a quick but practiced style not unlike that on Late Classic polychrome pottery. Six more stones from Uxmal are unpublished.

Another capstone associated with the Puuc area is from Sacnicte (Table 2: #13), near Labna (Thompson 1973: 59). Its date has not been placed within the Long Count, but surely is in the Puuc style, like capstone #5 from Uxmal. The presence of a winged kin glyph after the day sign and the coefficient on the last glyph of the top band of glyphs suggests that the stone records a full Yucatecan Method date like the Uxmal stones. Again, the principal figure cannot be identified as human or divine. He has a human face with a large-eyed mask over his eyes. The painting is in black line with red, orange, green, and blue coloring. Like the Uxmal paintings, the artistry is quick and sure, and does not seem to have any paritcularly "Mexican" touches to it. The glyphs are placed in top and bottom bands, as at Uxmal. Thus, in several attributes the Uxmal and Sacnicte capstones are quite similar to each other.

Two painted capstones were found at Xkichmook, a Puuc site near the Chenes

area (Table 2#14, #15). The caption to Figure 34 of E. Thompson's 1898 report states that both illustrated capstones come from Chamber 11 of the Palace, although the text (p. 227) describes a painted capstone in Chamber 4 of the same building. Possibly three capstones are involved. In Table 2 of this report, #14 refers to the scene from Chamber 11, even though it might be painted on more than one capstone. The illustration of the Chamber 11 Capstone shows a seated figure, God B or one of the other celestial deities, judging by the large squared eye and projecting upper lip. The glyph for God B (668) is at the figure's feet. Two horizontal lines separate the scene from a bottom band of glyphs. The painting (or possibly only Thompson's drawing of it) is crudely done, reminding one of the Chenes capstone figures. Xkichmook has been termed a Puuc site, but with Chenes influence in its architecture (Pollock 1970: 83; Andrews 1973: 252). The bottom band of glyphs is like the Puuc Capstones, but the crude artistry and the seated god make it more similar to the Chenes examples. Perhaps this can be taken as additional evidence of a mixture of regional styles at this border site.

A painted capstone is mentioned from Xcalumkin-Holactun in the Western Puuc area, but is unpublished. Pollock (1970: 84-85) thinks that Western Puuc is slightly earlier than Eastern Puuc sites such as Uxmal, and contemporary with Chenes.

## Chenes Capstones

Painted capstones have been found in several Chenes sites south of the Puuc area. Seventeen have been reported in all (see Table 2: #17 through #33), of which only two from Dzibilnocac and two from Santa Rosa Xtampak have been illustrated in print.

Two of the stones (#17 from Dzibilnocac and #19 from Santa Rosa Xtampak) have similar infixed glyphs which may record dates in the year-bearer system. The stone from Dzibilnocac (#17) has an infixed Kan glyph with coefficient 8 or 9 prefixed and coefficient 3 subfixed. For the prefix, 8 is a preferred reading by inspection of Pollock's photograph (1970: Figure 32a). According to Pollock (1970: 25-27) Herbert Spinden read this date at:

10.18.8.16.2 3 Kan 1 (2) Pop

apparently following the year-bearer-tun system of the Chichen Itza Capstone. Spinden's reading necessitates a switching of the two coefficients. It seems unlikely that the subfixed numeral 3 would represent the day-number in place of the prefixed number 8 or 9. If one assumes instead a normal placement of 8 or 9 as the day-number and the subfixed 3 as the tun, one arrives at the following dates as the only possibilities within Baktuns 9 through 11:

9.1.2.12.4?? 8 Kan 1(2) Pop (A.D. 458)
10.10.2.11.4?? 8 Kan 1(2) Pop (A.D. 1030)

The former date would seem late for the Chenes area, but we do not yet know how late construction continued there.

The capstone with glyphs from Santa Rosa Xtampak (Table 2: #19) actually has two paintings, an inner-thick-line painting and an outer fine-line one on a secondary coat of plaster. Glyphs with coefficients appear on the outer plaster but cannot be interpreted. On the earlier painting, one glyph is a day-sign, probably Muluc, with a two-scroll subfix identical to that under the Kan sign of the Dzibilnocac stone. The Muluc has a clear coefficient 3. Its connection to the Dzibilnocac glyph is unmistakable, since it appears in an identical position behind the seated figure, enclosed within an oval. The Santa Rosa glyph has no subfixed coefficient, but a separate glyph with coefficient five appears at the feet of the figure. The glyph itself does not appear to be a tun sign, but assuming for the moment that it does record a 5 Tun date, one finds that there are no Long Count positions for the date within our limits of Baktuns 9 through 11. Two positions do occur, however, if one assumes again that current tuns rather than elapsed ones were recorded, as we did with the University Museum Capstone:

10.3.5.10.9?? 3 Muluc 1(2) Pop
11.12.5.7.9?? 3 Muluc 1(2) Pop

These positions are close in time to those read on the Uxmal and Chichen Itza capstones, the latter being year-bearer dates as well. The 10th Baktun position is 137 years earlier than the 10.10.2.11.4 position of the Dzibilnocac date.

The four published capstones from Dzibilnocac and Santa Rosa Xtampak have much in common besides the similarity of the day-signs. They show seated figures rather than standing ones, and the glyphs are infixed into the scene rather than in top and bottom bands. On the two Dzibilnocac paintings, the figures are clearly God K, with his long snout and huge foliated ornament protruding from the forehead. One holds a plaited basket out of which pours small objects like food or raindrops. The other holds a large bowl filled with feathers or paper strips and possibly a deity head (cf. Tikal Altar 6; Coe 1967: 75). On the first stone from Santa Rosa (Table 2: #19), the deity has the roman nose of God D, Itzam Na, and holds a fringed object which might be a bowl or a handled fan. The figure wears a long-nosed serpent head as a headdress. The figure on the other capstone is more likely to be God K, judging from the remains of a foliated ornament in front of the forehead, and the snakeskin markings on the top of the forearm and the back of the upper arm, identical bearer scene on the Temple of the Owls Capstone from Chichen Itza, although mixed with the concept of 1 Ahau (Hunapu) as the rising planet Venus.

The dating of the Chenes architectural style has been sharpened by recent excavations at Dzibilnocac and Santa Rosa Xtampak (DeBloois 1969; Joesink-Mandeville 1972). Unfortunately, I have not seen the fuller reports on these excavations (Matheny and Berge 1970; Nelson 1970). A recent report (Potter 1974) on the architectural sequence at Becan, a Rio Bec style site far to the south, states that Chenes and Rio Bec architectural styles form a coherent whole, and that most of the architecture of the Rio Bec and Chenes is Late Classic in date (Bejuco/Chintok Ceramic Periods, 500-830 A.D.) (see Table 3). However, Potter (1974: 122) adds that: "fairly numerous Chenes area buildings and some farther south may have been constructed during a slightly later time period and therefore represent a transition from the style of Becan into that of the Puuc."

Thus the buildings which contained the Chenes capstones in question (Dzibilnocac Structure 1 and the Santa Rosa Xtampak Palace) could date from the Late Classic or even slightly later, as the postulated Baktun 10 Long Count dates on the stones suggest. The Baktun 11 dates are probably much too late for the Chenes sites, however.

Many aspects of the Chenes paintings, their curde "idol" representations, the brief calendric notations, the year-bearer day signs, the postulated Buktun 10 Long Count positions, suggest a Terminal Classic date for the capstones and for their buildings. The year-bearer readings are uncertain, however, and the capstones still might be fully Late Classic. Thus we cannot be sure of the temporal relationship of the Chenes capstones to the University Museum stone, with its similarity of theme and differences of style.

## Conclusions

In this review of Maya painted capstones, it has become clear that the capstones divide themselves into three groups according to the architectural styles of the areas in which they were found: Chichen Itza; Puuc, and Chenes (Table 2). The two Chichen Itza scenes with glyphs show well-drawn standing figures, probably of the gods of the planet Venus, with glyphs in top and bottom bands, apparent year-bearer date notations in "Puuc Style" with similar text arrangements, and with relatively contiguous Long Count positions, probably in early Baktun 10. The Puuc capstones from Uxmal and Sacnicte show well-drawn standing figures, not recognizable as being deities, glyphs in top and bottom bands, with "Yucatecan Method" date notations, sometimes in Puuc Style, one time not. The Chenes stones depict more crudely drawn seated large-eyed deities holding objects (usually containers), glyphs infixed into the scene, with apparent year-bearer date notation in Puuc style. The Xkichmook capstone paintings, from the southern limit of the Puuc area resemble the neighboring Chenes stones more than they do the Puuc ones.

Since the University Museum Capstone bears no particular resemblance to the Chichen Itza stones, it probably comes from within the Puuc-Chenes area. As in the Chenes scenes, the glyphs are infixed, without top or bottom bands of glyphs. Likewise, the principal figure is God K, seated and holding out objects in his hands. On the other hand, the Yucatecan Method of date notation is that of the Puuc capstones and the careful delineation of details is more like the Puuc than the Chenes paintings. Also, the complexity of the scene, with two personages instead of one, recalls the Puuc area Sacnicte scene, and is in contrast to the simple scenes of the Chenes area.

Feeling obligated at this point to make a preliminary guess as to provenience, I would say that the Chenes area is a more likely source that the Puuc, in spite of the dating method and careful style. It would seem more probable that a Chenes ruler would import a prestigious neighboring artist and dating method, than that a Puuc ruler would import a neighboring religious practice.

As I have stated, the two alternative Long Count positions for the date on the capstone are in the Eighth and the early Eleventh Centuries A.D. (in the 11.16.0.0.0 Correlation). I mentioned that the earlier position is preferred by style in spite of the necessity for a Maya error. This judgment was based on the similarities to Late Classic painted pottery from Tikal. Since we really know so little about artistic styles of the 11th century Yucatan, the later date should not be eliminated from consideration. As far as we know at present, Chenes and Puuc cities might have been occupied as late as the 11th century. The capstone might be an earlier and more "Classic" version of Chenes deity capstones, or it might be entirely contemporaneous with them.

An outline of continued research on the capstones is formed by the questions raised in this study. The first task would be to obtain a complete photographic record of the capstone paintings, before they all disappear. In particular, we need photos of the Temple of the Owls stone, the Xkichmook stones, the series from the Uxmal Nunnery Quadrangle, including the two illustrated by Blom, and finally the unpublished Chenes capstones. Secondly, the question of the highly important year-bearer dates might be resolved by better photographs of the glyphs, by a search for other possible year-bearer Maya dates, and by comparison with the Mexican year-bearer systems of date notation.

The painted capstones reviewed here can and probably will be major items in the renewed attempt to resolve the questions of Yucatecan cultural sequence. In several instances, they hold the only hieroglyphic dates for a site, for a time period within a region, or even for a whole architectural style.

PLATE 1: The University Museum Capstone.

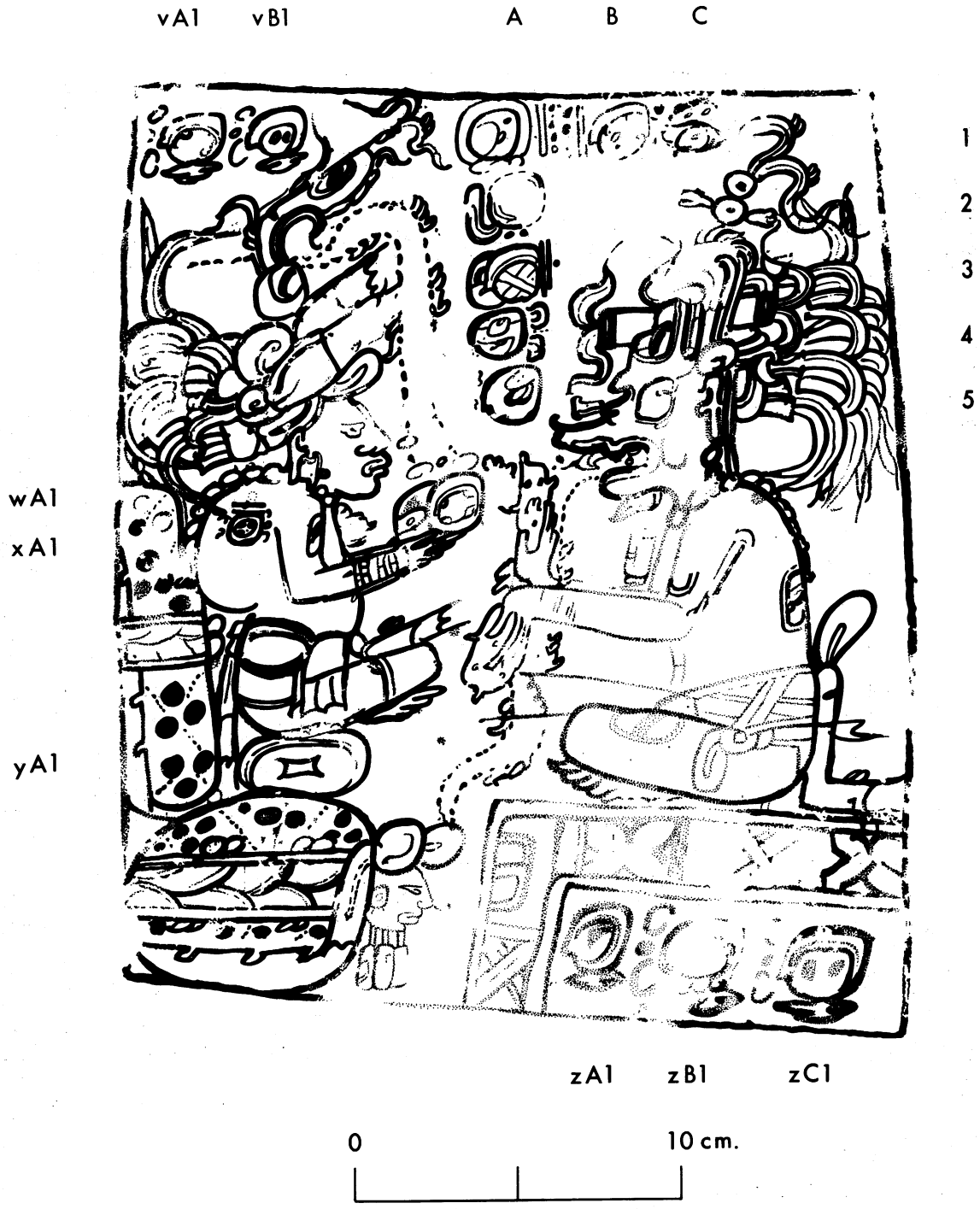


FIGURE 1: Drawing of Painted Scene on the University Museum Capstone (1/2 Scale). Drawing by W.R. Coe.

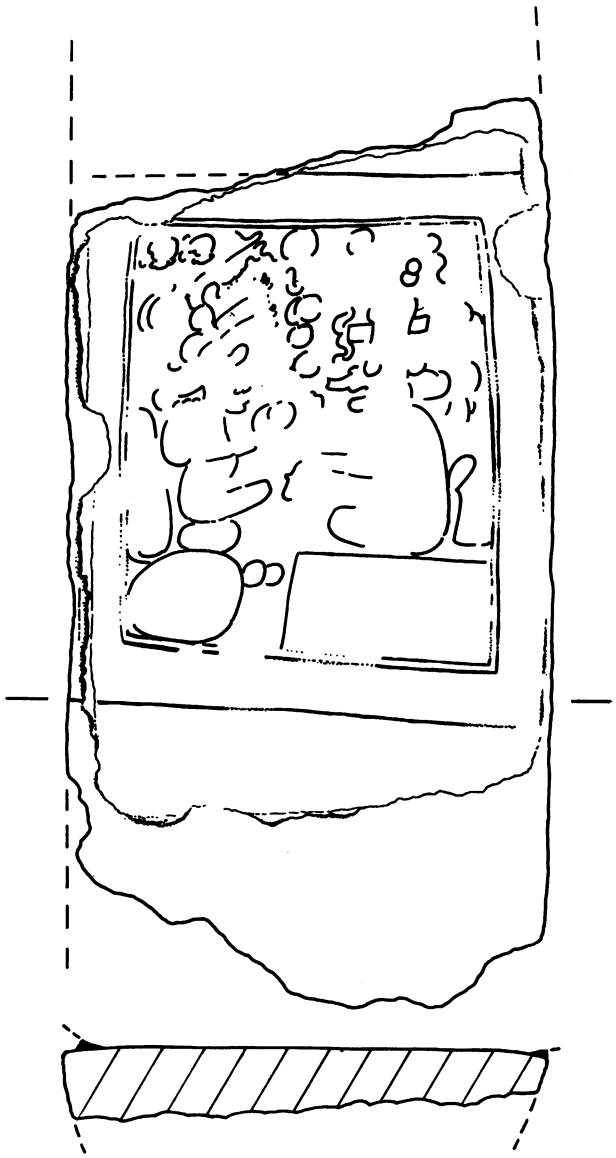

FIGURE 2: Drawing of Painted Side and Section of the University Museum Capstone (1/5 Scale). Drawing by W.R. Coe.

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# PRE - AGRICULTURAL VILLAGE LIFE:

# THE LATE PRECERAMIC PERIOD IN VERACRUZ

S. Jeffrey K. Wilkerson

Evidence for preceramic occupations in the eastern lowlands of Mesoamerica is very limited; in part because of little investigation and in part due to the vagaries of deposition, both human and geologic. South of the Sierra de Tamaulipas four areas have been suggested to have such occupations: Alvarado, Villa Rica, Punta Delgada, Barra San Augustin, Barra Rancho Nuevo, and the lower Tecolutla drainage (Figure 1).

The first three areas are mostly unexplored archaeologically and open to the question of dating. The first was found by Medellin in 1950's in the course of exploration at Cerro de las Conchas (Medellin: personal communication). Blow-out sites were found by Ford and Medellin in the Villa Rica-Punta Delgada area during 1963-1964, and similar sites are thought to exist on the Barra San Augustin-Rancho Nuevo coast (Medellin: personal communication, 1969).

The materials of the preceramic component at Alvarado are unknown. The blow-out camp sites have not been analyzed but their locations imply that they may not all be preceramic.[1] Given the fluctuations of the Gulf water-level since the end of the Wisconsin glaciation, and more specifically during the Holocene, the presence of such sites in the current dune line suggest a later date. Nevertheless, the very constricted coastal region around the Sierra Chiconquiaco should be considered a prime area for preceramic sites as it is the only sea level route between northern and southern Veracruz.

The lower Tecolutla drainage contains sites of a different nature and a more secure archaeological context.[2] The site of Santa Luisa occupies an area of approximately ten square kilometers on the north bank of the Rio Tecolutla beginning at a point eleven kilometers from its mouth (Figure 2). The preceramic component, tentatively designated the Palo Hueco phase, appears to stretch for approximately a kilometer along the river in a band of unknown width but in places up to at least sixty meters.[3] The occupation is found at a depth varying from four to six meters from the present surface and, in every case to date, sealed by 80 cm. or more of sterile flood sands. Occupation resumes above the sands at the end of the Early Formative. The midden-terrace formed over the preceramic deposits became the principal axis of the site throughout its entire subsequent occupation, which continues with few breaks to the present (Figure 3).

At the time of its preceramic occupation the site consisted of a low sand bank between distributaries in the river delta. The present-day swamp to the north was then an enbayment into which the river fed. The esturine environment around the bay was certainly rich in shellfish. The occupational debris consists of large quantities of shell

(mostly oyster), cracked river cobbles (also sometimes plentiful), obsidian and sandstone implements, mammal and fish bone, and carbon fragments.

All these items are found in mixed concentrations, in some cases on very slight rises in the original occupational surface. The cracked river cobbles appear to have been used for cooking purposes, probably with the shellfish. No hearth has been found but, almost invariably, carbon fragments are found in the concentrations among the rock and shell. Artifacts are strewn about but are more commonly found where where the frequency of shell is greatest. In general, however, no single concentration produces a great number of tools and the total corpus from the site is approximately 400 items, mostly flakes and fragments. These observations, nevertheless, may be due to the form of excavation. Due to the quantity of overburden, in some cases containing large quantities of materials from later phases, it is difficult to completely excavate any but the smaller concentrations. Twelve square meters is the largest horizontal area yet opened for observation in a single trench.

Dating is based on carbon samples from within and above the deposits. The one carbon sample from within the preceramic deposits produced a date of 2930 B.C. $\pm$ 100 (N-913); three more dates from the deposits are currently pending. Four other dates from the Ojite and Esteros phases directly above the sterile sands produced dates between 1000 and 550 B.C. A mangrove sample from beneath the deposits dated to 3300 $\pm$ 105 B.C. (I-8229). Greater refinement of dating is needed and this may be forthcoming through obsidian hydration dating. Measurement of ground temperatures at distinctive depths, needed for the establishment of the hydration scale, is now in its second year at the site.[4] When applied to the many obsidian fragments worked during the preceramic period, this will form a much tighter chronological framework.

Most of the implements of the Palo Hueco phase are of obsidian, a few are of limestone and sandstone. The obsidian has been shown by trace element analysis[5] to come from the source in El Paraiso, Queretaro, over 330 kilometers distant in a straight line.[6] Nodules of poor quality and very small size, generally about 5 cm. in diameter, were imported and worked at the site. River cobbles of sandstone and limestone were readily obtainable in erosional cuts of the elevated Pleistocene river beds wouth and east of the river, on the opposite side from the site, and in exposed beds of the Miocene Tuxpan Formation along the river.

Crude blades are the commonest type of implement.[7] The reduced size of the nodules from which they were struck is evidenced by the many cortical surfaces. Examples with prepared striking platforms are the most prevalent and are followed in frequency by examples with unprepared striking platforms, and pointed platforms. Laterally worked unifaces are also common. Most are thin flakes with one edge utilized or retouched. A few flake gravers were also found. There are also three possible crude end-scrapers. The limited number of bifaces present include a rhomboid-based drill, block-core choppers, flake choppers, spherical battered pebbles, and a net sinker.

A very few river pebbles and pumice stones[8] were found in the deposits as well as large quantities of cracked sandstone cobbles, some fire marked, and shell.

The cracked sandstone cobbles were almost certainly used in relation to the shell remains.[9] Although a few could have been purposely cleft, most appear to have been fire-cracked and as such suggest the possibility of their use in opening oysters. None have ths surface lacerations or crushed areas typical of hammerstones. The cobbles may have been first heated, and cracked, and then spread out for the shells to be placed above so that the heat would cause the valve muscle to relax. Once the valves were separated, perhaps with the aid of choppers or river pebbles, the oysters could be removed by cutting with blades or laterally worked unifaces.

A portion of the shell material also show burning. Oysters (Crasostrea virginica) are by far the most prevalent, representing between 57 and 97% of the total in the Palo Hueco phase levels. However, also present in descending frequency are venus clams, flat tree oysters, hooked mussels, crown conches, marsh clams, and small olive nerites.[10] Most of these came from the brackish water of estuaries, either from the bottoms or from mangrove roots. A few came from mud flats that would be exposed at low tide. Shellfish were unquestionably a major portion of the diet.

Among the shell and rock debris were small fragments of crustacean shell and bone. Identification of these remains is underway but field observation suggests large land crabs, small mammals, a howler monkey, and fish.[11] In general, bone is not well-preserved and is not plentiful. However, the endscrapers, flake gravers, drills, and choppers suggest that hunting was important. The blades and unifaces could have also been used from cleaning and preparing skins and cutting bones. The further importance of hunting is also indicated by the nearby site of La Conchita.

La Conchita is located among the sandstone hills of the Tuxpan Formation at an elevation of 45 meters and a distance from Santa Luisa of four kilometers. Like most sites in the area the deposits are buried, in this case in dense clays, with no surface indication. Excavation was begun at the site to expose extinct Pleistocene fauna in 1973. At a depth varying from two hundred to three hundred twenty centimeters, a meter to two meters above the faunal deposits, a series of artifacts were found on what may have been a sharp sloping ground line. Additional artifacts, and a possible crude hearth without charcoal, were found at two other locations at the same site in 1974. The artifacts suggest poorly-preserved and scattered campsites in a small valley near a now non-existant water supply. At least some limestone and sandstone artifacts were worked at these locations as debris and primary flakes were found. Although some obsidian blades were encountered, there was no indication of local chipping.

The artifacts are very few. Two, of soft grey-green limestone, may date earlier than the end of the preceramic period and be Pre-Palo Hueco. One is a pebble chopper with worn use marks. The other is a projectile point, or more probably, a blank for a point that may have been of the La Mina type. The various flakes of

limestone and sandstone all appear to have come from local river cobbles and to have no clear utilized edges. The obsidian blades, with prepared striking platforms, are identical to those at Santa Luisa. Virtually no bone or shell material were uncovered in association with these artifacts. Except from one location encountered this year, all the material appears to have moved downslope with the runoff from the immediately adjacent hills.

Taken as a whole, the available materials of the Palo Hueco phase present us with several interesting conclusions and questions about the late preceramic culture of north-central Veracruz. In terms of preceramic cultural traditions, defined by MacNeish et al (1967: 227-244), the Palo Hueco phase is very similar to the Tehuacan tradition of the Archaic Period. The Abasolo tradition apparently stops short of north-central Veracruz and is, thus, confined to the north-east, perhaps coming no further south than the Panuco-Tamesi drainage. The Abasolo tradition with its lack of emphasis on blades has few overt similarities to the implements and their frequencies at Santa Luisa. In contrast, all the implements found in the Santa Luisa corpus are also found in the Tehuacan Valley, except, possibly, the rhomboid-based drill.

Nonetheless, these are distinctions which should be explored further before assigning the Palo Hueco phase to the Tehuacan tradition. There are no examples of manos and metates, or other clear agricultural implements. Absent also are stone vessels or discernible house structures, such as pit houses. Most artifacts are made from small obsidian nodules derived from rather distant Queretaro. At Tehuacan in the Archaic Period, most artifacts are not of obsidian. Santa Luisa has large amounts of cracked cobbles and shell, indicating a diet not to be expected at Tehuacan.

Crude blades are found in both areas, and have different proportions. Temporally, the corresponding phase at Tehuacan would be Abejas. There, crude blades with pointed striking platforms are most prevalent, followed in frequency by unprepared and prepared striking platforms. At Santa Luisa the relationship of blade types is the reverse. Unless this distinction is due to the necessity of using the available nodules of small size, one must assume a different blade preference in the Santa Luisa area.

The cultural tradition is, for the moment, neither conclusively Tehuacan nor totally a new coastal tradition. It may be, however, more of a new tradition than a simple variant of its highland cousin. Final confirmation, or rejection of this cultural tradition, which might be called the Santa Luisa tradition, will have to await a larger corpus of artifacts and a more precise knowledge of the life style they represent. [12]

The nature of late Archaic life as presented at the lower Tecolutla drainage sites is that of a village exploiting simultaneously several surrounding ecological zones with distinct subsistence activities. Primary is the esturine environment with its various types of shellfish that were collected. Secondary is the river with its fish resources and third are the hills where hunting aided the diet, and campsites appear to have been established.

Agriculture is a moot point. The common artifacts, such as grinding tools associated with the highland domesticates, corn, beans, and squash, are absent from the examined deposits. Preliminary examination of pollen samples recovered from these same levels, and whose analysis is not yet complete, give no indication of domesticated plants. However, what about the indication of root crops, such as manioc, that disseminate little pollen?[13] There are no grater bowls present, although they are popular in later ceramic periods. But what about the common crude blades and utilized flakes--are they all used for oysters and meat-cutting? A preliminary examination of the edges of these implements has not indicated a systematic use pattern which might come from having been utilized in a stationary perishable object for root-grating. However, I feel that a larger corpus is necessary before this possibly is to be satisfactorily ruled out. We also require a more extensive pollen analysis, which is underway.[14]

The Santa Luisa site appears to represent a year-round settlement with the different concentrations of stone and shell, perhaps, representing family locations where artifacts were worked and animals butchered. Hunting activities may have required the establishment of camps in the hills to the west, and at one of them local limestone was worked to provide cutting implements. Material such as obsidian was brought, or traded, over a considerable distance. The possibility of commerce at this early date is an interesting point. Regardless, traded or retrieved, the obsidian clearly indicates an early highland-lowland relationship with regard to primary resources.

Although spread out along at least a kilometer of the river, the Palo Hueco phase occupation of Santa Luisa could not have been very dense at any one time. In this case hunting, gathering, and fishing appear to be the basis of subsistence with agriculture, including root crops, having at best an uncertain role. For the moment, Santa Luisa appears to be a pre-agricultural village that successfully exploited local resources but was not so isolated from the highlands as to be unaware of resources there. Perhaps this is how the highland domesticates arrived in the Gulf lowlands.

In summation, we can draw some tentative conclusions and hypotheses from the limited preceramic material of the Gulf lowlands:

1). The Palo Hueco phase is roughly contemporary with the Abejas phase in the Tehuacan Valley; also, a component of the Conchita site may be coeval with the Coxcotlan phase.

2). The Abasolo tradition does not extend southward down the coast from Northeastern Mexico.

3). The late preceramic period in the lower Tecolutla drainage has a distinctive artifact corpus which, although similar to the Tehuacan tradition, represents a culture with a distinct subsistence base which is more than a simple variant of the highlands.

4). The cultural material from the Palo Hueco phase at the site of Santa Luisa suggests a village whose economy is based upon collecting, fishing, and hunting in the esturine, riverine, and forest environments surrounding the site.

5). Agriculture is not clearly indicated at the site but is not totally precluded, especially if root crops are considered to have formed part of the diet.

6). Natural resources, such as obsidian, were exploited as far away as the mountains of Queretaro indicating that even at this early date, there were formalized lowland-highland contacts.

7). Based on present evidence, unless North-Central Veracruz is isolated from the primary direction of movement (or our current dating is skewed), agriculture originating in the highlands does not arrive in the eastern lowlands until after the end of the Palo Hueco phase in the third millenium B. C.

8). The culture represented by materials from Santa Luisa and la Conchita might best be considered tentatively to form part of a separate cultural tradition occupying the eastern lowlands during the late preceramic.

## NOTES

1. Some of these campsites contained "... crude scraper-planes, choppers, flake tools, and Matamoras, Garyito, and Pedernales projectile points" (MacNeish 1967: 235).

2. The work at Santa Luisa began in 1968 under the direction of the writer. During 1968-1970, when the preceramic occupation was first positively located, the research was sponsored by the National Science Foundation (GS-2620) and the Foreign Area Fellowship Program. Further preceramic exploration was undertaken in 1973 and 1974 with the sponsorship of the National Geographic Society and the Florida State Museum. All research has been conducted under the supervision of the Instituto Nacional de Antropologia e Historia and with the cooperation of the Instituto de Antropologia (Universidad Veracruzana). Descriptions of the preceramic are contained in Wilkerson (1972a; b; 1973; in press, n.d.).

3. All testing to date suggests that the deposits are continuous, but additional testing is required for confirmation.

4. The measurements, an aspect of the current project, are part of the investigation by Dr. Irving Friedman, U.S. Geological Survey.

5. Trace element analysis of obsidian artifacts from Santa Luisa have been undertaken since 1971 by Dr. Gary Allen, University of New Orleans.

6. It is interesting to note that this source, to which many others are added in the course of time, remained a major source of obsidian for Santa Luisa throughout its entire Pre-Columbian history.

7. Frequencies are not discussed here as the 1973-1974 material is still under analysis and is incomplete. However, the occurrence for implement types from the 1970 excavations are as follows:

| | | |
|---|---|---|
| o obsidian | f flint | l limestone |
| j jasper | s sandstone | c chert |

Laterally Worked Unifaces:
- Flake Gravers - 30
- Thin Flakes, Two Edges Retouched - 1o
- Thin Flakes, One Retouched - 2o, 1c
- Thin Flakes, Two Edges Utilized - 10o
- Thin Flakes, One Edge Utilized - 41o, 3f
- Thick Flakes, One Edge Retouched - 1o
- Thick Flakes, Two Edges Utilized - 2o
- Thick Flakes, One Edge Utilized - 6o, 1f

Miscellaneous Bifaces:
- Rhomboid-based Drill - 1o
- Block-core Choppers - ? - 1o, 1j
- Flake Chopper - 2l
- Spherical Battered Pebble - 1s?

Cores:
- Crude Block core - 2o
- Crude, Conical or Hemi-conical Nuclei, Prepared Striking Platforms - 4o, 1s?

Blades:
- Crude Blades, Prepared Striking Platforms - 35o
- Crude Blades, Unprepared Striking Platforms - 26o, 1s
- Crude Blades, Pointed Striking Platforms - 15o
- Crude Blade fragment - 1o

End-Scrapers:
- Crude, Keeled? - 1o
- Crude, Ovoid? - 1o
- Crude, Long, Flat-Flake - 1o

Debris and Miscellaneous:
- Unused chips - 87o

River pebbles - 7
Pumice Stone - 2
Cracked cobbles and other debris - 84.76 kilos (mostly s)

There is also the possibility that the upstream locations, which are generally thicker deposits, may have a longer period of occupation and different artifact frequencies.

8. There is no evidence that these were used as abraders. It is common to find pumice floating downriver today.

9. The 1970 excavations contained 95 kilos of shell in association with 85 kilos of cracked cobbles. The more recent excavations appear to have similar quantities.

10. Mercenaria compechensis, Isognomon alata, Brachidontes recurrus, Melongena melorgena, Mulinia lateralis and Pseudocyrena floridana, and Neritina reclivata.

11. Faunal identification is proceeding under the direction of Dr. Elizabeth Wing, Florida State Museum.

12. MacNeish (1967: 235) with reference to some of the artifacts from Ford's blow-out sites suggests the possibility of a distinct tradition but also a general relation to the Coxcatlan and Abejas Phases at Tehuacan. For the Ford corpus only choppers and flake tools would be comparable to the Santa Luisa material.

13. Manioc is still planted as a supplementary house crop in Veracruz. Normally placed along river and stream banks, it is sometimes found well back from the coast and up to 900 meters in altitude in some places.

14. The swamp and former delta area of the Tecolutla were cored during the 1974 season by Dr. Kelly Brooks, University of Florida. Some of these locations, especially the swamps, are far more likely spots for pollen deposition and preservation than the sandy alluvium of the Palo Hueco phase deposits.

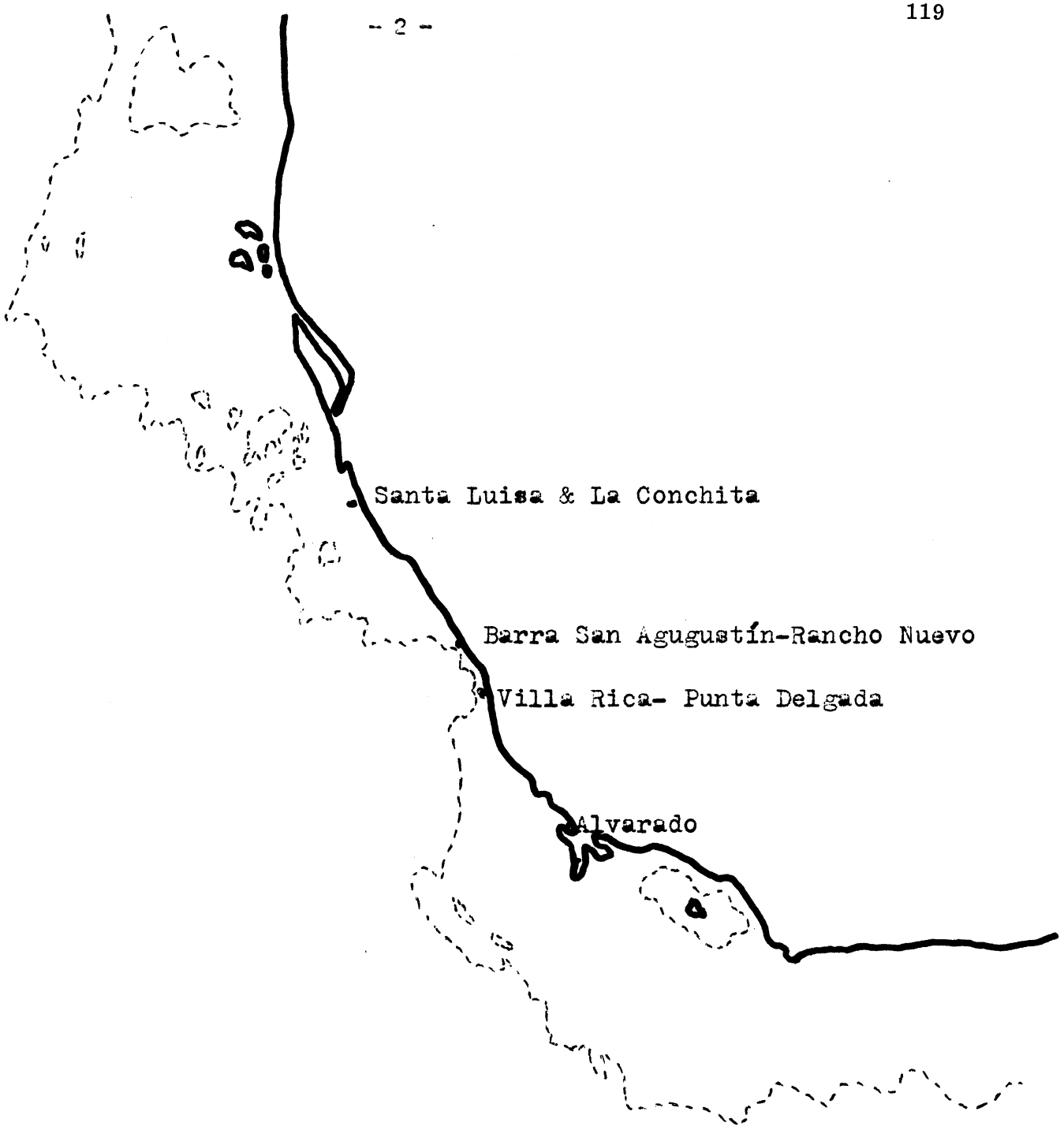
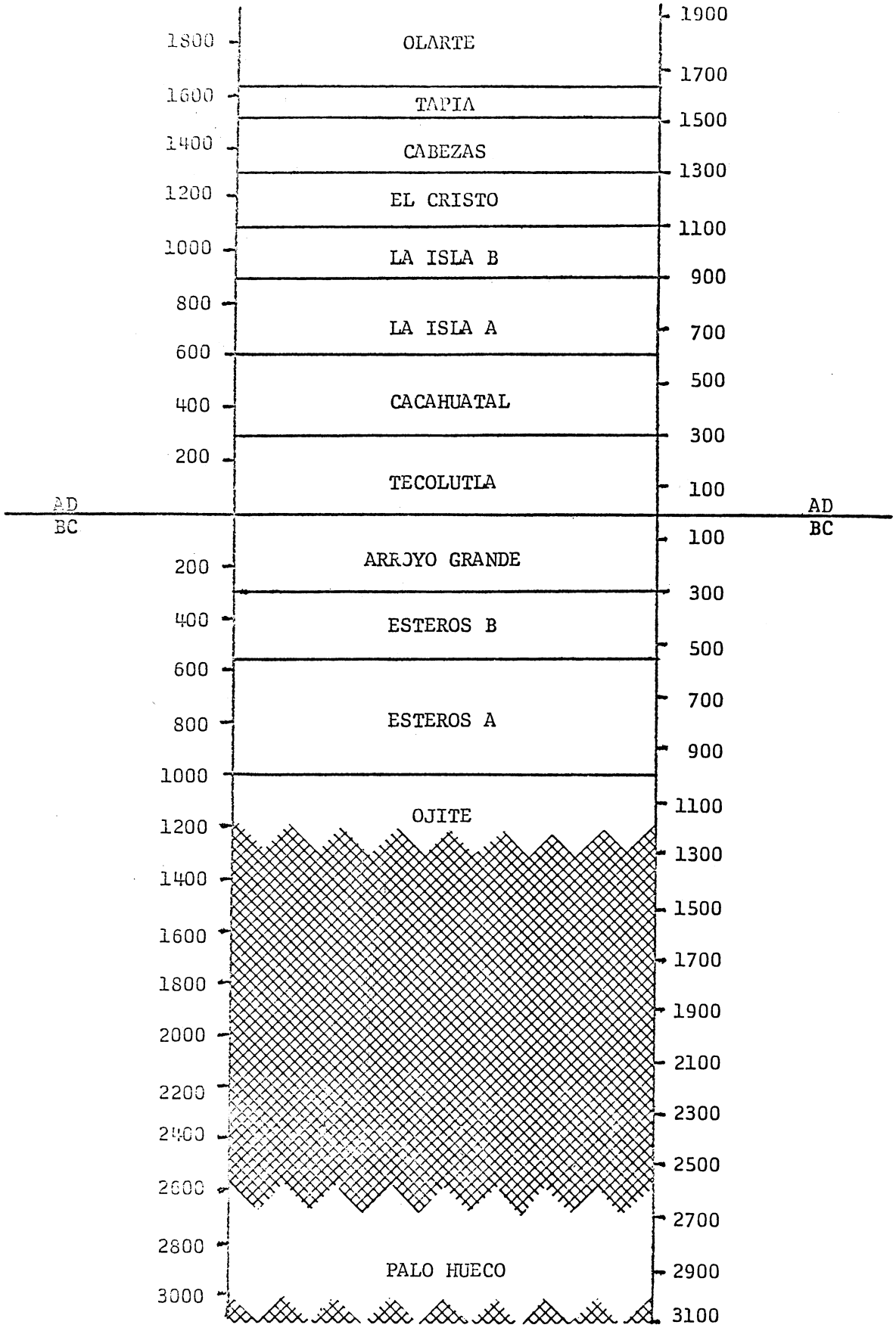



FIGURE 1. Preceramic locations in Veracruz (dotted line represents the four hundred meter altitude contour).


FIGURE 2. Aerial view (1970) of lower Tecolutla drainage. Broken line outlines maximum known limits of the site of Santa Luisa. Solid line outlines preceramic occupational area. Scale: 1 cm. equals 588 meters.

FIGURE 3. TENTATIVE CHRONOLOGY FOR THE LOWER TECOLUTLA DRAINAGE AND SANTA LUISA, VERACRUZ



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# THE IDENTIFICATION OF THE EMBLEM GLYPH OF YAXHA, EL PETEN

John S. Justeson

This note reports the identification of the emblem glyph of Yaxha, a Classic Maya site in the eastern Peten. The variable element is T743: the "water group" prefix, at the site and elsewhere, is normally T16. There are eight certain examples of the glyph at Yaxha itself, listed in Table 1 and illustrated in the same order in Figure 1, a-h. The emblem occurs at Yaxha on every stela having a glyphic text, while no other glyph with emblem prefixes occurs on any.

Figure 1, i-t, illustrates occurrences of T743 with at least one emblem prefix at other sites and in the same order as the listing in Table 2.

The creature which is represented by T743 has been identified by Spinden as a macaw and by Thompson and most others as a turtle (Thompson 1950: 116; 1962: 325). In the inscriptions it is surely a bird of some sort. The only two certain full-figure representations I have noted are illustrated in Figure 1, u-v. The first shows a wing; the second has an anthropomorphised body, with feathers attached at its back. A possible third full-figure example at Copan, not illustrated here, also portrays a bird (Maudslay 1889-1902, I: Plate 96).

TABLE 1

| Stela No. | Glyph Block | Configuration | Figure 1 |
|---|---|---|---|
| 1 | A2 | 16.743[a] | a |
| 2 | C1 | 16.743[a] | b |
| 6 | B12 | 16.(168:743)[b] | c |
| | D6 | 16.(168:743) | d |
| | D11 | 168(16.743)[c] | e |
| 7 | A10 | 16.(168:743) | f |
| 13 | A7 | 16.(168:743) | g |
| 31 | G7 | ?.(168:743) | h |

Notes:

a. Absence of T168 is noted fairly often for other emblem glyphs in Thompson's Catalog.

b. This follows Palenque emblem 793a, without affixes, at B11.

c. This may be a scribal error; but see Figure 1, i.

TABLE 2

| Text | Glyph Block | Configuration | Figure 1 | Drawn After |
|---|---|---|---|---|
| Palenque: House C, base | G3 | 168:(?.743) | i | Maudslay 1889-1902, Vol. 4: Plate 22 |
| Pomona: Tablet X | C4 | (101:528af).(168:743) | j | Lizardi 1963: Plate 6 |
| Yaxchilan: Lintel 10 | E3 | 16:168:743:130 | k | Maler 1903: Plate 54 |
| Kuna-Lacanha: Lintel 1 | D4 | 168:(743.130?) | l | Coe and Benson 1966: Figure 9 |
| Tikal: Lintel 3 | B4 | 16.743 | m | Thompson 1950: Figure 52, 1 |
| Naranjo: Stela 23 | E11 | 16.(168:743) | n | Maler 1908: Plate 37 |
| | F20 | 16.(168:743) | o | Maler 1908: Plate 38 |
| Stela 12 | A10 | 16.743 | p | Maler 1908: Plate 31 |
| | B11 | 16.743 | q | |
| | D8 | 16.743 | r | |
| Grolier exhibit: Vase 47 | F' | 16.(168:743) | s | Coe 1973: 103 |
| Vase 52 | F | 168:743 | t | Coe 1973: 112 |

Thompson (1962: 324) also lists occurrences without affix at Uxactun (three times), Copan, Mountain Cow, and possibly Piedras Negras; Coe lists one on Vase 47. Except for the Tzakol 3 Vase 52, all the above occurrences are Late Classic. In contrast, at Yaxha itself, the occurrences are on both Early Classic and Late Classic monuments.

TABLE 3

| Source of Full-Figure Glyph | Figure 1 | Drawn After |
|---|---|---|
| Machaquila: | | |
| Structure 4, Stone F | u | Graham 1967: Figures 38, 39 |
| Tikal: | | |
| Burial 116, incised bone | v | Trik 1963: Figure 3a |

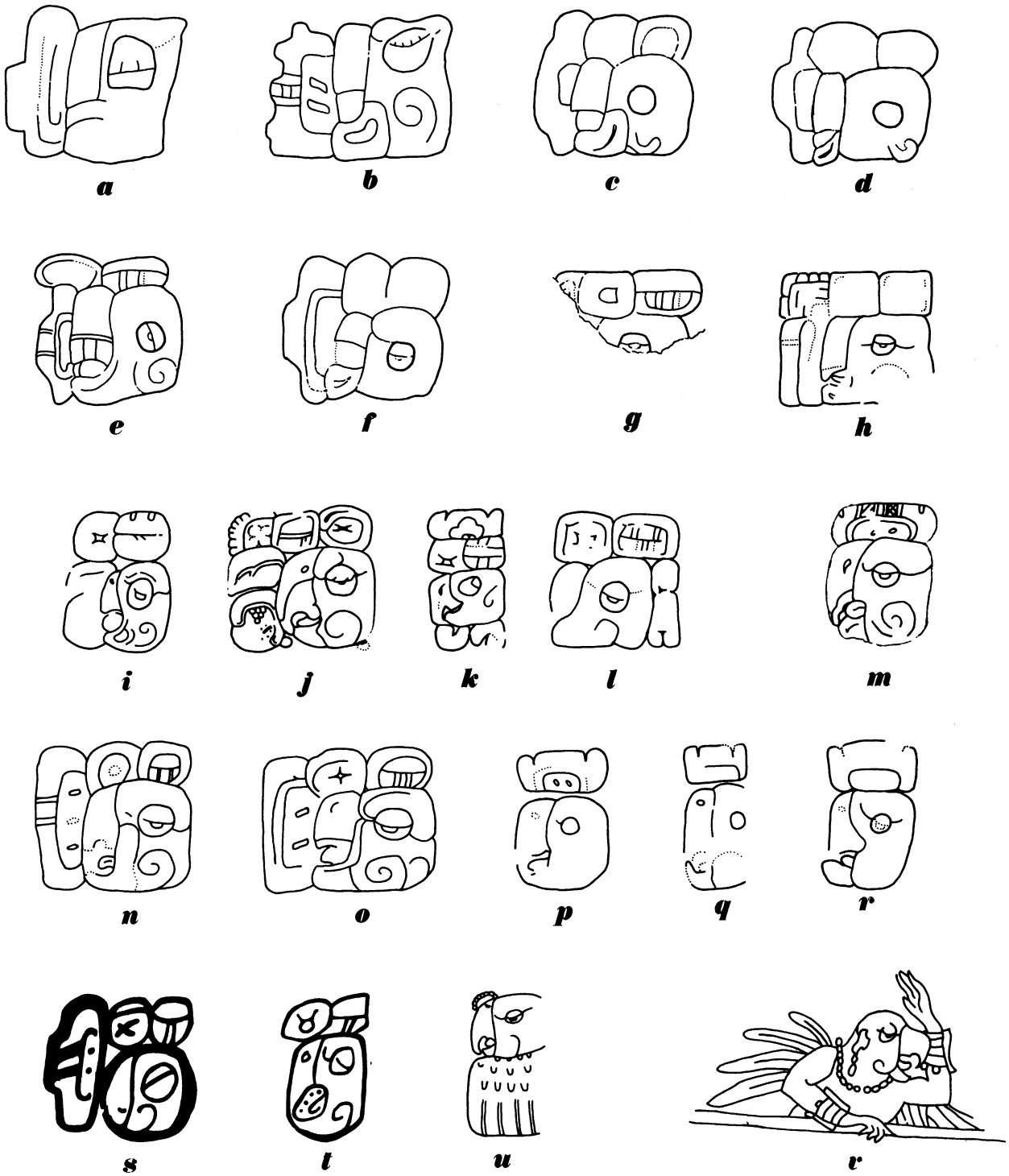


FIGURE 1: a-h, Yaxha; i, Palenque; j, Pomona; k, Yaxchilan; l, Kuna-Lacanha; m, Tikal; n-r, Naranjo; s-t, vases of uncertain source; u, Machaquila; v, Tikal. Cf. Tables 1-3.

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