

Part II A R C H I T E C T U R E

City Planning

Buildings in the great ceremonial centers are grouped about quadrangular courts, as in all Old Empire cities, but they are not here orientated to the four cardinal points of the compass, as in the Peten region. However, many of the buildings, and two whole courts could easily have been so orientated. The Piedras Negras plan thus throws some doubt on the accepted proposition that Usumacinta buildings were not orientated merely because the mountainous terrain made it impossible.

Pyramidal Temples - Stone-vaulted

Four of these were completely or partially excavated, and fall into three groups.

a. Structures 42 (upper level) and 25 are of the common single rectangular room variety, with front doorways only.

b. Structure 44 (which was merely trenched) is probably of the same type, except that it has a narrow rear doorway, centrally placed. This is the only building so far investigated and <sup>which is</sup> certainly a temple <sup>and</sup> which was decorated with modeled stucco inside the chamber.

c. Structure 27 (upper level) is unique, and probably is the composite result of two or more periods of construction. The rear and central rooms are exceedingly narrow, and the rear room is enclosed by relatively thick walls, with a slight off-set on the back wall. The nearest parallel is

at the Peten city of Tikal. But this temple has an open front portico with five doorways, the portico opening at either end into small chambers flanking the center room. This part of the design harmonizes with Palenque temple design.

Temple (?) on Low Platform - Stone-vaulted

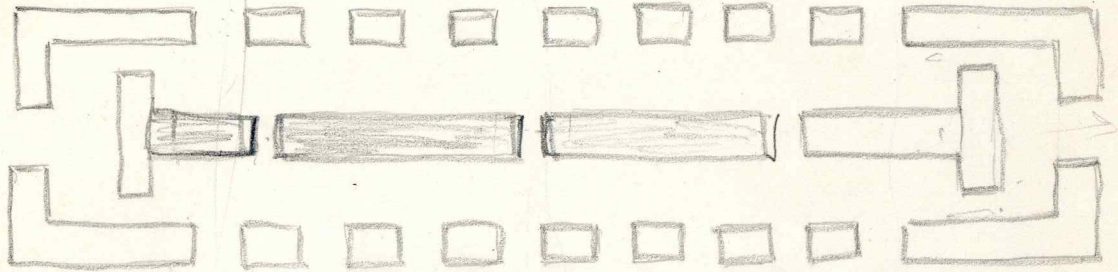
Structure 26 is also unique, consisting of four very wide rooms completely surrounding a low vaulted chamber with a built-up altar, obviously a sanctuary. Parts of the stone vaulting for the large rooms <sup>are</sup> ~~is~~ in place, but the amount of debris was so slight as to raise the question whether these rooms were not largely roofed by timber constructions resting on corbelled stone construction carried up a distance insufficient to be spanned by the usual cap-stones. This combination has been reported only at one city, Tulum, in northeastern Yucatan. Excavation of this building changes radically the plan of it published by Maler and widely reproduced as one of the culminating peaks in the evolution of Mayan temple design.

"Palaces" - Stone-vaulted.

This term is here used without functional significance. It generally means a long vaulted structure, with one, two, three or four parallel vaults, broken up into many small chambers by transverse walls, placed on a platform but not on a pyramid.

The Piedras Negras palaces are only partially true to type. As at Palenque, the transverse walls dividing the

long vaulted galleries into small chambers were originally absent, while much of the outer walls, front and rear, are pierced by so many doorways, spaced at regular and close intervals, that <sup>the</sup> space covered is an open portico. This type



b/ of Palace can no longer be considered unique at Palenque, and may, with further exploration and excavation, prove typical of the Usumacinta region generally.

While on a smaller scale than at Palenque, the Piedras Negras palaces carried the open porch effect to the same degree. The doorways are placed so close together in the thick-walled examples, <sup>that</sup> the section of wall between the openings has become almost a square pier. This has a direct bearing on the present moot question of whether the slender square "column" of Chichen Itza and other Yucatecan cities evolved in the south on Mayan soil (Usumacinta region), or was imported from Mexico in very late times. It fits the recently advanced hypothesis of Thompson that a stream of cultural influence passed northward from the Usumacinta region in Old Empire times, leaving its mark on the so-called Renaissance buildings of northwestern Yucatan.

b/ Some of the Piedras Negras Palaces will probably be found on comparison to equal if not surpass the famous Palenque structures in the matter of relation of cubic wall to cubic

room content. In particular the front piers of Structure 50 are only 52 cms. thick while the portico was 2.90 meters wide, and certainly was spanned by a stone vault.

A/ Those palaces of our acropolis which are double-ranged have transversely placed end rooms, a common Peten feature, absent, so far as we now know, at both Palenque and Yaxchilan. In six of the seven of this type, in addition to a wide doorway in the end wall (front of the room), <sup>the room</sup> /is connected with the front and rear main galleries by small doorways placed as shown in the above sketch. In the Peten region the end room is entirely cut off from the rest of the building or connected by doorways (often only one) placed nearer the center of the room. We may possibly have a local peculiarity in the ground-plan of these end rooms.

Most small interior doorways in Maya buildings were spanned by stone lintels. <sup>At Piedras Negras</sup> ~~Here~~ the architects used a miniature corbeled "arch", a rare feature which has been used to connect the northern Old Empire City of Coba with the Peten region. Such a specific conclusion is no longer tenable. See Photographs Nos. ~~\_\_\_\_\_~~ for these doorways.

A/ Structure 59, completely excavated, shows the above described palace plan in all details. But it <sup>is</sup> very much smaller in length and breadth, and was elaborately decorated with modeled stucco inside, and was set on a substructure very much like a pyramid, on the highest point of the acropolis. This diminutive size and temple position of what would otherwise be considered a typical palace may have some bearing on the real function of the latter class of buildings.

Every acropolis structure has at least been trenched for cross-sections, but of the ten palaces only three (in addition to Structure 59 above discussed) have been sufficiently dug to yield information as to floor-level arrangements. Structure 45 appears to have had no permanent (i.e. imperishable) fittings of any kind. Structure 51 and Structure 46 both exhibit stone benches. The throne of the latter, set in and before a niche, seems to be unique, though there may have been something like it at Palenque. Another unique feature in the same room is a flight of steps across the southerly end of the room leading to a tiny chamber under the vaulted roof. This could have been entered only in a stooping position and complicates rather than simplifies the problem of determining the function of these buildings. Certainly this room was used for ceremonial rather than residential purposes.

Buildings with stone masonry walls but  
with roofs of perishable materials.

Three extremely interesting buildings were excavated during the 1932 season. Structure 1V appears to have been a pyramid temple of the simple one-room type. Its stone walls must have risen at least to door height to support two massive carved stone lintels, one of which was found in the doorway. The paucity of debris, and its character, proved that there had been no stone vault, unless we are to suppose that a great deal of stone was purposely removed in aboriginal times, which is highly improbable. The roof

was almost certainly a timber affair, perhaps thatched, or the flat mortar-on-beam variety known to have been used elsewhere, both within and without the Maya area. The Initial Series date on the only readable lintel, in archaic style glyphs, is 9.5.5.?.? making this building early at Piedras Negras and fairly early among Maya buildings generally.

The third level in Structure 42 was a similar temple, except for its relatively enormous size. The half <sup>which was</sup> excavated indicated a single room about 18 meters by 5 meters, probably the largest Maya room not using interior piers or columns yet discovered.

Structure 51 without question used a timbered roof on stone walls. It is closely associated with two ~~two~~ double-range stone-vaulted palaces, and is identical with them in plan, including the end rooms with three doorways. If it also is early, we must assume there were others like it, torn down to make way for vaulted successors built on the same plan.

The temptation is strong to say that in these three buildings we have good evidence that the Mayas began erecting their elaborate architectural complexes and carved monuments before they had evolved the corbeled vault. All of the known stone vaults at the city are associated with monuments from the middle period or later. If further excavation proves Structure 4 <sup>that</sup> ~~to be~~ <sup>is</sup> typical of the other South Group buildings, where we find nearly all the early dates, a fair case for the proposition will be made out.

This type of construction has been reported at Tortuguero ~~Tex~~ in Tabasco, supposed to be an Old Empire outpost, and at Tulum, on the east coast of Yucatan, where <sup>it is</sup> ~~they are~~ very late. The type can be identified with certainty only by excavation and is easily overlooked, and may have a wide distribution, both in space and time.

Buildings with Low Masonry Foundation Walls.

Structure 55 on Court 3 of the Acropolis was trenched, and Mound A of Group 63 was extensively investigated in 1931. While ground-plans differ, both are characterized by low stone walls which never rose higher than one meter or so, and which presumably supported walls and roofs of perishable materials. Group 63 in this respect and others is similar to buildings recently reported in British Honduras and <sup>as</sup> ~~so~~ far north as Coba. They are very difficult to dig, are unimpressive and probably have been overlooked at many intervening sites.

This type, of those known, is the most logical one for residential use. In Group 63 we encountered three burials beneath the floor, in keeping with the early Spanish statement that Mayans of the time of the conquest buried beneath the floors of their houses. (Bishop Landa). This excavation confirms the statement and indicates that the custom was an ancient and persistent one.

Since our knowledge of the daily lives and habits of the ancient Maya, of their burial customs, and <sup>of</sup> their skeletal characteristics, are especially weak, (this type ~~of~~ mounds of) should be thoroughly investigated. ~~Further work in Group~~

~~Further work in Group 65 was on the 1932 program, but was crowded out by unforeseen and time-consuming developments on the acropolis.~~

Structure with Very Thin Walls of Unkown Height.

The ruin of a masonry structure with walls only <sup>35 cm</sup> ~~.35 meters~~ thick was found beneath the above described building in Group 63. Mayan walls were uniformly very much thicker and it is possible that the use of such light walls may be correlated with buildings of some specialized, and as yet unknown, function. The suspicion is strengthened by the partially made-out ground plan, which involves a small room with a long very narrow lateral dead-end extension.

Pyramids Without Traces of Temples.

The stela-bearing second terrace and great central stairway of pyramid 43 were cleared, and the top was trenched. The top was not flat, as is usual with this rare type of pyramid, but supported a platform which rose in broad steps from front to rear. A by-product of this work was the proof that Maler's Lintel 5 was either not a lintel at all, or, more probably, that it was brought from a demolished building to adorn one of the terraces.

The second level in Structure 42, partially excavated, showed that the wooden-roofed temple of the third level had been filled up and the pyramid converted into a flat-topped structure in all probability without temple walls.

### Platform Mounds

Trenching established the presence of true platform mounds - flatted-topped low sub-structures devoid of remaining evidence of former buildings upon them. One (Structure 55) bounds the nouthery side of Court 3 of the Acropolis, which has on the others two stone-vaulted palaces and a stone foundation-wall building. Whatever the function of these simple platforms, they were able to keep good company.

### Unclassified Ceremonial Structure.

Structure 24 was completely cleared. It is a squarish platform of no great height, with a low wall or sill at the back. It may or may not have supported a wooden building. Ranged against it at the back were seven small drum-shaped altars, while thirteen more were scattered in two confused groups on its surface. Parts or wholes of five more had in all probability fallen or been thrown from it.

The altars on the platform had evidently been disturbed in aboriginal times, for one of them was used in constructing a stone cist near the center of the platform. The cist contained a small rectangular block of stone, carefully worked, with rounded edges, which was set carefully on end. Small bits of burned bone and a human tooth were found nearby.

The cist was obviously secondary, and since the altars were permitted to lie about in confusion, it may be provisionally assigned to a date following cessation of

elaborate ceremonies in the East Group, which contains most of the late dates. Its presence may be used as a very slight support for the thesis that the downfall or exodus of <sup>the</sup> ruling priestly class at the end of the ninth cycle did not involve the abandonment of the region by the lower classes; or it may be attributed to very much later wandering tribes such as the Laccondones, who we know were burning incense in the ruins of the Acropolis in modern times.

### Ball Courts.

Until 1928 the ball-game was supposed to have been first introduced to the Mayas by the Mexicans, and that in very late times. With the identification of numerous ball courts in the Old Empire came the discovery at several courts of a new feature - a row of three drum-shaped sculptured stones, set flush with the pavement in the center of the alley between the twin structures which characterize all <sup>known</sup> ball courts. At Yaxchilan, during our 1931 season, two additional drums were found in the center of the side platforms. Only complete excavation of most of the surrounding playing field, as well as the structures themselves, could determine the minimum number and the positions, of the stones, and this must be known before we attempt to determine their function. We undertook this excavation in 1932.

The South Group court has the stones in the alley but not the stones on the platform; there were no permanent markers in the southern playing field, nor in the large part of the northern field which was cleared. Sculptured panels (one at least bearing glyphs) were let into the main slope of

each structure, near the center, which may be compared with panels at the ends of the Coba Old-Empire court. Partial clearing of the West Group court indicates that there were no marking stones in the alley. We have thus furnished further evidence of the wide distribution of the three alley stones, but they seem not to have been essential to the game. If they ~~discharged~~<sup>fulfilled</sup> a necessary function, this was discharged in some cases by markers of wood or other perishable materials. We identified minor features of structure design which may or may not prove useful in working out their evolution.

The design of the structures, in those features which are obviously functional, is identical with all others reported from the Old Empire, except that the side platform at the West Group has a vertical instead of a sloping face. This, so far as we know, is unique and important, for it will have to be considered in any future attempt to determine just how the game was played.

#### Megalithic Stairways.

A total of five stairways, the lower steps of which are built of very large cut-stone blocks, have been identified. In each case the megalithic flight is flanked by shoulders on either side, and smaller built-up steps carry the stairway up from the rear of the terrace thus produced. The large stones were cut so that the treads slope upward and inward, and the risers were battered. This we believe has been hitherto unreported and helps to establish these stairways as a distinct type. They are associated with early, middle and late monuments.

Megalithic stairways have been reported in British Honduras (Lubaantun) and at Coba. It is apparent that they are not peculiar to the eastern cities, as has been suggested.

### Miscellaneous Features.

Small remaining portions of the upper zones of several palaces indicate the use of a vertical upper zone as in the Peten cities, <sup>as well as</sup> ~~and~~ the steeply sloping upper <sup>characteristic of</sup> zone, ~~as~~ <sup>of</sup> at Yaxchilan, rather than ~~the~~ <sup>where the slope is not so steep.</sup> Palenque, ~~type~~.

Again we have a hint of the fusion of Peten and Usumacinta influences.

Structure 57 has a deep triangular niche let into the vault, in Palenque style.

Practically all buildings investigated rest on a small projecting plinth or step. This has been labeled as peculiar to late Tulum buildings, but it is found not only here, but in many other early and late cities.

### Function.

Our excavations confirm the accepted view that pyramids, whether crowned by temples or not, were erected for ceremonial purposes. The sanctuary of Structure 27 was fire-blackened and the floor filled with caches; large quantities of potsherds were found in the sanctuary of Structure 26, and there were platform altars in each rear room - facts which may indicate that this was a temple though not on a pyramid; All three levels of Structure 43, <sup>both pyramids</sup> ~~a pyramid~~, and Structure 4, ~~another~~, contained worked

✓ cylindrical stones, in the first three instances still set on end in a central position; there was elaborate stucco decoration inside Structure 44, another pyramid; large flint knives (sacrificial?) were found at the bases of Structures 27 and 43, both pyramids.

The design of the "palaces" renders them much less suitable for residence than the multi-chambered structures of other cities. The presence of an elaborately carved throne in "palace" Structure 46, at the head of a great ornamental stairway, makes it quite certain that in its final form this part at least ~~of~~ served a public or semi-public function.

The palaces were to a considerable extent later cut up into a few long rooms by the addition of secondary transverse walls, and by filling up doorways. This remodeling appears to have been done more or less at one time, and may have been intended to make the buildings more habitable.

The probable residential character of structures with mere low foundation walls of stone has been discussed above. The countless low mounds surrounding the ceremonial centers in all probability contain many such remains, and it is there that the bulk of the noble or priestly class must have lived.

#### Constructional Details.

There is little cut stone used in Piedras Negras Masonry, except at corners, where heavy blocks were often cut for use as binding stones. Wall stones are roughly

squared blocks or slabs, and are set in mortar like bricks. In the best walls a liberal use of broad flat slabs tailing deeply into the wall gives great solidity.

Vaults are built by corbeling with flat slabs in mortar.

Under the stairways of Structure 43, special sloping retaining walls were built over the terraces to hold in the fill supporting the steps. So far as we know, this has not been reported elsewhere.

Offsets at the spring of the vault are common. In several instances they are present at one point of the wall, but gradually disappear further along the same wall. This is additional evidence discrediting the old theory that the offset resulted from the use of wooden forms in erecting the vaults. Several vaults examined could have been erected without use of temporary forms.

The preservation of mortar used in masonry varies greatly. In many cases it is still very hard, especially where it has not been buried, and its quality was therefore of a high order. The mortar of floors is usually entirely disintegrated unless protected by fallen debris; but a concrete cap on the platforms of the Southern Ball Court was remarkably well preserved, with no protection whatever.

Platform and pyramid fills are of broken stone and nothing else.

Building methods here can be clearly marked off from those of the New Empire structures, and to a lesser extent, from other Old Empire regions. There is here no hint of a wall of rough rubble and mortar merely faced with a veneer of cut stones, as

N/ E/ in New Empire and to a certain extent Old Empire buildings (the Peten and Copan). The new empire specialized boot-shaped stone for facing vaults is unknown.

The mortar and rubble fill for platforms and pyramids, so common in the new empire, is entirely absent. Pure rubble fills were however in some cases at least laid up in sections, furnishing a possible analogy to the block construction of some rubble and mortar platforms at Chichen Itza.

The absence of cut stone gives the Piedras Negras masonry a rough and crude appearance, but this was entirely concealed beneath a thick coating of plaster. With their deeply-tailing stones they were probably stronger and more lasting than the rubble-and mortar variety, and the plaster coating would cling more tenaciously to a rough wall than to a smooth one. We have no reason to consider the masonry here inferior to that of other regions, though it was easier to construct. Perhaps the difference resulted from the availability of suitable stratified lime-stone.

#### Periods of Construction.

Demolition or burial of temples, palaces, ball court, platforms and other structures to make way for new ones has been established in early, middle and late parts of the city. One temple (44) and most of the palaces were radically changed as to ground plan by secondary walls. In addition we have established a fairly common habit of breaking up or re-using dated monuments as building material. Such is the case with the earliest known monument of the city (Lintel 12). It follows that the city may be much earlier than the earliest

dates which happen to survive. The chance of establishing a stratified architectural sequence appears to be as good here in the Usumacinta region as it has already proved to be in the Peten (Uaxactun) and in the New Empire (Chichen Itza).

B U R I A L S - M O R T U A R Y C U S T O M S

The Graves

Eight burials have thus far been uncovered. For such a small series they show an astonishing variety of features.

a. Burials Nos. 1 and 5 were in stone vaults, the first small, bottle-shaped, simple, built beneath the floor of the supposed residence in Group 63; the second very large, rectangular, with a bench at the foot end and two large niches in the side walls near this end, the whole built within a large terrace bounding one side of Court 1 of the Acropolis.

b. Nos. 2 and 3 were in simple slab-covered cists, only about 20 cms. deep. These were also below the floor of the residential mound in Group 63.

c. No. <sup>4</sup>~~5~~ was also found under stone slabs, probably the cover of a similar stone cist, but placed just under the floor in the center of the alley between the twin structures of the West Group Ball Court.

d. No. 6 was in a cave far up the hill-side behind Pyramids 27 and 42. A slight depression in the rock floor may have been artificially prepared for the body, or it may have been natural. There was no other artificial preparation of the grave.

e. Nos. 7 and 8 were placed a few centimeters below the surfaces of the plaster pavements and along the walls of Pyramid 4 and the platform adjoining on the east. They

were placed within the floors, not under them. The head only of No. 7 was protected by a cist construction, while No. 8 had no protection other than the plaster of the floor itself.

In four<sup>of</sup> our eight examples (three cists and Vault No. 5) it is certain or highly probable that no earth was allowed to touch the body, and this was presumably the primary function of stone grave structures. The same remarks apply to the head portion of Burial No. 7.

The cave burial No. 6 may have been covered by the shallow deposit of cave earth found over it by natural post-burial agencies; or it may have been covered at the time of burial. Contact of the bodies of Nos. 7 and 8 ~~was~~ with the floor material was inevitable, granted their position and the failure to provide protecting structures.

It is surprising to find the only<sup>certain</sup> instance where the remains were directly and purposefully covered with earth, is that of No. 1, for which the second largest and most elaborate stone grave structure yet encountered was built.

The cave burial cannot be considered especially early, as with<sup>it</sup> were found two bone tubes beautifully carved with the serpent motive, <sup>in Mayan style</sup> in an advanced style. All the other burials are directly associated with buildings of the city, and all, as a working hypothesis, must be considered as resulting from roughly contemporaneous mortuary customs.

Detailed comparisons with burials at other sites have not as yet been made. There is no hint in either vault of the

entrance passages, stairways, or ante-chambers found at Palenque and other Usumacinta sites; but valid comparisons cannot be finally made until we have more examples at Piedras Negras.

### Physical Characteristics

Little can be said on this score as yet, because the skeletal material recovered has not been assembled, nor submitted to physical anthropologists.

We have five adult skulls which when restored should be more or less complete, one of them pertaining to a more or less complete skeleton. A nearly complete child's skeleton (except for cranium and foot-bones) was sent to Guatemala. Data on long-bones and other bones of two other children and three other adults can be obtained, but none of these skeletons is complete. The state of preservation varies from almost complete decay to complete preservation, depending on the method and position of the burial, and the accidents of time.

From field observations we can say that stature was short; incisor teeth were shovel-shaped; extreme deformation (flattening) of the forehead was practiced; and in one instance there is evidence of a <sup>i</sup>disease of the bone. All these character<sup>istics</sup> are in agreement with finds in other parts of the Maya area.

### Position of the Body

The principal subject of all burials so far encountered was extended, probably in each case on its back, except in

the case of Burial No. 1 , discussed under "Secondary Burial?". None were flexed. Orientation varies and seems to have been determined by convenience, except that all three graves under the supposed residence headed toward the rear of the house (north-east).

### Secondary Burial ?

Burial No. 1 was in a stone vault. Pelvis and femora~~s~~ were articulated; tibiae were displaced but below the femora~~s~~; the skull was in about the correct position with reference to the pelvis for a primary burial, extended, lying on the left side. However, most of the other bones were massed above the head, with some general scattering through the grave, from one end to the other. Disturbance after burial is almost ruled out by the presence of a deep deposit of stiff clayish soil, thrown from above and covering the bones as found. We have here a suggestion at least of a type of burial in which disarticulated major bones are laid out roughly in their true relations. Contributory evidence is the absence of all but seven teeth, the latter being perfectly preserved and belonging to a person of no great age. The observed facts could also be explained if we postulate the burial of a partly ~~demolished~~ dismembered corpse. This assumption would not be preposterous, since we know that human sacrifice was practiced at this city.

The main subject of Burial No. 5 presented a well articulated skeleton; yet the upper surfaces of nearly all the bones were painted a bright red. If this was a

primary burial the bones were painted after the decay or removal of the flesh; it may have been a secondary one, in which all the bones were carefully re-articulated when placed in the vault. It is to be compared with the red-painted bones found in the elaborately decorated tomb at Comalcalco, to the northwest, which also contained large numbers of cut and perforated shell plates, of the same type as those found here. In both cases there were traces of red paint on the plates, but here the plates were not near the skeleton, and could have had nothing to do with the coloring of the bones.

#### Multiple Burials - Mortuary Sacrifice ?

A small chamber opened into the main unit of cist-burial No. 3, giving the whole the shape of the letter "T". The larger chamber contained the remains of an adult, the smaller those of a child.

Fragmentary human bones and teeth of an adult were encountered just behind and among the stones of the vault of Burial No. 1 ; the partial remains of two children were found with Burial No. 5 in such positions as to indicate that either the mere bones, or more probably the mangled and incomplete bodies were thrown or placed at the feet and across the abdomen of <sup>the</sup> principal subject of the burial. The latter was obviously of high rank.

#### Dedicatory Sacrifice ?

Finding Burials Nos. 7 and 8 within plaster floors

and against the outer walls of substructures raises the interesting question of the possible existence of human sacrifice in connection with dedication of buildings. In neither case were any objects found with the bodies; the teeth were not inlaid; in one little, and in the other no effort was made to protect the bodies from the plaster laid over them; nor was there any other indication that this may have been a place of honor.

Unfortunately we cannot say with certainty <sup>h</sup>wether or not the floors were broken into for burial purposes after they were laid. The floor containing Burial No. 7 was a secondary one laid over that originally pertaining to the platform along which the body was placed. Other examples must be sought before the significance of this type of burial can be understood.

#### Mortuary Food-Offerings?

Fragmentary bones of a small rodent (species not identifiable) spread out on a flat surface within the clayish soil covering Burial No. 1, and an orange-ware plate below the feet of Burial No. 5 suggest food-offerings.

#### Inclusion of Objects.

It is apparent that roughly contemporaneous burials were made both with and without the inclusion of valuable objects of an imperishable nature. The distinction probably rested, in part at least, on the wealth or rank of the deceased, but other factors, such as age and sex, sacrifice

and so forth must be considered before the complete story of burial customs is worked out.

No objects of any kind, useful or ornamental, were found in the vault of No. 1, while that of No. 5 was extremely rich in carved and inscribed jadeite, shell, <sup>a/</sup> haemetite (possibly iron pyrite) and other jewelry, amulets, mirrors, and objects of ceremonial value, such as the sting-ray spines, which here, like some of the jadeite and shell, were inscribed with <sup>9</sup> hieroglyphs. The cist-burial No. 3 was entirely devoid of objects, while the body in the nearby cist of Burial No. 2 had been decorated with a modest number of unpretentious jadeite and shell beads, and two shell ornaments, probably labrets. With the cave burial No. 6 were found only the two beautifully carved bone tubes mentioned above. No objects were encountered in the <sup>B</sup>all Court or floor burials (Nos. 4, 7, and 8).

It is apparent that no correlation between the careful preparation of stone grave structures (whether vault or cist) <sup>an</sup> and the placing of objects therein is to be expected; though we may still expect valuable objects (both from the aboriginal and the modern scientific point of view) in large and elaborate vaulted tombs, when found. This is important, since we know it was the practice in this and in the other regions of the Old Empire. The protection afforded by the tomb makes it the <sup>best</sup> source for well-preserved objects as a basis for studies of the minor arts. The range in materials, types and probable functions of the objects found in the vault of No. 5 is without much doubt the largest yet reported. Because we must base our advance <sup>if</sup> knowledge

of unwritten history largely by the associations of the elements encountered, a maximum of information may be expected from other tombs of this type at Piedras Negras.

### Tooth Decoration.

2/ Finding filed ~~and~~ teeth, and teeth inlaid with circular disks of jadeite or hæmetite, increases the known early and wide distribution of both practices.

In the case of Burial No. 5 no less than fifteen teeth had been drilled for the inlay. We believe this is the largest number of decorated teeth yet reported as having belonged to one individual. We were fortunate in finding all possible teeth except two molars and one a/ lower cuspid; eight jadeite and one hæmetite disk were in place; an additional jadeite disk had fallen out after burial. The sides of the latter retreat slightly from the exposed face to the flat back and may afford a clue to the exact process of making the inlay.

a/ Jadeite and hæmetite inlays were found together in both burials Nos. 2 and 5. In the latter case we know that both materials were used in the same jaw, though not in m/ positions to yield a symmetrical pattern. In the case of the right upper jaw the decoration extended over the five teeth from the right incisor to and including the second bi-cuspid, that is, clear back to the molars. If this decoration had been carried to the same extent on the left upper and on both sides of the lower jaw, not a visible tooth would have been undecorated. The deceased was young, and this may have very likely been intended. Had he lived to a more advanced age, possibly he would have eventually inlays in every one of the twenty teeth which he could readily show to an admiring world.

not only worked into ornaments, but as complete shells apparently of independent value; and the presence of four clay representations thereof. Complete natural shells were found in nearly all the caches.

This early contact with the sea definitely proves nothing more than trade relations extending to the coast, but the ceremonial flavor which is added by the artificial sting-ray spines and shells fits nicely into the theory of a very early migration from the west along the gulf coast.

Burial 5 shows an extensive use of baked clay, slipped and painted, in making large beads and other ornaments; hitherto unreported forms of jadeite, haemetite and shell furnish ~~valuable~~ material, for comparative purposes <sup>as</sup> ~~when~~ Maya burials <sup>become</sup> ~~are~~ better known. <sup>which will be increasingly valuable</sup>

Most of these belong to the category of personal ornament. One jadeite bead preserves the natural form of cylindrical beads cut from a marine univalve shell and is another echo of the sea.

Two objects, a beautiful jadeite figurine, and a bone image of the Moan bird, were in all probability amulets. The first is of a distinct type found elsewhere and thus important when found here; finding the second in a burial strengthens the association of this bird (probably a horned owl) with death. It is the sign of a Maya month, however, and may have to do with the birthday of the deceased (a very important matter), or with his particular priestly duties.

Not an object of common use was discovered in this (or any other) grave, except a pottery dish, a small flint

knife and two small jadeite objects which may be provisionally considered as knives or scraping tools. Each has a sharp curved edge and a concave back which fits the thumb. Being asymmetrical, they are complementary, as if one was fashioned to fit the left, the other the right hand. Even they may have only a symbolic significance. Possibly they are stylized representations of animal or bird claws. They are very well made.

We were very fortunate in finding with Burial 5 no less than three separate sets of inscriptions; those upon the sting-ray spines (only partly legible); one on the back of a jadeite jaguar head; and another spread over four units of what we believe ~~was~~ <sup>which embellished, send to provide</sup> a cloak richly

<sup>men's</sup> embellished <sup>with</sup> plates cut from the marine thorny oyster.

*for a cloak*

The last two inscriptions are perfectly legible. That on shell has already yielded <sup>a</sup> secondary series date and we hope when fully deciphered will furnish a date fixable in the Long Count and so establish a probable maximum date for the burial.

The shell inscription comprises 34 glyph-blocks, many with two glyphs each. Finding calendric inscriptions on grave furnishings of these relatively imperishable materials opens the possibility that graves, in this region at least, may greatly augment our texts from the stone monuments. And perhaps when fully deciphered they may be found to treat of a different sort of subject matter. Further comparative study in advance of decipherment should determine the latter question.

So far as we know, shell plates of this description

(though not inscribed) have been encountered only in a depression in the floor of the Caracol at far-away Chichen Itza, and in the elaborately decorated Burial Vault at Comalcalco, on the western periphery. Their wide and general distribution may accordingly be strongly suspected.

M I S C E L A N E O U S O B S E R V A T I O N SWarfare ? - Insurrection?

It has generally been assumed that the Old Empire Cities were peace-loving, and that they quietly abandoned their cities, more or less at the same time, for some such reason as exhaustion of the soil, pestilence, change of climate and the like. Only very recently has attention been paid to Piedras Negras stelae depicting captives, soldiers, and in two instances actual human sacrifice, which in later times in Mexico was the natural function of war.

Three of our excavations have a direct bearing on the problem of human sacrifice and war (though the two may here have been un-related). Large flint knives suitable for sacrificial purposes were found scattered along the center of the stela-bearing terrace of Pyramid 43, in such positions that they must have fallen from above, where the sacrifice took place in Mexico; and others of a slightly different type were found near the large round Altar 5 before the pyramidal temple 27.

The many fragments of the throne of Str. 46 (except the first two encountered and the very tiny pieces) were carefully cleared and drawn and photographed in position. When these positions are compared with those they must have originally occupied (found by fitting the pieces together) the conclusion is irresistible that the throne was forcibly torn down, broken, and the parts scattered about on the

floor while the roof was still standing. There is less certain evidence that the building itself was partially destroyed by human agency, presumably at the same time. Certain it is that the building was not thereafter used for religious or royal functions, or the wreck of the throne would not have been left on the floor where we found it.

We believe this is the first definite archeological evidence, so far reported, apart from the more or less abrupt cessation of dated monuments, which can be used in formulating hypotheses to account for a sudden "abandonment" of the old empire cities. It fits well into the theory which has been timorously advanced that they were not suddenly abandoned at all. The enormous and wretched class of slaves which must have existed to make possible the erection of the stupendous architectural piles which we find in such numbers may have suddenly turned on their rulers and put an end to dated stone monuments and the tyranny they must have represented. Then, deprived of the expert guidance and organization to which they had been accustomed for centuries, their numbers would have naturally dwindled, and the learning and culture of their former masters would have rapidly faded, perhaps to be finally extinguished by the Spaniard, as it was in Yucatan; perhaps to die even before that with the death or expulsion of the last representatives of the ruling class.

Position in Maya Culture-history

We have made but a beginning in the comparative study of the cultural units thus far encountered at Piedras Negras. They are in perfect agreement with the deduction made long<sup>ago</sup> on the basis of monuments and surface indications, that fundamentally all the Old Empire cities were a cultural unit, with Copan and Quirigua in the east, the Peten cities in the center, and the Usumacinta cities in the west forming distinct subdivisions.

Our work greatly strengthens the proposition that these sub-areas can be further split up on the basis of characteristic details. However, this side of the picture may be greatly distorted by our lack of detailed information for other Usumacinta cities. Many features now apparently unique may be actually quite common.

This situation well illustrates the crying need for the intensive excavation of one type-city in each sub-area, to give a complete picture. We will then know what to look for, and where, in the other cities. Not until then will we be on solid ground in tracing the origins, rise and fall of the Mayan cities, and their inter-relations in the process.