4
Piedras Negras Pottery

1. Pottery Vessels, *Mary Butler*

Introduction

The pottery from Piedras Negras consists of that from general excavation, of value mainly for comparative study, and that from test pits which were dug for the purpose of trying to establish a ceramic sequence. Half of the pottery recovered during the field seasons of 1931 and 1932 is in the museum at Guatemala City; half is on loan at the University Museum in Philadelphia. This paper is based on a study of all the pottery from the 1932 season, and that half of the 1931 pottery which was lent to the University Museum. A note on the outstanding features of the 1933 pottery will be included. The small amount of material recovered in 1934 is not yet available for study.

Pottery classification is, in the last analysis, reduced to one of two major criteria: decoration or shape. Piedras Negras pottery is here classified on the basis of decoration, since most of the material is so fragmentary that a study of shape is to a large extent reduced to one of rim form, indicative of, but not defining, the entire vessel.[1]

A qualitative petrographic study, by A. Williams Postel of the Geology Department of the University of Pennsylvania, of the composition of the clays from which Piedras Negras pottery is made, establishes three groups of tempering material: calcite, calcite with a slight admixture of quartz, and quartz. Thirty-nine of the 47 sherds analyzed were tempered with calcite or with calcite and quartz. The other eight sherds were quartz-tempered, and confined so far to three wares. This quartz group subdivides into two types: One in which the quartz is unevenly graded (Red 1, Black 1), the other in which it is fine, evenly graded and in high proportion (Orange 3). The sherds tested from Jonuta show the same type of quartz tempering as the Piedras Negras Orange 3 group, but so much less quartz is present in each sherd that it is safe to distinguish the two types on the basis of quantity of tempering material.

The surface hardness of Piedras Negras wares varies only from 2 to 3; the porosity ranges from 9.8% to 26.3%, without apparent relation to other criteria. As far as one can judge petrologically the firing temperature was under 700 degrees C.

The terms used are defined as follows:

Ware ("the sum of articles of a particular kind or class", Webster) is determined by slip color, although some groups or subgroups that are also homogeneous in clay composition and degree of firing are more fully defined.

Slip is used for the finer surface coat of clay wash, usually colored, applied to a vessel; paint refers to color decoration supplementary to this.

Negative painting, unless otherwise specified, includes both true and false techniques. In the former, following Lothrop's definition (1926a:144-145), the design itself is painted in a protective substance, presumably hot wax, over which a coat of a darker pigment is applied; a subsequent melting of the protective substance reveals the lighter design. In the false technique, the darker background is painted around the light design.

Capitalized names of colors refer to those used in Robert Ridgway's (1912) *Color Standards and Color Nomenclature*. Shapes have been classified as variant forms of bowls, dishes, plates, and jars.

Bowl. A vessel, the diameter of which is equal to or greater than its height, having the main zone of decoration on the outside.

Dish. A vessel, the diameter of which is greater than its height, having the main zone of decoration on the inside. While the distinction between bowl and dish may seem unduly arbitrary, and may lead to calling by one name vessels which seem to deserve the other, it does serve to give a definite meaning to each of these terms, often used loosely and even synonymously.

Plate. Like a dish, but very shallow.

Jar. A vessel, the height of which is greater than the diameter, having the main zone of decoration on the outside.

Bevel is the angle which one surface makes with another when they are not at right angles, Webster (Fig. 4.8.33).

Flange ("external or internal rib or rim", Webster) is used for horizontal external projecting rims or ribs, other than the vessel rim, running continuously around

a vessel; flanges are distinguished as labial, (Fig. 4.8.32); medial, (Fig. 4.8.31, 35-37); basal, (Fig. 4.9.59).

Ring base. A ring of clay attached to the base of a vessel (Fig. 4.7.11; Fig. 4.8.34).

Ring foot. A high, flaring circular base attached to a vessel (Fig. 4.6.17)

Dish indentation. A flat circular depressed area in the outer surface of a vessel base (Fig. 4.8.42).

Numbers used after the names of shapes refer to the series drawn in three plates following the first part of this paper, Figures 4.7, 4.8, and 4.9.

The scale used in the illustrations shows intervals of 1 cm.

The following abbreviations are used in Part I: MAI: Museum of the American Indian, Heye Foundation, Now York, NY; PM: Peabody Museum of American Archaeology and Ethnology, Cambridge, MA; UM: University Museum Philadelphia, PA.

Polychrome Wares

Polychrome A-1

Colors: Background, Morocco Red [7.5R3.4/6.0]; design, Xanthine Orange [5YR5.2/12.0], White [N9.5].
Paste: tempered with calcite.[2] Buff-Pink [5YR7.0/5.0] to Vinaceous Tawny [2.5YR5.6/6.0].
Shape: owls: 53, 54; Dishes: 9; Jars: 3; Plate: 41.
Decoration: Negative painting only. Slight predominance of interior decoration.
Design: Geometric circles and variations of the circle (Fig. 4.1.1, 2); stripes; broad S-shaped lines (Fig. 4.1.6).

The main characteristic of this group is the use of negative painting as the sole method of decoration. The technique is usually the true one; where, however, white and yellow are both used in the design elements, there is a possibility of the final red layer having been applied by the false method. This group definitely establishes true

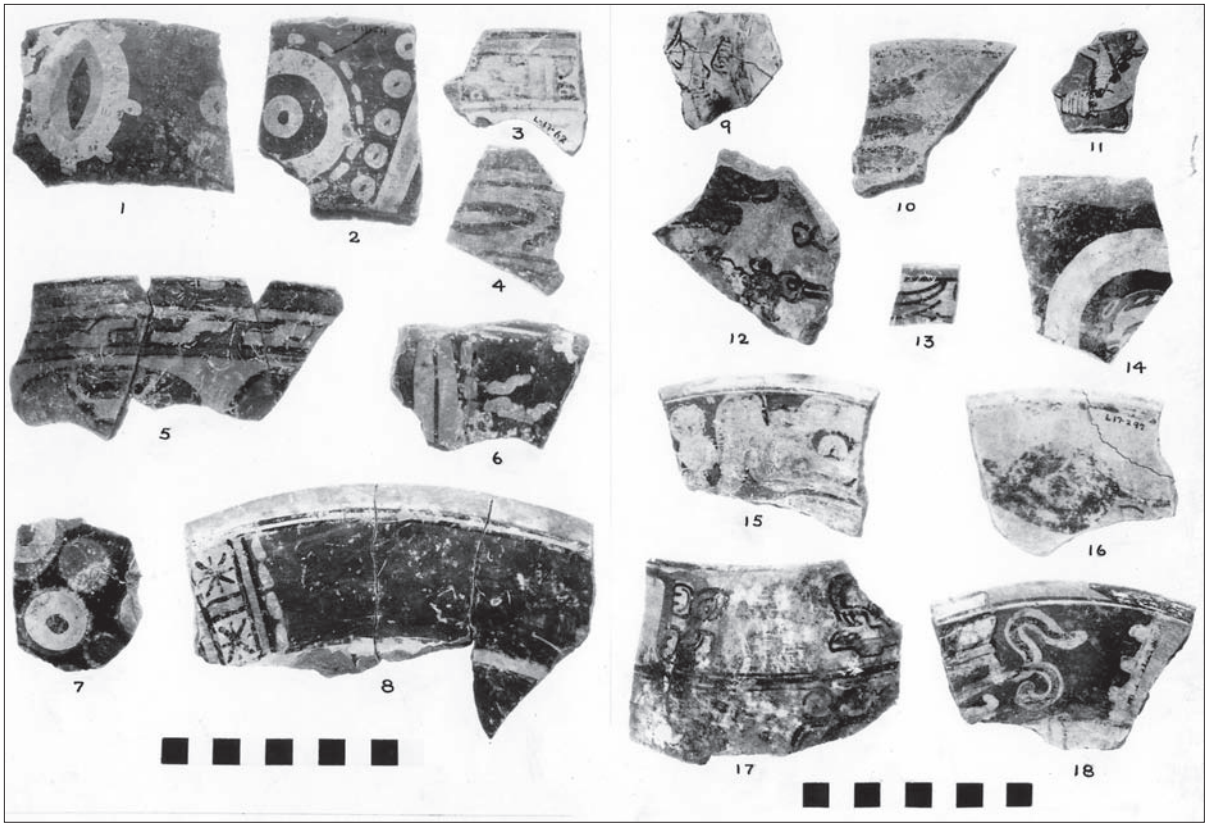


Figure 4.1 Polychrome sherds showing geometric and naturalistic designs. 1. Polychrome A-1, L-28-35; 2. Polychrome A-1, L-17-221; 3. Inner surface of a Polychrome A-1, sherd, showing glyph band, L-17-62; 4. Polychrome D, L-28-9; 5. Polychrome C, L-16-116; 6. Polychrome A-1, L-16-893; 7. Polychrome A-2, L-16-954; 8. Polychrome B, L-28-10; 9. Polychrome C, human hand, L-28-11; 10. Polychrome D, parrot wing, L-28-51a; 11. Polychrome C, human, L-17-76; 12. Polychrome C, snake (?), L-16-324; 13. Polychrome C, parrot wing, L-16-815; 14. Polychrome B, human head, L-28-106; 15. Polychrome B, snake (?), L-16-294; 16. Polychrome D-1, L-17-297; 17. Polychrome D, snake, L-16-290; 18. Polychrome B, L-16-275

negative painting as a technique is use during the Maya Old Empire.

It is a technique that depends on silhouette for its effect, and is therefore limited to fairly simple, stylized designs. While the S-lines are so used to suggest stylized animal or insect forms, the other designs are purely geometric, simple silhouettes well adapted to the technique, and almost entirely confined to this group. This ware has to our knowledge been found so far only at Piedras Negras.

Polychrome A-2

Colors: Background, dark brown,[3] or black; design, White [N9.5] or Mars Orange [10R4.5/10.0].
Paste: Tempered with calcite. Vinaceous Tawny [2.5YR5.6/6.0].
Shape: Bowls: 53? (Body pieces only).
Decoration: Negative painting. Exterior decoration.
Design: Disks (Fig. 4.1.7).

Although only three sherds decorated in this manner have been found at Piedras Negras, they are of real importance, since similar sherds have been found at other Maya cities. A sherd from Hochob in Yucatan (AMNH), and a tripod bowl from Copán, with polychrome painting inside (PM), have on the outside the same negative-painted disk decoration. While Copán is, like Piedras Negras, an Old Empire city, Hochob is considered, because of its architecture, to belong to the Transitional Period.

Polychrome B

Colors: Background, Morocco Red [7.5R3.4/6.0]; design, Xanthine Orange [5YR5.2/12.0], White [N9.5], Black [N2.2].
Paste: Tempered with calcite-and-quartz. Vinaceous Tawny [2.5YR5.6/6.0], sometimes banded with black.
Shape: Bowls: 53, 54; Dishes: 39; Jars: cylinder, 16; narrow-necked, 5; Plates: 41; Foot: round rattle, 72.
Decoration: A design, applied by a negative painting technique, serves as background for the main design, executed in black outline. Slight predominance of exterior decoration.
Design: Geometric (Fig. 4.1.3), including glyph forms (Fig. 4.1.11); naturalistic, human heads (Fig. 4.1.14); snake heads (Fig. 4.1.15, 18).

The geometric designs are more elaborate than those of Group A. The two vigorously drawn human heads recall codex face numerals. This type of polychrome seems to be an elaboration of the pure negative painting of Group A by the addition of line drawing to a silhouette technique.

Polychrome C

Colors: Morocco Red [7.5R3.4/6.0] Mars Orange [10R4.5/10.0], Xanthine Orange [5YR5.2/12.0], White [N9.5], Black [N2.2]. Yellow, orange, black and white on a red background; or red, black, and white on an orange-yellow background.
Paste: Tempered with calcite. Onion-Skin Pink [5YR7.0/6.0], Terra Cotta [10R5.4/6.5].
Shape: Bowls: 53, 54, 42; Dishes: 33, 39, 60; Plates: 41; Jars: cylinder, 16; narrow-necked, 2, 3; Lids: 53; *Feet*: 67, 71.
Decoration: The basic technique is black-outlined mass painting, with occasional use of negative painting for details. Exterior decoration predominates.
Design: Geometric, including glyphs (Fig. 4.1.5, 8), Year-Bearer symbol (Fig. 4.2.1, 2), stepped fret (Fig. 4.2.12), simple stepped design (Fig. 4.2.11), running scroll (Fig. 4.3.3), checkerboard in brown and white (Fig. 4.2.3), designs suggesting textile technique (Fig. 4.2.9-10), and amorphous ones difficult to classify (Fig. 4.1.5). Naturalistic, including two definite (Fig. 4.1.9, 11) and one possible human figures, a parrot wing (Fig. 4.1.13), and elaborately rendered snakes (Fig. 4.1.12; Fig. 4.6.4).

There are, in this group, marked variations in treatment but only one style with enough examples to warrant considering it as a sub-group. It will be described as C-1. The examples of figure painting belong to what may be called the Chamá style. This is a style of painting scenes with human figures in them that is associated with the Chamá section of the Guatemalan, highlands, and is distinct in character from the styles of similar polychrome vessels from Honduras, Salvador, and the Petén. A red background with this type of polychrome is rare. It occurs on the Piedras Negras sherd shown in Figure 4.1.11; it occurs on a cylinder jar in the Chamá-style from Uaxactún (A. Smith 1932, Pl. 5), and on a cylinder jar from the highlands on which, as on one white Piedras Negras sherd, turquoise blue is used. The early date painted on the Uaxactún jar is no criterion of the age of the vessel, since the stratification at Holmul indicated that such cylinder jars did not appear in the Petén before the Holmul V period. The Piedras Negras sherds have the design on the outside, and belonged to cylinder jars or straight-sided bowls. The scarcity of this type of design at this city, and its contrast to the abstract character of most of the polychrome decoration there suggests that the sherds mentioned are trade pieces from the highlands.

Polychrome C-1

Color: Background, Morocco Red [7.5R3.4/6.0]; design, Xanthine Orange [5YR5.2/12.0], White [N 9.5], Black [N2.2].

Figure 4.2 Polychrome sherds showing geometric designs; 1. Polychrome C,Year-Bearer symbol, L-17-123; 2. Polychrome C,Year-Bearer symbol, L-17-73; 3. Polychrome C, checkerboard, L-28-26; 4. Red-on-Buff, L-16-323; 5. Red-on-Orange, dot-and-diamond, L-28-72; 6. Polychrome C, L-28-10; 7. Red-on-Orange, braid, L-28-85; 8. Polychrome E, braid, L-28-10; 9. Polychrome C, L-28-76; 10. Polychrome C, pyramid, L-28-106; 11. Polychrome C, stepped pyramid, L-16-28; 12. Polychrome C, stepped fret, L-16-404; 13. Polychrome D, stepped fret, L-17-126

Paste: Tempered with calcite-and-quartz. Onion-Skin Pink [5YR7.0/6.0].
Shape: Plate: 41; Jar: narrow-necked, 4; Lids: 53 (Fig. 4.3.9).
Decoration: On the red exterior is a yellow or white band parallel to the rim, on which broken-down glyph blocks are painted in black, each block being subsequently painted red. The inside has an indecipherable design painted in black on yellow with red overpainting of masses.

Sherds of this kind occur most frequently in the southeast section of the city.

Polychrome D

Color: Background, Mars Orange [10R4.5/10.0]; design, Morocco Red [7.5R 3.4/6.0], Black.
Paste: Tempered with calcite. Onion-Skin Pink [5YR7.0/6.0].
Shape: Bowls: 53; Dishes: 33-57, 39, 62; Jar: 11.
Decoration: Line painting in red and black in a bold and vigorous style which lacks the finish and delicacy of workmanship found in Group C. Negative painting is used for detail on two sherds only. The orange slip is sometimes laid directly on the vessel, sometimes over a primary white slip. In the first case, the paste seems to be more finely mixed, and the tempering material is less evident. This distinction cannot be correlated with differences in styles or shapes, and has at present no apparent significance.
Design: Geometric designs are relatively simple. There is a stepped fret (Fig. 4.2.13) similar to one in the Polychrome C group (Fig. 4.2.12), an imitation of the negative-painted oval design characteristic of Polychrome A (Fig. 4.1.4, 1), a repeated curved line (Fig. 4.3.4) and broken-down glyph forms (Figs. 4.3.6, 4.3.7, 4.3.10). There is the use of dark orange vertical bars in pairs on an orange background around the outside of a flat-based tripod dish with slightly flaring walls decorated inside in polychrome (63); Naturalistic: parrot wings (Fig. 4.1.10), snake head (Fig. 4.1.17).

The parrot-wing fragment recalls, in simplicity of treatment and shape of rim, the parrot bowls with basal flange from Holmul I and from the highlands, where, at Chihuatal (UM), they occur in the early level. The bar decoration in dark-on-light orange is found on polychrome tripod dishes from British Honduras (MA) similar in shape to the Piedras Negras dish (63), and on polychrome pottery drums from Yalloch (PM). It occurs on the outside of a dish (54, rim 38) with mottled interior from under the floor of the throne room of J-6. The walls of this room are dated approximately by the throne, 9.17.15.0.0[4] but the floor may be one or even two building-periods earlier (see Piedras Negras Preliminary Report, Number 3); the decoration was therefore in use well before that date. It occurs on dark-on-light Orange Ware, found in the earlier part of O-13, a building on which the latest date yet found is that of Lintel 3.9.16.10.0.0.

Polychrome D-1

Color: Background, Mars Orange [10R 4.5/10.0]; design, Bay [10R 2.6/6.0].
Paste: Tempered with calcite. Ochraceous Salmon [5YR7.4/7.0].
Shape: Dishes: 35, 39.
Decoration: Outline painting, on inner wall of dish.
Design: Broken-down glyphs. Dot surrounded by an elongated circle with projections at the ends (Fig. 4.1.16), which may have naturalistic derivation.

This small group is found in the Southeast section of the city. The brown may be overfired red.

Polychrome E

Color: Background, Mars Orange [10R4.5/10.0]; design, Maroon Red [7.5R 2.4/4.0], Black.
Paste: Tempered with calcite. Light Ochraceous Salmon [8YR8/0/5.5].
Shape: Bowls: 53; Dishes: 35, 39; Plates: 34.
Decoration: Usually outline painting in maroon, with the design elements sometimes filled with an orange wash slightly deeper than that of the background. One bowl has an all-over mat design done in false negative painting (Fig. 4.6.1). interior decoration predominates.
Design: Geometric: scroll (Fig. 4.3.1), broken-down glyphs (Fig. 4.3.12-14), mat design (Fig. 4.2.8).

Most of the sherds of this small group come from the Southeast section of the city. Maroon red decoration on orange, with the occasional addition of black, is characteristic of early Copán pottery. Two of the Piedras Negras sherds (Figs. 4.3.1, 4.3.14) have design elements that are identical with those on vessels from Copán I (Vaillant 1927), dated by a deposit under Stela I at that site as being earlier than 9.12.5.0.0. One of these sherds comes from the lowest level of a pit in front of Pyramid K-5.

The most interesting pieces of this ware are the only two that have come from the South Group. These are two bowls, with disk indentations in the exterior base (Fig. 4.6.1, 2). The shape is a frequent one at Piedras Negras; the bowls, thin-walled, are of fine buff paste, and light in weight. They were found as lid and vessel containing a cache of flint and obsidian, in the South Ball Court. One has an all-over mat design (Fig. 4.2.8), where the braid element is shown in orange with two fine maroon lines in it, on a maroon background. This design is a characteristic

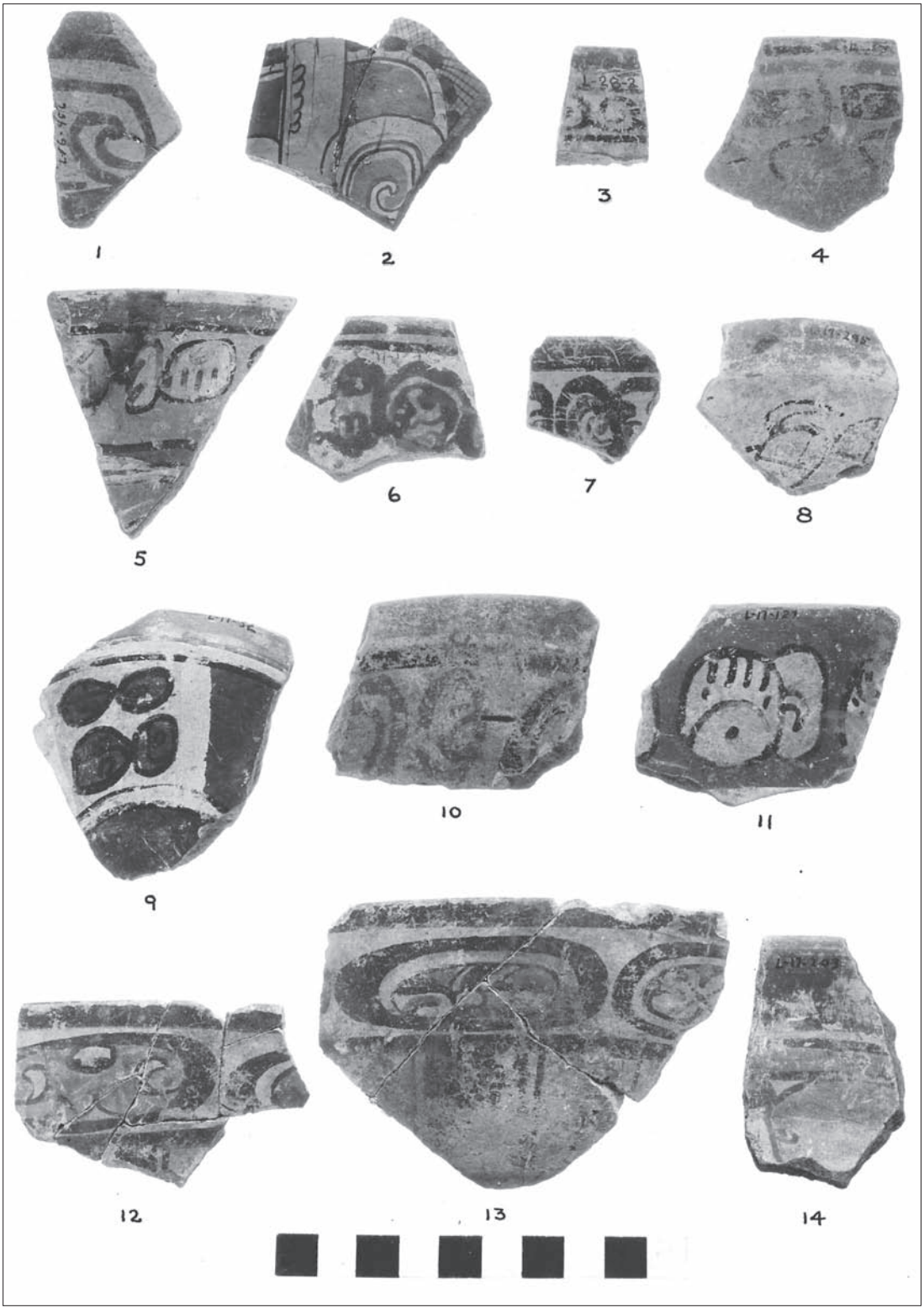


Figure 4.3 Polychrome sherds showing geometric designs: variations of scroll and glyph forms; 1. Polychrome E, L-16-456; 2. Polychrome C, L-16-401; 3. Polychrome C, L-28-3; 4. Polychrome D, L-28-78; 5. Polychrome C, L-28-10; 6. Polychrome D, L-17-149; 7. Polychrome D, L-16-441; 8. Polychrome C, L-17-295; 9. Polychrome C-1, L-17-32; 10. Polychrome D, L-28-94; 11. Polychrome B, L-17-21; 12. Polychrome E, L-27-85; 13. Polychrome E, L-27-85; 14. Polychrome E, L-17-203

element of the polychrome pottery of Salvador and the Ulúa Valley, and occurs at Copán. A braid with two inner lines does not seem to occur north of Salvador, and the Piedras Negras design is done with more delicacy than in any of the specimens to the south. The companion bowl has a glyph-derived decoration (Fig. 4.3.12, 13) that suggests a development from the glyph bands of Copán I. Neither shape, ware, nor style of decoration of these two bowls, however, fits into the pottery scheme of Copán, Salvador, or the Ulúa Valley, though design elements and colors seem to come from Copán. A possible explanation is a Piedras Negras copy of Copán work. The two sherds similar to Copán I, on the other hand, are probably trade pieces; the remaining sherds of this group are either trade pieces or Piedras Negras copies. Though the scarcity of the ware, apparently introduced early, implies the former, the two South Group bowls point to at least one local potter influenced by Copán. A possible extension of this-influence may be shown in a bowl with an all-over braid decoration in Morocco Red [7.5R 3.4/6.0] on orange (Fig. 4.2.7).

Miscellaneous Polychrome

A. Of several sherds with white background, one had a design in red, black, and blue, another had a stylized red line design, with edge and vertical panel lines of black (Fig. 4.6.5) and the third, from J-6, had lost its stylized flower design and been redecorated by a brown line. One sherd had a yellow design on a brown background, with a band of blue at the rim. An effigy owl-head lid, from a South Group test pit, was originally painted with a polychrome design (Fig. 4.4.9).

B. Post-fired Painting. There is one example of post-fired polychrome painting in black, red, and orange, on a coarse, unslipped bottle-necked jar with a band of circular reed or bone marks on the neck. This is the only occurrence of either technique on Piedras Negras pottery (Fig. 4.5.1).

C. Stucco. There are two polychrome sherds of uncertain provenience that have been covered with stucco painted pink and green. (see Linné 1934, Appendix 2).

Dark on Light Orange

Color: Mars Orange [10R4.5/10.0].
Paste: Tempered with calcite or calcite-and-quartz. Light Ochraceous Salmon [8YR8/0/5.5].
Shape: Dishes: tripod 61, 63 (Fig. 4.6.10); Jars: cylinder, 16 (Fig. 4.6.3); narrow-necked, 2.9 (Fig. 4.6.9); Feet: 67a; Censer handle or spout.
Decoration: Painted in wide lines in a heavier, darker coat of the orange background slip.
Design: Crude geometric on jars; pairs of vertical bars on dishes.

With the exception of dish and cylinder jar sherds from the earlier part of O-13, which can be dated as before 9.16.10.0.0(?) recognizable pieces of this ware have appeared only in the South section, in the debris associated with Pyramid R-3. There is reason for thinking that R-3 was not abandoned while the city was occupied, (Piedras Negras Preliminary Report on R-3, Appendix 1), which would suggest that vessels found in the debris fallen from the temple were made late in the occupation of the city. The shape of the tripod dish illustrated recalls the tripod dish form characteristic of Holmul V (Merwin and Vaillant 1932, Pl. 29a), the latest pottery period at that Old Empire site. From the stylistic point of view, the type of decoration and the careless workmanship in both modeling and painting suggest a degeneration of better executed ware, possibly standard polychrome.

Dark on Light Red

Color: Morocco Red [7.5R3.4/6.0].
Paste: Tempered with calcite-and-quartz. Salmon [5YR7.5/6.0].
Shape: Bowls: 53 (Pl. VI, 11); Jars: 2.
Decoration: Painted in wide lines in a darker, heavier coat of the red background slip.
Design: Crude geometric.

There are only a few examples of this ware, from the South Group. Stylistically, it is similar to Dark on Light Orange, and is probably contemporaneous with it.

Monochrome Wares

Orange Ware, Miscellaneous

Color: Mars Orange [10R 4.5/10.0] to Xanthine Orange [5YR5.2/12.0].
Paste: Tempered with calcite. Color ranges from Salmon [5YR7.5/6.0], with low-polished slip closely related in color and texture, to Apricot Buff [5YR7.0/7.5] with a basic white slip under a secondary well-polished orange one (see Polychrome D). There is no correlation of this with shape or supplementary decoration.
Shape: Bowls: 51, 55; Dishes: 36, 37, 39, tripod, 35, 59; Plates: 34, 41; Jars: 14; narrow-necked, 3-5; with right-angle shoulder, 7; tripod, 9; Lids: 65; Flanges: medial 35-37; Feet: round rattle, on bowls, 82; teat, on plates, 67, 16.
Decoration: Incising (Fig. 4.4.11-13; Fig. 4.6.6); vertical fluting, concave, 52, applied band at rim, 51; smoothing the outer unslipped rim of plates in a band 2 cm wide around the edge, and roughening the surface below.

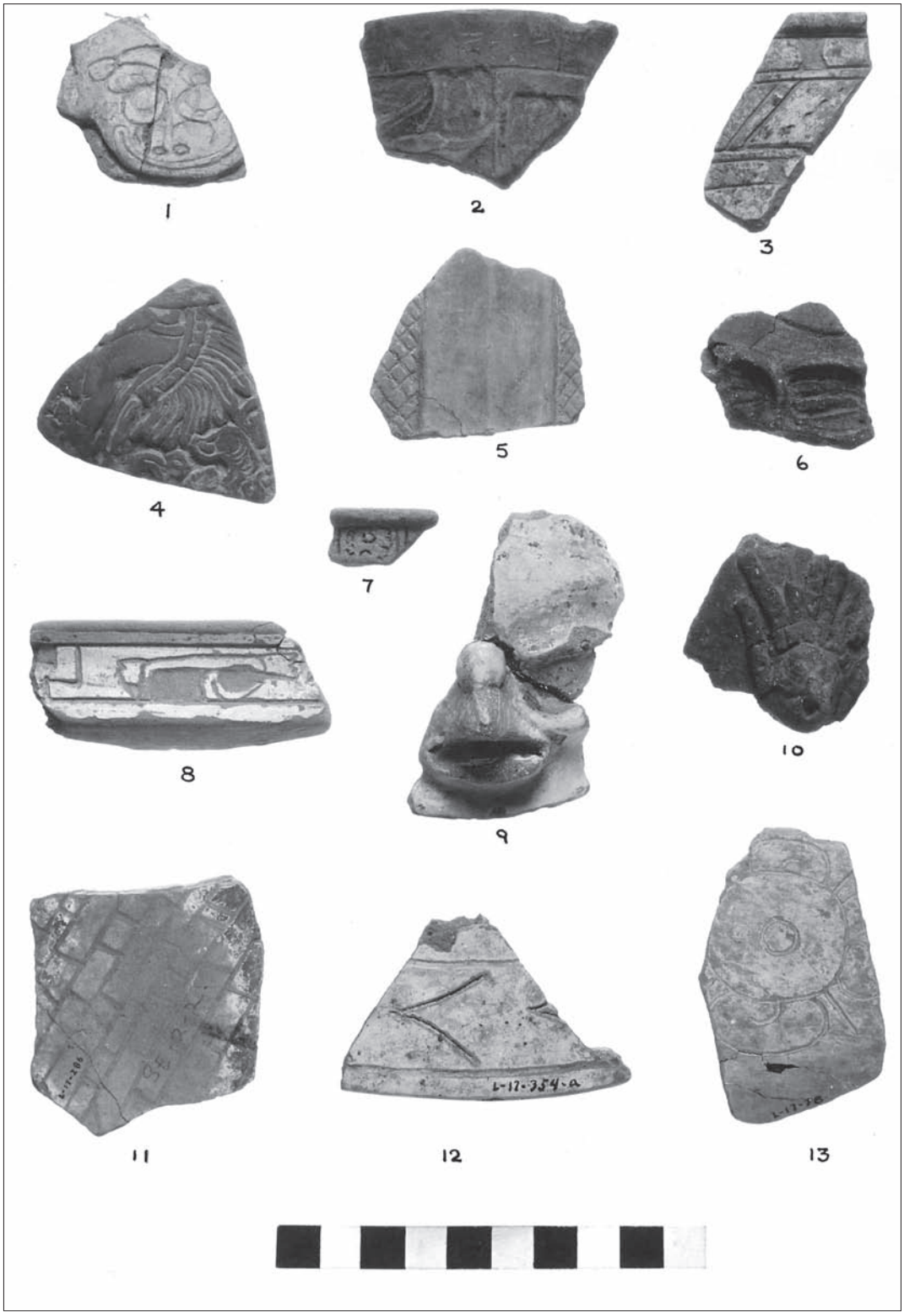


Figure 4.4 Sherds showing incised, carved, and modeled decoration; 1. incised White Ware, L-17-79; 2. champ-levé Mottled Ware, L-16-440; 3. champ-levé Orange 3 Ware, L-28-70; 4. carved Orange 3 Ware, L-28-73; 5. incised Buff, L-17-77; 6. modeled and incised, Mottled Ware, L-26-50; 7. punctate Unslipped Ware, L-28-70; 8. champ-levé Orange 3 Ware, L-28-70; 9. modelled Polychrome Ware, L-28-76; 10. applied head Unslipped Ware, L-28-163; 11. incised Orange Ware, L-17-286; 12. incised Orange Ware, L-17-354a; 13. incised Orange Ware, L-17-78

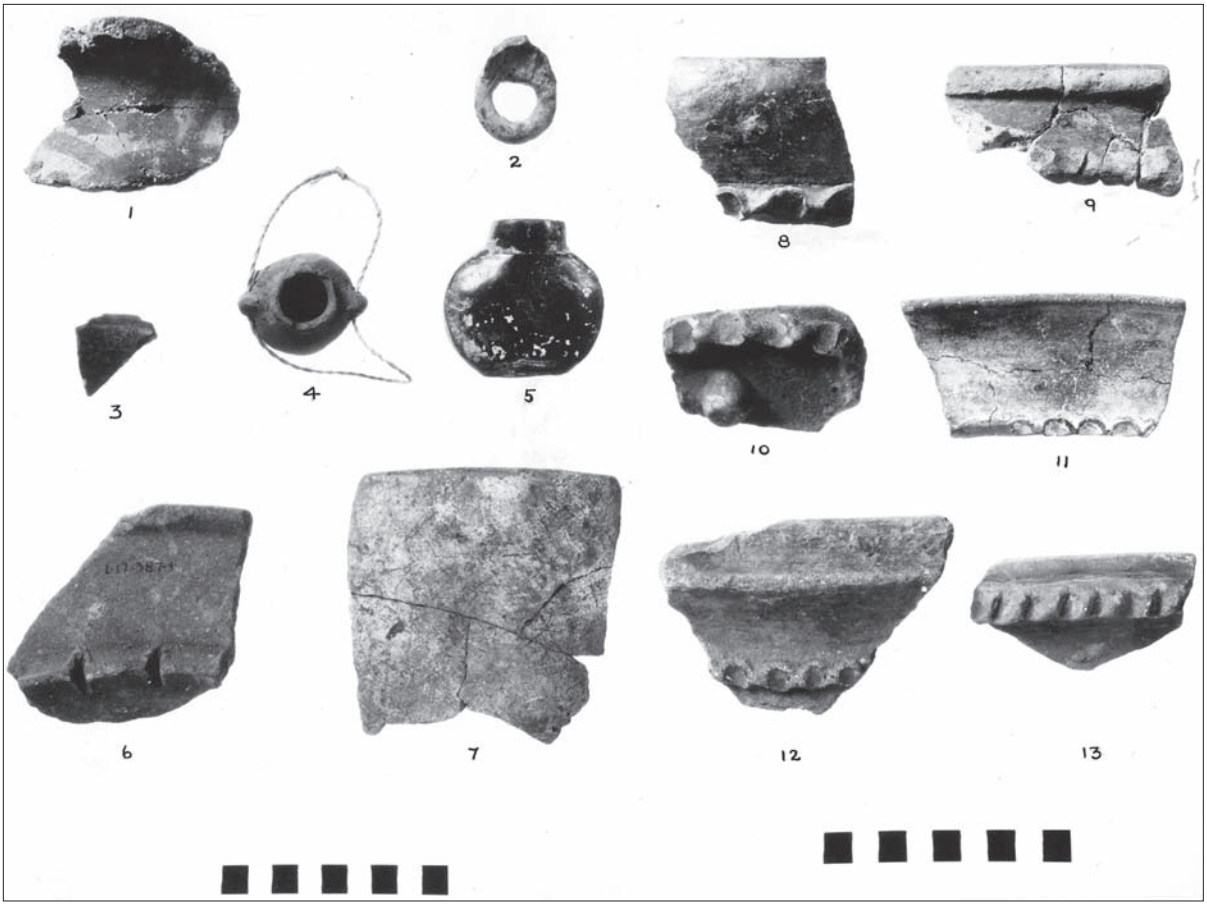


Figure 4.5 Sherds and miniature vessels; sherds illustrating ways in which applied indented fillet is used for decoration; 1. ost-fired Polychrome sherd, L-28-107; 2. possible handle, UnslippedWare, L-28-161; 3. BlackWare rim sherd cut in stepped design, L-28-78; 4. miniature vessel, UnslippedWare, L-28-159; 5."scent bottle,"MottledWare, L-17-116; 6. sherd with nicked flange, Polychrome(?) Ware, L-17-387, f; 7. sherd showing textile imprint, Orange 2Ware, L-27-82; sherds illustrating ways in which indented fillet is used for decoration: 8, 9, and 12 as medial flanges; 10, 11 as basal flanges; 13 as labial flange; 8. L-28-106 (31); 9. L-28-81 (22); 10. L-17-83; 11. L-28-106; 12. L-28-58; 13. L-17-375

Fluted and banded bowls occur also in yellow and mottled wares. Orange ware is one of those most frequent at Piedras Negras and is most plentiful in the West Group. An incised bowl (Fig. 4.6.6) was found on the floor of J-12. It is one of the few pieces of pottery recovered intact, and implies that incised Orange Ware was in use at the end of the city's occupation, if the buildings on the Acropolis were not abandoned before that time. The variation in slip application referred to above cannot at present be considered as significant, but there are four small sub-groups of Orange Ware that stand out from the mass, and may have historical significance. These will be referred to as Orange 1, 2, 2a, and 3.

Orange 1

Color: Mars Orange [10R 4.5/10.0].
Paste: Thick, coarse, tempered with calcite. Light Ochraceous Buff [8.5YR7.2/8.0].
Shape: Bowls: 21, 28-31.
Jars: narrow-necked, 3.
Decoration: Occasional lines and triangles in black.

This corresponds to a type of ware often called Lacquer from the combination of a coarse, thick paste with a fine, polished slip. Examples are infrequent, and in poor condition.

Orange 2

Color: Mars Orange [10R 4.5/10.0]; slip apparently stick-polished; occasionally shows imprint, left by lime deposit, of a loosely-ware plain-cloth textile (Fig. 4.5.7).
Paste: Tempered with calcite; firm, well-fired. Onion-Skin Pink [5YR7.0/6.0].
Shape: Bowls with lids: 43-45 (Fig. 4.6.7, 8); Plates, 41.

This might be called Votive Orange Ware, since almost all the vessels made of it are associated with caches in Temple O-13, K-5 and in the South Ball Court playing field. It does not occur in association with the Ball Court structures R-11. Three of the four sets of vessels from K-5 were found one under each of the three column altars, These altars were found in each of three superimposed buildings of which the latest is given a tentative date of 9.12.5.0.0. Though we do

not know the length of time covered by the three buildings, we can consider the ware to have been in use at least two K-5 building periods earlier than 9.12.5.0.0. A plate was found with Burial 5, which probably belongs to the second half of Cycle Nine. Bowl 45 has a similar bowl inverted as its lid. The textile imprints imply that these vessels when deposited, had been wrapped in a piece of cloth, probably to hold vessels and lids together, and keep intact the offering of jade, shell, sting-ray spines, eccentric flints and obsidians. Similar bowls, tied with a strip of cloth, are shown on a polychrome cylinder jar from Uaxactún (A. Smith 1932, Pl. 5). Red-orange bowls of shape 45 occur in pairs also at Uaxactún (O. Ricketson 1928:308-309) and at Holmul in the Petén (Merwin and Vaillant 1932, Pl. 19, f; 27,h), at Mountain Cow in British Honduras (Thompson 1932, Fig. 10.o) and at Quen Santo in the Guatemalan highlands (Seler 1901:99, 107). Bowl 43, and its lid, appear in polychrome among "Mayoid" material in Ecuador (Uhle 1922-23, Fig. 30.38).

Orange 2a

Color: Ferruginous to Kaiser Brown [2.5YR3.8/6.0]. Slip seems to have very low polish.
Paste: Tempered with calcite. Light Ochraceous Salmon [8YR8/0/5.5].
Shape: Lidded Bowl: 43; Plates: 41; Dishes: 35.

This is characterized as a separate sub-group by the color and quality of its slip. The examples are few in number, and may be due to the individual treatment of Orange 2 by one craftsman. An argument against this

Figure 4.6 Vessels; 1. Polychrome E bowl, L-27-85; 2. Polychrome E bowl, L-27-85; 3. Dark-on-Light Orange cylinder jar, L-16-261; 4. Polychrome cylinder jar, L-16-261; 5.White Polychrome bowl, L-16-191; 6. Orange Bowl with incised parallel lines, L-28-1; 7. Orange 2 bowl and lid, L-27-121; 8. Orange 2 bowl with second bowl used as lid, L-16-334; 9. Dark-on-Light Orange jar, L-27-121; 10. Dark-on-Light Orange tripod dish, L-28-67; 11. Dark-on-Light Red bowl, L-28-64; 12. Black jar, L-16-224; 13. Black 2 tripod dish, L-28-68; 14. Brown cylinder jar, L-16-124; 15. Brown 2 tripod bowl, L-28-170; 16. Brown 2 tripod bowl, L-28-57; 17. Lacandon censer, L-16-818; 18. spiked censer and lid, L-16-857; 19. nail-marked unslipped jar, L-28-3; 20. unslipped cache vessel, L-16-155; 21. unslipped cache vessel, L-16-104; 22. unslipped cache vessel with lid, L-16-93, 95.

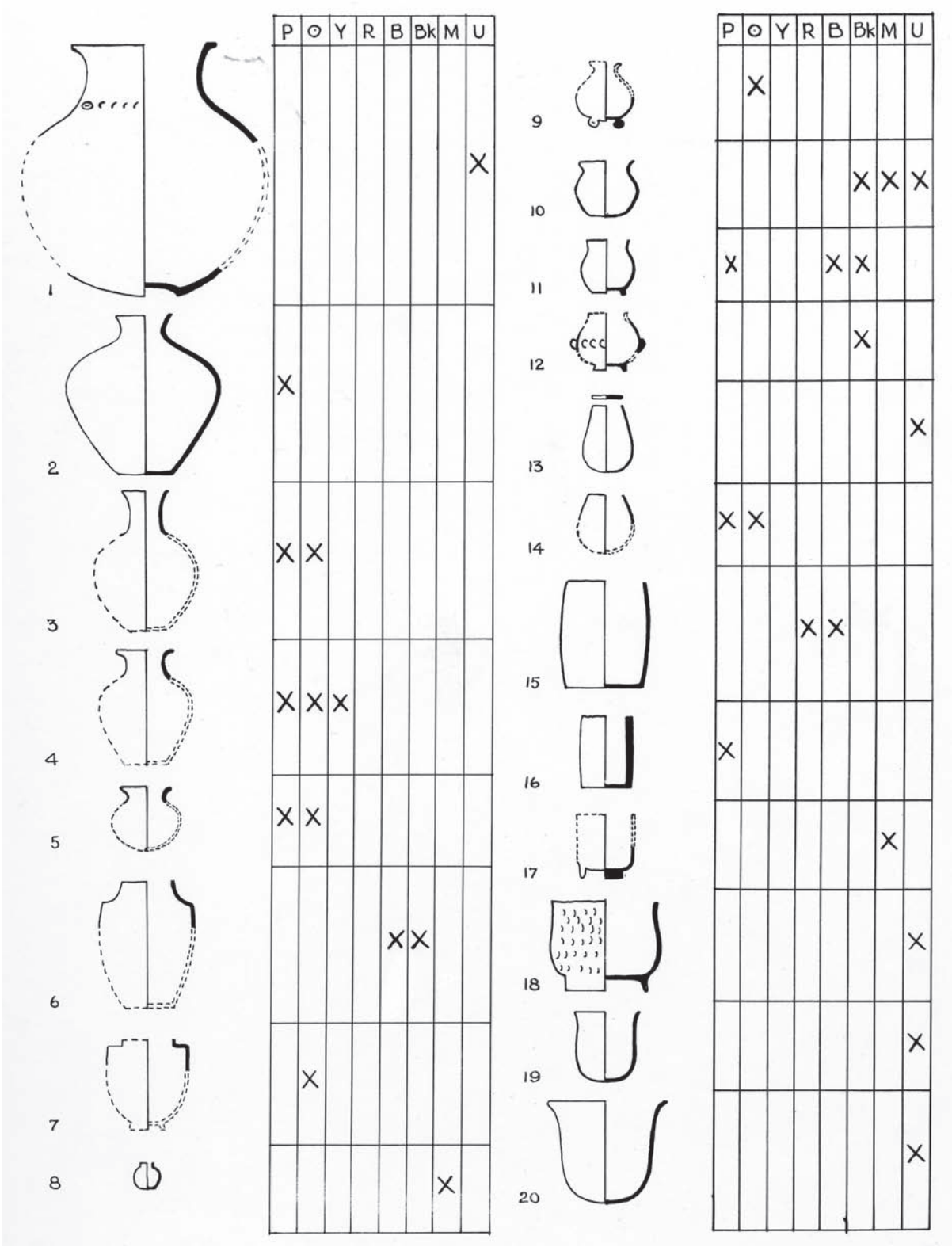


Figure 4.7 Vessel shapes, actual and reconstructed, in their relation to wares; 1-5. narrow-necked jars; 6-7. narrow-necked jars with bevelled shoulders; 8. miniature narrow-necked jar,"perfume bottle"; 9. narrow-necked jar; 10-12. wide-necked jar; 13-14. pear-shaped jars; 15-17. cylinder jars; 18-20. jars with flaring lips. Symbols: P = polychrome wares; B = brown wares; O = orange wares; Bk = black wares;Y = yellow wares; M = mottled wares; R = red wares; U = unslipped wares.

is the varied shapes and scattered locations of the sherds that we have. A fragment of a plate was found beneath a stone 3 m under the floor of K-5-3d, beneath two vaulted and one non-vaulted structures, and is therefore presumably of quite early date at the city. Another plate was found as part of a cache beneath the floor of one of the front rooms of O-13, a building approximately dated by "Lintel" 3 as 9.16.10.0.0(?). The lidded bowl held a cache beneath Altar 1 to which Dr. Morley assigns tentatively the latest date at the city 10.0.0.0.0(?). While the distribution of these specimens suggests that Orange 2a, like Orange 2, was used over a long period of time, it must be remembered that the later vessels could have been preserved from an earlier period. There are not yet enough vessels of this ware to warrant definite conclusions on this point.

Orange 3

Color: Mars Orange [10R 4.5/10.0].
Paste: Tempered with quartz. Fine. Apricot Buff [5YR7.0/7.5].
Shape: Bowls: 46, 49, 50.
Decoration: Low-relief carving (Fig. 4.4.4); champ-levé (8) through white slip on jar necks and bowls (Fig. 4.4.3, 8); gadrooning, 50; incising on bowl interiors.
Design: Carving: human figures; champ-levé, incising: geometric.

This ware corresponds to that sometimes described as Fine Orange. It occurs only in the debris around R-3, and R-11 in the South Ball Court. One Maroon Red sherd from P-7 has the some distinctive paste. The pottery from R-11 corresponds to that from R-3 which, from its position, has been considered contemporary with the end of the city's occupation. There are various outside associations for Piedras Negras vessels of this ware most of which tend to support the suggestion of a relatively late date for it. A broad, low bowl with disk indentation in the base (51) has the outside surface completely carved with scenes showing human figures below a border of debased glyphs. Another such bowl comes from Yaxchilan (PM) and a third from Kixpek in the highlands (UM). Carving on bowl sides in a similar style comes from Mound 36 at Copán (PM), but the ware is different. A gadrooned, or convexly-fluted, bowl (52) is duplicated in the Ulúa Valley (PM).

The most interesting shape is a bowl with short, bulging sides, tripod feet, and an incised design on the floor (46). Vessels similar to this came from Jonuta (UM) on the Usumacinta between Piedras Negras and the Gulf, and one such comes from Kixpek in the highlands (UM). At Piedras Negras, this type of bowl is found only in the South Group. It occurs only in this Orange Ware, and in a brownish low-fired ware (Brown 2), of which two similar bowls are almost the only examples (Fig. 4.6.15, 16). In Orange Ware, the incised decoration is in groups of parallel lines, as in Mexican-grater bowls. The Jonuta sherds are of fine, well-fired, light orange paste, unslipped, polished, and with two lines incised around the outside of the rim, parallel to the edge, cutting through a simple, geometrical border painted in thin black. One sherd of characteristic Piedras Negras Orange Ware shows an imitation of this Jonuta rim, with a single incised line.

Several rim sherds from Piedras Negras that may have been parts of such bowls have a variation in shape in a recurved side (49), that recalls bawls from the Chiriquí region of Panama; a similar sherd, of similar paste, comes from mounds in the Vera Cruz district (FM). One of those from Piedras Negras has a champ-levé design on the outside of the rim, which is covered with a thick, white slip (Fig. 4.4.8). Such a cutting of a design through a white slip to an orange background characterized a type of ware from the Isla de Sacrificios, near Vera Cruz. Another sherd from Piedras Negras shows this treatment applied to the bottle neck of a jar. Similar sherds come from Yaxchilan, and from Copán (PM).

Yellow Ware

Color: Capucine [6YR7.0/8.5], to Mikado Orange [5YR7.0/12.0].
Paste: Tempered with calcite. Salmon Buff [7.5YR7.8/6.0].
Shape: Bowls: 52-53; Jars: Narrow-necked, 4; Feet: High, roughly cylindrical, 69
Decoration: Fluting; banded rim.

This ware is infrequent at Piedras Negras.

Mottled Ware

Color: Usually mottled, ranging from Mars Orange [10R.5/10.0], through Chestnut [10R3.0/5.0] to Black.
Paste: Tempered with calcite or calcite-and-quartz. Ochraceous Salmon [5YR7.4/7.0], Light Ochraceous Salmon [8YR8.0/5.5].
Shape: Bowls: 471, 52, 56, 59; Dishes: 36; Jars: wide necked, 10; cylindrical with slab feet, 17; small, flat (Fig. 4.5.5), 8; Feet: round, 72-73; slab, with cylinder jars, 77; Flanges: medial, 36; basal, 59
Decoration: Champ-levé (Pl. IV, 2); modeling and incising (Pl. IV, 6); fluting, (52); incising.
Design: Geometric for champ-levé and incising; naturalistic, an owl head, for the modeled and incised sherd.

This ware is frequent at Piedras Negras. It may very well be orange ware so fired by a reducing technique as to produce the dark surface, Mottled from orange to brown or black. This cannot definitely be determined

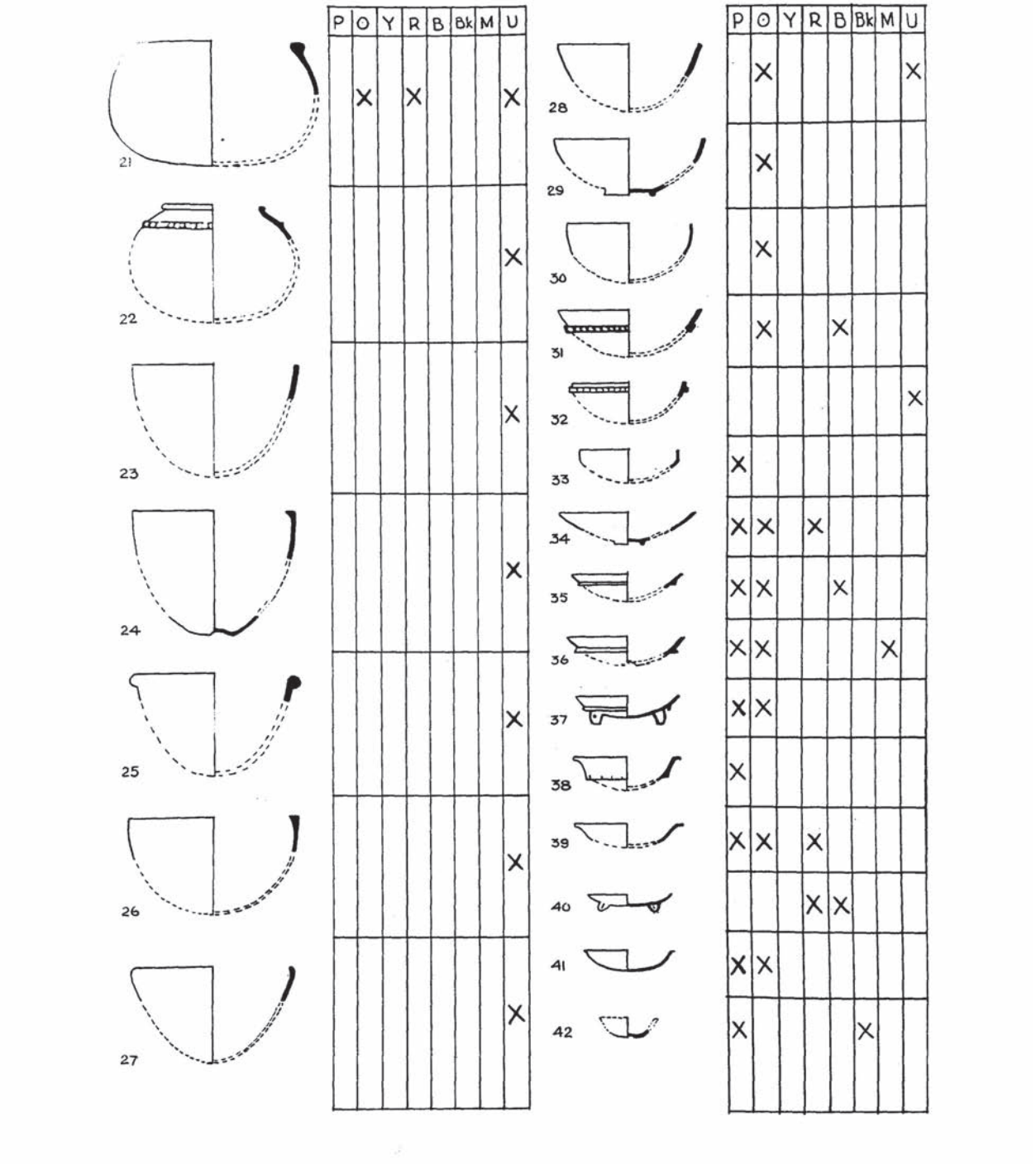


Figure 4.8 Vessel shapes, actual and reconstructed, in their relation to wares; 21-22. bowls with constructed mouths; 23-28. bowls; 29. Bowl with ring base; 30. bowl; 31-32. bowls with encircling indented fillets; 33. bowl with bevelled side; 34. plate with ring base; 35-38. flanged dish; 39. dish; 40. tripod plate; 41. plate; 42. bowl, with disk indentation in base exterior. Symbols: P = polychrome wares; B = brown wares; O = orange wares; Bk = black wares;Y = yellow wares; M = mottled wares; R = red wares; U = unslipped wares.

without chemical tests. The one small perfume bottle with flattened sides comes from the Southeast Group. There are several examples of a low cylindrical jar with slab feet from the trench in the West Group Plaza. This Is a type of vessel that is often thought of as Toltec; the Piedras Negras specimens, however, do not bear any more direct resemblance to Toltec jars than they do to footed cylinder jars from the Ulúa Valley, and their early occurrence at Piedras Negras does not suggest a Mexican derivation.

Red Ware, Miscellaneous

Color: Morocco Red [7.5R3.4/6.0].
Paste: Tempered with calcite-and-quartz. Apricot Buff [5YR7.0/7.5].
Shape: Bowls: 53, 54; Dishes: 39; Jars: 15; Plates: 34, 40; Lid: 53; Feet: with plate, 78.

Red ware is uncommon at this site. A unique sherd, from P-7, painted maroon red, has the hard-fired orange paste and quartz tempering characteristic of Orange 3, and a short ring foot. This is the only example of a ring foot in Piedras Negras pottery aside from censers (Pl. VI, 17-19).

Red 1

Color: Morocco Red [7.5R3.4/6.0].
Paste: as Orange 1, but quartz-tempered.
Shape: Bowls: 21.

Brown-Ware, Miscellaneous

Color: Bay [10R2.6/6.0].
Paste: Tempered with calcite. Ochraceous Salmon [5YR7.4/7.0], Light Ochraceous Salmon [8YR8/0/5.5]. Occasional use of hard-fired, gray or gray-brown pastes, (Drab Gray [10YR6.6/2.0]).
Shape: Dishes: 31, 35; Jars: cylinder, 15; with wide necks, 11; Plates: 40; Feet. With plates, 78.

This ware is infrequent. One large cylinder jar shows a surface of stripes alternately painted brown and gray (Pl. VI, 14).

Brown 1

Color: Bay [10R2.6/6.0].
Paste: as Orange 1.
Shapes: Bowls: 53; Dishes: 35; Jars with beveled shoulder: 6
Decoration: Occasional crude black lines and triangles painted on the rims of dishes.

Brown 2

Colors: Benzo Brown [5YR4.5/2.0].
Paste: Tempered with calcite. Light Ochraceous Buff [8.5YR7.2/8.0].
Shape: Bowl: 48 (Fig. 4.6.15, 16).
Decoration: Interior incising.
Design: Leaf-like pattern, enclosed in a circle, placed askew in the floor of the bowl.

Almost the only examples are two bowls from R-11, in the South Ball Court, presumably late. The surface finish is applied thinly and sketchily enough to be called a wash rather than a slip. A similar bowl, lacking only the incised design, comes from Kixpek in the highlands (UM). The shape of the bowl, resembling that of so-called grater bowls, which have functional Incised patterns on the inside of the bowls, suggests that this is a type developed from the grater bowl in which the functional incising has degenerated into meaningless decoration.

Black Ware, Miscellaneous

Color: Black [N2.2].
Paste: Tempered with calcite.
Shapes: Jars, wide-necked, 10-12 (Fig. 4.6.12); Bowls: 42, 53.
Decoration: Incising, stopped rim (Fig. 4.5.9, 5).
Design: Geometric.

The color of this ware is apparently due to carbonization of the vegetal matter in the slip. Black Ware is rare at Piedras Negras.

Black 1

Color. Black [N2.2]
Paste: Fine, hard, thin. Tempered with quartz. Congo Pink [1YR7.0/7.0], Onion-Skin Pink [5YR7.0/6.0]. Occasional use of Drab Gray [10YR6.6/2.0] paste, hard-fired and thin.
Shape: Bowls: 42, 53; Lids: 53.
Decoration: Punctate lines; incising.
Infrequent. The color is probably due to carbonization of vegetal matter in the slip. A decorated bowl comes from the altar niche of the superstructure of K-5.

Black 2

Color: Black [N2.2].
Paste: Tempered with calcite-and-quartz. Thick, coarse. Vinaceous Tawny [2.5YR5.6/6.0].
Shape: Bowls: 55; Dishes: 66 (Fig. 4.6.13); Jar with beveled shoulder: 6.

The color is due to the smudging technique, carbonizing the vessel itself, which is low-polished, and may or may not have a slip. The vessels are all thick and heavy and occur chiefly in the debris around R-3 and R-11 in the South Group, which would suggest that they are late. One bowl sherd from R-11 has a curved scratched line on it that suggests the top of a human profile. This is more apt to be graffito than intentional contemporary decoration.

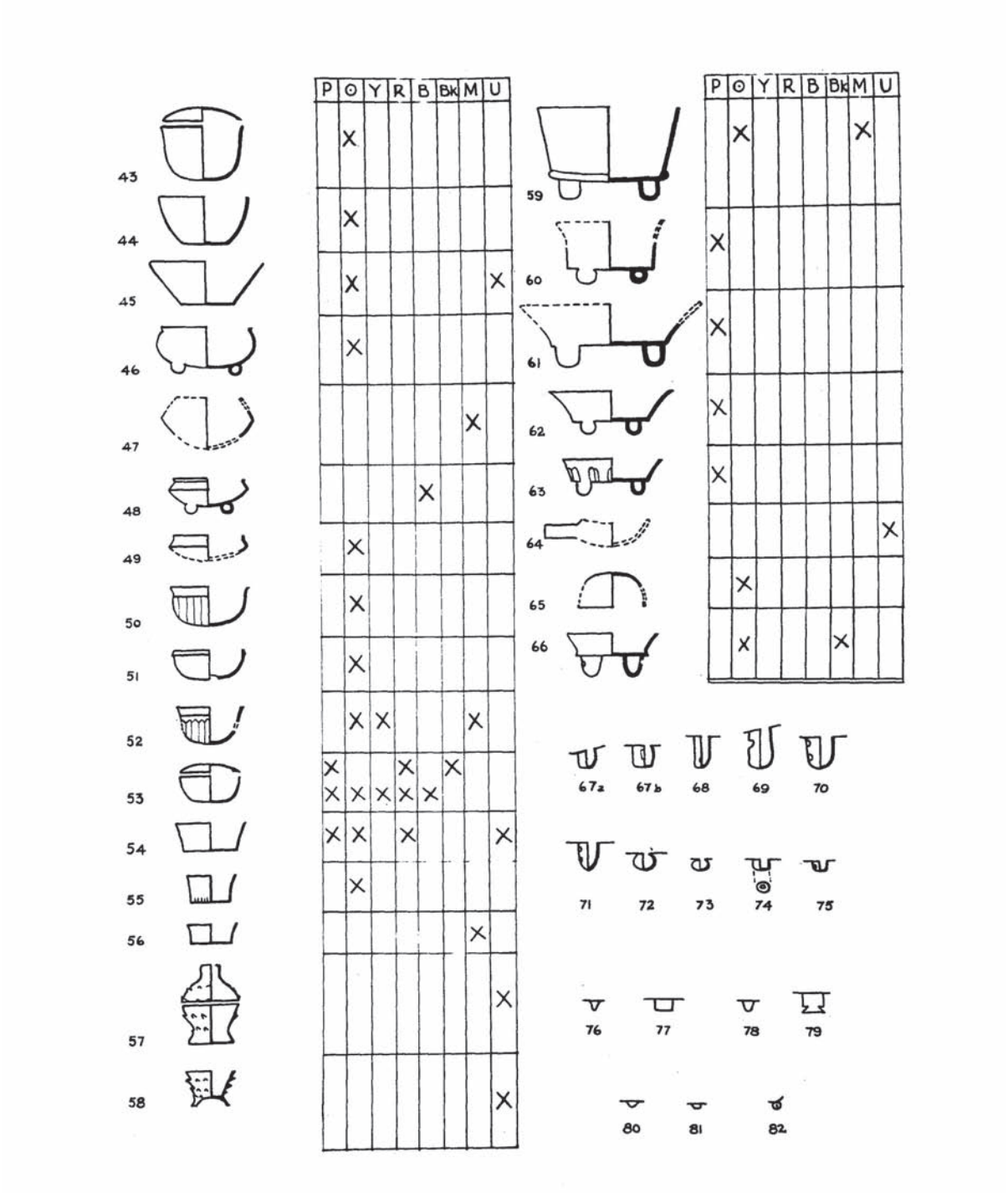


Figure 4.9 Vessel shapes, actual and reconstructed, in their relation to wares; 43-44. bowls; 45. bowl with flaring straight sides; 46. tripod bowl; 47. bowl with bevelled side and constricted mouth; 48. tripod bowl with bevelled side and constricted mouth; 49. bowl with bevelled side, convex above bevel; 50. gadrooned bowl; 51. bowl with banded rim and disk indentation in base exterior; 52. fluted bowl; 53. bowl, lid with inner rim; 54-56. straight-sided bowls; 57. spiked censer with ringed foot; 58. tripod spiked bowl; 59. tripod straight-sided bowl with basal flange; 60. tripod straight-sided bowl; 61-63. tripod dishes with flaring sides; 64. ladle censer; 65. lid; 66. tripod bowl with basal flange and flaring sides; 67-75. rattle feet; 76-82. solid feet. Symbols: P = polychrome wares; B = brown wares; O = orange wares; Bk = black wares; Y = yellow wares; M = mottled wares; R = red wares; U = unslipped wares.

Unslipped Ware

Color: Japan Rose [5YR6.6/4.5] to Light Quaker Drab [5RP 5.4/1.0].
Paste: Tempered with calcite. Rufous [10R510.0] to Light [8.5YR7.2/8.0] and Pale Ochraceous-Buff [1YR8.2/5.0].

Almost all unslipped vessels from Piedras Negras fall under one of three headings determined by function.

I. Household or Storage Vessels

Shape: Bowls: 21-28, 32; Dishes: 45, 54; Jars: 18, 20: with narrow neck, 1. Decoration: Striation; slashed applied knobs at the base of a Jar neck (1); indented fillets (22, 31, 32; Fig. 4.5.8-13); bowls often painted black, brown, red or orange inside; all-over nail-marking (Fig. 4.6.19). Design: Striation sometimes done in diamond-shape pattern.

II. Cache Vessels

Shape: Jars: 10, 13, 19, (Fig. 4.6.20-22). Decoration: Pear-shaped jars often have a blue edge painted around the rim of the jar and the edge of the lid. Such vessels, holding offerings of jade, eccentric flints and obsidians, have been found in quantity in the rear-room of Pyramid O-13; one came from F-7, one from J-2, and the single lidded jar with constricted neck (10) was found in J-6.

III. Censers

a. Ladle
Three rather crude handles of ladle censers (64) were recovered, two coming from Structure R-1, the other from near Stela 8. One of those from R-1 had a very crude snake and a man or monkey applied at the end of the tubular handle, and had originally been painted blue. Gamio (1927:133) illustrates a similar censer from the highlands.

b. Effigy
There are some sherds from Structure O-13 which seem to have been pieces of effigy censers, but none is complete enough to warrant an attempt at identification.

c. Spiked
Oaxaca. The only complete lid has a vent through the center of the flattened knob on top, There are fragments of whitewashed spiked censers (Fig. 4.6.18; 57), recalling those found in the highlands of Guatemala, in Vera Cruz and with cruciform grooves in the rounded top of the handle. All but three of these sherds come from the rear room in O-13; the exceptions are from the West Group, two of them from J-2, one from in front of the base of Stela 9, 9.15.5.0.0. Fragments of two small jars, apparently tripod (58), have a row of spikes down the side, ending in a pointed foot.

d. Lacandon
In Structures J-2 and J-4 of the Acropolis were found several relatively recent Lacandon incense burners in the form of dishes, each with a crude human head, presumably a god, applied at the edge (Fig. 4.6.17). One of these was decorated with a bird head instead of a human one.

IV. Miniature Vessels

Besides the mottled "scent bottle" from the Southeast Group (Fig. 4.5.5), there are two tiny unslipped jars with perforated lugs on the shoulders (Fig. 4.5.4), one from the East Groups, the other from the south. These may have been children's toys.

A large proportion of the pottery recovered is in sherds that were probably once slipped but are now so badly weathered that they cannot be identified. Interesting specimens of these include a straight-sided bowl, carved with human figures, and three small round lids with crooked projecting handles, two, with traces of blue paint, from Burial 5 in the West Group, the other also from the West Group, with a cruciform design incised on top. There are two objects, bearing molded on the front what seems to be the standing figure of a jaguar-headed man with a long necklace. These are so rounded on the ends, and project at such an angle from the fragments of vessel side to which they are attached that they cannot have been intended as legs; they most resemble the handle-vents on the side of Toltec bowls discussed by Linné (1934:114-15). The Piedras Negras specimens, however, have no vents; they may have served as handles, or merely as ornaments on the rim of a vessel. These are referred to and illustrated in the Miscellaneous Pottery Section of this report (Fig. 4.13.24).

Conclusions

The Characteristics of Piedras Negras Pottery

Piedras Negras pottery is a definite ceramic unit, of which the outstanding feature at present is the prevalence of negative painting (Table 4.1). One third of the Polychrome Group is decorated entirely by negative painting, presenting designs of dots, circles and wavy lines in varying combinations, in orange-yellow and white on a red background (Polychrome A). A similar class uses this technique with the addition of black outlining to emphasize or elaborate the design (Polychrome B). A third style uses negative painting as a subordinate element in elaborate four-color designs, usually in yellow, white and black on a red background (Polychrome C). The

Table 4.1 Relationship of Decoration to Wares

Decoration	Ware								Remarks
	P	O	Y	M	R	B	Bk	U	
Modeling	X			X					Effigy, owl head, lid, Fig. 4.4.9; owl head, Fig. 4.4.6
Carving		X							Fig. 4.4.4
Champ-levé		X		X					Fig. 4.4.2, 3, 8
Incising		X		X			X		Fig. 4.4.1, 5, 11-13
Punctate							X	X	Fig. 4.4.7
Reed or bone marking								X	Fig. 4.5.1
Striation								X	Sometimes diamond pattern
Applied heads								X	Fig. 4.4.10, human
Applied indented fillet					X	X		X	Fig. 4.5.8-13
Spikes								X	Fig. 4.6.18

P —Polychrome Ware; O—Orange Ware; Y—Yellow Ware; M—Mottled Ware; R—Red Ware; B—Brown Ware; Bk —Black Ware; U—Unslipped Ware

"true" negative painting technique is usually employed in Polychrome A and B, although even there it is sometimes used together with the false. Vessels decorated by negative painting alone were limited to simple designs that could be done in silhouette (Fig. 4.1.1, 2, 6, 7). The additional line painting that, in adding finer details, produced elaborate designs may have suggested the direct painting, in of the dark background that we call false negative painting. Perhaps, then, we have this technique as a direct development from true negative painting, as well as an imitation of it, as suggested by Lothrop (1926a:145).

Piedras Negras pottery definitely establishes true negative painting as a technique used during the Maya Old Empire. True negative painting occurs sporadically from Jalisco, Mexico, to Peru, (Lothrop 1926a; Noguera 1936; Jijon y Caamaño 1923), and presumably has northern South America as its center of diffusion. The only places in the Maya area where it may at present be considered as a characteristic of pottery decoration are at Piedras Negras on the Usumacinta, and in the Chamá district of the Guatemala highlands (UM). The Highland examples range from crude geometric designs in red-on-black to elaborate geometric and naturalistic patterns in white-on-black. There is no connection in design or coloring between this style of negative-painted decoration and that characteristic of Piedras Negras. Two unusual jars from Holmul bear negative painting in white-on-black designs that resemble those from the Chamá district (Merwin and Vaillant 1932, Pl. 28, a, c-f). In shape they resemble another group of jars from the same district (Hirtzel 1925: Fig. 27-33). on the other hand, negative-painted disks on a sherd from Hochob, and on the outside of a tripod vessel from Copán, belong to a class of polychrome of which a few examples have been found at Piedras Negras (Polychrome, A-2). It seems, then, as though there-might have been two centers of diffusion for this technique in the Old Empire, one on the Usumacinta, the other in the Chamá district. Since comparatively little is known about Maya Old Empire pottery, it seems better not to attempt any historical conclusions from the scanty data that we have at present. It is, however, interesting to note that negative painting is not a characteristic of Yucatecan pottery.

Another characteristic of Piedras Negras polychrome pottery, on the decorative side, is the frequency of a red background. Two-thirds of the polychrome sherds have a red background, one-third on orange background. Negative painting is associated almost entirely with the red polychrome group, only two orange polychrome sherds showing any trace of it. There is a certain correlation of shape with background color; lids (53), narrow-necked jars (3-5), heavy, flat-bottomed dishes (60) and bowls with sides that are almost straight (54) are confined to red shallow, flat-bottomed tripod dishes with flaring sides (61, 62), and broad, shallow dishes (35-37) with occasional central designs are confined to orange polychrome.

In the matter of shape, a distinctive feature at Piedras Negras is the appearance of beveled shoulders on jars with narrow necks, in orange and black wares (6,7). Another is the appearance of polychrome lids for fine polychrome bowls (53). Orange, yellow, and mottled wares show a certain affinity in shape, which bears out the suggestion that they are fundamentally the same ware, differing only in their manner or degree of firing.

The predominance of calcite in the tempering material of Piedras Negras pottery is a characteristic feature of pottery from this site. A summary comparison

with petrographic analyses of other Maya pottery suggests that pottery tempering does not vary so much from one site to another as it does from one area to another, in variations that are determined by the geological formation of the surrounding country. Piedras Negras lies in a region where calcite was evidently the most satisfactory material. It is distinct from the two adjacent regions: Jonuta, where finely graded quartz was used for tempering material; and the highlands, from which almost all the pottery tested is tempered by quartz or quartz and feldspar.

On the negative side, the following items should be noted: the apparent absence of effigy feet, of handles, of tetrapods, of spouted and shoe vessels; the almost complete lack of effigy vessels, modeled decoration, and ring feet, and the relative scarcity of incised and carved decoration, and of life forms in decoration.

The Historical Value of Pottery in the City: Stratigraphy

What can pottery tell us of history in the city? We shall take the city by sections to see what chronological evidence there is in building stratigraphy and association of potsherds with monuments.

West

In the West Group we have on K-5 three superimposed buildings of which the latest has been assigned a tentative date of 9.12.5.0.0. We find Orange 2 cache vessels under the column altar of each level, a fourth vessel half-way down the terrace in front, and fragments of an Orange 2a bowl under a stone in the fill below the third floor. There was little other pottery associated with this pyramid. Of nine sherds found in 1931 in and around the latest building, four are Orange Ware, three Unslipped, and two incised Black 1 ware. In 1932, twenty-four Fine Polychrome sherds, one mottled, and one red sherd were found in the fill between the second and third floors; four Polychrome, one Fine Brown, one Orange, and five unslipped sherds under the third floor, and an Orange 2a plate under a slab in the fill assembled for the third floor. While the evidence is incomplete,[5] it suggests that by the time the last building was erected, Polycrome was not as popular as it had been when the earlier structures were built. We can say that Incised-and-Punctate Black 1 was in use at about 9.12.5.0.0 and that Orange 2, and Orange 2a appear two K-5 building periods before that date. The use of Orange 2 cache vessels already described suggests their association with certain temples and rites rather than with any given period. This is borne out by their absence in other temples, such as R-3, and their use through several periods at Holmul.

The incised orange bowl found in J-12 (Fig. 4.6.6) suggests that such ware was used at the end of the city's occupation. Under the floor of the J-6 throne room were a few sherds, one Polychrome C, one Brown-White, one Brown, and several of Fine Unslipped ware, and a dish with a mottled slip inside and double-bar orange decoration outside. We can say, then, that this type of decoration came into use here no later than 9.17.15.0.0, the date of the throne.

The only contemporary pottery vessels found with Vault Burial 5 were an Orange 2 plate, the base of a Polychrome C bowl, and two small round lids with crooked handles and traces of blue paint. This burial may eventually be dated late in Cycle Nine by inscribed shell plates.

Taking possible stela caches, we have Orange 2 vessels from the cist of Stela 6 (9.12.15.0.0), and spiked censer (Fig. 4.6.18) against the base of Stela 9, (9.15.5.0.0), and an Orange 2a bowl under Altar 1, (10.0.0.0.0?). Stela 8 and 40 have only unslipped household vessel sherds in the fill around them.

East

In the East Group, we have in O-13 another building with a date. While an early building level has been uncovered, it as yet unexcavated, so that the nearest approach we have to a sequence at present is the fact that the middle and rear rooms of the upper level seem to have been built earlier than the front of the building. All the unslipped cache vessels (Fig. 4.6.13, 19, 20) that were found on and under the floor of the building come from the rear room [5]. There was very little pottery in the front of the building, although Orange 2 bowls were found under the front stairway as well as in the rear room. From what data we have now the date of the last phase of the building is more apt to conform to the 9.16.10.0.0(?) date of "Lintel" 3 than to the 9.11.15.0.0 date of "Lintel" 2, since there is some reason for thinking the latter to have been reused. Presumably, then, the pottery was in use before this date.

South

In the South Group, the pottery found in the debris on the steps and around the base of R-3, and R-2, much of it whole vessels in fragments, is considered to belong near the end of the city's occupation. It consists of Black (10), Dark-on-Light-Orange (Fig. 4.6.9, 10), Dark-on-Light Red (Fig. 4.6.11), and Black 2 (Fig. 4.6.13) vessels and sherds; and sherds of polychrome, Orange, Orange 1, Orange 3, Yellow, Mottled, Red, Brown 2, and unslipped wares.

In the South Ball Court, we have in the playing-field four sets of cache vessels, two of Orange 2 ware, one composed of two Polychrome E bowls (Fig. 4.7.1,2), and one of one Polychrome D bowl and one carelessly done Polychrome C bowl with debased scroll design in red and

black on an orange-yellow background. This pottery is different in character from that found in the debris from the Ball Court structures R-11. The latter consists of the Brown 2 vessels (48) and a small spiked tripod dish (58); and sherds of Polychrome, Dark-on-Light Orange (including a possible spout or handle), Orange 1, Orange 3, Mottled, Red 1, Brown, Black 2, and Unslipped wares. It resembles the material from R-2 and R-3. The presence of Orange 2 and Polychrome E cache vessels in the field and their absence in the buildings may perhaps show a difference in time level.

The pottery from R-3 and R-11 stands out from the rest of the Piedras Negras material. Only here do we find Orange 3, Brown 2, Dark-on-Light Red; three sherds that recall Yucatecan Slate Ware; and Dark-on-Light Orange and Black 2 vessels in the shape mentioned above. This material shows two tendencies: on one hand, there is almost no polychrome, but fine workmanship shown in the carved and out decoration of Orange 3; on the other hand, there is the crudity and carelessness of treatment shown in Black 2 and Dark-on-Light Orange and Red wares, and the unslipped dishes (45) and ladle censers (64) found on the floor inside R-3. The outside associations of both Orange 3 and Dark-on-Light Orange support the tentative late date suggested by position.

Southeast

In the Southeast Group, excavation of a house-mound group, V-1, established four levels in which pottery was found. The few sherds we have from them [5] show polychrome ware in the second and fourth levels from the top, Orange Ware in the third, and Mottled and Unslipped wares in the first three.

The specialized polychrome groups C-1 and D-1 are almost entirely confined to this part of the city; the only sherds of D-1 found elsewhere are two from the lower layers of pottery test pit 29.

Turning to stratigraphy apart from architecture, we find that a trench dug in 1931 in the north half of the West Plaza showed definite soil stratification in seven brown, black, and white layers. While these contained pottery, the deposits were irregular, since entire vessels, in fragments, came out of a black earth layer at one place, (Pit 7, 1932), while at another a meter away, the black layer was almost sterile, (1931), with a thick deposit of sherds lying on top of it, and a test at a third point (Pit 8, 1932), showed the loss of a stratum, and an almost complete lack of sherds. However, both of the cuts first mentioned showed no polychrome in the lower levels, and the greatest quantity of sherds in the middle levels. One-third of them were mottled ware, much of it tripod dishes, with some tripod cylinder bowls with slab feet. The 1931 sherds show banded bowls at the bottom, basal flanges and feet in the bottom and middle levels, fluted bowls and disk indentations in the middle levels, and ring bases and incising in the upper levels. The 1932 sherds from these pits were destroyed by fire before a detailed study could be made of them. It has been impossible as yet to correlate this trench stratification with building periods on the Acropolis above, and nothing else similar has been found.

A stratigraphical study of the ceramic material from Piedras Negras was made in 1932 by digging forty-two test-pits, each 1 m square, to bedrock. These pits were so placed as to give as complete an idea as possible of the stratification and deposits in all parts of the city, while testing any place that might hold a refuse heap (Fig. 4.11). No large heap has as yet been found, and one wonders whether the river may not have been used to a certain extent for dumping. Three small heaps were located, however, one at the ravine between the East and West Groups (Pits 19-21), another beside Pyramid K-5 (Pit 2) and a third in a small ravine between Pyramids O-12 and R-11 (Pits 29, 30). The first of these had a dense deposit of sherds alone, the other included other types of debris such as fragments of figurines, human and animal bones, and stone mortars. While the nature and quantity of the material deposited proves it to be refuse, the deposits are small in area and unstratified. While they can be excavated more completely than has yet been possible, they cannot serve as the basis of a stratigraphical study. Two pits were sunk in the sides of the West Plaza trench (Pits 7, 8) as already described, three others were dug by strata where these were apparent in the soil (Pits 24, 34, 40), but the majority were dug in arbitrary levels of 40 cm.

With the exception of the pit dug in the transverse valley leading to the expedition camp, (Pit 1, too far north to be shown in Figure 4.10) there was nowhere more than 2 m between bedrock and soil surface. This held true not only with the horizontal surfaces of artificially constructed plazas, but with the sloping surfaces formed by debris in ravines. The latter, probed for refuse heaps, yielded no stratification; the former, almost none. In the South Group Plaza, there was less than a meter of unstratified fill above bedrock; in the East Plaza a paved floor was found at a depth of 75 cm, with a red clay below it that appears again in a pit sunk in the depression between the East and the Southeast Groups. In the southern half of the West Group Plaza there was less than a meter unstratified fill above bedrock; in the northern half, there was the clearly stratified deposit of 2 m in depth referred to above. Pits sunk in the sides of the large ravine behind R-5 showed that its sides, hitherto considered natural rock, had been terraced in some places down to the bottom of the gully.

A relatively small number of pits of the forty-two dug had the quantity of sherds or depth of deposit to justify any statistical conclusions. The seven which did are listed in Table 4.2.

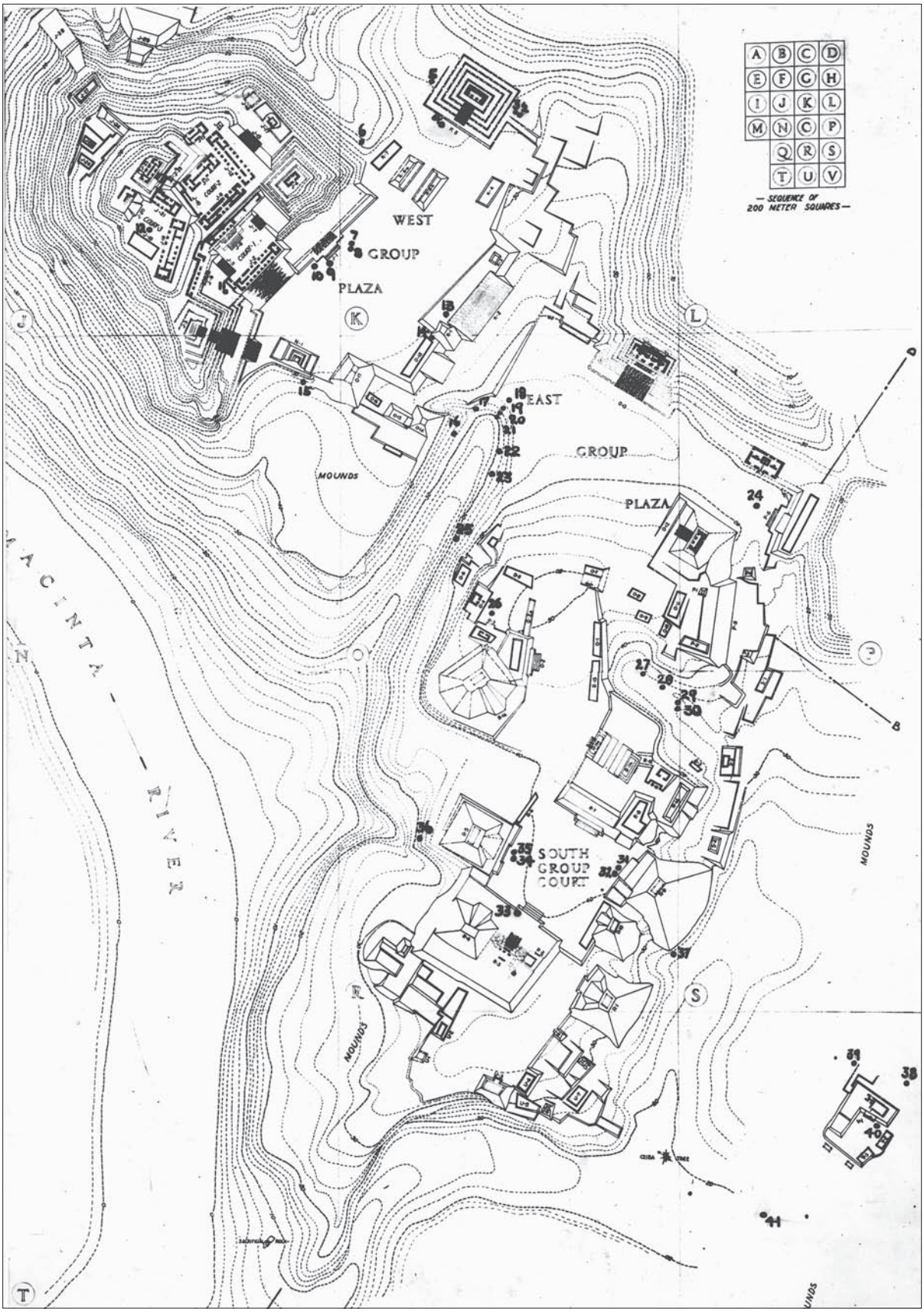


Figure 4.10 Part of the plan of the city of Piedras Negras, showing locations of pottery test pits.

Table 4.2 Frequency of Sherds by Stratigraphic Unit

Pit	N Levels	N Sherds
2	4	604 (107 rims)
19	4	71 (12 rims)
21	4	224 (30 rims)
27	4	113 (25 rims)
28	3	313 (36 rims)
29	5	1,223 (182 rims)
30	4	247 (51 rims)

The fact that identical, unique rim forms and the rough-and-smooth decoration on the exterior of orange vessels occur only in level 2 of pits 2, 29, 30, (pit levels are numbered from the top one down) is taken as apparent proof of these levels being contemporary, and four levels are tentatively considered to cover the period of occupation of the city. For level 1, in studying rim form, material was also considered from pits 5 and 25; for level 2, from pits 33 and 41. Material from pit W-5, dug in 1931, in front of Pyramid K-5, in three levels, approximately 40-50 cm each, was included where relevant.

Considering the evidence from these pits, counting by rim sherds we find the stratigraphy to indicate that polychrome pottery is most plentiful in the earliest strata, where orange polychrome and negative painted red polychrome wares are equally prevalent. It is impossible to work out from these pits any theories as to the development of the technique used in painted decoration on Piedras Negras pottery, since negative painting, mass painting, and the combination of the two represented by Polychrome B occur in the lowest levels. Pottery decoration, like figurine-making, seems to have been already well-developed by the people who settled Piedras Negras.

If these pits be considered as covering approximately the period of the city's occupation, we can say that Polychrome Ware is most prevalent at the beginning, Orange Ware in the next period; Fine Brown ware appears at the beginning, Red not until Orange had become more popular than polychrome; but on the whole, we have the same range of wares from the beginning to the end, Polychrome, Orange, Yellow, Mottled, Red Brown, Black, and Unslipped.

There is, however, a certain amount of variation in shape and in rim from one period to the next. Conclusions as to possible sequence have been reached by finding, where possible, the ratio of each type to the whole number of rims from each level, and are merely tentative. They mean, not that a shape or rim form appears in only one period, but that the period to which it is assigned is that of its, greatest frequency.

The ring base is first found in the fourth level, or earliest period, tripod bowls and dishes not until the third. This bears out Blom's find at Yoxihá, Chiapas (Blom and LaFarge 1926-27:227-233) where tripods were confined to an upper burial, ring bases to a lower. A tripod cylindrical jar with slab feet belongs to the third level (17). Flanges (36-37) begin also in this period, when disk indentations on the exterior bases of bowls (42), and bowls with fluted sides (52), are most prevalent. Indented fillets begin in this period, and the use of one in place of a basal flange is confined to it (Fig. 4.5.11).

In the second level, we have cylinder jars (15, 16), flanges with the flattened edge like a ring base (Z7), and the beginning of sharp angles to tile shoulders of jars (6). Peculiar to this period is a method of finishing the unslipped exterior of orange vessels by smoothing a band 1 to 2 cm wide along the edge, and roughening the rest of the surface.

The first level, or last period, has no outstanding characteristics.

Taking variations in rim form, we find V-shaped rims for storage vessels (26) most prevalent in the fourth level, R-shaped ones (21), in the first. A rim with a slanting edge (23) is most prevalent in storage ware in the fourth level, but a thin variety, painted orange inside, belongs to the second (30). Lids occur in the second and third levels. Bowl rims, slightly incurved (53) are most frequent in the third level. A bowl or dish with a flaring concave side (62) is most frequent in the second level, a modified form of it (54) in the third; a rim where the everted rim makes a sharp angle with the side (38) is most common in the third level, a modification of it (39) in the first. A plate rim where the side curves slightly out below a slanting edge (41) is characteristic of the fourth level and disappears by the second, when it is replaced by a straight-sided plate with similar edge (34).

Several features, such as the early plate rim referred to, and flanges, which are early in the main part of the city, are in the top level in the Southeast Group. This suggests that this section of the city was used early in the period of occupation.

The wares found, then, suggest a comparatively short occupation of the city, perhaps little more than the four hundred years of Cycle Nine celebrated on the monuments. There is nothing to indicate such length of occupation as is shown at Uaxactún or any marked shift of population. This agrees with the evidence of the figurine types from this site.

There are suggestions of sequence in shape, but the fact, already referred to, that the shapes assigned to one period are never confined to it alone, keeps us from using the shape or rim form of an undated vessel as a definite criterion of its age. They may serve to give it a tentative position that can be checked by other criteria.

Table 4.3 Pottery Associated With Dated Monuments

Orange 2	Stela 6	9.12.15.0.0
Spiked Censer	Stela 9	9.15.5.0.0
Orange 2a	Altar 1	10.0.0.0.0 (?)

There is definite though limited significance to the pottery from stele caches, where pottery is associated with a date (Table 4.3); from K-5, where a building sequence culminates in a tentative date; and from O-13, a building with a tentative date (Table 4.4). While the dating associations of R-3 are early, the vessels recovered from there are, from their position, taken as representing the last phase of Piedras Negras pottery.

What data we have from building-period and dated-monument associations suggest that polychrome wares were early, and were supplanted toward the end of the city's occupation by incised and carved decoration and degenerate forms such as dark-on-light orange and red (Table 4.5). As regards a decreasing use of polychrome from early to late times, such evidence as is afforded by this material agrees with the evidence from the test pits.

Relations to Pottery from Other Parts of the Maya Area

Considering this phase of Piedras Negras pottery, we can say that the material stands, alone at the present stage of Maya ceramic studies. This is due primarily to the scarcity of pottery from the Usumacinta drainage, which, judging from the Piedras Negras material, a few sherds from Yaxchilan, and others from Jonuta, seems to constitute a distinct ceramic area, with related but individual units. There are indications of contact with other areas, but none strong enough to warrant an attempt at definite correlation.

Table 4.5 Pottery Considered Late From Position as Final Deposit

Dark on Light Orange, Red	R-3, R-11
Orange 3: grater bowls	
Orange 3: carved bowls	
Brown 2	
Slate ?	
Incised Orange	J-12

Archaic

The pottery from Piedras Negras shows no specific connections with Maya material known as coming from definitely early or Archaic levels. Early pottery from the Petén-British Honduras region (Merwin and Vaillant 1932, Pl. 18-20; Thompson 1931, Pl. V-VII, XLIV) has certain characteristics, such as tetrapod supports for bowls and tapering cylindrical jars, bowls with flaring ring feet, and narrow-necked jars with spouts rising from the side, parallel to the neck. It does not have negative painting or red polychrome ware. None of these shapes has appeared at Piedras Negras, where, so far as we know, negative painting and red polychrome were abundant from the beginning. Archaic pottery from Arevalo-Miraflores, and Salcajá, Guatemala (Lothrop 1927, Fig. 8; Gamio 1926-27:17, 72, 131, 210-211, 216) and Santa Elena and Cerro Zapote, Salvador (Lothrop 1927, Fig. 4-6) consists of tetrapod vessels, vessels with effigy details, and angular jars different in character from anything found at Piedras Negras. In Salvador, we find in these levels Usulutan ware, bearing parallel-line decoration in a fugitive black paint that disappears, leaving a true "lost-color" design, light against a dark background (Lothrop 1933, Fig. 30-34). These traits have not as yet occurred at Piedras Negras.

Table 4.4 Pottery Associated with Tentatively Dated Building Levels

Polychrome A, C Miscellaneous Orange Orange 2, 2a Brown	K-5-3	Two K-5 building periods before 9.12.5.0.0, tentative date for K-5-1, established from Stela 39 [6]
Miscellaneous Orange Incised-and-Punctate Black 1	K-5-1	9.12.5.0.0, date of Stela 39
Polychrome Dark on Light Orange Miscellaneous Orange Orange 2 Mottled Brown Unslipped cache vessels (13, 19, 20)	O-13	Part of an O-13 building period before 9.16.10.0.0(?) date of "Lintel" 3

This evidence coincides with the lack of "Archaic" figurines at this site, and it seems safe to say that Piedras Negras was not settled until after what may be called the Maya Archaic period.

Old Empire

In considering the relation of Piedras Negras pottery to the Old Empire level, we can at the present time divide the latter into six ceramic groups: Middle Usumacinta; Petén and British Honduras; Atlantic Highland (Chamá and Quiché); Copán, Honduras, and Salvador, Pacific Highland (Lake Atitlán); and early Peninsular (Campeche and Yucatan).

As far as we can judge, the ceramic development at Piedras Negras was distinct from that of the Petén cities of Holmul and Uaxactún, and the associated British Honduras site of Tzimin Kax, where the pottery develops consistently from a beginning marked by early characteristics, and which apparently have no pottery figurines other than Archaic ones. There are however, definite traces of contact. The orange votive bowl with flaring sides (45; Fig. 4.6.8) is common to all these sites and is probably relatively early; the straight-sided, flat-based bowl is frequent, and probably early at Piedras Negras and Uaxactún (A. Smith 1932, Fig. 3, 4a-e; E. B. Ricketson 1934, Fig. 25a-h; Pl. 8, a-d), although the one instance of it at Holmul occurs in Period V (Merwin and Vaillant 1932, Pl. 31a); it also occurs at Nakúm (Tozzer 1913, Fig. 84-85). The flanged bowl, with and without tripod support, found in Holmul I to IV in orange polychrome and black lacquer wares (Merwin and Vaillant 1932, Pl. 18b; 20e; 21-25; 26b, a) occurs at Piedras Negras in orange polychrome, orange, and mottled wares (35-33), and with greater variety in types of flange than is apparent at Holmul. Flanged bowls in some of these variations occur at Uaxactún (E. Ricketson 1934, Fig. 28a-c; Pl. 8, i-j). A dish with nicked flange (33; Fig. 4.5.6) occurs at Piedras Negras, and in tripod form at Yalloch (PM), Uaxactún (E. Ricketson 1934, Fig. 28c) and Tzimin Kax; at this last site, Thompson (1931) assigns the type to the local phase of the Holmul V period (Pl. XLV, 1, 3). The tripod dish shape that appears at Holmul in period V (Merwin and Vaillant 1932, Pl. 29a) seems to be late also at Piedras Negras (Fig. 4.6.10). The same shape, with the same orange bar exterior decoration as is found on it at Piedras Negras, comes from British Honduras (MU). Orange polychrome jars with wide mouths (11) occur at Piedras Negras, at Uaxactún (Smith, Fig. 6, b, a), and in British Honduras (Gann, 1918, Fig. 63; G. Mason 1928, Fig. 2, 6, 7, 8b). A large bowl, red-orange inside, with incurved rim, painted red down to an indented fillet on the outside (22), occurs at Piedras Negras and in British Honduras (MAI). At Tzimin Kax there is a narrow-necked Jar with sharply bent shoulder, associated with vessels of the local Holmul I phase (Thompson, 1931 Pl. XLIV), that recalls jars from Piedras Negras (6-7).

There are also resemblances in decorative elements used at Piedras Negras and in the Petén: the vertical orange bars which occur on dish exteriors at Piedras Negras are found around the rim of a pottery drum from Yalloch (PM); negative-painted rings, a characteristic of Piedras Negras Polychrome A, appear in white against a vertical strip of red, as a subordinate element in the decoration of a straight-sided polychrome bowl from Nakúm (Tozzer 1913: Fig. 85); a Piedras Negras rim sherd with painted three-feather parrot wings (Fig. 4.1.10) recalls bowls from Holmul I (PM) and the highlands.

The resemblances between the two areas do not seem to be the result of trade so much as of local expressions of common ideas. The straight-sided bowl is the same, but the decoration differs from one site to the next; the orange votive bowls vary in consistency of slip and composition of paste; negative-painted rings are the same, but the decorative use to which they are put is different. A suggestion of direct influence is shown by a bowl from Uaxactún apparently decorated in the Piedras Negras negative-painted style (A. Smith 1932, Fig. 4e).

The resemblances between the Alta Verapaz-Quiché region and Piedras Negras carry out this suggestion of certain common denominators of pottery throughout the central section of the Old Empire, since we find in this Atlantic highland region, as well as in the Petén and Middle Usumacinta, the orange votive bowl (p. 9), the straight-sided bowl (Termer 1930-31, Fig. 11), the flanged bowl (UM; Termer 1930-31, Fig. 3-7), and bowl with nicked flange (Termer 1930-31, Fig. 3), the orange polychrome wide-mouthed jar (Termer1930-31, Fig. 9-10), and the three-feather parrot motif (UM). Carved Orange 3 ware, in what might be called the Usumacinta style, occurs only at Piedras Negras, Yaxchilan, and Kixpek in the Chamá district.

There is, as well, definite evidence of trade between these two areas, such as the Chamá polychrome found in a few sherds at Piedras Negras, and the grater bowl found at Kixpek, which seems to have been a trade piece carried there from Jonuta, probably by way of Piedras Negras. These grater bowls present an interesting problem. One Orange 3 grater bowl comes from Kixpek, one or two from Piedras Negras, and several from Jonuta, on the Usumacinta, half-way between Piedras Negras and the coast of the Gulf of Mexico. Two Piedras Negras Brown 2 bowls are similar to the grater bowls, except that a decorative design instead of utilitarian parallel lines is incised on the floor of the vessel. A single vessel, from Kixpek is, in shape and color, like the Piedras Negras Brown 2 bowls, but lacks the incised design.

Tripod bowls with incised designs on the floor of the bowl occur from South America to Mexico (Jijón y Caamaño 1923, Pl. CXXVIII; Lothrop 1926a:214, 216-17, 221-22; Boas 1921-22) where they are most frequent on the Aztec level, although a fragment from Gualupita (Vaillant 1934, p. 88) shows that such vessels were made by at least one Mexican Archaic people who may, however, not have been particularly early (Linné 1934:76; Vaillant 1932a:489). The specimens from Central and South America, and an occasional Aztec one, have decorative designs; most of the Mexican ones have, like those from Jonuta, Piedras Negras, and Kixpek, parallel lines out deep in the clay while it was wet, presumably utilitarian, and responsible for the term "pepper-grater bowl". Such a feature is unusual enough so that one would expect some link between bowls showing varying forms of it in the same general geographic area. If such were the case, one would expect the non-functional, decorative form to be a development from the functional form, and therefore later in time. This would imply, in the case under consideration, that the Nicaraguan and South American bowls were derived from the Mexican, and were therefore on a later time-level.

Be that as it may, a petrographic analysis implies, from the quality and quantity of the quartz tempering used, that the Kixpek grater bowl is a trade piece from Jonuta, and that the Piedras Negras ones are local copies of the Jonuta ware. Jonuta grater bowls are stylistically as well as geographically closer to Aztec grater bowls to the north than to Nandaime and Managua grater bowls, their nearest neighbors to the south. While the grater bowl sherds at Piedras Negras are presumably late there, they belong with pottery that is definitely that of the Maya Old Empire. If they are copies of a Jonuta ware, that must belong to the same early time level. It cannot be a derivation from Aztec grater bowls, which it resembles in color, general form, and function. A suggested line of development is that we have at Jonuta a Tabascan prototype of the Aztec grater bowl, or a contemporary of its Mexican prototype.

We cannot tell the time relationship of the highlands to the lowland areas. The hill country has been considered peripheral temporally as well as geographically to the Old Empire. However, the distribution of Chamá polychrome, prevalent in that district, appearing sporadically in Old Empire sites, and the apparent trade with Jonuta by way of Piedras Negras, suggested by grater bowls, imply a fairly early flowering of culture on the Atlantic slope of the cordillera.

Piedras Negras shares with Copán the following pottery traits: Copán I polychrome potsherds, negative-painted disk decoration, low relief and champ-levé carved decoration. The Copán I sherds at Piedras Negras may be considered as trade pieces, and there is evidence of influence from them on Piedras Negras local polychrome ware. Relief carving on pottery is apparently late at Piedras Negras; at Copán it is associated with anomalous Mound 36. There is no other evidence of contact between Piedras Negras and the southeastern part of the Maya area.

There is little evidence of connection between Piedras Negras and the Pacific Highland region as represented by the pottery from Lake Atitlán. Since nothing has been published on early Yucatecan and Campeche material it is impossible to compare it with that from Piedras Negras.

Late Maya

The negative-painted disks, referred to as occurring at Piedras Negras and Copán, appear on a sherd from Hochob in the Río Bec region, in a form identical with that found at Piedras Negras. Hochob has been considered, because of its architecture, to belong to a transitional period between the Old Empire and the Late Maya period. This single potsherd suggests a ceramic connection between Hochob and the Old Empire.

Piedras Negras pottery is definitely different in character from that of the Late Maya occupation of Chichén Itzá. What Yucatecan pottery is a available in publications shows some polychrome and more carved decoration, both distinct in style from those found at Piedras Negras. The development, suggested in Piedras Negras pottery, of a decreasing use of polychrome supplanted by the introduction of relief carving on pottery seems to have its logical sequel in Yucatecan pottery.

As mentioned before, what deductions can be drawn from a comparison of qualitative petrographic analyses of a small number of sherds from the Maya area point to variations from one region to another, rather than from one site to another. This is not as discouraging as it seems at first. The plan in Figure 4.10 shows the distribution of the eighty-two sherds examined. It will be noted that Piedras Negras is the only site where pure calcite tempering appears, and the only place where, in mixed tempering material, calcite is predominant over quartz. Except for one sherd from Kixpek, in which calcite is predominant, all the other sherds in which calcite is present show an equal quantity or a predominating quantity of quartz. Therefore, although the substances used for pottery tempering are few in number, the relative proportions employed may turn out to be as significant as a greater diversity of materials The fineness, regularity, and quantity of the quartz tempering at Jonuta, for instance, distinguish it from any of the other quartz tampering examined.

We know that Piedras Negras was a major city of the Maya Old Empire. Its pottery, representative of the ceramically distinct Middle Usumacinta region, clearly belongs to the same stock as the other groups of Maya Old Empire pottery. It shares certain traits with the Petén, Salvador, nor the Pacific Highland region as now

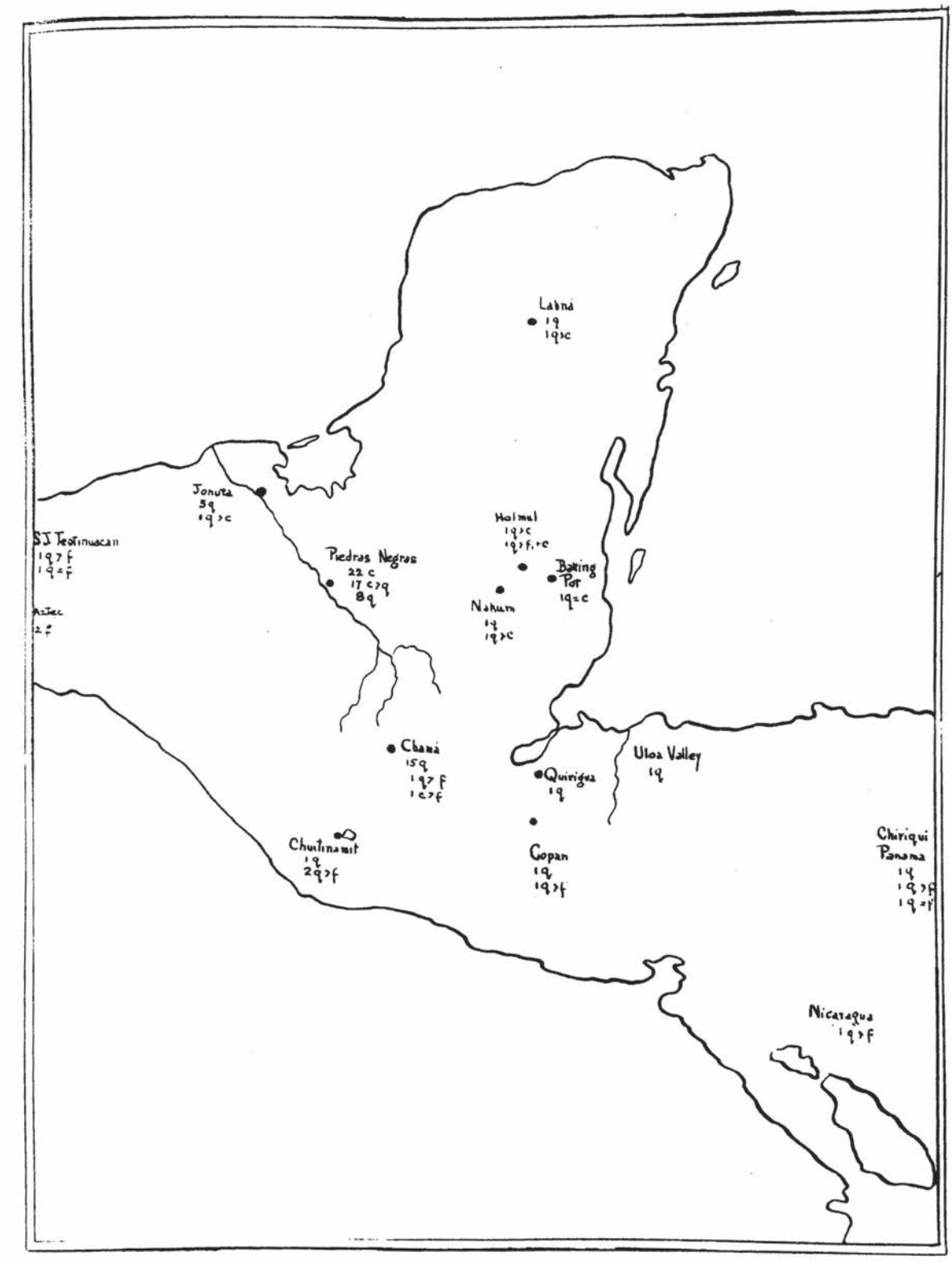


Figure 4.11 Map of the Maya area, showing distribution of tempering materials and number of sherds tested from each site. Symbols: c = calcite; q = quartz; f = feldspar; > = greater than; = equal to.

known. Piedras Negras also in touch with Copán, the eastern most great Maya city that must have provided the link between the Maya country to the east of it, and the central great city area to its west. Stela H at Copán shows a man in a striking costume characteristic of Palenque, the only costume of the sort on Copán stela (Butler 1931). This may be another instance of contact between the Middle Usumacinta and Copán.

It is almost too obvious to mention that the position of Piedras Negras on the bank of the Usumacinta undoubtedly determined many of its contacts. It would be almost inevitable that it trade with the Alta Verapaz region around the head-waters of the Usumacinta; it would be very likely that trade would follow along the Usumacinta, the Chixoy, and the Motagua, from Piedras Negras to Copán and Quiriguá. Just as inevitable would be trade, down the river, with Jonuta, and, one would think, with Mexico, although there is no trace of direct contact, with any region outside the Maya area.

Note on Pottery From the 1933 Excavations

It is not possible to include in this paper an account of the pottery from the 1933 excavations, which will be published in a later paper. The material was well-preserved with interesting developments along the lines already indicated. Some features are outstanding.

One is the identification of a white ware. While shards had been found before this showing the remains of a white slip, they were always so badly weathered that it was impossible to tell whether they were, originally white or polychrome, since much of the polychrome, painted over a basic white slip, weathered in the same way. Among the well-preserved sherds from 1933 were some that proved beyond question the existence of a white ware at Piedras Negras. In addition to the ordinary white ware, in which the interiors of vessels are sometimes painted black, there are two white sherds, one a dish, one a bowl, which have a broad red line painted around the rim, and one small narrow-necked white jar with a crude orange geometric design on the side.

Large single scrolls occur on the sides of Polychrome A bowls, and a vigorous conventionalized bird on a Polychrome D dish is done in a manner that recalls the Petén style (A. Smith 1932, Pl. 2, 3e). An animal effigy vessel foot was found in the West Group; present evidence suggests that this is a trade piece from the Chamá district.

Possible indication of contact with the Chukumuk district on Lake Atitlán in the highlands of Guatemala is shown by two Piedras Negras gray-black sherds with incised-and-punctate and incised-and-hatched renderings of a stepped fret design (Lothrop 1933, Fig. 16a, 17, 27a). A mottled rare Piedras Negras sherd has the same fragment of incised-and-crosshatched design that is shown by Lothrop (1933, Fig. 27g) on a black ware Chukumuk sherd. There is also a red ware sherd from Piedras Negras grooved in the horizontal lines that occur at Chukumuk on orange, brown and red wares (Lothrop 1933, Fig. 12h, 21b, 27a).

Appendix

Qualitative Petrographic Analysis of Potsherds, *A.William Postal*

The following tempering materials have been identified in the potsherds examined: calcite, quartz and feldspar.

Calcite

Source: Crushed limestone. Calcite is identified by physical structure, by the usual optical tests, which show it to be distinct in physical structure from other types of calcium carbonate such as shell, and by its brisk effervescence when tested with cold dilute hydrochloric acid. This test provides definite means of distinguishing calcite from dolomite. A few typical dolomite rhombs were observed in some of the larger calcite aggregations, but they are comparatively rare; their presence would tend to bear out the opinion that the material was obtained by crushing limestone.

Quartz

Source: sand, probably from the river bad. Because of its extreme stability, quartz is the commonest of the detrital minerals, and as such forms the greatest part of the bulk of all sands. Many of the sherds subjected to petrographic analysis were tempered with both calcite and quartz. Quartz is often a minor constituent of limestone, being deposited contemporaneously with the calcium carbonate, or developing later as a secondary mineral. If tempering material is obtained by crushing such a limestone a certain amount of quartz would naturally be present. Of course the possibility of intentional mixture on the part of the potter must also be borne in mind.

Feldspar

Source: crushed igneous rock, or sand derived from such rock. The feldspar is associated with mica (biotite) and quartz in the sherds in which it is found. Such a mineral association plus the fact that a few of the feldspar show good crystal outline might be taken to support the tentative suggestion that the rock furnishing the tempering material was an acid porphyry.

The petrographic technique as used above is capable of refinement and a more quantitative application; this could be achieved by carrying out actua1 counts under the microscope on the relative proportions and sizes of tempering materials present, the counts then

being converted into percentages. By these means two different types of pottery having the same kind of tempering could be statistically differentiated. One source of error might arise unless the people making the pottery had a well standardized procedure, the normal variation in proportion and size of tempering materials would be sufficient to invalidate the results obtained by precise analysis, this making it impossible to make any comparison on the similarity alone of the relative proportion of grade sizes and angularity of the tempering substance.

Many of the samples examined had spherical nodules of hematite sufficiently large enough to be seen by the naked eye (the diameters ranging approximate1y from 0.5 mm to 0.2 mm). The hematite was proven by blow piping, the nodules giving a strongly magnetic residue after being fused with sodium carbonate.

A preliminary investigation was also carried out to ascertain the possible heavy mineral content of these samples. To achieve this two of the specimens were crushed and passed through a 65-mesh sieve, and retained on a 200-mesh sieve; the separation was carried out with acetylone tetrabromide. The samples so treated were L-16-645 and L-16-707.

The minerals obtained from L-16-645 were: magnetite and hematite in abundance, four zircons, and one grain each of hornblonde and epidote were also noted. L-16-707 showed only magnetite and hematite.

The above results show a possibility of arranging a classification on the basis of heavy mineral content. The drawback to this method lies in the bulk of material that would have to be crushed to obtain a sufficient quantity of diagnostic heavy minerals.

Temperature of firing of ceramic material as ascertained from their mineralogical components is largely negative, i.e., a maximum temperature may be determined above which the material could not have been fired, although the actual firing temperature may have occurred at any point through a long range below this maximum. The following information is listed in order to fix the temperature above which the pottery covered in this report could not have been fired.

Calcite dissociates at atmosphere pressure at a temperature of about 900 degrees Centigrade.

Hematite melts at 1350-1400 degrees Centigrade.

Magnetite melts at 1190-1225 degrees Centigrade.

Quartz melts about 1780 degrees Centigrade; strictly speaking this melting point should refer to silica; true quartz converts to tridymite at about 870 degrees Centigrade, and tridymite converts to cristobalite at 1470 degrees Centigrade. Cristobalite may melt at 1710 degrees centrigrade.

Applying this information to the samples covered in this report, some idea may be obtained as to the firing temperatures to which they were subjected.

Piedras Negras

Polychrome A-1. L-39-21 (1)
This sample is tempered with a medium well-graded angular to subangular calcite; cleavage was observed on some of the fragments. Quartz and hematite are rare. Color banding in cross-section is orange-black-orange.

Polychrome A-2. L-17-67
Tempering material is calcite, fairly evenly graded sub-angular fragments with a few large rounded grains. A few angular quartz grains were noted. Many small hematite nodules are present.

Polychrome B. L-39-89 (14)
Tempering material is unevenly graded sub-angular calcite; some cleavage and a few granular aggregates were noted. Angular unevenly graded quartz is present (calcite forming the greater part of the tempering material). Both large and small hematite nodules were noted. Color banding: red-black-red.

Polychrome C. L-39-53 (2)
Calcite is the chief tempering material in this sample; it is divided into small and large grade sizes, the fragments being angular to sub-angular; some cleavage and a few large granular aggregations were noted. Quartz is rare. A few good hematite nodules were observed. Color banding is present, the fragment in cross-section being divided into equal portions of yellow and orange.

Polychrome C-1. L-17-164
This sample is tempered with large spheroidal grains of calcite, the grains being composed of aggregates of finer particles. Medium sized angular quartz fragments are present. Calcite is present in larger quantities than the quartz. Small to very large hematite nodules were observed.

Polychrome D. L-39-73 (2)
This pottery is tempered with calcite, the bulk of it being a medium-sized evenly graded sub-angular material though some large fragments are present. Quartz is very rare.

Polychrome D-1. L-17-203
The tempering material of this pottery is a fairly well-sorted angular to sub-angular medium-sized calcite. Quartz, though present, is rare. Some good hematite nodules were encountered.

Polychrome D-1. L-17-297
Unevenly graded sub-angular calcite; some cleavage noted. Quartz is rare. Hematite was observed in both

large and small angular fragments and nodules. Color banding: Buff-gray-buff.

Polychrome E. L-27-85
This sample is tempered entirely with calcite, the fragments being angular to sub-angular and fairly well graded; no cleavage was observed. No quartz was noted, and hematite nodules are very rare.

Polychrome E. L-17-203
The tempering material of this pottery is a fairly well-sorted angular to sub-angular medium-sized calcite. Quartz though present is rare. Some good hematite nodules were noticed.

Polychrome E. L-17-178
Medium-sized unevenly graded sub-angular calcite tempers this pottery, some cleavage being noted in the calcite. Fairly frequent angular to sub-angular quartz was observed (calcite is present in by far the greater quantity). Large and small hematite nodules are present.

Dark-on-light Orange. L-39-27 (1)
The tempering of this pottery is fairly diverse and is composed of a fair quantity of fine angular quartz, small angular and spherical calcite fragments, and few hematite nodules. Color banding is represented by equal portions, in cross-section, of light yellow and gray. This pottery is so similar to L-28-55 that in classification they can undoubtedly be put together.

Dark-on-Light Orange. L-28-58
This pottery has a fine texture and is tempered, with a fine evenly graded angular to sub-angular calcite. Quartz is present though rare. The section is bordered by a more highly granular than the interior. Fine angular fragments and nodules of hematite were noted.

Dark-on-Light Orange. L-28-55
As in L-28-54a the tempering of this sample is composed of both calcite and quartz. The calcite is present in the greater proportions; the former mineral is present in unevenly graded angular fragments, some of which show good cleavage. The quartz is unevenly graded and ranges from angular to sub-angular fragments. Hematite patches were noted and good brown biotite, strongly pleachroic; some well bleached; also some vermiculite. This sample is gray in section save for a thin white coating.

Dark-on-Light Red. L-28-72 (1)
The tempering material in this sample is rounded to sub-angular, medium-sized, unevenly-graded calcite; some cleavage and large rounded calcite aggregates were observed. Unevenly graded angular quartz was noted (the calcite is present in larger quantities than the quartz). Abundant biotite or vermiculite fragments are present, and a few small hematite nodules. The structure is somewhat fibrous. Color banding: buff-orange.

Orange, Miscellaneous. L-28-10
The tempering material used in this pottery is chiefly calcite; it is of a well-sorted grade-size, though occasional large aggregate grains are encountered; some of the calcite exhibits good cleavage. A few angular quartz fragments are present, though these are rare.

Orange, Miscellaneous. L-16-673
This sample is tempered with angular to subangular calcite which is fairly well sorted as to grade-size; some of the calcite shows good cleavage. Quartz is extremely rare.

Orange 1. L-28-72
Calcite is the principal tempering agent in this sample, both large and small grade-sizes being observed. Some good cleavage was noted in the calcite.

Orange 2
This pottery is tempered with an unevenly graded, fine to large, angular to sub-angular calcite; some of the larger fragments show very good cleavage and twinning. Quartz is very rare.

Orange 2a. L-28-6
This material is tempered with a fairly well graded medium angular to sub-angular calcite, though a few isolated large particles observed. Quartz is present as unevenly graded angular fragments (calcite is present in larger quantities than the quartz). Hematite nodules were noted.

Orange 2a. L-39-X
Tempering material is a fine evenly graded calcite. Quartz is present though rare. Some small hematite nodules were noted.

Orange 3. L-28-58a
The tempering material of this sample is composed of fine, evenly graded quartz. The fragments are mostly angular in shape. No calcite was observed though a slight acid reaction was noted in the matrix. There is a greater quantity of tempering material here than in the other sherds tested.

Orange 3. L-28-58b
The tempering of this sample is similar to the above sample in quantity and quality save that the grade size of the quartz is slightly larger. A few hematite patches were noted.

Yellow. L-16-468
The tempering material here is a well-sorted angular to sub-angular calcite, some of which exhibits cleavage. Quartz, though present, is exceedingly rare.

Mottled. L-39-73
Tempered with unevenly graded angular to sub-angular calcite; good cleavage was noted in the calcite; a few spheroidal grains were also observed. Quartz though present is rare. Hematite nodules are present.

Mottled. L-16-707
Calcite is the main tempering material encountered in this pottery. As in sample L-16-714, it can be divided into two definite grade-size groups, large and small. Quartz was noted but is very rare.

Mottled. L-16-626
This sample is tempered with fairly evenly sorted calcite and quartz. The calcite merges well into the matrix in such a way as to suggest a higher temperature of firing than that to which the other specimens were subjected. The quartz, though not as frequent as the calcite, is quite numerous and is scattered through the matrix as irregular particles of finer grading than the calcite. No structure is observable in the calcite.

Mottled. L-16-714
The tempering of this sample is calcite, which is divided into two definite grade-size groups, large and small; both these groups show good sorting. The larger grade-size suggests dolomitic aggregates. Cleavage in the calcite is not common, but some was observed. Quartz is rare, but is commoner than in samples L-16-468 and L-16-673.

Red Miscellaneous. L-17-167
This pottery is tempered with a fine evenly graded sub-angular calcite and many large spheroidal aggregates of calcite. Frequent large to small, angular to sub-angular quartz grains were noted (the calcite is present in greater proportion than the quartz). Many small hematite nodules were observed.

Red Miscellaneous, Maroon, on Orange Paste. L-16-426
This pottery has a very fine texture; it is tempered with very fine well-graded angular quartz. Silica needles and many small hematite nodules were noted. No calcite was observed. This type may be compared with the Orange 3 (L-28-58a) type from size and abundance of tempering material.

Red 1. L-28-72
No calcite was observed in this pottery; the tempering material is unevenly graded angular to sub-angular quartz. Hematite nodules were noted.

Brown, Miscellaneous. L-28-33
The tempering in this sample is an unevenly graded subangular calcite with very good cleavage. Quartz and hematite are very rare, though quartz is present in greater quantities than the hematite.

Brown 2. L-28-52b
This sample is tempered with large, spheroidal grains of calcite, and unevenly graded angular quartz. Traces of organic material were noted. Clear patches of an isotropic substance (vitrified material?) are occasionally encountered. Small hematite nodules are present. Structure had a matted appearance. Color Banding. Black-gray-thin black.

Brown 2. L-28-54b
This pottery is tempered with a fairly well sorted fine angular calcite. Quartz though present is exceedingly rare. Some good hematite nodules were noted. Color banding in cross-section was noted, namely thin black-orange-thin black.

Black. S-2-23
This Sample is tempered with an unevenly graded angular to sub-angular calcite; some of the fragments show good cleavage. Several large spheroidal grains of calcite showing concentric ring structure were observed. Fine angular quartz is present. Biotite was noted; large hematite nodules were also seen. In view of the above, the designation Black would seem very doubtful; this specimen seems more closely allied to the Dark-on-light Orange type (samples L-28-55 and L-39-27 (1).

Black 1. L-28-24
The tempering material of this specimen is composed of poorly graded quartz, the fragments ranging from small flecks to large particles. No calcite was observed.

Black 1. L-16-209
An unevenly graded angular to sub-angular quartz forms the main tempering material of this sample, though a few fragments of calcite were, noted and a slight acid reaction was observed in the matrix.

Black 1. L-39-50
Fine and medium quartz particles made up the tempering of this sample, the fine grade size being in the majority. The fragments range from angular to sub-angular. No calcite was observed.

Black 2. L-28-54a
The bulk of the tempering material in this sample is an unevenly graded angular calcite; a few of the fragments show fair cleavage. Frequent fine well-graded quartz in

angular form was also noted in the tempering. A few well-formed hematite nodules are present. This pottery in cross-section has a definite color banding, namely, orange-black-orange.

Black 2. L-28-72 (2)
Tempered with large evenly-graded angular to sub-angular calcite; some cleavage was seen; fine angular quartz was observed to be disseminated through the matrix of the pottery. Many fine hematite nodules are present.

Unslipped. L-16-645
This pottery is tempered with calcite, the fragments being angular to sub-angular and evenly graded. Practically no cleavage structure was seen. Quartz was encountered, but is quite rare.

Jonuta

Jonuta, Orange. 31-25-30
This pottery is a very fine grained distinctive type and has not been encountered heretofore. It is tempered with very fine evenly graded quartz, the fragments being mostly angular. Color banding in cross-section is dark red-light red-dark red.

Jonuta, Orange. 31-25-5a
This pottery has a very fine texture, and is tempered with very fine, fairly well graded angular quartz. Many small hematite nodules were observed.

Jonuta, Gray. 31-25-14
This pottery has a very fine texture; it is tempered with very fine evenly graded angular quartz and a few fine silica needles. No calcite was observed.

Jonuta, Black. 31-25-X
This sample is tempered with an unevenly graded angular to sub-angular quartz; a few silica needles were observed. A few calcite grains were noted, but quartz is far more abundant than calcite. Hematite nodules are present. Color banding: Brown-black-brown.

Jonuta, Black. 31-25-16
This type is tempered with roughly equal portions of fairly well graded fine angular quartz and calcite. Silica needles were noticed. Color banding in cross-section was shown by a very thin outside band of light gray.

Jonuta, Unslipped
A fairly well graded medium angular quartz tempers this sample. Some hematite nodules were noted.

Highlands of Guatemala

Chamá, NA 11302
An unevenly graded angular to sub-angular quartz constitutes the tempering material of this sample. Many silica needles and a few plates of mica were noted.

Chamá, Red. NA 11239
Angular to sub-angular quartz is the main tempering material of this sample. Many silica needles were noted. Mica though present is rare. Some hematite nodules were observed.

Chamá, NA 11121
This sample is tempered with fairly evenly graded fine sub-angular quartz. Abundant plates of mica (biotite) and silica needles were also noted. Some small hematite nodules were also observed.

Chamá, NA 11124
A fairly graded, medium, angular to sub-angular quartz is the main tempering material of this pottery. Abundant silica needles and biotite were also noted.

Chamá, NA 11103
This sample is tempered with a fairly well graded fine sub-angular quartz. Some silica needles, hematite nodules, and biotite were also observed.

Chipal, Red-on-Buff Effigy. NA 11377
The tempering material of this pottery is an unevenly graded angular to subangular quartz. A few hematite nodules are present. Biotite though present is rare.

Chipal, NA 11563
This sample is tempered with an unevenly graded angular to sub-angular quartz. A few hematite patches were observed.

Kixpek,White-and-Black. NA 11597
The tempering material of this pottery is an unevenly graded mixture of feldspar and quartz; one perfect crystal of orthoclase showing Carlsbad twinning was observed. Rare biotite or vermiculite is noted.

Kixpek, Black. NA 11608
The chief tempering material of this sample is an evenly graded angular to sub-angular quartz. Some hematite patches ware also noted, and a little biotite and vermiculite are present.

Kixpek, Plumbate. NA 11603
This sample is tempered with a fairly evenly graded angular quartz.

Kixpek, Orange 3 Grater Bowl. NA 11622
This pottery has a very fine texture, and is tempered with a very fine, fairly well graded angular quartz and many silica needles. Some small hematite nodules were observed. This pottery is similar to Jonuta Orange (31-25-5a, and 31-25-30).

Kixpek, Orange 3 Carved Bowl. NA 11606
This pottery has a very fine texture; it is tempered with a fine angular quartz. Some small hematite nodules were noted.

Kixpek, Black. NA 11599
The tempering material of this pottery is an unevenly graded angular to sub-angular quartz. Some hematite nodules were present. A few rare silica needles and plates of biotite were also noted.

Kixpek, NA 11633
This pottery is tempered with an unevenly graded angular to sub-angular quartz. A few silica needles were observed. Color banding. brown-black-brown.

Kixpek, Buff. NA 11634
The tempering material of this sample is an unevenly graded sub-angular quartz. Biotite though rare was noted. Color banding: brown-black-brown.

Chuitinamit, Polychrome. 33-24-10
The tempering material of this sample is composed of an unevenly graded angular quartz. Some feldspar was also noted, though it is fairly rare. Hematite nodules are present. No calcite was encountered. Color banding: red-black-red.

Chuitinamit, Red-on-Buff. 33-24-12
Quartz forms the tempering of this sample, the particles being angular and unevenly graded. No calcite was observed; a few magnetite nodules were noted. Color banding in cross-section was brick red-dark gray-brick red.

Chuitinamit,White-on-Red. 33-24-7
Same as 33-23-10, only some of the quartz shows undulose extinction, and the feldspar is perhaps a little rarer.

Other Maya Sites

Baking Pot, Red-Orange. T-6[7]
This sample is tempered by an unevenly graded fine angular quartz and calcite, some of the calcite showing good cleavage. Quartz and calcite are present in about equal proportions. A few hematite patches were noted.

Labná, Buff. T-16[7]
The tempering material of this pottery is an unevenly graded angular to sub-angular quartz. Hematite is abundant and some calcite is present. An unidentifiable yellow mineral, showing no extinction is to be recorded.

Labná, Slate. T-13[7]
This sample is similar to T-16 but a slightly larger volume of calcite was observed, some of the fragments being fairly large and showing good cleavage.

Holmul, Red-Orange. C-5707-(1)[7]
The tempering material in this sample is an unevenly graded sub-angular calcite; a few large aggregate and spheroidal particles were observed. Quartz is very rare.

Holmul, Red Wash. C-5707-(2)[7]
This pottery is tempered with an unevenly graded sub-angular calcite and a fairly well graded angular quartz. Quartz is present in greater quantity than the calcite; some good cleavage was noted in the calcite. Some feldspar and mica (biotite) were also noted.

Nakúm, Red-Orange. C-5131-(1)[7]
Fine fairly well graded angular quartz is the main tempering agent in this sample. A few spheroidal calcite particles were noted. Some biotite was observed. Hematite nodules are present.

Nakúm, Red-Orange-on-White. C-5122[7]
This pottery has a smooth fine texture and is tempered with a medium unevenly graded angular quartz. Both large and small hematite nodules were noted.

Copán, Orange Polychrome. C-980-(3)[7]
An unevenly graded angular quartz is the main tempering agent in this pottery, though some feldspar and mica were noted. Some hematite nodules were observed.

Copán, Polychrome (Copán 1; cf. Piedras Negras, Polychrome E). C-980-(2)[7]
This sample is tempered with an unevenly graded quartz. Hematite though present is rare.

Quiriguá, Polychrome. C-8564[7]
Unevenly graded angular to sub-angular quartz forms the tempering material in this pottery. A few rare biotite wisps were noted.

Ulúa Valley, Polychrome. NA 5635
This pottery is tempered with fairly evenly graded angular quartz. Calcite though present is rare. Numerous hematite nodules were observed.

Central American and Mexican Sites

Rivas, Nicaragua. 21907
The tempering material of this sample is composed of an unevenly graded feldspar and quartz; a little mica was noted.

Panama, Chiriquí, Black Incised. 29-52-954
Tempering composed of unevenly graded quartz and feldspar. The feldspar often shows good crystal outline; some Carlsbad twinning was also observed. Some of the quartz exhibits undulose extinction. Occasional plates of biotite were noted.

Panama, Chiriquí, Negative-Painted. 29-53-1256
The main tempering material of this sample is an unevenly graded angular to sub-angular quartz. The following minerals though rare were noted; rutile, biotite, pyroxene (hypersthene?), feldspar and hematite.

Panama, Chiriquí, Armadillo. 29-52-778
An unevenly graded angular quartz and feldspar composes the main tempering material of this sample. A few hematite nodules and a little biotite were also noted.

Mexico Valley, San Juan Teotihuacan 394
This sample is tempered with an unevenly graded quartz and feldspar, the latter often showing good crystal outline and twinning. A few rare mica flakes were observed.

Mexico Valley, San Juan Teotihuacan 447
This pottery shows, with the exception of some very rare mica, the some tempering materials as San Juan Teotihuacan 394. Color banding is as follows: brown-black-brown.

2. Ornaments, and Miscellaneous Objects, *Mary Butler*

Introduction

The excavations of 1931-32 at Piedras Negras uncovered ninety-five human figurines made of baked clay. All but three of these conform to mold-made technique. Eighty-nine belong to a realistic finely executed style designated as X (Butler 1935b); three to a style that can at present be called a local phase of Style Y, conventionalized, crude, and vigorous. One of the remaining three figurines has a crudely modeled body below a head that was probably mold-made. Of the other two, modeled heads, one is very badly weathered, and the other is grotesque, archaistic, rather than archaic. There is no indication of figurines that can be considered as "Archaic".

Piedras Negras figurines occur sporadically as deep as a meter from the surface in deposits whose depth, to bedrock, seldom exceeds 1.6 to 2 m. The only evidence of human presence at the site later than the Old Empire is in a few Lacandon incense-burners. There is no reason to believe the Lacandones capable of producing work as fine as these figurines. It seems safe then, stratigraphically as well as stylistically, to assign them to the main occupation of the city, during the best years of the Maya Old Empire.

The Piedras Negras figurines come from all parts of the city, being found usually in dump-heaps or the debris around buildings. In the latter case, traces of stucco on several suggest that, like potsherds, they are used in the armature for decorative stucco relief. This implies that most of them are discards, and would account for their fragmentary condition. Of seventy-nine human heads, only five have bodies attached to them. Headless torsos number sixteen. Many figurines have the form of whistles, due to vents in the hollow body and a mouthpiece, attached usually at the lower back of the figure. While this may mean merely that whistles were made in the form of clay figurines, there is the possibility that the idea of using a clay figurine as a whistle developed incidentally from the technique of making figurines in a mold, which required a hollow body with vents in it for any figure reproduced in the round. There are specialized figurine forms in the Ulúa Valley, the highlands, and Yucatan, where the function has conditioned the shape of the piece, but nothing of this sort has as yet been found at Piedras Negras. A few Piedras Negras figurines are pierced from side to side through head or shoulder, probably for suspension as an offering or amulet, or for carrying around the neck in the case of whistles. Clay figurines do not occur in burials or votive caches, although in caches tiny jade and shell figurines are frequent, enough.

In describing the Piedras Negras figurines, we shall take first the human effigies, then the animal. There is technical variation in those figurines, which show more than the head. Some have head and body cast in one mold; others have head and body molded separately and then joined; some have modeled bodies; all, with one exception, are finely done. Bodies, with the one exception just mentioned, are hollow; heads may be hollow or solid. The clay is fine, tempered with calcite

and quartz. It is seldom fired high, and the colors range from brown, through orange to buff, the most frequent shade being a light red-orange; the heads are small, the face averaging 2-3 cm in height.

References to specimens in other collections are indicated by the symbols:

PM Peabody Museum of American Archaeology and Ethnology, Harvard University, Cambridge, MA.

AM American Museum of Natural History, New York, NY.

FM Field Museum of Natural History, Chicago, IL.

UM University Museum, University of Pennsylvania, Philadelphia, PA.

JC Private collection of Mrs. William James of Merida, now scattered.

MAI Museum of the American Indian, Heye Foundation, New York, NY.

Figurines

Human Figurines, Mold-Made

Style X

The bodiless state of most of the specimens in Style X makes it difficult to classify them. Falling back on a grouping by head-form, we find that the bulk of the material comes under Forms A, B, or C.

Headform A

Oval face, narrowing from jaw to flattened forehead, which slopes back from eyebrows at a sharp angle. Receding chin.

One type is established at Piedras Negras of which variants are found as far south as Costa Rica and as far north as Chihuahua. This is the hunchback (Fl-3-3. He appears at Piedras Negras as a seated man, nude except for a loincloth and neck ornament, (Fig. 4.12.15); his left hand rests at his waist, his right hand by his side. Another Maya example, differing in treatment, comes from Jonuta (PM).

Seventeen heads, (F4-20), or almost one quarter of the total number so far found, have a high headdress, ending squarely at the top, that is cut straight across the forehead and falls away in steps, usually two on each side, to hang behind large round earplugs (Fig. 4.12.1, 2). It is bisected in front by an incised vertical line; in back it comes down in one fold to cover the neck.

This stepped type of headdress occurs, with any number of additions and variations, throughout the Old Empire, but the plain, unadorned variety so far appears on figurines only at Piedras Negras and on a figurine from near Palenque (Blom and LaFarge 1926-27, Fig. 166, Gann 1926:242). This shows a standing woman, wearing a long skirt, carrying a dog, and leading a small male figure with an adult face. The implication, borne out by other figurines (FM, PM Blom and LaFarge 1926-27:200) and stucco relief (Spinden 1913:51) is that of goddess and devotee. It is inadvisable, however, to try to associate this headdress with any one type of figurine, since, although there seems to be a regional distribution of some headdresses, they are seldom a constant element in any one type.

In considering the Form A heads with more elaborate headdresses, we find that they fall into sub-groups determined by technique. And in almost every sub-group we find a specimen that is duplicated in Tabasco to the northwest or the highlands to the south.

Of four heads with applied fillets of clay added at the top (F21-24), two have the stepped hairdressing just described (Fig. 4.12.4, 5). One of these with two fillets so intertwined as to represent coils of hair on top of the head (Fig. 4.12.4) is reproduced at Jonuta, in the local style, on a woman standing with raised hands (Spinden 1913, Pl. 17, 7).

Then there are three heads (F25-27) with a perfectly plain, hood-like headdress that gives a sugar-loaf shape to the high, flattened head, and fits in a curve around the face (Fig. 4.12.7). This is found again in the highlands (Spinden 1913, Pl, 17, 5).

Of four heads molded in one piece with their elaborate spreading headdresses (Figs. 4.12-4.14), two wear a puff-ball type of textile turban (Fig. 4.12.3) that appears again in stone carving on "Lintel" 4 at Piedras Negras (Maler 1901, Pl. XXXII), on painted pottery from the highlands (Gordon 1928, Pl. II, VIII; Dieseldorff 1926, Fig. 138), and in clay on a figurine head from Lubaantun (Joyce 1926, Pl. XXV, XXVI). The other two heads referred to have as the main element in their headdresses an owl mask, found in varying forms in the costume of Maya figurines (Fig. 4.12.12).

There are eight Form A heads with elaborate applied headdresses, (F32-39). The upper part of the head is usually more cylindrical than in those heads which have a stepped headdress; this may be to give a surer grip to the applied encircling fillets. Some specimens show the cloth foundation on which the headdress is constructed fitting to a smooth curve around face and high, flat forehead. Some have insignia applied to the forehead or the bridge of the nose.

A finely modeled head, with cruller-twist nose ornament, has around the face a crest that may represent feathers (Fig. 4.12.11). Similar crests are on two heads from the lower Usumacinta (AM; Spinden 1913, Fig. 209). Another head, badly broken, has at the top three

Figure 4.12 Human figurines with Form A heads; 1. F5, Form A head, stepped headdress; 2. F9, Form A head, stepped headdress; 3. F29, Form A head, turban; 4. F22, Form A head, coiled hairdressing; 5. F24, Form A head, applied hairdressing; 6. F43, Form A head, miniature; 7. F26, Form A head, hood headdress; 8. F39, Form A head, plume headdress; 9. F47, effigy lid, Form A head; 10. F40, Form A head; 11. 33, Form A head, applied headdress; 12. F30, Form A head, owl headdress; 13. F45, Form A head; 14. F42, Form A head, Mam, the Old God; 15. F1, hunchback, seated, Form A head, back broken off; 16. F41, Form A head.

short plumes (Fig. 4.12.8); a similar head comes from Jonuta (PM). Another (F38) shows the remains of a hat with flaring brim and high conical crown that is found again at Yaxchilan (PM) and Chamá (Dieseldorff 1926, Fig. 39).

There are also nine Form A heads that do not fall into any special grouping (F40-48). Among these are a tiny head with no traces of hair or headdress (Fig. 4.12.6); a broken one with a frill fitting squarely about the face (Fig. 4.12.16); and one with very flattened forehead and holes where the ears should be, and a socket and groove at the top to fasten on a headdress of some other material (Fig. 4.12.10). There are two heads that probably represent gods. One, in poor condition (Fig. 4.12.13) recalls God D of the carvings; the mouth with broken teeth is set in a grimace the eyes in hollows and a shallow depression across the forehead below the high cap-like headdress holds an applied symbol. A Chajcar figurine of a standing man has a similar head, with the addition of jaguar ears. The device in the forehead cartouche of the latter cannot be deciphered from the photograph. (Dieseldorff 1926, Fig. 174). The other head is a finely modeled portrait of Mam, the Old God, with projecting chin and cheekbones Roman nose, and two snag teeth (Fig. 4.12.14). The cylinder rising above the headdress is a socket; an examination of the very long neck suggests that the head fitted originally into the body that belonged with it, then later, after the body was broken, was set into plaster.

A head, which is not strictly that of a figurine, belongs here by virtue of its technique (Fig. 4.12.9). It is hollow, and smoothly finished inside and around the bottom, probably having served as the lid to a miniature jar representing a man's body. Such a combination is found in Plumbate ware (UM), and in the pottery of the highlands of Guatemala (UM). It is the only head from Piedras Negras of fine light brown paste. The man wears very large crescent-shaped labrets at either side of his mouth and a headdress that rises from a pleated fold around the face to a smooth crest at the top.

Headform B

Square, chubby face with spreading, flattish nose, beneath a normal, even bulging, forehead.

Neither of the two fairly complete figurines with Form B heads belongs to the varying types of fat old men with which this headform is almost always associated in the Maya area (F49-50). The more interesting of the two shows a standing man, between whose hands is a large, circular hollow, presumably for an inlaid disk (Fig. 4.13.30). This suggests a possible link between the late Chacmool figures on the one hand, and the Archaic stone sculptures of Copán and Miraflores (Lothrop 1926b) on the other. The figure is small, rather columnar, and apparently was made in the form of a whistle, with mouthpiece, now broken off, projecting behind the feet. A hole for suspension perforates the head from side to side. Apparently the broken and useless whistle was discarded and used with sherds as foundation for stucco building decoration. The other figurine shows the head and bust of a man whose hands rest at his girdle (Fig. 4.13.19).

Four heads seem to show a close hood, fitting smoothly around the face, like the hood-like headdress found with Form A heads (F51-54). Two of them (Fig. 4.13.18, 21) have heavy-lidded eyes under high-arched brows, and fat cheeks that suggest the Toltec Fat God (Beyer 1930).

There are three hooded heads that have the sugar-loaf head pressed back to form almost a right angle with the face (F55-57). The large round eye sockets show the under lid as well as the upper, giving the face a surprised look that pushes forward a fold of flesh over the cheekbones (Fig. 4.13.20). The hood comes down on the forehead in a point where some projection seems to have broken off; two of the three have at the base of the neck, just below the crown of the head, a round broken projection that may have served some functional purpose.

There are two heads of old men which may be included under the Headform B group (F58-62). One is a toothless old man with a high sloping head (Fig. 4.13.9), the other is a bald, round-headed old man with sunken upper lip (Fig. 4.13.7). A head with the startled eyes and pronounced cheekbones described above has the fold of the upper lip so prolonged as to give the effect of a sweeping mustache, (Fig. 4.13.16). A cap-like headdress completes a picture of rather ferocious vigor.

Headform C

Broad, flat face, widest at the cheekbones, and pronounced, almost prognathous chin.

The only comparatively complete figurine in this group is a very fine specimen, of buff-brown clay (Fig. 4.14.7). Head and body were made separately, and the solid neck inserted in a hole in the trunk. The figure is that of a man, wearing a long-skirted loincloth, and a cape with applied textile decoration. The short head ends in a socket, presumably for a separate headdress. A similar figurine, with slightly altered costume, comes from near Roknimá in the highlands (UM).

Three heads have hair parted in the middle and drawn down behind the ears (F66-68). This hairdressing occurs in Style X in Tabasco (PM) and British Honduras (Joyce 1926, Pl. XXV), and in a local style in Campeche (JC); it is always associated with Form C heads. Wherever a head so dressed is attached to a body, the body is a woman's. Tabascan and British Honduran examples have coils of hair piled on top of the head in a manner that Landa

Figure 4.13 Human and animal figurines, personal ornaments, and mis-cellaneous objects; 1. M1, flower (?); 2. L-17-227, polychrome disk; 3. M15, jaguar claw; 4. M14, carved tubular earplug (?); 5. M4, spindle-whorl; 6. M2, earplug; 7. 62, Form B head, old man; 8. 74, figurine, modelled with molded head; 9. F58, Form B head, old man; 10. F106, bird head, modelled; 11. F107, bird head, modelled; 12. M6, pendant; 13. F66, Form C head; 14. F96, dog head; 15. F105, double-headed bird whistle, modelled; 16. F63, Form B head; 17. F101, owl; 18. F53, Form B head; 19. F 50, figurine with Form B head; 20. F55, Form B head,"right-angled," broken face on left; 21. F51, Form B head; 22. F69, Form C head; 23. F83, woman's torso, perforated from shoulder to shoulder; 24. F103, pottery object showing jaguar-headed man; 25. F75, grotesque head; 26. F90, woman's torso clothed in long-sleeved robe; 27. F87, man's torso; 28. F92, StyleY head; 29. F91, StyleY head; 30. F49, figurine with form B head.

Figure 4.14 Human and animal figurines, personal ornaments, and miscellaneous objects; 1. M18, bead (?); 2. M17, shell; 3. M7, gaming disk; 4. M8, conical stand; 5. F97, agouti (?) figurine; 6. F98, owl figurine; 7. F64, figurine with Form C head; 8. 94, grotesque head, modeled, archaistic; 9. cast from mold M3, seated woman; 10. M10, mask; 11. M3, mold of seated woman figurine.

described as a characteristic woman's hairdressing; it is assumed, therefore, that the heads described are those of women. One (Fig. 4.13.13) has a notch in the top of the head, and an undercut at the back similar to those noted by Saville as characteristic of the jades that he tentatively assigns to the Olmecs (Saville 1929). This is relatively flat and resembles similarly cleft heads from Teotihuacan (Gamio 1922:1, Pl. 94).

Of five other Form C heads, only one is all well preserved (F69-73). This has a closely bound headdress wrapped in two broad horizontal folds (Fig. 4.13.22). A square medallion has a badly worn Form C head in the center (F71).

Miscellaneous

Among those figurines which cannot be assigned to one of the three headforms described as A, B, and C, are one complete figurine and two heads. The figurine (Fig. 4.13.8) is stylistically probably the earliest one we have from Piedras Negras. Since, although the badly weathered face seems to have been mold-made, the body is very crude and made by hand. It came from the fourth level of a test pit in the South Group and is the only figurine to be found so far below the surface, so according to test pit stratigraphy also, it is early. The body is pinched together hurriedly and apparently shows a woman holding a blanket across her chest with her right arm. A crude modeled figurine from British Honduras shows a seated person holding with his right arm a blanket across his face (Gann 1900, Pl. XXXVII).

One head (Fig. 4.13.25) is grotesque, with the back smoothed vertically into a concavity that might have fitted over a finger or a stick; the other, merely the top of a head (F76), is interesting only for the fact that it is the only head that is perforated for suspension from front to back, instead of from side to side.

Of the headless torsos (F77-90), some very fragmentary, the most interesting are two (F89-90) that show a woman in a low-necked gown, the sleeves of which fall from her wrists into long points (Fig. 4.13.26). Another such torso comes from Yaxchilan (PM). There is one complete figurine with such a body, probably from Campeche (JC). This has a wrinkled, bald head, too large for the body, set squarely on its shoulders. The garment is probably another version of the wide *huipil* seen on figurines executed in local styles in Tabasco and Campeche, but the figurines under discussion are distinctive, small, and finely made. Two other torsos (F82-83) one a woman's, are pierced for suspension from side to side through the arms just below the shoulder (Fig. 4.13.23). Another shows a man, probably old, judging by his heavy sagging body, and very thin arms, with hands clasped at his right shoulder, (Fig. 4.13.27). Others show variation in men's neckwear and in technique.

Style Y

Three broad flat, solid heads (F91-93), molded entire, head, headdress and earplugs, in red clay, are a conventionalized product quite different from any other figurines at Piedras Negras (Fig. 4.13.28, 29). Superficially they much resemble flat figurine heads from the Valley of Mexico. The face is the same as that described under Headform C. Two of the three have, as main element in the wide squared headdress that frames the face, a twisted roll of textile that appears elsewhere only with Form C heads in local styles of the highlands (MAI), Campeche (JC), and the Ulúa Valley (PM). The head of the figurine from the highlands on which this headdress element occurs bears a distinct resemblance to the two specimens from Piedras Negras, although cruder and probably modeled. A figurine with a similar head comes from the upper level, presumably Aztec, at Texcoco (Peñafiel 1890, Pl. 105).

Human Figurines, Modeled

The two heads (F94-95) conforming to modeled technique seem archaistic rather than archaic; the only well preserved one is a grotesque, whose raised eyebrows, staring eyes, and open mouth register shock and surprise (Fig. 4.14.8) The face is framed in a short, rounded beard and a crescent headdress. Two other such heads are known: one, mold-made, in orange clay, from the Ulúa Valley (PM), the other, crudely modeled and smoke-blackened, from the highlands (UM). On the latter, the face is framed by animal jaws, and it is possible that these jaws have in the other two heads become beard and headdress by the process of substitution. We know that the human head in animal jaws was an important motif in Central American art.

Animal Figurines, Mold-Made, Style X

The few complete animal figurines that we have are all whistles, with mouthpieces projecting horizontally from the back of the effigy. There are two portly standing owls (Fig. 4.14.6; F99) of a type found again at Naranjo (Gann 1925:88), and Nakúm (PM). There are also two small owl heads (Fig. 4.13.17; F102). There is an association of the Moan bird with death, and frequent appearances of the bird in codices, but no more definite clue to his exact place in Maya theology. Among Maya figurines in Style X there is a type of standing man in owl mask and costume (MAI), and also a conventionalized owl headdress. These extend from the lower Usumacinta north into Mexico, but so far neither has appeared at Piedras Negras. The bird itself, however, occurs among figurines; as the motif in the only two pieces of modeled pottery so far found, a polychrome effigy lid, and a black bowl with a bird face on the side; and, conventionalized, in stone carvings. It is evident, then, that the owl was a bird of distinct importance in the Old Empire.

There was also a complete, smiling, raccoon (Fl00), a complete creature that may be an agouti (Fig. 4.14.5), and a dog's head and collar (Fig. 4.13.14) all finely made.

A jaguar-headed human figure with bent arms and a long necklace is molded on the face of two smoother objects (Fig. 4.13.24; F104) that recall the effigy "handles" that stick up from the rim of a certain type of Toltec bowl (Linné 1934:114-15). These lack the opening that runs up through the Mexican handles; they are of very coarsely-tempered clay.

Animal Figurines, Modeled

A very interesting small modeled whistle shows a bird with two heads, a motif of which representations are found as far south as Peru. These heads are in the full round and are set one behind the other, instead of side by side; legs and beaks are broken off, but large pellets form the eyes, the mouthpiece serves as a tail, and projecting folds of clay suggest the wings (Fig. 4.13.15). Two bird heads (Fig. 4.13.10, 11) and one possible duck head (F108) conclude the list of animals.

Personal Ornaments

Apparently, rich as well as poor persons made use of baked clay as material for personal ornaments; it is not necessarily a poor man's substitute for richer materials, since clay ornaments were found with Vault Burial 5, that of a personage who had the finest jade ornaments yet found in the city.

The clay ornaments in the vault consisted of a chain of round beads, of well-fired gray-brown clay, more or less perfectly shaped, varying in diameter from 1.7 to 2.5 cm (M16). Two especially large beads have a diameter of 3.5 cm. With the same burial were several clay imitations of the *Spondylus limbatus* shell (Fig. 4.14.2), of which natural shell quantities, worked to a greater or lesser extent, were found with this burial. Each clay shell has two holes at the narrow end, presumably for suspension from a garment. A fragment of a similar clay shell was above the burial among the sherds, presumably building debris, washed in when the vault collapsed.

Two cylindrical objects from the same burial (Fig. 4.14.1) suggest pottery imitations of the jade beads that project in threes from the ends of neck-bars and sides and bottom of amulet plaques. A perforation runs through the 6.6 cm length of the object but is blocked at the wider end, depressed in the center, by stucco that has been painted blue.

From the South Group comes a pendant made from a disk of polychrome pottery with a groove around the edge and graffiti on one side (Fig. 4.13.12).

Ear ornaments include two fragments from possible earplugs (M 13, 14) of a roughly tubular type common in Mexico (Vaillant 1930, Pl. XL, XLI). They are of fine light brown clay, well polished; one has an elaborate incised design on the outside (Fig. 4.13.4). Both of these were found in the excavations on Pyramid O-13.

An object shaped like a tiny flat-bottomed, flat-rimmed dish with a hole in the center was probably the back part of an earplug (Fig. 4.13.6). It was found in excavations of structures in the South Group. It is of a shape often found in jadeite, and such an earplug is often illustrated on hieroglyph heads, as for instance, one form of the head-variant for the number one, where a round oval bead projects from just such a dish-shaped frame. This ear ornament would seem to be a conventionalization of a flower.

These pottery ornaments were, with the exception of the pendant and, possibly, the tubular earplugs, undoubtedly painted, probably to imitate jade, shell or metal.

Miscellany

Miscellaneous objects of baked clay include the lower part of a human mask, practically life size (Fig. 4.14.10); a figurine mold of a seated woman, wearing a necklace and bracelets of long links, her head missing above the chin (Fig. 4.14.9, 11); and a fragment of a mold for feather decorations for a figurine or a vessel (M 11). There are spindle-whorls, three small and hemispherical (Fig. 4.13.5), one flat, and a number of disks cut from pottery (Fig. 4.13.2), that may have been used as counters for games. They range from polychrome to coarse unslipped ware, most of them with a diameter 3-4 cm. One of them has a small circular depression in the center and eight others in a ring around it (Fig. 4.14.3). Another disk, crudely modeled, is convex on one side, with a concavity on the other just large enough to hold a small disk, convex on the side, flat on the other, that was found with it (Fig. 4.13.1). They show signs of having been fastened together, and may have been another type of conventionalized flower used in decoration. A probable pot-smoothing tool, now broken, was made from a potsherd (M 19). There is a crude, roughly conical stand, with a socket in the smaller end, that has no clear purpose (Fig. 4.14.4). There are fragments of modeled, incised decoration from vessels or idols, a small molded fruit that may be a pineapple, and a small curving Jaguar paw, with a hole in the palm, that may have been part of a censer (Fig. 4.13.5). A fragment of a tortilla griddle (M 20) found with Burial 5 had stucco on it and probably belonged to the debris washed into the vault.

Conclusions

We have seen that the figurines and pottery objects from, Piedras Negras show a developed artistic sense and a high degree of skill. These figurines are found throughout the

Table 4.6 Distribution Heads and Complete Figurines

	West Group	East Group	South Group	Southeast Group	Misc. Group	Total	Approximate Percentage By Types
Headform A	12	1	19	6	8	46	60
Headform B	2	2	5	1	5	15	20
Headform C	4	1	1	1	3	10	13
Style X	18 (23%)	4 (6%)	25 (35%)	8 (11%)	16 (25%)	71	93
Style Y	3					3	4
Modeled			2			2	3
	21	4	27	8	16	76	100

strata of excavation, and there is no evidence of early occupation nor the early stage of craftsmanship such as is indicated at Uaxactún by crude, modeled figurines.

Style X and Y are wide-spread in the Maya area (Butler 1935b). Their occurrence at Piedras Negras stamps them as Old Empire, since there is no indication of occupation of that city during any other period. This accords with Thompson's findings at Lubaantun (Joyce, Clark, and Thompson 1927:312), and with the resemblances of Style X to Usumacinta stone carving, which belongs to a tradition of art that was swallowed up in the architectural emphasis of the Later Maya period. While Style X seems to be that characteristic of the Old Empire, and Style Y has some suggestions of outside influence, we cannot at present determine their interrelationship.

Headform A may be taken as typically Maya, and is represented in other forms of art; headforms B and C can be recognized also in stone reliefs, and may have historical significance, as yet undetermined.

Distribution of Human Figurines

Table 4.6 provides the distribution of heads and complete figurines by architectural group.[9]

Although less work has been done in the South Group than in the West or the East, it is this section that has the most figurines, since in adding torsos to the specimens tabulated, we have thirty-five for the South Group, eighteen for the West, nine for the Southeast, and seven for the East. The number of figurines from the Southeast Group is relatively large in view of the slight amount of work done there; their scarcity in the East Group and prevalence in the South is surprising. This could be due to a correspondence of the period of occupation of the East Group with a time when figurines were little used, or it could be due to the association of figurines, with certain temples and not with others. We cannot apply specific dates to these figurines since they are not associated with dated monuments. Association with buildings and into Burial 5 gives us tentative datings, shown below.

Taking the city by sections, we find that in the East Group four figurines come from O-13, one from P-7, and two from a test pit.

Figurine Types and Ornaments in Use Before 9.16.0.0.0 (?)
Form A head of man. Fig. 4.12.14.
Torso fragments, F78, 80.
Agouti (?) Fig. 4.14.5.
Tubular earplugs(?). Fig. 4.13.4; M13.
Found in debris under floor of O-13, dated approximately by "Lintel" 3, 9.16.10.0.0 (?)

In the West Group there are examples of all types, with the exception of the Form B type with the right-angle head. Only in the West Group do we find the hooded Form A type, near the surface, and washed into the burial vault; and the flat red heads in Style Y, also near the surface. Six figurines are associated with J-3, four with J-23, one with J-6, and four come from test pits.

Objects Probably in Use at 9.15.0.0.0 (?)
Pottery beads, M16.
Pottery shells. Fig. 4.14.2.
Pottery cylinder. Fig. 4.14.1.
Found with Burial 5, which contains shell plates bearing the date 9.15.0.0.0. (?)
Figurine Types in Use After 9.15.0.0.0(?)
Hunchback with Form A head. Fig.4.12.
Hooded A head, F25.
Dog Head. Fig. 4.13.14.
Modeled bird head. Fig. 4.13.10.
In debris washed in above Burial 5.

Modeled and molded grotesque and right-angle Form B heads are confined to the South Group. Here, fourteen figurines come from the debris on the steps of R-3 and R-2, sixteen from the Ball Court and the Ball

Court Structures, R-11, and ten from test pits. The pottery found in connection with these structures is distinct in character, and is, probably late.

Figurine Types, Ornaments, and Objects Probably in Use Near the End of the City's Occupation
Form A heads with stepped headdress, F8, 9, 12.
Form A head with hooded headdress, F44.
Form A heads with applied headdress. Fig. 4.12.11; F34-37.
Miniature Form A head. Fig. 4.12.6.
Form A head of God D (?). Fig. 4.12.13.
Miniature effigy lid of Form A head. Fig. 4.12.9.
Form B head and bust. Fig. 4.13.19.
Form B head, partially perforated. Fig. 4.13.21
Right-angle B head. Fig. 4.13.20; F56.
Grotesque head. Fig. 4.13.25.
Torso fragments. Fig. 4.13.27, F81, 84, 35.
Torso fragments, perforated through the shoulders. Fig. 4.13.23; F82.
Modeled bearded head. Fig. 4.14.8.
Modeled round head, F95.
Owls. Fig. 4.14.6; F99.
Raccoon, F100
Modeled duck (?) head. F108.
Modeled bird head. Fig. 4.13.11.
Disk earplug. Fig. 4.13.6.
Pottery pendant. Fig. 4.13.12.
Pottery ornament (?). Fig. 4.13.1.
Figurine mold. Fig. 4.14.11.

The above figurines were in debris from R-2 and R-3, which, from its position, is judged to be late. Those in the debris from R-11, Ball Court structures, are included here since the pottery from R-11 was similar to, that from R-5.

Forms A and C have been found in the Southeast Section, in the excavation of probable residences, six figurines coming from the mounds of the V-1 group, three from a small mound to the north of V-1.

A series of test pits was dug throughout the city, most of then in arbitrary levels of 40 cm each. These levels were counted from the top down, one, two, three, etc. As stated above, certain features suggested contemporaneity of the same levels in different pits. All of the small number of figurines found in test pits are shown below according to levels. No individual pit contained more than four figurines and none showed any sequential development of figurine types worthy of consideration.

Level IV
Figurine with apparently mold-made head, and crude, modeled body. Fig. 4.13.8.

Level III
Form A head with turban, F29.
Right-angle B head, F57.
Torsos: old woman, F77, man with neckbar, F88, animal(?), F86.

Level II
Hunchback with Form A head, F2.
Form A head with stepped headdress, F10.
Form B head, F52.
Medallion with C head, F71.

Level I
Form A head with stepped headdress, F11.
Hooded A head. Fig. 4.12.7.
Form B heads. Fig. 4.13.9; F60.
Style Y head. Fig. 4.13.29.

While these tables, showing different types of tentative dating, are interesting, and complementary to each other they are not particularly significant, partially because of the small quantity of material represented by them, partially because of the nature of that material. Almost all the figurines from Piedras Negras are in one style of mold-made figurines that shows artistic and technical skill. The important factors from the chronological point of view are whether the city was settled by people who already possessed this kind of figurine; if not, when did they achieve it; how long did they make it; and are deviations from it historically important. The interrelation of various types contained in the prevailing Style X, is of little importance compared to these problems; the probability is that these types were all more or less contemporary.

So far as we know there was no slow development of figurine making at Piedras Negras. The people who settled the city had developed the art of making figurines in a mold to a fine point before they came, or received the knowledge full bloom from the outside source at some time during their life there. The first alternative seems the more probable. The evidence just examined suggests that Style X figurines were used up to the end of the occupation of the city. The archaistic grotesque head and the modeled animal heads, none of which seems to have Archaic earmarks, are deviations that may have occurred at anytime. The only exotic idea is the Style Y heads; one would hope for a consistency in time levels in their appearances; as yet we have only one Style Y head that can be given even a tentative date.

In relation to the figurine problem, Piedras Negras figurines are important, establishing fine mold-made figurines as a feature of Old Empire culture. Although such figurines occur all over the Maya area, at no other site except Lubaantun, do they come from authentic excavations of a

purely Old Empire site. The use of pottery jewelry is an interesting sidelight on the sophistication of the people.

In relation to the city, Piedras Negras figurines imply by their homogeneity of style a relatively short occupation of the site, when compared to Uaxactún, the only other Old Empire site in that general region where intensive digging has been done, and suggest that it was not settled until after the Maya Archaic period. This evidence agrees with that of the pottery.

In relation to other Maya sites, Piedras Negras figurines provide examples of types found along the Usumacinta from the highlands to Tabasco.

The prevalence of mold-made figurines and the absence of Archaic ones at Piedras Negras and along the Usumacinta, and the scarcity of mold-made figurines and the appearance of Archaic ones in the Petén, added to traits like distinction in pottery types and distribution of stone relief carving, suggest that there may have been peoples in these districts whose cultures varied in their forms of expression, though fundamentally the same (Thompson 1932:198-203). For while the Archaic figurines at Uaxactún might mean merely an earlier settlement there than at Piedras Negras, the fact that the lack of mold-made figurines at the former city persisted through Cycle Nine, the period when Piedras Negras was producing mold-made figurines, points to a definite difference in taste or technical knowledge. One could say that the Petén people, with fine architecture and pottery, lacked the type of art interest that the Usumacinta people expressed so excellently by their figurines and stone reliefs.

Note on Figurines Recovered in 1933

Outstanding figurines from 1933 include a small figure of the Diving God, with arms and legs broken off, a miniature Form B head, the same size as the tiny A head from 1932, and a figurine with molded A head with stepped headdress. The body of this figurine is crudely modeled, showing a standing person with outstretched arms. It is the second such figurine, combining fine, mold-made head with crude, modeled body, to be found at Piedras Negras. Similar Toltec figurines come from the Valley of Mexico (UM).

Appendix

Detailed Description of Figurines and Objects[10]

Figurines

Fl, L-28-111

Hunchback figurine. Form A head. A cap lying in a straight line across the forehead, earplugs and the oblong neckbar hanging from a thong, are applied. The back of the whistle or figurine, originally painted blue, was broken away, probably the cause of its being discarded and used in foundation for stucco work. 7 x 3.9 x 3. Fig. 4.12.15. West Group. In debris fallen through into Vault Burial 5.

F2, L-23-147

Hunchback torso, breast, left hand, and neck ornament, a bar with beads at each end and hanging from it. 2.1 x 1.9 x 1.4. South Group. From ravine between Ball Court and O-12; 40-80 cm from surface.

F3 (26)

Hunchback torso, breast, left arm, and lower half of torso. 4.5 x 4 x 2.5. Location Uncertain. Number lost in the fire.

F4, L-16-892

Complete A head, stepped headdress, very flattened forehead. 2.8 x 2.4 x 3.3. West Group. Main terrace of J-3.

F5, L-16-968

Complete A head, stepped headdress and ear plugs possibly applied, medial line incised, and not too straight. 4.3 x 5 x 3.3. Fig. 4.12.1. West Group. In debris around J-23.

F6, W-6-2

Complete A head, stepped headdress, earplugs missing. West Group. In debris around J-23.

F7, L-17-379

Form A head, broken off above lower line of stepped headdress. Left applied ear plug missing. 3.2 x 2.6 x 3.7. West Group. From edge of first bench west of the West Plaza, near surface.

F8, S-1-11

Complete A head, stepped headdress, applied earplugs projecting at side. 4.4 x 3 x 3.9. South Group. Ball court at end of R-11.

F9, L-28-114

Complete A head, stepped headdress, medial line molded, earplugs broken off. 4.5 x 3.2 x 3.1. Fig. 4.12.2. South Group. Between R-3 and R-2.

F10, S-7-2

Form A head lacking upper left corner and left earplug. Stepped headdress. Corners slightly rounded. 3.7 x 2.5 x 3. South Group. In wash between Ball Court and O-12, 40-80 cm below surface.

F11, S-7-6
Form A head missing above lower edge of stepped headdress. 2 x 2.1 x 2.7. South Group. As above within 40 cm of surface.

F12, S-11-2
Form A head, missing above lower edge of stepped headdress, the lowest corner of which covers the ears. South Group. In debris around R-2.

F13, L-17-260
Complete A head, stepped headdress, very flattened forehead, and right shoulder with traces of blue paint. Medial line incised, and flaring side pieces applied to the headdress. Earplugs missing. 4.3 x 2.7 x 3.5. Southeast Group. In humus near V-1 group.

F14, SE-1-4
Complete A head, stepped headdress, similar to L-17-260. Southeast Group. From rubble of step at north face of V-1.

F15,(1)
Complete A head, stepped headdress, very flat. 3.7 x 2.6 x 4.1. Provenience uncertain. Number lost in fire.

F16,(3)
Form A head, broken off below lower line of stepped headdress. 2.6 x 2.2. Provenience uncertain. Number lost in fire.

F17,(4)
Form A head, upper and left lower section of stepped headdress broken off. 2.7 x 2.1 x 2.6. Provenience uncertain. Number lost in fire.

F18, L-28-115
Complete A head, medial line molded. Stepped headdress. Applied earplugs. 3 x 2.6 x 3. Provenience uncertain. Number lost in fire.

F19, L-17-348
Form A head, broken off above lower line of stepped headdress. Right earplug missing; left, and head above it show turquoise blue paint. Two applied fillets across the back of the neck, the upper one incised vertically with a blunt tool. From river bank.

F20, M-15-1
Complete A head. Lower line of stepped headdress worn away. West Group. Found in clearing the road to Tenosique.

F21, M-12-1
Badly weathered A head. Face gone. East Group. From edge of first bench west of West Plaza, near surface.

F22, L-28-120
Form A head with face broken off below the eyebrows. Stepped headdress. Applied bands at the top implying elaborate dressing of woman's hair or wig. 4.2 x 2.8 x 3.5. Fig. 4.12.4. East Group. In wash from East Plaza.

F23, S-7-2
Badly weathered A head. The thick fold just below the top of the headdress may have been molded in one with the head. 3.3 x 2.3 x 2.1. From East Group. the wash between the Southern Ball Court and O-12, 40-80 cm below the surface.

F24, L-17-290
Form A head; two parallel rolls form a turban perched on top of stepped headdress. 4 x 3 x 3. Fig. 4.12.5. Southeast Group, near surface. Operation 2.

F25,W-17-1
Form A head with the face badly worn. Hood headdress. Top of head slopes down slightly from left to right, perhaps the result of exposure. 3.2 x 2.2 x 2.5. West Group. In first 2 m below surface of Burial Vault 5.

F26, L-28-117
Form A head with rounded top. Badly worn face and earplugs. Hood headdress. 2 x 3 x 3. Fig. 4.12.7. West Group. East side of K-5 within 40 cm of surface.

F27
Form A head broken off above lower line of hood headdress. 3.4 x 2.1 x 3.2. Provenience uncertain. Number lost in fire.

F28,W-6-2
Form A head. Headdress a puff-ball type of textile turban, resembling that of "Lintel" 2. West Group. In debris around J-23.

F29, L-28-132. Form A head
Broken off below the nose level. Buff clay. Headdress a turban like W-6-2. 3.4 x 3.3 x 2.8. Fig. 4.12.3. South Group. In the wash between the Ball Court and O-12, from 80-120 cm below surface.

F30, L-17-259
Form A head, with earplugs and owl mask head dress. 3.5 x 3.7 x 2.7. Fig. 4.12.12. Southeast Group. Under stone fill of terrace in plaza, V-1, group.

F31, L-17-284
Form A head, similar to L-17-269; another tier above owl mask. 5.5 x 4 x 3. Southeast Group. Near surface, Operation 2.

F32, M-12-1
Form A head, broken below forehead. West Group. In wash from west plaza.

F33, L-28-118
Finely modeled A head., in sandy red clay. Applied nose crest, probable earplugs, and an applied stepped headdress that begins with a crest, possibly of feathers, above the face, and rises, through encircling applied fillets, to a broken top. 6.5 x 3.6 x 4.9. Fig. 4.12.11. South Group. In debris beside R-2.

F34, S-11-2
Form A head with face worn away, upper half of much flattened head gone, and the headdress, except down left side. Solid neck 1.3 cm long, presumably fitting into separate body. 4.3 x 3.3 x 6. South Group. In debris around R-3.

F35, L-28-119
Form A head with left earplug and most of headdress gone, nose and forehead crest badly worn. 4.8 x 2.7 x 3.9. South Group. In debris beside stairway of R-11.

F36, S-1-11(a)
Form A head with face missing below forehead; line of headdress foundation, decoration at sides and top remain. 3 x 3 x 2.1. South Group. In debris at end of R-11.

F37, S-1-11(b)
Form A head. The top of the headdress is all that remains on this fragment, broken at the same point as S-1-11 (a). 4.8 x 2.2 x 2.3. South Group. In debris at end of R-11.

F38, M-18-7
A very flat A head, of sandy red clay; lacks the 1eft eye and left earplug and left half of the hat-brim that flares out above the face. Applied bar and dots on the forehead. 4.3 x 2.6 x 6. South Group. Exact location unknown.

F39, L-17-17
A Form A head with face broken away; left earplug, three plumes at top of head and part of headdress remain. 4 x 2.6 x 2. Fig. 4.12.8. Southeast Group. In rubble of step at north face of V-1.

F40, L-16-895
Form A head, with face finely modeled in buff clay, the half-opened mouth set slightly to one side below the nose. Two holes about 0.5 cm deep, where the ears should be. The very much flattened head, ending in a socket about 1 cm deep, had a deep groove around it about 0.7 cm from the top, probably to fasten on a headdress of some other material. 3.6 x 2.3 x 4.3. Fig. 4.12.10. West Group. From debris near Stela 40, J-3.

F41, L-16-970
Form A head with nose broken off, and head, above the lower line of the headdress. An applied band showing a frill fitting squarely about the face, low over the eyebrows. Solid neck. 3.5 x 2.5 x 3.2. Fig. 4.12.16. West Group. From debris around J-23.

F42, L-16-97
Fine A head showing an old man, probably Mam, the Old God, with projecting chin and Roman nose, his smile revealing his last two teeth in the corners of his mouth. He wears the remains of an elaborate applied headdress and large earplugs. The head is prolonged above the headdress into a socket 2.5 cm long, broken at the top; the solid neck is 3 cm long, the last 1 cm with remains of stucco. The original smoke-blackened, painted surface ends 1 cm higher, about the length of an average neck below the chin, suggesting that the head fitted originally into the body that belonged with it, then later, perhaps after the body was broken, was set alone into plaster. 9 (entire length) x 4 x 6. Fig. 4.12.14. East Group. From rear room, O-13.

F43, L-28-116
Miniature A head; no traces of hair or headdress. 2 x 1.3 x 1.8. Fig. 4.12.6. South Group. Top of R-11a.

F44, S-2-15
Form A head, with a hood-like headdress falling in folds over a close-fitting; cap, which shows in front, where both rise away from the face to a point over the right eyebrow. 5.4 x 3.2 x 2.9. South Group. From debris between R-3 and R-2.

F45, L-28-131
This weathered A head recalls God D of the carvings. The mouth is set in a grimace, the eyes in roughly square hollows, and a shallow depression the length of the forehead below the high cap-like headdress holds a symbol, in relief. This, however, is not the kin sign one would expect for God D but seems to be a crescent holding two dots. 4.5 x 2.8 x 4.5. Fig. 4.12.13. South Group. From debris between R-3 and R-2.

F46, S-2-24
Form A head, broken off below the nose, with the stepped headdress lacking the vertical line. It does not extend to the

usual height; it is flattened, but very short, ending at the top in a straight line with a slight dip in the middle. 2 x 2.2 x 2.8. South Group. From debris between R-3 and R-2.

F47, L-28-134
Hollow A head smoothly finished inside and around the bottom; probably the lid to a miniature jar representing a man's body. Of fine clay fired to a high brown. Finely molded face with applied ears and earplugs, large crescent-shaped labrets at either side of his mouth, and a headdress that has a pleated fold around the face and rises to a crest behind. 4.7 x 5.7 x 4.2. Fig. 4.12.9. South Group. From debris on top of R-11a, Ball Court.

F48, SE-1-38
Form A head broken off above lower line of headdress which runs straight across the forehead. Below it a square and two circles applied to forehead. Southeast Group. Under stone fill of plaza near V-1 group.

F49, L-16-894
Figurine with B head. A standing man wears large, applied earplugs, an oblong neck-bar, a loincloth, and has a circular depression 6 mm in depth, probably for inlay, between the hands resting at his waist. The figurine was originally painted blue, then stuccoed in such a way as to suggest its having been discarded and used with sherds as foundation for stucco building decoration. There is an old break where the whistle mouthpiece projected at the rear base. There is a perforation through the head from side to side, and part of the back of the head has been broken away on the left where the hole comes through. The stucco covered this break also. 6.8 x 3 x 2.6. Fig. 4.13.30. West Group. From debris on J-3, near Stela 40.

F50, L-28-112
Form B head and bust. Head perforated; decoration at top and applied earplugs broken off. Hands resting above girdle. Two large beads held at throat by thong. 4.5 (to waist) x 3.3 (at shoulders) x 3. Fig. 4.13.19. East Group. From surface debris on R-11a.

F51, L-28-121
Form B, head of buff clay, badly weathered. Perforation not complete. 3.3 x 2.3 x 3. Fig. 4.13.21. South Group. From debris between Structures R-3 and R-2.

F52, S-10-2
Form B head, not perforated. Earplugs missing. South Group. From ravine between Ball Court and O-12. 40-80 cm deep.

F53, L-28-122
Form B head with shallow holes, apparently an incomplete perforation, at side; heavy lidded eyes under high arched brows; fat cheeks. Perhaps a version of the Toltec Fat God. 3 x 2.2 x 2.7. Fig. 4.13.18. Provenience certain. Number lost in fire.

F54, L-17-383
Badly weathered B head modeled from crudely tempered brown clay. Eyes and bulging cheeks. 3 x 2.5 x 3. From road to Tenosique.

F55, L-28-123
Right angle B head with face broken off at the nose. Projection at the back. Traces of blue paint on the face. 3.5 x 2.5 x 3.3.

F56, S-2-24
Right angle B head with face broken off below the nose. Projection at the back. 2.7 x 2.5 x 3.3. South Group. From debris in front of R-3.

F57, S-7-3
Right angle B head. Chubby lower face. Traces of blue paint. 2 x 2.6 x 2.6. South Group. From ravine between Ball Court and O-12, 80-120 cm below surface.

F58, L-28-128
High, sloping B head of a toothless old man. Badly weathered, was painted blue. 3 x 2.2 x 2.7. Fig. 4.13.9. West Group. From within 40 cm of the surface of Court 3, Acropolis.

F59, E-7-6
Perforated B head, no headdress. 3.5 x 2.1 x 2.5. East Group. Top of O-5.

F60, L-28-124
Badly worn buff B head, flat at back as though it had been attached to something. Southeast Group. Within 40 cm of surface, main terrace.

F61, (22)
Short B head, 2.3 x 1.7 x 1.8. Provenience uncertain. Number lost in fire.

F62, L-17-381
Form B head of bald, round-headed old man, with sunken upper lip. Buff clay. Recalls heads from Teotihuacan. 2.3 x 1.6 x 1.9. Fig. 4.13.7. From river bank.

F63, L-28-130
Form B head with eye-sockets showing upper and lower lids; protruding cheekbones. Fold of upper lip so prolonged as to give effect of sweeping mustache. Cap-

like headdress or hair creased by vertical parallel lines and encircled near top by applied fillet. 4.5 x 2.5 x 3.5. Fig. 4.13.16. Provenience uncertain. Number lost in fire.

F64, L-17-196-7
Figurine torso and C head, molded separately in fine buff-brown clay, the solid neck inserted in a hole in the trunk. The right arm is missing, the left in full round outstretched, bent at the elbow, and broken off shortly below it. These were applied to the body, as was the long-skirted loincloth, the upper edge of which rises on the sides almost to the armpits, and the elaborate textile cape. This was in strips or of a striped material, indicated by incised lines. A braided border edges it around the bottom, and is in turn edged by a further textile strip, marked off in squares. On the shoulders and in the middle of the back were medallions, the centers roughened for inlay. The head ends abruptly and squarely with a socket 1 cm deep in the top, and has a ridge with a slight groove beneath it across the back from ear to ear. The original surface had a low polish. Head, 2.6 x 2.6 x 2.5; whole 14 x 9 x 5.3. Fig. 4.14.7. Southeast Group. Found about 1 m below the surface near Burial 1.

F65, L-28-127
Form C head like that of F64, lacking socket. Top of head apparently rounded from front to back. Stepped headdress very short. Ridge across back of neck slightly fluted. 3 x 2.6 x 2.5. Exact provenience unknown.

F66, L-16-671
Form C head, reddish brown, badly weathered, hair parted in the middle; a notch in the middle of the top of the head which is undercut, in back, 1.3 cm from the top of the head, to a depth of 0.7 cm. Though the notch may have served to help fasten the head wherever it was attached, it recalls the similarly cleft heads from Teotihuacan. 3.4 x 3.2 x 2.4. Fig. 4.13.13. West Group. Near plaza surface.

F67, L-28-133
Large heavy C head with flat surface, at back, of clay with which head and neck were fastened to some object. Face worn away; decoration gone from right side of head; hair parted in the middle. 4 x 5 x 4.1. South Group. Ball Court

F68, (25)
Square C head. Hair parted in middle and drawn down to the ears. Badly burnt. 3 x 2 x 2.4. Provenience uncertain. Number lost in fire.

F69, L-28-126
Form C head with close headdress wrapped in two broad, overlapping folds. Traces of blue paint on headdress. 4.3 x 2.7 x 2.7. Fig. 4.13.22. West Group. Plat form north of J-3.

F70, L-16-890
Form C head broken off above forehead; features worn down; applied right earplug, left missing. 3.3 x 3.6 x 2.8. West Group. In debris on J-3.

F71
Square medallion with badly worn C head in center. 2.9 x 2.4 x 1.6. West Group. From the West Plaza. 40-80 cm below the surface.

F72, L-28-125
Form C head, with two applied bands meeting above the center of the forehead. 4 x 3.3 x 2. East Group. Southeast corner of the plaza.

F73, L-17-376
Badly weathered C head. 4.4 x 3.8 x 3.2. Provenience unknown.

F74, L-28-113
Complete figurine of reddish clay, The badly weathered head may have been mold-made, with fine features; the very crude, hand-made body shows a woman holding a blanket across her chest. 4.8 (entire height) x 2.4 x 1.3. Fig. 4.13.8. South Group. From ravine between Ball Court and O-12; 120-160 cm below surface.

F75, L-28-129
Grotesque face with conventionalized wrinkles on forehead and cheeks, open mouth and-protruding tongue. Back smoothed vertically into a concavity that might have fitted over a finger or stick. 4 x 2.6 x 2.9. Fig. 4.13.25. South Group. From debris beside stair way of R-11a, 30 cm above floor.

F76 (24)
Top of a head with ring-forming hole for suspension from front to back. 4 x 1.8 x 2. Provenience uncertain. Number lost in fire.

F77, L-28-145
Torso fragment showing the pendent breasts of an old woman. 5.6 x 4.3. East Group. About 1 m below the surface of the plaza at the east side of K-5.

F78, L-16-34
Torso fragment, showing shoulders below a tight necklace of large beads, and a very short flaring cape tied with a flourish in front. This fragment is interesting technically, as the solid core of the neck continues down to project

0.7 cm below the under surface of the shoulders, showing that the figurine was built up by modeling the body onto the head. 9 cm wide at the shoulders. East Group. Rear room, O-13.

F79, L-16-448
Man's torso, with traces of blue paint, and a necklace, fastening in front, that looks like a thong with one end looped over and hanging down. 3.5 x 4.2. East Group. North west rear room, P-7

F80, E-1-42
Man's torso, wearing cape and cuffs of large beads, right arm standing out from body. East Group. Rear room, O-13.

F81, L-23-148
Torso fragment, showing a man grasping his left elbow with his right hand. 3 x 2.8. South Group. From debris at end of R-11.

F82, S-2-11
Man's torso, right arm missing; pierced for suspension from side to side through shoulders. 4.6 x 2.6**.** South Group. From second terrace of R-3.

F83, L-28-144
Woman's torso, with perforations similar to F82. 4 x 4.2. Fig. 4.13.23. South Group. From base of R-5.

F84, L-16-976
Man's torso, wearing a loincloth and a short plain necklace from which hangs a celt-shaped pendant. Projecting whistle mouthpiece at lower back. 12.5 x 11 x 9.4. South Group. Ball Court.

F85, S-1-13
Torso of seated man with thong-like necklace looped about his throat. Whistle mouthpiece at back is not perforated. South Group. Ball Court. At end of R-11.

F86, L-28-108
Small, plump torso, presumably human, though it may have had an animal head; perforated whistle mouthpiece at lower back. 5.6 x 3.6 x 3.3. South Group. In wash between Ball Court and O-12; 30-120 cm deep.

F87, L-28-142
Torso, cleverly modeled in buff clay, of a man with hands clasped at his right shoulder. The heavy, sagging body and very thin arms probably depict age. 7.8 x 4.3. Fig. 4.13.27. South Group. From debris between R-3 and R-2.

F88, S-7-3
Man's torso with oblong bar neck ornament. 4.5 x 2.7. South Group. From ravine between Ball Court and O-12; 80-120 cm below surface.

F89, SE-1-4
Woman's torso in long, flowing, low-necked gown. Southeast Group. Operation 1.

F90, L-28-143
Woman's torso in long, flowing, low-necked gown, with sleeves falling from the wrists into long points. 4.7 x 4. Fig. 4.13.26. Provenience uncertain. Number lost in the fire.

F91, L-28-137
Head with right side of elaborate headdress broken off. 4.2 x 4.7 x 1.7. Fig. 4.13.29. West Group. At east side of K-5, within 40 cm of surface.

F92, L-17-380
Head with a headdress of which the main element is a twisted textile strip. 5.6 x 7.1 x 2.1. Fig. 4.13.28. West Group. In western wash from plaza.

F93, M-12-1
Head with a headdress of which the main element is a twisted textile strip. 5.6 x 7.1 x 2.1. West Group. In western wash from plaza.

F94, L-28-135
A grotesque, bearded head, rising from a solid, bull-like neck. Headdress a crescent crest behind the raised eyebrows, which, with popping eyes and open mouth, register shock and surprise. Eyes are pellets with hole punched in the center. Face was painted dark red. Partially smoke blackened. 4.2 x 3.9 x 4.5. Fig. 4.14.8. South Group. From debris around stairway of R-11a, 30 cm above floor.

F95, L-28-136
Small round head, encircled above the forehead by an applied fillet. Features badly worn, left side broken away; eye apparently an applied pellet with incised horizontal line. 2.3 x 2.3 x 2.2. South Group. From debris around stairway of R-11a, 30 cm above floor.

F96, L-28-138
Dog's head, broken, with collar that is molded in one with the head in front, and continued in back by an applied fillet. Traces of stucco. 3.5 x. 2.7 x 3.8. Fig. 4.13.14. West Group. In the debris above Vault Burial 5.

F97, L-17-249
Figurine of a possible agouti, seated with front paws on his knees. Ears and neck pendant are applied, toes indicated by parallel lines pushed in from the edge of his feet with a fairly sharp tool. 6.6 x 3.4 x 4.9. Fig. 4.14.5. East Group. Rear room of O-13.

F98, L-28-109
Figurine of a plump standing owl; shows traces of blue paint. 7.5 x 4.5 x 6.1. Fig. 4.14.6. South Group. Near R-3.

F99, S-1-13
As F98, lacking paint, 6.7 x 4.5 x 4.4. South Group. At end of R-11.

F100, S-1-11
Figurine of a probable raccoon, standing, with front paws resting on his paunch. South Group. At end of R-11.

F101, L-17-269
Owl head, incomplete, of buff clay. 2.5 x 2.9 x 2.5. Fig. 4.13.17. Southeast Group. From the upper level of V-1.

F102, (27)
As F101. Provenience uncertain. Number lost in fire.

F103, L-17-376
Standing jaguar-headed person, molded on the face of a rounded oblong piece of clay, very coarse, used perhaps as ornamental handle to vessel. 10.8 x 3.6 x 3. Fig. 4.13.24. Provenience unknown. Number lost in fire.

F104, M-11-1
As F103. Provenience unknown. Number lost in fire.

F105, L-28-110
A crudely modeled whistle showing a double-headed bird, the heads set one behind the other. Legs and beaks are broken off. Large pellets form the eyes, a projecting fold of clay the wings, and the mouthpiece serves as tail. 4.5 x 3.9 x 5. Fig. 4.13.15. West Group. From floor in front of niche, J-6.

F106, L-28-139
Bird head modeled in fine clay, the eyes round applied pellets. 3.2 x 2 x 2.5. Fig. 4.13.10. West Group. In the debris above Vault Burial 5.

F107, L-28-140
Crudely modeled bird head, the eye an incised circle with a ring of dots punched around it. 2.6 x 1.9 x 2.9. Fig. 4.13.11. South Group. From the debris beside the stairway of R-11a, 30 cm from surface.

F108, S-2-23
A crudely modeled fragment that may represent duck. It has a flat projecting bill, and an eye made of an applied pellet with a hole punched in it. South Group. From between R-3 and R-2.

Personal Ornaments

M1, L-28-157a, b
A crudely modeled disk in brown clay, convex on one side with a concavity on the other just the size of a small disk, convex on one side, flat on the other, that was found with it, and shows signs of having been fastened to it. 4.5 x 7; 2.5 x 0.6. Fig. 4.13.1. South Group. North Step, R-11a.

M2, L-28-153
A tiny flat-rimmed "dish" with a hole in the flat base. Of brown clay with a "float" surface. Probably part of an earplug. 3.5 x 1.3. Fig. 4.13.6. South Group. From debris between R-3 and R-2.

M13, L-28-34
Polished, very fine light brown fragment of object which may be an earplug. Roughly tubular, flaring at end. Incised line parallel to edge outside. Incised lines at right angles to edge inside. 2.5 x 2.4 x.2. East Group. Beneath doorway pillar, O-13.

M14, L-27-176
As M13; engraved, elaborate design outside. 3.2 x 2.5 x 0.2. Fig. 4.13.4. East Group. In front of third terrace.

M6, L-28-154
Disk cut from polychrome vessel, with a hole near the edge at a point where this is slightly flattened, and a shallow groove, on the narrow surface of the edge, that deepens on the flattened side to cut into the biconical perforation. A possible amulet, it has on both sides rude graffiti, one of which could be taken to represent a person with his left arm stretched across his chest. 3.4 ? x 0.7. Fig. 4.13.12. South Group. From debris at end of R-11.

M16, L-27-16, 17
Beads, roughly spherical in form, of gray-brown clay. Tubular perforation 0.4 wide. Bead diameters varies from 1.7 to 2.5. Two have outer diameter of 3.5, inner diameter of 2. West Group. With burial in Vault Burial 5.

M17, L-27-13, 14
Convex clay shells, roughly pear-shaped. Greatest width, 10; length, 12; thickness, 0.2. Two holes at the top, parallel to the edge, which have a concave depression between them. Lower edge is fluted. Traces of stucco

or whitewash inside and of red paint inside and out. Fig. 4.14.2. West Group. With burial in Vault Burial 5.

M18, L-27-15
Cylindrical object, 6.6 long, with flaring cuff applied to the final 1 cm diameter 1.5 at the smaller end, 2.3 at the larger. A perforation seems to run the length of it, but is blocked at the wide end, which has a central depression, by stucco, which was painted blue. Fig. 4.14.1. West Group. With burial in Vault Burial 5.

Miscellaneous Objects

M4, L-28-158
Spindle-whorl, flattened, hemispherical, undecorated. 3 x 1. Fig. 4.13.5. South Group. From the debris at the end of R-11.

M5, S-2-17
Spindle-whorl, perforated disk of unslipped, coarse ware. 5 x 0.5. South Group. From the debris between R-3 and R-2.

M9, L-17-219
Half of a flattened, hemispherical spindle whorl, undecorated. 2.5 x 1.1. Southeast Group. West part of Room A, V-1.

M12, L-17-385
Spindle-whorl, hemispherical, undecorated. 2 x 1.1. East Group. From cache under floor of O-13.

M7, L-28-156
A large disk, cut from a coarse unslipped vessel, has on its inner surface, a central conical depression,0.5 in diameter,0.2 deep, with eight similar depressions in a ring around it. 6.8 x 9. Fig. 4.14.3. South Group. From top of R-11a, north.

M19, SE-1-19
Probable pottery-making tool of negative-painted polychrome ware. Broken above rounded, oval end. 3.5 x 3.7 x 0.5. Southeast Group. From test pit near Burial 1.

M11 (28)
Fragment, bearing intaglio feather design. Seems to be the squared end of a mold for decoration to be applied to a figurine or a vessel. 5.2 x 4.2 x 1.3. Provenience uncertain. Number lost in fire.

M15, L-28-151
Hand with incurved claws, presumably jaguar paw. Hollow, with hole in center of pad. Probably part of censer. 4.2 x 3.7 x 2.7. Fig. 4.13.3. East Group. From cache under floor of O-13.

M3, L-28-152
Figurine mold, showing woman seated with her hands on her knees, wearing a necklace and bracelets of oblong links. The head is missing above the mouth. 8 x 7. Thickness of mold. 1.0-1.5. Fig. 4.14.11. South Group. On steps of R-2.

M10, L-16-866
Lower part of a mask of thick reddish clay that had once been painted red. Shows mouth, chin, and half the nose. 10.6 x 2.5 x 2.2. Fig. 4.14.10. Southeast Group. Above terrace floor, near stair, V-1.

M8, L-28-170
Crudely modeled stand, with flat base, of coarse brown clay. The shape is roughly that of a truncated cone, curving in slightly below the top, which has a socket 2 cm deep. 4.5 x 3.6. Fig. 4.14.4. South Group. From top of R-11a, northwest.

M20, L-28-8
Fragment of flat tortilla griddle. Traces of stucco. 16 x 10 x 2. West Group. With Vault Burial 5.

Notes

1. The advice of Mr. Henry B. Roberts of the Carnegie Institution of Washington has been useful in laying out the plan of this report.

2. For full reports of petrological examinations, see Appendix.

3. Since this specimen was lost in a fire at the camp, it is impossible to give the exact shade.

4. Monument dates used are those worked out by Dr. S. G. Morley of the Carnegie Institution of Washington.

5. That part of the 1931 sherds which is in Guatemala was not available for study.

6. J. Alden Mason, unpublished Piedras Negras Preliminary Report on K-5.

7. Courtesy of Peabody Museum, Cambridge.

8. See Appendix for detailed description of all specimens and their proveniences.

9. It must be remembered that the Miscellaneous Group, Style X, consisting of one complete figurine, two heads, and fourteen torsos, is not included in this chart. Nor are the two headless hunchbacks included, although they presumably have the A Headform of the complete one.

10. Three numbers, refer, in order given, to height, width and thickness from front to back. All are maximum measurements, with the exception of figurine heads; with these

the height is measured from the top of the head to a backward projection of the chin line, the thickness from the chin to a downward projection of the top of the head. Two numbers refer usually to height and width; in the case of the spindle whorls and disks, to diameter and thickness. It is assumed that effigies are cast in a mold, unless otherwise stated.

5
A Pyramid Without Temple Ruins (Structure J-3)

Linton Satterthwaite

The following report covers a superficial investigation rather than the proper excavation of one of the largest and most imposing of the thirteen major pyramids at Piedras Negras. Its chief claim on our interest is the fact that while apparently not early, but contemporary with pyramid temples, it did not support a masonry temple, and probably supported no building at all. In its final form it is to be thought of as a gigantic altar, not flat-topped. It nevertheless was furnished with carved stela, elsewhere at this site found only on or before temple-bearing pyramids.

Three successive episodes of building have been distinguished, and others very likely lie below the shallow limits of our trenches. One of the three known periods, not the earliest, can be provisionally dated at about 9.15.0.0.0 in the Maya chronology. The danger of misinterpretation in this respect is very much reduced by the occurrence on the dated construction of four stela marking successive hotuns, and, on the same plaza, a single line of stela marking eight earlier successive hotuns, with a gap of only one hotun between the two series. It is unlikely that either group has been moved as whole. From this follows the improbability that any have been moved, the habit of building up a group of stela at one spot, then soon moving to our pyramid and repeating the process, being rather well established.

The structure provides opportunity to describe a monument found and numbered "Lintel" 5 by the discoverer of the city, Teobert Maler, but not illustrated by him; and to show that, while illegible, it contained a long inscription, in common with most other of the smaller monuments of the city. These have been in the past labeled "Lintels" on the theory that they once spanned doorways. However, they are usually very thin, always lack suitable plain ends to give bearing on the door-jambs, and some of them disagree in other ways from known stone lintels here and elsewhere. The occurrence of "Lintel" 5 where there was no masonry temple confirms our belief that stone panels were here carved for vertical placement; and in some cases at least were not set in building walls.

The yield of objects was meager, but includes items of great interest: flint knives in positions suggesting their use on the spot, though they may have been cached under floors; a pottery censer of unusual type, and stone portable altar cached at the base of a dated stela; and part of a pottery mask, besides figurines and potsherds.

Something has been learned of local methods of building up the fill or hearting, of stairway construction, and of preparing the terrace for reception of stela.

The work on this structure was done in 1931 by the writer under Dr. J. Alden Mason, Director of the First Eldridge R. Johnson Middle American Expedition of the University Museum. The contemporary dates of monuments mentioned are according to a manuscript list very kindly furnished us by Dr. Sylvanus G. Morley of the Carnegie Institution of Washington. Dr. Morley has referred to various Piedras Negras readings in various publications, but has not as yet published the full list, or his detailed discussions of particular inscriptions.

General Description

Structure J-3 is a "false" pyramid built against the southwesterly corner of the Acropolis hill, facing the end of the long West Group Plaza where it gives place to lower levels between it and the river. It was ascended by exterior flights of stairs placed over the terraced front façade. The pyramid faces about nineteen degrees south of east. Looking to the front from the platform which surmounts it there is a commanding view over the West and South Groups with much of the Southeast Group plainly visible beyond. To the left most of the East Group is in view, with the pyramidal temple K-5 of the West Group at the extreme left. A little to the right the river curves out of sight beyond the Sacrificial Rock.

Looking out from the left side of the structure, Court 1 lies in full view almost immediately below, with the pyramidal temple, Structure J-4, rising beyond, the stone temple on its summit being at about eye level. Besides the three palaces associated with Court 1, (Structures J-2, J-6 and J-8,) the two on the easterly sides of Courts 2

and 3, (Structures J-9 and J-18,) are close at hand on the left, the first considerably below, the latter about on the eye level. The relations of all these buildings are shown on the general plan of the city.[2]

To the rear and to the right precipitous bedrock drops to the surface of the river, about 8 m below at low water. The location is an imposing one, except from the northwest, where the pyramid abuts upon a still higher portion of the Acropolis.

Considering the Acropolis as a whole, the mass and form of this pyramid balances that of J-4 at the other end of that group of buildings, and takes full advantage of the steeply rising hill to gain an imposing height with a minimum of labor. Its full height (30 m) is seen only from the front. Seen from the rear it is only about 6 m high. Seen from the platform terrace J-5 on its left, its height is about 15.5 m. The greatest impression of height is to be had on its right (river) side, but practically all of this side is natural bedrock, carved to a steep slope by the river.

Maler (1901:55) discovered "Lintel" 5 on the slopes of this pyramid and reported the partial remains of a rear apartment still standing and we naturally expected to find a stone temple at the top. While excavation on the top was not complete, there is no doubt that the pyramid proper served to support only a solid platform which is more or less integral with it, indicated in plan and section in Figure 5.1, and in section again in Figure 5.2; with the possibility but hardly probability that there was a perishable building on this. This platform is approximately rectangular, measuring about 1 m in length and about 6.75 m in width. It is not flat-topped. Rows of roughly squared stones resting directly on the fill, each row parallel with the front and being a little higher than the row before it, suggest rather conclusively that the top of this platform consisted of a series of broad low steps rising to a final and rear level measuring only about 1.8 m from front to rear. All signs of concrete flooring had long since disappeared, doubtless because there was no temple debris to protect them.

The lines of stones could not be traced clear to the sides, or for equal distances. They were undoubtedly partially obliterated by tree roots and possibly there were others which were entirely so. The levels of those found, however, seem to rule out the hypothesis that the front part of the platform was really a stairway with very broad treads of approximately equal widths. The measurements indicate, from front to rear, four steps or levels having "treads" of about 80, 180, 140, and 90 cm depth, respectively, (front to rear measurements) and each about 30 cm high, leading to the rear level at the top, which as stated is only about 1.8 m in depth.

The height of this rear portion of the platform, 30.2 m, is the height used above for the pyramid as a whole. The height reached by the main front stairway, which rises to the ninth terrace, is just short of 26 m, and this perhaps should be taken as the height of the pyramid proper, when comparing it with others which support temples on their summits.

The front and side walls of the surmounting platform, at least in its original form, were vertical. This was almost certainly true of the original rear wall but in the latest form the rear wall is battered, and a battered wall was placed against the right (southwest) wall. We failed to make this out on the left side but it may have been present.

The front wall is set 5.5 m back from the edge of the ninth terrace and its top is 2.9 m higher. Apparently a stairway, completely ruined and of uncertain-width, led from the ninth terrace up to the front and lowest level or step of the platform. The debris here included stones suitable for steps and underneath is a solid earth and stone fill (Fig. 5.2a). This stairway probably passed over a tenth terrace or subsidiary platform which we show in broken lines on the plan. (Fig. 5.1a). The evidence for this is the floor running under the fill and under the front platform wall, numbered (4), in the section Figure 5.2a, and the level of the terrace wall at the rear, which is marked (1) on the same section.

The pyramid proper, disregarding the platform at the top with its vertically walled tenth terrace, just described, consists of nine terraces, numbered from the bottom up. A glance at the plan shows that most of these, due to the location on a steep hillside, had to be built only at the front and to a varying extent at the sides. Only the ninth and the somewhat problematical tenth extend around the rear.

As found, the structure was a mere mound. We failed to find walls of the eighth, ninth or tenth terraces in position on the left (northeasterly) side though we penetrated to pure rock fill. Remnants of these three are in place on the other side. At the front the fourth to ninth terraces were in fair condition under the stairway, and for 2-3 m on either side, at which points they had completely fallen. While our excavations at these levels included only the stairway and strips 2-3 m wide on either side, further excavation would probably have yielded nothing more in position.

We cleared but little on the first terrace. The second, which carried Stela 9, 10, 11 and 40, was cleared from end to end, from the front to a line coinciding with that of the bottom step of the main stairway rising from it. We followed the side walls of this stairway back to the third terrace wall with trenches about 3 m wide. We could have followed this terrace wall farther to either side, but did not, and the debris covering the rear of this broad second terrace may still contain something of interest.

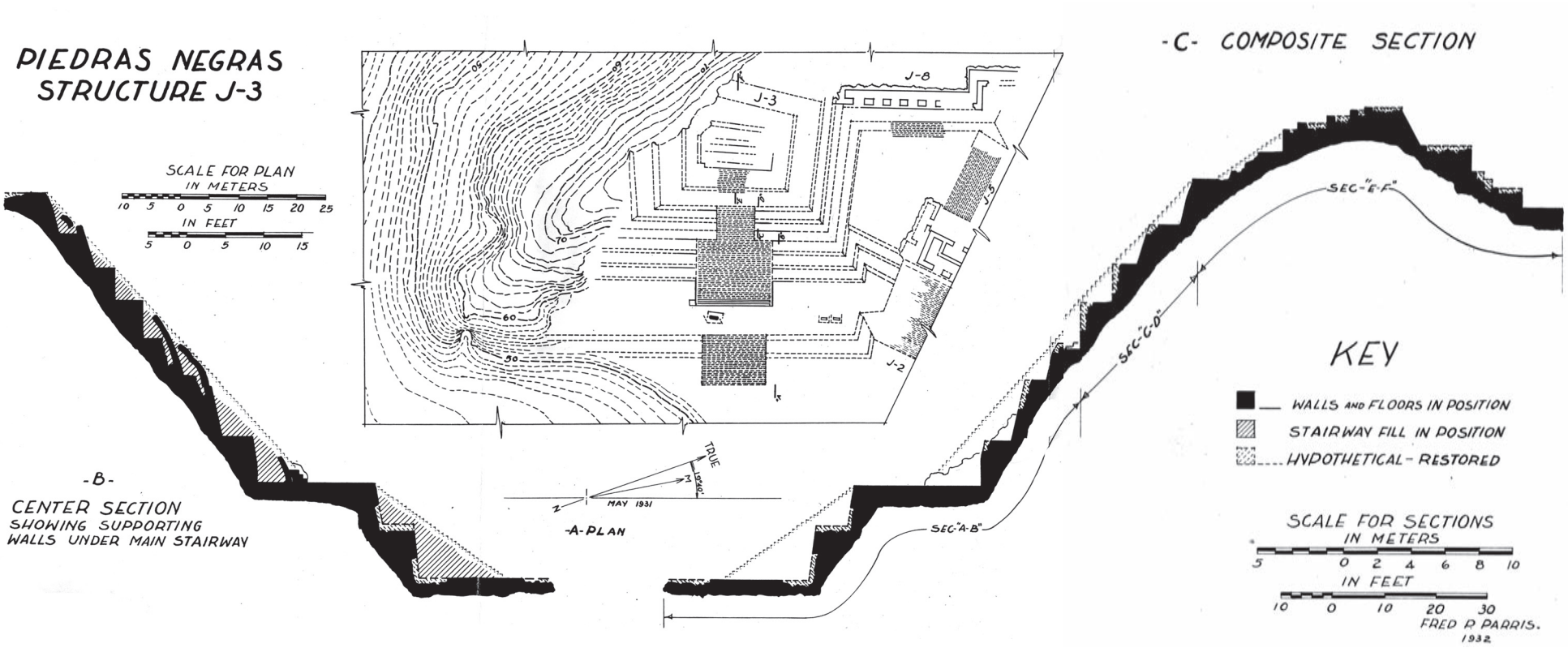


Figure 5.1 a. Plan Structure J-3. Excepting stela cists, broken lines indicate re-stored features, fallen or not excavated; b. center section; c. composite section.

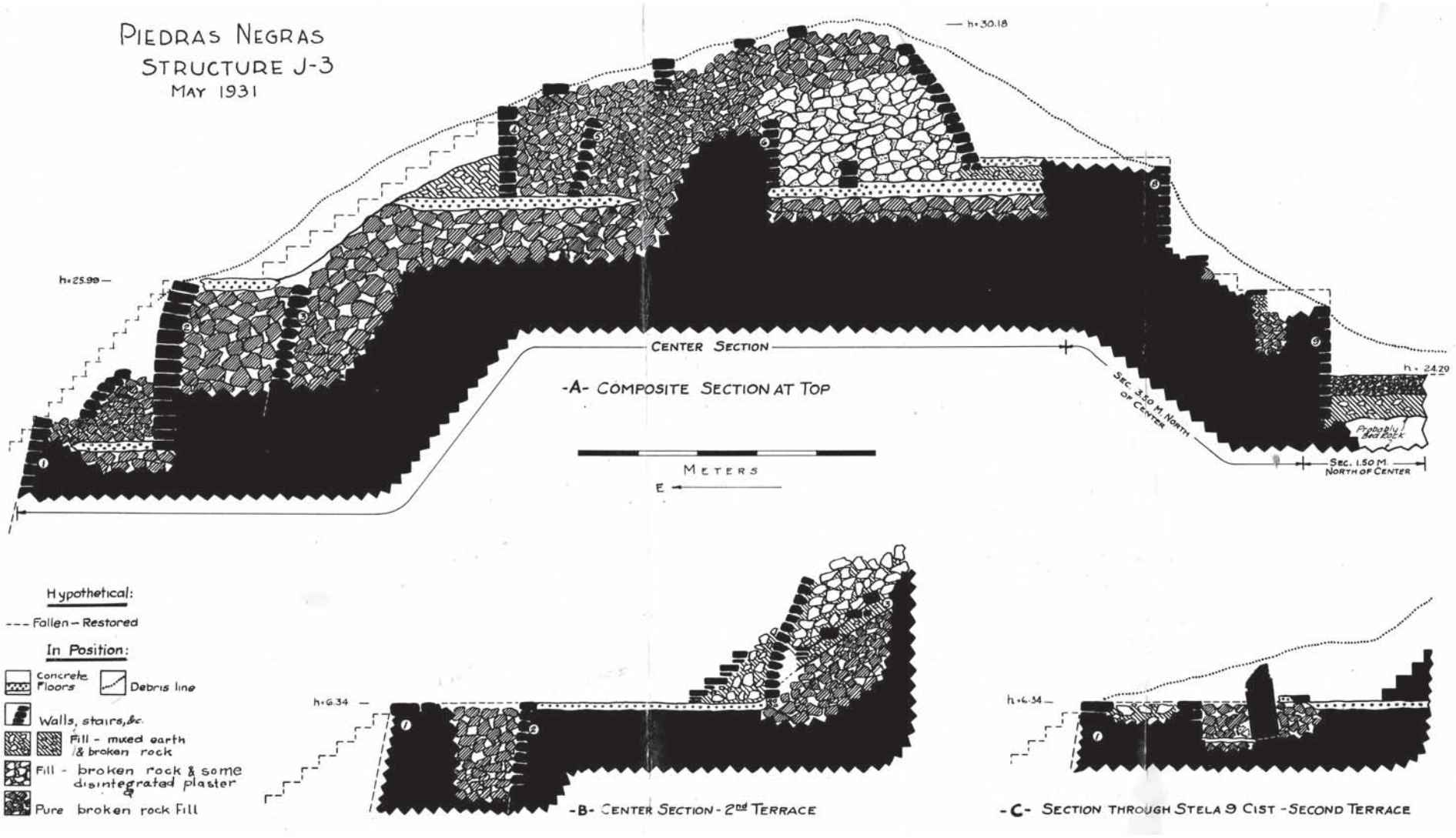


Figure 5.2 a. Composite section at top. Heights indicated on this plate are in meters above plaza level; b. center section, Second Terrace; c. section through Stela 9 cist, Second Terrace.

The first terrace is subsidiary to the second. The latter is longer and very much deeper than any of the others, and served to support the four stela mentioned. This second terrace appears to be not quite symmetrical with those above. Comparison with the stela-bearing terrace J-1 at the other and of the Acropolis lends additional evidence for disassociating it from the rest of the pyramid from the point of view of design. It is about 49 m long and 7.7 m deep, except where the stairway rising from it projects forward 3.7 m from the third terrace wall.

The length of the third terrace as restored is about 45 m, that of the ninth 25 m, the others being restored to correspond, These dimensions are consistent with the contours of the debris and bedrock, but are by no means accurate.

The terraces were not of uniform height, nor of uniform character. The first is decidedly higher than the second, but the fourth is about a meter higher than the third. Above this the differences are small, possibly within our margin of error. Measured heights from floor to floor, beginning with the first and lowest, were 3.7 m, 2.6 m, 3.0 m, 4.3 m, 2.5 m, 2.6 m, 2.3 m, 2.3 m, and 2.7 m. At the front the floor of the supposed tenth terrace or subsidiary platform was 1.4 m above the floor of the ninth terrace. At the rear it is a little higher and was further increased by a secondary floor contemporary with the final battered rear-wall of the platform above (see section, Fig. 5.2a).

The height of the final platform above the front level of the perhaps hypothetical tenth terrace is 1.5 m at the front, 2.8 m at the rear. That is, the rear and highest level of the platform is about 1.3 m higher than the front.

The depths (front to rear dimensions) of all the terraces except the second and the ninth vary somewhat, but are all about 2 m. The depth of the ninth was perhaps greater, but could not be measured.

All our excavations on this building were made during the 1931 season, and measurements were with Brunton compass, a small tripod level, tape, meter stick and flexible leveling rod. They are subject to the error inherent in these types of instruments, but where we have checked similar measurements with the transit the error has seldom been more than 10-20 cm or, in the case of bearings, one degree. Figure 5.1 was drawn by Mr. Fred P. Parris, the excavated details being based on notes of the writer. The writer is entirely responsible for Figure 5.2.

The retaining walls of the first and second terraces are slightly battered at the top and were not excavated to their bottoms. That of the third is vertical at the bottom, battered at the top; that of the fourth is battered at the bottom and (where preserved under the stairway) continues at the same inclination to the top; that of the fifth is battered at the bottom and curves back still further at the top; the walls of the sixth and seventh are vertical, probably to the full height, as indicated under the stairway; that of the eighth is battered, and that of the ninth battered with an extra in-curve at the top.

The lowest flight of the stairway rises from the West Group Plaza to the second terrace, passing over the first. Excavations here were slight, but the debris indicates its width as about 11.5 m, slightly less than that of the second and main flight. This lower flight rises about 6.3 m, receding about 9 m in the process, giving an angle of ascent of approximately 35 degrees above horizontal. It was in a badly ruined state.

The second flight was well preserved at the bottom, having the four lowest steps in position (Fig. 5.3a-c) and is here 13.5 m wide. It rises full width to the top of the sixth terrace. Although the steps above the fourth were completely fallen, this was definitely established by the positions of remnants of the vertical side retaining walls. These were found at the left (northeasterly side) on the second, third and fifth terraces; and at the right on the second, fourth and fifth terraces. The side retaining walls found on the fifth terrace obviously carried the stairway to the surface of the next or sixth terrace. On the sixth and higher terraces all traces of stairway side walls had disappeared. We could determine the approximate width of this higher portion by noting where the terrace retaining walls still rose to some height; they are always better preserved under the protecting debris of stairways, and especially by noting where the deposit on the terraces ceased to be obviously fallen debris and gave way to artificial rock fill. These two criteria gave consistent results on the sixth, seventh and eight terraces, on both sides, and indicate the restored width, about half that of the lower portion.

We have restored the lower and wider portion as continuous with the narrower upper portion. If it was in reality a separate flight the sixth terrace must have been made deeper at the center than at the sides, by a now fallen addition. But since the plane of ascent of the lower portion of the stairway, as indicated by the four steps in position at the bottom, just clears the front edge of the sixth terrace as found, we believe our restoration is correct. The angle of ascent for the whole flight, which we have sometimes called the main stairway, is about 45 degrees above horizontal, the flight rising about 19.7 m and receding toward the rear about 18 m. The risers of the lower four steps are about 22 cm in height, the width of the treads about the same.

There was no satisfactory evidence remaining to give the width or the size of the steps of the final flight leading to the top platform. Its angle of ascent was probably a little more gentle than that of the main flight below.

There were some uncertain hints of minor stairways leading down from the right (southwesterly) side of the

platform to a triangular projection of bedrock to the right and somewhat forward of the platform. The surface of this projection had been leveled off artificially at about the level of the fifth terrace.

At either end of the four preserved lower steps were stones in position which can hardly be anything else than the last vestiges of balustrades. Their width was definitely 50 cm, the outer sides being continuous with the side retaining walls of the stairway. Of their height we can say no more than that they were high enough to more than clear the front edges of the steps. We have no data showing their presence or absence on the upper part of this flight, nor on the other flights.

Against the right corner of this flight a small low rectangular platform or altar was placed on the second terrace, so that its front face was continuous with the front and lower end of the balustrade. This construction was 60 cm wide, 75 cm long, and not less than 40 cm high. We may have destroyed higher courses without realizing it.

The terraces and the main or second flight of the stairway were without doubt covered with plaster, remnants being found on the lower steps. In all probability there was considerable ornamental stucco work. Disintegrated mortar covered the entire second terrace, underlying stone debris everywhere, showing that it had washed down before the structure itself began to crumble. In the deposit were a few heavy sherds with stucco adhering. Sherds were extensively used in building up stucco designs on Structure J-2 (Satterthwaite 1935b), and the same use may be inferred here. The bulk of such stucco work would be expected on the terraces at the sides of the stairway, where our excavations on the rear of the terrace are incomplete.

The deposit of plaster or stucco debris rises from a few centimeters depth at the front to 50 cm in depth in the angle between the stairway and terrace walls, on the left (northeast) side. Here it was gray in color. In the corresponding corner at the other side the depth was 1.5 m and the color a light yellow. This latter deposit extends almost to the southwesterly end of the terrace, over 20 m distant. Actual fragments of ornamental stucco work, of the same color, were found near the outer end of this deposit, and also in debris at levels corresponding to the seventh and eighth terraces. There was evidently much more stucco decoration on the right or southwesterly side than on the left, and possibly there was here a separate or subsidiary structure.

A puzzling feature of the rock fill below the surface of the rear and highest level of the platform at the top is that it is permeated by a fine yellow powder, presumably disintegrated plaster or stucco. The stones rest one on the other, as in pure rock fills, and we are not dealing with a mortar and rubble fill. Perhaps the plaster was washed down from large stucco designs on the upper level with all traces washed away near the surface. More probably this mortar is debris from an earlier period and found its way into the fill for the latest.

Periods of Building

Our excavations were too superficial to show whether or not the pyramid is placed over entirely buried earlier structures, but they were sufficient to show extensive remodeling.

The cross-section in Figure 5.2b, shows the situation revealed by trenching into the center of the stairway leading up from the second terrace. Behind the latest steps is a structural wall which is very crude with the exception of the lowest stones. These are well squared and laid, and form the bottom step of an earlier stairway, 1.3 m behind the later one. The second step of this early stairway had been torn out in building the structural wall, but the third, fourth and fifth though considerably displaced, were found in approximate position. These were set in a sloping surface of solid earth and stone fill, laid on pure rock fill, and there was no question about the existence of an earlier stairway.

An extremely hard concrete floor begins at this earlier lowest step and runs forward to a rather crude retaining wall marked (2) in the drawing, 4.2 m distant. The final and later terrace wall retains broken rock fill laid against this, with nothing but humus to represent its floor, which was completely disintegrated.

Although the earlier front wall is quite crude, its association with such a different type of floor which in turn connects with the earlier stairway, leaves little doubt that it was the front terrace wall when the earlier stairway was built, or else a fill wall just behind the exposed terrace wall of the earlier period, the latter being removed for its stone during alterations.

In following this very characteristic and easily identified early hard floor back to the third terrace wall, (at the sides of the latest main stairway) we expected it to pass under the latest to an earlier third terrace wall belonging with the earlier stairway and earlier second terrace wall. Instead, we found that it ran against the supposedly late third terrace wall and stopped. The third terrace wall therefore served with both the earlier and the later stairways, and we have no evidence that terraces, other than the second and probably the first, were modified by additions to the front.

Since the hard floor does not run under the earlier stairway at the front, but just meets it, it must be contemporary with it. We may assume that since it did not run under the early steps at the center, neither did it pass under the side walls of the earlier stairway. It does

pass under the side walls as well as under the steps of the later stairway. It is therefore highly probable that the earlier stairway was not so wide and that its side walls lie buried under the later. We did not realize this at the time, or we would have trenched laterally to examine their construction. Before the remodeling the second terrace was 6.6 m wide (front to rear dimension), and the earlier stairway, which was not so wide as the later, projected out upon it for a distance of 2.5 m.

Considering the fact that the angle of ascent of the latest stairway is close to the maximum observed elsewhere, and that the base of the earlier one is set 1.3 further to the rear, one would expect that an earlier series of terraces, placed a corresponding distance to the rear, had been buried by a later. But we have seen that this was not so, at least in the case of the third terrace, as proved by the associated floor. An alternative hypothesis is that the early terraces were all used with the later stairway, but each was then raised to a greater height. Possibly the variations in slope of the third, fifth and ninth terrace walls (Fig. 5.1c) result from such additions. We did not investigate this point as we should have done. The postulate requires buried earlier floors within each terrace. There was none in the sixth terrace, which we trenched to a depth of nearly 2 m.

The platform at the top was almost certainly twice enlarged, in each case by additions at the rear and not at the front; but each addition very probably extended around to the sides. The evidence for this is set out in Figure 5.2a. The wall at the left in this drawing, marked (1), is the upper part of the eighth, and that marked (2) is the wall of the ninth terrace of the pyramid. Those marked (3) and (5) are crude fill walls, exposed only during the period of construction. The wall marked (4) is the original as well as the final front wall of the platform. The buried wall to the rear marked (6) is of the same character as (4), and we suppose it to be a remnant of the original rear wall of the platform, which was thus 4.8 m deep (front to rear). The two remaining courses of the wall marked (7) are also of the same general character, apparently marking an increase in platform depth to 6 m. Both of these rear walls were partially removed before the platform was enlarged to its third and final form, when the depth was increased to about 6.7 m at the top, and, because of the batter of the final rear wall, to about 7.7 m at the bottom.

The upper surface arrangement as found bears no relation to these buried rear walls and we can say nothing regarding the surface in the earlier periods. It is quite possible that a suitable base for a temple was then present. It is difficult to imagine any building, even of perishable materials, on the stepped surface in the final period.

Stela

Four stela, Nos. 9, 10, 11, and 40, were originally placed on the long and deep second terrace, far below the summit, but well above the West Group Plaza floor itself. Stela 10 and 11, now lie more or less over the first terrace, approximately below and in front of their original positions. Stela 9 lies on the second terrace, close to its base, from which it has been broken. Stela 40 was found by Drs. Morley and Ricketson close to plaza level and was removed to Philadelphia by Dr. Mason in 1932.

When erect, Stela 9 was placed before the second or main stairway, but somewhat to the right of its center axis, Stela 10 and 11 stood far to the left of the stairway. The cists of these monuments are shown on the plan, Figure 5.1a, in broken lines because below floor level, not because they were not found intact. Stela 40 lay a few meters to the right (southwest) of the lower stairway. It could not have been placed to the left of Stela 9, originally, unless very much farther forward, as the hard floor is there unbroken. We failed to find its cist to the right of Stela 9, but did find a disturbed area. There is little doubt that Stela 40 was placed 4-5 m to the right of Stela 9, and about in line with it, a position consistent with the location in which it was found. The exact original position being unknown, it is not shown on the plan.

The arrangement of these four stela is decidedly asymmetrical with reference to the pyramid and its great stairway, but is in balancing groups of two. The dates as read by Morley indicate that the two stela of the left group were erected before the two of the right group, the lack of symmetry-being very marked at first, but corrected somewhat, later on. This is essentially the same sequence, so far as it goes, as in the series of eight monuments (Stela 1 to 8) on a similar terrace before Structure J-4, a pyramid temple at the other end of the same plaza. A clearer picture of the arrangement of monuments will result if we reverse our point of view and look at them from the plaza. Morley pointed out to the writer that, if we number the positions of these stela from left to right, the first four positions successively filled were 6, 8, 2 and 4. These readings give first a pair to the right of the center of the final group (and near the end of the terrace, which is very long), than a pair to the left of the center of the group, in that case maintaining open positions between each stela, which were later filled. Here on J-3, numbering positions in the same manner, the sequence is 3, 4, 2 and 1.

The stela have been illustrated elsewhere,[3] and will be further dealt with by Dr. Morley in his forthcoming *Inscriptions of Petén*. The hitherto unlocated base of Stela 9 was found in its cist. This adds the feet of two

A

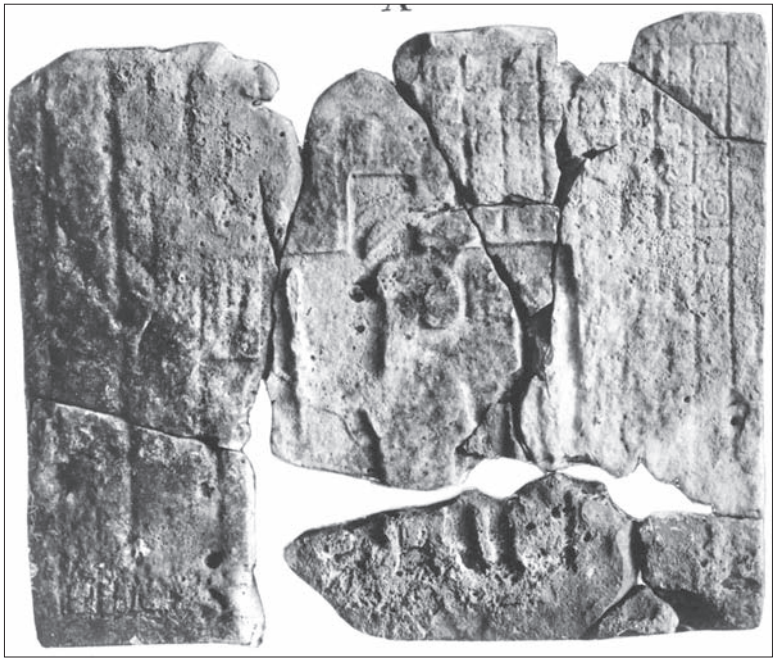
B

C

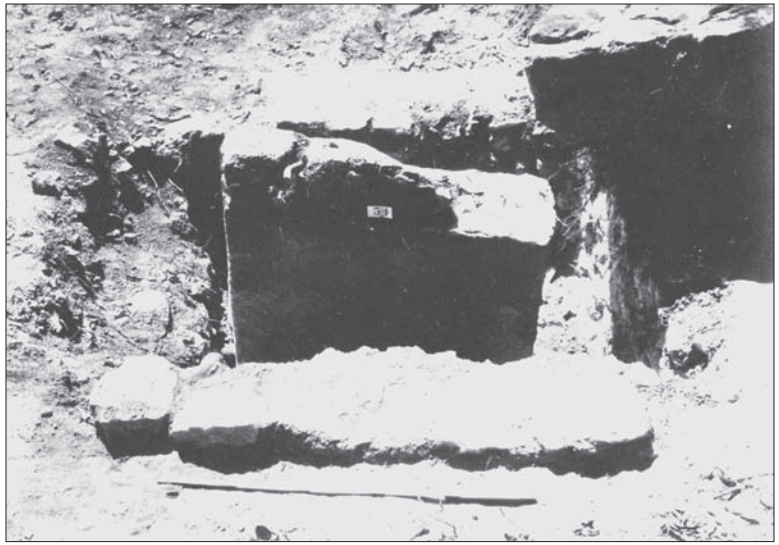
Figure 5.3 a. Lower southwesterly corner of main stairway and masonry altar, Second Terrace, from southwest; b. lowest steps of main stairway at center, Second Terrace, from southeast; c. main stairway from northeast, Second Terrace.

A

B



C



D

Figure 5.4 a. Structural retaining wall under latest main stairway ex-posed by cut through steps, and supporting solid fill at left of Second Terrace; b. side retaining wall of main stairway, from south; c. Lintel 5, showing recovered pieces placed in proper po-sitions; d. base of Stela 9 in position as found, showing cleared cist and rear of low platform or dais. The upper part of the stela shows in the right upper corner, from northwest (rear).

figures on the front, the lowest glyph-blocks of each side inscription and parts of two more of the left side inscription to the body of Piedras Negras stone art and inscriptions.

In Figure 5.4d is a rear view of this stela base, in position as found, but with the cist cleared out. Behind the monument the hard terrace floor was raised about 10 cm to form a small rectangular platform or dais running against its back. See also Figure 5.2c at the extreme left. This probably surrounded the stone, but front and sides were dug out before its presence was noted. The dais was of the same hard concrete as the older portion of the terrace floor, which we have connected with the buried stairway. But it cannot be said to be co-extensive with the floor, for the rear part, which overlaps the floor slightly, is a line of stone slabs (see cross section. Fig. 5.2c). Certainly the dais was constructed after the stela had been placed and therefore after the front addition to the terrace, which was not hard surfaced, but into which the cist extends.

The stela base as found was twisted so as to face a little to the right of front. This could easily have occurred when it was broken. But the rear of the dais is correspondingly askew. There are one or two similar inconclusive hints of stela facing not quite to the front elsewhere in the city.

Lintel 5

"Lintel" 5, discovered and briefly mentioned by Maler (1901:55), is shown in Figure 5.4c. Its width is 158 cm and its height 120 cm. Despite the large size, the thickness is only about 10 cm at the top; at the bottom the thickness is 13 to 15 cm The maximum relief is about 30 mm (on the body of the principal figure), the minimum about 5 mm (on the glyphs). The edges are nicely worked and curve in from front to back, giving one of the corners a carinated form. This cross-section of the edges is very much more marked on "Lintel" 12, as yet unpublished. The borders are only 5 to 7 cm wide, making its use as a lintel all but impossible.

The subject is similar to that of "Lintel" 4, as Maler observed. The principal figure wears a turbaned headdress with plumes curving above from the rear, and holds a staff or spear which without doubt rested on the ground before him. There is here also the remnant of a breech-cloth reaching nearly to the ankles. Maler reported captives before the principal figure, but there is space for only one at the most the pieces belonging here being missing. There is relief behind the figure, within the frame of the design, which may indicate another figure there, or perhaps the remains of a column of glyphs, as on "Lintel" 4.

There were columns of glyphs above and on both sides of the design. With few exceptions they are too much eroded to be read. The first five of the left column occupy four block spaces each, indicating an Initial Series to be read straight down as on "Lintels" 2, 3, and 7. The inscription then seems to run into small glyphs, but it is here badly eroded and it is safer to assume there were six large glyphs, thus allowing for an introducing glyph. Further on the size of the glyphs is clearly about 75 mm square. On the above assumption and considering only areas certainly devoted to glyphs, the inscription contained not less than one hundred and thirty glyph-blocks, large and small. Ninety-eight of these can be individually made out. The hopelessly eroded area at the right lower corner (facing the stone) provides space for twelve more, giving a probable length for the principal inscription of one hundred and forty-two glyph-blocks. There are indications of two more blocks behind the head and almost certainly there were six additional ones in front of the staff or spear.

It may be of interest to compare the length of this inscription with those of others on supposed lintels, since on definitely known "lintels" of the Usumacinta region long inscriptions are absent, or are spread over a series of stones from the same building.[4]

"Lintel" 11 we believe was a true lintel, being thick, having a long plain butt on the known end, and being found in the doorway of a temple (Structure R-3). If a lintel, its inscription consisted of thirty-two large blocks. "Lintel" 6 we eliminate, since it has neither carved inscription nor design, but merely an incised abstract figure.

Of the remaining stones which we believe have been mistakenly labeled "Lintels", only five are complete. "Lintel" 2 has one hundred and six glyphs; "Lintel" 3 has one hundred and fifty-eight; "Lintel" 4 has seventy-nine; "Lintel" 12 has sixty-six.

We have many of the fragments of "Lintel" 7, which measured about 1.1 m by 1.4 m. Sixty-eight glyphs are present, and the total was probably over one hundred.

Two stones, Lintels 8 and 13 apparently had short inscriptions. Both are unusually small. Much of each has been lost.

Three "lintels" are known only by single small fragments, "Lintels" l, 9 and 10, the last two bearing small glyphs.

Miscellaneous Sculptured Stone no. 13 is very similar to "Lintels" 2, 4, and 5 in the arrangement of its design. Though much smaller than any of those, its inscription ran to at least eighty small blocks.

We do not have the ends of "Lintel" 13. The end borders on all the other stones considered above are very narrow, like our "Lintel" 5, except for "Lintel" 11, were thickness and position call for a true lintel function; they are also relatively thin, except for two, "Lintels" 7 and 12.

"Lintel" 5 thus belongs to a species of carved slab at Piedras Negras characterized in general by long inscriptions of small glyphs, and by the absence of plain ends suitable for mounting on doorjambs for use as lintels. Since true carved stone lintels seem to be all but absent at the city, the presence of this stone on a pyramid without a temple raises no presumption that it was moved here from elsewhere.

Maler (1901:89, Plate 35) reports and pictures a lintel with narrow borders and a 113-block inscription at the small and nearby site El Cayo. It seems not to have been reported from further afield.

If the positions in which we found the fragments are near or below those in which Maler found them, as seems likely, "Lintel" 5 was probably set in the wall of the seventh, eighth or ninth terrace, a little to the left (northeast) of the narrower upper portion of the main stairway. All but the lowest courses of these walls are fallen at these points. If this is correct the stone was in a sense at the head of the lower and wider portion of the main stairway.

Objects

Scattered on the second terrace forward of, yet close to the base of, the second flight of steps, or main stairway, were found the whole or broken parts of sixteen large chert knives. Two are shown in Figure 5.5d. Several of these were well above the terrace floor; but all were in the deposit of disintegrated plaster or stucco and under the layer of stone debris. A small section of a long bone, almost certainly part of a human tibia, was found in the same deposit and general location, in that case behind Stela 9. The presence of these objects in the plaster wash, and near the center rather than the sides of the stairway, below and not mixed with the stone debris, makes it very probable that they had been left somewhere on the surface of the stairway, and had not been cached under it. A small portion of a seventeenth knife was found in the stairway debris, 1 m to the left of center at about the level of the fourth terrace, suggesting that all may have fallen from this or higher levels, possibly from the top.

These knives possibly may furnish a hint of human sacrifice. But the knives appear large for the purpose. A portion of one is 28.5 cm long and 6 cm wide, and it is incomplete. The longest complete example however is only 27.5 cm long. Thicknesses average about 2 cm, though one is 4.4 cm thick. These knives, so far as known, are all more or less leaf-shaped, but are not sharply pointed. An example of each appears in the plate. The form differs from that of a number of thick short flaked knives or celts found near Altar 5, a stone table, at the base of the stairway of Pyramid Temple O-13. Those are pointed at one end, rounded at the other. The material, a poor, thickly patinated, bluish gray flint or chert, is the same in both cases.

Buried at the bottom of the cist of Stela 9, against the extreme left of the front face of its base, to the right of an observer facing the stela was a crudely tooled stone drum, diameter 20 cm, height, 10 cm. The flat top is much smoother than sides and bottom, and bears a number of scratches such as would result from the cutting of objects placed upon it. Possibly it was originally used as a very small sacrificial round altar. A similar stone was found in the center of the cist of Stela 11, and another was placed against the center of the front face of the base of Stela 8, at the bottom of its cist on the stela terrace of Structure J-4. The latter is shown in Figure 5.5c. Half of still another small stone drum, a little larger, was buried in or under the floor of the rear room of Temple O-13. That example (Miscellaneous Sculptured Stone 1) bears in relief the Initial Series 9.10.6.(5).(9). The bracketed uinals and kins represent missing glyph-blocks as restored with a question mark by Dr. Morley. The scratches on the upper surface were noted only on the stone from the Stela 9 cist.

Two similar stone drums have been found on the floors of small buildings on low substructures, and have been called portable altars. One of those showed a shallow irregular depression in its top, and its sides were painted red, the top being without color.

A rounded piece of pumice stone was found in the floor of the eighth terrace, northeast of the stairway. Placed against the center of the base of Stela 9, at the very bottom, like the stone drum or altar, was the spiked pottery incense burner shown in Figure 5.5a.[5] It was in all probability set squarely on its base, but was found tilted slightly forward, probably by the later corresponding tilt of the stela base (see section in Fig. 5.2c). The cover was approximately in place. The heavy broken rocks used to support the stela in the cist had been so placed around and over the censer that even after the shifting of the stela, it was but little damaged.

There are no perforations in the bowl, which has a deep ring base. The diameter of the rim is 16 cm, the height 8 cm. The neck of the cover is hollow, forming a sort of chimney about 1.8 cm in diameter. The diameter of the rim is 17 cm the total height 10 cm. From this orifice, at the top, four wide shallow grooves extend to the outer edges of the chimney, in the form of a cross. The top of an exactly similar chimney was found in the debris over the fourth terrace, to the left (northeast) of the stairway.

Under the high floor running into the lowest of the terraces at the rear of the pyramid, corresponding in general to the level of terrace nine at the front, was found an extremely heavy thick portion of a vessel,

Figure 5.5 Objects.

probably a censer. It indicates a deep ring base, the body (or the base) pierced by holes or slots. There is enough remaining to suggest large cruciform perforations.

Figurines and sherds recovered in and about this building, have been considered in the paper on the ceramics of the city, by Miss Butler already cited. Six pottery figurines or fragments were found. One was in the plaster wash on the second terrace, and another in the stone debris, over this wash; one was in the debris at the rear of the pyramid, and two were in the debris on the ninth terrace, at the front. A sixth was recorded as in a floor, but at a level which would place it between the eighth and ninth terrace floors. This was probably also in debris. All may be regarded as probably, but not certainly, post-dating the erection of the pyramid.

A pottery mask is represented by part of the nose, and most of the half-open mouth and chin, and is show in profile in Figure 5.5b, in full face in Figure 4.14.10 of Miss Butler's paper. It is somewhat less than life size. There seem to be no remaining traces of slip or paint. It was found above the second terrace floor in the angle between the right (southwesterly) side of the stairway and the third terrace wall. Notes fail to specify whether it was in the plaster wash, or above in the layer of stone debris.

Potsherds were encountered which may be assigned to a date prior to the final stage of building, and there are others which may date from before or after that time. In the first category are sherds from under the second terrace floor; in the Stela 9 cist, in the stairway fill on the eighth terrace and under the floor at the rear of the Pyramid. A few sherds encountered in clearing the empty cists of Stela 10 and 11 may or may not have found their way there at the time the stela were erected. The sherds with stucco adhering probably came from stucco decoration applied to the terraces. Sherds were found in the debris on the front of the pyramid at various levels, and on the ninth terrace, at the front. Sherds were not found in groups, nor associated with other objects. The ruin of the pyramid was so complete, however, that sub-floor caches may have been made and subsequently scattered.

Some of the sherds are decorated, both painting and incision being represented. Only those under the second terrace floor can be dated with reasonable certainty as prior to the date of the earliest stela on the terrace (9.15.0.0.0).

The recovered fragments of stucco have been mentioned above. There are only one or two giving information as to the type of designs involved, and these will be considered with examples from other buildings in a later paper.

Date

The dates of Stela 11, 9 and 10 as read by Dr. Morley are 9.15.0.0.0, 9.15.5.0.0, and 9.15.10.0.0, respectively. The cists for all three were built partially in the later front addition to the second terrace. The date of Stela 40 marks the next hotun ending, 9.15.15.0.0. We did not find the cist for this but we can say from a careful examination of the hard floor that it must have stood well to the front of the widened terrace. The addition to the second terrace, therefore, must have been made before any of the stela were set up, and it seems plausible to suppose that it was made to receive them, toward the end of Katun 15. It seems a reasonable guess that at the same time the new main stairway was built and possibly the first or second addition was then made to the platform at the top.

According to Morley the earliest dated monument in the West Group is Stela 39, 9.12.5.0.0, 11 hotuns (about 55 years) earlier than Stela 11. It is quite possible that even before the remodeling, and beginning of stela erection in the West Group. Structure J-3 was not in its earliest form. We are probably safe in assuming that the West Group Plaza and the Acropolis were in use for some time before the inhabitants began erecting stela here instead of in the South Group, where the earliest dates are found. Consistent with such a hypothesis is the presence of Structure J-6-2nd on the nearby Court 1 of the Acropolis, which was partially torn down to make way for Structure J-6, probably about 9.17.15.0.0, only about half a century later than the supposed date of remodeling here.[6]

Details of Construction

Walls, Floors and Fills

The terrace walls are built of rather rough stone blocks of medium size. The original front, side, and first two rear walls of the upper platform, all vertical, are of fairly well selected and better squared blocks of medium size, though the battered rear and right walls of the latest phase were like the terrace walls.

The side retaining walls of the stairway, on the second terrace, include much longer blocks, and are superior to all the others, though still mediocre (Figs. 5.3a and 5.4b). There is more chinking in evidence here.

Terrace floors above the second presented the soft remains of mortar and crushed stone concrete. There was no remaining sign of floors on the upper platform, nor on the late addition to the second terrace. The original second terrace was floored with concrete of extreme hardness, as mentioned before. This was so hard that we wonder whether, although its elements must differ from the others, part of its hardness may not have come with time. If the builders knew what they were laying, it was a triumph of the mason's art.

Floors vary between 10 and 20 cm in depth, and in most places rest directly on pure broken rock fill. The plaster surfaces had in all cases disappeared.

All fills observed were of pure broken rock, dry laid rubble, except under the steps of the stairways, where it was partly or completely solid earth and rock, possible remains of very poor concrete.

The pure broken rock fills are for the most part of fairly large and heavy stones. The crude sloping wall marked (5) on the cross-section of the upper platform (Fig. 5.2a) illustrates an interesting practice in fill construction, much more plainly demonstrated by Dr. Mason under Structure K-5-2nd. This wall consists of ordinary and extremely irregular broken rocks, and shows that the fill behind it was laid up before that in front, and with a fairly regular sloping face. This may have been designed to give added strength, or may result from a task system or some unknown cause. A similar constructional wall was encountered in the fill of the late addition to the second terrace, running from the old to the new front wall.[7]

Stairways

The lowest steps of the stairway on the second terrace show the method of building the steps. The treads are slabs, as in some other cases, but quite thick and fairly well squared (Fig. 5.3b). Each extends under the next riser, thus binding the steps together. At the front they are supported by one or two small slabs laid flat. The whole rests on a solid earth and stone fill, which possibly may have had some slight admixture of mortar. This construction is shown in cross-section in Figure 5.2b.

The most interesting feature of this stairway is the fact that special supporting retaining walls were built under and behind the solid fill. Part of that on the second terrace is shown in the above mentioned drawing, and in the photograph, Figure 5.4a. The steps and fill placed against it appear at the left of the trench. Similar walls were found in position over the fourth, fifth and eighth terraces, and are shown in cross-section in Figure 5.2b. They are very crude, but superior to the mere fill walls described above. They are true walls and show a tendency to curve back toward the top, probably so that they could be carried fairly high. The curve is not due to subsequent bulging. That over the fourth terrace nearly meets the wall of the fifth. There is little doubt that these walls are in addition to the terrace walls, which follow through behind the stairway wherever they were followed.

Excavations were not sufficient to determine whether this feature was used in the earlier stairway observed on the second terrace or not. The positions and smaller

size of the blocks of that stairway, which was somewhat disturbed, suggest that the treads did not tie under the risers, as in the later stairway. This early stairway differs from the later in having only a thin layer of solid earth and stone, possibly poor mortar, to support the actual steps. This layer of solid fill is marked (3) on the cross-section (Fig. 5.2b), which illustrates the relations involved.

Stela Cists

All stela whose methods of erection have been studied (all of them in the West Group) have a plain extension or base which was set into the terrace. To receive this a cist with rough walls was generally built below the floor-level of the terrace. The cists are usually approximately rectangular, except that no rear wall was built possibly this was omitted to assist in the erection of the stone, though the rear wall could easily have been built afterward. The cists are considerably larger than the bases of the stela, and since they were placed in a tightly packed pure broken rock fill, their function is not entirely clear, and they may have been ceremonial rather than structural in function.

The three found on this structure are shown on the plan (Fig. 5.1a). Only that of Stela 9 departs markedly from the rectangular form. In Figure 5.2c is a cross-section from front to rear, through this cist and stela base, the latter in position as it was found. There is plenty of room about the stela, particularly in front. The space at front, sides and back of the base was filled with heavy broken rock, the same sort of construction to be found outside of the cist walls. The weight of these stones, which are angular and irregular, locks them in place. There is nothing to wash away and nothing can give unless there is a general slip of the surrounding terrace, or the stela is forced well out of equilibrium.

If the latter occurs, it is difficult to see how the cist walls would help, as they are nothing more than thin retaining walls placed against and resting on the fill. Perhaps they were built for reception of the ceremonial objects frequently, as here, but not always, found in them. However the walls do not protect the objects in any way.

The cist floors are merely a thin deposit of earth and small broken stone, possibly with a little mortar. The weight of the stela appears to have been borne by the rock fill, without special attention to foundations, though we have not investigated this thoroughly.

Notes

1. To distinguish such stones we here add quotation marks to the term "Lintel", where a stone has been already referred to as such; another has been given a number in a series of miscellaneous Sculptured Stones. One carved stone at Piedras Negras we still believe to have been a true lintel, "Lintel" 11.

2. Satterthwaite (1933a); in small scale in Butler (1935b); and to appear in large scale in Morley (1938a). For the sake of consistency, throughout the description, where not otherwise indicated, left and right are those of a person facing the same way as the structure.

3. Stela 9, 10 and 11 are described by Maler (1901:55-58) and pictured in Plates 18, 19 and 20, respectively. Stela 40 is illustrated by Mason (1934b, c).

4. "Lintels" 1, 2, 4, and 6 are illustrated by Maler (1901, Plates 30, 31, 32 and Figure 26 respectively); "Lintel" 3 by Mason (1931b); "Lintels" 3 and 12 again by Mason (1935b).

5. Also illustrated by Mary Butler (1935b). The bowl is of the same form, as modern Lacandon incense burners but lacks the applied face and perforations; while they are not supplied with covers, or spikes.

6. Since this was written a total of five building periods, some of them subdivided into separate episodes, have been established in Court 1. This raises a strong presumption that our Pyramid J-3 is now known only in its latest periods. Burial levels have appeared in pyramids R-3, O-13 and K-5, the latter on this plaza.

7. These interior constructional walls have now appeared in several other fills, and probably date from early Piedras Negras times. Although usually sloping, they are sometimes vertical.

Part II
Piedras Negras Archaeology: Architecture

6
Architecture: Introduction

Linton Satterthwaite

General Remarks

Piedras Negras has been a famous Maya site for many years but its fame has little to do with architecture. It rests first on the number and quality of its stone sculptures, most of them discovered by Teobert Maler and made available by him in 1901, when his report was published by the Peabody Museum of Harvard University. Second, the importance of this site derives also from the circumstance that the hieroglyphic inscriptions on these monuments have been in some respects particularly useful in studying the calendrical-astronomical content of Maya inscriptions generally. Dr. Sylvanus G. Morley, of the Carnegie Institution of Washington, is to be credited with adding to the number of known monuments, and with making them, together with still others discovered by the University Museum, generally available in his *Inscriptions of Petén*, published in 1938.

In that monumental work he devoted 312 pages of text and figures and many plates to this site. Included are the circumstances of scientific discovery by Maler and the subsequent history of investigations here down to 1930. In that year Dr. J. Alden Mason, Curator of the Museum's American Section, first visited the site. Later, in Guatemala City, he made preliminary arrangements for the first season of archaeological work which followed in the spring of 1931. These arrangements included the beginning of a road for transport of large monuments. The 1931 season was followed by seven others in the dry seasons of 1932 to 1937 and, finally, of 1939.

A general group-by-group description of the site, with small-scale map and cross-sections as of 1932 season, was issued in 1933 (Satterthwaite 1933a). These were in mimeograph and photostat form; the edition was very small and is out of print. But it was revised somewhat later and incorporated in Morley's work (1938:3:5-25), and need not be repeated *in extenso* here. Four other *Piedras Negras Preliminary Papers*, in mimeograph-photostat format, have been issued. A number of progress reports and notices, usually illustrated, have appeared and are listed in the bibliography. Of the five *Preliminary Papers*, only that by Dr. Mary Butler, on ceramics as of the 1932 season, was distributed to libraries.

From the first it was intended that these should be superseded by more definitive publications when work should be concluded. The publication now begun is intended finally to describe and provisionally to interpret the architecture, and only such aspects of monuments, ceramics and other objects as can best be treated with it.

The importance of the Piedras Negras structures derives partly from their association with an outstanding series of dated Maya monuments, partly from a rather considerable number of previously unknown features and combinations of features, and partly from the fact that here several distinct types of structure have each been made known by a considerable series of examples. Another factor of present importance is the location of the site more or less between Palenque and Yaxchilan, important sites at which many standing and published buildings are available for comparative study (Palenque: Maudslay (1889-1902), Blom and LaFarge (1926-1927); Yaxchilan: Maudslay (1889-1902), Maler (1903), Morley (1938), Bolles (1938).

Authorship

The writer of this Introduction is at present (1943) charged with the task of describing all the Piedras Negras architecture. Naturally, in doing so, the work of others on many structures must be utilized. I happened to be the only one present during all of the field seasons and so have the advantage of having been on the spot when each individual operation was finished. Therefore I can more easily see a given structural complex as a whole, even when the most important features had already been discovered by someone else. Notable examples of this are the important sequences at Structures K-5, O-13 and P-7. Excavation of each of these had been far advanced by Mason by 1932. But as time permitted during later seasons various details were dug out and related to what was already known. There is no controlling reason however, other than convenience, for having all sections written by one person, and it seems wise to allow for change of plan in this respect. For this reason authorship of each section will be individually noted.

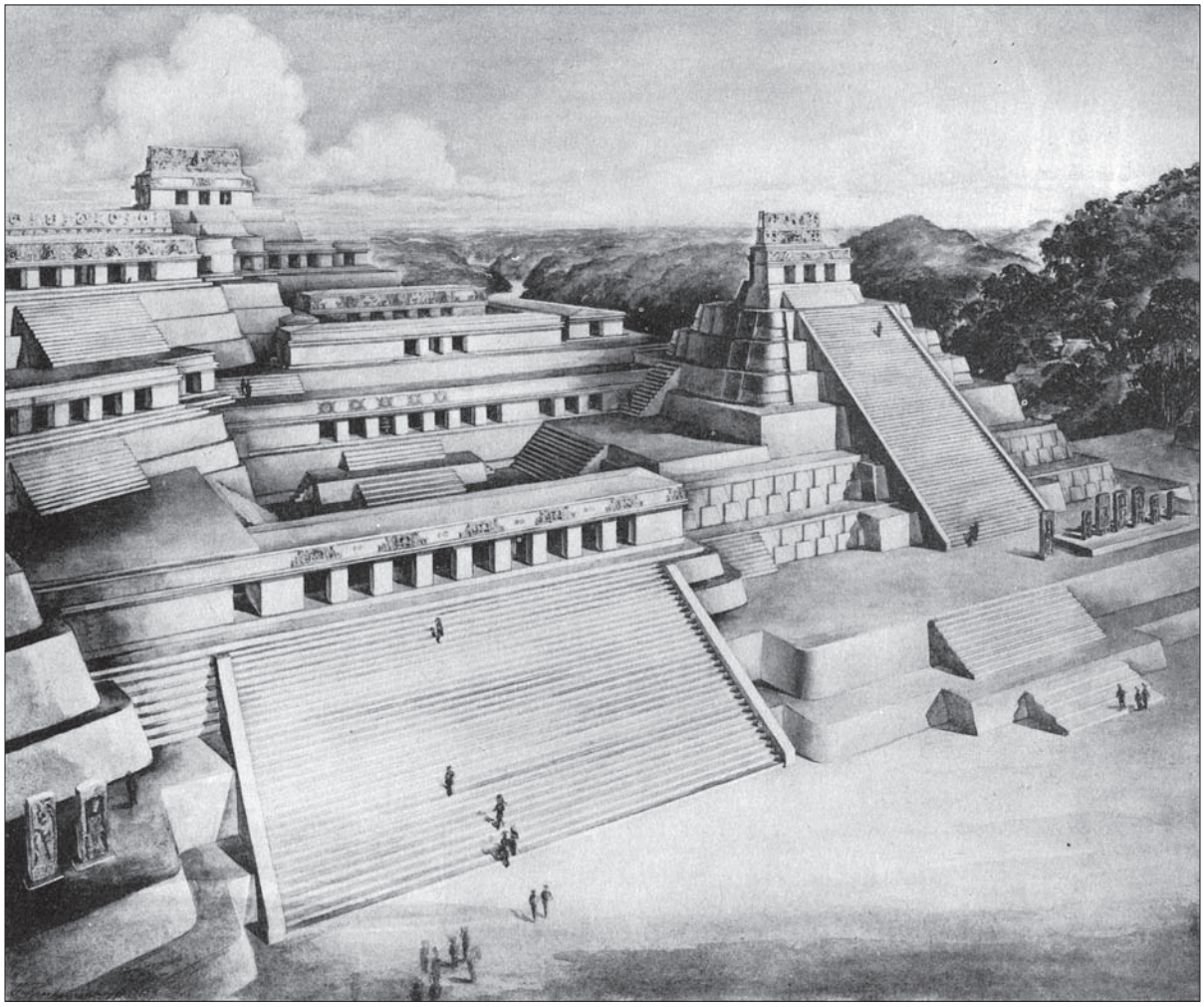


Figure 6.1 The Acropolis at Piedras Negras. Restoration drawing by Tatiana M. Proskouriakoff.

Difficulties

Maler might have reconstructed fairly accurate plans of two or three acropolis palace buildings without excavation; his one building plan is fair, except for imaginative and faulty interpretation of debris. But otherwise all of the many structures appeared as mere mounds of debris with, rarely, a bit of wall showing here and there. No details of substructure design were visible anywhere. Practically all architectural knowledge had to be dug out. As work proceeded it turned out that only about half of the major buildings had been roofed with the Maya masonry vault. This extremely interesting fact meant that many floors and lower parts of walls, unprotected by the deeper vault debris, were in especially bad condition and had to be slowly and painstakingly searched for, sometimes in vain.

There were certain other obstacles in our way, notably the Maya use here of pure rock hearting in the platforms and pyramids on which they placed the buildings. This unforeseen circumstance made deep cross-sectioning or tunneling, easy at many Mexican and other Maya sites, laborious or unsafe, sometimes both, at Piedras Negras. The site is three days by pack mule from the nearest source of labor and supplies, Tenosique, which itself is two days by river boat from the nearest port, Alvaro Obregón, on the Gulf of Mexico. The new railroad connecting Tenosique with Campeche was not completed till after our last season of work. Madeira's airplane was the first ever seen at Tenosique, but regular air service to it was established while we were at work.

Digging must be rushed during the short dry season, the limits of which cannot be precisely predicted from year to year. We came to regard the two and one-half

months from March 1 to May 15 as fairly sure to provide reasonably good digging weather. One should plan to start digging before this, rather than to end later. Dryness is not absolute. For instance, in 1936, 4.7 inches of rain fell in April, 8.6 inches in May, compared to 23.3 inches in June.

Acknowledgments

The costly digging out of so much architecture at one site has been justified, we believe, by the information gathered. Judgments of others will ultimately depend largely on the usefulness of this series of reports in building a more accurate and complete general picture of ancient Maya culture, and the sociological meaning of the tremendously important role which architecture played in it. The cost-producing factors enumerated above should be considered together with the fact that costs had to be met at first during a period of major financial deflation in the United States and later during a period of rising labor costs and sometimes of decreasing foreign value of the dollar. So it should be obvious that more than routine acknowledgments are due from those who urged that the work be done, to those who made it financially possible.

The first three seasons' work, in 1931, 1932 and 1933, have been termed respectively the First, Second and Third Eldridge R. Johnson Expeditions. The first two of these, by far the most costly because of the purchase of permanent equipment and the removal of large monuments, were financed entirely by contributions of Mr. Johnson, and the third by those from him and from an extremely generous but anonymous friend of the Museum. Thereafter very substantial support for fieldwork was received from the American Philosophical Society (Penrose Fund grants 151 and 285). Contributions specifically for the work were received through the efforts of the Museum Women's Committee, and from Mrs. W. W. Fitler and Mr. Boies Penrose. Much of the financial outlay for the later field seasons was from general Museum and University funds. Substantial aid in preparing for publication was in the form of a grant for the purpose from the American Philosophical Society (Grant 10 from the Johnson Fund). The work could not have been continued so long without the great interest and constant efforts of John Story Jenks and Horace H. F. Jayne, respectively President and Director of the Museum during the entire period of fieldwork. Neither could it have even been begun without the enlightened cooperation of the Government of Guatemala and its Department of Public Education. It was prosecuted throughout under a written contract with that government ministry, providing for general control by a resident representative, and for loan to the Museum of one-half of the archaeological objects, including monuments, removed. Relations with all Guatemala officials were cordial and satisfactory throughout. These pleasant relations were enhanced by the fact that during much of the life of the contract Dr. Lic. J. Antonio Villacorta C., a great Mayanist, was Minister of Public Education, and that Sr. Don Carlos A. Villacorta B., also a distinguished Mayanist and archaeologist, was in charge of the National Museum at Guatemala City which is the eventual repository for all the finds. A sympathetic understanding of our problems and objectives, perhaps to be expected from experts in our own field, was evident in all official contacts.

It was necessary to bring supplies and to export objects through the Mexican State of Tabasco. We are most grateful to various Mexican archaeologists of official status for assistance in repeatedly arranging special customs permissions. Ing. Ignacio Marquina, Sr. Eduardo Noguera and Dr. Manuel Gamio were bothered most often and so deserve especial thanks for special courtesies always encountered in this quarter. To our agent at Tenosique, Sr. Don Francisco Villanueva G., and his associate Sr. Don Francisco Garcia, go unbounded thanks. Without them we should have starved. It would be impossible to overstate our appreciation for the kindly hospitality and general helpfulness which we encountered on every hand, when traveling through the State of Tabasco. We met with nothing else from the coast to Tenosique, and this was as true during the first season, when we were strangers, as in later ones. It is difficult for us to understand a recently published account of a trip through this country by another North American, whose reaction was quite different from our own.

Dr. Morley placed his special knowledge and the Carnegie Institution's data on the site freely at our disposal. Advice from him and from Frans Blom, then Director of the Department of Middle American Research of Tulane University, New Orleans, was helpful in choosing it and in shaping the program of work. Morley recommended Piedras Negras because of its monuments and location. Blom suggested ruins near San Clemente, a small and more accessible site, because it could be more completely examined in two or three seasons. Percy C. Madeira Jr., now President of the Museum, visited the San Clemente site in 1930 in connection with the Museum's Aerial Expedition to Central America, which he promoted and directed. He was accompanied by Dr. Mason. The decision went to the larger site, but the program finally evolved into an attempt to apply to the main ceremonial groups Blom's recommendations for complete investigation. Blom also was very helpful in arranging such practical matters as transportation and supplies.

We had the advantage of very helpful comment and advice while actually on the spot, but by no means as

much as we should have liked. Morley and Mrs. Morley, Ruppert and Bolles spent a few days with us en route to and returning from Yaxchilan, in 1931. At this time Morley noted remains of an inscription on what he called Stela 43, and Ruppert determined the existence of the round markers in the Structure R-11 ballcourt. Pollock, A. Ledyard Smith and Shook, also of Carnegie Institution of Washington, visited us in 1937. Smith and Shook helped Cresson to solve a perplexing problem in a Court 1 buried structure, utilizing what they had learned of early Uaxactún practice. Pollock, on seeing our sweathouses, was able to identify a probable steam-room, which he had seen on his journey, I think at El Chilé.

Our costs were substantially reduced by allowance of special freight and passenger rates by the United Fruit Company and by the Standard Fruit and Steamship Company. From various officials at these companies we received special attentions respecting what must have been to them profitless business, for which we were and are most grateful.

It would not be fair to fail to thank the men who did most of the actual digging. In this kind of work, at an unknown site, a great deal depends on the patience, industry and skill of the workman, and on his good will. They ranked high in these respects. They were either Guatemaltecos from Flores or Mexicans from Tenosique. From either place, they were quick to learn, delightful to work with. I think the difficulties which Maler had with Tenosiqueños must have been largely his own fault.

Personnel

A list of the personnel of the expeditions, with the years of the seasons during which they were in the field, and indication of their chief responsibilities, follows: Santiago Mendoza, Representative of the government of Guatemala, 1931-1932. Victor M. Pinelo, same, 1933, 1935-1937, 1939. J. Alden Mason, preliminary arrangements with Guatemalan Government and at the site, 1930; field director, excavation, 1931-1932; inspection visit, 1936; general oversight throughout. Linton Satterthwaite Jr., excavation, 1931-1932; field director, excavation, 1933-1937, 1939. Mary Butler, excavation (mainly for ceramics), 1932. Francis M. Cresson Jr., excavation, 1935-1937. Fred P. Parris, surveying, draughting, 1932-1933. Tatiana M. Proskouriakoff same, 1936-1937. William S. Godfrey Jr., same, with photography and study of the art on the monuments, 1939; T. Egan Wyer, engineering (road construction), construction of camp, 1930-1931; surveying, 1931. John H. Ross camp manager, 1932-1933. Mrs. Linton Satterthwaite Jr., cleaning and registering objects, all seasons; housekeeping, 1932 and thereafter, bookkeeping and assistance in camp management, 1934 and thereafter. Mrs. T. Egan Wyer, housekeeping, 1931. Mrs. William S. Godfrey casts, 1935 (first part of season). David Amram Jr., bookkeeping, 1932 (first part of season).

Excavators in the main did their own photography, or that of a fellow excavator; and they did a good deal of plan and section-making with tape, plumb-bob and leveling instrument, But only those labeled as engaged in surveying used the transit. In respect to this, the little surveying which Wyer had time to do was later superseded; Parris and Proskouriakoff were graduate architects. Godfrey was not, but he demonstrated the accuracy of his work by drawing it up in the field, and re-doing whatever failed to check satisfactorily.

All except Srs. Mendoza and Pinelo, Mr. and Mrs. Wyer, Ross, and Amram spent short or long periods of time at Philadelphia preparing for a season, or working up its results. Those listed from Satterthwaite to Proskouriakoff, inclusive, were primarily occupied with such work during one to several between-season periods. Cresson, in addition to working up his excavation materials, has devoted a greet deal of time to as yet incomplete studies of certain ceramic stratigraphies not available when Butler published her ceramic interpretations as of 1932.

It is proper to record that the services of Butler, Godfrey, Mrs. Godfrey, Mrs. Wyer and Amram were volunteered and not compensated, while those of Cresson, Proskouriakoff and Mrs. Satterthwaite were similarly volunteered in the beginning. In addition, Miss Proskouriakoff presented us with about two months of her time, after her official connection with the Museum had ended, in making the drawing of Figure 6.1.

Comparative Data

In addition to published sources, unpublished notes, drawings and photographs on architecture obtained on visits to certain other sites have been utilized in reconstructing or interpreting structures at Piedras Negras. Dates and personnel of these collateral excursions are listed below:

- To Chichén Itzá or Chichén Itzá and Uxmal: Mason 1931; Satterthwaite and Mrs. Satterthwaite 1931, 1933, 1935; Butler 1932; Parris 1933; Mrs. Godfrey 1935; Proskouriakoff 1937; Cresson 1937.
- To Palenque: Mason 1930; Satterthwaite and Mrs. Satterthwaite 1931, 1932, 1935, 1936; Butler, Parris and Amram 1932; Cresson 1935-36; Mrs. Godfrey 1935; Proskouriakoff 1936.
- To Yaxchilan: Satterthwaite and Mrs. Satterthwaite 1933-35; Parris 1933.

These visits varied from a day to about a week, except for the last two trips to Yaxchilan, which each consumed about two weeks. The latter were with the kind special permission of the authorities of the Mexican government Departamento de Monumentos Prehispánicos. Thanks are due to Sr. Dr. José Reygadas Vertiz, to Lic. Alfonso Toro, and to Ing. Ignacio Marquina. In 1935 this included permission to make minor excavations. We were somewhat diverted from our architectural objectives that year by a request from Morley to search for certain suspected lintels. Carnegie Institution of Washington contributed toward the cost of this enterprise. Three lintels were discovered, and with another new one found by Don Ulises de la Cruz, the local guardian, were recorded and have been published in Morley's *Inscriptions of Petén* (1938: Plates 178f, g). For all visits to Chichén Itzá we must acknowledge the generous hospitality extended by Dr. Morley on behalf of the Carnegie Institution of Washington.

After the 1937 season Satterthwaite, accompanied by Mrs. Satterthwaite (except in the Petén) visited a number of sites with the aid of a travel grant of Carnegie Corporation of New York. These provided one to a few days at Tonalá (Chiapas), Sta. Lucía Cotz[umalhuapa], Utatlán, Zaculeu, Xolchún and Pueblo Viejo near Aguacatán, Copán and Quiriguá; and about a week each at Uaxactún and Tikal. Excavations for the season had just been concluded by Carnegie Institution of Washington at Uaxactún and Copán and a great deal of its work could be examined at first hand, though unfortunately in the absence of the staffs.

General Objectives

At first the general objectives had much to do with the sculptured monuments, the discovery of new ones and the exportation of the best ones, new or old, so that they could be permanently preserved. These objectives respecting monuments were satisfactorily realized in the first two seasons, by which time eighteen new monuments or sculptured fragments, four of them important ones, had been discovered. Eight important monument items had been started to Guatemala City and eight to Philadelphia on loan. Another objective was to make a more accurate map of the mounds and surrounding hillsides, including house-mound areas, as a basis for deductions as to city-planning and for selection of spots for excavation. It was and remains the hope that time-consuming attention to contours of a great many mere mounds will in time justify itself by permitting development of criteria by which to recognize without excavation, provisionally at least, particular types of buildings. This project was completed for the main ceremonial groups in 1932, and for the peripheral areas in 1933.

Naturally, from the start it was hoped to get some notion of the buildings, ceramics, burials and general archaeology of a site which had produced such outstanding sculpture. The original plan was for two seasons only, and a sampling technique was indicated and pursued. Nevertheless some notable progress in these categories had been made by that time. It was then decided to continue from season to season, hoping that each need not be the last. Six seasons of work thus followed the originally planned first two, though during one of these, 1934, in the absence of sufficient funds and therefore with only a local government representative, excavations were not permitted. During this second phase the sampling approach was combined with more or less complete excavation at some spots, or, more usually, as emphases on particular problems shifted or expanded, repeated samplings at one spot came to represent a more nearly complete excavation. During this period the main objective was architectural, and, specifically, to attain a complete picture of the latest structures making up the main ceremonial groups. This has largely been attained. Peripheral house-mounds were neglected (with important exceptions) in an effort to gain completeness in the main areas, and to get to the bottom, both architecturally and ceramically, at selected points in those areas.

If one compares the amount of deep digging for early stratified remains here with that accomplished in comparable periods in Mexico and at such Maya sites as Uaxactún, Chichén Itzá and Copán, the comparison will be unfavorable to us. This is a regrettable consequence of the local use of pure rock fills for platform hearting, already referred to. However, we managed to obtain overlapping cross-sections reaching bedrock at selected points in West, East and South Groups, and in the Southeast Section, and have a fair notion of the general Middle American habit of burying old buildings below new ones, as practiced here.

Location

Morley, scaling various maps, comes to the conclusion that the best available latitude and longitude approximations for Piedras Negras are 17 degrees 9.75 minutes North and 91 degrees 16 minutes West. It is on the right bank of the Usumacinta River which now forms, at this point, the boundary between the Guatemalan Department of Petén and the Mexican State of Chiapas. It is fairly close to but not at the western boundary of the area of classical southern lowland Maya ruins. It is in part of what has in the past been called the Old or First Maya Empire. Its geographical relationship to the better known Maya sites generally can be seen to advantage on Morley's (1938) Plate 182, which appears also in Ricketson (1937) as

Figure 1.1. The revised edition of the Blom-Ricketson map shows the whole Maya area at the same large scale (Kramer and Lowe 1940). On maps not specifically archaeological it can be roughly located as about 20 km (12.4 miles) southeast of the tip of the small point which Guatemala appears to thrust westward into Mexico, just north of latitude 17.

We shall reserve for Conclusions any detailed consideration of this location from an archaeological point of view, but a few preliminary notations seem advisable. Maler grouped Piedras Negras with other sites as in the central portion of the Usumacinta Valley. The sites thus grouped are strung out from southeast to northwest. Of the points at which ruins were definitely found, that farthest southeast (upstream) is Yaxchilan, which he helped to make famous. He was the first to give a systematic account of the many standing buildings there (Maler 1903). Near the other extreme is Chinikihá, a little-known but probably important site, on a small affluent of the Usumacinta, the Arroyo Chinikihá. Palenque, a site very famous for its standing buildings, sculptures and inscriptions, lies about 35 km west and somewhat north of Chinikihá. Maler did not include Palenque in his investigations, presumably because it was so well known. It is near the source of another affluent, the Río Chacamax. Maler's most northerly site, La Reforma, on the Kramer-Lowe map, is only about 8 km north of Chinikihá, and is on the Chacamax. But this navigable stream soon turns north and enters the Usumacinta far down stream (water distance) from the mouth of the Chinikihá.

Although it is on the very edge of it, Palenque is in the same formation of rugged limestone hills as are Piedras Negras and Yaxchilan, and the three are properly bracketed as the best known Usumacinta sites. Piedras Negras is about 45 km (28 miles) air-line from Yaxchilan, about twice as far from Palenque. While they have much in common, which is surely to be expected, these three sites are by no means homogenous, and this is especially true with respect to their architectures. In considering this fact, the obstacles to navigation, as well as the disposition of the river-system on the map, are of possible significance.

From about 20 km air-line above (southeast of) Yaxchilan to 2-3 km above the mouth of the Arroyo Chinikihá, the river rushes through a narrow and often gorge-like valley, with a few and only small tributaries entering it. Small lakes are found on either side. Rapids, occur in almost any kilometer of this whole stretch of river. Water-borne traffic by dugout canoe is difficult and dangerous at all times, especially going upstream. It is apparently never practicable from a point a little below Porvenir (a few kilometers northwest of Piedras Negras) to an impassable rapid just above a point called San José, shown on Morley's (1938) Plate 179. Just below this point the San José rapids, the last, can be negotiated at favorable times.

From these San José rapids, smooth water passes the mouth of the Chinikihá *arroyo* and leaves the hills at Boca del Cerro. Thence it traverses delta country to the sea or, through an outlet called the Palizada, to Laguna de Terminos. In this flat country, honeycombed toward the north with streams and lagoons, canoe traffic is the rule today, as it very evidently was in the time of Cortés.

Turning our attention up-stream, there is a rapid a short distance above Yaxchilan which is reported to occasion some difficulty at times. Presumably this is at or near the point now known as Montería, Nueva Orizaba, Maler having placed the uppermost rapid at a Montería Orizaba. Above this I understand easy navigability for canoes reestablishes itself and continues far up the Lacantún, Chixoy and Pasión tributary systems. They have branches and fingers reaching south to the foothills and even into the highlands of Guatemala and Chiapas to the south and west. A map showing exactly how far these tributaries are navigable, and at what seasons particular rapids are more or less serious obstacles, might be very instructive when the many sites still to be discovered in southern Petén and eastern Chiapas are known. As an infinitesimal contribution in this direction, I was reliably informed that the limit for canoes on the Lacanía affluent of the Lacantún is only a few kilometers above its mouth.

Defining the middle portion of the Usumacinta itself as the section of difficult and in part impossible navigation, and scaling from Morley's large-scale map (1938:5, Plate 179), its air-line length is about 90 km. It is a comparatively short section in the middle of the complete Usumacinta drainage system. This system can be envisaged as of a badly misshapen hourglass form, extending from the northwest to the southeast. The smaller lower compartment is in delta-like country shared with lesser systems to the west and to the east. The larger upper compartment is apparently mostly in the midst of rugged but relatively low hills. The middle portion is the stem of the hourglass, and all water from the upper compartment flows through it to the lower. However, the stem lies between important projecting lobes of the upper and lower compartments, drained respectively by the Jatate affluent of the Lacantun and by the San Pedro Martír affluent of the lower Usumacinta.

Pursuing the above crude analogy, Piedras Negras is about in the middle of the hourglass stem, hence lies between the Jatate and San Pedro Martír rivers. It is somewhat retired from extensive water highway systems, suitable to the dugout canoes undoubtedly possessed by the ancient Maya, but one could reach them overland with comparative ease. A portage between

upper and lower Usumacinta navigation systems, If made on the right bank, would pass through Piedras Negras. The present trail from Tenosique to Filadelfia, a semi-permanent mahogany camp a little above Yaxchilan, and like it on the left bank, touches the winding river at now uninhabited points called El Retiro and Porvenir, and at Piedras Negras, and then crosses it at Desempeño, 1 km or so below the ruins at El Cayo and Macabilero. Cargo is today moved upstream from Desempeño only when conditions are good, and up-stream cargo must always be portaged a few hundred meters around a bad rapid at Anaite, somewhat above the ruins of Chicozapote. Reasoning to the past from the present, impossible rapids probably did not prevent river traffic where portages were practical and short, and passable but difficult rapids were not too close together. Today this condition is considered to obtain only above Desempeño, and only at favorable times.

As stated, the air-line length of the section of difficult or impossible navigation of the Usumacinta is about 90 km. Piedras Negras is only about 60 km from smooth water at the southeast end, about half this from the northwest end of this section. It is also only about 25 km from the San Pedro Martír river. Of course actual trail distances would be somewhat greater. The upper reaches of this latter stream are navigable in an easterly direction at least as far as Paso Caballo, perhaps farther. This is more than halfway to Tikal and Uaxactún in the heart of the central Petén district. The great obstacles to land traffic now are due to vegetation and, during much of the year, mud. These obstacles exist because of depopulation of the region, except for occasional isolated settlers, small lumbering establishments, and a sparse population of scattered Lacandon Maya families. In ancient times presumably trails were kept cleared of bush and artificially improved to avoid mud, though there seems to be no hint of the high raised roads of northeastern Yucatan. It seems safe to conclude that the site was always somewhat isolated from the routes of canoe traffic which presumably led far afield to the northwest, southeast and somewhat to the east; but that in ancient times overland routes, much easier then than now, connected it with these water routes, and with sites which probably lie about it in all directions, including Yaxchilan and Palenque. But the latter differ in that each lies at the periphery of a large area to which it had direct access by water. Piedras Negras lies between those areas.

Exploration on the right (northeast) of the river has thus far been largely confined to the immediate vicinity of the stream itself. Without any particular effort we noted three new sites, San José, Mundo Nuevo and Macabilero, which have been entered on the Kramer-Lowe revision of the Blom-Ricketson map. San José is the correct local name for the first of these, and this apparently small site is at the absolute upper limit of uninterrupted navigation coming in from the direction of the sea. But if we have occasion to refer to it as a ruin site we shall call it San José Usumacinta, to distinguish it from the San José excavated and reported on by Thompson (1939).

Piedras Negras is set among rugged limestone hills, the highest of which are flat-topped, and in the neighborhood of 100 m above more or less level and narrow valleys which wind between them. The general elevation was not determined, but one may guess that even these tops are not more than 200-300 m or so above sea level. Hence, in a state of nature, everything is covered by forest. Where this has not been cleared in the recent past, it is not particularly thick, and most of the map was surveyed without much bushing. There is plenty of mahogany, zapote and other hard woods, and of cedar, the beautifully straight-grained softwood of which cigar boxes are made. Rubber is available, ramon, now used for mule fodder, and palm for thatch. Several kinds of the latter occur in patches and we soon had to send some distance for it. The leaves are all of the fan type. There is a very light wood suitable for rafts. In a pinch rope is made today from a local bark.

The fauna includes large and edible birds, the macaw and other parrots, humming bird, duck, toucan, deer, wild pig, jaguar, spider and howler monkey, armadillo, frogs and toads, iguana, lizards, poisonous and non-poisonous snakes, including a constrictor, and in the river fairly large fish and crocodile. Of insects I will only note that ticks are plentiful wherever animals have been, and mosquitoes comparatively rare in the dry season at least. Dr. Hobart M. Smith, our guest in 1939, made a local collection of reptiles for the Smithsonian Institution, obtaining new species; Amram and Proskouriakoff made small collections of insects, turned over to the Academy of Natural Sciences of Philadelphia, which also I believe included new species. Otherwise no scientific attention was paid to fauna, and none to flora. Both are presumably much like those of surrounding districts. These layman's notes are meant merely to suggest the type of environment in which the site was built.

The middle Usumacinta has cut itself a deep channel, despite its serpentine turns. In the dry season underground drainage appears as occasional springs in the rock walls of the channel. A small lake, known as Santa Clara, upstream from Piedras Negras, appears to be drained by an underground stream emerging just above El Chilé ruins, and there the dry-season flow is considerable. Occasional dry sinkholes in from the river also attest to underground drainage through the porous limestone. The small tributary valleys are, for the most part, dry during the dry season, and probably so during much of the wet season. Sites are thus perhaps most to be expected on the banks of the river itself, where they

have been found, or on small lakes, which have been ill explored. The point to be made here is, that In studying the map of Piedras Negras, one should remember that during the dry season, unless water was somehow stored in quantity, carrying water must have seemed a long up-hill haul to many of the house-mounds at Piedras Negras. Although no sign of sub-surface cisterns has been encountered it seems reasonably safe to suppose that intensive search for them would prove their existence. In any case the city planners here seem to have chosen the best areas possible for the main ceremonial groups; hillsides permitting, the housemounds went to the peripheries, some near the river, but most far from it. It does not appear as if the river as a source of water supply had dictated the location on its bank.

As to food supply, apart from the game in the forest, one must suppose the region, despite its broken-up character, supplied the corn and beans for a considerable population; otherwise the ceremonial sites found in it would not exist there. Presumably Piedras Negras was a religious and market center for a considerable number of villages. One of these may have been at El Porvenir, 4-5 km away, where low mounds occur near the river, where one would expect them. There is a large flat area more suitable for a ceremonial plaza than anything at Piedras Negras, yet no large mounds.

Materials

The principal materials of which the Piedras Negras structures were made will be described for each unit as it is taken up, and will be discussed for the site as a whole under conclusions. But it seems proper to note here that, with the possible exception of one roof, practically at the level or approximately level surfaces to be seen on the acropolis reconstruction drawing were surfaced with concrete, while sloping and vertical ones were faced with limestone laid in lime mortar and finished with lime plaster. The interior floors are of plastered lime concrete, and this probably holds for all or most exterior ones, such as court floors here and in the site generally; but one must allow for the possibility that some exterior paving may have been with clay as the binding agent, that is, with clay or adobe concrete. Outdoors usually only the crushed stone remains, the binder being now nothing but earth. But in sheltered spots plaza and court floors are known to have been lime-plastered. At one time in the East Group a large area before Structure O-13, later buried under concrete-capped fill, was paved with flagstones. All the roofs on the West Group side of the Acropolis were of masonry on masonry vaults except for the Structures J-19 (no roof structure identified), J-12 and J-20. We suspect the last two were roofed with masonry, supported on wooden beams. Of these three, only J-12 is visible on the drawing.

If our suspicion as to beam-and-mortar roofs is correct, then nearly all the structures of the main ceremonial groups had externally flat masonry roofs, presumably always surfaced with plastered concrete. Such buildings were to all intents and purposes fire-proof, more or less termite-proof and only roof-combs had anything to fear from high winds; but only about half the roofs in these areas, taken as a whole, were carried on masonry vaults, as of the time of abandonment. There is no reason to deny roof-combs of the rear variety, or over medial walls, with possibly existent beam-and-concrete roofs.

In early times building walls of clay, daubed on wooden stockades of thin poles, or else on wattle work, were undoubtedly used, and used in what were finally, perhaps always, main ceremonial groups. By daub we mean that the clay or adobe, while plastic in the form of mud, was thrown forcibly against the framework, or otherwise forced into it, the result being similar to lath and plaster. Buildings with such walls undoubtedly were covered with pitched roofs of wood and palm-leaf thatch. It seems likely that this type of building, perhaps with masonry base-walls surmounted by daub-walls, was always the rule in the peripheral sections, and one is suggested on the reconstruction drawing. Thatch roofs with all-masonry walls may have been used on major buildings where we suspect beam-and-concrete ones instead. Apart from this possibility they were rare in the main groups in their final forms. The stratigraphically earliest (and the largest) temple building of which we know, Structure K-5-3rd, had all-masonry walls and almost surely a thatch roof.

In view of the above, the general impression of flat roofs, sometimes with roof-combs, yielded by the Acropolis drawing, may or may not be valid for other main groups as of the time of abandonment, and probably is very different from a correct picture for earlier times. It does not and would not be expected to give a correct impression of peripheral "house-mound" areas.

The heartings of the substructures are dominantly of dry rubble (pure broken limestone); masonry facings are of limestone laid in lime mortar (probably a mixture of burned limestone and naturally disintegrated limestone); the concrete was, usually at least, a mixture of crushed limestone and lime mortar; masonry surfaces were usually, probably always, surfaced (and thus protected and smoothed off) with polished lime plaster (apparently pure burned lime); decorative sculpture was of lime plaster (stucco) or carved limestone.

Wooden constructions are presumed to have been of the surviving bush-house type in which there is a great reliance on tying members down with vines, with little

or no shaping of wood as it comes from the forest, and no use of planks or boards. But it would be a mistake to presume that these compared unfavorably in appearance with those of masonry, since we have good evidence that, at least on one side, the walls might be finished with lime plaster on daubed clay, while a neatly made and trimmed thatch roof can be very pleasing to the eye. They were undoubtedly vastly superior to the all-masonry vaulted buildings in the matters of freedom to choose span and of ventilation. They dried out quickly and were probably better as dwelling-houses.

There is good evidence that the bush-house could share the plastered masonry building platform with the more pretentious vaulted ceremonial buildings, which appear to be a development of the substructure masonry techniques. The vaulted buildings here dispensed with all bush-house materials except wooden beams for wide lintels (which here were squared) and, in a surely known case, for beams set transversely across the vaults. Beam-and-concrete roofed buildings, on the other hand, if present, used other bush house materials in a similar way. Horizontal poles, laid parallel in the manner of a vertical stockade bush-house wall, supported by horizontal beams instead of vertical main posts, are supposed to have supported the plastered and originally plastic concrete as, on the bush-house, the stockade supported the plastered and originally plastic clay daub. One combination of vault and beam-and-concrete roof is known.

Finally, in this cursory attention to materials, one may note the special importance of a thin final coat of plaster, which we call finishing plaster.

In modern Maya practice in Yucatan, as described by Morris, plaster for floors and roofs was not merely polished, but first treated with a special bark extract, and tamped for hours on end with wooden mauls. The result was a surface practically impervious to water, and one which does not check in the sun (Morris, Charlot, and Morris 1931:224).

We have Landa's sixteenth century testimony as to the aboriginal origin of this modern practice or something very similar. He does not speak of tamping, but of trees from the pounded bark of which they make a liquor for polishing the plastered walls and it makes them very hard. Elsewhere he notes the use of the bark extract for roof-plaster, and in still another place says that certain building decorations are all made of an extremely hard cement (Tozzer 1941:171, 175-176, 198).

The modern plaster, as described by Morris, turns red, and red-plaster floors are found archaeologically, though not at Piedras Negras. The local finishing plaster is normally cream-colored, a few millimeters thick, and though buried and damp, fairly hard and very smooth. Whether or not it was treated with the modern or some other bark extract, it was certainly relatively impervious to water, and the small surviving outdoor patches of it, which originally must have been exposed to the sun, do not suggest checking on this account.

In the lowland regions of heavy and often torrential rainfall, such as this one, flat concrete roofs and floors of courts and substructures would soon lose their smoothness if deprived of this finishing plaster. Otherwise they consist of soluble limestone and soluble soft lime-mortar in which mere disintegrated limestone was presumably mixed with burned lime. Without it, roofs would begin to leak and the eager bush would soon invade the constructed surfaces of buildings as well as of courts and plazas. Without it, sun-dried daub walls would not last so long.

Finishing plaster has been found stratigraphically very early at Piedras Negras on masonry floors and walls, and on clay daub-sherds. It seems doubtful if in this climate either beam-and-concrete or vaulted roofs could have developed or taken root here until it was known. While its esthetic possibilities were undoubtedly fully realized, like modern oil paint on wood, it probably had a primary water-proofing and preservative function. So far as we can judge, painting of the plaster was purely decorative or symbolic. We know that plaster was painted, but only from occasionally well-preserved fragments not in position, sometimes as stucco relief fragments, sometimes as flat fragments apparently from walls.

Labor and Its Tools

When one looks at the plan of a Maya center like this and reflects on the bulk of construction represented he is certainly justified in concluding that the population of the region, now negligible, was then comparatively dense. Several factors must be balanced in making guesses as to how dense it was. Practically all structures of which we know anything here are the result of accretion. This process went on for at least three hundred years, for the carved monuments show nearly this spread in time. Morley's limits are from 9.5.0.0.0. to 9.19.0.0.0 (or 9.4.0.0.0? to 10.0.0.0.0?) in the Maya chronological Long Count calendar (1938:304). One cannot say that building activity ceased with the carving of monuments. Perhaps it did, and this is often assumed. In any case excavation indicates strongly that building began considerably before monuments began to be carved, on a ceramic horizon when flanged tripod bowls and cylindrical jars with solid rectangular "slab" feet were in vogue. Not until some sure means is found for establishing a Maya date as the earliest possible for the introduction here of these types can one say how much more than three hundred years went into the architectural result.

Another factor tending to minimize estimates of the numbers of any one generation is the fact that researches among modern lowland Maya show that workers on the public structures could have spent upwards of half their time on them, yet have raised their own food. Most of the adult men of even a sparsely occupied district could accomplish a good deal in half a year, providing they could be mobilized for such a purpose. Quarrying of the soft stratified limestone, with plentiful outcrops of it everywhere must have been comparatively easy.

On the other hand, estimates must not be on the basis of European experience. No metal whatever has been found here, and either copper or bronze would have left evidence. There were no metal tools, no explosives, no beasts of burden, no power other than human power. Rope was available, and presumably levers, perhaps rollers were used, but it is generally supposed that no full application of the wheel-and-axle principle, as for carts or pulleys, was known. While most of the stone used is rough-dressed only, and that on only one face, or is merely broken into rubble, presumably with mauls, a balancing factor is that a large amount of hard wood had to be cut for the burning of lime in which to lay much of it, and with which to plaster it. Using modern Yucatecan Maya experience, Morris estimates 11.9 cords of wood per 11.2 cubic meters of burned lime powder. His general conclusion, in spite of his special experience with modern Yucatecan masons, was that it is quite impossible to form an adequate concept of the amount of labor expended in construction of one of the ancient buildings (Morris, Charlot, and Morris 1931:224).

Plan of the Publication

The report of which this Introduction is the first part will in most ways follow orthodox models in the Maya field. Analyses and conclusions of a general nature, speculations and interpretations will be as much as possible segregated from factual descriptions. Sub-headings will be numerous as an aid to thumbing through in search of material or for something remembered. It is planned to make great use of three-dimensional summarizing drawings, usually isometric. These are supposed to reduce somewhat the amount of text needed for clarity. They will replace ordinary plans and sections when they can be made to show what is necessary, but otherwise will supplement the latter. Their main purpose, however, is to make comparative use of the structures easier. One can see similarities or differences in complex aggregations of form much more readily than he can recognize them from verbal descriptions. A three-dimensional drawing can be made to yield an adequate single picture of building plan and of two elevations of the substructure. What can be thus shown is easier to remember than if on separate plans and elevations. Holmes repeatedly took advantage of this fact, combining vertical cross-sections rather than horizontal ones to give the plan. I suspect that Holmes' use of three-dimensional representation accounts most for the fact that his figures are still being reproduced by scholars of a later generation.

A departure from established practice is the planned grouping of individual structure descriptions on a functional basis, so far as possible, rather than by their particular locations at the site. Separate descriptive parts are assigned to temples, to palaces, to ballcourts, to sweathouses, to unclassified buildings, and to miscellaneous structures. This again is with an eye to future ease in finding and using comparative material. A sweathouse and a temple may be compared; but comparisons of temples with temples, sweathouses with sweathouses, are more likely to be meaningful, and it seems worthwhile to segregate one from the other.

A more radical innovation is the decision to issue the report bit by bit, as funds permit, and to issue some individual sections or numbers of all parts before any part is completed. The reason for this is that it will then be possible to describe first those units of various categories which provide a maximum of immediately useful comparative material. By the time we have described two or three structures of each kind one will have a pretty fair idea of the architecture of the site, without waiting for a complete report.

It is likely that certain analyses and parts of the conclusions can be written before the factual descriptions of all structures are published, and if so there seems no reason for delaying such parts so that all interpretive sections might be issued at once.

However, it is desirable that the whole publication, when completed, shall show a reasonably logical arrangement. To meet this problem each numbered part will be separately paginated, with separate series of Plate and Figure numerations. The whole will run to more than one reasonably sized volume, but one cannot say in advance which parts may be in what volume. The pages forming logical units of description or interpretation will form numbers of the part concerned, much as each issue of a periodical is number such-and-such of its volume. These numbers may be handy in filing or citation; but only the number designating the Part need be included in citations. Practically, this will be no more cumbersome than citing volume and page. If the numbers of the Parts included in each finally bound volume are stamped on it, the impossibility of citation by volume number will be no very serious drawback.

Each number or group of numbers issued together will be merely stapled. Individual issues can thus be filed and used as pamphlets, or punched for loose-leaf binders.

In this form they will be rather handy for current use. When the publication is completed it is supposed that libraries will bind in order of the Roman numbered parts and Arabic numbered sections comprising the parts. All Figures will bear the Part Number and can then be grouped in one place if desired. A complete table of contents, list of illustrations, etc. will be issued then. With some numbers, such as this one, short bibliographies may be useful and are supplied. These are to be paginated with the number of the text page which they follow, plus letters. It is planned to supply a single final bibliography when the job is done, which will make these obsolete. The special pagination by letters will permit them to be then discarded.

In describing what has been found at one mound we have considered it part of our function to describe our idea of the whole, as it was before destruction set in, that is, to reconstruct the unit concerned. As on the map, every effort will be made to distinguish clearly where remaining ascertained fact ceases and reconstruction begins. Naturally, in making reconstruction's we reason from what is present at the spot, then from what may be known at similar situations at the same site. We shall therefore, in describing a given structure, frequently refer to others. This is another reason for grouping structures of a given functional category together in a single Part. At first we shall be referring to structures not yet described. The reader is supposed to understand that we do not intend to build on evidence withheld from him permanently. Sometimes such evidence is already available in some preliminary publication, listed in the bibliography of this number, but these will not ordinarily be cited in the text.

Ordinarily each descriptive unit will be a numbered section of a part. At the head of the text illustrations will be listed. After the text such information as can best be given in tabular or quasi-tabulated form will be added. Some of these tables will be in standardized form, and a few terms used in them can be explained here once and for all. Average in average dimension tables does not mean that we have taken several measurements, religiously added them up and divided in order to get an average figure. The figure given is what the Maya seemed to have aimed at, considering all available information; it may be one, but usually includes several measurements which seldom agree to the centimeter. Base under Lengths means length at base of the component concerned. Depth is a dimension at right angles to that of length, to avoid confusion which sometimes might result if called width. The letter V under Slope means vertical. Terrace dimension tables refer to single terrace elements, consisting of one vertical or sloping surface plus a more or less horizontal one which connects it with another vertical or sloping one. Two depths are given. That labeled total is usually the only one which can be actually measured. Proceeding back horizontally from the base by this distance, and then up vertically by the terrace height brings one to the inner edge of the terrace top, when seen in cross section. If the terrace face slopes, the depth of the top must be less than this. It is given next under top usually on the basis of a reconstruction. Aprons are decorative apron moldings, on substructure units, and under this heading Offset means the amount of projection at the base of the apron. Stages are formed by set-backs of one component behind another, as, for instance, the exposed part of a pyramid top between the pyramid stairway and the stairway of the next platform supporting something at a higher level. Under this heading Depth is the distance from the outer to inner edge of this area, at center. The elevation of each stage is the height measured from the same common level at the bottom, the base-surface of the whole structure.

We have been dealing thus far with Platform Units, which are separated from Building Units in the tables. Under the latter, Façade Table refers to dimensions along the faces of the building, its length and depth, and the widths of piers and doors as they appear in the façades. They are measured at the level of the base of the walls, when possible. Under Section Table a set of horizontal dimensions taking one from the outside of the front wall to the outside of the back wall, at floor level or levels, is given. W and W' label the thickness of front and rear walls, R labels the span or depth of the front room, R' of the rear room, if any. If there is such there must be an interior wall and this thickness is labeled M. (for medial wall). Wall heights often, and vault heights nearly always, must be reconstructed and are left to the text, under Building.

A Wall-Span Index, figured from Section Tables, is the percentage obtained by dividing the outer wall thickness by the depth of the adjacent room. With vaults this may be called "Vault-Span Index."

Notes on Masonry are brought together at the end of the text, and where it seems worth while, we will give an Objects Table. This lists the field catalogue numbers arranged in columns under various headings, as sherds, figurines, etc., and opposite various numbered positions. Below appears a descriptive key to these position numbers. These tables are supposed to give the associations of architecture and objects found, with the emphasis on chronology. Significant notes on horizontal positions of objects, if any, will be found in the text. We publish these tables because half the objects went directly from the field to Guatemala and we have not been able to pursue them there for proper study; and because only selected groups of those brought to Philadelphia have been studied intensively. Under these circumstances we cannot make full use of ceramics and other objects in our architectural

conclusions; the least we can do is to leave a clear trail by which the two sets of data may sometime be completely brought together. All objects (including each sherd) were numbered in the field; those at Philadelphia (except for the 1939 season) were renumbered with museum loan numbers, and we have lists of field and museum number correspondences. Both field and museum Loan numbers now appear in the field catalogue. The field system for numbering objects is independent of that for mounds and structures. Examples will explain it. S-21-22 is applied to 7 sherds collected during Operation 21 in the South Group. Operation 21 was the excavation of Structure R-9. Or again, W-25-1 designated 28 sherds and a figurine from the top level of Test Pit 1, the digging of which was Operation 25 in the West Group. M-6-1 is a figurine head, M-6-2 another, from a particular pocket in the river bed, while M-15-4 is a mano stone found on the road. The letter M. signifies "Miscellaneous."

In later seasons two sorts of preliminary object records were made. The excavator kept up to date, on the spot, a series of lettered "bag sheets" for any operation. The bag letter was a temporary substitute for the final object number, and corresponded to the bag in which the objects were placed. The bag of objects was later gone over, after washing, and if several terminal numbers for the contents seemed advisable, the contents were distributed among several bags bearing the final numbers, and these went back to the registrar for the numbering of the actual objects. The results of this preliminary examination were noted on study sheets. The field catalogue was made up from the "Bag Sheets" (for location data) and the "Study Sheets" (for other remarks). Thus for some particularly interesting object, or if there is some question, a check-back to bag and study sheets might be worth while. The two together we labeled "Objects Work Sheets." The bag sheets often contain rough identifying or locating sketches of objects as they came from the earth; and additional identifying sketches, made after washing, often appear on the study sheets. The latter also show the sherd counts and number discarded, if any.

The unit of architectural description must ordinarily include everything at a particular locus, usually a single mound. Thus it is quite possible that, in tracing backward through the accretions forming, let us say, a temple, some of the early construction may not be classifiable as originally pertaining to a temple.

In arranging the text a short prefatory statement will include or immediately precede an outline exposition of the sequences of construction found, and the symbols used to differentiate them in text and illustrations. Then the constructions making up each sequence unit will be taken up, one sequence unit after another, beginning with the earliest. But by a sequence unit or a sequence we mean all the constructions supposed to have been built at one time, though they usually functioned with earlier ones still in use. Substructure units will precede building units, if any, and ordinarily textual comment will proceed from the ground up, for any sequence unit, with subheadings marking off various components as for example, Basal Platform, Pyramid, Supplementary Platform, Building Platform, Building. Special features, such as an altar, will be noted where most convenient, but not before the construction with which they functioned. General remarks and miscellaneous facts will conclude the text.

The general idea of the standardized arrangement above outlined is to permit one to determine quickly from the illustrations what, if anything, is of present interest to him, and then, using the list of illustrations at the head of the text, and the textual headings and subheadings, to get quickly to those parts of the text which might qualify or amplify the first visual impression. On the other hand, if the whole history of a particular mound is desired, one may read straight through, and generally find things in a logical, early to late, and bottom to top order.

Line Drawings

These will consist of plans, sections, sometimes elevations, and "rectified" isometric perspectives. In the latter, a vertical line is vertical, horizontal lines at a right angle to each other are, in the drawing, at an angle of sixty degrees to each other and to the vertical.

Unless otherwise noted, what is definitely known will be followed with solid lines, solid black or with drawings of stone-work. On plans, unexcavated areas may occasionally be positively indicated by stippling. Usually they can be approximately deduced from our use of solid and broken lines, though of course the latter sometimes represent reconstruction made necessary by destruction rather than non-excavation. In section drawings concrete floors and roofs will be represented by a line of relatively large dots or circlets just below the floor line. By exception, if the latter is a broken line above the symbol for concrete, this does not mean the floor is unknown, but only that the finishing plaster had not survived. There will be no difficulty in noting that simple dotted lines are used in sections to indicate original mound surfaces. When these were carefully measured this will be noted in the text.

The isometrics usually show buildings cut horizontally to show the building plan, in heavy outline. On these, in order to give a quick summary of how much specific basis for the reconstruction existed, we will adopt a special convention. Where symmetry on either side of an axis can be safely assumed, a feature or part of a wall may be known for only one side. It will then be shown in solid line on one side only, in the plan, but In the isometric drawing solid lines will

be used as if it were known on both sides. If important misconception could thus arise it will be warned against in the text. This convention permits pictorial statement that a given part shown is known for the side shown, or else for the other side, which may happen to be invisible in the drawing.

Scales used are chosen for use with metric rather than foot rules. Multiplying a measurement made on the drawing by a whole number will give the actual dimension in meters and centimeters. If some drawings seem at excessively small scale one should remember that printing is expensive, while a reading glass is not.

Special Terms

An architecture completely independent in origin from those of the Old World cannot be described and properly analyzed without using some Old World terms in new ways, nor without inventing many new ones. A few have already been discussed at some length. Both processes are evident in the many published works on Maya archaeology; but since intensive and detailed investigation of the architecture is a comparatively new thing, it would be foolish to try to get along with only those thus far used in the literature, as if these processes had come to a natural completion. It is inevitable, in the formative stage of such investigations that, despite the desirability of standardization, more than one term will arise for the same thing, so that one must sometimes choose; and also that, with increasing knowledge, some old and established terms which can scarcely be discarded should, nevertheless, be restricted to less than their original scopes. In this state of affairs it is worth while, before beginning descriptions of a large number of structures, to define a selected list of terms as they will be used here.

The definitions given below are all felt to facilitate description of the Piedras Negras structures; and are only for new terms or to give precise meanings which are not obvious, or meanings which are slightly different from what might otherwise be understood. Terms for certain traits believed to emanate from the Petén were defined in Satterthwaite (1941), will be clear enough in their contexts, and are not included. Such terms as "altar" and "lintel," when already applied to specific objects, as Altar 1, are retained whether or not they are believed to qualify under the definitions now adopted; doubt on this score will sometimes be indicated with quotation marks, as "Altar" 1.

In describing structures, left and right (without modification) are used as if the structure had hands as well as a façade, or front face. A left room is on the observer's left if he looks from what we have taken to be the rear, but on his right if he looks toward the rear. Observer's left depends on the point of view selected.

Altar
An item of outdoor or indoor furniture believed with some evidential basis to have served as a repository for offerings, idols, etc. during ceremonies, or for making ceremonial sacrifices, including burning of incense. Use of the term furniture does not exclude altars built as integral parts of a building, or what may be regarded as considerable permanent additions to them.

Anta
The side wall of a building the inner face of which extends past a façade doorway to form one of its jambs, resulting in a wall-jamb doorway.

Apron-Molding
A sloping one-member molding, its projection from the wall decorated by the molding being slight in relation to molding height. The term will be confined arbitrarily to moldings with base higher than the wall-base. The lower member of two-member medial moldings, called apron molding by Pollock (1932:123) will be called triangular (i.e. in cross-section).

Basal Platform
A platform which appears to have been constructed to obtain a more nearly level base-surface than provided by prior natural or artificial surfaces.

Base-Surface
A surface from which a structure, component or element appears to rise, as a court floor, a basal platform top, a pyramid top.

Base-Wall
A low free-standing masonry wall, supposed to have been carried higher by walls of more perishable materials, such as wood, daubed wood or wattle, or adobe (instead of foundations of Pollock 1932:112).

Beam-and-Mortar Roofs
Masonry roofs supported on wooden beams. Beam-and-masonry roofs would perhaps be a better term. The one sure example at Piedras Negras combines this type with vaulting; here the final surface was plastered concrete, river gravel replacing the usual crushed limestone. The bulk of the roof masonry was presumably of rubble and mortar, without such careful selection for small size of the rubble as implied by our term concrete. For better preserved beam-and-mortar roofs in the Maya area see Lothrop (1924:34) and Andrews (1943:41-42). Flat roof is sometimes used as a synonymous term. While vaulted roofs lack the flat ceilings of beam-and-mortar ones, the upper surfaces were nearly flat in either case. We shall speak of flat roofs with either type of support, invisible from outside, to distinguish them from pitched roofs of wood and thatch.

Bench
A bench-like or table-like piece of indoor or outdoor furniture. At Piedras Negras various types are to be distinguished. Functionally they seem here to be either altars, or thrones. Bench is also applied to ballcourt structure elements next the central field or alley.

Block
A masonry quasi-rectangular element of doubtful function found on stairways or in stair angles (See also tabular block).

Bonding
Interlocking of individual stones to give strength in masonry (adapted from L. Roys 1934:34). Bonding of corners at Piedras Negras amounts to an imperfect approximation of in-and-out bonding as defined by Webster. It means here that stones with longer and shorter axes occur at the corner with their longer faces occurring in both wall-faces forming the corner, and that from bottom upward long and short faces of the stones tend to alternate in either wall-face. This alternation may be interrupted by vertically adjacent long stone-faces in the same wall-face, by large or small corner stones with equal faces, and even by mere spalls at the corner. But the alternation is considered to be more than chance, and to strengthen the corner by interlocking the two wall-faces which form it.

Building
A structure supposed to have had one or more doors, rooms and a roof. Probably universal on a substructure, hence a superstructure, and often so called in the literature.

Building Platform
A platform on which the walls of a building immediately rest; if the substructure is a compound one, the uppermost substructure component only, considered apart from the rest, whether structurally separable from lower components or not; also, in supposed absence of a building, a platform which may be classified as a building platform because of essential similarities or similar placement.

Component
A major part of a compound but clearly unified structure, separable from other parts for descriptive purposes, whether actually constructed separately or not. Examples, Structure R-9, from the court floor up: Basal Platform, Pyramid, Supplementary Platform, Building Platform, Building. Element and Member are used in the same way, but less inclusively. Examples: a stairway is one element of a pyramid; a step is a member of the stairway.

Concrete
Rubble, selected for very small and more or less uniform size, mixed with a plastic binder which dries and hardens for use. Such selected rubble will be called crushed stone. In lime concrete the binder is supposed to have been burned lime and naturally disintegrated limestone. In exposed positions, as in plaza and court floors, the stone remains but the binder has become mere soil. There is a hint or two that crushed stone may have been mixed with clay as a binder at one time. If this could have been established it would have been called clay concrete.

Court
A more or less level and more or less square or rectangular area fairly set apart by platform and/or building walls on two or more adjacent sides. See also plaza and corridor. Ballcourts are special gaming courts which may not comply with this definition.

Corridor
A relatively long open space between structures or between structures and natural features through which traffic might naturally pass.

Element
See Component.

Fill
The hearting of platforms and foundation masses. At Piedras Negras typically dry rubble, i.e., pure broken rock of small, medium or large sizes. Does not imply that the rock was entirely or even mainly thrown in. Typically the hearting was built up in blocks, separated from each other by fill walls laid of the same formless rubble, without chinking, but so carefully that they stand if carefully excavated, though they are vertical or nearly so. Solid fills in which rubble seems to float in earth, occur sparingly, but never in a deep fill. There is no evidence here of rubble and mortar (rubble masonry) fills, except of a doubtful character.

Janus Façade
Either the front or the rear face of a building, the two being identical or substantially so as indicated by the ground plan alone. Quasi-Janus Façade: The front or rear face of a building in which the two differ substantially as indicated by the ground plan, yet the rear, if substituted for the front face, would form an adequate front by local standards for buildings of the same kind.

Member
See Component.

Molding
A decorative element comprising less than the whole face of a single wall, of which it must be considered a part. Most Maya moldings are narrow, but apron moldings on platforms may account for most of the wall. A basal molding in our usage must form the lowest part of the wall-face, and will not be used as an alternative term for what we call plinth, or for what we call sill, or for substructure moldings forming upper parts of walls. Our use of basal molding is thus less inclusive than in Smith (1937:25), and apparently in Andrews (1942a:257-258).

Palace
Classifying term for Maya buildings usually supposed to have been residences of priests. Used here, with negative functional significance, for supposed public buildings other than temples and sweat-houses. A more positive local definition will be attempted under Conclusions.

Panel-Stone
A stone, usually carved, and supposed to have been set on edge as a panel. All Piedras Negras carved lintels, except "Lintel" 11 and perhaps "Lintel" 6 are now supposed to have been panel-stones.

Pier
Masonry weight-supporting element of width less than adjacent door-width, and square, rectangular or modified rectangular in cross-section. Slender square piers here are equivalent to square columns of some writers, except that piers here never are monolithic in horizontal cross-section. Andrews uses pier in our sense and also for a projecting minor platform element (1943:43). At Piedras Negras similar elements will be called stair-blocks.

Platform Court
Unless further modified, the top of a platform made into a court by assemblage of structures on two or more sides of the top. Low platform courts at Piedras Negras seem to be the equivalents of Thompson's plazuela in British Honduras (Thompson 1931:223). Plazuela, used by Maler for an ill-defined open space on his Piedras Negras map, is discarded.

Plaza
Like a court, but differing substantially from square or rectangular form.

Plinth
That part of a low or medium height building platform of which the face follows the building walls at a short and more or less constant distance from their bases. Apparently the same as Ruppert's podium (Ruppert and Dennison 1943:6). A plinth which makes the complete circuit of the building may be called a plinth platform, and if low enough, would be the same as Lothrop's step at Tulum (Lothrop 1924:167).

Projecting
As a classifying term applied to buildings, platforms, or their components, indicates that they lack their full complement of faces and can be considered as projecting from a hillside or from other structures; instead of built-on buildings and false pyramids used in some of our earlier publications.

Pyramid
A terraced substructure, or terraced substructure component higher than other components, with a stairway element connecting its top with its base-surface or a still lower surface, and serving only one building; also, platforms like the above except that they may not have supported a building. Two-building pyramid might cover the Aztec variety.

Rubble
Rock broken to irregular chance forms.

Sill
Specifically a low narrow interior bench, perhaps an altar, common at the rear of Piedras Negras temple rooms.

Stair-Side Extension
Instead of balustrade. General term for elements including continuations of stair side walls forward from a riser. Various types are to be distinguished but none utilizes balusters.

Stepped Top
To describe platform tops with two or more levels, the highest at the rear; top of a platform with a higher rear level.

Stucco
Restricted here to sculpture in plaster.

Supplementary Platform
Specifically, a substructure or platform component other than a pyramid, on which the building platform, or a platform corresponding to a building platform, appears to rest.

Tabular Stone
Stone split off from stratified beds, hence possessing parallel upper and lower surfaces without further working. The typical stone at Piedras Negras, with some further trimming, for wall and vault facings. If thickness is slight compared with two other dimensions, called slab; if thick, called tabular block or simply block if thick in relation to one dimension only, called long block The

latter were often obtained by considerable trimming for use at corners.

Temple
Structure believed to have been designed for public practice of religious rites and ceremonies. For criteria used in recognizing them at Piedras Negras see Satterthwaite (1937a).

Throne
A bench on which there is direct or inferential evidence for supposing that human beings were seated while others present stood or were seated at a lower level or levels.

Unit
Used freely. What is included depends on the particular context. Extreme examples: one step of a stairway or all structures of a main group.

Veneer
In a sense, all Maya masonry facings may be considered veneers applied to very different heartings (Lothrop 1924:29). Here restricted to facings in which an edge of the stone is placed downward. At Piedras Negras veneering of vertical surfaces was confined to panel-stones, probably thus used. Sloping veneer (of sloping surfaces) was used only on one ballcourt and on part of one platform, in the latter case with megalithic slabs.

Wall-Jamb Doorway
Denotes a doorway with one jamb formed by a continuation of the inner face of a room wall. Examples: Structures R-16 and J-11 (exterior and interior doorways, respectively). This type of doorway reduces the number of corners to be constructed and therefore reduces the amount of special treatment here devoted to corners.

Window
A wall-opening sufficient to admit a substantial amount of light, or affording a ready view through the wall, or both. Rare, and confined to interior secondary partition walls at Piedras Negras. Most windows at Tulum (Lothrop 1924:32) would here be called ventilators, the usual term for the typically small openings through thick Maya walls or vaults.

The Map

Maler published a sketch map of Piedras Negras which roughly located the monuments then known and a few of the buildings, and also gave some indication of the topography (Maler 1901, Plate 33). In 1920 Morley published his own sketch map to show location of monuments (Morley 1920:569). This was obviously little more than a copy of Maler's, since it reproduces the same mistakes in orientation and assemblage of the same structures. The structures he numbered for the first time. Neither of these maps gives any idea of the very considerable development of the rectangular court idea at this site. Both omit one of the South Group pyramids and assign its stela to another. Maler seems to have used his compass in orientating certain structures, but to have guessed wrong by as much as 90 degrees at others. These maps will be referred to as the Maler and Morley maps, without implication that Morley actually repeated Maler's mistakes in the field.

Morley returned to the site in 1921 accompanied by Ricketson, who made an excellent sketch map of the main groups. A copy of this map, never published, was very kindly supplied us by Morley, and was invaluable during the 1931 season. It was seriously faulty only for the Acropolis Courts 2 and 3 areas, which must have received less attention. This map carried a new series of structure numbers, and these appear in our 1931 notes except for certain buildings on the Acropolis, which were provisionally numbered as a continuation of the Ricketson series (after discarding his numbers XLV to L), and are shown on a supplementary sketch map of this area, made by the writer and attached to it in the files. A table of equivalents between the unpublished Ricketson and our own final structure numbers is on file. A similar table of equivalents with prior published designations appears on this edition of the map.

After the first season, in view of the excavations made and projected, it was decided to start afresh, and to obtain a map more complete and accurate than is justified for preliminary surface surveys. In passing it is proper to remark that there is no reason why such preliminary maps should not indicate the general forms of mounds, so far as is easily discernible, and this is now generally done. The Ricketson map showed very clearly such items as the here characteristic stela-bearing basal platform or terrace, and from it Lothrop was enabled to recognize the presence of a ballcourt. He could just as easily have recognized two (Structures K-6 and R-11).

The map of Figure 1.1 we shall distinguish as the third edition of our own map, its reason for existence being that it covers a much larger area and presents a great many more details than its predecessors. The first edition was a photostat at a very small scale, as of the 1932 season (Butler 1935a; Satterthwaite 1933a). At Morley's request, although this map was avowedly incomplete, a copy was made for publication in his *Inscriptions of Petén*, appears there as Plate 202, and can be designated the second edition. Both editions were from the same tracing, which carries the legend *Ruins of Piedras Negras, Department of Petén, Guatemala: Partially Completed Plan of Principal Groups; Eldridge R. Johnson Expeditions 1931-1932:*

The University Museum, University of Pennsylvania. Surveyed and Drawn by Fred P. Parris, Architect. The drawing for the second edition bore the further legend *Copy Omitting Certain Details Prepared for Carnegie Institution of Washington*. In printing the second edition the legend was reduced to *Map of Piedras Negras, after Parris,* and so falls to indicate its incomplete and preliminary character. A simplified version of the earlier editions appeared in Mason (1935b), and brings out the crescentic distribution of the larger structures.

Parris added the results of his 1933 surveying to the same pencil drawing from which the 1932 tracing was made. After the 1939 (arid last) season necessary parts of this same original were erased and redrawn by Proskouriakoff. These parts are for the most part ground plans, including reconstructions. They reflect a great deal of resurveying by her, especially on the Acropolis below Court 3 and at Structure O-13; but she also integrated plans and notes of various others, including those of Parris which needed no change because of later excavation. Notes, sketches and drawings of various excavators were utilized, and the final map results from a group enterprise. The final inked tracing is by Proskouriakoff, except for the grid-lines, numbering and lettering, and a few minor final corrections.

Distinction between Mound and Structure

We shall use mound only for apparently heaped-up masses of material whose final form is largely due to the action of nature or, if entirely due to human agency, then either no particular form was sought, or it was adjusted to utilize for its sides the natural angles of rest of the materials used. At Piedras Negras this means that small earth mounds result from activities of ants, a mound of human refuse may accumulate, a small mound of earth may be (and was) found in a burial chamber. Platforms might have been built on the mound principle as here defined, as in the Mississippi Valley and I think in some parts of the Maya area, but here there is no evidence for them. Such platforms might, I think, be properly labeled mound structures or mound platforms. However, buildings and substructures could, and nearly all did, fall to such ruin that the upper parts then formed mounds, concealing and protecting surviving lower parts. Only this type of mound will be called mound such-and-such, and the implication is that it is the mound formed by the ruin of structure such-and-such. Such mounds often give a clue to original structure form.

Structure, including buildings and substructures (the latter being platforms or combinations of platforms), if the word is not descriptively modified, means a construction which solves the problem of vertical slopes or slopes steeper than the natural angle of rest of the materials in crude form; and/or which to greater or less degree provides protection against weathering. The term platform mound has been applied elsewhere to include vertically or steeply walled masonry structures from which evidence of a supposed superimposed building of perishable materials has completely or largely disappeared (Lothrop 1924:26). Platforms of this general description occur at Piedras Negras. We will simply call them platforms and say that they were probably true substructures. Platform mound is also used in the literature to classify large platforms, still supporting buildings, as not being of the pyramid type (A. L. Smith 1937:5). The term sometimes is close to equivalence with Acropolis (Pollock 1932:109). Since none of these usages conform to our own definition of mound, yet the latter is really necessary in describing what is found, we have invented such terms as Court Platform, Supplementary Platform, etc., for platforms not considered to be pyramids.

Where, as here, mounds formed by ruin are schematically represented by forms with plane surfaces, side by side with excavated or reconstructed Maya architectural forms with plane surfaces, occasionally one may be in doubt as to which is which. Thus the shoulders on the stairway of Structure J-6 appear somewhat similar to schematic mound surfaces elsewhere, but are actually what the Maya built. Here the vertical sides make a sufficient distinction. In a number of cases schematic mound surfaces are shown as if broken off, by irregular wavy lines, which are meant to avoid confusion in this respect. An example is at Structure F-4, where an attempt is made to indicate that the building and building platform are known, and that we know there was another platform which gave it added height, but know this only from measured heights and mound contours.

Numbering of Mounds

A very considerable number of Maya sites are now represented by maps. Most of them are based on preliminary surface examination only, but the general forms of the mounds are indicated. Usually some or even many of the mounds shown are not numbered. Experience has shown us here that a particular mound form might have been used to predict a particular type of ruined structure, notably the Piedras Negras type of sweat-house. As noted elsewhere, ballcourts were already being recognized in this way from site maps. There is no reason why, with further knowledge, especially among the little-known "house-mounds," other types may not become recognizable in advance, from their mounds, and provisional distributions deduced from them. At the least, mounds may be classified for size, and certain of them eliminated as ruins of ordinary dwelling houses; and much may surely be learned about assemblage by comparative studies of such maps. To facilitate such uses of this one we have identified all structures, whether known only as

ruined mounds or not, and no matter how small, with locus number "names" placed on the map. Many of these mounds we shall probably never refer to by name, but if someone else sees significance in some of them now or later he can select them out by using our designations, and these will locate them with reference to everything else on the already published map. Thus far little attention has been devoted to house-mounds, except by Wauchope (1934 and 1938). They must be systematically investigated before a complete understanding of a Maya "city" can even be approximated.

Structure Plans on the Map

An important principle utilized in determining rectangular or parallelogram general form In broken line reconstructions is explained under Accuracy A distinction between locus and structure numbers, and the principles underlying the latter, are explained under Structure Designations. The structure numbers include the locus number plus, in many cases, additional temporal designations; but in all cases only the locus number appears on the map, as for example, "K-5." The question thus arises, which part of a time sequence of structures at one spot is shown on the map? The answer is, the latest at each locus, so far as possible without sacrificing readability for each component of the structure concerned. For example, the latest construction at K-5 is known as Structure K-5-1st-A. Small remnants only of the final Building Platform and Supplementary Platform survived. They may have been quite simple, like the Building Platform of Structure J-29. But not enough survived to justify reconstruction. We show a line locating the Supplementary Platform remnant, which cannot be understood without this explanation; lacking space, we omit showing another for the Building Platform. We also show these platforms as complete in their next earlier forms, those of Structure K-5-1st-B.

Despite this consistent selection for lateness one cannot say from inspection of the map that such and such a structure, or even part of a structure, was designed and built in a late period. Some complete structures, as shown, surely pre-date others by significant amounts of time; and various parts of a single structure commonly pre-date other parts. Probably nothing shown as a structural plan represents the earliest feature at the given spot.

Accuracy

Parris' schematic mounds do not, of course, show minor irregularities of debris contour, but they are not mere sketches. Their placement is based on a system of back-sighted traverses which, on being drawn up at 1 to 500, closed within a meter or so. From a station or stations of this system all points of a mound which seemed to have significance in judging of its general form were located vertically and horizontally with transit and stadia rod, but generally not by triangulation. However, all structure plans by Parris were made with transit triangulation from taped base-lines with taped measurements on the structures as checks. Those on the present map made by Parris or depending largely on his work are Structures J-2, J-6, J-18, J-23, K-6, R-3 and R-11. Proskouriakoff and Godfrey used only the triangulation method. They usually used the transit only when necessary to supplement triangulation with tapes, done by themselves or by Satterthwaite or Cresson. As with Parris, straight measurements acted as checks. Apart from details thus supplied in some cases by the excavators, Proskouriakoff is entirely or mainly responsible for the plans of Structures J-4, J-9 to 13, J-20 to 22, J-29, O-13, R-1, R-2, R-4, R-5, R-7, R-9, and for the final carefully re-surveyed positions of Structures J-4, J-21 and J-22 and all the buildings of Acropolis Courts 1 and 2. She supplied necessary transit work at Structures R-3 and R-10. In the same way Godfrey is responsible for the plan of Structure K-5, its alignment with respect to Structures K-6 and N-1, and for controlling transit work on the pyramid of Structure O-13 and at Structures O-12 and R-16. Plans of Structures F-4, N-1, P-7, U-3 and V-1 are entirely from taped triangulation by Satterthwaite, that of Structure O-15 by Cresson. Measurements for other plans had little or no triangulation control.

The placement of South Group plans on the map is by Proskouriakoff. It is my impression that time was lacking to make these placements as exact, with reference to each other, as on the Acropolis, and that some reliance had to be placed on the positions of Parris' mounds, drawn before excavation. Resulting errors must be small in amount, and I think probably non-significant. Plans in the Northwest Group, East Group, Southeast Section and of Structures O-12 and R-16 were located on the final drawing by this method.

Naturally those parts of plans which are reconstructed with broken lines or hatching cannot be exactly correct. Their credibility can best be judged when the particular structures are described in detail. In the meantime inquiries will be welcome. It may be noted that most plans tend to take a parallelogram form. This we believe resulted from careful linear measurement by the Maya when the structures were laid out, but without any accurate method of laying out the first and presumably intended right angle. Very clear examples of this form are the two ballcourts, Structures K-6 and R-11, and, among the more conventional structures, the pyramid of Structure K-5 and the palace Structures J-9 and J-11. We have used the parallelogram, rather than the rectangle, as our guide in reconstructions whenever a part only of the building is known, but that part indicates the amount and direction of the distortion to be expected in the rest.

We have built a great deal on very little in this respect at Structure R-16; but had we allowed for it in excavating we should have saved considerable time in locating an altar on the pyramid, which is a confirming circumstance. Failure of pyramid stairways to fit into the parallelogram scheme is well established at Structure K-5.

There are other cases in which we know something of details, and where we can deduce a good deal more from debris contours, but not enough work was done, or measurements made, to determine the presence or absence of parallelogram distortion from the ideal rectangular plan. In those cases we have drawn what we call rectified plans, meaning that we use right angles but in so doing are probably righting, in a double sense, what is actually present. All plans on the map in which true right angles appear consistently throughout, or as to any component, are of this rectified nature. In presenting detailed descriptions plans will regularly be rectified for purposes of constructing isometric three-dimensional drawings.

Parris did not take cognizance of small irregularities on the surfaces of mounds. If he had, he would never have finished. The writer always intended to take the Parris map in hand and sketch these in, but it never got done on a large and systematic scale. So one should not reason from a flat-topped mound on the map that it supported nothing whatever of an imperishable nature. The presence of trees, large and small, often complicates such surface interpretations, even on the spot, though the plans of some buildings, later excavated in whole or part, were correctly read from the debris.

The areas disposed of with contour lines are of course represented with least accuracy. In some areas these slopes doubtless cover constructions, especially terracing too low or too badly disintegrated to yield a surface clue. This is especially likely on the southern side of the East Group plaza, though bedrock probably showed at the top of this slope. We neglected to map and to show a low outcrop which was permitted to remain in the West Group plaza, between Structures K-4, K-5 and K-6, and again next Structures O-12 and J-23. A wall, then steps or a stepped terrace, are known to have extended southeast from the end of the basal terrace of Structure O-13, the known distance being about 18 m. This was set back about 60 cms from the face of the basal terrace. Unfortunately when this was excavated Parris seems not to have been notified, so we retain his contour lines here.

By and large all concerned have endeavored to make the map as accurate as could reasonably be expected, more so rather than less, with attention-emphasis decreasing in the order: building plans, substructure plans, groupings, mound contours and natural contours.

The original map is drawn to 1 m contour intervals. Datum for all heights of contour lines is 9.8 m below the lowest point on the incised circular band on the Sacrificial Rock. This is approximate low water level. Separate datum points, sometimes several, were used in measuring heights at individual excavation units. We should have related these to the river datum at once, but did not do so. A table giving exact base-surface heights above the river datum, for each structure, will be worked out so far as possible and published later. They can usually be approximated by reading the published 2 m. contour lines.

Uses of Arbitrary Squares

Division into squares by a grid, which we have used, has a number of advantages and also some disadvantages. With the squares exact points not indicated on the map can nevertheless be added there from textual notations utilizing the principle of coordinates. Thus we could have warned future archaeologists that a modern burial lies North 75 m, East 74.5 m in Square C, instead of actually showing it; and if we should return and find some new buried or overlooked structures we could very briefly indicate textually their exact locations, and these could be added to the present printed map, by hand. For this purpose the squares need not, of course, be actually drawn.

They can be used as boundaries for independent series of locus numbers. This permits designation of large numbers of these, without running the risk of numbering a later discovered feature, and needing to place the number on the map far from its own numerical neighborhood. Thus, given a structure number (which includes the locus number), even if it is somewhat out of its logical place, it can soon be found if one knows the square. We follow the Kilmartin-O'Neill map of Chichén Itzá (Ruppert 1935, Figure 350) in adopting this practice, but add the square designation to the number, so that the complete designation or name of a structure or mound is or includes a locus letter and a number. Thus the name of a structure automatically locates it as within an arbitrary group, and this group is located on the map by the grid. The artificiality of this name-grouping has been minimized as much as possible in placing the squares and in choosing their size, which is 200 m. Thus all structures on the Acropolis carry the letter J, while all those on the South Group Court are R-structures. But not all J-structures or R-structures belong in the same natural groupings, that is, the groupings probably meaningful to the Maya themselves, and this is an admitted disadvantage.

At Uaxactún natural groupings were lettered, and the disadvantage is avoided on the Uaxactún map by Blom, Amsden, Ricketson and Smith (Ricketson and Ricketson 1937, Figure 198). The mounds shown on that map are

actually in definite clusters. Here we wished to include large numbers of house-mounds, and we did not feel competent to split all of them into groups which would be any less arbitrary. What we did in effect was to borrow ideas from both the Chichén Itzá and Uaxactún maps.

As a general rule minor series of numbers run clockwise or counter-clockwise around natural sub-groupings, and an effort has been made to have a new minor series begin near the end of another as an aid in locating a given number. The letters of locus designations have been omitted when space required it, but can always be supplied from the square-letter, which is given in a circle, usually at the southwest corner. A diagram of squares is placed on the map as an aid in finding them quickly.

We have lettered our arbitrary squares, as at Uaxactún the natural groups are lettered, instead of giving squares coordinate letters and numbers. The advantage is in simpler designations. For example, at Chichén Itzá. In a comprehensive system of names covering all structures the Great Ballcourt might be 2D-1, the West Colonnade 3D-1. On our map, corresponding designations of two small mounds, unlikely ever to be known by more descriptive terms, are K-1 and O-1, and could be KI and O1. This simplifies note-taking somewhat, and I think reduces the danger of misnomers in notes, and makes the designations easier to remember as names.

The letters in these designations, though they appear to be exactly similar to those at Uaxactún, and like those indicate geographical proximity of structures of the same letter, do not also necessarily indicate what might be termed a family connection between them. Our letters are more like given names, those at Uaxactún like family names. To meet the need for the latter, we use descriptive words, such as "West Group," and "Acropolis" for a part of that group. Here we also apply numbers to three courts, but it is understood that, for instance, "Court 1" means "Acropolis Court 1." Such group terms could hardly be avoided in any system. Thus, in descriptions of what is labeled A-V at Uaxactún it is called a "palace," with "south" and "main" courts and, I think, others (A. L. Smith 1934).

Division of the mapped area into simply designated squares provides a convenient basis for textual naming of topographical features which largely controlled the city plan, but which do not pertain exclusively to any one natural (i.e., Maya) group of structures. Those listed below will be useful, and others could be added if needed. The hills of major consequence are named after the squares in which they culminate, if the tops are within the grid; but if not, by the squares into which their lower slopes extend. Valleys are named after the squares in which they or their mapped parts chiefly lie, the square of the lower part first.

Hill Z

Hill AB
Separate peaks in Squares A and B.

Hill D.

Hill L
L-shaped as it affects the surveyed area. The northerly arm extends westward from Squares H and L, and is not of full height. This is the 11GK extension, supporting many mounds in those squares. Another lower extension of the main body of the hill extends to the south and might be called the P extension of Hill L. The top of Hill L is a narrow flat bed of stratified limestone, and is as high as anything to be seen from it, and higher than anything else in the immediate neighborhood except the top of Hill S.

Hill S
Really a separate part of Hill L, its flat top separated from the latter by a high saddle through which the old trail formerly climbed. Only the lower slopes of this hill appear in Squares S and V.

Hill Y
The sculptured cliff is at the base of a gradual but narrow slope starting in Square Y and rising to a high top far to the south.

Hill X
Starts at south side of UV valley, culminating south of Square X, and lies between Hill Y and the river.

Hill J
The hill of the Acropolis.

Hillock O
A gently sloping eminence rising about 10 m between the East Group Plaza and South Group Court.

Valley C
North from GH valley, a minor finger-valley carrying the trail past Structure C-33 toward Porvenir and Tenosique.

Valley GH
East from corridor leading to Northwest Group Plaza.

Arroyo RO
Northeast from river, between West and South Groups; The Ravine.

Valley UV
East from river, lying south of South Group and Southeast Section; includes Maler's Valle transversal and Plazuela de las Cuevas.

Valley VS
Northeast from Maler's Ceiba tree in the UV valley, which still stood and is located on our map, leading through the Southeast Section to the saddle between Hills L and S.

A disadvantage of our simply lettered grid system is that it cannot be logically expanded beyond 26 squares. The Chichén Itzá map can be logically extended to a rectangle with any number of squares on one side and 26 squares on the other, and could have been placed to allow for very great extensions in all directions. The Uaxactún style of lettered natural groups allows for addition of twenty more groups, though additional letters probably would not always fall into logical places on the map, i.e., in the same "alphabetical neighborhood." We are committed to the lay-out of squares used in the earlier editions, and to a miscalculation which now requires placement of Square Z in an illogical position. The 26 squares used include all mapped mounds, but not the whole of the mapped area; and we have no letters left for squares which some day should certainly be added east of Squares S and V, to complete the Southeast Section. Having decided on the simply-lettered grid system for the sake of its advantages, we could and should have reduced the disadvantage of non-expandability to practical non-importance by choosing 300 m or possibly 400 m squares.

Use of Terms "Group" and "Section"

For descriptive purposes and in our notes we have made a distinction between formally named "Groups" and "Sections." Named Groups are fairly well defined and include a court or plaza or two adjacent ones, each containing one or more pyramid-temples and being named for the group, as for example "West Group Plaza." Four of the five thus distinguished and labeled on the map contain all the monuments found in position, so the named Groups comprise the main ceremonial centers of the site. The choice of names, Northwest, West, East and South, is perhaps not very felicitous. Naturally one cannot avoid using group also in ordinary ways.

The term "Section" has been applied to mound areas, peripheral to the named Groups. It should not be assumed that these contain no ceremonial buildings, but they appear to be primarily areas of platform supported dwellings, i.e., of "house-mounds." They are less well integrated, the major grouping implied by section depending more on the terrain. One has the impression that, had the country here been flat, the mounds of the sections would have been disposed as a continuous ring around the groups. Only one, the Southeast Section, has been labeled on the map. A glance at the map will show that there is a North Section in the surveyed area, capable of subdivision. We might speak here of a Hill Z Section. A well marked section south of the West Group and another west of the South Group are obviously determined by terrain. The mounds east of the West and East Groups also may be considered together, many of them being high up on the same hill, the L-Hill. Both Groups and Sections thus seem to reflect a nuclear approach to city planning. The site is an assemblage not merely of independent structures, but of quasi independent aggregates of structures. However, the groups are inter-connecting, except for the North west Group, where planning for inter-group communication is not so clear. In general, the sections are cut off from each other, but connected with a Group, sometimes with two Groups. Thus the VS Valley forms a corridor through the Southeast Section to the East Group; a stairway probably connects with Structure R-14, and minor ones may lead to the South Group Court between the pyramid temples. The map shows at once that a section may contain many sub-groupings of minor size, including small courts. For the most part these small courts are confined to bottom land or the gentler lower slopes of the hills.

But there is such a court, more nearly like to the Acropolis Courts than any other, in the Southeast Section. This is a little outside the surveyed area, about due east of Structure S-29, and on the top of a low spur of Hill S.

Structure Designations

The combinations of letters and numbers on the map, such as J-1 and J-4, can be conveniently thought of as locus numbers. They direct attention to the location of something on the map, and are placed on or near the feature concerned. In practice this feature is or was some kind of structure, though it may be known only as a mound. The names of mounds, if we had any which were not ruins of structures and worth naming, would be the same thing as the locus number. But we have applied locus numbers only to known structures and mounds which we are sure are structure ruins, and name them all Structure such-and-such.

The names of structures known only as mounds, and of structures of which only one temporal unit of construction is known, are the same as the locus number. Examples are Structure J-16, known only as a mound, and Structure J-17, a partly excavated mound showing, thus far, only one temporal period or phase of construction.

However, with sufficient excavation it is almost universally found that one mound, at one locus, contains an accumulation of several constructions of different ages. All of the earlier construction may be completely buried and hidden by the later, but usually part of it remains in use, and we say it "survives." For the purpose of note-taking and of analysis of the results some logical system of nomenclature reflecting temporal sequence (usually known from vertical position) seemed desirable. Where this (the normal) condition obtains, the locus

Table 6.1 Comparison of Stratigraphic Designations Between Uaxactún and Piedras Negras

Uaxactún 1932	Uaxactún 1937	Piedras Negras
Locus-Period	Locus-Period-Phase	Locus-Period-Phase
	A-1-A	Earliest
	A-1-B	
	A-1-C-1	K-5-4th
	A-1-C-2	
	A-1-C-3	
A-1-Primary	A-1-D-1	K-5-3rd
	A-1-D-2	
	A-1-E	K-5-2nd
A-1-Secondary	A-1-F-1	K-5-1st-C
	A-1-F-2	K-5-1st-B
A-1-Tertiary	A-1-F-3	K-5-1st-A Latest

number is only part of the structure number. Ordinal numbers are added to it to distinguish the main units in the sequence, as K-5-1st, K-5-2nd. In writing about such units of construction, 1st means the constructions of the last main period of building activity at the given spot or locus; 2nd means that of the period before that, and so on. Where the temporal relation is revealed by vertical stratification rather than horizontal juxtaposition, these ordinal numbers may be thought of as numbering the sequence units in the order in which they are usually found, that is, in digging down from top to bottom.

We have refined our nomenclature scheme further by using, when necessary, final letters. These like the ordinal numbers, run backward in time and, usually, downward in space. The alphabetically last letter used (if any) is attached to the construction of a major period, which may be the only one known. An example is Structure O-12-B, which includes the basal platform, pyramid, building platform and building at locus O-12. Structure O-12-A is the same, plus a partly known addition to the building platform.

Structure K-5-1st-C is another example. This includes parts of Structures K-5-3rd and K-5-2nd, which were never completely obliterated, but denotes also major changes and additions, including a partly new basal platform, entirely new supplementary and building platform, and a new building. Structure K-5-1st-B comes next after in time, and covers such changes and additions as the provision of stucco masks, again an entirely new building, and of stela platforms. Structure K-5-1st-A covers a number of comparatively minor, but still later features.

It will be clear from the above illustrations that judgment must be exercised in deciding what is a minor period or lettered phase and what is a major numbered period of building activity. The final letters are labels for what distinctions have been decided upon, and one should not rely too heavily on the implication that they are minor in character. A phase at one locus may seem most comparable with a numbered structural period at another. But it is supposed to be minor in respect to the periods at the one spot, either in physical bulk or in the effect of the new constructions. I do not think we have ever distinguished structural periods (ordinal numbers) or structural phases (final letters) without definite proof of their existence. But sometimes judgment and deduction are necessary in assigning a particular unit of construction to one phase or the other. And when a number of such units are assigned to a single phase, this does not necessarily mean that they may not actually belong in sub-phases. One must stop somewhere. It does mean that no positive proof of temporal sequence within what we call a phase has been noted. Of course units known to have followed each other are assigned to the same phase when it is presumed that they are merely sequent units of the same job. Had more temporal distinctions been provable, more lettered phases would have been used.

Unfortunately in the earlier editions of the map we committed ourselves to the use of small letters in mere locus numbers. There are not many of these, and they should not have been used. For example, we labeled the twin structures of the ballcourts a and b. As a result, we now have Structures K-6-a-A and K-6-a-B, a situation likely to lead to confusion. To minimize this we shall write these K-6a-A and K-6a-B, and always use small letters in the locus number parts.

The use of numbers and letters running backward in time is likely to meet reader resistance. This order was adopted for the sake of expandability. It has the very great practical advantage that once a particular complex of construction has been named, this name need never be changed, in notes or publications, yet the temporal relationships can be brought up to date with further

digging. When we adopted it there was difficulty at Uaxactún in this respect. A comparative tabulation of published A-1 Complex destinations there against ours for Structure K-5 will show the difference (Table 6.1). Descriptive terms, such as pyramid are omitted, but can be used with any of the formal nomenclature schemes shown. The Uaxactún designations are from A. L. Smith (1932), and R. E. Smith (1937b).

At Piedras Negras, Structures K-5-1st, 2nd and 3rd were discovered by 1932. Notes, drawings and preliminary published remarks referring to them required no relabeling when a K-5-4th structure was discovered in 1939, and K-5-lst was divided into phases.

Our reversed system of temporal structural numeration exhibits another property of some value. Any structure labeled 2nd, 3rd, etc., differs considerably from what finally came to exist at its locus; any structure labeled B, C, etc., differs also, but perhaps to a lesser degree. Conversely, when we refer to structures known as more than mere mounds, if they lack temporal labels or are labeled A without ordinal numbers, or are labeled "1st" or "1st-A," they are the latest known at their respective loci. These are the structural units to be gathered together for a picture of the site as it presumably was at the time of abandonment. A 1st-A structure at one spot may easily pre-date that at another, or even a 2nd or 3rd structure at another. But the period of use of each such structure is supposed to have ended with the abandonment of the locus and there is some indication that there was a general and sudden abandonment of all, or at least all of those of the main groups. So all structures so labeled may have enjoyed a late period of contemporary use. We have found no satisfactory evidence of abandonment of a structure locus followed by later building there, nor any positive reason for suspecting final abandonment of one structure before abandonment of others.

It should be emphasized that the system of nomenclature above described is primarily one of naming physical units of construction for precise and ready reference. It does not encompass evidence of use of structure ruins by later groups. The time periods implied are valid only for the temporal series at a particular spot or locus. These are the raw materials, so to speak, out of which more general periods and sub-periods, applicable to the site as a whole, or to selected parts of it, may be formed when evidence and reasoning permit. For instance, on the Acropolis, the known stratigraphy permits definition of six main periods of building activity. Most of these are evidenced by more than one structure unit already specifically labeled as digging progressed. But now, in contexts where general change and passage of time are the primary considerations, and since there seems little danger that the earliest period of Acropolis construction has not been reached, we may utilize "Acropolis Building Periods I to VI," the numbers taking one forward in time. Similarly, if numbered or lettered temporal periods. Similarly, if numbered or lettered temporal periods are sought to be deduced from typological analysis and if they are numbered at all, they will be numbered in order of time. A pre-vault period (which is suspected) would be so named, or might be "Roof-Type Period I," the later vault period "Roof-Type Period II." Ceramic periods probably will be numbered in this way, the numbers carrying one forward in time, and not backward as in the temporal parts of our structure numbers.

For the most part we have applied the locus parts of our structure designations in the same way they are used at Uaxactún, and as simple numbers are used at most sites, that is, they are applied to what appears to have been a unit to the Maya themselves. But there are two differences to be noted in some instances. Another comparison with Uaxactún will illustrate the first. Structure A-V there is in many ways comparable to our Acropolis Courts 1, 2 and 3, with their buildings and substructures. "A-V" at Uaxactún locates and names a whole complex of distinct units, including numerous buildings at the final surface. We apply the standard nomenclature system to each of the smaller units, and leave the larger unity to the descriptive term Acropolis Courts. Or if we want to include Structures J-1 to J-23, this is done with the term "Acropolis." The second difference is that we have departed from usual practice in an opposite direction, when this promised greater descriptive convenience. Thus Structure J-1 may be considered as the basal terrace of Structure J-4, and properly part of it. But it seems not to have been designed with this only in mind, and in large part predates it. Structure R-32 is a basal platform serving three separate and decidedly different structures. Where, as in these cases, there is likelihood that the Maya built them, or parts of them, before they became more or less integrated with other units requiring separate designation, or for some other reason we foresee a need to discuss them separately, we have given them separate names, still utilizing a locus number.

So long as the Maya chose a spot for a unit and thereafter did not spread a single later unit over several early units, our combined locus-and-temporal designation system is adequate for whatever we may find. However the reader may react to it, it has proved useful to us in keeping our notes and drawings in order and in analyzing and especially in tabulating results. But its point of departure is the surface or the first construction identifiable below it. Where, below this latest level of what has already been called by a single name several structures requiring different names are found, or partly found, some special system of designation must be utilized. Our notes reflect two or three makeshifts in this regard for poorly known structures at several buried

levels in Court 1. Also at Structure R-9 a number of structural features within the basal platform cannot be satisfactorily assigned to one series of periods and phases, though all are finally fairly well integrated into what seems to be a single unity, as one can see by the map. In such cases the designations used will be explained with the detailed descriptions.

Areas Subject to Flooding

At the ends of our field seasons, sometimes extending into early July and well after the beginning of the wet season, we estimated that the river usually rose about 20 m (over 65 feet) above low-water level, which we have taken as datum. However, it then extended up the little gully southeast of Structure E-1 only to about the limits indicated by the 16 m contour line; it had then reached the well-defined vegetation line on the banks, and obviously our estimate was too high. But one year, after we had left, flood water was reported by Don Victor Pinelo to have made a peninsula of the ground supporting Structure E-1, and to have extended far back over the Northwest Group plaza. The rise that year was undoubtedly more than 20 m. It seems safe to say that the 20 m contour line outlines more than the maximum area which is likely to be under water during part of each year; but that areas several meters higher are probably now subject to occasional flooding. Of course we do not know whether deforestation in head-water regions may have increased the rise over what it was in Maya times. But it is at least possible that floods might then sometimes have covered much of the bottom-lands in the UV-Valley and the Northwest Plaza and possibly they could have extended some distance up the VS-Valley. It is worth noting that these areas are barren of mounds, and that the bases of the lowest mounds mapped are a little over the 20 m contour.

Unmapped Peripheral Areas: Town Limits

A hundred yards or so east of Structure V-4 a small gully runs northeast from the UV-valley. Following the stream-bed, dry in the dry season, one comes to a low cliff on the right, about opposite Structure V-1 which, however, cannot be seen. Climbing out on the V-1 side, where there are more mounds not shown, and looking across the gully, one maybe able to make out the badly weathered cliff-carving of Maler, which was finally rediscovered by Cresson. A long narrow slope leads up from the top of this cliff to Hill Y, culminating much farther south.

Hill Y, together with Hill S, here much steeper, effectively cuts off a large open area to the east. From the carving, a short walk, at first continuing up the gully which drains it, brings one to what we knew as "Rufino's Milpa." Mounds with masonry walls showing, and an apparent broad-tread stairway 5 m wide leading to a platform about 2 m high, were discovered here by Cresson, 260 paces from the carving.

Going back through the gully to the UV-Valley, and turning away from the site, occasional mounds were noted on its sides for 1-2 km. These were seen in riding to or from Desempeño, and many were doubtless missed. But there was no evidence of the sort of concentration of mounds, easily noted from the saddle, to be seen in the VS-Valley.

The base of the south side of the UV-Valley, just east of Structure U-20, is a low cliff, an overhanging portion forming the "cave" in which Maler lived. A cleft in this leads to a small flat area at its top, with a few mounds more or less filling the unsurveyed gap between Structures U-20 and V-28. Farther up the slope southward is a long high cliff running in from the river side to the trail side of Hill X, with one shallow cave which was noted. Above that cliff is a considerable nearly level area, with one small mound, part of a masonry wall visible, but no others. The situation of this mound is similar to that of Structures B-1 to B-3 in the North Section. From here the Acropolis was in sight over the main groups, with a magnificent general view. At the top of the hill there are some striking large crevasses in the culminating cliffs, and many more in an adjoining peak upstream. This hill was rather thoroughly explored by Cresson and the writer, without encountering any other mounds. Hills Y, S, L and AB were fairly well covered by the writer. Their tops are devoid of mounds, both S and L being flat-topped mesas. Strs, Z-5 to Z-7 were the only ones encountered and describable as hill-top mounds.

If mounds not mapped or mentioned exist on the slopes facing the main groups they are probably few in number.

Low mounds were reported across the river, in a valley opposite the West Group, but this lead was never followed up. This is of course crossable by canoe, but in the dry season only in the neighborhood of the Sacrificial Rock, and again in smooth (but swift) water opposite the Acropolis. At high water, crossings are possible anywhere, but one is carried 200-300 m down-stream in the process. There are no extensive open areas on the opposite shore. So, though settlements undoubtedly existed on the Mexican side, they were rather effectively cut off by steep hills and the river itself.

Our cursory explorations, supplementing those of Parris in the mapped area, were meant to find the limits of the peripheral sections, if such exist. To the north they seem to be established and shown on the map. Areas of concentrated mounds to the south cease with the UV-Valley. To the east of the main groups, while they tend to climb the hills, they do not get to the tops. Thus the upper slopes and the river form a sterile ring around the site proper.

This ring is pierced by the C and GH-Valleys, which are quite wide, and we do not know how far the north

sections may extend eastward. But to the south, the mounds become suddenly sporadic in the comparable UV-Valley, after passing the gully leading to "Rufino's Milpa."

It is quite possible that unmapped sections of concentrated mounds exist to the east of the mapped area. if so, they are effectively screened from the main ceremonial groups by the hills, but readily accessible via the C and GH-Valleys, and via the gully of the carved cliff.

"Rufino's Milpa" is named for Rufino Ramos, one of our most faithful workers who has lived at Piedras Negras since 1932. If the bottom lands immediately to the east contained mounds of large sizes, he would have found and reported them. It seems reasonable to believe that we have mapped all the main ceremonial groups and an adequate sample, approaching completeness, of the peripheral house mound areas.

Errors and Questions Respecting Prior Editions

The writer has been over the main groups countless times since Parris completed his work, and has seldom noted a flaw in it, except those which were his own (the writer's) fault. A few gave seriously wrong impressions. These include the provision of rear doorways in the temple buildings J-4 and R-5. In both cases I undoubtedly misinterpreted the sides of rear niches for the jambs of doorways, and these errors, like most of those noted below, have been corrected on the present edition of the map.

Entirely too much of the Structure K-5 temple building walls was shown in solid black. One slip we can lay to Parris: either the front and steamroom of Structure J-17 was wrongly located, which is unlikely, or the sketching of contour lines behind it was incorrect. The mound results from a structure only about 8 m deep, and the slope to the rear begins just behind the room. As shown, the mound (and therefore perhaps that of J-16) was too wide. It suggested a reconstructed plan like that of Structure P-7, another sweat-house, but the steamroom was undoubtedly all the way to the rear as at Structure N-1. This mistake has been carried to the present edition. It was overlooked.

The Structure O-12 temple building incorrectly indicated known absence of a rear niche and column-altar, later discovered rear sills were omitted here and at Structure J-4 and K-5. Our original guess as to the rear wall at the top of Structure R-3, properly indicated as hypothetical, has been abandoned after further investigation.

Morley published large-scale plans of Structures R-3 and R-4 (1938, Figures 9a and 104), and of Structure J-4. These are evidently after Parris, so that the mistake at J-4 is repeated. But the R-3 plan differs from that of the map. It shows the interior of the room and the doorway correctly, but we now believe the exterior outline, which must be reconstructed, was of irregular Petén type, and show it thus now. He also published a perspective reconstruction of Throne 1 and its niche. This was drawn from data supplied by the writer, and from Plate 13 of *Preliminary Paper* 3, with which it disagrees. Morley's reconstruction nevertheless follows our own ideas, as expressed in the text. One may now reflect that wooden beams were used to cap vaults in Structure P-7, and could have been used here to reduce the height of the niche vaulting. It is changes in opinion such as these, which are to be expected as one learns more and more about a site, which suggest the advisability of using broken lines for reconstructions of all sorts, unless the drawing is very plainly labeled as partly hypothetical. We have adopted that policy in this publication, though we have not always practiced it in the past. The placement of monuments (red ink, second edition) is entirely the work of Morley, apart from stela at Structures J-3 and J-4, Throne 1, Throne 2, and "Lintel" 5. Morley sent us a proof for criticism in 1933, which was turned over to me. At that time I knew little about precise monument location except in the West Group, and I expressed some doubt as to the lintel function of "Lintels" 4 and 5. 1 have since come to the rather definite opinion that none of the Piedras Negras numbered lintels were such, with the exception of "Lintel" 11 and possibly of "Lintel" 6 and so I believe that they should not have been shown in doorways (except "Lintel" 11). Morley made his locations on our map from notes or observations originally made without it. His information was supplemented by such controls as we could supply from excavation and accurate surveying, but at this time these latter were very incomplete. In placing stela on this edition of the map we usually have had more complete and accurate data than were then available, and have used them. We have not recorded on it speculations as to possible Maya removal of a monument from one structure to another, where it was found. Nor do we indicate positions of re-used fragments, or of whole monuments incorporated into the masonry of the structures. This eliminates from this edition the thrones, lintels and miscellaneous sculptured stones, and also Stela 45, shown by Morley in red. Morley at one time proposed renumbering Stela 29 as "Lintel" 14, at which time we thought it was part of a lintel (Satterthwaite 1933a). This opinion was soon abandoned, and I think there has been no other published reference to such a change.

Original Locations of Monuments

In the first and incomplete map published by Morley (the second edition) his opinions as to original monument positions are indicated in red, as already stated. We now give our own as to stela only, which in some instances

Table 6.2 Association of Stelae and Structures

Structure	Monuments
R-9	Stelae 24, 25, 26 (NE to SW)
R-10	Stela 27
R-1	Stela 28
R-3	Stelae 42, 29, 44 (around the top, starting at SE). "Lintel" 11 not indicated.
R-32	Stela 31
R-4	Stela 30
R-5	Stelae 32, 33, 34, 46, 35, 36, 37, (SW to NE). "Lintel" 4 not indicated.
R-16	Stela 41
R-11	Misc. Sculptured Stones 4 and 5 (SW and NE markers). Stela 45 not indicated.
O-12	Stela 22
O-13	Stelae 15 and 12 (top, NW to SE). "Lintels" 1, 2, 3 not indicated. Stela 14 (basal terrace SE side).
East Plaza	Stelae 13, 16, 17, 19, 20, 21 (NW to SE beginning front of Str. O-13).
J-3	Stelae 40, 9, 10, 11 (SW to NE). "Lintel" 5 not indicated.
J-4	Stela 1 (centered before pyramid stairway).
J-1	Stelae 2, 3, 4, 5, 6, 7, 8 (SW to NE). Stela 43 not indicated.
K-5	Stelae 38, 39 (NW to SE). "Lintel" 7 not indicated.
J-6	Throne 1 indicated, but not labeled on map.

Note: The "lintels" 1-5 and 7 were probably panel stones used on the structures with which they are mentioned in the above list; Stelae 43 and 45 were integral parts of the structures with which mentioned and either were not true stelae or were re-used. Positions of other numbered sculptures shown by Morley are considered as due to chance re-use.

differ. The five legged benches known as Altars 1 to 5 are labeled on the map. Other monuments, not including carved stones structurally incorporated in masonry, are indicated, but their numbers are not placed on the map. Anyone desiring to insert these designations can do so from the following tabulation. In it the monuments given are assigned places on or near the structures mentioned (Table 6.2).

The evidence for positions now assigned will be presented with the detailed descriptions of the structures concerned. The evidence for replacing stela in their original positions of course is more satisfactory in some cases than in others. Maler and his successors found no standing monument. Where a standing butt, or the cist from which a monument had obviously fallen, is now known, the monument is presented by a solid black cross-section, otherwise by an outline section. In two cases where special doubt exists (Stela 24 and 33) the monument is represented as lying on the ground in the approximate location in which we found it. The restored positions of Stela 18 and 29 are more doubtful than the others, and there may be some question whether Stela 21 and 24 were stela at all. Otherwise it is believed safe to reason from the indicated stela and altar positions, including the restored ones.

However, special attention is called to the fact that on Structure J-1, Stela 2 to 7 were set on an additional stela platform apparently common to them all. Definite evidence that this was completed at one time is not available; but it is certain that Stela 8 was not on it. We have restored the platform to include Stela 1, part of the cist of which survived. But it is possible that Stela 1 had a small stela platform of its own separated from the other. Evidence on this point was probably destroyed by Maler, while turning the heavy monument for photography. A similar low platform base for Stela 25 and 26 may originally have stood entirely free, like that on Structure J-1. One should not reason from their absence on the map that such platforms were surely absent where not shown. Those shown are in the neighborhood of 40 cm high, except for that of Stela 9, which can hardly be called a platform since it is only about 10 cm high.

Miscellaneous Notes

"Bur. 6" in Square L locates a burial, excavated by Butler, in a small true cave. The Christian cross in Square C locates a Christian grave which should not in the future be disturbed. The word "spirals" indicated in Square N denotes the approximate location of petroglyphs of spiral forms; and the X in Square Q shows the approximate location of what may have been intended as a very large lintel or a small stela. It is a plain rectangular block, well shaped, but not smoothed. Spirals and block are below high-water level, the block exposed only during very low water. The presence of this block, plus an exposed

face of thinly stratified bedrock near the spirals, and a similar spiral on a vault-slab from the Acropolis mounds suggest that this was a quarry area. But no other signs of it survive. The block lies as if it had been dragged some distance toward the ruins, or dropped there, and then abandoned. Exposures of suitably thick strata slope up nearer the channel. The Sacrificial Rock is a remnant of one of these stratified beds of limestone, which uniformly slope upwards in the direction of the river which has cut through them.

If large monument stones were in fact quarried in the river-bed during the dry season, rafts prepared then could have been used to float them to gently sloping ramps of earth or timber, leading to any of the groups in which large monuments were found. But exposures of thick strata also exist at the tops of Hills L and S, and also high up on their slopes, whence transport to the location of stela would have been almost entirely down-hill.

Our camp was in the Northwest Group, between the river and a point opposite Structure F-6, where Rufino Ramos' apparently now permanent home marks the easterly limit of our own modern occupation. Wherever we have worked, our dumps as well as excavations have modified the mound contours we found. The approximate locations of these will be indicated in the unit descriptive reports.

Cross-Sections Through Main Groups

Section A-B (Fig. 1.2) starts from a point a few meters west of Structure E-2, cuts across the corner of the lower component of Structure E-1, and runs thence southeast through Structure P-5 and the northerly part of the basal platform of Structure S-1. Section C-D runs from a point in the river-bed (here dry in the dry season) thence passing about 20 m southeast of the Sacrificial Rock and between Structures U-1 and U-3 to Structure P-6, which it cuts longitudinally.

These cross-sections were made by Parris for the map in its 1932 form, before we acquired much of the information respecting particular structures now appearing on the completed map. Hence, in particular, elevations of mounds are shown on the sections which correspond to restorations of structures on the map. But the sections still serve to give a summary picture of the relative heights concerned, which the contour-lines, which "run under" schematically drawn mounds, cannot do. It is interesting to note that Parris' elevation of the R-16 mound (Section C-D) correctly forecast the unusually narrow pyramid stairway which we later identified by excavation.

The vertical position of the Sacrificial Rock is indicated in broken lines on Section C-D. It is near the in-shore edge of a sort of half-bowl-shaped formation, largely of sand-banks, cut by drainage from the UV Valley. The remnant of ledge which forms it stands 2-3 m above the surrounding surface on the in-shore side, a fact not adequately indicated. As the water rises the rock is for a time entirely surrounded, then finally submerged. There can be little doubt that this occurred every year in Maya times as today.

Acropolis Restoration Drawing

Individual Maya ceremonial structures were undoubtedly usually planned as parts of larger groups. While each structure is best studied as a separate unit, a picture of the larger assemblages formed by them is surely one of the chief end-products we should seek. Maps and sections provide such pictures in conventional forms, but three-dimensional drawings from them are scientifically valuable also. They give a much better basis on which to judge of the esthetic results achieved, and make it easier to imagine how the various units shown could have been actually used.

Figure 6.1 is a rendered perspective drawing of the Acropolis at Piedras Negras. I think it is the first to assemble on one plate complete reconstructions of nearly all the buildings making up what must have been regarded as an important architectural unity by the Maya themselves. It is the logical application of the technique of presentation by perspective drawing of W. H. Holmes to the results of excavation. But unlike the Holmes drawings of sites it shows the buildings as they are thought to have been, not as in their ruined condition. In order to achieve a close approximation of the original esthetic effect, the very considerable amount of hypothetical reconstruction is not indicated. For each individual building this will be ascertainable from detailed descriptions, when published. But similar drawings of individual units at other sites have already begun to appear, and many more, including groups, have since been made for Carnegie Institution of Washington by the author of this one. These, for the most part unpublished, are to be issued as an album. Direct comparisons of features shown on such realistic drawings are inevitable. A few notations as to the necessary amount of imagination involved in this one will be useful.

Reconstruction Without Specific Evidence

Nothing whatever on the drawing results from uncontrolled imagination. By referring to Square J of the map one can easily identify by name the various structures shown on the restoration. The latter is a rendered mechanically plotted line drawing. As a basis for it the Acropolis portion of the map was nonsignificantly distorted so that buildings at approximately right angles became actually so, merely to simplify labor. As to all buildings shown, and as to substructure elements other than as to be noted, plans and sections of what remained standing were well known through excavation.

The stairways supplied to Structures J-8 and J-18, at the left margin, were not actually identified in the field. At least some part of all other stairways shown was sought and found. There is good evidence on both sides for the ramp-like extensions of the stair side walls (or of something similar) before Structure J-2 in the foreground. Such members are generally called "balustrades"; their presence on the J-4 temple at the right is, however, entirely hypothetical, and possibly they should not have been placed there. But there was a remnant of a probable balustrade at the base of the J-3 pyramid stairway which, esthetically considered, balanced this one. The unique truncated-pyramid relief design on the lower terraces crossed by the J-4 stairway is definitely known on the near side; there was no excavation on the far side. The rounded terrace corners on Structure J-1 are incorrect; during the last season when excavated, these were found to be rectangular. The inset corners on the Structure J-4 pyramid with their basal and apron moldings, and the corners of the lowest terrace of the platform of Court 1 which supports Structure J-2, and of the corresponding terrace of the platform of Court 3 which supports Structure J-18, are known to have been round. Other round corners may be incorrectly shown thus, and we are not sure of the correctness of the manner of joining the terraces on either side of the J-2 stairway to it.

Upper zones of buildings are largely hypothetical, and stucco-work on them is entirely so. But medial moldings, all consisting of an upper member rectangular in cross-section and a lower member triangular in cross-section, were known for Structures J-2, J-8, J-9 and J-11, J-21, J-22, with medial molding height known for J-6. The rectangular cornice (i. e., molding at roof-level) of Structure J-13, invisible in this drawing, survived at one end. Roof heights for Structures J-2, J-6 and J-9 are based on good evidence. It is possible that not enough roof combs have been supplied. It is known that quite similar palaces at Palenque might or might not carry them. Fragments, apparently of open-work roof-combs, were found at J-4 and J-18; hence hypothetical combs are restored there. The only evidence for the third and most conspicuous roof-comb on Structure J-23 (upper left) is a unique combination of wall and room-span dimensions, suitable for its support, with fragments of stucco. The J-4 comb is to the rear since this is the position of known combs on temples of the Central Petén with similar building outlines, though such combs at Tikal and Uaxactún are not of the open-work type.

No reliance on the specific stucco designs, either on roof-combs or upper zones of buildings would be justified. The motifs used or suggested are derived by Miss Proskouriakoff from better preserved Maya buildings at other sites, particularly at Palenque. Fragments of stucco relief were found at Structures J-2, J-4, J-11, J-18 and J-23. This type of decoration is restored also on Structure J-6, but without this basis for it in what had survived. Other buildings, shown without relief decoration, may of course have had it. At J-4, part of a red painted and more than life size stucco human head was found.

Structure J-12, beyond which the river appears briefly in the distance, is restored as if with a flat beam and concrete roof. An alternative possibility is a peaked roof of thatch. All other Acropolis buildings in view here had flat roofs supported by masonry vaults. Beyond the temple J-4 thatch-roof houses are suggested among the trees. These are entirely hypothetical. Presumably the hill-side mound areas were not devoid of trees, but we really know only that there are mounds at this spot which is near the end of the GK extension of Hill L. Whether the Acropolis area of temples and palaces and the West Group plaza were entirely devoid of vegetation, as shown, would be hard to determine. Certainly wherever we tested, all level surfaces betrayed the former presence of concrete.

The plastered concrete roofs of the buildings are shown as if rising slightly to a detectable ridge at center. This feature is based on House E at Palenque, where the roof is finished with plastered stone slabs laid in mortar. The roofs here may have been slightly arched in cross-section instead, an alternative water-shedding arrangement fairly certain at Yaxchilan.

Point of View

The point of view chosen could not have been available to the Maya, but a similar one, looking west instead of north, could have been found on Hill L. It did not seem practicable to include more than the lower corner of Structure J-3, a high pyramid, with four stela, two of which appear at lower left, in this view. This pyramid, though possibly lacking a building, by its mass balanced the J-4 temple pyramid shown, in any real view.

Accuracy

The drawing was made by Miss Proskouriakoff as of the 1937 season. She devoted great care and attention to it and was never one to reduce surmises to the seeming reality of drawings if definite evidence could be obtained. She was dealing with an area much of which she had resurveyed in the field and had just drawn up, and with plans, sections, and for the most part also elevations of particular structures recently drawn by her. These all showed what had survived and what had not. The majority of these structures she had also recently remeasured and surveyed herself. There was close collaboration and discussion of moot points with the writer and Cresson, who had done practically all the excavation here. We were required more than once to justify our own records and notes. So, apart from some unexcavated details, and theoretical restorations of destroyed features, most of them noted

above, we can claim that this Figure 6.1 is literally true and accurate, as of the time of abandonment. It is not a mere "artist's conception."

Sources Giving Original Data on the Archaeology of Piedras Negras

Andrews (1942b); Baker (1936); Butler (1935a-b, 1936a); Cresson (1937, 1938, 1939a-b, n.d.); Godfrey (1940); Maler (1901); Mason (1931a-b, 1933a-b, d-e, 1934a-d, 1935a-b, 1938); Mason, Satterthwaite, and Butler (1934); Mason and Satterthwaite (1938); Morley (1922, 1929, 1938); Ricketson (n.d.); Sattherthwaite (1933a-c, 1934, 1935a-b, 1936a-d, 1937a-b, 1938a-c, 1939, 1940a-b, 1941, 1942a-b).

Other Sources Cited

Andrews (1942a, 1943); Blom and LaFarge (1926); Bolles (1938); Holmes (1895); Kramer and Love (1940); Lothrop (1924); Madeira (1931); Maler (1903); Maudslay (1889-1902); Morris, Charlot, and Morris (1931); Pollock (1932); Ricketson and Ricketson (1937); Roys (1934); Ruppert (1935); Ruppert and Denison (1943); A. Smith (1932, 1934, 1937); R. Smith (1937); Thompson (1931, 1939); Tozzer (1941); Wauchope (1934, 1938).

7
Temples

1. Structure R-9 (Temple and Associated Constructions)

Linton Satterthwaite

The structures segregated for description in this part of the report have been classified as temples, an essentially functional term. Underlying such a process of selection are two things which require use of judgment, and therefore our classification should not be considered unchangeable, nor given more weight than it deserves.

One factor is the definition of temple adopted. Ours has been "A structure believed to have been designed for public practice of religious rites and ceremonies." The underlined words allow that some Maya buildings may have been designed for private religious ceremonies, as of a family or other highly restricted social group; and also that others may have been designed for public or semi-public ceremonies which were not primarily religious, even if conducted by the priesthood. For modern analogies we may compare the Christian altar in modern Maya dwellings, perhaps with a special niche, with the Christian church which serves the whole community of the same Maya family; and we might compare the Christian church building and altar with differing architectural provisions for ecclesiastical courts, audience chambers for higher ecclesiastical dignitaries, etc.

The second factor underlying the selection of temples at a site is the decision as to what physical criteria justify the conclusion that a given structure functioned as a temple, under the definition adopted. For Piedras Negras, this was discussed at some length in Satterthwaite (1937a). Presence of a pyramid, possibly without a building, but usually serving one building only, has been considered a certain temple criterion, as has presence of one or more centered column altars, centered niches in building walls, room-length benches or sills, and building plans similar to those of the pyramid temples at Tikal. Petén-style decorative forms on substructure units have been used as confirming evidence of temple function at this site, since they seem to be linked with other temple criteria.

One should allow, I think, that a given criterion may be justifiably used here, though it may have a different connotation elsewhere. Its validity depends on inference from a large sample of unselected structures, and on what is known from history and modern ethnology concerning Maya religious expression.

Preliminary Remarks

Structure R-9, in final form, was a pyramid temple with a step-terraced basal platform, incorporating a stela platform and the important Stela 25. Very likely this same statement would apply to a number of earlier phases, but this was not proved. The basal platform, at least in part, pre-dates the pyramid, and is made up of a rather complex accretion of constructions. Some of these were partly destroyed or buried, with other parts surviving to the end. Others were eventually completely buried and hidden. Most walls and floor surfaces, where left exposed, were badly ruined, with complete slippage and destruction of the rear of the pyramid-top and higher components (Fig. 7.7). Excavation was superficial or by the sample-half method, except for the building, where ruin was extreme. Nearly everywhere plaster had entirely disappeared, and where present, excavation during the rains made identification of finishing plaster questionable where it may actually have been in place.

Miss Proskouriakoff accurately surveyed only a few key points, from which a certain amount of triangulation was done. Accurate levels were taken wherever they seemed useful for reconstruction. The work was done a few days at a time, as opportunity and results elsewhere dictated. Satterthwaite worked here in 1933, 1935, and 1939, Cresson in 1937. This complex never received the undivided attention which it deserved. However, the occurrence of a new sort of stairway, combined with a stage, a very small crude and surely unsculptured stela, associations with two dated stela, and with some ceramics, and four column altars *in situ* justify a full presentation of what was learned.

Unit Designations and Temporal Sequences

As elsewhere in this report, various structural unities are lettered for ready reference in the text and for quick identification in the drawings. Parts of a supposedly single unit not actually proved to be such by connecting excavation are distinguished by priming or double-priming the same letter. The choice of letters accords with our standard rule as much as is here practicable. The rule is that in alphabetical order the letters run through a group of supposedly contemporary units, or else run backward in time.

There is here, however, a complicating circumstance, which can be illustrated by a simpler hypothetical example. If we find a platform, A, built on part of another, B, we know stratigraphically that there were two phases of construction. We have the sequence A-over-B. If a third platform, separate from A, lies on or against another part of B, we also have the sequence third-platform-over-B. But we do not know whether this precedes or follows A or was contemporary with it. So we have two proved sequences, with B at the bottom of each together in the final phase they may form a single unity which grew by accretion in either two or three phases. To meet this situation without completely abandoning the rule of letter selection stated in the first paragraph of this section, we can distinguish the two proved sequences as Series One and Series Two, and assign an alphabetically later block of letters to Series Two, considering the alphabetically first of the block as indicating latest time in the second series. Thus in the hypothetical illustration, we could call the third platform Unit W, the latest in its series, and still have three letters (X, Y, Z) left for earlier units between Unit W and Unit B in that series. We then have the stratified sequences B-before-A and B-before-W; and can speculate on the temporal relationship between Unit A and Unit W, or leave this unsettled.

The designation device [in Table 7.1] has been adopted. Series One consists of Units J and I and also of Units Z, Y, X, W, the last four accounting for the pyramid and higher temple components (Fig. 7.7). Series

Table 7.1 Structure R-9, Adopted Scheme of Temporal Sequences

Series One, Phase C (earliest)	Early court floor (Floor 2) and postulated white-plastered clay-daubed wooden building (Unit J)	Court Floor 2, and Unit J
Series One, Phase B	High and probably long platform and stairway with standard steps	Unit I
Series One, Phase A (latest)	Pyramid and stairway, Supplementary Platform, Building Platform, Building	Units Z, Y, W, X
Series Two, Phase H (earliest)	Same as Phase C, Series One	
Series Two, Phase G	Same as Phase B, Series One, plus small low compound platform (Unit H), associated with Court Floor 2. This may belong in Phase H, or in an unrecognized phase between Phases H and G, or between Phases G and F	Units I, H
Series Two, Phase F	Changes in Unit I stairway, providing high battered stair-side extensions and low stage, incorporating Unit H	Units G, G'
Series Two, Phase E	Low platform on Unit G, possibly for small plain stela	Unit F
Series Two, Phase D	High compound platform of Stela 25	Units E, E'
Series Two, Phase C	Veneer-like new front wall (Unit D) on Unit E; extension of platform-unit H to abut Units E and D	Units D, C
Series Two, Phase B	New step-terraced low stage (Unit B), probably a contemporary unit with that of Str. R-10 to the southwest; apparent lateral extension of Stela 25 platform with provision for Stela 26	Units B,B',B"
Series Two, Phase A (latest)	Short projecting step-terraced element, providing additional centered narrow stage and completing burial of stairway of the early Unit I	Unit A

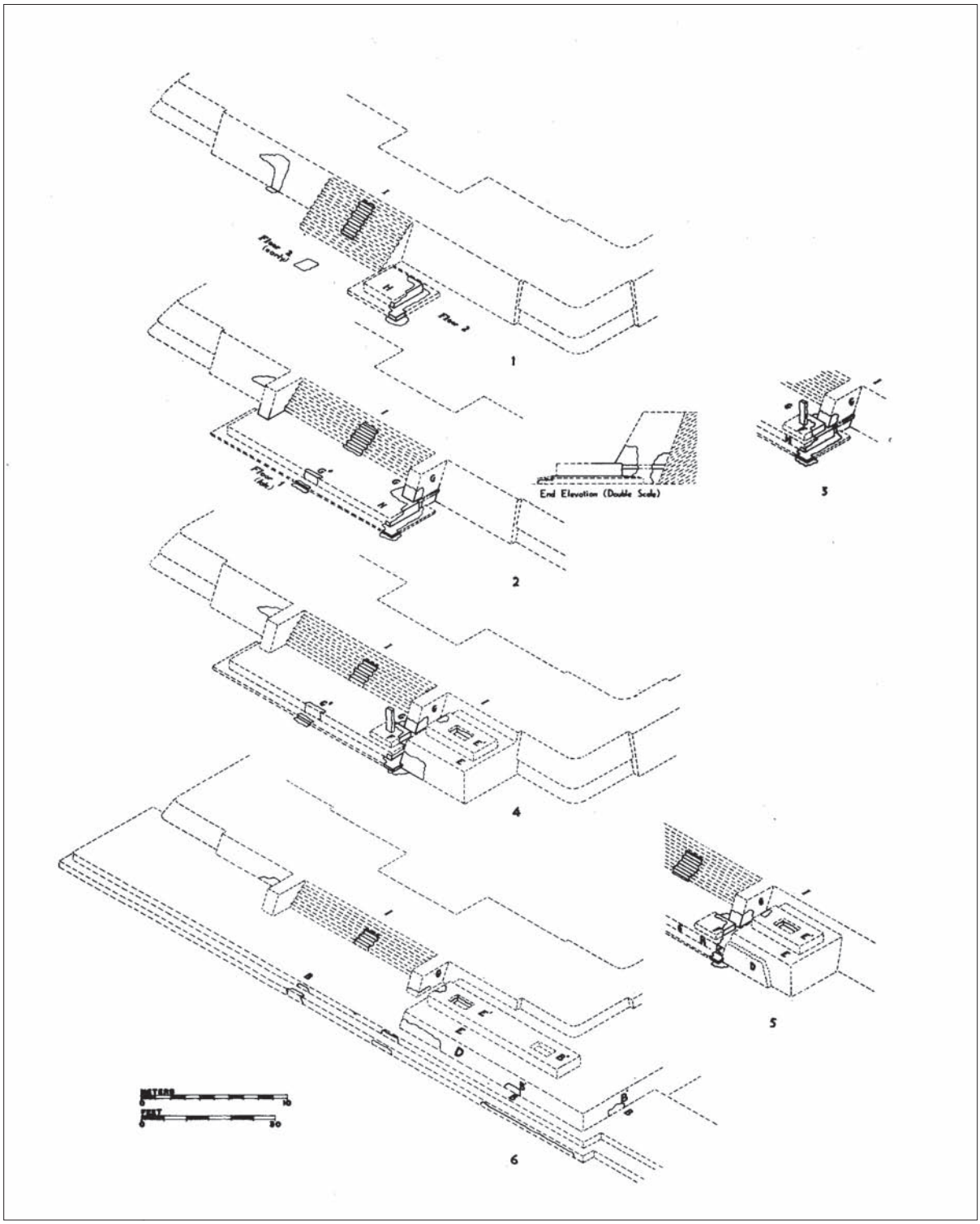


Figure 7.1–6 Isometric reconstruction: Series Two, Phase G (Units I, H) (1); Series Two, Phase F (Units G, G') (2); Series Two, Phase E (Unit F) (3); Series Two, Phase D (E, E') (4); Series Two, Phase C (Units D, C) (5); Series Two, Phase B (Units B, B', B") (6).

Table 7.2 Structure R-9 Stratification Table

Series and Phase	45	45	46	46	47	48	49	50	51
One-C; Two-H	J	J							
One-B; Two-G	I	I							
Two G				H	H	H		H	
Two F		G'	G		G				
Two E					F				
Two D				E		EE'	E		
Two C							D		
Two C			C	C		C		C	
Two B		B	B	B	B	B	B	B	BB'
Two A		A	A	A	A				
One A		Z							
One A		Y							
One A		X							
One A		W							

Two consists 6f the same earliest units J and I, and also of Units H to A. All of these series two units pertain to what was finally, if not always, a basal platform, with the possible exception of Unit H. Figures 7.1 to 7.6 illustrate most of the phases of growth of this basal platform. Figure 7.7 shows the final form, together with Series Two units.

Lacking proof, in assigning units of each series to temporal phases, some units have been treated as contemporary, though they may result from accretion. There were hints that the Supplementary Platform of the temple (Unit Y) is later than the Pyramid; and that the Building Platform (Unit X), and therefore the Building, are later than both. It should be understood that the two series of temporal sequences result from our ignorance and lack of stratigraphy. If we knew the complete story, the phases of Series One would doubtless merge with the phases of Series Two. So, even if we show too small a number of phases in Series One, the eight phases in Series Two probably represent the maximum number. However, deep digging at the rear of the Basal Platform might add to this number, at the common early end of the two series. It is also quite possible that, in the longer Series Two, Unit H really was built during a separate phase, and the same applies to Unit C.

Just what the unit-letters represent and their supposed temporal relationships can, it is hoped, be quickly comprehended by finding them in Figures 7.1 to 7.7, and in the following tabulation. In the latter, lettered phases are assigned in each series as if two separate structures were involved, Phase A being the latest in each case. Following our standard practice, only the new construction assigned to each phase is listed, though it functioned together with units of earlier phases.

Features not assigned in the above scheme: Stela 24 and a small round stela or large column altar (see under Monuments); Column Altars 1, 2, 3, and 4 of Structure R-9 (see under Column Altars and Caches); a small plain stela, crude, and found broken in two parts used as building material in Unit C.

The tabulation [in Table 7.2] lists the stratifications available as controls, proceeding downward with unit letters in advancing time under the number of each figure which illustrates the situation.

It seems safe to assume that Stela 25 fell from the cist in Unit E' see Figures 7.6, 7.7, 7.8 and 7.12. Figure 7.8 shows the locations of both Stela 25 and 26 as we found them, on edge, and (in dotted lines) as Maler probably found them. If we also make the reasonable assumption that Unit EE" was built to receive Stela 25, then it is certain that considerable building activity occurred here both before and after its erection. Morley reads its date as 9.8.15.0.0. in the Maya Long Count. It is the earliest of the four of similar Buddha design. It is very unfortunate that the pyramid and higher components, including the non-vaulted temple building, are not stratigraphic ally related to the platform of this stela. Neither the stratigraphy nor the Petén style of the pyramid would prevent assigning that unit (Z) to any phase of Series One later than Unit H of Phase G.

In addition to the illustrated stratifications, a fragment of the right (northeast) wall of Unit G was seen to be at least structurally later than Unit I, which it abutted. This remnant was identified as part of the stage-forming Unit G by its position, correct for symmetry on the axis marked by the column altars. Furthermore, it shows the molding at the expected height. It is shown in Figure 7.2 as if it had been found on the left side of

this unit, in connection with what we did expose there. Another item of stratification not reflected in the table is the fact that Unit C was at least structurally later than Unit D, which it abuts. So the sequences of Figures 7.12 and 7.13 can be safely combined to yield the order of construction H-E-D-C-B.

One may readily see from the Stratification Table [Table 7.2] that so far as definite proof is concerned, Unit EE' probably dating from 9.8.15.0.0, followed Unit H; but both could be moved back until the stela platform became contemporary with Unit I. We did not follow Unit E far enough in to prove that this is not the case, but analogy with similar stela platforms at Structure K-6 argue against such a situation. Further, it seems esthetically improbable that the crowding to be seen in Figure 7.4 was part of the concept when the stairway modifications of Figures 7.2 and 7.3 were planned. At any rate, these, and not proved stratifications, are the factors on which we rely in assigning the stela platform to a phase later than Phases G and F in Series One. It rests on the early Court Floor 1, but is probably later, since the floor material runs under it. The later Court Floor 2 dates before or with Unit D, hence before Units B and A, despite the fact that a finished plaster surface dividing the two floors could not be identified. At this point, a division marked by change in size of the crushed stone remains was made out.

Discussion by Phases - Series One

Series One, Phase C (Court Floor 2, Unit J)

The foundation for Structure R-9 is a mass of fill laid on bedrock sloping sharply down to the Southeast Section (see site map). Bedrock is only 17 cm below the base of the final forward extension of the structure, or about 29 cm after necessary allowance for settling. Farther back, two floors were clear, Floor 1, here 8 cm thick, resting on an earlier Floor 2, its surface 21 cm above the bedrock level referred to. Excavation here was not deep enough to make sure that there may not have been a still earlier floor or floors, and the evidence was lost in the exposed position where we reached bedrock; but there is no reason to suspect that Floor 2 is not the earliest South Group Court Floor. It may be contemporary with the earliest structures in our lettered sequences, but may be still earlier, since its crushed stone remains, according to the notes, seemed to run under Units H and 1. We have considered it earlier than those in the assignment to phases.

Pure yellow plaster (or clay?) soft when wet, covered the crushed stone floor material of Unit I. The material of the early court floor was described as yellow, and may have been colored by a similar surfacing. No finishing plaster was found on either of the court floors, nor on that of Unit I, but all, where protected by burial, troweled to a good surface. Hard white finishing plaster seems to have been present on the floor of Unit H, which dates with or next to Unit I in one sequence. A suspicion that the earliest floors were made of crushed stone and clay, rather than lime concrete, can be noted, but without much conviction. Probably all floors were lime-concrete, with a real suspicion that white finishing plaster may not have been used on the earliest court floor.

Before the earliest properly known structure (Unit I) was built, a clay-daubed building, plastered with hard white finishing plaster, had been constructed, presumably in the immediate vicinity, and had been destroyed by fire. The evidence of this is a burned daub-clay fragment (Fig. 7.9, and Object Table, Position 1). Deep penetration of Unit I would quite possibly show one or more buried low platforms with post-holes, such as one found in an early stratum at the Acropolis, which supported daub-clay buildings. These might indicate that the South Group Court was first devoted to structures of this type; or they might appear at lower levels, facing down the now buried natural slope. In the latter case they would pertain to an early phase of the Southeast Section, rather than to the South Group Court. A building of this type has been postulated and assigned the unit letter J.

Series One, Phase B (Unit 1)

Unit I is common to both Series also, but is described under Phase G of Series Two. As part of Series One here being described, this unit forms only a part of the basal platform in the next and final phase. Whether in this phase more of it, possibly all of it, functioned with the temple units proper could not be proved.

Series One, Phase A (Units Z,Y, X, W)

These units were, respectively, the Pyramid, Supplementary Platform, Building Platform and Building of a temple, apparently in use at the time of abandonment. With units of Series Two, which contribute to its basal platform at this time, they are shown in Figure 7.7, so far as reconstruction seemed safe.

Basal Platform

Though formed by accretion of units to be described in more detail under Series Two, the basal platform is here treated as a single component of the final temple complex. There are two principal levels, the lower so broad in parts as to remove it from the category of a mere terrace. This seems to be an adaptation to earlier "artificial terrain." Although we failed to draw the section in the field, memory is certain that a cut through the left end of Unit B1 showed the same situation as in Figure

Table 7.3 Structure R-9, Average Dimension Tables: Platform Units

Platform	Height	Length Base	Length Steps	Depth	Slope
B	1.1				V?
A	1.6				V?
Z	5.0	28.5*	6.7	21.0*	76 deg.
Y	1.4	12.0*	6.7*		
X	0.5	10.2*			78 deg.
I	2.6	35.0*	6.7*		69 deg.
HG'	0.8	13.1*			V?
G	2.6*	12.5	10.7*		
F	0.3				V?
E	1.9				81 deg.
E'	0.5*				V?
D	1.9				81 deg.
C	0.6				V?

Note: Starred dimensions are approximations usually based on reconstruction: the letter V means approximately vertical. See Part I for further explanation of dimension tables.

7.16. Hence, the lower level, B, is here, as well as at the front, a unit with B1. The mound of Unit B extends past the neighboring temple R-10 to the corner of the court (see map). Parris was wrong in ending it between R-9 and R-10 on the first and second editions of the map. The debris contours indicate continuity. Indications are that despite the wider first step of the R-10 basal platform, in the final phase at least, that platform is a continuous unit with Unit B of Structure R-9. Structure R-10 is the only known pyramid placed originally directly on the plaza or court level, while the pyramid of R-9 was placed partly or wholly on a pre-existing platform. Unit B was perhaps designed to minimize the visual effect of the different base levels of the two juxtaposed pyramids by raising that of R-10 and dividing the height of the basal platform of R-9. In that case, Unit B here may be contemporary with Unit A at Structure R-10, and structurally continuous with it. At the same time, Unit B largely eliminated a complicated accretion of survivals at R-9 (cf. Figures 7.5 and 7.6). The final addition of Unit A, step-terraced in the same style as B, further simplified and unified this side of the court (cp. Figures 7.6 and 7.7).

The step-like terraces forming the face of Unit A are consistently parallel with those of B, and are about 10 degrees short of being either parallel with the front of the pyramid (Z) or at right angles to a line joining the altars. In the isometric drawing of Figure 7.7 we have assumed all front lines as at right angles to this axis. As a result, the amount of forward projection of A from I, as seen at the right side (left of observer) is greatly exaggerated. The projection is only 1.9 m at the base of Unit A.

Column Altars 1 and 2

On the court was a badly damaged column altar, upright and almost exactly on the pyramid axis (see plan, Figure 2.6). It rested partly over a cache and is here distinguished as Column Altar 1. Column Altar 2, also on the axis, was upright on the basal platform, its back 18 cm from the pyramid stairway. Excavation showed a fragment of an ordinary grooved *metate*, but no cache, below it. The base was 10 cm below the base of the stairway (Fig. 7.9). Both altars had surely been set in floor concrete, and were permanent features. In this case, bearing on the rock fill below was obtained with crushed stone, perhaps mortar. Possible dating of these altars with or after Units A and/or B is discussed under those units.

Stela Placement

Two monuments associated with this structure are not shown in Figure 7.7, because of doubts as to their exact locations. These were however certainly on the court floor and are discussed below. Here we first make some observations on the placement of Stela 25 and 26 in Figure 7.7 and of Stela 25 only, in Figure 7.12. The low stela platform, really here the upper component of a high compound stela platform, is known only at the right end, as Unit E' (Fig. 7.6) which served Stela 25. As we have reconstructed our sequential units it was lengthened (B") to accommodate Stela 26. The latter stela had fallen on the stepped front of Unit B, in front of the position assigned; Maler evidently dug into B to get a view of it. We failed to excavate for this extension (B"), which is entirely theoretical. It is quite possible this plinth-like platform

originally stood free, as in Figure 7.6, but this was not proved. If so, with the addition of the stepped Unit A, which runs against its right end, the space between them was later filled up to give the continuous effect as in Figure 7.7. This also makes for simplicity.

A stela cist (Figs. 7.5 and 7.12) was found directly behind Stela 25, which was probably merely set on edge by Maler, and there is no doubt that it held this stela. The positions of Stela 25 and 26 as found by us are shown in Figure 7.8, with dotted lines indicating probable positions as found by Maler. The cist walls were formed of building stone, surviving in one corner to a height of 40 cm with 20 to 40 cm of debris above this. It was walled on four sides but we have merely assumed this full height all around. It was badly ruined. There was no indication of a floor, other than a working surface, and no cache was found.

Table 7.4 Structure R-9 Average Dimension Tables: Terraces

Terrace	Height	Depth Total	Depth Top
B	0.5*	0.5*	0.5*
A	0.5*	0.5*	0.5*
Z	2.5	2.3	1.6*

Provision of a special high stela platform for a single stela, jutting out from the basal platform, has its analogy at Structure K-5, where similar ones are dated in Katun 13. One of the two there is also off-center. The extension to the left to accommodate Stela 26 seems natural. The rearward extension of Unit B' in Figures 7.6 and 7.7 is based on debris contours only. The original part of the compound unit (EE') will be further discussed later.

The height and width of Stela 25 were measured as 3.2 and 1.2 m respectively, which check well enough with Morley. The stone is restored to its place in Figure 7.12, and the main outlines of the design are added from Maler's photograph.

It is interesting to note that this earliest of the "Buddha" stela has a long butt, compared with the latest, Stela 14. Nevertheless much of this plain part was apparently exposed. In both cases the base of the niche stood about 1 m or so above the pavement and the face of the figure was about on eye level. Part of the butt here is used for incised glyphs, while on the later stone this area was used for very low' relief sculpture. A point to be made is that the length of the plain butt is not a reliable criterion of the depth of interment, unless our reconstruction here is entirely wrong. The upper stela platform component is restored rather higher than the only other known one (on Structure J-1).

As with Stela 25, there can be no reasonable doubt that Stela 26 fell from about the position to which we have restored it, to the left (observer's right) in Figure 7.7. But we did not have time to excavate for the Stela 26 cist, and have placed it on an assumption of symmetry for Unit E' B" (Fig. 7.6). Preliminary to this it was necessary to estimate the length of this subsidiary stela platform from debris contours. Morley places these two monuments chronologically a *katun* apart, at 9.8.15.0.0 (Stela 25) and at 9.9.15.0.0 (Stela 26). This agrees with our conclusion that Stela 26 was set on construction secondary to Unit EEO, which surely supported Stela 25. The readings of the dates will be found in Morley (1938:3:49, 57).

While we may have spaced these two stela a little too far apart, Figure 7.8, where their present locations are shown, leaves no doubt that the impression of close juxtaposition on Morley's edition of the map is incorrect, though required by Parris's delineation of mound contours here and by the scale of Morley's red stela symbols.

Table 7.5 Structure R-9, Average Dimension Tables: Aprons

Apron	Height	Offsets
Z	1.7*	0.2*

Morley has centered Stela 24 with reference to the pyramid mound (Morley 1938, Plate 202). My memory of this monument is that it was not over a meter or so in length, But Morley gives its length as 2.9 m and probably it was partly buried when I saw it. This much of it appears on Figure 1.1 in what I believe to be an approximately correct location. We neglected to locate it accurately but it surely lies several meters to the right (northeast) of an extension of the pyramid axis. Maler places it "on the ground" and "to the right … of the terrace" and "on the right wing" (1903:66). Morley's stela locations were submitted to us for comment, after the second or third field season, but at that time we had no particular idea as to exact locations of monuments on this side of the South Group. The centered position, now that we have definite points on the structure by which to orientate ourselves, will, I am sure, be proved incorrect.

As matters stand on our edition of the map, this is the only stela placed on the South Group Court floor itself, except for the atypically small Stela 46, oval in cross-section, which was centered with reference to Structure R-5. But the following note was made by Satterthwaite: "Oval base of stela (?) 3 m more or less east of Stela 26, in rubble fill, stands with broken upper surface about on level with floor, 15 cm below humus; 48 x 33 cm at top, sides rounded". This note, undated, was a hasty one and was never followed up, as it should have been. It may not be correct, for 3 m east of the present position of Stela 26 takes one from court to basal platform level, which should have been noted. This butt could have been on

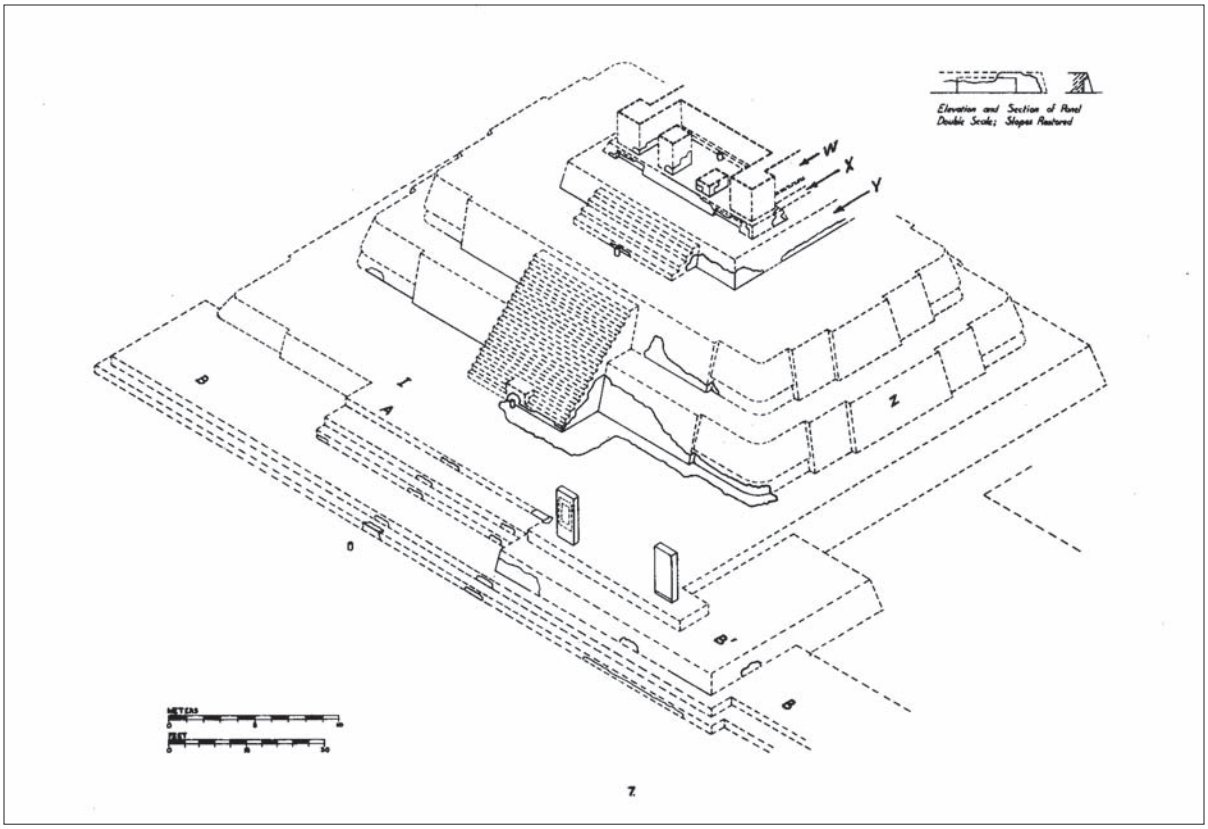


Figure 7.7 Isometric reconstruction: Phase A of Series One. Letters refer to units described in text. Unit A also constitutes Phase A of Series Two. Rear of upper units not reconstructed; Elevation and section of panel; double scale, slopes restored.

the court level 3 m east of Stela 24. When this note was made, prior to my detailed interest in this structure, it is not impossible that I reversed the direction in which the monuments were numbered, and put down 26 for 24.

In 1933 I photographed "an apparently complete short stone column … length 1 m to 1.1 m, diameter 0.5 m by 0.4 m; flat on one side and there questionable signs of carving. This side was up, is badly eroded. Butt and sides worked; top eroded; no signs of other fragments; found in 1933 to be partly under Stela 24". Its position was noted as in front of the right end of the stela platform (i.e. of Unit B) and on the court floor. This is undoubtedly the "piece of a thick column" which "stood close by" Stela 24, according to Maler (1901). The word "stood" seems to imply it was upright in Maler's time, but, had this been the case, we should not have found it partly under the stela. Morley says it was "in front of" the stela, and elliptical in cross-section.

Taking all these data together it seems highly probable that a small oval stela, or possibly a large column altar, was erected in the court, near Stela 24. If the latter has fallen backward they may have been more or less side by side, and about 3 m apart. If one of the two was centered, it was probably the oval one; but both may have been right (northwest) of the axis line, and to a certain extent they may thus have balanced Stela 25 and 26, though on a lower level. The assumptions here are that the "butt" end in our photograph note was the top of the oval stone, and the eroded "top" end was actually the end fractured from the real lowest fragment, which was found in position, or from a missing intermediate piece.

Table 7.6 Structure R-9, Average Dimension Tables: Stages (Latest Phase)

Stage	Elevation	Depth
B	1.1	1.1
A	2.1	1.3
AI	2.7	5.1
Z	7.7	2.0
Y	9.1	1.8
HG	0.8	2.9

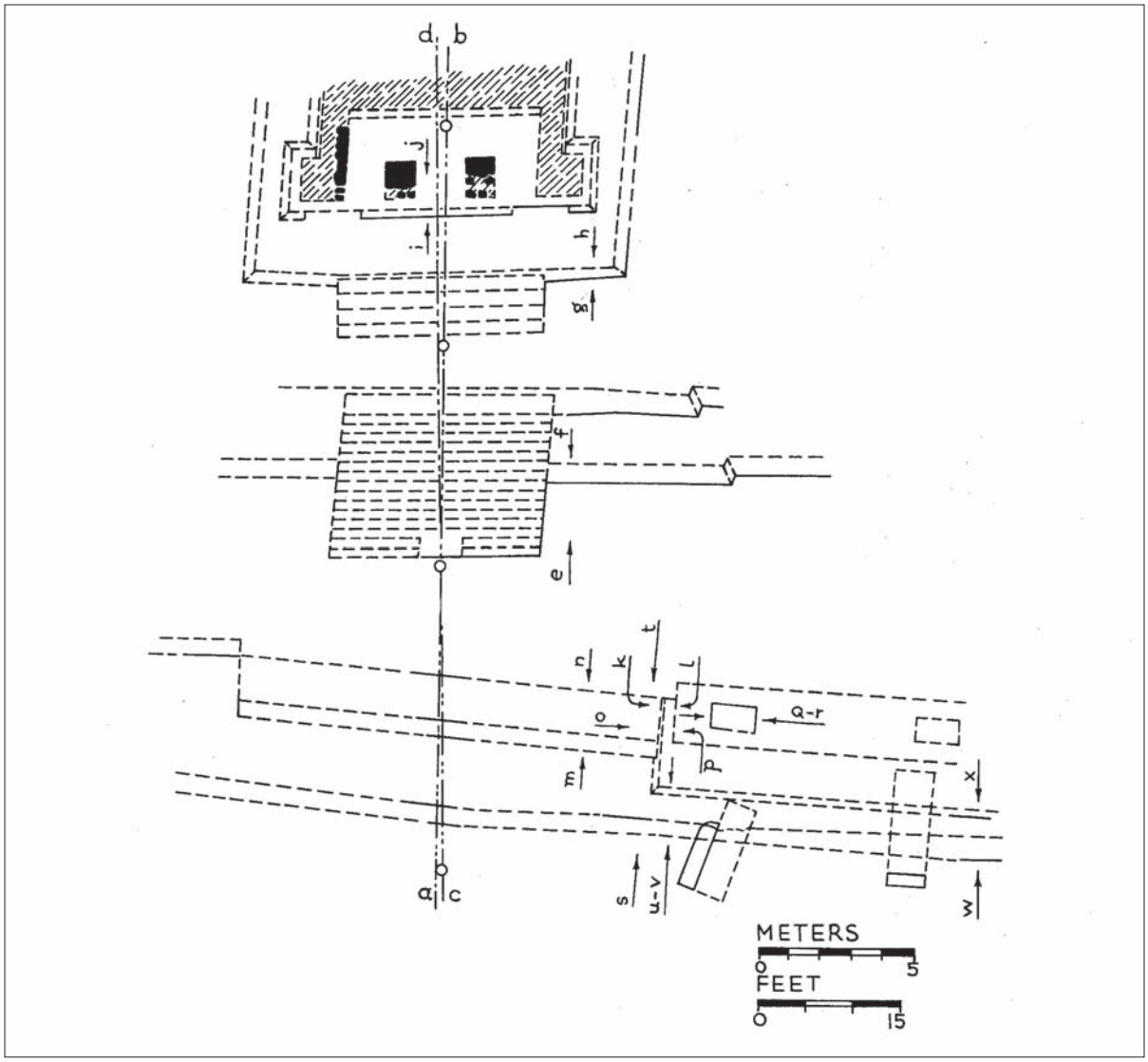


Figure 7.8 Partial plan, Series One, Phase A. Lines a-b and c-d refer to altar locations. Lettered arrows locate sections in Figs, 5.1–5.2. Locations of Stela 25 and 26 are indicated. Temple faces northwest.

Units Z and Y (Pyramid and Supplementary Platform)

Evidence seemed definite that the pyramid (Unit Z) was later than Unit I, and later in a real sense rather than merely structurally sequent to it. Floor material was followed 50 cm or so in below the base of the pyramid unit, near the stairway. It here consisted of a surface of yellow mortar 2 or 3 cm thick on lime-whited crushed stone, the combination noted as "unquestionably a plastered floor". One can, of course, argue that this is a mere structural sequence, in spite of the plaster. We lacked time to follow it in.

Unconnected cuts through Unit Y satisfied us while in the field that pyramid and platform were a contemporary unit, as at Structure K-5-3rd. But on placing these on the section (Fig. 7.9) uncertainty results. The rear pit is not so deep as it should have been surely to encounter the pyramid floor, if it had settled, and settling is probable. Floor material (crushed stone) definitely ran under Y a considerable distance, as it did not at Structure K-5-3rd, and as it did at K-5-1st where the platform is secondary. Finishing plaster could not be identified on the floor here, but this was very scarce and hard to identify anywhere. On

Table 7.7 Structure R-9, Average Dimension Tables: Building (Unit Z)

Section Table			Façade Table			
W	R	W'	Length	Depth	Piers	Doors
1.25	1.7*	?	9.1	?	1.0	1.3
						1.6 (center)

the other hand, the pyramid floor may have extended far under the platform as a working surface, as at Structure R-3. Hence units Z and Y may be contemporary, or not. There is no reason to suspect an original pyramid without further construction on it since, so far as we know, an unknown platform may exist within the latest, or have been removed, as happened at Structure R-3,

Whether originally contemporary or not, the R-9 pyramid and Supplementary Platform, as we have reconstructed them, are very similar to the same constituents of K-5-3rd. Although the back of both components here had slipped off, there is no specific reason to doubt that the platform plan was intended to form a simple rectangle. The position of a probably fallen specialized corner-stone suggested a depth of about 50 cm more than the surviving depth shown. If these interpretations are correct, the rear wall of the temple was probably no thicker than the thickness (depth) of the piers. Still, a rear projection could have permitted a rear foundation mass for a roof comb on the building, and the plan of the platform (but not its section) would then be similar to that of the platform of Structure J-3 (see site map).

The two-terrace pyramid is long for its depth, judging from mound contours. The length, at the front, is considered certain within narrow limits. Insetting of left corners on both terraces, and the rounding of the lower one are known. A maximum surviving height of 60 cm for the inset corner permits reconstruction of an apron molding of standard proportions, though this feature could not be definitely proved.

The stairways were reduced to debris except at the bases. These, however, give the approximate minimum angles of ascent. For the pyramid this was about 45 degrees. At the left, stones of the second riser indicated standard steps. The upper step, on this basis, theoretically must be double width, and is made so on the analogy of K-5-3rd.

For the Supplementary Platform, a measurement first read as 3 m would require "standard" steps also, or at least a 45 degree angle. A standard step at this site has risers and treads measuring 25-30 cm. But a series of check measurements (54 plus 127 less 18 cm) requires this same measurement to be about 3.8-3.9 m. The note of 3 m was made hurriedly, and there is a suggestion of a tail for the required 9, instead of a zero, in the recorded dimension. The check measurements are clear and give a minimum ascent angle of about half "standard" of 45 degrees. This is used in the reconstruction, again by analogy with K-5-3rd.

There was no surviving evidence of stair-wall extensions or balustrades. The lowest step of the pyramid stairway survived in good shape to a height of 38 cm at the center only. To account for this we have restored a block behind the altar. The nearest analogy is the block of Structure U-3-1st.

Column Altar 3

A column altar, No. 3 at this structure, was in position on the pyramid (Unit Z), its back 18 cm forward of the lowest step of the Supplementary Platform stairway. It was nicely lined up with reference to Altars 1 and 2 below (Fig. 7.8). Apparently it had been let into the identified floor only a few centimeters, if any. Excavation to 40 cm below it showed an unexpected slab in the pure rock fill (Fig. 7.9), with three eccentric obsidians on it. It seems unlikely, but possible, that a cache bowl had been present, broke, and that most of the contents worked down out of sight between the rocks of the fill.

The fact that the altar seemed to rest on the floor material which passes under the stairway leads us to reconstruct a secondary pyramid floor. This is necessary if the altar butt was firmly imbedded in the floor, as everywhere else where conditions permit certainty. If so, the altar post-dates the pyramid. We shall find similar late indications at the two other outdoor altars, with additional evidence that secondary floors were laid there. Even so, this altar may be contemporary with that in the building, since the building and its platform may also post-date the pyramid.

Unit X (Building Platform)

The front of the Building Platform is quite surely correct as shown, unless we should have added a centered step, for which there was no surviving evidence. The height is about 50 cm, the same as the steps of Unit B at the bottom. The sunken panels were badly ruined, leaving no evidence for or against stucco ornament here. Elevation and cross-section of the left panel are at double scale in Figure 7.7. The frontal side outset is certain, its rear corner on the left side having been found, though badly disrupted at the base by roots. The general ruin at the

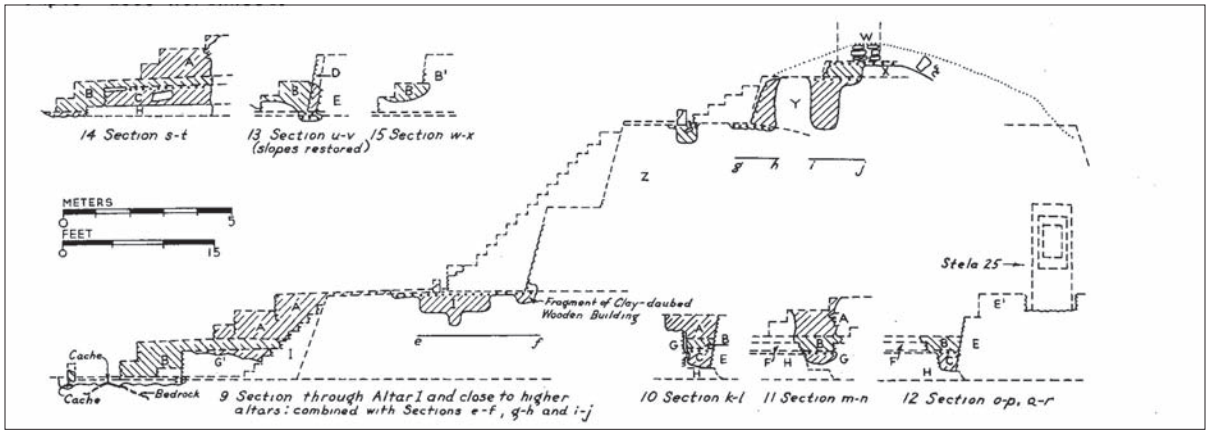


Figure 7.9–15 Composite section, including Sections E-F, G-H, I-J (9); Section K-L (10); Section M-N (11); Composite section, Sections O-P and Q-R. The latter passes through Stela 25 cist, the stela restored to position (12); Section U-V (13); Section S-T. This drawing shows positions of the two fragments of small plain stela as found in Unit C (14); Section W-X (15).

top was so complete that all known surviving lines at this platform are shown in Figure 7.7. The side is about parallel with that of the Supplementary Platform and, like the latter, makes a poor angle with the front. Since the depths of the Pyramid and Supplementary Platform are guess-work, so is the depth of this. Presumably it had a rear projection. By analogy with K-5-3rd we should expect this platform, and also its building, to be simply rectangular. The fact that it is not perhaps raises a certain presumption that it is non-contemporary with the rectangular Supplementary Platform. The uncertain evidence is consistent with this. Floor material of Unit Y runs under Unit X (Fig. 7.9), but was exposed under wet conditions. Gray mortar with charcoal was found adhering to apiece of crushed stone, with a trace of thin white finishing plaster. This is first-class confirmatory evidence of non-contemporaneity, but it is hardly conclusive.

The slope of the walls could not be measured with assurance, but the steepest part was at 78 degrees. The sides of the panels seemed to have been vertical; the depth was 19 cm at the base; the back was vertical, or slightly sloping.

Unit W (Building)

We dug everywhere that clarification of the plans of the building and its platform seemed possible. The ruin was almost complete. In preliminary digging in 1933 the writer removed the fronts of the piers, without knowing it. Fortunately the piers had settled into the floor, or had been based about 10 cm below floor level. As a result, basal stones in the destroyed area were later found in place, except for a corner-stone of each pier. These stones, indicated in the plan, Figure 7.8, are at the same level as the bases of the surviving rear parts. The disposition of all stones remaining in 1937 convinced us that no front face for these piers had existed behind the line at which they are restored. The exceptionally deep piers are regarded as satisfactorily established, despite our unconscious vandalism and the absence of a vaulted roof.

The remainder of the right pier stood to a maximum height of 60 cm, 10 cm of this below floor level. This is taken as sufficient evidence that piers and walls rose to roof height. Absence of slabs, cap-stones and a maximum room debris depth of 30 cm prove that the roof was non-vaulted.

The right inner wall was reduced to base stones only at the front, probably by our inadvertent vandalism of 1933. Elsewhere it stood two or three stones high, back to a point 2.4 m from the front. Another stone, loose but in line, justifies a minimum of 2.7 m for this wall. If we add 25 cm for a sill, and subtract 1.25 m for the pier depth, we get 1.7 m for the room depth or roof-span, and this dimension is used in the reconstruction. This is confirmed by sunken and disrupted tabular stone in semiposition on the center section (Fig. 7.9).

No other part of the building survived. The use of antae, as at Structure R-16, seems as certain as the uniquely deep piers. The frontal side outset is probably required by the same feature on the building platform. This feature seems everywhere linked with a rear projection, except on the anomalous Structure J-3. We have not reconstructed the rear because the slippage here would have removed all evidence of a possible rear foundation mass. But that the building and its platform

Table 7.8 Structure R-9, Object Table (Operation S-21)

Position Number	Sherds	Figurines	Modeled Fragments	Cache Contents	Eccentric Obsidians	Miscellaneous
1	-23					Daub-clay
2					-65	
3	-2;-24(?)	-3	-4			Daub-clay
4	-5-;-7	-6				
5	-8-;-10	-11				
6	-1					
7	-62					
8	-61					
9	-63					
10	-56					
11	-55					
12	-42;-58					
13	-41					
14	-50:-53:	-54				
15	-46:-52					-48 (flint)
16	-25;-26			-27		
	-29;- 34?					
17	-15;-16;	-36;-38;	-37			-30 (clay pellet)
	-35;-43;	-47				
	-45;					Daub-clay
	-49;-51					
18	-32;-39;	-59			-28	-33 (cinnabar?)
	-40-1					
19	-17;-18;			-20		
	-19(?)			-21		
20	-12;		-13			
	-22;-31					
	-44;-64					

Note: The number S-21-14 not used: S-21-9 applies to animal bones, S-21-57 and 60 to plaster samples.

Key to Position Numbers

1—In Unit I.; 2—In Unit Z, possibly intrusive with pyramid altar.; 3—After Unit Z, in or on probable secondary Unit I floor; 4—After Unit Z, same, but probably on the floor, i.e. surface; 5—After Unit Z, same, probably in the floor; 6—In Unit X, possibly intrusive with building altar; 7—In Unit G to in Unit B; 8—In Unit G to surface; 9—In court Floor 1, a few sherds from Unit B or surface; 10—Probably in same floor; 11—In Unit H (lower element); 12—In Unit C; 13—Same or later, probably before Unit A; 14—In Unit B or earlier (possibly Court Floor 1 or 2); 15—In Unit B or surface (probably not surface); 16—In Court Floors, probably intrusive; probably not before Unit B; 17—In Unit B or surface; 18—In Unit A or surface; 19—In Court Floors, contemporary with court altar; 20—Specific locations not noted.

were in general of Petén style, with side outset and probably projection, seems fairly certain.

Column Altar 4

There can be little doubt that this final column altar was set upright in the room floor at time of abandonment, but moved slightly as the rear of the room sank (Fig. 7.9). It would have been lying on its side if it had been torn out before the collapse. Its position in the plan is off-center with reference to the door (Fig. 7.8). This is easily explained if the room is correctly restored on the parallelogram principle. It was found on the axis of such a reconstructed room, which is not at a right angle to the façade line. Two or three sherds, but no cache, appeared below the altar.

Discussion by Phases - Series Two

Series Two, Phase H (Court Floor 2, Unit J)

These units [are] the same as those of Series One, Phase C.

Series Two, Phase G (Units I, H)

Excavation for the form of these early units was sketchy.

Unit I

The center section showed that this high platform was served by a standard stairway, probably rising from the court in one flight, though we did not get to the lowest two steps (Fig. 7.9). Our reconstruction of it is given in Figure 7.1, where the position of the pyramid stairway is indicated in outline. We do not know when the pyramid and its stairway were built, but are sure it was in a phase later than this. The outline is placed on Figure 7.1 merely as an aid in following the changes in the platform.

Nothing is known as to corner design. The Petén style is reconstructed as the most likely, since it occurs in a similar situation, and with a similar degree of slope, on the early Structure K-5-4th. Where the right end of Unit A later formed an angle with it, it was followed to court level. There was some slipping of stones at Unit B level, suggesting a molding in the face of Unit I, but there is little doubt that it here rose as a single plain terrace as shown.

If all of it is a contemporary unit as restored, it formed in this period a suitable basal platform for the pyramid Z found on it, or for an earlier one which may easily lie buried within. But it is long enough for early palace structures and may be deep enough for a group of them. Nothing interferes with dating the pyramid Z immediately after the unit under discussion, but evidence fails.

Floor material of the court seemed to run under the front wall, and this unit may mask still earlier structures. The slope of this wall, as measured for a height of only 50 cm at the base, was about 69 degrees. A 74 degree slope higher up had probably been caused by fill pressure.

As already stated, in this and other isometrics we have indicated the outline of part of the base of the pyramid (Unit Z), though it was almost surely later than Unit I. This is to help visualize the fact that a single axis for buildings and stairways may have been used throughout. Also, this line forms a key permitting superpositions of tracings of earlier period figures on later ones. By adding in another color the lines showing through, and erasing those parts of black lines enclosed by colored ones, a drawing can be obtained showing what part of the later unit is new construction.

Unit H

This low compound platform is known only at its left end, as indicated in Figure 7.1. The relation of its back to a later extension of the Unit I stairway, that is, to Unit G, is shown in Figure 7.11. This, and the absence of a rear wall of Unit H a few meters away at the center section (Fig. 7.9), seem to justify the nearly square form shown. There is the possibility, however, that it extended across the Unit I stairway, with a rearward extension covering the lower steps. In that case, Units H and G' in Figure 7.1 would form a T-shaped unit, and G (Fig. 7.2) would be a modification of HG'. This alternative possibility is entirely consonant with Figure 7.2, but would not affect the number of sequences. Relationships to court floors seem definitely to rule it out. As shown, the little platform might have served for a small stela, and can date before, with, or after Unit I.

The upper component of this low platform seemed to slope very slightly. It seemed to be contemporary with the lower element, but was not cross-sectioned. This lower element, at its left, runs about 14 cm under, and therefore predates, Unit E. It rests on the earliest of the two court floors, as does Unit E except for this overlap. At the center axis, the lower element of G' (Fig. 7.2) rests on the upper of two court floors. It is not there a structural unit with the upper element, which runs down behind it to the same upper court floor (Fig. 7.9). At the left, the upper court floor contained "unusually large" crushed stone, and at the center it was recorded, at a different time, that this stone was "fairly large". If the upper court floor at each point is a continuous contemporary unit, then this platform, H must have ended somewhere short of the center axis, as restored. Probably both Units H and I rested on the same early court floor.

The surfaces of upper and lower elements slope noticeably downward toward the front, and the lower one also slopes noticeably down to the left.

Series Two, Phase F (Units G, G')

The modification of the Unit I stairway shown in Figure 1.2 is fairly sure. The front part of the double scale elevation shows how much of the end was seen at the left, and the rear part shows the same molding, which was seen on the right side running out from Unit I, as if seen on the left side. The cross-section of Figure 7.11 shows clearly that the original steps, above the third, had been extended laterally; these extended steps rise from fill behind Unit H in this section. The floor material of Unit G, resting on this fill, ran to and over H, but under F. Bits of finishing plaster under Unit F confirm this evidence that it is later than G, structurally at least, and Unit G must be later than Unit H. The wing-like stair-side extension or balustrade rests against and partly on H. Its base is 90 cm forward of the steps, a distance much exaggerated in the isometric figure. The surface of the platform G, G', H is entirely unknown, but surely in this position it did not support a building, and we have called it a stage.

The top part of the stair-side extension is highly theoretical. At the left it was cut off by the Maya nearly 50 cm lower than necessary to make way for Unit A, but not low enough for submergence by Unit B. Curiously, at the right the buried stairway extension was not found where expected. The molding on the outside extended only 80 cm forward of the terrace. Ancient stone-robbing there is indicated.

A thick sheet of plaster was in place on the left side of G, though it soon peeled off from the upper part of the stair-side extension. It converted the rectangular molding into one with a curved section, and curved out at the base. The sharp lines of our drawings are misleading in this respect. Surface of the plaster was rough, as if weathered, even at the deeply buried base.

The main body of the stage, as known at center, seems to be a continuation of Unit H, to which it corresponds in cross-section. This part also is known to be later than H because it rests on the later of two court floors, while H rests on the earlier (Floor 2). At the center, the upper element runs down to this floor, behind the lower element (Fig. 7.9). We have assumed that the sequence between them is merely a structural one.

There may have been an early unit corresponding to H, on the right side, in which case G' merely joined two balanced units. In any case, the effect of this stage and stairway modification was a unifying one. It may be noted that from this time on some sort of stage always lay before Unit I (see Figs. 7.2 to 7.7).

Series Two, Phase E (Unit F)

Only the left end and about 1.5 m of the back of Unit F were uncovered. Stone robbing is indicated (at the later time of Unit C) because upper courses were missing toward the front. Evidence that this unit J was square, or at least short, is absence of its walls at center (Fig. 7.9). Evidence that it post-dates Units G and H has been stated. Its surface was not investigated. Placement of the small plain stela on Unit F is hypothetical (Fig. 7.3).

Small Plain Stela

We shall describe the stela here. It is shown in the photographs of Figures 3.7a, 3.7b and 3.7c. The top fragment, 63 cm long, hence a heavy stone, formed the top of the retaining wall of Unit C, being placed there in Phase C. The bottom fragment, 1.4 m long, was found in the otherwise pure rubble fill of this unit, behind the wall which utilized the upper fragment. The latter is visible, in position, in Figure 21. The lower fragment lay with its butt end forward. Both fragments are indicated, not very realistically, in the cross-section of Figure 7.14.

Considering the monument in its original complete condition, the sides, by no means perfectly straight, taper from a maximum width of 40 cm at the top to 38 cm, 1.4 m from the top, after passing a lesser width of 36 cm somewhat above this. From here down the taper increases, the width dropping to 34 cm in 25 cm at a point 40 cm from the base, and to 24 cm at the base.

The top was a nicely worked flat curve, tool marks being plain. It produces noticeable ridges where it meets the sides. Tooling was apparent on one side to about 39 cm above the base. This side was nevertheless uneven and wavy. It showed possible traces of original plaster, in addition to plaster from the wall against which it lay, but this was very doubtful, and probably was lime deposited after burial in the fill.

While the stone was by no means in good condition, and one face was smoother than the other, it is regarded as certain that it was never sculptured. The following note was made on the spot: "The best side (face) is flaked and perhaps eroded, but not much, no sign of erosion of sculpture. On the right side rough tooling is apparent, but the surface nevertheless is wavy."

The indications are that an exposed piece of laminated stone was split off from its bed and the smoother split-off face used for the front. While the top was nicely cut to shape, the makers did not invest their time in the requisite amount of fine dressing to get straight sides. Probably the quarried piece tapered to start with, for there is no evidence that the butt was purposely made so narrow. The thickness is uniformly 21 cm to a point 57 cm from the base, where it begins to thicken to 29 cm and then drops to 25 cm so that the base is square. Of the total length, 2 m, probably no more than 1.5 m showed, above the surface, when in position. This monument was therefore narrow with a flat-curved top, in these respects like the supposed Stela 45 at Structure R-11. The widths correspond almost exactly.

The re-used stela here is important in three respects: it seems to establish the relatively early use of plain stela, the existence of which at this site had been impliedly denied by Morley; it shows that such stela could be in general quite crude, at a time when better work was possible; and it shows that they could be very small. In addition, it can be argued that the tapering of stela occurs in an early context, but this may be unintentional in this case.

Series Two, Phase D (Units E, E')

The right end of this compound stela platform was followed back till it ran under the upper step of the later Unit A. Figures 3.1, 3.3 and 3.4 show its stratigraphic position before Unit D and after Unit H. A comparison of Figures 2.1 and 2.2 shows our reason for believing that it followed Units F and G. The stela platform is crowded against G and hides its ornamental molding from almost any point of view. If Unit F was a platform for the small stela later broken and re-used near it, the crudeness and

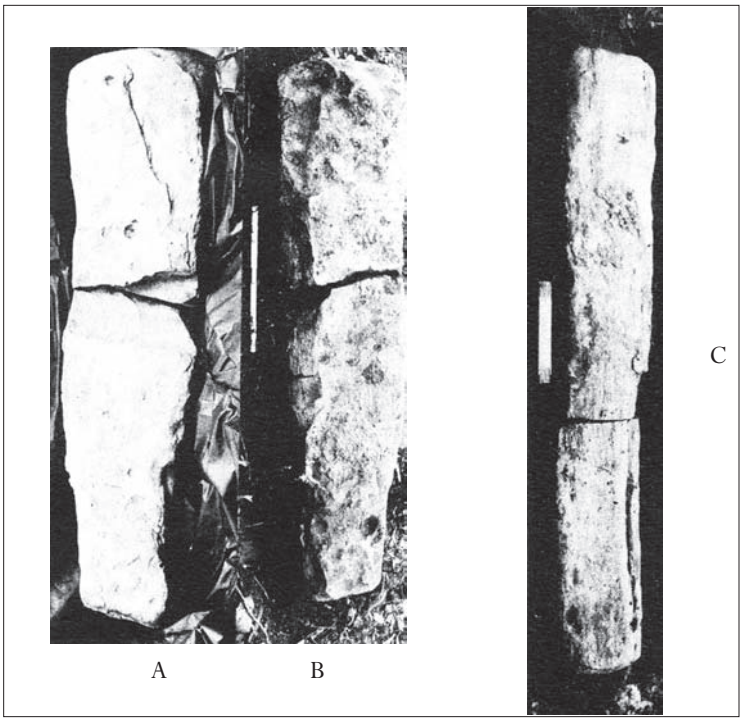


Figure 7.16 Small plain stela. Double rule measures 21 cm.

diminutive size of that monument suggest it was earlier than Stela 25. The front wall of Unit E rests on the upper of two court floors, while Unit H is based on the lower.

The front of Unit E, or of its secondary facing D (Fig. 7.5), was followed for a distance of only about 4 m from the corner. If the platform was at first long enough to accommodate Stela 26, the cross-section of Figure 7.13 should have been repeated in front of that stela. Instead we found the section of Figure 7.15. Here Unit B', which lined up well with the top of E or D in Figure 7.12, did not run down behind the latter stepped Unit B; nor did floor material of Unit B seem to run under it. We have no reason to suspect Unit B is not a single contemporary construction. With B post-dating E at the right, contemporary with what corresponds to E at the left (i.e. with B'), we have good reason to reconstruct this platform as in Figure 7.4.

Stela 25 almost certainly fell from Unit E'. At the right, opposite Unit G, the buried end wall of Unit E was in good condition, full height. Its slope is about 81 degrees. The front was not in good condition. It was nearly vertical, probably due to fill pressure.

Series Two, Phase C (Units D, C)

For some reason the front, but not the side, of the Stela Platform E was provided with a new wall, placed against it like a veneer about 25 cm thick. This is called Unit D (Fig. 7.5). Maximum surviving height of 1.5 m indicates that it ran to full height. This may be compared with Unit D at Structure R-11b. Its end is flush with the end of the original platform, so that it forms a new well-made corner overlapping the lower element of Unit H. About 10 cm behind the corner a new wall was added to connect with the upper element of Unit H, and the area behind filled and surfaced. Whether D and C are contemporary or not cannot be said. No plaster survived to help. Unit C is at least structurally the later.

The top of this little piece of wall was formed with the top fragment of the small plain stela (Figs. 7.14 and 7.15). The rest of the stela formed part of the fill behind this wall. The fill supported an extension of the surface of Unit H, which now ended against Units E and D.

It is easy to imagine, as we have done, that the small stela had stood on Unit F and was now removed as obsolete, its probable painted inscription perhaps badly weathered. It would have been a natural time to eliminate the little blind alley between Units G and H. If the stela had not stood nearby, why should the larger piece, a very heavy stone, be moved without further breaking-up to form part of an otherwise small rubble deposit? The only logical flaw is the fact that the supposed stela platform for it (Unit F) was not also removed and used in this fill (see Figure 7.5).

At or before the time of Unit C, the left end of Unit H, toward the front, lost the upper stones of its upper element. Either Unit H had fallen to ruin, or more likely, was robbed for building stone for Unit C. The floor of Unit C passed over the broken part, ending at the side of Unit F; to the rear it must have merged with floor material of G. The possibility that Unit G and C floors were a contemporary unit is ruled out by continuous plaster on the side of G, from well up on the stair-side extension down to base level at this point, well below the C floor.

There is a certain probability that the minor change represented by Unit D was incident to a general rehabilitation of the court. The upper court floor lies structurally in time between Units E and D, and may have been contemporary with the latter; if not, it would be another unit in the sequence, or might go with Unit C; but it must precede Unit B. It is hard to see any function for Unit D, except as an extensive repair, and the same applies to the floor. If an assumption that Unit B is all of one piece is correct, and the evidence of the section in Figure 7.15 justifies seeing Unit B' as contemporary with it, then the Unit D and the supposed renovation occurred between the erection of Stela 25 and 26, that is, according to Morley's readings, between 9.8.15.0.0 and 9.9.15.0.0.

It is not impossible to assume that new floors were laid on the basal platform (Unit I only at this time) and on the pyramid-top (Unit Z) at this same time, but, unlike the court floor, there is no definite evidence for dating those apparent repairs.

Series Two, Phase B (Units B, B', B")

The simplifying effect of the Unit B construction, its probable unity with parts of the stela platform called Units B' B", and with the basal platform of the neighboring temple Structure R-10, have already been pointed out; note also its failure by 10 degrees to be parallel with the R-9 pyramid. Its visual effect is something entirely new at this locus. As we have interpreted the fragmentary evidence, at Structure R-9 stepterraced Unit B submerges the little platform F and all but the upper steps and stair-side extensions of the rather complex stairway GGI H (Figs. 7.5 and 7.6). Its sequential position is shown in Figures 7.9 to 7.15. If our uncertain belief that Units B and B' B" are contemporary Is correct, Unit B was presumably built at the time of erection of Stela 26 on Unit B", about 9.9.15.0.0 according to the Morley reading.

The maximum surviving height of a step-terrace face (the lower) was 40 cm. The lowest four steps of Units B and A, at least at the left of A, taken together, had to reach the height of Unit E, 1.7 m above the upper floor. Allowing 13 cm for slope of the surface, this would make an average face height of 40 cm, as observed at center.

Figure 7.17 Masonry of pyramid (Unit Z), lower terrace at junction with stairway.

However, there the base of the lower step of the later Unit A was 1.1 m above the upper floor, requiring faces of about 50 cm for the Unit B steps considered separately. Probably the Unit B steps varied between 40 and 50 cm, increasing toward the right. We have called the Unit B height 1.1 m instead of the minimum measured 1.1 m, to avoid a false impression of significant accuracy.

The base of the plaza column altar (No. 1) was only 2 cm below the base of Unit G' at a point about 1.4 m behind the face of B. Unit B, of necessity, must have rested on the upper court floor, here disintegrated, since the earlier G' is on the upper floor. The wall of Unit B had settled considerably here, as indicated by careful drawing of all center-section units. On raising it the required 12 cm and extending the upper floor at this level, the butt of the altar would be buried only 14 cm by the upper floor, less if the altar also had settled. The lower floor surface, identifiable 2.9 m distant, was 8 cm below the upper. There is thus a probability that the altar base was 6 cm or less below the lower floor surface. This is much less than the amount of penetration of similar altars in known cases. The altar was probably set in the position found at or after the time of the upper floor, that is after Unit D, which was probably after 9.8.15.0.0. Presumably a hole in the lower floor (or in both) was made to accommodate the lid, here used as a cache bowl, and two shells beneath it.

A second cache, the bowl and lid broken to sherds but obviously in semi-position, was found on bedrock (Fig. 7.9). Its center was about 20 cm forward of Unit B and 13 cm left of a line joining the court and basal platform column altars (Line c-d, Figure 7.8). Thus there is a probability that it was originally placed under a column altar or other special feature which was centered with reference to the pyramid, or to some earlier construction

on the basal platform having the same lateral position. Bedrock was here only 17 cm below the level of the base of Unit B which, as we have seen, had probably settled about 12 cm. This is quite possible since the bedrock drops sharply between the cache and the wall. If we raise the wall it would be 29 cm above the base of the cache. Subtracting 8 cm for the upper floor thickness, and about 15 cm for the bowl and lid, would leave the butt of a column altar only 6 cm below lower floor level, even if the lid was in contact with the altar base. Hence, if a sub-altar cache, this also probably dates from after Unit D.

If placed in time with or after Unit B, the cache was close to the step behind it, like all those on higher levels, and perhaps column altar 1 was placed here and later moved forward and provided with a new cache. The fact that only these two complete caches were found under, or possibly originally under, altars, with four altars present, tends to link them in time. A Unit B or later date for both seems the best guess. Disruption of floors made sure dating impossible.

The caches and column altars are described in the section under those heads. Stela 26 is considered to have fallen from Unit B", a hypothetical extension of Unit E'.

Series Two, Phase A (Unit A)

Apparently the esthetic function of this unit was to complete the obliteration of the stairway GG' H and integrate the basal and stela platforms as much as possible (Fig. 7.7).

On the altar line or center the upper court floor was carefully measured as 2.6 m below the basal terrace floor-height at the pyramid stairway base. We have called this 2.6 m for the Unit I tabulated average height. An allowance for 20 cm of forward slope in the considerable distance to the front edge seems probable, and we have called the Unit I height 2.4 m at its face. Evidence of bad settling of the Unit A upper step is present. Its base was below the surviving top of the next; and at the left it rose 25 or 30 cm within a distance of only 1 m to rest on the top of Unit E and abut E' (compare the settled step stones with the restored position, Figure 7.5). The base of Unit A, center, was 1.3 m below the assumed front height of Unit I, so that the three Unit A steps could have been about 40 cm each in height. If, however, they agreed with the Unit B steps at this point, and were 50 cm each, the top of Unit A at the front would be 20 cm higher than the face of Unit I. This would require that the old basal platform be refloored with a surface continuous with Unit A.

In Figure 7.9 this is indicated, with an additional 10 cm for the floor, as probable. Without such a floor the amount of penetration of the basal platform altar, 10 cm, is too little for known cases of similar altars; with such a floor, and dating the altar as of this time or later, the penetration could be normal. In addition, excavation to the left of the pyramid stair showed a 30 cm deposit of sherd-bearing material devoid of building stone. This lay on the crushed stone of the Unit I floor, though a dividing line could not be identified. It contained pockets of crushed stone at the bottom, and practically all sherds were reported as from the middle of this deposit, that is about 15 cm above the level of the pyramid base. On the spot, the sherds were listed as "from above (the Unit I floor) or else on or in a secondary floor." These sherds included Alta Verapaz Carved Orange Ware, a type which, wherever found, has had to be classified as surface, meaning, as here, that they may have been left on the surface at the time of abandonment. If that is the true fact here, the top of Unit I must have received a thick new floor.

The base of Unit A projects 1.9 m from the Unit I wall against which it is built. The isometric drawing exaggerates the projection because, contrary to fact, it assumes that the faces of both are parallel.

There are three step-terraces, the third set back to form what may be called a separate stage in front of it. In

Figure 7.18 Masonry of pyramid stair, side wall.

Figure 7.19 Masonry of building platform (Unit X) and ruined piers (Unit W).

clearing the surface of this an eccentric obsidian was found close to the altar axis. These objects are usually found in caches. Floor material as such had here disappeared and this may be the remains of a cache. Caches, in turn, are usually (though not always) found under or at the base of altars or monuments, so it is not impossible that the stage of this unit at one time was so marked.

Measurement

The partial plan of Figure 7.8 is based on a few surveyed points, and taped measurements from them. The step faces of Units B and A were identified at many more points than the use of broken lines suggests, but most of these exposures were not accurately located. There is no reasonable doubt as to the, continuity of those faces in the reconstructions.

The direction of a step of the extended stairway IG (Fig. 7.2), known by two points, at center and end, is nearly parallel with the pyramid (Unit Z); that was therefore probably laid out carefully by linear measurements from the face of Unit I, or from an unknown structure within, similarly laid out. Errors in estimating right angles in measuring back from Unit I would show little effect on the pyramid direction, if made near its two ends. Why then should the faces of Units B and A (Fig. 7.8) be about 10 degrees out? The face of the stage HG' (Figs. 7.2 and 7.12) was the easiest base from which to lay out Unit B. Unlike the steps, the face of the HG' stage shows the same discrepancy, as known by points at center and end. Presumably an error in measuring out from Unit I was made at the time of this stage, and this affected the later Unit B, and this in turn Unit A.

The evidence of linear measurement combined with estimated right angles is fairly clear higher up. For the Supplementary Platform, in reconstruction we have assumed a forward bulge at center, such as was noted on the K-5-3rd pyramid. For the building, the façade line is somewhat weak, due to our destructive early excavation, but the surviving evidence makes it parallel with the base of the building platform. The right inner room wall fails of a right angle to this by about 5 degrees. Having established parallelogram asymmetry elsewhere, (especially at Structures R-11, K-5 and R-16), the position of the building altar, its center behind a point about 30 cm left of the center of the doorway at the façade line, confirms the parallelogram room reconstruction of Figure 7.8. The center of the doorway, at the façade, and the altar, form corners of an accurate parallelogram with the left wall of the room forming one side.

The line a-b (Fig. 7.8) is drawn in both directions from a point at the pyramid base, at right angles to it. This point is below the center of the stairway at this base line. A small portion of the right stair wall was found, though above floor level, for this purpose. We do not know how nearly it may be the center of the pyramid. The left stair wall, known at the base, is about 5 degrees short of the intended right angle. Unless the right stair wall converges, this a-b line cuts both upper and lower steps from 35 to 40 cm off center. Yet it touches the court altar and passes directly through the basal platform altar, both of which were accurately located by us, and through the other two altars, less accurately located. The pyramid altar is located from a surveyed point by short linear measurements involving estimation of a right angle; but the lateral error could scarcely be more than a few centimeters. This a-b line passes about 20 cm left of center of the center doorway at the façade, and happens to strike the position of the building altar.

It seems probable that the lower altars were located laterally by sighting to a center point higher up, which may have been measured. The pyramid altar may have been at this point, or located also by sighting. This need not have been done all at one time. Once one lower altar and an easily findable center point (such as in a doorway), or any two altars were established, sighting over them would make accurate subsequent placements on the same line easy and natural.

The line c-d joining the centers of the two accurately located lower altars passes through the center of the doorway, or a few centimeters to its right, and our inaccurate manner of locating the pyramid altar would permit a shift to this line. Sighting from or to this center for altar location, or over existing altars for lateral building location, is distinctly possible. Our a-b line, an arbitrary one, passes about 20 cm left of the door center and happens to join the three upper altars as placed on the plan.

The building altar is on this line, and its position, by triangulation from points later surveyed, is reliable. But it could not very well have been sighted from below, and its position has been satisfactorily accounted for by independent measurement. It probably was placed before the middle of the rear wall of the chamber, hence is affected by parallelogram distortion.

Figure 7.20 Pier masonry of building (Unit W). Right (NE) side of right pier. Front portion torn out except for two base stones.

Column Altars and Caches

Since all exposed floors were disrupted or at least without surviving plaster, there is no sure means of dating the altars and two caches with reference to the structural units, except that placement of those on platforms was at least as late as the platforms. But we have developed strong hints that the three outdoor altars were late in the respective sequences. All altars were exposed at the time of abandonment, and presumably in use at that time.

We have some hope of working up a typology of column altars at this site. While they are all similar, and generally show evidence of fire, they are by no means all exactly alike, either in form or size. A detailed account of the four found here, with exact measurements, is deferred to a later section in which all from the site will be presented together. Only Column Altar 4 of this complex, in the temple building, was complete. Its total height was about 48 cm, exposed height probably about 30 cm. In cross-section at the top it was an oval flattened on one side, the long diameter about 33 cm, tapering to bottom diameters of 25 by 25 cm. What was left of nos. 1 to 3, respectively on the Court, on the Basal Platform and on the Pyramid, indicates stones of about the same size and form. Enough survived to show tapering on nos. 2 and 3, and no. 3 showed the flattening on one side. Here it was certain that the flat side faced front. Only 4 was sufficiently preserved to yield evidence of fire, which was clear; but the uniformly bad condition of the others, above the portions let into the floors, is itself fair evidence that they had been softened by heat. This is not, however, conclusive, since all were of limestone and all except no. 4 were always outdoors.

Figure 7.21 Masonry of Basal Platform Units; relationships of Stela 25 (right) and units B, C, and E. Man stands behind Stela 25. Faces of Unit B are in foreground. Behind them this unit has been excavated to show end wall of Unit E. A stick rises from Stela 25 cist (left top of picture). Top of Small Plain Stela shows in situ behind upper step-terrace of Unit B a partly opened rule crossing horizontally from one to the other. Front face of Unit E is hidden by ruin of Unit D.

It is planned also to describe all caches in detail in some one place. The cache under Column Altar 1, on the court floor, consisted of eccentric obsidians and eccentric flints; small worked pieces of jadeite, not carved or engraved, some possibly tools, and pieces of pearly univalve shell. The container was an inverted pottery lid; immediately below this were two large univalve shells.

Behind this and in front of the lowest Unit B step was a plain simple-silhouette cache bowl with lid. Besides the usual eccentric flints and obsidians, this contained a thorny oyster shell, and pieces of jadeite, some similar to those of the other cache, others engraved.

Stray eccentrics suggest the disappearance of caches into the fill on the Unit A stage floor, and below Column Altar 3. Details concerning exact placement of altars and caches have been given in describing the units containing them, together with speculations as to their dating.

Decoration

No signs of stone sculpture, other than on Stela 25 and 26, nor of stucco relief or painting, were encountered. Evidence of stucco and painting might easily have disappeared. One should reckon especially with the possibility that the sunken panels of the Building Platform (Unit X) were painted or contained stucco reliefs. They were too much destroyed to say whether or not protruding stones for stucco support may have been present. In any case, they might have been unnecessary for stucco in such a small enclosed space.

Ceramics

Pottery from this operation will be considered in the section on ceramics, and has not been studied except in a preliminary way. The quantity recovered is small, and most sherds were too small or weathered to yield information as to form or decoration. However, there is enough to confirm our supposition that Unit I is quite early. Floor 1 almost certainly contained a beveled orange rim-sherd attributable to a flanged bowl, and another, with the flange, comes from the fill of Unit I. A speckled maroon sherd comes from within Unit H, lower part. This maroon paint and also flanged bowls appear at the beginning of the long Acropolis occupation. The latest ceramic types are represented by Alta Verapaz carved orange and gray sherds, some surely, others possibly, surface finds, as everywhere at the site. A fragment of a pottery drum, from Unit B or later, duplicates a form at the time of abandonment on the Acropolis. The ceramics, pending thorough study, can be said to indicate that the Structure R-9 architectural sequence began very early in the history of the site; they tend to confirm the supposition that changes were made before and after 9.8.15.0.0, and that the complex continued in use down to the time of abandonment.

Intermediate types are present, including negative painting, probably from Unit C, and what seems a vestigial flange from Unit B or later. There is good reason to suppose that a major excavation here would produce sherds in reasonable quantity well stratified by building sequences, and very likely with rich early dumps at the bottom.

Four reasonably complete figurine heads, mold-made, were recovered. One, of the large flat Mexicanoid type, was deposited later than Unit Z, presumably in a secondary floor on Unit I. This rare type occurs at the beginning of the Acropolis series and suggests that Unit Z be inserted early in the longer sequence. Two grotesque heads, and a typical Usumacinta head, except for bulging forehead, come from Unit B or later.

Dating

It must be remembered that our use of Stela 25 and 26 in connecting certain units with the Maya Long Count depends on the unproveable assumption that these monuments have not been moved here from somewhere else. Such movement is especially unlikely at Piedras Negras because of the presence of other monuments of the same general period in the same courts.

We have used the presence of a plastered floor to indicate non-contemporaneity with a unit placed on it. Apparently this would be erroneous in the case of free-standing walls at an early period at Uaxactún, and on an early Acropolis horizon here. But one doubts that in building substructure elements a lower one would be surfaced with plaster just before a large part of it was to be buried by the evenly distributed fill of the next higher element, such as Unit F on Unit G, and Unit Z on Unit 1. Our excavations at Structures K-5 and R-3 indicate that working surfaces may or may not develop between lower and higher elements of substructures, but that plastering was done last.

The two series of phases worked out utilize all available stratifications, and we have placed the platform of Stela 25 about in the middle of the longer series, and that unit seems well dated at 9.8.15.0.0. But in this particular assignment judgment and reasoning had to intervene. Building activity on this spot probably began at an undetermined but considerable time before the above Maya date, and extended a considerable but undetermined time after it. But even this vague dating of architectural features cannot be claimed to be absolutely proved.

Function

In considering the use of this complex our artificial grouping of units in two series must be abandoned. From the time of the pyramid on there can be little doubt of the temple function, lower units then combining to form a basal platform. Before this we have no information, since we did not penetrate the pyramid sufficiently to find out what sort of building was first placed on the early platform unit.

It is a reasonable guess that the Supplementary Platform, plain rectangular so far as it survived, supported an earlier building of simple rectangular outline. If so, there may at that time have been a close correspondence with Structure K-5-3rd, except that the platform and temple were of normal size. It remains possible that originally there was an over-size temple building with its platform, later removed from the pyramid, though these could not have been so large as at Structure K-5-3rd. I do not think that any of these possibilities lessen the probability that the pyramid unit was first constructed for temple purposes. This is positively indicated by its Petén style which, at this site, seems to belong to temples only. Petén style elements also appear on the building platform and therefore probably were present on the building. Temple function in the final phase seems guaranteed by the line of column altars, extending from court to building.

Future Work

The almost complete ruin of the pyramid and higher units makes this complex especially suitable for deeper examination. With an anchor in the Long Count and early-to-late ceramics, and a strong probability of encroachment over early wooden-and-daub-clay architecture in the area most suitable for the original settlement, major excavation of this structure, with more extensive sampling operations to its rear, is indicated. Steam baths and palaces with non-vaulted roofs and a new minor type of substructure have already been identified there (Structures S-4 and S-19, S-17 and S-18, and S-5 respectively). The best chance chronologically to relate this intensely interesting group of the Southeast Section to the chronology of the Long Count lies through Structure R-9 (Tables 7.1 to 7.8).

Masonry Notes

Fills

Pure broken rock, Units IZYXGG'C. Also noted in BB'; but elsewhere in Unit B as solid. Infiltration of floor material and surface earth may account for this. Fill stones small in C, probably in X, elsewhere probably medium to large (memory as to size). No excavation was sufficient to detect fill walls, except by luck, and none was noticed.

Walls

Too much ruin and exposure to expect chinking and mortar survival. Notes or photographs justify describing following units as of rough tabular stone of variable thickness: IZYXW and G'EDB. "In-and-out" bonding at

corners of Unit E and on the piers of Unit W seemed quite clear; these were the only outside corners sufficiently preserved to show it.

Concrete

Floors of all periods were presumably concrete: evidenced by surviving layers of crushed stone, except for the exposed Units B and A.

Plaster

Thick gray with white finishing plaster noted on Unit G wall; it had colored the whole fill of Unit A next to it. A fragment of thick gray, with white finishing plaster surface, was found in the crushed stone of the Unit Y floor, where it was settling badly and was buried by Unit X. If found, gray or yellow color should have been noted on Unit G floor, where buried by Unit F, but was not. A fragment of finishing plaster recovered here shows that white finishing plaster was used on the G floor as well as on the wall. Thick yellow plaster was seen on Unit 1, below Z, without discernible finishing plaster; the color of the crushed stone of the lower court floor (Floor 2) was noted as clearly yellow, where seen below Unit G'. There was nowhere any sign of stone temper in the plaster seen, such as occurs elsewhere in this group. The Unit C floor was noted as surfaced with gray mortar.