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THE YAXUNA-COBÁ CAUSEWAY

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# THE YAXUNA-COBÁ CAUSEWAY<sup>1</sup>

## THE CAUSEWAYS OF YUCATAN

Hidden in the forest and almost obliterated, there are still to be found in certain parts of Yucatan the remains of old paved roads which in bygone times must have joined the principal cities of the New Empire of the Maya. The natives of the region call these paved roads *sacbeob*, which means "white roads," perhaps in memory of their appearance when they were covered with fine sascab.<sup>2</sup>

Their great age can be inferred from the fact that at the very beginning of the Conquest all were already abandoned and in a very bad state of preservation. In 1566 Diego de Landa,<sup>3</sup> the earliest historian of the Peninsula, speaking of the marvelous buildings of Tiho (Merida) and of Izamal, wrote:

"There are signs nowadays of there having been a very beautiful causeway from some to others."

This is the first mention of the old "White Roads."

Bernardo de Lizana,<sup>4</sup> who wrote forty-four years after Landa, was more explicit with regard to these roads. In speaking of the importance which Izamal had for the Maya as a religious center, he remarks:

"There they offered great alms and made pilgrimages from all parts, for which reason there have been made four roads or causeways to the four cardinal points, which reached to all the ends of the land, and passed to Tabasco, Guatemala and Chiapas, so that today in many parts may be seen pieces and vestiges of them. So great was the concourse of people who assisted at these oracles of Itzamat-ul and Tiab-ul that they had made these roads."

Most writers since that time have based their remarks upon the allusions to the *sacbeob* contained in these two passages and have added nothing to the subject. However, John L. Stephens on his visit to Yucatan in 1842 had possession of a report written by the *Cura* of Chemax, containing unpublished notes with regard to another *sacbe* which ran from the as yet unknown city of Cobá. The report,<sup>5</sup> after describing as the principal building of this city, the so-called *Monjas*, adds:

"From this edifice there is a *calzada* or paved road, of ten or twelve yards in width, running to the southeast to a limit that has not yet been discovered with certainty, but some aver that it goes in the direction of Chichen Itza."

<sup>1</sup> The author acknowledges gratefully the stimulus and guidance of Dr. S. G. Morley and of Dr. Robert Redfield in the preparation of this report, and wishes to make known his thanks to Margaret Park Redfield for translating it into English and to M. R. Harrington for drawing the figure which appears as "a" of Plate 9.

<sup>2</sup> Soft limestone conglomerate used in making mortar and in covering terraces, roads and the like.

<sup>3</sup> Landa, 1900, p. 358.

<sup>4</sup> Lizana, 1893, p. 4.

<sup>5</sup> Stephens, 1843, vol. II, pp. 340-341.

The following remark of Charnay<sup>1</sup> may also be cited here.

"We also have found marks of a cemented road, from Izamal to the sea, facing the island of Cozumel."

Besides the remains which have been mentioned, it is said others exist between Kabah and Uxmal, as well as between Ake and Izamal, but they can hardly be seen at the present time. Some authors have gone so far as to surmise that in ancient times all the cities of Yucatan were linked by these great causeways. Although this may have been so, at present proofs for such statements are lacking.

The existence of causeways between Chichen Itzá and other cities of ancient Yucatan has also been frequently asserted.<sup>2</sup> As an example of this we may quote from T. A. Willard<sup>3</sup> as follows:

"The long road from Chichen Itzá to ancient Zac-ci (now Valladolid) and the unnamed but important towns between Zac-ci and Lake Cobá is bifurcated again and again into more and more narrow highways, resembling creeks flowing together to form eventually a mighty river."

This interesting description is far from the truth, since it has been demonstrated that the only causeway which comes to Cobá from the west is that which begins at Yaxuna. And this causeway I have found from direct observation runs straight, without dividing or branching off anywhere in its course.

As for Chichen Itzá, it should be noted that up to the present there have been found no traces whatever of causeways outside of the city limits. Those which do exist unite groups of buildings, one with another. This type of street has been found in many of the ancient cities of Yucatan and even in the region of the so-called Old Empire.<sup>4</sup>

It is asserted by some writers that roads of the fine character of the *sacbeob* never did exist in the region of the Old Empire. This question can not be answered categorically, however, for though modern explorers have not reported any traces of such roadways, it appears from the statements of the early chroniclers that such may possibly have existed. Oviedo, for example, in referring to the adventures of Alonso Davila in his journey from Chiapas to Champoton between the years 1530 and 1531 says as follows:

"One league away from Macaclan<sup>5</sup> they came upon a fine road, both broad and level and well swept, which led to the city, and they entered by it."<sup>6</sup>

<sup>1</sup> Charnay, 1883, p. 308.

<sup>2</sup> Charnay, 1883, p. 303; Maler 1932, p. 5; Willard 1926, p. 90; Gann 1931, p. 75.

<sup>3</sup> Willard, 1926, p. 90.

<sup>4</sup> Labna (Saville 1893, p. 232); Tikal (Tozzer 1911, p. 109); Nakum (Tozzer 1913, p. 108); Ixkun (Maudslay 1889-1902 II, p. 21).

<sup>5</sup> Doris Zemurray Stone (1932, pp. 223-224) calls this place Mazatlan, and locates it near the Lake of Tacab about twenty-one leagues to the north of the modern city of Las Flores in the *Departamento* of Peten, Guatemala. This should not be confused with the port of the same name in the state of Sinaloa, Mexico.

<sup>6</sup> Oviedo, 1853, vol. III, book 32, chapter 5, p. 243.

A little further on he adds:

"Arrived at Champoton by way of much marsh land and thickly wooded country, having spent a full day's labor in getting oriented, and not knowing the country, and having lost many comrades in these wanderings, and without knowing where they were, they came out on some fine broad plains and saw there many different roadways which traversed the country in varying directions, and at this they rejoiced greatly."

So far the references are of little importance since, although the roads may have been "broad and level and very well swept," this does not necessarily imply that they were constructed of stone as are the *sacbeob* of Yucatan. Cortes, Barrios, Velasco and Fray Pedro, who passed through this region during the years 1524 to 1695, found no better roads.<sup>1</sup>

However, Fray José Delgado, who traveled from Cahabon to Bacalar in 1695, gives very valuable information on this point when he asserts that he—

"followed roads through the swamps which had been built in ancient times, and still were well preserved."<sup>2</sup>

This brief reference has cast some doubt upon the following statement of Thompson:

"Up to the present time nothing analogous has been reported from the Peten or the region to the south, and we are forced to conclude that these great stone roads originated in this area."<sup>3</sup> (The eastern part of Yucatan.)

Moreover, the likelihood that such roads did exist is increased by the fact of the high degree of development, cultural and religious, attained by certain cities of the Old Empire. Tikal, Copan, Yaxchilan and Palenque were real metropolises and their power was never surpassed by the cities which flourished centuries later.<sup>4</sup>

It appears very possible that, granted such a high degree of civilization, means of communication of a well-developed sort existed. These roads may have disintegrated during the many centuries in which they have been abandoned, or they may be simply buried beneath the humus of a dense tropical forest. This is what has happened to the paved roads from Palenque, one of which was discovered by Frans Blom when he was making a shallow excavation within the precincts of the ancient city. Another fact supporting this conclusion is the following, which was told the writer by Dr. Morley. When the United Fruit Company was engaged from 1910 to 1912 in building its railroad in Guatemala, it was found necessary to dig some ditches close to the railroad which runs near the outskirts of the prehistoric city of Quirigua. In so doing, they discovered, one meter down, a magnificent causeway of cut stone, which evidently linked this

<sup>1</sup> Stone, 1932.

<sup>2</sup> Quoted by Frans Blom (1932, p. 547) from a photostatic copy of the original manuscript of Fray Delgado owned by the University of Tulane.

<sup>3</sup> Thompson, 1931, p. 72.

<sup>4</sup> Spinden, 1928, p. 75.

site with some unknown point to the northeast. It had been completely buried by the heavy alluvial deposit which covers the whole region at the present time.

The foregoing statement indicates the present state of our knowledge with regard to the paved roads of prehispanic times, both in the region of the New as well as in that of the Old Empire.

### THE YAXUNA-COBÁ SACBE

As has already been stated, John L. Stephens was the first to report, although indeed rather vaguely, the existence of the Yaxuna-Cobá roadway. It is situated in a sparsely settled region, then under the control of the Maya rebels, and as a result none of the many explorers who visited the peninsula of Yucatan in the second half of the Nineteenth Century tried to visit it. The first outsider who actually saw the site of Cobá was the Austrian explorer Teobert Maler. In going from Chemax to Cobá in September 1891, he by chance ran into—

“the ancient royal road of the Maya, the *sacbe* which, joining all the principal cities of the country, Nohpat, Uxmal and Cabahau, goes through Izamal to Chichen and Cobá and from here, it may be supposed, to Tulum and the port of Cozumel, to whose famous temples many pilgrims were accustomed to come. This marvelous road, much ruined in the portions which pass through inhabited country, is preserved almost intact, although of course overgrown with large trees in those lonely spots where the hand of man has not been seen. It is 5 or 6 meters broad, and its roadbed, which is edged on both sides with large dressed stones, is for the most part about 75 centimeters above the natural level of the ground. The name *sacbe* (white road) which the natives today give to these ancient roads seems to indicate that anciently the roadbed was covered with a thick layer of mortar, at the present time broken up and destroyed by the roots of the trees.”<sup>1</sup>

This account was not promptly published, however, and thus this description and the other slight information which Maler obtained on his visit to Cobá were not made known for some time. For a long period after Maler's journey the *sacbe* was visited only by *chicleros* and by hunters, who were accustomed to make their base of operations beside the lakes of the ancient city of Cobá.

It fell to Thomas Gann and to E. L. Crandall, the photographer of the Chichen Itzá Project of Carnegie Institution of Washington, to recall the importance of this great road when in 1926 on their trip to Cobá they journeyed upon it for a distance of about 16 kilometers. According to Gann,<sup>2</sup> his guide assured them—

“That it extended for 50 miles direct to Chichen Itzá, passing near the village of Tixcacal, and missing Chemax and Valladolid entirely; and furthermore that it ended at the great mound, 2 kilometers to the north of the Nohku, a main temple, in a great ruined building, which we saw from the top of the former.”

<sup>1</sup> Maler, 1932, p. 5.

<sup>2</sup> Gann, 1926, p. 111.

Gann reports also certain *chultuns*<sup>1</sup> or subterranean chambers, which he did not have time to explore, as existing along the course of the road, as well as a number of *sartenejas* or natural receptacles for rain water, which once served, he believed, to supply drinking water—

“to the great body of laborers which must have been employed on the road, and for whom, in this arid region, drinking water would have been a serious problem.”<sup>2</sup>

He also reported three small stelæ found on the *sacbe* itself.

Some weeks later, Mr. J. Eric Thompson, while attached to the Chichen Itzá Project of the Carnegie Institution as archæologist, his interest aroused by what Gann and Crandall had told him, made a trip to Cobá and explored several kilometers of the *sacbe*. With regard to its construction, Thompson says:

“The roadbed consists of the typical loose fill of the ancient Maya, that is to say, of large unworked stones. On top there is a layer of smaller stones reinforced with a mixture of lime and *sascab*, and on top of this a typical surface of lime plaster and *sascab*, which looked almost like cement. Of course, at the present time the surface has been almost entirely destroyed. The road was edged with walls of stones roughly squared and of about the same size. It is likely that these walls were covered with plaster anciently, but today there remains not a trace of it.”<sup>3</sup>

Thompson also expressed for the first time the view, shared by most of those living in the neighborhood of Chichen Itzá, that it was not to Chichen Itzá but to Yaxuna that the *sacbe* led. The Carnegie Institution then sent five more expeditions to the ruins of Cobá, most of them under Thompson's leadership. Although the chief aim of these expeditions was an archæological study of this site, there was also carried on an extended investigation of all the *sacbeob*, or paved roads, which radiated from Cobá, and special attention was directed to the *sacbe* discussed here. In the report embodying the results of these investigations,<sup>4</sup> an effort is made to interpret the glyphs carved on the four inscribed stones found on the *sacbe*, and the conclusion is reached that the road was probably constructed during the middle of Baktun 9. This also appears true of all the stelæ found at this site.

In spite of these explorations, the Yaxuna-Cobá *sacbe* continued to present certain unsolved problems, of which the most important was its western terminus as well as its exact course, matters not yet determined. In order to clear up these points definitely, Captain Robert R. Bennett came to Yucatan in January of 1930, and he stated in a publication of the Museum of the American Indian, Heye Foundation:

“Our expedition undertook the task of ascertaining the destination of this old causeway, in which we were successful.”<sup>5</sup>

<sup>1</sup> The name *chultun* is given to those deep excavations made in the rock floor, which, by reason of their form and dimensions, have been regarded as cisterns. However, it has not been definitely proved that such was their use. Tozzer (1913, p. 191) has wisely observed that they are usually found in places abundantly supplied with water throughout the year, and that in some cases they are made in porous rock where there are no indications that the walls of the excavation were covered with any impermeable cement. Furthermore, in some of these *chultuns* human skeletons have been found, suggesting that they were in some cases used as funeral chambers. Other possible uses could also be suggested.

<sup>2</sup> *Ibid.*, p. 111.

<sup>3</sup> Thompson, 1928, pp. 40-44.

<sup>4</sup> Thompson and Pollock, 1932.

<sup>5</sup> Bennett, 1930, p. 353.

In spite of this assertion, however, Bennett failed to attain his major objective, since he was able to traverse only a small section of this *sacbe* and was obliged to assume that its western terminus was Yaxuna, as previously suggested by Thompson. Bennett made a short visit to the ruins of Yaxuna. There he indicated, as the terminus of the *sacbe*, "a very high mound with a crumbling temple." In fact the terminus is a small mound without a trace of superstructure.

My own interest in this ancient paved road dates from the year 1927 when the natives of Chan Kom and other settlements of the neighborhood told me the picturesque legends they preserved with regard to it. Later on I was able to visit it a number of times, at different points, although for lack of means I made no extended exploration.

During the middle of February 1933, in discussing the subject at Chichen Itzá with Sylvanus G. Morley, Associate of the Carnegie Institution of Washington, in charge of the Chichen Itzá project, I had occasion to speak of my experience with, and interest in, this paved road, the greater part of which was still unexplored. Dr. Morley, with his usual generosity, soon after offered me the chance to explore it fully, and at the same time afforded me the means to carry out such an exploration successfully. I discussed the project with my chief, Dr. Robert Redfield, and he kindly granted me sufficient time from my other work to carry out the exploration in which I had become so interested.

## YAXUNA

The ruins of Yaxuna which mark the extreme western end of the *sacbe* (Plate 9, *b*) are situated 20 kilometers to the southwest of Chichen Itzá. The site has been visited at various times by expeditions from the Carnegie Institution, but none has found stelæ or inscriptions of any sort which let us know the probable period to which it belongs. It is possible that the lack of inscribed stones is due, as suggests Gustav Stromsvik of the staff of the Chichen Itzá Project, who visited the site recently, to the fact that such stones may have been taken away and used for building purposes in the village of the same name, only about a mile away to the east, where among other buildings there is a fine church.

Furthermore, the ruinous condition of all the buildings at Yaxuna—for only one building and a few sections of wall are standing—does not permit one to determine with certainty to what style of architecture they belong. With regard to this, Morley<sup>1</sup> says,

"Only one building is standing, and its masonry is altogether different from that of Chichen Itzá and more like the remains at Cobá—great masses, composed of roughly shaped, undressed stones—or even more like the buildings at Etzna on

<sup>1</sup> Morley, 1927, p. 239.



the other side of the peninsula, where the dressed blocks are small in size and comparatively few in number."

J. Eric Thompson,<sup>1</sup> on the other hand says,

" . . . . . the only standing structure is in typical northwest Yucatan 'Renaissance' style, resembling the annex of the Monjas structure at Chichen Itzá, although the façade has completely collapsed."

At any rate, the fact that Yaxuna is at one end of the *sacbe* clearly indicates the important rôle that the city played in ancient days, as well as its intimate relation with Cobá, which was contemporaneous with the cities of the Old Empire.

Moreover, the short distance which separates it from Chichen Itzá is reason enough to consider it as the last link in the long chronological chain which connects the cities of the Peten region at Guatemala with those which flourished later in the northern part of the Yucatan Peninsula.<sup>2</sup>

## COBÁ

The ruins of Cobá, which mark the extreme eastern end of the *sacbe* (Plate 9, *b*), are situated exactly one hundred kilometers to the east of Yaxuna.

Mentioned first by Stephens in 1843 and visited in 1891 by Teobert Maler, the ruins of Cobá did not reveal their great importance until recently, when members of the Carnegie Institution staff at Chichen Itzá explored and studied them. From these investigations it became clear that the city flourished during the middle part of Baktun 9 of Maya chronology, when Tikal, Copan, Piedras Negras and other cities of the Old Empire were still at their height. The date 9. 9. 0. 0., carved on Stela 6, precedes by approximately a century that which marks the discovery of Chichen Itzá, *i. e.* 9. 14. 0. 0., on which date according to Morley fell the Katun 6 Ahau, to which the Chilam Balam of Chumayel refers.<sup>3</sup>

Moreover, its architecture is also of a type distinct from that presented by the cities of the New Empire. Mr. Harry E. D. Pollock,<sup>4</sup> in commenting upon this, says:

"A preponderance of the architectural features of the earlier class of structures finds similarities in the remains of the Peten region of Guatemala, but the architecture is of a relatively advanced type. The later structures are probably roughly coeval with the final period of construction at Tulum."

Cobá is not only an ancient city, but appears also to have been a great religious center, to judge by its size and the number of its monuments.

<sup>1</sup> Thompson and Pollock, 1932 p. 203.

<sup>2</sup> Morley, 1927.

<sup>3</sup> "This chronicle begins with a Katun 6 Ahau (identified by the writer as 9. 14. 0. 0. 6 Ahau 13 Muan) in which 20-year period it is stated the discovery of Chichen Itzá took place. And beginning with Katun 6 Ahau, there is an unbroken sequence of 61 katuns down to a Katun 3 Ahau which the writer has shown elsewhere ended in 1635 A. D. This would place the beginning of the Katun 6 Ahau, in which it is stated Chichen Itzá was discovered, as 433 A. D." Morley, *Ibid.*, p. 64.

<sup>4</sup> Thompson and Pollock, 1932 p. 130.

The three great ceremonial centers at Cobá—Nohoch-Mul, Cobá and Macanxoc—are united by broad paved roadways, some of which have never been explored to their respective ends.

The five splendid lakes, upon the borders of which Cobá is situated, make of it one of the most picturesque cities in the Maya area, and it may be to these that it owes much of the prestige and sanctity which attend it even to the present day.

### THE EXPEDITION

Dr. Morley and I agreed that it would be well to start the work of exploring the *sacbe* from its supposed western terminus, Yaxuna, as being nearer to Chichen Itzá than Cobá. Therefore, when the details of preparation had been completed, I started for Chan Kom from Chichen Itzá on February 25, 1933, in order to assemble there the group of Maya Indians who were to accompany me in these investigations. My *cuadrilla* was made up of twelve men. Of these, ten devoted themselves exclusively to cutting a way—I can not call it a path—through the thick undergrowth which totally covered the road; the eleventh helped me to take measurements and clean up the places which were to be photographed, and the last led the two horses which carried provisions and water, which I anticipated would be scarce. Before starting, I explained to the men the main points we were striving to accomplish, as well as some of the things I hoped to find, such as new branches of the *sacbe*, platforms, mounds, ruins, artificial reservoirs, etc. Thus each man was able to take an active part in the work of exploration, for knowing what to look for, he was alert to see every smallest detail of the *sacbe*.

At Chan Kom I had to wait one day so that the men could get together their provisions (thick tortillas, ground squash seed, *pinole*, *pozole* and ground *chile*). On the twenty-seventh of February we left Chan Kom for Yaxuna and arrived there after five hours of travel. Here we found it easy to locate the beginning of the *sacbe*, marked by a small unimportant-appearing mound situated in the center of the old city (Plate 1, *a*). This mound is rectangular in shape and measures 3 meters in height, 20 meters in length and 15 meters in breadth at its base. In spite of its bad state of preservation it can still be seen that there was a stairway on its eastern side only, descending to the *sacbe*. At the foot of this stairway I placed a bench mark, from which point I began the measurement of the length of the road. The road runs, according to an observation made with a Brunton compass, at an angle of 84° 30' east. In order to be absolutely certain with regard to this observation, I made use of the line formed by the south side of the *sacbe*, and placing the compass on a tripod, observed in the glass that the marking stake, 100 meters distant, was in exact line with the two points of the instrument which determined the direction, the needle marking the zero or north point on the compass.

The *sacbe*, in this first section, is 10.30 meters broad and stands 60 centimeters above the surface of the ground. At the present time it is in such a bad state of preservation that there hardly remain even the irregularly placed and undressed stones which formerly made up the bed or filling for the paving. This deterioration is due, in my opinion, not as much to the work of time and of the elements, as to the frequent use which has been made of the road as milpa, or cornfield, site (Plate 1, *b*).

Advancing eastward, we found on the roadway, close to the southern edge and 775 meters from our point of departure, a small elevation 1.5 meters high and 4 meters wide on each side, measured at the base (Plate 1, *c*). It is in such a completely ruinous condition that it is impossible to determine which sides had stairways for ascending the summit of this platform. At a distance of 450 meters from this small mound, we came to a terrace 11.30 meters long by 9 meters wide, resembling in appearance the *sacbe* and joined to it on its north side. Upon first seeing it, I supposed that it was a branch road, but further observation showed that this was not the case. Farther on, but only 75 meters from this raised platform, there appeared another mound in as bad a state as the others, but with its base extending into the middle of the road. The height of this mound is approximately 5 meters. It appears to have consisted of two solid structures superimposed one upon the other—the first measuring 20 meters by 30 meters at the base and the second 12 meters square. Although very dilapidated, there are still traces which lead one to believe that there were stairways upon the sides of both structures. There is not the faintest trace remaining of any sort of superstructure.

When we had advanced 8 kilometers, we encountered the first of the many distance-markers or boundary stones (*mojoneras*) which are found along the side of the road. The shape of this first one and of some of the others appears to have been rather regular: 2 meters long, 1.5 meters broad and 0.5 meter high (Plate 2, *a*). As can be seen, they differ very much from those used at the present time, which are almost conical. However, although they appear to have a certain amount of antiquity, it should not be thought for one moment that they were built at the same time the *sacbe* was constructed. It can be seen clearly that the stones of which they were made were taken from the road itself, which leads to the conclusion that the *sacbe* was already in ruins when they were erected.

Exactly at the beginning of Kilometer 12, the *sacbe* passed through the settlement of Sisal (Plate 2, *b*) where there are traces of ancient buildings, mounds, terraces and even remains of walls. The place is inhabited at the present time by three Indian families. Stimulated by the stupendous work of their ancestors which they always have before them, they have endeavored to imitate it by building a small paved roadway (Plate 2, *c*) in order to give easier access to a well at the bottom of a natural depression some 20 meters in depth (Plate 3, *a*) and near which the *sacbe* passes.

This construction, although humble compared with that of the great road, represents nevertheless a noteworthy effort as well as a knowledge of engineering, as curious as it is rudimentary, among the present-day Maya.

At the end of Kilometer 13, we came to a great cross made of *habin* wood, placed upon a small mound of stones (Plate 3, *c*). At the foot of this there are the rotten pieces of a still more ancient cross, which must have preceded the standing one. In the opinion of my companions, it is possible that it marks some old boundary line. Farther on, 330 meters before the end of Kilometer 15, we found on the south side of the road a platform measuring 5.40 meters from east to west and 3.90 meters from north to south, that is to say, with its long axis in the same direction as that of the *sacbe* (Plate 4, *a*). It may be noted that this platform was built upon one of the many natural hillocks over which the road goes. I found not the slightest trace of a superstructure upon it.

In the middle of Kilometer 17, we encountered the first of the many ramparts (Plate 4, *b*) which are found on the road itself, crossing it transversely. All are alike—stone walls, built of stones from the *sacbe* itself, approximately 1 meter high and 70 centimeters broad and varying in length from 10 meters (the width of the *sacbe*) to 30 or 40 meters, extending out on both sides of the roadway.

Exactly at Kilometer 18 we crossed the path which goes from Cuncunul to Xanla (Plate 9, *b*). This latter village is situated 1 kilometer to the south of the *sacbe*. In this place could be seen until recently, on the various mounds which are found round about, pillars, stairways, platforms and other traces of pre-hispanic structures, but at the present time they have disappeared, the dressed stones having been re-used to make modern walls and buildings.

Ten kilometers from this village, near the south side of the road, is the small settlement of Sacal, containing not more than four huts; no ancient remains, however, were found here.

Farther on, exactly halfway between Kilometers 33 and 34, the *sacbe* reaches a height of 2.50 meters above the level of the ground, the greatest height attained throughout its entire course (Plate 4, *c*) with the exception of the point at which it ascends a platform, of which I shall speak later. Soon after we came to Ekal, a humble hamlet composed of three huts, which is located exactly at Kilometer 35. Near this place we found many mounds, the largest of which was approximately 12 meters high and joined to the north side of the road. Upon it there are still remains of an edifice, the greater part of which has fallen. To this structure led each of the stairways ascending the four sides of the pyramid. It is possible to distinguish, although with difficulty, remains of stairways and superstructures upon the other mounds. In spite of repeated searching, I was unable to find any inscription whatsoever. However, to judge by the great number of mounds, the place must have been an important settlement in pre-Columbian times.

In this neighborhood I made one of the most interesting discoveries of the whole trip. I refer to a road roller of solid stone resting upon the *sacbe* itself. This roller measures 4 meters in length by 70 centimeters in diameter and weighed approximately five tons (Plate 5, *b* and *c*). Broken into two equal parts, and in very bad condition because of the destructive action of the elements through the centuries, it is still apparent nevertheless that formerly it had been a perfect cylinder with polished surface. Its shape as well as its extraordinary size give one reason to suppose that it may have been used as a roller for leveling the top layer of *sascab*, which, I believe, formerly covered the surface of the road. The Maya natives who accompanied me put forth this opinion before I had mentioned my ideas on the subject, and they even tried to repeat the scene when long ago the workers pushed this huge roller over this great highway now buried in the forest. Upon leaving Ekal, the *sacbe* turns slightly, the new bearing being 80° East.

At Kilometer 53 there reached our ears the crowing of the cocks at San Francisco, a small hamlet situated a short distance to the north of the road.

Shortly after we passed through Sakauil (Plate 5, *a*), a ruined hacienda situated at Kilometer 55, exactly in the line of the *sacbe*, which is hardly visible here because its dressed stones have been used in the construction of the principal buildings of the hacienda. The same is true of Bohe, another abandoned hacienda, situated a short distance before the termination of Kilometer 58.

Farther on, at Kilometer 61 is X-Cahumil, now an unimportant settlement composed of six huts, but which in ancient times must have had a large population, judging by the number of mounds found thereabout.

Yokdzonot is the name of the next settlement. It is situated 4.5 kilometers from X-Cahumil, and consists of only four huts. Close to it, near Kilometer 69, is Cauan, an archæological site uninhabited at the present time. Here are a number of mounds, the largest of which, situated to the north of the *sacbe*, measures approximately 15 meters high and 35 meters at each side of the base. No traces of superstructures remain here, nor do the stairways which must once have ascended it. At a distance of not more than 300 meters from this mound, is another lower mound in a worse state of decay. It appears to have been joined to the north side of the *sacbe* by a paved road 10 meters broad and 23 meters long.

To the south of this place is Dzibil, a picturesque settlement of about one hundred and fifty people. In Cauan the road turns, the new bearing being 90° 30', and holds this direction for the 6 kilometers necessary to reach Tuzil Chen, a hamlet of three huts, in which there are no remains of archæological interest worthy of mention. Here the *sacbe* changes its course again and proceeds at a bearing of 80° East toward Mutul, a depopulated settlement located at Kilometer 83 where nothing is to be seen but three openings to what I believe to be but a single cenote. From here the *sacbe* continues on the bearing 89° for 11 kilometers.

Shortly beyond Kilometer 85, we found the first of the various inscribed stones which occur in this part of the road scattered over a distance of 8 kilometers (Plates 1, *a*, and 9, *b*). All are in the same bad state of preservation so that to try to note down the inscriptions or to interpret them is now practically impossible. The location and measurements of these may be seen from the following table.

Order of appearance	Kilometers	Meters	Height	Width
1	85	300	65 cm.	50 cm.
2	85	750	60	50
3	87	0	80	48
4	89	300	80	54
5	89	800	70	50
6	93	425	60	55

Close to Kilometer 91, toward the north side of the road, may be seen the badly preserved remains of an L-shaped platform measuring 2 meters in height, the shorter side of which, running parallel to the *sacbe*, measures 25 meters in length by about 12 meters in breadth, and the longer side 50 meters in length and 12 in breadth. This platform appears to have been the site of a building; traces of its walls can barely be seen now. It is possible that the inner sides of the L had a stairway which descended to a broad terrace, the masonry of which can still be seen. Near this platform is a cenote. Because of the difficulty of drawing water here, the attempt had been made to build a long stairway leading down to it, but the builders had been able to lay only the first few meters of masonry. This place, which must have been the site of an ancient Maya city, is called at present Hay-Dzonot, according to information I received from hunters I met at Cobá.

Farther on, at about Kilometer 94, we went through Oxkindzonot, which is the most important archæological site traversed by the *sacbe*. The principal group of mounds, of the several to be seen there, is that situated near the south side of the road, forming a broad rectangular court. At this spot the *sacbe* turns and bears N. 99° E.

Exactly at Kilometer 95, the road climbs over a truncated pyramid 5 meters high, the platform of which is as broad as the *sacbe* and 12 meters long. Its east and west sides, where the *sacbe* ascends and descends, are in such very bad condition that it is difficult to determine certainly the steps which one would expect to find. Joined to this platform is another, 8 meters long and 4 broad, bearing a small mound which rests upon the south side of the pyramid. Neither of these shows traces of a superstructure. The north side of the pyramid is vertical and its height of 5 meters is the greatest which the *sacbe* reaches in all its course.

In the middle of Kilometer 97, on both sides of the road, are to be found traces of terraces and of mounds upon which there still remain small

sections of the walls of buildings. Among these remains a small chamber beneath one of the mounds, which can be reached through an aperture opened in it, deserves mention. This chamber measures 3.90 meters in length, 80 centimeters in breadth and 1.80 meters in height. This group of ruins which must have been a small site or perhaps a secondary religious center, a suburb of Cobá, is called at the present time Chac Ne (Red Tail), the name by which the little nearby water-hole is known to *chicleros* and hunters.

Farther on, beyond Kilometer 98, we began to encounter on both sides of the *sacbe* small mounds and platforms, two of which are situated right upon the road itself and resemble, although not very closely, that described as occurring at Kilometer 95.

The *sacbe*, now in the neighborhood of Cobá, crosses another paved road<sup>1</sup> which runs north and south to a destination as yet unknown. The meeting of the two roads forms an octagonal plaza, in the center of which is a truncated pyramid 4 meters high which apparently had stairways on all four sides. On the upper part of the pyramid there appears to have been a temple. At the present time only a small portion of wall remains. From here the *sacbe* runs N. 103° E. and ends 385 meters beyond Kilometer 100 in the large plaza known by the name of Nohoch-Mul (Plate 3, *b*). It is probable that at the eastern terminus the *sacbe* had two or three steps, traces of which may still be seen. Its dimensions at this end differ very slightly from those noted on the western end; 9.80 meters broad and 60 centimeters high.

These were the details observed during the twenty days spent on the expedition. It may be added that the *sacbe*, although it follows the natural ups and downs of the country (Plate 6, *a*), has an average height of 75 centimeters. Its maximum height, except at the point where it ascends the platform at Kilometer 95, is 2.50 meters, which it attains in the neighborhood of Kilometer 34 in passing over a deep depression. Its state of preservation is equally bad throughout its course. Great cavities<sup>2</sup> made in its surface by the knotted roots of fallen trees (Plate 6, *b*) show how the road was constructed. Large undressed stones form the bed, on which is spread a layer of smaller stones mixed with coarse *sascab* and, on top of this, another layer of fine *sascab*, of which only a few traces remain. Its sides are vertical and are made up of larger stones, roughly dressed on their exposed side. These were probably held together by a mixture of lime and *sascab*, but of this scarcely a trace remains (Plate 6, *c*). Close to the road in many places are to be found pits or *sascaberas* from which it is possible that the *sascab* used in the paving was taken (Plate 7, *a*). One may also

<sup>1</sup> Bennett (1930, p. 372) does not mention any other road, saying merely that "the causeway makes a curve, enters the ruins of Cobá, and ends in a group of mounds to the north." The position of this part of the road in the map which accompanies his report is entirely wrong, for the *sacbe* here discussed does not enter the Cobá area from the south, but from the north.

<sup>2</sup> These may have been the holes which Bennett considered to be artificial, and which he supposed were the mouths of *chultuns* today covered with humus, or which may also have been used for heating lava blocks of stone, which, when very hot, were split by the application of water (1930, p. 367). The merit of these hypotheses may be judged by the reader.

see the quarries used by the builders, as well as blocks of cut stones which they prepared but did not use.

The causeway does not have the branch mentioned by Bennett, nor any other branch. This lack of tributary roads is hard to explain in view of the number of ancient sites, the vestiges of which still remain in the neighborhood of the *sacbe*, and which were probably contemporaneous with the terminal cities.

I was also unable, in spite of the utmost endeavor, to find any of the *chultuns* reported by Gann. The only excavations found during the exploration were the *sascaberas* already mentioned.

The water-holes (*sartenejas*) reported by Gann are all without doubt natural holes in the rocky ground; due to the character of the rock these are common in the region. Thompson, who has passed many times over the part of the road explored by Gann, is in agreement with me on this point, nor does he think he saw *chultuns*. It should be added that I did not explore any considerable distance from the *sacbe*.

It may be added that the lack of *chultuns* and water-holes could not have been serious, as there are so many cenotes in the neighborhood of the causeway that no point on it is very far from a water supply. Furthermore, the natives of today, as no doubt did those of ancient times, use the indispensable calabash canteen. The water this provides is enough to sustain them during a day of hard labor.

#### THE SACBE AND COBÁ ACCORDING TO THE MAYA OF TODAY: BELIEFS AND LEGENDS

The Maya of the present day, marveling at the monumental works of their forefathers, explain them only as works of magic or enchantment. Thus, they suppose that the temples and palaces of the great cities, such as Chichen Itzá and Uxmal, were raised by men who possessed supernatural powers. These men were lords of the elements, which obeyed them docilely. So, by means of a special whistle, the stones, large as they were, ranged themselves without any help, forming marvelous and beautiful buildings.<sup>1</sup> Another whistle or magical formula drew the water, the wind, or the beneficence of the gods, which were then at the service of these men, in whom all sanctity and virtue were lodged. Once this virtue was lost, came the ruin of their power. It is even said that the monoliths with human effigies which we admire today are nothing but these same men of long ago, turned into stone by divine punishment. The Maya of today, in spite of the centuries which separate them from those miraculous days, and the changes which have taken place in their basic conceptions, still preserve a vague feeling that some time they will again be as they were before, and will then be able to repeat the feats of their ancestors.

<sup>1</sup> Mr. J. Eric Thompson informs me that the Maya of Southern British Honduras believe that the structures of Lubaantun were erected in a similar manner. A great chief whistled and the stones came flying through the air to take their present position.



I learned of these ideas during the course of my ethnological investigations in the neighboring village of Chan Kom, where the natives still preserve some legends and beliefs with regard to the sacred city of Cobá.

For them the builder of the *sacbe* was a certain Ez. They are uncertain whether he was a king or a magician, but he always appears in the legends as a personage with great power. It is said that his work was performed in the dark because the sun prevented him from practicing his art. For this reason, the cock's crow, forerunner of the dawn, put an end to his activities.

Among his accomplishments, the *sacbe* is one of the most prominent. This, according to the Indians, he built in one night. In order to accomplish this, he placed on his shoulders a small stone. Then, by his magic arts, the other stones began falling into position, and by themselves formed the white paved roadway. Ez was so absorbed in this work that when he got to Cobá he was surprised by the dawn, and remained forever turned into stone. This belief is so deeply rooted among the natives of the region, that all who saw me exploring the *sacbe* told me the same story. "Now you will see when you get to Cobá the statue of Ez, the lord of this road."<sup>1</sup> An old woman of Bohe, when hearing of our intention, exclaimed earnestly: "You will not get to Cobá because before you do you will meet Ez, the lord of this road, who confuses and makes lose their way those who wish to know its end." However, when I asked an Indian of Tuzilchen about this, he answered without any hesitation: "This was true formerly; but now everyone can get to Cobá, because the *Americanos* have carried Ez away."

On the other hand, there is a little-known legend which attributes the building of the *sacbe* to a certain King Ucan. I learned this from Eleuterio Pat, a man of Chan Kom, who told the story as follows:

"In very ancient times when they built the houses of Chichen Itzá and the other cities, the remains of which we see today among the forests, there lived a very powerful king named Ucan, who was allowed to do many things because he was really a holy man. He lived absorbed in his work, removed from contact with women, whose favors he refused. So he made his kingdom become so large, that in order to join his cities he had to build large paved roads from one to another. In order to do this, it was enough for him to go straight through the forest carrying on his shoulders a special stone, from which, like a ribbon, the white road kept unrolling itself as the king walked. So he built many roads which went to all parts. But it is said that on a certain occasion when he was laying the road which should join Chichen Itzá with the villages to the south, there appeared to him a very beautiful princess. She began to call to him, saying, 'Ucan, come here. Ucan, turn your face toward me,' but King Ucan continued his great work without paying attention to her. The Princess, however, was stubborn, and not yielding to his indifference, interposed herself in the king's path. When he saw her beauty, he forgot for a moment his holy way of life, and letting the stone fall to the ground, entirely gave himself up to making love to the beautiful vision. This was the fall

<sup>1</sup> This may well refer to one of the many stelæ at Cobá. Stela 1 for example is still standing and has the figure of an elaborately dressed ruler sculptured on its front.

of the king. For they say, that afterwards when he wanted to continue his road, he could not lift the stone he had been carrying because he had lost his magic powers. It is recounted also that in the paths of Campeche may still be seen the very stone with which King Ucan built his long roads."

I believe that this legend may possibly be a fragment of remote traditions with regard to Kukulcan (Quetzalcoatl) who, as we know, was a man of great power and sanctity, the builder of temples and cities, and who, on his return to Mexico, stopped in Champoton where "as a memorial to himself and his departure he erected in the sea a fine edifice after the fashion of Chichen Itzá, within a stone's throw of the shore, and so Kukulcan left in Yucatan a perpetual memorial."<sup>1</sup>

As for Cobá, for the Maya of the eastern part of Yucatan, it is a place of mystery. The *h-mens* or native priests are accustomed to name it in their ceremonial prayers, imploring the grace of their "gran audiencia." They assert, moreover, that there reside certain deities of the apiaries as well as other protecting spirits. Some *h-mens* have assured me also that they have made a special trip to this place in order to obtain from these spirits their supernatural powers. Petronilo Albornoz, the most famous curer in Yucatan (but not a *h-men*), is accustomed to spend long periods at Cobá in order to acquire, so I have been told, "the secrets of the lost wisdom of the ancient Maya."

For the common run of people, Cobá is a more or less mythical place, to which one can not get without encountering many dangers, of which may be mentioned the terrible Hacmatz, an animal which devours men and which gets its victims simply by sticking out its tongue.

Moreover, Eric Thompson, in speaking of the hunters who are accustomed to come to Cobá, remarks:

"It is interesting to note that it is their custom to burn candles, copal, or puk ak (a resin obtained from a liana of the same name) before Stelæ 9 and 10 at Cobá and Stela 1 at Macanxoc, though the latter less frequently. This practice is based on a belief that the stelæ are the guardians of the forest."<sup>2</sup>

Finally, there may be mentioned the belief existing among the natives of Quintana Roo, that Cobá is a place which appears uninhabited but that its people are really still living under the ground, preserving the same customs and habits that they had in ancient times.

<sup>1</sup> Landa, 1900, p. 283.

<sup>2</sup> Thompson and Pollock, 1932, p. 3.

## SUMMARY

*Mojoneras*—As I have said, some of the boundary-markers placed on the *sacbe* appear to date from ancient times, since the natives who live near them have completely forgotten the boundaries which they marked. Moreover, there are no data which permit us to speculate, even approximately, as to the date of their construction. However, if we observe a map representing the peninsula at the time of the fall of Mayapan (the middle of the Fifteenth Century), when it was divided into chieftainships (*cacicazgos*), we see that the *sacbe* marked almost exactly the boundary between the lands belonging to the Cochuahes and those belonging to the Cupules.<sup>1</sup> Besides this, *mojoneras* recently placed show that the *sacbe* still serves as a boundary. A native of Sacal said to me in regard to this: "Up to a little while ago there used to be many quarrels and the question of land ownership between the people of Tekom and those of Dzitnup. To stop them it was agreed between both villages that the people of Tekom should make their milpas on the land north of the *sacbe* and those of Dzitnup on the land south of it. Since this time they have lived in harmony."<sup>2</sup>

All these facts have inclined me to believe that the *sacbe* did in fact serve as a boundary when the peninsula broke up into *cacicazgos* about the middle of the Fifteenth Century, at which time it is likely that the first of the markers here mentioned were placed in position.

*Ramparts*—From the middle of Kilometer 17 up to Kilometer 97 there are found the remains of ramparts, which cross the *sacbe* transversely. Some of these are as much as 40 meters long, extending far out at both sides of the road. It is extremely difficult to establish the date in which these were constructed, for the *sacbe*, being situated in the wildest part of the country, has been the seat of continual struggles between Whites and Indians throughout the period of Spanish domination. Later on, during the War of the Castes, it long marked the frontier between the Government troops and those of the rebels. At any rate, the existence of such defensive barricades upon the *sacbe* leads one to think that it remained in use as a roadway until very recent times. Even today there converge upon it, at short intervals, the paths which join the small settlements located nearby.

*Platforms*—Located ordinarily at one side of the *sacbe* upon the slight rises of ground, which occur now and then along its course, are found platforms. The use of these, because of their isolation from archæological sites and their lack of superstructures, is puzzling. With regard to this, Maler,<sup>3</sup> in speaking of the platform at the Kilometer 95, made the following statement.

<sup>1</sup> Genet, 1927, p. 114, shows a map of the peninsula at this period.

<sup>2</sup> Like causes gave rise in 1557 to the Convention of Mani which almost all the *batahs* in the peninsula attended in order to settle definitely the boundaries of their respective *caciqueships*. It may be added, however, that the Chronicles of Oxkutzcab in referring to this event make absolutely no mention of the *sacbe*.

<sup>3</sup> Maler, 1932, p. 5.

"We had traveled a quarter of an hour upon the *sacbe*, making our way constantly with the help of the machetes, when we encountered one of those curious monuments which we may call 'stations of the road' and which at intervals used to make spots for rest and perhaps devotion, because among the ancient nations all manifestations of human life took on a religious character."

In my opinion this hypothesis is quite acceptable, when one considers the deeply religious character of the Maya people, ruled by gods and priests.

*Road Roller*—In the preceding pages, I spoke of the great stone cylinder found upon the *sacbe*, as well as the reasons which inclined me to believe that it was used as a road roller. The chief point of interest with regard to this find is that it gives a certain support to the theory that the surface of the *sacbe* was formerly covered with a coating of *sascab* and not with mortar or cement, as other writers have supposed.

*Archæological Sites*—The remains of pre-Columbian settlements by which the *sacbe* runs always consist of ruined mounds upon which still remain traces of superstructures and stairways, of terraces and platforms. The excavation of these mounds would doubtless yield architectural information, which together with a study of the pottery, would shed much light on the early period of Maya culture in Yucatan.

Moreover, the six changes of course, which the *sacbe* makes (*b*, *c*, *d*, *e* and *f*, Plate 9, *b*) at the corresponding settlements along the way, clearly indicate that they were already in existence when it was built. This leads us to believe that the sites joined by this great road were contemporaneous with Cobá, which, we know, was contemporaneous with the cities of the Old Empire.

*Inscribed Stones*—As has been noted in the preceding pages, there lie upon the *sacbe*, scattered between Kilometers 85 and 94, stones with chronological inscriptions upon one side, but these are in such bad condition that it is impossible to read them. All appear to have been of the same size, and except for the second one, which is broken, and the third, which has only six glyphs, all have eight glyphs inscribed upon them.

The first three of these were discovered by Gann in 1926; he sketched and commented upon them in his book published in that year.<sup>1</sup> The next stone was found by the Fourth Carnegie Expedition to Cobá. Bennett in his report on the *sacbe* refers to four small stelæ but does not give a sufficiently detailed description of them to permit their identification.

Of the six small inscribed stones found at this time, the first four are undoubtedly those reported previously by Gann and the Fourth Carnegie Expedition. Basing my discussion of them on the photographs, figured in Plates 7 and 8 and availing myself of Dr. Morley's suggestions, I will explain those details which are decipherable in these texts.

*Stone Number 1* (Plate 7, *b*)—On this stone can be seen rather clearly in glyph A1 the coefficient 8 followed by a sign which possibly indicates *day*. In the next glyph B1 can be seen an ending prefix; only the coefficient

<sup>1</sup> Gann, 1926.

of A<sub>3</sub> can be read as 15. The considerable erosion of this stone prevents one from deciphering the other glyphs.

*Stone Number 2* (Plate 7, *c*)—Although this stone is in even a worse state of decay than the preceding, its upper portion having been lost, we may still read a coefficient 9 in glyph A<sub>1</sub>.

*Stone Number 3* (Plate 8, *a*)—This stone both Gann and Thompson read incorrectly in a horizontal position, showing three columns; A, B and C, with two glyphs in each column, instead of reading it like the others, vertically, with only two columns, A and B, and three glyphs in each column. The coefficient 15 shows fairly clearly at A<sub>1</sub>, which is all that can be deciphered.

*Stone Number 4* (Plate 8, *b*)—This stone is in a very bad state of deterioration. Only the coefficients 10 and 1, at A<sub>1</sub> and B<sub>4</sub>, respectively, as well as an ending prefix in the glyph B<sub>1</sub> can be distinguished.

*Stone Number 5* (Plate 8, *c*)—The coefficient 10 of glyph A<sub>1</sub> is the only character distinguishable among all the glyphs inscribed upon this stone.

*Stone Number 6* (Plate 8, *d*)—On this stone all that can be advanced as even a possible interpretation is the coefficient 4 in glyph A<sub>1</sub>.

As can be seen, the bad state of preservation of these stones makes it impossible to use them to fix the date of the *sacbe*. It is very possible, however, that it was built during Baktun 9, from which period date all the stelæ found up to the present time in the Cobá area. Moreover, the dates 9. 12. 12. 0. 5. and 9. 11. 0. 0. 0. inscribed upon stelæ 20 and 21, respectively, discovered in the ceremonial center of Nohoch Mul from which the *sacbe* here under discussion leaves Cobá, as indeed the majority of the other *sacbeob* leaving this site, tends to indicate that at least the first portions of the road may be assigned to the middle or latter half of Baktun 9.

What, then, was the object of these "white roads"? The Maya had no beasts of burden and no wheeled vehicles. Their only means of locomotion was on foot, except that the nobles or lords were borne on litters by slaves. In view of these facts it is plain that the construction of these magnificent highways was stimulated by motives other than those of commercial intercourse.

Lizana says explicitly that the causeways which issued from Izamal were used as "sacred ways" for the pilgrimages which came to this city from distant places. There is also record of imposing processions of pilgrims which came from all parts of the Peninsula to Tulum, Xelha and other ports on the east coast on their way to the famous sanctuaries of Cozumel, where there were idols of great prestige.<sup>1</sup>

"The journey was a true religious pilgrimage," says Molina Solis. "During its course the pilgrims visited the temples along the route, the ancient monuments

<sup>1</sup> In this sanctuary was venerated a hollow clay idol within which was concealed a priest who delivered oracular utterances which his hearers took as descending from the gods. In 1851 this device was revived by a native chief who established the cult of "the talking cross" as an instrument of control among his people. This cult persists today among certain villages in the interior of (what was until recently called) the Territory of Quintana Roo.

and the abandoned ruins, where they paused to burn copal the sacred incense reserved for the expressions of the cult."<sup>1</sup>

Even today there exists among the natives some memory of these pilgrimages and also of the highways which united Cobá with the ports mentioned. We are therefore brought to think that religious motives impelled the builders of the "white roads." Their construction, indeed, was an enterprise of such formidable dimensions that it is possible to conceive of it only as executed under the supreme command of the gods.

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<sup>1</sup> Solis, 1896, p. 282.



*a*, Beginning of causeway at eastern base of structure at Yaxuna.



*b*, Section of causeway used as a *milpa* or cornfield.



*c* Small platform on south side of causeway near Kilometer I.





*a*, Distance marker or boundary stone.



*b*, Settlement of Sisal at beginning of Kilometer 12.



*c*, Modern causeway built by Indians to give easy access to well at bottom of natural depression.

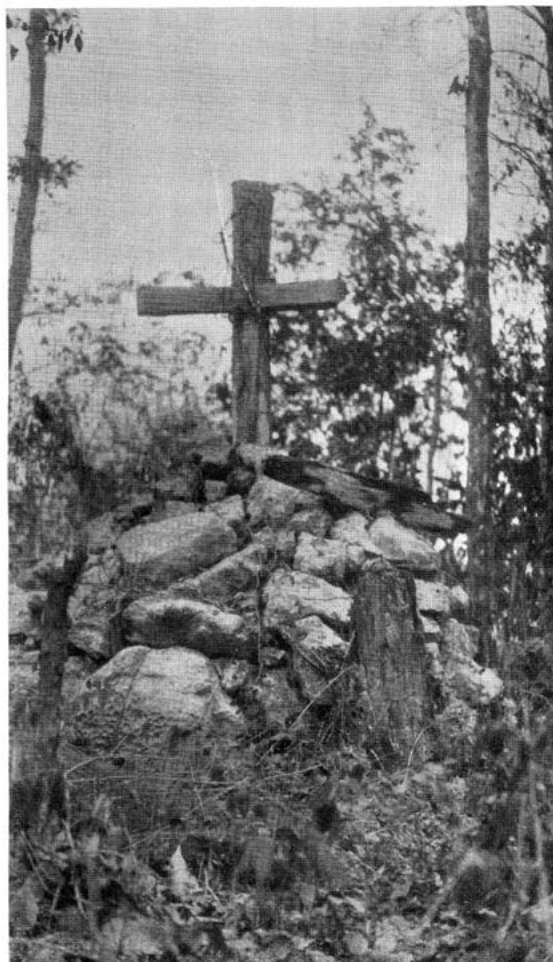




*a*, Well at Sisal at bottom of natural depression approached by modern causeway.



*b*, Nohoch-Mul, principal structure situated on plaza in which causeway terminates.



*c*, Great wooden cross at Kilometer 13, perhaps marking some earlier boundary line.



*a*, Small platform on south side of causeway near Kilometer 15.



*b*, Rampart built across causeway midway between Kilometers 16 and 17.



*c*, Causeway midway between Kilometers 33 and 34, where it attains its maximum elevation—2.50 meters.



*a*, Road roller.



*b*, Road roller.



*c*, Sakauai, a ruined Spanish hacienda at Kilometer 55.





*a*, Typical view of region transversed by causeway.



*b*, Hole in causeway opened by tree-roots.



*c*, Section of causeway showing faint traces of former use of plaster.



*a*, One of the *sascaberas* near the *sacbe*.



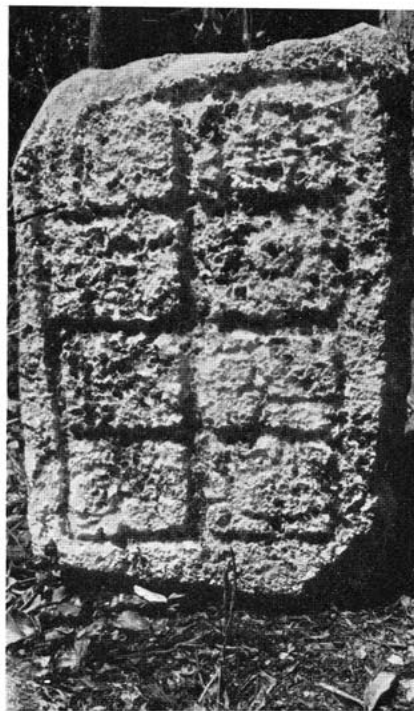
*b*, Small inscribed Stone No. 1.



*c* Small inscribed Stone No. 2.



*a*, Small inscribed Stone No. 3.



*b*, Small inscribed Stone No. 4.



*c*, Small inscribed Stone No. 5.



*d*, Small inscribed Stone No. 6.

