

CALAKMUL

LATITUDE 18° 05' N.

LONGITUDE 89° 49' W.

Range of Dates: 9.9.10.0.0-9.19.0.0.0

Calakmul was visited December 29, 1931, by C. L. Lundell, who was then in the employ of the Mexican Exploitation Company (Lundell, 1933a, p. 152). On the west jamb of the south doorway of Room 3, Structure III, are incised on the plaster a number of inscriptions which read: "Dic 31 de 1931 Enrique Osorno [brother of Don Manuel Osorno], A. Del Angel y R CsLORIOQ," and "ENERO 1926, A. Del Angel y Franco Morales." There is also the date "Dic 15, 1927," but it carries no name. These may record the earliest visits to the ruins, although it is reasonable to suppose that they had been seen by chicleros even before this time. However, credit must be given to Lundell for making the site known. He reported his discovery to Mr. J. C. Brydon of the Mexican Exploitation Company and gave him a set of photographs taken at the ruins. While on board the *Munplacé* bound for New Orleans from Progreso, Yucatan, Mr. Brydon showed the photographs to Dr. J. C. Merriam, then president of Carnegie Institution of Washington, and told him of the new site. On his return to Washington, Dr. Merriam also received information of the discovery from Mr. Sheldon S. Yates, president of the Chicle Development Company.

March 5, 1932, Lundell went to Chichen Itza and reported the discovery to S. G. Morley, who requested permission from the Departamento de Monumentos Prehispanicos to inspect the site. "So important did the ruins seem, from Mr. Lundell's description, and so many inscribed monuments did it evidently contain, that it was decided to equip an expedition for its immediate investigation in order to take advantage of transportation facilities at the time available through operations of chicle workers in the region, but which might, in another year, not be available" (Kidder, 1932, p. 95). This expedition, known as the First Campeche Expedition, remained at Calakmul April 9-24. Morley kindly turned over his notes on the epigraphy of the site to Denison, who prepared the material presented in the second part

of this report. The site was again visited March 9, 1933, by Denison and O'Neill, of the Second Campeche Expedition (Kidder, 1933, p. 89). On this trip the latitude and longitude were recalculated for greater accuracy.

Calakmul is reached from Campeche, Campeche, Mexico. For the first leg of the trip there is a choice of an eight-hour automobile journey through the haciendas and villages of Victoria, China, Xanchakan, Mokolchakan, Rancho de San Nicholas, and Hol to San Dimas; or by boat to Champoton, up the Champoton River to Canasayab, and then by platform cars to San Dimas. The latter route is the more comfortable. Beyond San Dimas the journey is made by platform cars to La Gloria, whence trucks go either to Rio Desempeño or Central Buenfil, according to the condition of the road and chicle production. The details of the trip to Central Buenfil are given in the Introduction. It is a two and a half or three hours' ride by mule from Central Buenfil to Calakmul. An hour before reaching the site there are a number of masonry walls or check dams crossing narrow, steep-sided valleys (cf. chap. 8).

The site was named by Lundell (1933a, p. 153): "In Maya, *ca* means two, *lak* means adjacent, and *mul* signifies any artificial mound or pyramid, so Calakmul is the City of the Two Adjacent Pyramids." The terrain is flat, broken only by low rolling hills, with large ranges forming the skyline to the northeast and south. A large aguada lies northeast of the city. The bush is high and supports a good stand of sapodilla and ramon; no palms grow in the region.

The city has been laid out with some attention to formal planning and is arranged in a number of courts and plazas but, as in many large Maya cities, there are unrelated groups, buildings, and courts. Only one structure, III, can be described in detail; others were mounds of which little more than general over-all dimensions could be taken. The main part of the city, with the exception of the Northeast Group, occupies an area roughly 1150 m. east and west by 750 m. north and south.

SOUTHEAST GROUP

STRUCTURE I, located in the southeast corner of this group (pl. 61), is the second largest pyramidal mound in the city. It apparently faced west as Stelae 48–55 were found at that base and remnants of a stairway are on that side. (For details on the stelae mentioned throughout the descriptions of the ruins, see the second part of this report.) On top is a flat area, 12 by 14 m., which supported a mound 4 m. high, on the west side of which is Stela 89. Rather high up on the west slope of the temple mound are some large cornice stones 1.40–1.70 m. long, 60 cm. wide, and 32–35 cm. thick.

STRUCTURE II, the largest in the city, measures approximately 130 by 140 m. at its base and rises to a height of 50 m. Structures I and II have about the same actual height, but Structure II, built on higher ground, rises several meters above the former. The lower 5-m. section of the basal pyramid of Structure II seems to have had inset corners. Only negative evidence suggests their presence at higher levels. These corners do not appear to be rounded but rather right-angled. It is possible that they extended higher than is suggested on the plan (pl. 61). Compare the rounded corners at Camp 6, British Honduras, Structure A (Thompson, 1931, pp. 280–81, fig. 9); Nohoch Mul, Structure I (Thompson, Pollock, and Charlot, 1932, pl. 16); Coba, Group B, Structure I, (*ibid.*, p. 31) and the right-angled ones at Tikal, Temples I (Tozzer, 1911, p. 117), III (p. 127), IV (p. 129), and V (p. 121). The insets at Tikal, however, are shallow and near the ends of the faces of the sides.

The face of the pyramid seems to have risen in terraces, but its condition is such that no definite statement can be made. On the south side, near the southwest corner, a few of the facing stones are *in situ* and measure 1.40 m. long by 45 cm. square on the exposed face. These stones seem to be at the top of a terrace and to overhang the batter of the lower zone by 40 cm. Stelae 47 and 92 are at the east base of the pyramid. Stelae 38–42 are at the north base. The talus on this side indicates a broad stairway rising to a terrace, on which are Stelae 43 and 44. A second stairway, perhaps not over 10 m. wide, led from the terrace to the top of the pyramid, which measures 58 by 67 m. and supports four major mounds. The one at the head of the stairway, measuring 29 by 32 m. and rising to a height of about 8 m., now shows at its top a capstone of a vault, indicating the existence of a chamber. The mounds on either side are approximately 5 m. lower; the mound to the south is about 5 m. higher and at its base is 35 m. square.

STRUCTURE III lies northeast of Structure II. It is comparatively small, but so well preserved that even in its unexcavated state it yielded more information than any other structure at Calakmul. It consists of a platform, 5 m. high, upon which there is a building. The facing of the platform had fallen or was covered with debris. A stairway on the west side, 14 m. wide, has risers and treads measuring 25 cm. and 35 cm. respectively. In general, the stairs are of blocks 53–73 cm. long and 25 cm. high.

The plan of the building (fig. 2) included at least 12 rooms, with Rooms 1 and 2 as anterior projections (cf. Becan, Structure IV). The area bounded by Room 4 on the north, Room 6 on the east, and Room 9 on the south, seems from lack of debris to have been an open court. This is further substantiated by the fact that sections of the east and south bounding walls rise above the spring line of the adjoining rooms. On these walls, 30 cm. below the soffit of the lintel of the east doorway, the masonry projects 12 cm. as a panel and rises vertically a distance of 28 cm. to its broken upper margin. Also a small piece of stucco ornamentation, of the sort commonly used on exteriors of buildings, was found along the east side of the court. Portions of a west wall suggest that the court was enclosed on four sides. A doorway in this west wall could not have been more than 2.80 m. wide.

The west façade of the building has fallen; the north, east, and south are standing in part. The east façade is best preserved (fig. 3). It has a total length of 19 m., of which the central portion, formed by Room 7, projects 1.70 m. (pl. 1a). The lower zone of this extension rises with a slight batter to a height of 3 m. In the middle and with the same batter is a panel, 5.75 m. wide at its base and projecting 30 cm. (cf. La Muñeca, Structure XII). There are six ventilators in the panel: three at its base and three at a level 2 m. higher. The average width of each is 20 cm. and the average height is 33 cm. There are also four other ventilators in the extension: two on either side of the panel arranged in the same manner, one at the base and the other 2 m. above. The second zone rises 2.20 m. with a batter equal to that of the lower zone. It carries a projecting panel directly above the one in the lower zone and overhangs it on the east face and the sides by 27 cm. The face of each section of the upper zone is inset 20 cm. at a point 35 cm. from the edges, forming a sunken panel.

The masonry of the lower zone is of large, rectangular blocks averaging 33 cm. high and 55–90 cm. long; the second zone is composed of smaller stones, still of the

block type. The under side of the stones forming the first course of the second zone have been worked with a groove which, perhaps, served as a drip-molding (cf. La Muñeca, Structures XII and XVI). This groove, 6 cm. in from the outer edge of the stones, is 1.5 cm. deep and 10 cm. wide.

The north and south sections of the east façade, that is, the exterior (east) walls of Rooms 5 and 8 (fig. 3), have now almost entirely fallen, but enough remains *in situ* to show a construction similar to that of the east extension except that the former rose vertically. The bases of the first and second zones are 1.30 m. lower than the bases of the same zones of the east extension. The different planes from which various sections of the façade rise indicate similar variation in floor levels for corresponding rooms and sections of the structure. Since no excavations were undertaken and as the floor of only Room 2 was exposed, those of the other rooms are not known.

The north extension (exterior of Room 2) is similar to that on the east. The projecting panel is 4 m. long at its base and is pierced with five ventilators (fig. 4). The sections of façade directly east and west of the panel each show two ventilators. The north façade of Room 5 has a length of 2.80 m., rises from the same level as the north extension, but is set back (south) 1.40 m. from the line of the latter. The north façade of Room 1 has an approximate length of 3.20 m.; its base is 70 cm. lower and also 1.40 m. south of the line of the north extension and now shows two ventilators. In general the south façade of the building is similar to the north. The panel of the former is pierced by four ventilators and the areas to either side by two (pl. 1*b*).

Directly above the second zone of the north, east, and south extensions are the remains of roof combs (figs. 3, 4). Trees and shrubs have so destroyed the top of the building that little more than a mass of masonry now indicates their presence. The one on the east is approximately 7.50 by 2.25 m. Its west side rises in line with the west face of the east wall of Room 6. The roof comb above the south extension has a small section of the south facing rising to a height of 1.10 m. Its base is 60 cm. above the capstones of the vault of the room directly below (Room 11). The facing stones *in situ* are set inward 25–30 cm. from the top of the second zone of the façade and probably rose with a batter, although the roof comb is too ruined to permit a definite statement. The façade of the structure would indicate that the roof combs were of solid walls, rose with a slight batter, and contained chambers. The masonry is of small blocks.

Room 1 has a width of 3.05 m. and a probable length of 5.25 m. The west and south walls have fallen; those

to the north and east are standing. There are two doorways in the east wall (fig. 5*b*, pl. 1*c*): Doorway 1, to the north, has a width of 65 cm. and rises to within 1.08 m. of the spring of the vault. The lintel is of stone, and two rectangular designs have been cut in its west face. Three shallow holes, 2 cm. deep, have been drilled in the wall stone 50 cm. above the soffit.

Doorway 2, leading into Room 4, is indicated only by the north jamb. No lintel remains in position nor was one identified in the debris. The upper margins of the faced stones of the north jamb are 80 cm. below the spring line. A cross (fig. 5*b*), 30 cm. high and 15 cm. wide, has been carved in one of the stones of the east wall, 78 cm. below the spring line of the east vault soffit and 15 cm. from the north end of the chamber. The carving was done at some early time, for it is now covered with lichens.

There is a single doorway, 65 cm. wide, in the north wall. The east jamb is in line with the east wall of the chamber and its component stones have been chipped away to allow for a diagonal opening into Room 2. The west jamb has a depth of 64 cm. at right angles to the north wall of the room, whence it extends irregularly to the northeast. Both jambs are so uneven that there is some question as to whether or not the doorway formed part of the original plan of the building. The lintel is of stone, its soffit 30 cm. below the spring line at the north end of the vault.

The section of vault soffit above the east wall of Room 1 (fig. 5*b*) rises to a height of 1.10 m. and is stepped. At the spring line there is a 40-cm. overhang of very large stones, many measuring 85 cm. long by 35–40 cm. high. The lowest section of the vault soffit rises 60 cm. The second offset, formed of long flat slabs, overhangs 15 cm. From there the vault rises 50 cm. at an angle of 68°. Only two slabs of the third offset—and these are probably not *in situ*—rest on the second section of the stepped vault. There are two beam holes in the east vault soffit at the spring line (fig. 5*b*); the one of the north still contains a portion of a beam.

The vault was stepped inward at the north end as shown by the section *in situ* (fig. 5*a*). Here the spring line is 30 cm. above the soffit of the north doorway and the first offset overhangs 25 cm., whence the vault rises 1.10 m. at an angle of 85°. The second offset overhangs 14 cm. and the vault rises 50 cm. at an angle of 76°. The lower portion of the first section of vault is of a single course of stones 48 cm. thick; the upper portion is composed of four courses of somewhat regular blocks with small stones filling the chinks. The second section is of very irregular stones not laid in courses. Above this rest two long slabs, which may not be *in situ*.

Room 2 has an average width of 1.30 m. at the floor level. The walls slope slightly inward so that at the spring line, 2.50 m. above the floor, the room is 1.20 m. wide. At the time the First Campeche Expedition visited Calakmul there was a trench in the floor, at the west end of the room, 70 cm. deep and 80 cm. long, which showed only one well-finished floor, beneath which the hearting is very compact. We were told by his guide that Lundell made the trench when he visited the site in 1931.

The doorway in the west wall, which comes in at an angle from Room 1, has an average width and height of 50 cm. and 1.30 m. respectively. The south jamb, formed by the south wall of the room, is very regular; the north jamb is uneven. Small holes, one near the base and one near the top of each jamb, perhaps allowed for the placing of poles to support and secure curtains in the doorway. The lintel is of stone. A ventilator in the west wall is shown in plate 2c.

The north wall is pierced with nine ventilators, of which four are at floor level (fig. 6b). The one (no. 4) in line with the east wall of the room has been blocked with masonry on the room side.

A ventilator (no. 5), 70 cm. above the floor and 2.55 m. from the west wall of the chamber, is 30 cm. wide by 32 cm. high. Approximately 30 cm. farther east is a great crack in the masonry which extends from the floor to within 75 cm. of the top of the vault. West of the ventilator the name, "C. L. LUNDELL," with the date, "12-29-31," has been scratched in the plaster. Directly above the name are incised two connected and vertically opposed key patterns, probably ancient (fig. 6b).

Four ventilators forming a second group are near the top of the wall. The first (no. 6), in line with the west end of the room and 2 m. above the floor, measures 27 cm. wide by 37 cm. high and opens to the exterior. This ventilator also served as a beam rest, as is evident by the beam still in position. Ventilator 7 has the inner orifice semicircular, with a diameter of 17 cm., its opening into the room having been cut in one of the great stone blocks of the wall; the exterior orifice is square. The third (no. 8), roughly 22 cm. square, had been filled with mortar to make a circular opening with a diameter of 14 cm.; again, the exterior orifice is square. The last one (no. 9) is in line with the east wall of the chamber; the lower west side has been enlarged to serve as a beam rest.

The east wall of the room contains two ventilators, of which one, at the floor level and 16 cm. from the north side of the room, has a width and height of 21 cm. and 30 cm. respectively. The other, 2 m. above the floor and 35 cm. from the north wall, is 8 cm. wide by 25 cm. high.

A single doorway in the south wall is 1 m. wide at the

floor; at the far side, in Room 3, it has a width of 95 cm. Owing to a slight inward sloping of the west jamb, the doorway is slightly narrower at the top than at the bottom. The following names and dates have been scratched in the plaster on the west jamb:

C. L. LUNDELL 12/29/31
1928 Mayo 20
A. Del Angel y CsLORIO
Dic 15 1927
Julio 0
Agosto 0

The lintel was formed of four wooden poles, of which one is missing. They have an average diameter of 22 cm. and length of 1.90 m., and show no working other than the removal of the bark. Two cordholders were apparently used on each side of the doorway in the south wall of Room 2; one, 68 cm. west of the jamb and 1.60 m. above the floor, is still in position. It is formed of a stone ring having a portion of the outer circumference flattened and this surface set in line with the face of the wall (fig. 7). A portion of the wall stone above and below was cut out to allow a cord to be inserted through the ring. The former positions of the other cordholders are shown in figure 6a.

A wall recess near the east end of the chamber has a depth of 45 cm. It has been roughly plastered. There are two small holes drilled in the stone near the base of the wall at the west end of the room. A rectangular opening at the same end of the south wall, 1.90 m. above the floor, is 60 cm. deep. In it rests one end of a beam 18 cm. in diameter and 2.20 m. long; the other end is in the ventilator directly opposite in the north wall. A similar rectangular opening at the east end of the south wall, together with the ventilator in the north wall, supports a second beam. Small stones, set in mortar, have been wedged about the south end of this timber, filling the original rectangular opening. A hole, 8 cm. in diameter and 70 cm. deep, is located in the southeast corner, 2.20 m. above the floor. There is a hole of somewhat greater diameter directly opposite in the north wall.

The masonry is of large blocks (pl. 2c), with traces of uncolored plaster. On the south wall, west of the doorway, are remnants of a black line drawing, which appears to be ancient (fig. 8). There are also some simple, incised line decorations on both jambs of the south doorway, but their antiquity is questionable.

The vault rises 1.90 m. at an average angle of 77°, without any apparent offset at the spring line. The end slopes inward at an angle of 85° and the capstones have a span of 40 cm. Only the easternmost of the three cross poles is missing. The masonry of the lower half of the

vault consists of small slabs with a great many spalls filling the interstices; the upper half is of large slabs with practically no chinks. The ends of the vault are large blocks like the walls. In places there is plaster with traces of red paint.

Room 3 has a doorway in the west wall leading into Room 1. Debris from the fallen vault and south wall has so filled the doorway that only the upper portion is exposed. A single beam hole in the west wall, 70 cm. below the spring line and 25 cm. from the south end of the room, has a diameter of 8 cm. Names and dates have been scratched in the plaster north of the doorway. There are also some incised zigzag lines and rectangles north of the doorway which, because they extend below the debris, may be ancient. A doorway in the north wall, described with Room 2, has the soffit of the lintel 24 cm. below the spring line. To the east of the jamb appears the date "Dic 31 de 1931," the name "Guillermo Argaes," and the somewhat indistinct wording "Oeas el guillo." This may be an illiterate form of *Oyes el gallo* or *Oigas el gallo* and refer to a story told by the workmen about chicleros who visited Calakmul and heard the crowing of a bird and thought the sounds came from Central Buenfil.

Near the fallen east end of the chamber a beam from Room 2 passes through the wall to the line of the face of the north wall. A doorway in the east wall, 35 cm. from the north side of the chamber, is 80 cm. wide and opens into Room 5. There is a doorway indicated in the standing section of the south wall leading into Room 4.

The masonry is similar to that in Room 2. A great deal of plaster, bearing traces of red paint, remains on the exposed north and west walls, and in the northeast corner, directly below the spring line.

The vault rises 2.20 m. and is stepped (fig. 9a). Sloping inward at an angle of approximately 85°, the west end rises with a single 7-cm. offset at the spring line. The east end has fallen. The stones of the first course of the vault are large, their face having an average height of 32 cm., and some appear to be beveled. The subsequent courses are of long, flat slabs; the capstones are similar in shape and have a span of 23 cm. Figure 9b shows the position and arrangement of the beam holes in the north vault soffit. Only the beam in the lower tier at the west now remains in position; it has a diameter of 11 cm.

Room 4. The north, west, and south walls of Room 4 have partly collapsed. A doorway in the west wall, opening into Room 1, is 30 cm. from the north wall. Its south jamb has fallen. The north doorway, which connects Rooms 3 and 4, has already been described. The east wall of the chamber is standing and supports small

sections of the north and south vault soffits, which are similar to those in Room 3 in that they rise with three offsets.

Room 5, lying east of Rooms 3 and 4, has its long axis north and south. The east wall has fallen except for a small section at the south and only a bare trace of the vault remains in the southwest corner. A doorway in the west wall leads into Room 3. One in the south wall, opening into Room 6, has the west jamb in line with the west wall of the room. The lintel is formed of three poles, of which the southernmost measures 36 cm. in diameter and has been flattened on the under side. The central pole has a diameter of approximately 26 cm.

Room 6. The walls of the north end of the chamber have partially fallen so that only the south half of the vault is *in situ*. The floor level was not determined. There is a doorway in each of the four walls; the one in the north wall, which leads into Room 5, has been described. The soffit of the lintel is 90 cm. below the offset of the north end of the vault of Room 6 (fig. 10a). The top of the east doorway has fallen and the upper portion of the one in the south wall as well as much of the south wall itself has collapsed. The west doorway rises to within 1.10 m. of the spring line of the west vault soffit. The lintel was probably formed of three wooden beams, of which two are now *in situ*. The easternmost beam has been roughly squared and measures 20 by 38 cm. at the north end; a cordholder has been worked near the top of the exposed face of the portion tenoned into the wall. On either side of the doorway, a few centimeters below the lintel, there is a small recess which probably served for the retention of some form of cordholder. Four recesses were observed in the east wall (fig. 10a).

The vault is stepped and slopes inward at the ends (fig. 10). From a 26-cm. offset the first section of the east vault soffit rises vertically 35 cm. To attain this height a single course of stones was used. They measure 25-50 cm. by 35 cm. on the exposed face and have tenons 74 cm. long. The spring line on the west is 40 cm. lower than on the east. The former shows a 25-cm. offset, whence the masonry rises vertically 25 cm. Then, without an offset, it rises 50 cm. at an angle of 68°. The second offset for both soffits of the vault is at the same level, and from this they rise with the same offsets and angles. Slabs 9 cm. thick, 32 cm. wide, and 65 cm. long, are used in the vault. The capstones have a span of 35-40 cm., are 15 cm. thick, and have an average length of 75 cm. The north and south ends of the vault carry a 20-cm. offset at the level of the spring of the west vault soffit, whence, rising vertically 40 cm., they slope inward at an angle of 84°. In the standing

section of east vault soffit there are three beam holes (fig. 10a).

Room 7. The north half of the vault has fallen and the southern half of the room is filled with debris to within a meter of the spring line. Only a single ventilator in the south wall is exposed above the detritus. Its base is 1.02 m. below the spring line and it measures 12 cm. wide, 35 cm. high, and 86 cm. deep. A blocked ventilator in the east wall has its base 1 m. below the spring line and its south side is a continuation of the south wall of the room. It measures 33 cm. wide by 35 cm. high. A second ventilator, 25 cm. in diameter, is 1.88 m. from the south wall and 68 cm. below the spring. The exterior orifice is rectangular, measuring 20 cm. wide by 35 cm. high, and its base is 30 cm. lower than that of the interior orifice. A recess in the west wall in line with the south end of the room is 1 m. below the spring; it is 30 cm. high, 40 cm. wide, and 60 cm. deep.

The spring lines of the east and west vault soffits are at the same level. There is a 10-cm. offset, from which each vault rises 1.80 m. at an angle of 79° where the capstones have a span of 33 cm. From a 10-cm. offset the south end of the vault seems to rise vertically. The stones are long, flat slabs except at the offset where large blocks were used. There are two beam holes 28 cm. above the spring line: one, 1.28 m. from the south end of the vault; the other, 2.81 m. A single beam hole, 1.15 m. above the spring, is 60 cm. from the south end of the vault.

Room 8 has almost entirely collapsed.

Room 9. The fill (from the fallen south wall with its vault and sections above the east and west walls) rises to within 2 m. of the spring line. The soffit of the lintel of the west doorway is 95 cm. below the spring line at that end. Stones projecting inward from either side formed the lintel rather than a single stone spanning the opening (fig. 11a). The doorway may have been made after the building was erected, for the jambs are uneven and not of large blocks as in other doorways. Also on the opposite side of the wall, that is in Room 12, the large stone which projects from the south to span the opening is not met by a similar stone projecting from the north. The latter terminates in line with the jamb and the block necessary to complete the lintel has fallen (fig. 11b).

A doorway in the south wall, leading into Room 10, is indicated by the partially standing jambs. In the southeast corner, directly below the spring line, a small section of the wall is perforated. This is apparently the end of a ventilator or beam rest extending through from Room 10. A circular recess, with diameter of 8 cm., is 1.14 m. from the southeast corner and 90 cm. below

the spring line. It has been partially filled with stone and mortar so that it now has a depth of 16 cm.

There are two orifices in the east wall cut in the lower edge of the same stone block and connected by a groove 40 cm. deep (fig. 12). The openings are 70 cm. below the spring line and one is 33 cm. from the north wall. The masonry of the chamber is of large blocks, many measuring 1 m. long and 25-35 cm. in vertical height. Spalls fill the interstices.

The vault rises 2.10 m. with three steps on the sides and ends. The first two offsets in the south vault soffit each measure 10 cm., and the third 13 cm., whereas the intermediate sections rise 70 cm., 60 cm., and 80 cm. respectively. The spring line of the north half of the vault is 25 cm. higher than the south and the offsets measure 20 cm., 18 cm., and 15 cm. The spring line at the east end of the chamber has an offset of 7 cm. at the south and 17 cm. at the north. Sloping downward 10 cm. from south to north the latter end is 35 cm. below the spring of the north vault soffit. At the south side of the west end the first offset measures 19 cm. and at the north side 7 cm., at which point it is 5 cm. above the spring of the north vault soffit. The second and third offsets of both ends are on the same level as the corresponding offsets of the sides of the vault. The capstones have a span of 27 cm. and are on the same level as in Room 10 to the south. There are two beam holes and a recess in the north wall and in the vault there are five beam holes, two on the level of the second offset and three on the level of the third.

Room 10 lies south of, and parallel to, Room 9. Portions of the north wall and arch have fallen. The floor level was not determined as it is covered with more than a meter of debris. A doorway in the south wall leading into Room 11 has its soffit 22 cm. below the spring line. Only three of the four timbers which formed the lintel now remain *in situ*. The southernmost has disappeared; the northernmost has been flattened on the under side and is 26 cm. wide. The beams have an average length of 1.92 m. A socket, 10 cm. in diameter and 25 cm. deep, has been worked in a stone of the west jamb 60 cm. below the soffit and 36 cm. in from the north edge. Directly opposite in the east jamb is a second socket 5 cm. deep. This arrangement would allow for a pole to support a curtain for closing the passageway. Cf. Rio Bec, Group I, Structure XV (pl. 8c).

There are three recesses in the south wall (fig. 13b). One, near the east end of the room, 20 cm. deep, has been cut in the solid stone. The second, 60 cm. west of the doorway has a depth of 20 cm., and the third, 25 cm. deep, is in line with the west end of the room.

A doorway in the east wall leads into Room 8. Only

the lower jamb stones are now *in situ*. A ventilator, probably later used as a beam rest, at the east end of the north wall, directly below the spring line and with a height of 32 cm. and a width of 24 cm., extends through the wall into Room 9. It had been closed with masonry except for an opening 6 cm. in diameter.

The north doorway has been described with Room 9. The masonry of the walls is of large blocks, on which remains some untinted plaster. On the west wall are faint traces of an incised design. The north and south vault soffits, as well as the ends, are stepped. The offset at the spring line of the south half of the vault is 23 cm. above the soffit of the doorway lintel (fig. 13*b*). The first step, at the spring line, of the north half of the vault is 30 cm. lower. Both ends of the vault have two steps which are at the same level as the upper ones of the north and south soffits.

The offsets at the spring line on the north and south are formed of large blocks; above, the vault is made up of long flat slabs with spalls filling the chinks, and all covered with carefully troweled plaster. Slabs forming the capstones have a span of 30 cm. The arrangement of beam holes in the vault is shown in figure 13*b*. The two lower beams, each 15 cm. in diameter, are still in position.

Room 11 is south of, and parallel to, Room 10, and is only 95 cm. wide. At the west end, where the top of

the vault has fallen, the debris is within a few centimeters of the capstones, whence it slopes downward until at the east it is 1.20 m. below the spring line.

A ventilator in the east wall has a depth of 85 cm., the thickness of the exterior wall (fig. 14*a*). Two ventilators and two recesses in the south wall are exposed above the debris. The latter (fig. 14*b*) have depths of 13 cm. and 16 cm. respectively. In the north wall, and directly opposite, are similar recesses.

As in Rooms 2 and 7 of the north and east extensions respectively, the vault here in Room 11 is not stepped. Only on the south side is there an offset at the spring line. It measures 10 cm. and is 12 cm. higher than the spring of the north vault soffit. The latter rises 1.80 m. at an angle of 80°. The east end of the vault slopes inward at an angle of 86°; the arrangement of cross poles at two levels is shown in figure 14*b*. The vault is of long, flat slabs to which still adheres a great deal of untinted plaster. The capstones have a span of 31 cm.

Room 12, no doubt, had dimensions similar to Room 1 and formed the opposite anterior chamber. Now only the east wall and, in the southeast corner, a very small portion of the south wall remain standing. The former supports a portion of the vault in which a cross pole indicates that the long axis of the room extended north and south.

CENTRAL PLAZA

North of Structure II lies the Central Plaza, which is bounded by Structures IV-VIII.

STRUCTURE IV, a long platform supporting three buildings and defining the east side of the plaza, is of the Uaxactun, Group E, type. The north and south buildings (IVa and IVc) are now indicated only by mounds which rise 2-3 m. above the platform. Apparently each had a stairway on its west side, and probably contained two parallel chambers. Stelae 1, 7, 8, and 90 are associated with the north building and Stelae 19-21 with the one to the south.

The central building (IVb) rests on a pyramidal substructure, which is wider than the long platform and 5 m. higher. Stelae 9-18 are associated with this building. A westward projection of the top of the substructure, in line with its east-west axis and now in a poor state of preservation, appears as a great rectangular block of masonry (fig. 15). It supports two altars: one, rectangular, measuring 1.50 by 1.30 m., by 65 cm. high; the second, lying west of the first, has a diameter of 95 cm. and a height of 35 cm. A series of four or five steps, giving onto a landing, may have extended across

the west base of the substructure, and from this landing, in turn, steps may have risen on either side of the rectangular block. The substructure is faced with large, beveled stones and the corners are square.

From the substructure rises a platform, 1.10 m. high, which supports the building. A portion of the platform is exposed on the north side; it is set inward 1 m. from the edge of the substructure, rises at an angle of 75°, and was plastered and tinted red. On this same side the substructure, as indicated by a small section, had been raised to encase the platform.

In plan the building shows two parallel chambers, their long axes north and south. The west façade has fallen. The north façade of the west room is 2.70 m. long; that of the east room projects 45 cm. and is 3.30 m. long. Rising vertically to a height of 2.05 m., the lower zone carries a 30-cm. band, which overhangs 20 cm. Set inward 32-42 cm. from the face of this band the second zone apparently rose without a batter. In the central part of the back wall the panel, projecting 20 cm. and having a length of 9.30 m., seems to have extended through the molding and upper zone (cf. Naachtun,

Structure I, V, and XXII; Uxul, Structure XIII, and La Muñeca, Structure XII). The masonry of the lower zone is of irregularly shaped blocks with many spalls (fig. 16).

The floor in both rooms is covered with 1-2 m. of debris. The south end of the inner room with its single ventilator is shown in figure 17. In this room the east vault soffit rises from a level 30 cm. lower than that of the molding on the east façade. There is a 10-cm. offset at the spring line, whence the vault rises 1.84 m. at an angle of 80°. The west vault soffit has its spring line 40 m. above that on the east and rises from a 20-cm. offset; there is no offset at the south end nor does it have an inward slope. The vault is very uneven and in places on the west side rises almost vertically; its component stones show little working. The capstones have an average length of 50 cm. with a span of 20 cm. A beam hole in the west side of the vault is 2.30 m. from the south end of the room (fig. 17). A corresponding beam hole was noted in the opposite vault soffit.

STRUCTURE V lies at the south end of the Central Plaza, and faces Structure II. A small section of the platform facing on the north side rises with a slight batter to a terrace 1 m. wide, whence it rises 70 cm. to a 75-cm. apron molding which overhangs 15 cm. The facing of the platform is of large blocks (pl. 2a). A stairway on the south is 11 m. wide. At its base is a round altar; to the east are Stelae 32-34 and to the west Stelae 35-37. At the north base of the platform are Stelae 28 and 29. A small building, approximately 15.50 by 6 m., surmounts the platform. The masonry is of carefully dressed *vencer*-like stones, measuring 10 by 20 cm. on the face.

STRUCTURE VI, a platform mound, lies across the plaza and west of Structure IV. It has its counterpart in Structure VII, Group E, at Uaxactun, which lies across the plaza, and west of the long mound supporting Structures E-I, E-II, and E-III. It is roughly 55 m. square at the base, 35 m. square on top, and 7.50 m. high. The north slope suggests that the platform may have risen in four terraces. A slightly raised area, 18 m. wide in the middle of the east slope, showing some worked stones, suggests a stairway. Stela 22 was found on this slope, in line with the east-west axis of the platform. Its original position is not known, as it has fallen.

A more or less level area on the west side of the structure, 2 m. above its base, may be a landing. The presence of Stelae 25-27 at the west base of the platform,

and the landing on this slope suggest the possibility of a stairway, although a small exploratory trench between Stela 25 and the low terrace did not reveal one.

On top of the platform and 4 m. from its eastern edge is a raised area 3 m. wide, 29 m. long, and 1 m. high (cf. Naachtun, Structure XXXIX). Directly east stood Stelae 23 and 24 and a round altar.

STRUCTURE VII defines the north end of the Central Plaza. Stelae 2-6 and a round altar are ranged along its south base. The substructure, somewhat T-shaped with the crossarm to the south, measures 40 m. east and west by 47 m. north and south at its base. The general plan is, to some extent, suggestive of Temple N at Nakum (Tozzer, 1913, pp. 175-76). The substructure rises in terraces to a height of about 24 m. where, at each end of the crossarm, there is a small mound, which appears as an independent lateral annex to the main building. It is possible that separate stairways on the south side of the substructure led to these annexes, each of which contained a single small room. The north projection of the pyramid rises 15-20 m. higher than the top of the crossarm and supports a building composed of two parallel chambers. A stairway, 6-10 m. wide in the center of the south side of the pyramid, rises directly to the upper and main building.

The masonry of the pyramid, as noted on the west side, consists of large blocks, the face averaging 32 by 50 cm., not exceptionally well finished, although their present roughened appearance may be due to weathering. The corners were rounded.

The main building measures 8.80 m. east and west by 4.80 m. in the other direction. It is now partially fallen and covered with debris so that details of architecture are lacking. The north and medial walls are each 80 cm. thick. The inner chamber is 1.20 m. wide and apparently 7.20 m. long. A portion of the east jamb of the outer doorway rising above the debris is made up of small, rectangular stones not exceeding in size those used in the walls. The masonry of the north side of the building is of stones showing much variation in size and only roughly blocked out (fig. 18).

STRUCTURE VIII, at the north corner of the plaza between Structures IV and VII, is a small mound not over 13 m. square at its base and 6 m. high.

STRUCTURE IX lies outside the Central Plaza, 73 m. east of the north end of Structure IV. The mound is 17 by 27 m. and probably supported a building. Stelae 93 and 94 are at its south base.

WEST GROUP

The West Group, a complex arrangement including a great number of courts, plazas, and isolated structures, is the largest. Its eastern section, comprising about one-third of the area of the group, is divided into two distinct courts, which, for ease in description, have been called the North Court (the larger) and the Southeast Court. Only a few of the many structures in the western section of the city are described, as, for the most part, they are now represented by mounds with only an occasional wall standing above the debris.

STRUCTURE X, forming part of the boundary between the two courts, is a platform 50 by 17 m., supporting a building showing traces of a chamber. The length of the room is not known, but its width is 1.10 m. and the north wall is 1 m. thick. The section of wall exposed shows practically no worked stone. A stairway on the north side of the platform had 10 steps with risers and treads measuring 20 cm. and 40 cm. respectively. Stelae 63-65 were found at the north base of this structure. A mound to the east supported a single-chambered building.

STRUCTURE XI, a ball court, is in the middle of the North Court. The long axis of the parallel ranges, extending north and south, measures 19.50 m. and the playing area is 5.85 m. wide. The inner face of the bench had a height of about 85 cm. but has now so collapsed that it is impossible to determine whether it rose vertically or with a batter. The face of the east bench, as shown by a trench dug in line with its east-west axis, is made of carefully worked and somewhat veneer-like stones. The roughly plastered floor of the North Court lies 30 cm. below the carefully troweled and apparently untinted plaster floor of the playing area. Neither a stone disk in the center of the playing area nor end-markers were found. The bench is approximately 4 m. wide and slopes upward at an angle of 7.5° , and the hearting of the two parallel walls now rises to a height of 3.20 m. No trace of a stairway was noted on the outer side of either range. On the outer side of the east range and near its base is a stone 70 cm. long, 30 cm. wide, and 20 cm. thick. Since a groove extending the length of the stone and 10 cm. deep by 10 cm. wide was worked in one side, it may have served as a spout. Stela 66 is at the northwest corner of the playing area.

STRUCTURE XII, represented by a mound having an east-west length of 32 m., is in the northeast corner of the North Court. Stela 91 and a round altar are at its north base.

STRUCTURE XIII, a pyramidal mound rising in two sections, one above the other, lies north of the ball court, but could not be clearly understood. At its base it measures

58 by 48 m. and the first section rises to about 8 m. Stelae 56-58 and a round altar are at its east base. On the south is a stairway, 15 m. wide, of treads and risers measuring 1.20 m. and 40 cm. respectively. This stairway ascends to a landing, about 1.60 m. high, 5.50 m. wide, and 13 m. long, on which is Stela 88. From the landing a second stairway, of 55-cm. treads and 20-cm. risers, leads to the top of the first section of the pyramidal mound, upon which, 4.70 m. from the south slope, is a platform 1 m. high. Three meters in from the face of this platform rises a podium. It in turn supports a single range of rooms that may have extended around four sides of the base of the second section of the pyramid. However, traces of the rooms were noted only on the south and east. Those on the south side are sufficiently exposed above the debris to permit some description. They are 2.65 m. wide and, owing to the fact that the east and west limits of the building are indefinite, may have had lengths of 11 m. and 16 m. respectively. Only one transverse wall was seen; this, dividing the two chambers, has a thickness of 40 cm. There are, definitely, two doorways on the south side: one opening into the west room has its east jamb exposed; the other, opening into the east room, is 2.60 m. wide, but the top has fallen so that the height is not known.

In front of each doorway, in this range of rooms, is a series of three steps leading up to the doorsill. The steps of the east doorway, in better condition than the other, have the first riser 45 cm. in front of the line of the south façade and the third riser 5 cm. within the line of the façade. The three risers measure 26 cm., 26 cm., and 22 cm., and the treads 25 cm. each.

The facing of the south façade of the rooms now rises vertically 1 m. above the level of the doorsill. The masonry is of blocks laid in fairly regular courses (pl. 1d). The interior facing of the wall rises 2 m. to the spring line, where there is a 20-cm. offset formed by a single slab; above this the vault has collapsed. The north vault soffit springs 20 cm. higher than the south and has a 12-cm. offset at the spring line, from which it rises 70 cm. at an angle of 67° ; resting on top of this is a large slab overhanging 20 cm. (cf. Structure XVI, vault).

The inner facing wall of the single range of rooms appears to be built against the second section of the pyramid. This section of the pyramid rises 6 m. above the first and on the east side are remains of two terraces 1.10 m. and 1.50 m. wide, separated by a 1.50-m. battered zone. Set inward 1.50 m. from the eastern edge of the upper terrace and surmounting the second section of the pyramid is the north end of a single-cham-

bered building. The chamber is about 3 m. wide and has a doorway on the north side. The means of access to it is not known, but may have been by a stairway on the north rising from the base of the first section of the pyramid.

Northwest of Structure XIII, and defining the north limits of the city, is a great wall 200 m. long. A 7-m. section, in a good state of repair, is 6.15 m. high and 2 m. thick. The masonry is of roughly dressed, irregular blocks with considerable chinking. Some plaster remains on the north side (pl. 2*d*).

STRUCTURE XIV defines the east side of the North Court of the West Group. It is a platform, 33 by 19 m., supporting a building. Stelae 59 and 60 are at its east base. On its west side, in front of the platform, is a landing reached by a stairway 14.75 m. wide, made up of four 25-cm. risers and three 60-cm. treads. The stones forming the risers, which have a slight batter, are large, some measuring 1.10 m. by 75 cm. In some cases the stone was set to a depth of 50 cm., the exposed 25 cm. forming the riser. This riser, though battered, should not be confused with the type at Piedras Negras, Structure J-2 (Satterthwaite, 1935, p. 22), where the megalithic steps are cut to form risers with a batter and treads sloping upward in the direction of ascent, but is more like those at the Caracol, Chichen Itza (Ruppert, 1935, p. 51), where the riser is of long stones set on end.

The terrace at the head of the short flight of stairs supports a round altar and Stelae 61 and 62, and from its east side a stairway, with 25-cm. risers and 35-cm. treads, leads to the top of the platform. The building which this platform supports seemed to contain two parallel ranges of rooms, of which only the medial wall now stands above the debris. This wall is 1.65 m. thick and shows two doorways; the one to the north is 1.45 m. wide.

STRUCTURE XV lies immediately southeast of Structure X (the two abutting each other) and bounds the east side of the Southeast Court. It is a pyramidal substructure about 9 m. high and 32 by 25 m. at the base, supporting remains of a building. At the west base of the mound are Stelae 75-79. Although no stairway was noted, there was probably one on this side. To judge from the contour of the debris, the building contained two parallel longitudinal chambers each about 16 by 2 m. A sec-

tion of medial wall, 2 m. thick, is standing near the south end of the building.

STRUCTURE XVI, a large quadrangle, lying on the west side of the Southeast Court, is made up of a rectangular platform surmounted and rimmed by a building formed of two parallel ranges of rooms. Traces of transverse walls on the north and south sides and the disposition of the detritus in other places show that there were a number of rooms in each parallel range. The walls dividing the two ranges of rooms in the north, east, and west side of the quadrangle have a thickness of 2.95 m. The south rooms of the north side are 1.85 m. wide.

A section of the vault of one of the inner rooms of the west side (fig. 19) shows a 20-cm. offset at the spring line, whence it rises 45 cm. at an angle of 65°. The second offset measures 25 cm., above which, however, the vault has collapsed. (The vault in Structure XIII is similar but the stone slabs smaller.) The stones are long, flat slabs, not carefully finished. There is no offset or inward slope at the end of the vault. The masonry of the vertical walls is of irregular blocks; some are faced, but others show no special working.

Stelae 67-69 are at the exterior base of the north side of the quadrangle and Stelae 70-74 are at the base of the east side.

STRUCTURE XVII, on the south side of the Southeast Court, is a long, low platform supporting the remains of a building. It faces north, on which side, at its base, is Stela 80. A stairway, 18-19 m. wide, ascends to a landing about 3 m. wide and perhaps as long as the main platform. The stairway is made up of five 30-cm. risers and four 1.30-m. treads. For the most part, the risers are formed of very large stones, which, in some cases seem to carry a batter, but this appearance may be due to displacement by roots of trees. A stairway undoubtedly rose from the landing to the top of the platform, but no trace of it was seen. The building has a length of 48 m. and in plan shows two parallel ranges of longitudinal rooms. As transverse walls were not observed, the number of rooms in each range could not be determined, but from the contour of the debris there may have been four. A portion of the medial wall, exposed east of the north-south axis of the building, has a thickness of 2.21 m. The masonry is roughly coursed and, for the most part, composed of unfaced stones with much chinking. There is a 25-cm. offset at the spring of the vault and the stones are long, irregularly shaped slabs.

EAST AND NORTHEAST GROUPS

The East Group, lying directly northeast of Structure III, has an east-west length of over 280 m. This large section of the city, now only a complex of mounds at-

testing the former presence of platforms and buildings, contains no stelae.

The Northeast Group, approximately 900 m. N. 71° E.

of Structure II, covers an area 100 m. square. The buildings are arranged around a court in which Stelae 95-99 are associated with the east platform and Stelae 100-103 with the north platform.

The sculptured outcrop west of the ball court and the stone quarry (pl. 2*b*), 1350 m. north of Structure VIII, are described by Morley (1933, pp. 201-203):

An interesting discovery was that of a large sculptured outcrop of limestone near the middle of a small plaza just west of the Ball Court. By chance, one of the lines of sight for the survey crossed this outcrop, which was completely covered with fallen leaves and humus soil save for a small section, perhaps three feet [1 m.] in diameter, lying directly in the line of clearing.

One of the workmen happened to notice that a human head of heroic size was carved in profile in deep relief—six inches [15.24 cm.]—on the exposed upper face of this rock. When this outcrop was finally cleared it was found to be an irregular oval, the long axis measuring 21 feet [6.4 m.], the short axis, 17 feet [5.18 m.]. [Carvings on natural outcroppings are not uncommon and in this area have a wide distribution ranging from Chichen Itza in the north (Kilmartin, 1924, p. 216), to

Copan in the southeast (Morley, 1920, p. 377), and Chiutinamit in the southwest (Lothrop, 1933, p. 80).]

The entire top of the outcrop was sculptured with six or seven nude human figures, the tallest being nine feet [4 m.] in height; all these had their arms bound behind their backs, the cords showing clearly. There are several glyph-panels scattered over the outcrop but, due to the fact that these had been exposed to a maximum of weathering as well as to the fact that their relief was much lower than that of the captive figures, the interior details of the signs had entirely disappeared.

Another find, possibly more significant scientifically, was Bolles' discovery of an ancient quarry a short distance north of the Main Plaza. Here two large blocks of stone, which, judging by their size and shape, probably had been intended for use as door lintels, are only partially quarried, one end and one narrow edge of each still remaining fast to the bed of limestone from which they were being worked. While by no means unique, definitely identified quarries at Maya sites are sufficiently rare to merit comment, and the one found this season at Calakmul is perhaps as good an example of this kind yet reported from any Old Empire site.

Archaeological Reconnaissance
in
Campeche, Quintana Roo, and Peten

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