

## RECONSTRUCTION AT THE MAYA RUINS OF SEIBAL (\*)

### BACKGROUND OF SEIBAL

The archaeological site of Seibal rests on several steep hills on the left bank of the Pasión River, 16 kilometers above the village of Sayaxché, in the south-central portion of the Department of Peten, Guatemala. The ruins lie a short distance in from and just above the great bend in the river. This is about 100 kilometers from where the Pasión joins the Salinas to form the Usumacinta River, which then flows north into the Gulf of Mexico. From Seibal one would have to travel well over 100 kilometers to the south, upstream on the Pasión River, before reaching the foot hills of the Guatemalan highlands. Lake Peten is about 60 kilometers to the north with the great ruins of Tikal 40 kilometers north of the lake. The surrounding country is an intermittently flat and hilly limestone plain covered by tropical rain-forest. It is the land of the ancient Maya civilization to which the Seibal ruins pertain.

As far as is known the first settlers arrived in the southern Maya Lowlands, an area roughly consisting of the Peten, British Honduras, and the upper Usumacinta, Pasión, and Salinas river drainage, during what has been called the Middle Preclassic Period. This period begins at about 1000 B.C. and continues until about 300 B.C. Little is known about these early settlers except that they were almost certainly village maize farmers with a well developed knowledge of pottery making. By Late Preclassic times, 300 B.C. - 0, these ancestors of the Maya had developed temple or ceremonial architecture. An example is at Uaxactun where there is a rectangular plaza with buildings on four sides, the one on the west side being a truncated pyramid with stairways on four sides. The ceremonial center continued to develop through the Protoclassic Period, 0 - A.D. 300, and into the Early Classic, A.D. 300 - 600. At this time the ceremonial center had grown in size and became much more complex. From the relatively simple plaza of Preclassic times

the ceremonial center developed into large groups of buildings surrounding courts and plazas. In some cases groups were connected by causeways. Sculptured stelae and altars were erected in plazas and placed on buildings. The corbelled vault came into use as a means of roofing rooms. In fact the basic principles of Maya architecture and civic planning had taken shape. In the succeeding Late Classic Period, A.D. 600 - 900, there was further development. The size of sites increased and more and greater monumental buildings were constructed. The ball-court was added to the type of structures used in Early Classic times. No site of any size was without one or more such courts, the game being of great ceremonial importance. Classic Maya sites were not urban, containing concentrated population. They were ceremonial centers, civic and religious. Rulers and priests may have and probably did live in these centers, but the vast majority of the people lived around the centers in family groups and farming communities. The beginning of the Postclassic Period saw the collapse and abandonment of the cities of the southern Maya Lowland area.

Seibal played a long and interesting part in the development of the Maya in the southern lowlands. It was first settled in the Middle Preclassic Period around 800 B.C. This occupation is as early as anything that has yet been found in the Maya Lowlands. Almost certainly these people were village or hamlet-dwelling maize farmers who established small villages or hamlets on the hilltops. These were marked by simple architecture; small plaster-covered platforms may have been in use, but even this is uncertain. The original homeland of these settlers is unknown although there is evidence that they came from either the Olmec country of the Mexican Gulf Coast lowlands or from the Guatemalan highlands. In the latter half of the Middle Preclassic Period (ca. 600 - 300 B.C.) there was an increase in the population and size of the site. Small stone and plaster constructions were being built although there is no evidence for large ceremonial buildings.

During the Middle Preclassic Period the occupation of Seibal had for the most part been confined to Group A, the eastern of the three main groups at the site. During the Late Preclassic Period (ca. 300 B.C. - 0) the settled area of Seibal increased in size. It not only occupied the areas it had during the earlier period, but also Group D, the western of the main groups. Throughout the Peten this was a period of notable ceramic uni-

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Fig. 1. — Northeast corner of Structure A-3 before excavation.

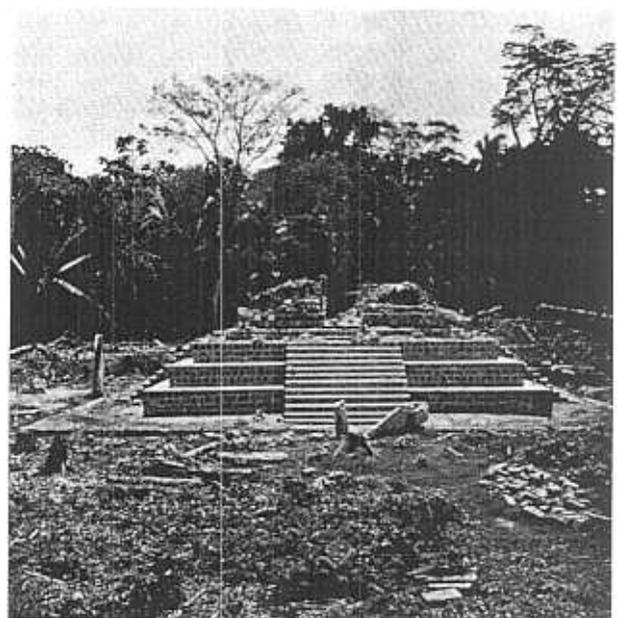


Fig. 2. — West side of Structure A-3 after clearing the mound. Excavation has just started.

Fig. 3. — West side of Structure A-3 at end of excavation.



Fig. 4. — West side of Structure A-3 during reconstruction.



formity. It was a period of the first building of large ceremonial platforms, and Seibal shares in this for the first major structures at the site date to this period. It is clear that Seibal was now participating in the general Late Preclassic cultural trends of the southern lowlands.

Rather strangely, although other sites were growing and developing art and architecture, Seibal shrank in size, and probably importance, in the Protoclassic Period (ca. 0 - A.D. 300). This decline continued during the succeeding Early Classic Period (ca. A.D. 300-600). The site was apparently semi-abandoned at this time. It was no longer a major center as it had been in the Late Preclassic Period.

Seibal began to grow again and to achieve some importance as a ceremonial center in the early centuries of the Late Classic Period, about A.D. 600 - 800. During this time a great deal of building was carried on in Group D and it became an important part of the Seibal ceremonial complex. New buildings were also erected in Group A at this time.

The final occupation of Seibal and the site's most brilliant architectural and sculptural period was from A.D. 800 to about A.D. 930, the beginning of the Postclassic Period. It is this 130 years that marks the emergence of Seibal as a major ceremonial center, and Group A became its important constructional nucleus. It is here that the late carved stelae are found, a number of which rank among the most beautifully carved in the Maya area. During this final phase at Seibal important foreign influences, and probably foreigners themselves, arrived at the site. These foreign influences are seen in architecture, pottery and in some of the stelae, especially these dating to and after A.D. 850. The distinguished rulers or leaders depicted on these stelae look more like Mexicans than Mayans. These foreign influences which were superimposed upon and blended with the culture of the resident Maya probably came from the east and the north, that is, from the Gulf Coast Tabasco-Campeche area. It may well be that these foreigners contributed a great deal to the abandonment of the southern Maya Lowlands.

The Seibal Project was under the auspices of the Peabody Museum, Harvard University. It was a five year project begun in February of 1964 and terminating in May of 1968 at which time the project camp was turned over to the Guatemalan Government. Work at the site was carried on for three months of each of the five years, February to May. The first year's work was confined to building the camp and mapping the ceremonial center of Seibal. During the remaining years the mapping was extended to include small structures and mound groups well beyond the main ceremonial groups, excavation was carried on in the ceremonial groups and outlying buildings, the ceramics recovered were studied, and reconstruction of two buildings and mending of and erection of broken and fallen monuments undertaken. Operations of the Seibal Project

were made possible by generous grants of the National Science Foundation of the United States, by funds of the Bowditch bequest, and financial gifts from various friends of the project.

Although the actual discoverer of the Ruins of Seibal is unknown, it was probably found by a mahogany-cutter employed by the Hamett Mahogany Company around 1890. In 1892 the Government of Guatemala sent Frederico Artes to Peten to obtain material for the Guatemalan Exhibit at the World's Columbian Exposition in Chicago. He decided on monuments at Seibal. The beautiful casts made from molds of some of the finest stelae, resulting from this expedition were displayed at the Exposition in 1893 and brought the attention of archaeologists for the first time to Seibal. In 1895 and in 1905 the site was visited by the Swiss explorer Teobert Maler. The results of these visits were reported in a memoir of the Peabody Museum (Maler, 1908). In 1914 and 1915 the distinguished Maya epigrapher Sylvanus Morley made brief trips to Seibal to study the monuments and their inscriptions (Morley, 1938). Several other visits were made to these ruins, one by Dr. Barnum Brown in 1948, and by members of the Peabody Museum, Harvard University Altar de Sacrificios expeditions in 1961, 1962 and 1963. However, no extensive work was undertaken until 1964 when the Peabody Museum five year program was started.

## DESCRIPTION OF SITE

The nucleus of the ruins of Seibal covers a little over a square kilometer and consists of three major groups of structures, an area a great deal larger than had been originally imagined. As mentioned before, the structural groups lie along a ridge and hill system that rises over 100 meters above the level of the river. Beyond the perimeters of this main part of the site are numerous small outlying mound structures, house-mound groups in which the people lived. These small structures, dotted at intervals of 50 to 100 meters apart, extend out a considerable distance into the jungle and have been systematically explored, the area covered being between 15 and 20 square kilometers, about 2,5 kilometers to the north and south of the central ceremonial zone and 4 kilometers from the river westward.

Seibal is a major ruin of the ceremonial center type. Its principal features are flat-topped pyramidal mounds topped with the remains of stone walled structures. Some of these are of the square, steep-sided sort, generally referred to as temple mounds. Others are of the long, low palace platform type. In addition to these mounds, which are arranged around plazas or open courtyards, there are two buildings which were used for the ceremonial ball-game. Although there are a good many small, so-called house-mounds within and



Fig. 5. — Southeast corner of Structure A-3, reconstructions having been completed.

around the edges of the main site, these are by no means dense enough to consider that Seibal was a true city in the sense of being a compact urban zone.

In its strategic position, situated well above the river, Seibal's location may well have been chosen with an eye to defense, especially in Group D, which is surrounded by deep ravines. However, this can not be proven as no definite structures have been identified as fortifications or defense-works. The three largest groups, Groups A, C and D, are connected by a system of artificial causeways. These causeways are faced with stone masonry and in many places are edged with parapets. Group B is a small outlying complex some 3 kilometers distant from the main center.

The causeways linking Groups A and D meet in a little crest halfway between these two groups. In the center of the court there is a low platform supporting two stelae. Group A, at the west end of the western causeway, Causeway I, is actually smaller than Group D, although it has most of the sculptured monuments at

the side. It has over fifty mounds or building platforms, most of which are arranged around these plazas. The largest and highest structure at the site, Structure 10, a temple-type pyramid, rises 28 meters. Group D, at the east end of the east causeway, Causeway III, numbers over 70 structures and is the largest of the Seibal groups. It is much more compact than Group A, its various mounds being cramped around five plazas and various courts. Only one monument, a plain stela, was found in Group D. It was in the main plaza of the group in front of a terrace supporting a stepped pyramid 20 m high, one of the tallest buildings of the site.

A third causeway, Causeway II, takes off to the south from the little plaza at the juncture of the causeways leading to groups A and D. Extending southward for over 400 m, it passes through Group C, consisting of 40 mounds, to terminate at a circular terraced platform, Structure 79, in front of which is a large altar with carved jaguar head.

Two buildings were completely excavated and reconstructed at Seibal during the investigation carried on in the ceremonial center, Structures A-3 and 79.

#### EXCAVATION AND RECONSTRUCTIONS OF STRUCTURE A-3

Structure A-3, situated in the center of the South Plaza of Group A (fig. 12), although unimpressive in size, is the best known building at Seibal due to its association with the extraordinarily handsome stelae found at its base, one on each side. Discovered in the last century, both Artes and Maler mention this mound and the stelae at its base. The stelae are amongst the casts made by Artes and exhibited at the World's Columbian Exposition in Chicago in 1893. Maler described and illustrated them sixty years ago (Maler, 1908).

The excavation of Structure A-3 was started in February of 1965 and finished by the First of May of that year. However, before digging could be begun the mound had to be cleared of the tall trees that were found growing on it (fig. 1). Some of the trees were over 30 m high and great care had to be taken in guiding them with ropes when they fell so that they would not damage the stelae at the base of the mound. Once the trees were removed and a large area cleared around the base of the building, excavation was started. Pits were dug through the plaza floor at the base of Structure A-3 on its east and west sides to see if any floors were present that might indicate possible early constructions inside the mound. Several floors were found and although one 80 cm below the plaza floor continued under Structure A-3, no inner building was associated with it.

The mound was completely excavated and pits were dug through the floors of the rooms and trenches cut into its east, south and west sides in hopes of finding an early building or a tomb. None were found but a cache of three large jade boulders was recovered from under the stela in the central room, Stela 21 (fig. 23). Also a rough interior structure was discovered, a three terrace pyramid with a stairway on its east side. It was made of large unworked stones set in mortar and served as retaining walls for the inner fill of loose large rough stones. Between these retaining walls and the walls of the outer pyramid was a hearting of small stones and mortar against which the well cut stones of the latter were laid.

Figures 2 and 3 show Structure A-3 at the beginning and end of excavation. It consists of a truncated pyramid supporting a temple. The pyramid rises in three vertical terraces to a height of 3.20 m above plaza floor. At its base it measures 17 m square; but an additional low platform was added which increased these measurements to 25 m on a side. Four projecting stairways, one on each side, lead from the base to the summit which supports a building platform 50 cm high and 11 m square. In front of each doorway into the



Fig. 6. — North side of Structure A-3 after reconstruction.

Fig. 7. — South side of Structure A-3 after reconstruction. Notice stela in central room.



temple there is a step, a little longer than the breadth of the doorways, built against the building platform. From the building platform one steps up 25 cm into the temple. A plinth, set back 50 cm from the building platform and rising from it to the height of the temple floor, projected out 5 cm from the base of the temple and extended around it. Above this the walls rose 2,5 m to the height of the medial molding, a single member molding cut on a level. No wall remained above the medial molding but originally it undoubtedly rose vertically about another 2,50 m to the top of the building.

The temple had three rooms roofed by means of the corbelled vaults, the sloping upward and inward of two walls until normally they came within about 20 cm of each other at the top, where they were bridged by capstones (fig. 8 and 9). The height of the room from the floor to capstones was 3,75 m. The rooms were arranged parallel with their long axes north and south. The middle room was entered by doorways at its north and south ends. These doorways were centered above the north and south stairways of the pyramid. The east and west rooms were entered by centrally placed doorways which were centered above the east and west stairways. The east and west rooms were connected with the central room by doorways. In the center of the central room was a carved stela, Stela 21, and altar facing east (fig. 9 and 23).

Both temple and pyramid were built of nicely cut stones, used as a veneer over a rough stone and mortar

hearting. The pyramid structure and the temple it supported were covered with plaster and painted a dark red as high as the medial molding. Traces of the plaster and pigment remained in many places.

The upper zone of the building exterior — above the medial molding — had once carried an elaborate sculptured and painted frieze of stucco. This frieze was composed of both low relief and free-standing, full-round figures. The latter had been constructed of limestone armatures, assembled to form the legs, torso, arms, and head of a human figure, and then held together by a coating of stucco. The body contours and gross facial features of the individual were then shaped of this coarse stucco, and an outer surfacing of fine plaster was applied over this. Details of the face, headdress, and garments were sculptured in this finer material. The whole was tenoned into the masonry of the upper part of the building, with the tenon attached to the rear of the figure. Most such figures were life-sized; but remains of four, probably those placed centrally above each of the four temple doorways, were of twice human size (fig. 10). Most of the figures were human, apparently priests, rulers or dignitaries; but there were also some god representations and various animals, including the monkey, wild pig, and the jaguar. Background elements for the figures appear to have been panels or frames, and these frames were often twined with floral or plant-like base-relief sculptures. The whole frieze was gaudily painted. Backgrounds and frames were yellow and blue; human figures

Fig. 8. — Structure A-3, north ends of central and west rooms showing construction of corbelled vaults. Notice stela in central room and sapote beam over doorway.

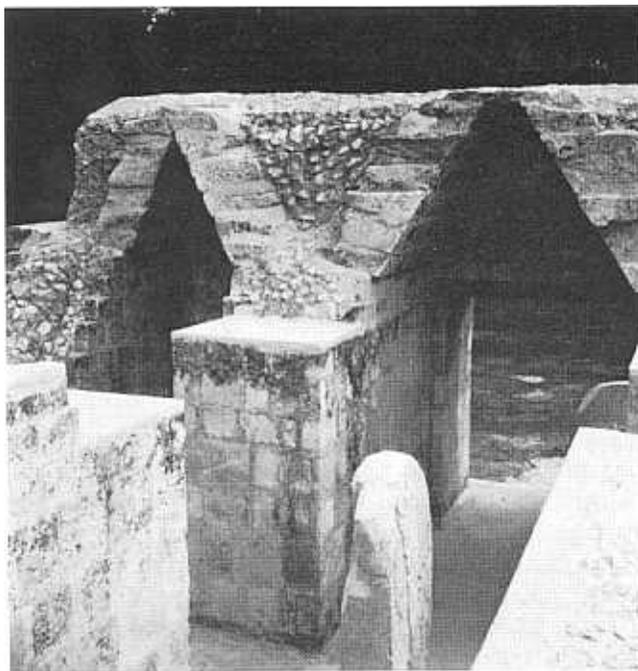
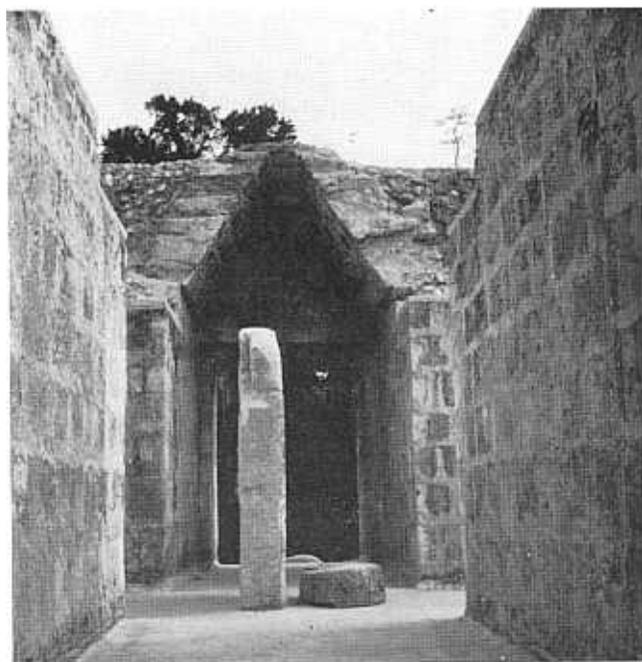


Fig. 9. — Structure A-3, north of central room showing vault construction. Notice stela and altar and sapote beam over doorway. See also fig. 23.



were usually red with facial features indicated in black; and darker, maroon-red and green was used for elements of costume. None of the frieze remained *in situ* for when the temple collapsed the walls above the medial molding fell outward and down the steps of the stairways and sides of the pyramid. Fragments of the figures and elements described were found by the thousands in these locations during the course of excavations. Structure A-3 is dated by a calendar round date, 7 Ahau 18 Zip, found in the stucco of the frieze. When interpreted as a period-ending date it would be 10.0.0.0.0. (A.D. 830). The five associated stelae dates, found on monuments on the four sides of the base and in the central room of the temple, carry the calendar round date 5 Ahau 3 Kayab, a katun later (A.D. 849). This would indicate that the temple may have been dedicated a katun earlier than the five associated stelae. In any event the date falls somewhere between A.D. 830 and 850. The greater part of the ceramics recovered in the debris covering Structure A-3 is of this period.

The reconstruction of Structure A-3 was carried on during the 1966 and 1967 field seasons and completed in 1968. Two masons and their assistants worked on the building during the first two seasons and one mason part time during the final season. Each mason had two helpers whose task was to mix mortar and cement and prepare stones to be used in reconstruction. Most of the stones used in the reconstruction were the original ones from the pyramid and temple, but as these were not enough to finish the amount of restoration that we had planned to do stones of the same type that had been turned up in the fall of other buildings were used. These had to be cut to the size and shape of the stones they replaced. The stones used in the construction of terrace walls and stairways of the substructure, and walls and vaults of the superstructure in Structure A-3, was a fairly soft limestone that could be easily cut with a machete. The only exception to this was the type of stone used for capping the vaults, and probably on top of the roof, a very hard fine-grain limestone that had a natural cleavage so that it could be easily broken into these slabs.

During the excavation of Structure A-3 the various types of stones used in the construction of the pyramid and temple that were found in the fall were collected and kept in separate lots. These consisted of wall stones, vault stones, medial molding stones, capstones, and various stones with holes, used in the upper zone, to hold the tenons that supported the stucco figures of the frieze. Also the hearting of the temple walls, where the facing stones had fallen away, was saved to be used in reconstruction. It consisted of a mortar of small stones and marl or decayed limestone. This had to be sifted to separate the stones from the marl before being re-used.

Most of the materials used in the reconstruction work had to be brought from some distance; lime from Sayaxche, 16 kilometers down stream; and sand from



Fig. 10. — Head of large stucco figure. One of four such figures that formed part of the frieze that decorated the upper zone of Structure A-3, probably over the four doorways and above the roof of the building.

the playas of the Salinas Rifer 100 kilometers away. All supplies had to be brought up stream by boat and after the 1965 field season, when our truck road washed out, carried up a steep ravine on men's back. Materials we could get in camp were marl from pits dug through the limestone top crust and « piedrine » or gravel made by breaking up chunks of hard limestone.

Reconstruction was started at the base of the building, that is the terrace of the pyramid. The stones in the walls had to be, for the most part, removed and re-set. The wall stones are almost all nearly square and nicely cut and faced. Although they vary in size, the average height and width is 30 cm and thickness 15 cm. They are slightly beveled on all four edges so that the inner face of the stone averages 24 by 24 cm. This leaves, when set on edge, space for mortar between each edge. Coursing was for the most part quite consistent. There was not much use of spalls, but bonding seems to have been quite haphazard. In rebuilding the terrace walls the stones were set in a mortar of lime and marl. This was no problem in rebuilding the terrace walls as we had their height and width. The bottom terrace being 1.35 m high and the two upper terraces being 90 and 95 cm. The two lower terraces were 50 cm wide and the top terrace 75 cm. When the terraces of the substructure were finished the four stairways were rebuilt. Again there was no problem as we knew the number of steps, 12 to each stairway, and how far the top step projected out from the top of the top terrace. The

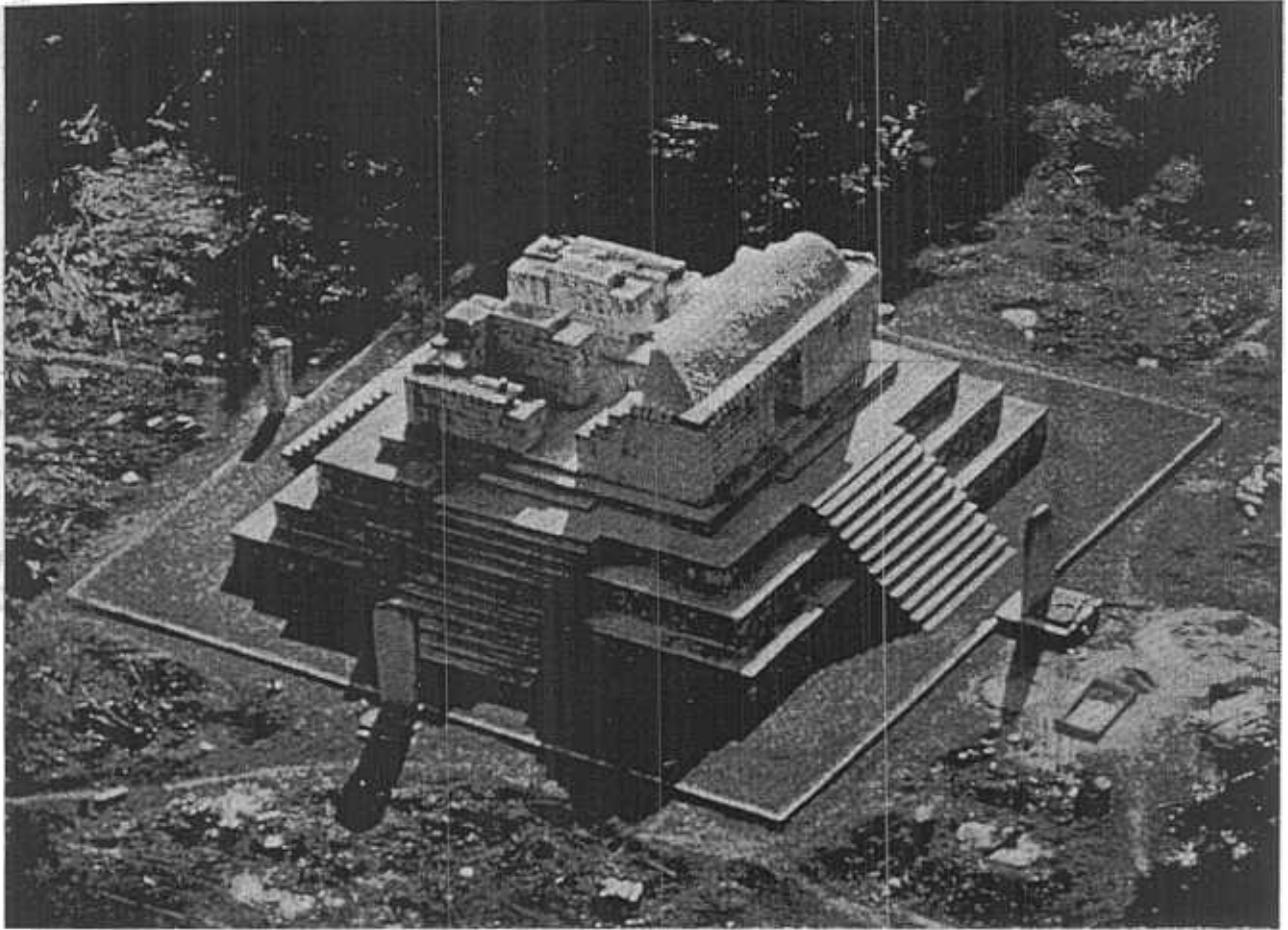


Fig. 11. — Looking southwest at Structure A-3 from the air. (Courtesy of A.D. Wood, National Research Council, Canada.)

Fig. 12. — Looking east across the South Plaza, Group A. Structure A-3 is seen to the right.

average riser and tread was 27 and 35 cm respectively, a very comfortable step compared to most steps built by the Maya. As soon as the walls of the terraces and the stairways of the substructure were finished the two bottom terraces and the heads of the steps were capped. The capping had a base of piedrine set in a mixture of cement and sand, and a surfacing of cement and sand. The original floor surface were of lime and mortar with a piedrine base, but we used cement to give added protection against weathering. All surfaces had a slight downward slope for water shed, and where wall met floor, and riser tread, the juncture was curved. This is exactly what the original builders had done. The upper terrace floor was not capped until the building platform had been rebuilt and the walls of the superstructure started. While this work was being carried on the large platform as the base of the temple had its walls re-set. This platform, 30 cm high, covered the bottom steps of the stairways. It was a later addition probably built at the time of the erection of the four stelae at the base of the four sides of the building. They are outside this large platform, about 30 cm from



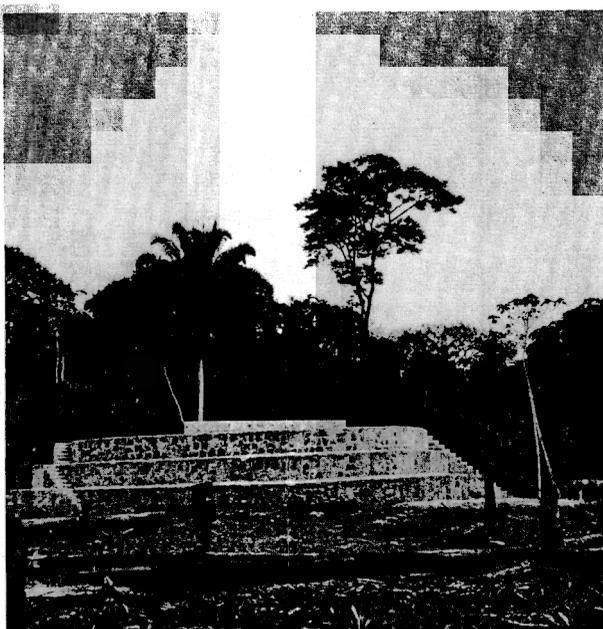


Fig. 13. — North side of Structure 79, the Round Structure, after excavation.



Fig. 14. — Looking southeast at Structure 79 after reconstruction. Notice jaguar altar in front of stairway.

Fig. 15. — North side of Structure 79 after excavation. Notice small stairways at rear of building at left side.



its edge and in three cases joined to it by stones on either side of the stelae. The stela on the north side, Stela 10, is set in a stela platform built against the large platform (fig. 6). All but the stela on the south side had altars in front of them. Figure 4 shows the condition of Structure A-3 a few weeks before the end of the 1966 field season. By the end of the season the walls of the superstructure had been carried up on the north side of the building to the height of the medial molding.

During the 1967 field season work on Structure A-3 was confined to the superstructure. Walls that were going to support vaults had their outer stones set in cement and sand and the hearting made of a combination of marl, cement, and small stones. Walls that were not going to support vaults had their stones set in marl and lime, against a hearting of marl, lime, and small stones. It was not our plan to reconstruct the whole temple. In the first place there were not enough stones remaining to do a complete restoration, and secondly there was not enough time with the labor available if there had been. What we planned to do, and did do, was to carry the outer walls of the building on the north side, and part way back on the east and west sides, to the height of the medial molding, replace the medial molding here, build the walls of the central

room up to the spring of the vault, rebuild the vaults of the three rooms at their north ends, and mend and reset the stela and altar in the center of the central room. Also the stelae at the base of the building had to be mended and reset and their altars mended and re-positioned. Figures 5 - 7 and 11 show Structure A-3 after all the above had been accomplished.

No vault stones or medial molding stones were found in place, however in one spot the whole side of the vault had fallen as a unit so that it was possible to estimate the original height of the walls, from floor to the spring of the vault, 2,55 m, and the height of the vault, 1,25 m, making a total distance of 3,80 m from floor to capstones. The corbelled or Maya vault is constructed of large overlapping stones deeply tailed into the hearting. In Structure A-3 these stones were long and tongue-shaped with the exposed surface beveled and nicely faced to form the soffit slopes. They were laid up in courses and held in place by a mortar of lime, marl and stones (fig. 8 and 9). Vault stones average 65 cm in length and 25 cm high and 22 cm wide on the exposed face. The bevel on the vault stones used in the end vaults was greater than those used in the vaults on the sides of the rooms giving a steeper soffit slope to the end vaults. As there were insufficient vault stones to complete the end vaults the extra side wall vault stones had to be re-cut to fit the end vaults. In building the vaults we used cement and sand instead of lime and marl to give extra strength to the construction. The soffit slopes of the two sides of the vaults were carried up to within 20 cm of each other and then capped with limestone slabs. These slabs average from 3 to 8 cm thick, 40 cm long and 25 cm wide. In one instance the plaster and red paint were still adhering to the exposed area.

The medial molding stones were also set in a mixture of cement and sand. These stones, shaped like vault stones, were considerably longer and larger. They average 1,10 m long and their exposed face, cut on a bevel, 30 by 30 cm. We were able to tell just how far they projected out from the wall of the building from the plastered under surface of several. The plaster extended back 31 cm from the beveled edge of the stone on the under side to where it turned down to meet the wall. At the corners of the building the medial molding was formed by huge square stones beveled on two sides and measuring 1,10 m on a side. A winch and planks had to be used to set two of these in place on the northeast and northwest corners.

The outside doorways of the temple measured 1,70 m across. As no stone lintels were found the lintels must have been wooden. Two kinds of wood were normally used by the Maya for this purpose, logwood and sapote. As sapote was more commonly used we decided on it. The only problem was that it is against the law to cut a living sapote and the dead ones were rotted and not

could use. One of our workmen, an excellent axeman, was sent to cut beams to span the north doorway of the temple. These were cut to specifications, 3 m long, 20 cm wide and 15 cm thick. Being freshly cut they were extremely heavy and took six men to carry each beam. Luckily our road was still open and we were able to bring them up to camp by truck. They were placed across the jambs of the doorway, being set back 5 cm from the edge of the inner and outer walls. Sapote is an incredibly strong and durable wood and when kept off the ground and dry will last indefinitely. Many of the buildings at Tikal still have their sapote and logwood beams.

After the temple had been reconstructed to the extent we had planned and associated stelae reset there remained only the laying of the floors in the rooms and the capping of the walls to prevent water from getting into the hearting and vegetation from growing. The floors were constructed in the same manner as the floors on the terraces and were sloped so that water would run out the doorways and not accumulate in the rooms. The walls that did not support vaults were capped with small rough stones and a mixture of cement, marl, and sand, the stones protruding through the mortar to give an unfinished appearance. The walls of the building were not covered with plaster as they originally had been as it was felt that it was better to show the masonry. Also instead of laying a floor on the larger base platform, in order to save the expense

Fig. 16. — Jaguar altar in front of stairway on the west side of Structure 79. Notice two crouching figures supporting altar. Central column was put in as an additional support when the altar was reset.





Fig. 17. — Stela 1. It was broken in three pieces and has been mended and its base set in concrete. It carries the calendar round date of 3 Ahau, 3 Ceh (?) which if interpreted as a period ending date would be 10.2.0.0.0 (A.D. 869).

of cement and reduce the glare, Bermuda grass was planted.

As we were not sure exactly what happened above the medial molding and the frieze could not possibly be replaced, the upper zone was not reconstructed. However, in the final publication on our work at Seibal, we are planing to have a reconstruction drawing of the north facade of Structure A-3 which will show a possible restoration of the frieze in the upper zone.

#### EXCAVATION AND RECONSTRUCTION OF STRUCTURE 79

Structure 79, at the southern end of Causeway II, is a mound structure, which upon excavation proved to be circular in form. Due to its shape it has come to be called the « Round Structure ». To the best of our knowledge Structure 79 is the only sizable circular platform known from the southern Maya Lowlands. To the west of this building and centered on its stairway is a large circular limestone altar known as the « Jaguar Altar » because of a carved jaguar head protruding from its west side.

Excavation was started on Structure 79 in the 1966 field season and finished during the early part of the 1967 season. A pit dug in front of the stairway on the west side of the mound revealed an early floor that

continued under Structure 79 indicating a possible early construction inside. The sherds below this early floor date to the Protoclassic Period (ca. 0 - 300 A.D.). Upon excavation the « Round Structure » was found to be 18 m in diameter and 3 m in height. It rises in three vertical terraces of equal height and 70 cm wide. The main stairway, extending out from the west side of the building, rose from the base to the top of the platform in a single flight. Only the bottom five steps remained. They had 20 cm treads and 15 cm risers which when carried up to the summit made 19 steps. At the foot of the stairway and centered on and built against the bottom step was a small stone box containing charcoal and sherds. It was undoubtedly used for burning « copal ». On the back, or east side, of Structure 79 is another stairway. This one is only 50 cm in width and it is placed so that the stairs rise parallel with the terraces rather than at right angles to them (fig. 15). On top of the « Round Structure » there was a low rectangular platform 30 cm high, 6 m wide, and 9,50 m long, its long axis being parallel to the main stairway. It very probably supported a temple built of perishable materials. Figure 13 shows Structure 79 after excavation.

A test pit excavated into the summit of Structure 79, and carried to a depth of 4,60 m, or below mound base, revealed three floor levels. Sherds from the earlier floors and their intervening fills date to the Protoclassic Period (ca. 0 - 300 A.D.). The fill of Structure 79, as seen in the upper 1,50 m of the test pit contains only pottery from the latter part of the Late Classic Period (ca. 800 - 900 A.D.). From this evidence of the summit pit out in front of Structure 79 it seemed more than likely that the « Round Structure » covered a Late Preclassic building.

A trench into the south side of Structure 79 revealed the south side and southwest corner of a rectangular inner building, Structure 79-sub. Two terraces were disclosed. The bottom terrace, still faced with plaster, was 1,25 m high and had a basal molding and upper apron molding. The upper terrace was less preserved. Pottery from the inner fill of Structure 79 - sub. dated to the Late Preclassic and Protoclassic Periods. The outer structure, Structure 79, is much later, at least 550 years, being associated with the latter part of the Late Classic Period.

The reconstruction of Structure 79, begun in the 1967 field season, was terminated in 1968. The pit in the summit was filled in and allowed to settle as was the trench into the south side. Although the building was in very poor condition there was sufficient evidence for the three terraces, main stairway, rear stairway, and platform on top, to create no problem in knowing how to rebuild the « Round Structure ». The masonry was quite different from that used in Structure A-3, although the mortar used was the same. The stones used against the fill were a very hard limestone, in many cases containing flint nodules. Being too hard to cut and face like the stones used in Structure A-3 they were only



Fig. 18. — Erecting and mending Stela 2.



Fig. 19. — Putting the top part of Stela 2 in place.

roughly chipped and squared. In size they vary from 10 by 20 cm to 30 by 40 cm. No attempt had been made at coursing or bonding. The stones were usually laid with their long side horizontal and there was an abundant use of spalls. No plaster was found on what remained of the terrace walls but they probably were originally covered with plaster. We left them unplastered. In reconstructing the terrace walls and the stairways the same method was used as in Structure A-3. The terraces and stair treads were surfaced with a mixture of cement and sand as was the top of the platform. Figures 14 and 15 show the « Round Structure » after it had been reconstructed.

The « Jaguar Altar », mentioned above as being out in front of Structure 79, and centered on the main stairway, had originally been supported by three legs (one plain and two carved as crouching men). It had slipped off the legs and had to be reset. It is a huge altar 2,20 m in diameter and 30 cm thick. To insure the preservation of the legs, which could, in their present condition, disintegrate under the great weight of the altar, a small central concrete column was added for additional support (fig. 16). A chain hoist had to be used to place the altar in position. To be sure that it could not be moved it was fastened to the central column and legs with epoxy.

Fig. 20. — Stela 2 after it has been mended and set in concrete. It was broken into three major and three of four minor pieces. Stela 2 carries no date but stylistically is between 10.1.0.0 and 10.2.0.0 (A.D. 849-869).



## MENDING AND RESETTING OF STELAE

The stelae at Seibal have made the site famous and have, over the past three years, attracted many tourists to this Maya ruin. They are among some of the finest of Late Classic Maya sculptures. There are 57 known stelae at Seibal, 22 carved and 35 plain. Of these many had fallen and were found lying on the ground, others were broken into two or more pieces, probably by trees falling on them, and several, although still standing, were badly cracked and out of plumb. In one instance stelae thieves had come at night, during the off season, and partially sawed through one monument in an attempt to remove the carving. Fortunately they were scared off before they were able to finish the job. During the 1967 and 1968 field seasons 15 of the carved monuments were mended and reset. Of the remaining 7, one, a finely carved monument, weighing about 1 100 lbs, was flown out by helicopter by the French Archaeological Mission for display in Paris. It was removed in February of 1968 by order of the Guatemalan Government. Two others were wall panels, two were too fragmentary for repair, one was in the outlying Group B, and one, reported by Maler, was not located by us. Of the 35 plain stelae only four were reset and two mended.

The mending and resetting of stelae is exacting and dangerous work, which takes a lot of « know-how », patience and skill. Some of these monuments weigh over 4 tons and if not handled correctly, when being lifted to be placed in position, could cause serious injury. We were very fortunate in being able to employ a man who had several years experience in this type of work at the ruins of Tikal.

Stelae at Seibal are located in plazas (fig. 17 and 20), some are set in stela platforms (fig. 6 and 22), others on stairways, and one in a temple room (fig. 23). Before resetting a stela, a hole with a solid foundation at the bottom must be prepared to receive it. Where the stela is whole there is no problem in erecting it so that its carving is at the correct angle, however, when the butt has to be placed first and the upper part put on later it is more of a problem to set it so that the figure is not leaning too much one way or the other. In these cases the horizontal line at the base of the carving which all our stelae had, was made level with the floor. The bottom part of a stela would be lowered into position by means of a tripod and chain hoist. To lift the butt 4 by 8 inch bonds were placed on either side of the stone, with sacking between them and it, and tightened by means of long bolts. The chain of the hoist was then hooked on to ropes attached to the boards (fig. 18, 19 and 21). When the butt was in the correct position, stones set in a mixture of cement and sand and marl were built up around its base to within 10 to 60 cm below the bottom of the carving. This distance depending upon whether there was an altar in front of the stela, and if so how high the altar was. The amount of stela butt buried also



Fig. 21. — Placing the upper half of Stela 17 after setting the lower half in concrete in its altar platform.

Fig. 22. — Stela 17 after it has been mended and erected. Notice prowling jaguar at base on altar platform. Stela 17 carries the calendar round date of 3 Ahau (?), as does the jaguar (A.D. 869).



varied, being anywhere from 20 cm to 1,50 m. This of course depended upon the size of the monument, normally the larger monuments having more underground. Until the mortar had hardened around the butt, it was still supported by the chain hoist.

« Epoxy » was used to mend broken stelae. However, before applying it the surfaces to be cemented together had to be thoroughly cleaned with a steel brush and absolutely dry. This having been done, and the desired surfaces covered with « Epoxy », fragments were lowered into position by means of the tripod and chain hoist (fig. 19 and 21). When all the fragments had been put in place any holes or cracks on the back or sides of the monument, as well as on the carved surfaces, were cleaned and filled with cement mixed with lime to match the color of the stone. This was done to prevent dirt accumulating in these openings which would invite growth of vegetation.

The next step was a careful cleaning of the whole stela with special attention being paid to the carved face. A small pointed stick was found to be most useful in removing the lichens from the carving without hurting the stone. All surfaces were also scrubbed with Ajax cleanser and water, a whisk-broom being used.

Now that the stela was reset, mended and cleaned it was treated with Daracone, a liquid with a silicone base. Daracone seals the stone and prevents water penetration, which should discourage the growth of lichens. Before applying Daracone the stela should be allowed to dry for at least three days to be sure that it contains no moisture. If it is completely dry Daracone will not change color. However, if the stone becomes wet, due to rain, before the Daracone has a chance to dry, it will stain it. It is always advisable to cover a stela with a tarpaulin if there is any chance of rain.

Daracone is applied with a brush and it should be continued to be put on until the stone has absorbed enough so that it runs freely down the surface. As Daracone is still in experimental use, it is not known how long a single treatment of this preparation will last although it is claimed that it will protect stone for a period of 10 to 15 years.

Several stelae, although not broken, were badly cracked. These were strengthened by boring two or three holes on either side of the crack, cutting a groove between opposite holes and inserting a « U » shaped steel rod. The rod was cemented into the holes and groove with « Epoxy », and covered over with a mixture of cement and marl.

Figures 17, 20, 22 and 23 show four of the monuments that were mended and reset. Figures 18 - 20, 21 and 22 show two stelae being put together and the final result <sup>(1)</sup>.

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Fig. 23. — Stela 21 and altar. Stela 21 stands in the center of the central room of Structure A-3. It was found fallen and broken into five pieces. It carries the calendar round date of 5 Ahau, 3 Kayab (A.D. 849).



<sup>(1)</sup> T. MALER, *Explorations of the Upper Usumatsintla and Adjacent Regions* (Memoirs, Peabody Museum, Harvard University, Vol. 4, No. 1) Cambridge Mass., 1908; S.G. MORLEY, *The Inscriptions of Peten*, Vol. 2 (Carnegie Institution of Washington, Pub. 593) Washington D.C., 1938.

## RESUME

Cet article compte cinq parties. La première traite de l'arrière-plan historique de Seibal qui fut occupée de 800 avant notre ère jusqu'à 930 après J.C. Elle parle de l'emplacement du site, discute de la première occupation Maya dans la portion sud du pays ainsi que du développement du centre culturel, et décrit le rôle joué par l'ancienne Seibal dans les établissements Maya du plat pays méridional. Au surplus, elle explique la croissance progressive de Seibal en tant que centre religieux, son déclin ultérieur qui paraît le résultat d'un semi-abandon, et finalement son efflorescence nouvelle comme haut-lieu du culte pendant les 130 dernières années de son occupation.

La deuxième partie décrit le site. Principalement, les différents types de constructions des trois ensembles majeurs qui contribuèrent à promouvoir le centre religieux, le dispositif général des groupes architecturaux et le système de routes qui les reliaient les uns aux autres.

Les troisième et quatrième parties relatent les fouilles

et les restitutions de deux monuments de Seibal, la « structure A-3 » et la « structure 79 ». Le premier est une petite pyramide, haute de trois terrasses, portant un temple à trois chambres qui sont décorées d'une frise d'un type évolué en stuc sculpté et peint à l'extérieur des hauts-murs. Le second, la « structure 79 », est une plate-forme circulaire à trois étages qui supportait probablement autrefois une superstructure en matériau périssable; dans l'état des connaissances actuelles, c'est l'unique plate-forme ronde de grand diamètre qui soit connue dans les basses terres du sud du pays Maya. Une coupe dans la masse y a révélé au-dedans un édifice rectangulaire remontant au moins à 550 ans plus tôt (vers 0 - 300 après J.C.).

La dernière et cinquième partie est consacrée au nettoyage et à l'anastylose des stèles sculptées (n<sup>os</sup> 15 et 22) qui ont fait la célébrité de Seibal. Les matières et les méthodes utilisées à ce double effet y sont largement explicitées en même temps que les problèmes qu'elles ont soulevés.

Fig. 1. — Angle N.E. de la Structure A-3 avant les fouilles.

Fig. 2. — Face ouest de la même après le nettoyage du monolithe au début des fouilles.

Fig. 3. — Face ouest de la même au terme des fouilles.

Fig. 4. — Face ouest de la même durant la remise en état.

Fig. 5. — Angle S.E. de la même après les compléments de reconstruction.

Fig. 6. — Face nord de la même après reconstruction.

Fig. 7. — Idem pour la face sud. Remarquez la stèle au centre.

Fig. 8. — Structure A-3. Extrémité nord des chambres ouest et du centre avec leur voûte en mître. Notez la stèle au milieu et le linteau en sapotier.

Fig. 9. — Idem. Portion nord de la chambre centrale. Notez la stèle, l'autel et le linteau en sapotier (stèle 21 de la fig. 23).

Fig. 10. — Tête en stuc, l'une des quatre qui ornaient la frise supérieure de la Structure A-3, probablement au dessus des entrées, à hauteur du toit.

Fig. 11. — Vue aérienne de la Structure A-3 vers le S.O.

Fig. 12. — Vue vers l'est à travers la place sud, Groupe A. La Structure A-3 est à droite.

Fig. 13. — Face nord de la Structure 79, ronde, après les fouilles.

Fig. 14. — Vue S.E. de la même après sa restitution. Notez l'autel du jaguar en face des marches.

Fig. 15. — Face nord de la même après les fouilles, avec la petite rampe d'escaliers à l'arrière du bâtiment.

Fig. 16. — Autel dit du jaguar en face de l'escalier de la face ouest. Notez les personnages accroupis et la colonne médiane qui fut ajoutée comme support non original.

Fig. 17. — Stèle 1, brisée en trois morceaux, remise sur pied au-dessus d'un socle en béton. Elle porte la date du 3 Ahau 3 Ceh (?) dont la fin se situerait en l'an 869 de notre ère.

Fig. 18. — Anastylose et réparation de la stèle 2.

Fig. 19. — Mise en place du sommet de la stèle 2.

Fig. 20. — La stèle 2 après les travaux. Elle était cassée en trois grandes et en trois ou quatre petites parties. Sans date mais à situer par son style entre 849 et 869.

Fig. 21. — Placement de la moitié supérieure de la stèle 17 après la pose de la moitié inférieure, bétonnée, sur le socle d'autel.

Fig. 22. — La stèle 17 après sa restauration. Remarquer le jaguar rôdant sur la base d'autel. Stèle datée du 3 Ahau (?) comme le jaguar (a<sup>o</sup> 869).

Fig. 23. — Stèle 21 et autel au milieu de la chambre centrale de la Structure A-3. Stèle découverte renversée et brisée en cinq morceaux. Datée du 5 Ahau 3 Kayab, soit de l'an 849.