

When I had successfully cast the mold of the right hand, I began the left, pausing a few moments to hear Mr. Lincoln tell me about a scar on the thumb.

"You have heard that they call me a rail-splitter, and you saw them carrying rails in the procession Saturday evening; well, it is true that I did split rails, and one day, while I was sharpening a wedge on a log, the ax glanced and nearly took my thumb off, and there is the scar, you see."

The right hand appeared swollen as compared with the left, on account of excessive hand-shaking the evening before; this difference is distinctly shown in the cast.

That Sunday evening I returned to Chicago with the molds of his hands, three photographic negatives of him, the identical black alpaca campaign-suit of 1858, and a pair of Lynn newly made pegged boots. The clothes were all burned up in the great Chicago fire. The casts of the face and hands I saved by taking them with me to Rome, and they have crossed the sea four times.

The last time I saw Mr. Lincoln was in January, 1861, at his house in Springfield. His little parlor was full of friends and politicians. He introduced me to them all, and remarked to me aside that, since he had sat to me for his

bust, he had lost forty pounds in weight. This was easily perceptible, for the lines of his jaws were very sharply defined through the short beard which he was allowing to grow. Then he turned to the company, and announced in a general way that I had made a bust of him before his nomination, and that he was then giving daily sittings, at the St. Nicholas Hotel, to another sculptor; that he had sat to him for a week or more, but could not see the likeness, though he might yet bring it out.

"But," continued Mr. Lincoln, "in two or three days after Mr. Volk commenced my bust, there was the animal himself!"

And this was about the last, if not the last, remark I ever heard him utter, except the good-bye and his good wishes for my success.

I have omitted to say that, when sitting in April for the model, and speaking of his Cooper Institute speech delivered in New York a short time before, he said that he had arranged and composed this speech in his mind while going on the cars from Camden to Jersey City. When having his photograph taken at Springfield, he spoke of Colonel Ellsworth, whom he had met a short time before, and whose company of Zouaves he had seen drill. Lincoln said:

"He is the greatest little man I ever met!"

THE HIEROGLYPHS OF CENTRAL AMERICA.

IN May, 1841, Mr. John L. Stephens published his work on the antiquities of Central America in two volumes, richly illustrated by elaborate drawings made on the spot by his fellow-traveler, Mr. Catherwood. In three months nine editions were sold, and in 1842 the twelfth edition was printed. This rapid sale speaks not only of the great value of the book, but of the popular interest in the subject of which it treats—an interest which still exists, as is shown by the continued sale of these volumes.

It is safe to say that nearly all of the current information on the subject of Central American archæology is still derived from this work, which has not been superseded by any of the writings of later explorers, although it has been admirably supplemented by the photographs of De Charnay and others.*

The cuts which accompany the present

article are all copied from those given by Stephens, except the few which have been taken direct from Mr. Bancroft's "Native Races of the Pacific States," and from monographs, for comparison.

It will be impossible here to give any sketch of the nature and meaning of the statues, temples, etc. still existing in Yucatan. A general knowledge of the history of past researches must be assumed, and if it is lacking, it can be supplied by consulting the two works named.

The complete proof of any one of the propositions which I shall lay down is also not to be given within the short limits of a single article. For a detailed account, I must refer to the Annual Report (for 1880) of the Director of the Bureau of Ethnology of the Smithsonian Institution, in which I have given a full, though condensed, history of the work which has been accomplished.

It will, however, be interesting to examine the question of the deciphering of the Yucatec hieroglyphs a little nearer. Let the reader

* The results of the explorations of M. de Charnay are now in course of publication in the "North American Review."—ED. C. M.

turn to any one of the accompanying plates and examine one of the hieroglyphs. It will be seen to consist usually of a pictorial representation of some object, surrounded by ornaments and additions more or less conventionalized, as rows of dots or bars, etc. In the most obvious cases, the main feature is a human face, usually a profile, and it is to these that attention must first be directed. Take, for example, the top row of hieroglyphs on the right-hand side of the Figure No. 1, and choose the second symbol. It consists of a head in profile, the tongue protruding from the mouth, a circle with four segments marked off in it, accompanied by an oval having its center hatched over by cross lines to represent the skin of a serpent, this oval being surmounted by a conventional sign for feathers or plumage. The whole is a portrait of Cukulkan (Mexican, Quetzalcoatl), meaning, in both languages, "Snake-plumage." This personage introduced the practice of wounding the tongue at sacrificial feasts (hence the protruding tongue); he was one of the inner circle of gods, whom we call, for want of a better name, "the gods of hell," and the circle with its cut-off segments is the conventional sign for this family. The *rebus* of his name is given in the oval with its cross-hatchings and its feathers, so that any native describing what he saw, *Cukul*—feathers, *kan*—serpent, pronounced the name of the god.

Let us see how this and other conclusions can be arrived at, by a simple and rational method, the spirit of which can be at once understood. It is to be remembered also that, up to this time, the meaning of every single hieroglyph has remained unknown in spite of all attempts at interpretation.

By the processes which I have employed, a few names have been discovered and the order according to which the lines and columns are to be read; and a method has been laid down by following which further progress can be made. Such progress now depends mainly upon the research being made, according to this method, by professional archaeologists to whom the whole history and mythology of the Maya nations are familiar, through long study. Advances must be suggested by an imagination cultivated by intimate acquaintance with the lore of the Central American people, and controlled by erudition in the works of the first white inhabitants of their country.

In my own studies, I have (necessarily) confined myself to what could be proved, and I have, I believe, taken no step which was not inevitable. I have attempted to apply the principles of ordinary deciphering to the stone tablets, just as one would do to

an ordinary cipher message whose meaning and code were unknown.

The difference of the two cases is not so great as might at first sight appear. The underlying principles are the same, and the chief difficulty in the Yucatec inscriptions is our lack of any definite knowledge of the nature and intent of the aboriginal records.

I therefore determined to apply these principles, without any bias, to the Yucatec inscriptions, and to go as far as I could certainly. Arrived at the spot where demonstration ceased, it would become my duty to stop.

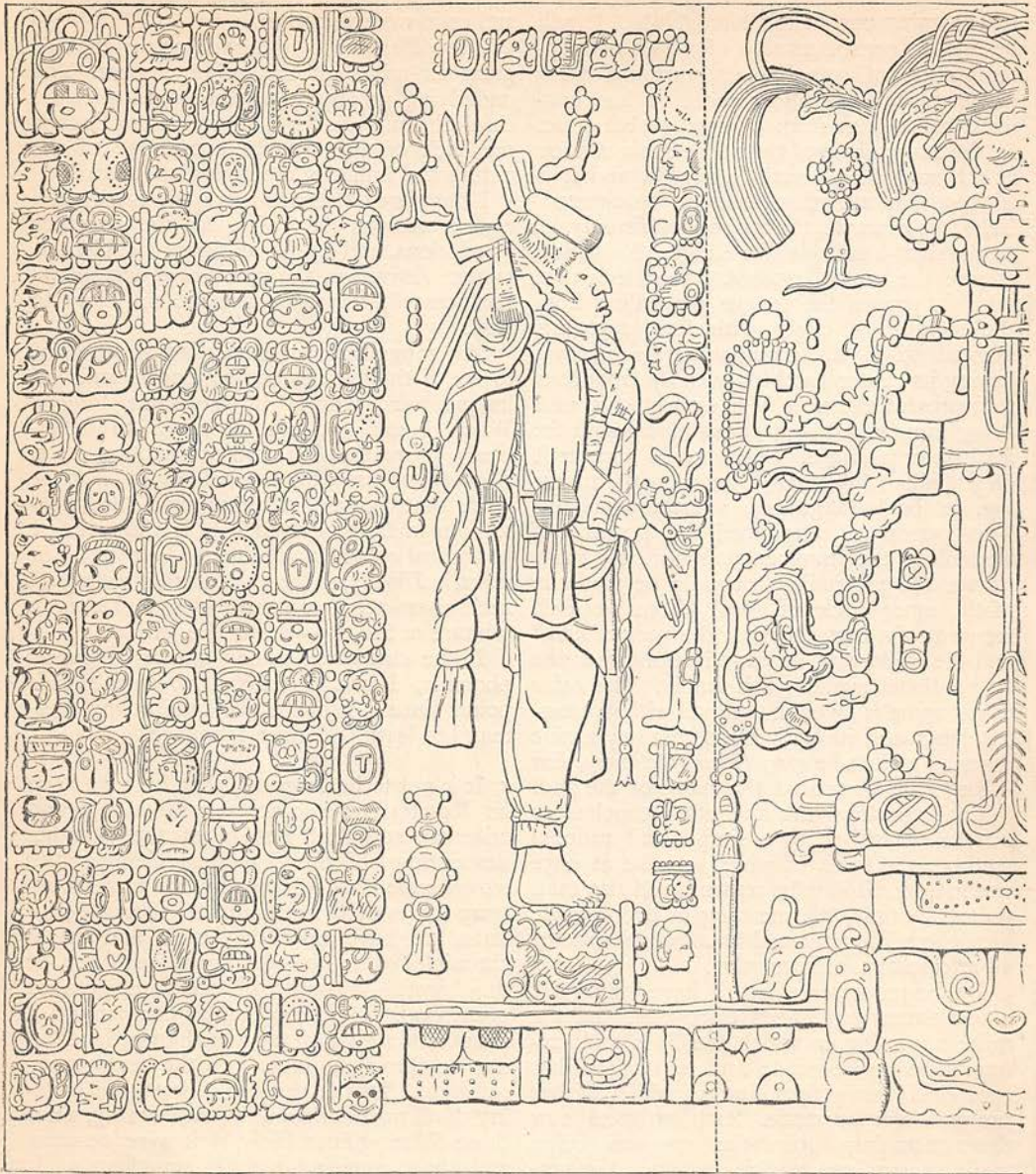
My programme at beginning was: *First*, to see if the inscriptions at Copan and Palenque were written in the same tongue. When I say "to see," I mean to definitively prove the fact, and so in other cases. *Secondly*, to see how the tablets were to be read, that is, in horizontal lines, are they to be read from right to left, or the reverse? in vertical columns, are they to be read up or down? *Thirdly*, to see whether they were phonetic characters, or merely ideographic, or a mixture of the two—*rebus*-like, in fact.

If the characters turned out to be purely phonetic, I had determined to stop at this point, since I had not the time at my command to learn the Maya language.

It is not to be forgotten that here we have no Rosetta stone to act at once as key and criterion, and that, instead of the accurate descriptions of the Egyptian hieroglyphics which were handed down by the Greek contemporaries of the sculptors of these inscriptions, we have only the crude and brutal chronicles of an ignorant Spanish soldiery, or the bigoted accounts of an unenlightened priesthood. To Cortez and his companions, a memorandum that it took one hundred men all day to throw the idols into the sea was all-sufficient. To the Spanish priests, the burning of all manuscripts was praiseworthy, since those differing from Holy Writ were noxious, and those agreeing with it superfluous. It is only to the patient labor of the Maya sculptor, who daily carved the symbols of his belief and creed upon enduring stone, and to the luxuriant growths of semi-tropical forests which concealed even these from the passing Spanish adventurer, that we owe the preservation of the memorials of past beliefs and vanished histories.

SYSTEM OF NOMENCLATURE.

TO MAKE any progress, it was first necessary to decide on a system of nomenclature. The



F. Catherwood del.

FIG. 1. THE PALENQUE CROSS.

one I use may be understood by giving it for a special tablet, as the right-hand half of Figure 1. The top row of hieroglyphs I numbered 2020, 2021, 2022, 2023, 2024, 2025; the next row was 2030, 2031, 2032, 2033, 2034, 2035; the next row began with 2040; the next with 2050; and the last row was 3080, 3081, 3082, 3083, 3084, 3085.

In passing, it will be noted that two hieroglyphs which occur next each other in a tablet have consecutive numbers; if one is over the other, their numbers differ by ten.

IN WHAT ORDER ARE THE HIEROGLYPHS READ?

BEFORE any advance can be made in the deciphering of the hieroglyphic inscriptions, it is necessary to know in what directions, along what lines or columns, the verbal sense proceeds.

All the inscriptions that I know of are in rectangular figures. At Copan, they are usually in squares. At Palenque, the long inscriptions are in rectangles. At Palenque, again, there

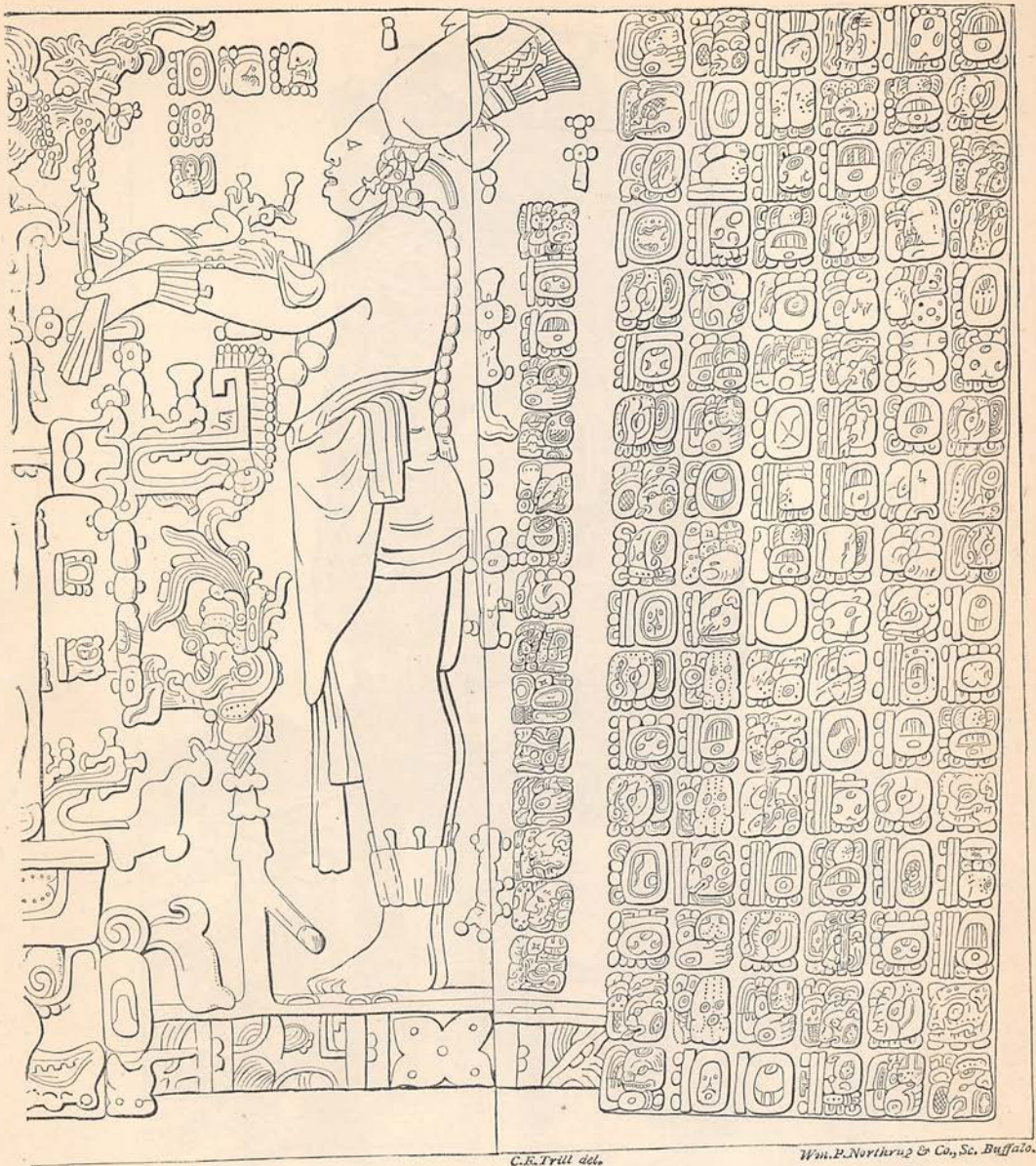


FIG. 1. THE PALENQUE CROSS.

are some cases where there is a single horizontal line of hieroglyphs over a pictorial tablet. Here, clearly, the only question is, do the characters proceed from left to right, or from right to left? In other cases, as in the tablet of the cross, there are vertical columns. The question here is, shall we read up or down?

Now, the hieroglyphs must be phonetic or pictorial, or a mixture of the two. If they are phonetic, it will take more than one sym-

bol to make a word, and we shall have groups of like characters when the same word is written in two places. If the signs are pictorial, the same thing will follow—that is, we shall have groups recurring when the same idea recurs. Further, we know that the subjects treated of in these tablets must be comparatively simple, and that names, as of gods, kings, etc., must necessarily recur.

The names, then, will be the first words deciphered. At present, no single name is

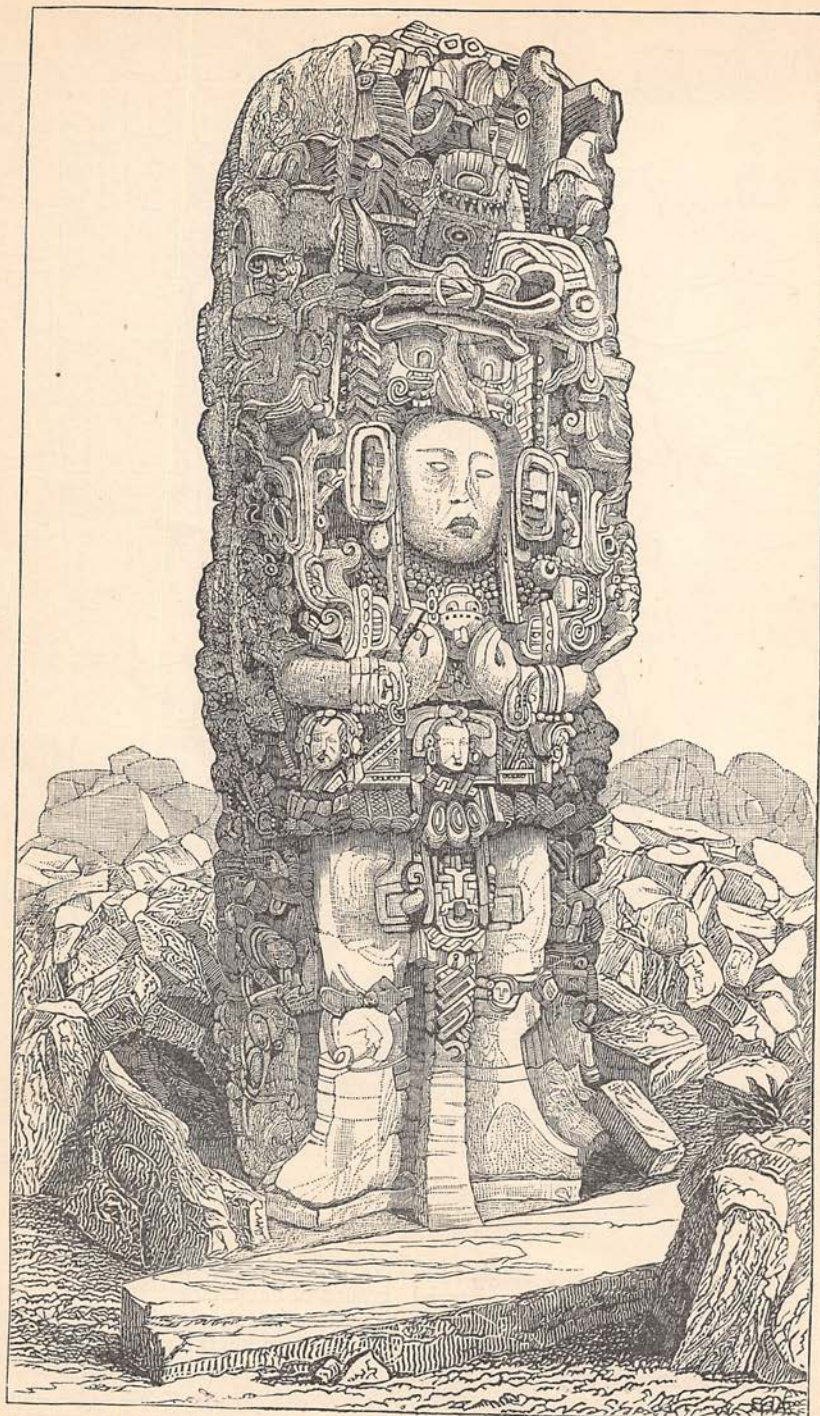


FIG. 2. STATUE AT COPAN.

known. These facts, together with our system of nomenclature, will enable us to take some steps.

Take, for example, the right-hand side of the Palenque-cross tablet, as given by Rau. Our system of numbering is here :



FIG. 3. STATUE AT COPAN.

2020	2021	2022	2023	2024	2025
2030	2031	2032	2033	2034	2035
*	*	*	*	*	*
*	*	*	*	*	*
*	*	*	*	*	*
3080	3081	3082	3083	3084	3085

Now pick out the duplicate hieroglyphs in this—that is, run through the tablet, and, wherever 2020 occurs, erase the number which fills the place and write in 2020. Do the same for 2021, 2022, etc., down to 3084. The result will be as follows:

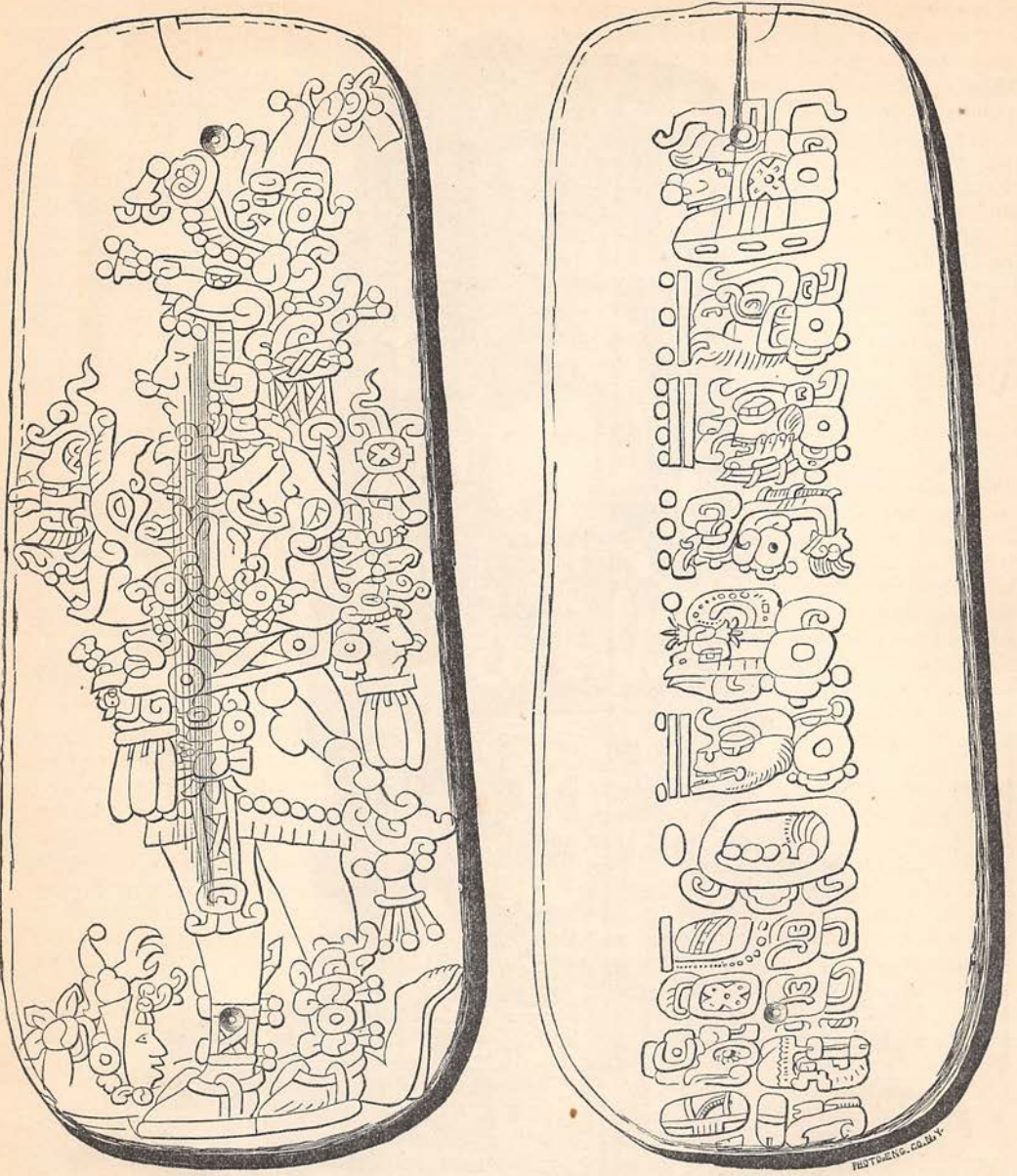


FIG. 5. YUCATEC STONE.

RIGHT-HAND SIDE OF PALENQUE-CROSS TABLET.

						2021	2091	2092	{ 2025	2094	2095
						3000	2023	2034	{ 2053	2033	3005
2020	2021	2022	2023	2024	2025						
2030	2031	2032	2033	2034	2035	3010	2083	3012	2024	3014	2091
						2053	3021	2023	2020	3024	2024
						{ 2024	2025	2021	3033	{ 2025	2034*
2040	2041	2042	{ 2025	2020	2021	{ 2053*	3021	3042	3043	{ 2035	3045
2050	2051	2034	{ 2053	2054	2055	3050	2083	{ 2025	2034	3054	3055
						Sec 2082					
2053	2061	2062	2063	2064	2065						
						2024	2020	{ 2035	3063	2024	2025
2070	2071	2020	2021	2022?	2024?						
						2021	2031	2020	2021	2035	3045
2053	2020	2082	2083	2025	2053	3080	3081	2091	2093	2020	2021

Summing up, we have 14 cases of horizontal pairs, 4 cases of vertical pairs—102 characters in all, of which 51 appear more than once, so that there are but 51 independent hieroglyphs.

Here the first two lines are unchanged. In the third we find that 2043 is the same as 2025, 2044 equals 2020, 2045 equals 2021, and so on.

After this is done, connect like pairs by braces whenever they are consecutive, either vertical or horizontal. Take the pair 2020-2021 for example. 2020 occurs eight times in the tablet, viz.: as 2020, 2044, 2072, 2081, 3023, 3061, 3072, 3084. In five out of the eight cases, it is followed by 2021, viz.: as 2021, 2045, 2073, 3073, 3085.

It is clear this is not the result of accident. The pair 2020-2021 means something, and when the two characters occur together they must be read together. There is no point of punctuation between them. We also learn that they are not inseparable. 2020 will make sense with 2082, 3024, and 3062. Here it looks as if the writing must be read in lines horizontally. We do not know yet in which direction.

We must examine other cases. This is to be noticed: if the reading is in horizontal lines from left to right, then the progress is from top to bottom in columns, as the case of 3035-3040 (marked with asterisks in the table) shows. 3035 occurs at the end of one line, and the corresponding symbol to make the pair is at the beginning of the next line below. Thus the lines are connected. The large symbols at the beginning of the lines on the left-hand side of Figures 1 and 13 show that the lines begin at the left. So that the conclusion is that these inscriptions are read in the same direction as the words on the present page, beginning at the left.



FIG. 7. HUITZILOPOCHTLI (FRONT).

COMPARISON OF
TWO STATUES
AT COPAN.

IN examining the various statues at Copan, as given by Stephens, one naturally looks for points of striking resemblance or of



FIG. 6. HUITZILOPOCHTLI (BACK).

striking difference. Where all is unknown, even the smallest sign is examined in the hope that it may prove a clew. Figure 2 has a twisted knot (the "square-knot" of sailors) of cords over its head, and above this is a *chiffre* composed of ellipses, and above this again a sign like a sea-shell. A natural suggestion was that these might be the signs for the name of the personage depicted in Figure 2. If this is so, and we should find the same sign elsewhere in connection with a figure, we should expect to find this second figure like the first in every particular. This would be a rigid test of the theory. Now, after looking through the Palenque series, and finding no similar figure and sign, I examined the Copan series, and in Figure 3 I found the same signs exactly—*i. e.*, the knot and the two *chiffres*.

At first sight, there is only the most general resemblance between the personages represented



FIG. 8. HUITZILOPOCHTLI (SIDE).



FIG. 10. MAYA WAR-GOD.

in the two plates; as Stephens says, in his original account of them, they are "in many respects similar." If he had known them to be the same, he would not have wasted his time in drawing them. The scale of the two drawings and of the two statues is different. But the two personages are identical: figure for figure, ornament for ornament, they correspond. It is unnecessary

to give the minute comparison here in words. It can be made by any one from the two plates herewith. Take any part of Figure 2,

find the corresponding part of Figure 3, and whether it is human feature or sculptured ornament, the two will be found to be the same. Take the middle face depending from the belt in each plate. The ear-rings are the same; the ornament below the chin, the knot above the head, the complicated bead-work on each side of this face—all are the same. The bracelets of the right arms have each the forked serpent-tongue, and the left-arm bracelets are similarly ornamented. The crosses with beads almost inclosed in the right hands are alike, the elliptic ornaments above each wrist, the knots and *chiffres* over the serpent-masks which surmount the faces—all are the same.

Here, then, is an important fact. The theory that the *chiffre* over the forehead is characteristic, though it is not definitively proved, receives strong confirmation. The parts which have been lost by the effects of time on one statue can be supplied from the other. Better than all, we gain a test of the minuteness with which the sculptors worked, and an idea of how close the adherence to a type was required to be. Granting once that the two personages are the same (a fact about which I conceive there can be no possible doubt, since the chances in favor are literally thousands to one), we learn what license was allowed

and what synonyms in stone might be employed. Thus, the ornament suspended from the neck in Figure 3 is clearly a tiger's skull. That from the neck of Figure 2 has been shown to be the derived form of a skull by Dr. Harrison Allen,* and we now know that this common form relates, not to the human skull, as

* The Life Form in Art: Trans. Amer. Phil. Soc. Vol. XV., 1873, page 325.



FIG. 9. MICLANTECUTLI (BACK).

Dr. Allen has supposed, but to that of the tiger. We shall find this figure often repeated, and the identification is of importance. This is a case in regard to synonyms. The kind of symbolism so ably treated by Dr. Allen is well exemplified in the conventional sign for the *crotalus* jaw at the mouth of the mask over the head of each figure. This is again found on the body of the snake in Figure 12, Tlaloc (rain-god), and in other places. Other important questions can be settled by comparison of the two plates. For example, at Palenque we often find a sign composed of a half-ellipse, inside of which bars are drawn.



I have elsewhere shown that there is reason to believe the ellipse to represent the concave of the sky, its diameter to be the level earth, and, in some cases, at least, the bars to be the descending and fertilizing rain. The bars are sometimes two, three, and sometimes four in number.

Are these variants of a single sign, or are they synonyms? Before the discovery of the identity of the personages in these two plates, this question could not be answered. Now we can say that they are not synonyms, or, at least, that they must be considered separately. To show this, examine the bands just above the wristlets of the two figures. Over the left hands of the figures the bars are two in number; over the right hands there are four.

This exact similarity is not accidental. There is a meaning in it, and we must search for its explanation elsewhere; but we now have a valuable test of what needs to be regarded, and of what, on the other hand, may be passed over as accidental or unimportant.

These statues, then, are to us a dictionary of synonyms in stone—a test of the degree of adherence to a prototype which was exacted, and a criterion of the kind of minor differences which must be noticed in any rigid study.

I have not insisted more on the resemblances since the accompanying figures present a demonstration.

ARE THE HIEROGLYPHS OF COPAN AND PALENQUE IDENTICAL?

ONE of the first questions to be settled is whether the same system of writing was employed at Palenque and at Copan. Before any study of the meanings of the separate *chiffres* can be made, we must have our material properly assorted, and must not include, in the figures we are examining for the detection of a clew, any which may belong to a system possibly very different.

The opinion of Stephens and of later writers is confirmed by my comparison of the Palenque and the Copan series—that is, it becomes evident that the latter series is far the older.

In Nicaragua and Copan, the statues of

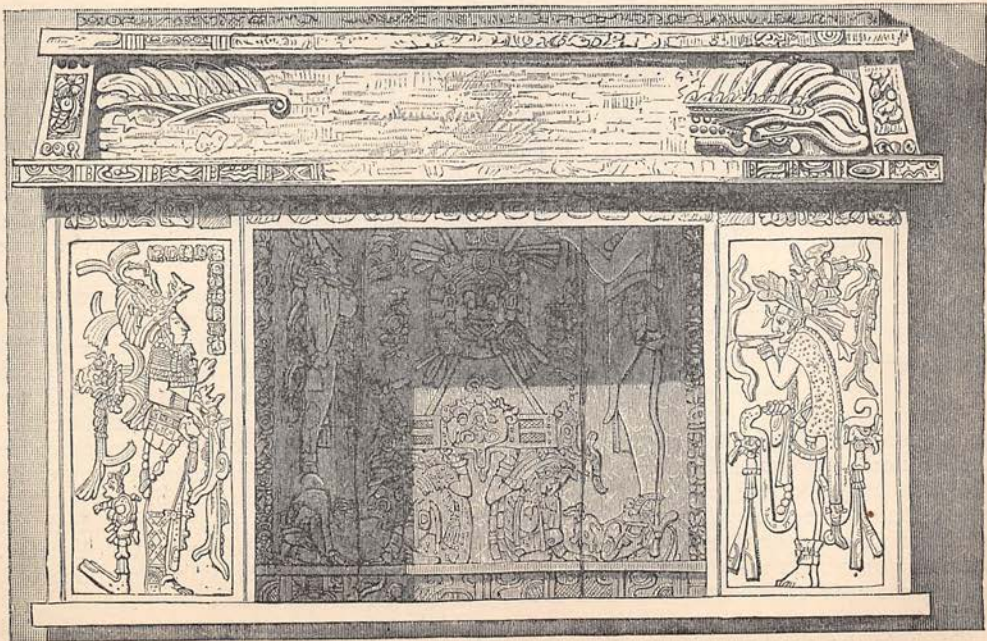


FIG. 11. ADORATORIO.



FIG. 12. MAYA RAIN-GOD.

gods were placed at the foot of the pyramid; farther north, as at Palenque, they were placed in temples at the summit. Such differences show a marked change in customs, and must have required much time for their accomplishment. In this time did the picture-writing change? or, indeed, was it ever identical?

To settle the question whether they were

written on the same system, I give here simply the results of an examination of a card-catalogue of hieroglyphs, which I have formed. The practical result of this examination is that similar characters of the Copan and Palenque series may be used interchangeably.

A detailed study of the undoubted synonyms of the two places will throw much light on the manner in which these characters were gradually evolved. This is not the place for such a study, but it is interesting to remark how, even in unmistakable synonyms, the Palenque character is always the most conventional, the least pictorial—that is, the latest. Examples of this are given in Figure 4.

The mask in profile which forms the left-hand edge of the Copan figure seems to have been conventionalized into the two hooks and the ball which have the same place in the other one. The larger of these two was cut on stone, the smaller in stucco. The mask is conventionalized into the ball and hooks, the angular nose ornament into a single ball—easier to make and quite as significant to the Maya priest. But to us the older (Copan) figure is infinitely more significant. The curious rows of little balls which are often placed at the left-hand edge of the various *chiffres* are also conventions for older forms.

The conclusion that the hieroglyphs of the two places were written on the same system will, I think, be found amply justified by any one who will examine the material in the way I have sketched out.

I have now to come to the comparison of a sculpture (Figure 5) which is known to be of Yucatec origin, with statues known to represent Huitzilopochtli, the Mexican god of war, and his trinity

(see Figures 6, 7, 8, 9). It is not possible here to give the detailed proof of the identity of the personage represented, but it will suffice to say that I conceive I have established that Figure 5 represents the war-god of Yucatan, who was the same personage as Huitzilopochtli, the war-god of the Aztecs.

In Figure 5, the Yucatec personage has all the symbols of Huitzilopochtli—the sun, the

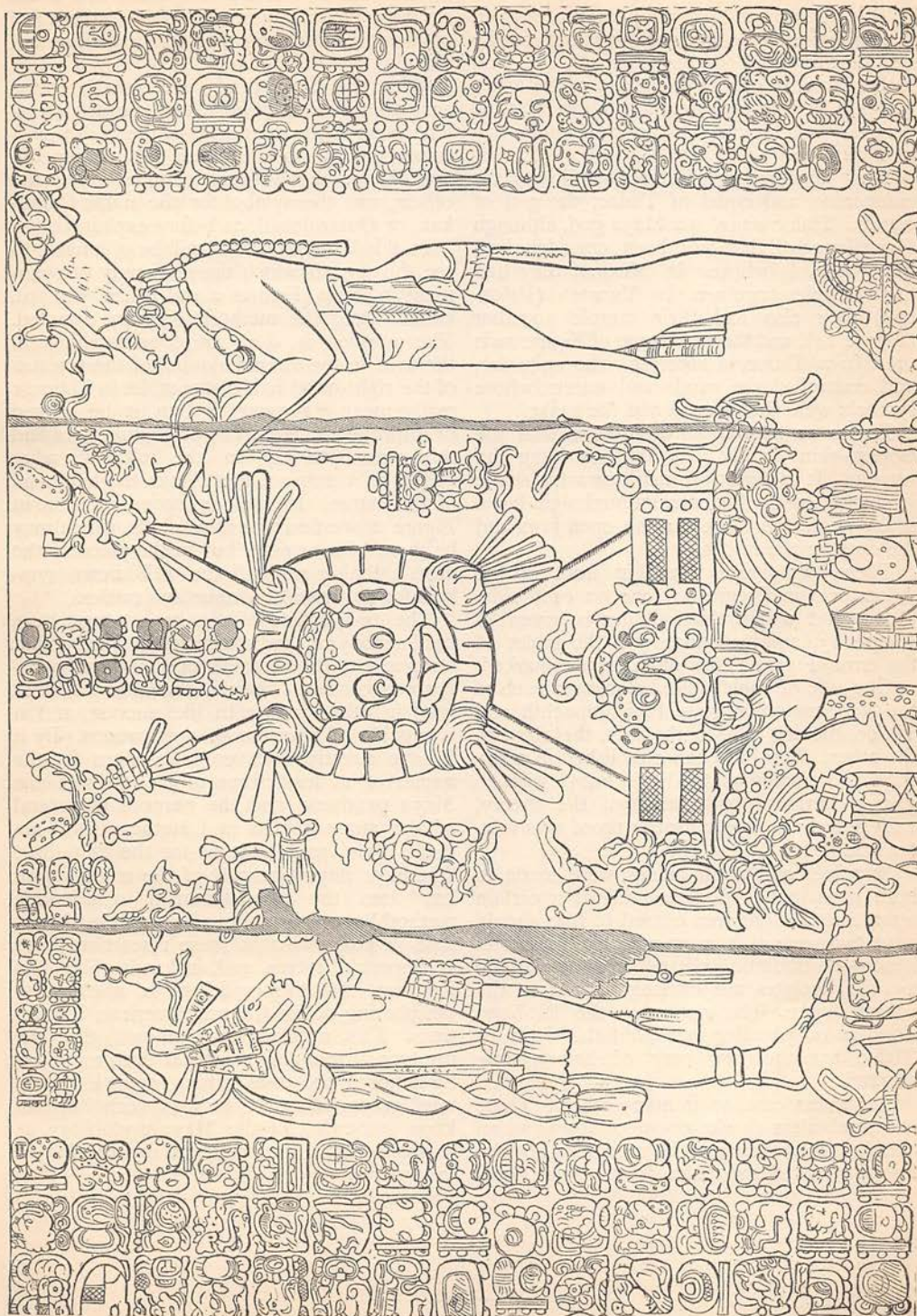


FIG. 13. TABLET AT PALENQUE (SLIGHTLY REDUCED AT SIDES AND BOTTOM).

winds, the air, the birds, the captive trodden under foot, etc.

The uppermost hieroglyph of those given in this figure also contains the symbols of the sun (a circle), of the air (a cross), etc., and is the name, or part of the name, of the Maya war-god. Other considerations show that the personage of Figure 5 is the same as the one of Figure 10.

Now, in Mexico, Huitzilopochtli was the companion and equal of Tlaloc, the god of waters. Tlaloc was also a Maya god, although Huitzilopochtli has not been considered to have been, I believe. In Mexico, they had their temples together. In Yucatan (Palenque) they also had their temple together (Figure 11), and the personage of Figure 12 is the Maya Tlaloc, a sorcerer, who spits fire, and controlled the winds and waters, whose symbols were the leopard and the snake.

Figure 12 shows this personage with the leopard-skin on his back and bestriding the serpent. It is curious to mark how the snake is covered with the conventional sign for a snake—*i. e.*, the hook for the open jaws and the dots for the rattles.

These two figures stand in front of the Adoratorio in Figure 11, one on each side. The tablet within the building is given in Figure 13, and its similarity to the tablet of the cross, Figure 1, has often been remarked.

One side of each tablet belongs to each of the two companion gods, Huitzilopochtli and Tlaloc, the left side to the first, the right to the other. This has been established in many ways too numerous to detail, but I wish to give a curious confirmation of the theory, only perceived long after the proof was written out.

Sacrifices of human beings were made to both gods, but Tlaloc required at a certain feast that the children offered to him should have two curls of hair growing on their foreheads—so tradition tells us. Now, in Figure 13 the acolytes are offering victims to the central figure. The victim of the left-hand side has no peculiar mark, but the victim of Tlaloc has the two curls of hair plainly marked.

As in this case, so in many others. There are numberless checks on speculation and on conclusions, which must be recognized by the investigator to save him from going hope-

lessly wrong in a symbolism so foreign to modern ideas. But the checks are there, and we must constantly remember that the rules of hieratic art forbade the drawing of an unmeaning line.

With the bases firmly established, it was easy to make at least a few onward steps. The symbols for the names of the Maya gods corresponding to the Aztec Huitzilopochtli and Tlaloc have been selected from the others, and the symbol for the name Cukulkan, or Quetzalcoatl, as before explained.

In this last selection, it will be of interest to see the use to which the dictionary of synonyms in stone (Figures 2 and 3) has been put, as indicating the methods of proof adopted. The question is, does the cross-hatching on the oval in the second symbol of the top row of the right-hand half of the tablet in Figure 1 really mean "serpent"? Can it be proved or disproved? Recurring to Figure 3, we find this cross-hatching on the folds of what might be a serpent, just above the left hand of the statue. In the corresponding place in Figure 2 we find the same folds, which may be those of a serpent, but in the place of the cross-hatching we find the well-known symbols for the *crotalus* tongue and rattles.

The two artists of the two statues have used synonyms, and we learn, definitely, that our guess at the meaning of the cross-hatching was correct. The same method has been used in other cases with like success, and it is capable of many more applications. By it I have already discovered the signs for the names of at least three of the gods of the Maya pantheon, and the purpose of several of the stone tablets and statues has been made plain, as I believe, for the first time. The most important part of the investigation has been the introduction of a scientific method by which proofs of a step are obtainable. I conceive that these researches have an important future, and, in hands abler than my own, that they will lead to a complete deciphering of the Central American inscriptions. This, at least, may be said, that the mystery surrounding them has been removed, by rational processes which appeal to any intelligence, and that we may fairly hope to know somewhat of the Maya mythology, as it was believed and recorded by the Mayas themselves.

