

## LETTERS TO THE EDITOR.

## Does There Really Exist a Phonetic Key to the Maya Hieroglyphic Writing?

IN No. 494 of this journal Professor Cyrus Thomas attempts to give a key for the interpretation of the Maya hieroglyphic writing, taking as a guide and starting-point Bishop Landa's well-known alphabet. It is not for the first time that in this way an interpretation of the Maya Codes has been attempted; but as yet most

(Fig. 6) is seen in Dresden 16<sup>c</sup> and Troano 17<sup>\*b</sup>. Landa's *o* (Fig. 7) seems to exhibit the characteristic elements of the hieroglyph of the great red macaw, *mo*, as seen in Dresden 16<sup>c</sup> (Fig. 8). Landa's first *u* (Fig. 9) is a well-known hieroglyphic element, exhibiting on the Copan steles the forms shown in Fig. 10, and undoubtedly conveying the idea of a face, *uich*, perhaps of a bird. The same hieroglyphic element frequently occurs on the neck of the food dishes and drinking cups (Fig. 11), probably on account of the face with which the Indians used to ornament that part.



scientists were of the opinion that these attempts failed to give a satisfactory result.

The hieroglyphs given as letter symbols by Bishop Landa without doubt possessed a certain phonetic value. For instance, Landa's first *a* (Fig. 1) is the head of the turtle, *aac*, represented by a quite similar hieroglyph (Fig. 2) in Codex Cortez, 17<sup>a</sup>. Landa's *cu* (Fig. 3) is the same hieroglyph as that of the day *cauac*, and conveys the ideas of the cloud and of heavy things, as, for instance, a stone. It is an essential element of the hieroglyph (Fig. 4) which expresses the idea of carrying a load on the back, *cuch*. Landa's *ku* (Fig. 5) is the hieroglyph of the bird named "quetzal" by the Aztecs and *kukul* by the Mayas. The sign of this bird

Landa's second *u* (Fig. 12) and hieroglyphic element, which is also seen in the sign of the day *cib*, occurs on the jars filled with spirit-liquor (Fig. 13). It appears to be a modification of a similar design on the Aztec drinking cups (Fig. 14). The latter refers to the *ome toch* symbol, that is, the semi-lunar curved and hook-nosed ornament of the *Totochtin*, the wine gods (Fig. 15). This element therefore, seems to convey the idea of drinking, *uuk*. At last, the sign of aspiration given by Professor Thomas (Fig. 16) is certainly not a "Spanish fabrication," but it is Brasseur de Bourbourg's fabrication, since it is not seen in Landa's text. It has been added to the text by Brasseur de Bourbourg's wholly arbitrary decision. See the photographic reproduction of the

page in question in the publication of Landa's text procured by D. Juan de Dios de la Rada y Delgado. In the hieroglyphic writing the element Fig. 16 occurs as a substitute for the element Fig. 17. The latter, probably, is intended to render the head and the wing of a bird.

It is quite probable that in Landa's time the Mayas used to write in the manner indicated by Landa; we observe the same in the Mexican area. At a certain time after the conquest the Indian writers were inclined to restrict the phonetic value of their old hieroglyphs, in order to write with them in the same manner as the Spaniards did with their respective hieroglyphs. Compare the so-called Codex Vergara of the Aubin-Goupil collection. But this was not so in ancient times. Certainly there existed in the Maya writing compound hieroglyphs giving the name of a deity, a person, or a locality, whose elements united on the phonetic principle. But as yet it is not proved that they wrote texts. And, without doubt, great part of the Maya hieroglyphs were conventional symbols, built up on the ideographic principle.

In order to illustrate the combination of his letter symbols, Professor Thomas gives a few interpretations of groups of compound characters.

This first group (see above, p. 45, Fig. 2) contains in the second hieroglyph (reproduced in my Fig. 24) the elements given by Landa (Fig. 25) as expressing the sounds *l*, *e*, i. e., *le*, the lasso, the sling; and, indeed, in the figure below a turkey is seen hanging in the sling. I do not venture to settle the question by giving an explanation of this hieroglyph. I will only remark that the second element of this sign, that given by Landa as expressing the sound *e*, occurs in various compound hieroglyphs (see Figs. 26-28). In all these cases the action represented refers to handling a rope or to working up thread. Fig. 26 (taken from Codex Troano 31\*<sup>b</sup>) refers to handling the rope trimmed with thorns that the penitent used to draw through the pierced tongue (see the Relief of Lorillard City, published by Charnay). Figs. 27, 28 (taken from Codex Troano, 11\*) refer to weaving and embroidery. It would be a curious coincidence that the words expressing these different actions should all contain an *e*, while considering the idea expressed, the coincidence is a given one.

Considering the third hieroglyph of this group—which is indeed that of the turkey, *cutz* (see Fig. 19), one is in like manner induced at the first glance to think of a phonetic constitution. For the first element is that of the day *cauac*, given by Landa (Fig. 3) as expressing the sound *cu*. And the second element—wanting in Landa's as well as in Professor Thomas's list of letter glyphs—would seem to record the sound *tz*, because it renders the conventional design of a headless carcass or skeleton, *tzietzac*, seen from behind, or in front, with its ribs and the anal opening. Compare the Fig. 23, the design of a skeleton (the death-god) seen "in profile." Nevertheless, it would be a hasty conclusion to proclaim as established and beyond doubt the phonetic constitution of this hieroglyph. For the same element of the skeleton occurs in other hieroglyphs, expressing things the names of which do not contain a trace of the sound *tz*. Fig. 20 is the hieroglyph of the dog, *pek*; Fig. 21, that of the dog of the heaven that carries the lightning; Fig. 22 is the hieroglyph of the month *kan-kin*, "the yellow (or ripe) sun."

But it is principally the first hieroglyph of the group in question that rouses the gravest doubts about the rightness of Professor Thomas's interpretation. The whole group forms part of a series of representations, filling the upmost division of Plates 24\*-20\* of the Codex Troano, and recording, undoubtedly, the capturing of animals. The series begins with the prey-gods of the five regions. These are followed by various representations showing the hunting god—with a captured turkey under the arm, or holding a bag, or armed with spears and throwing-stick (Fig. 33); the black god (Fig. 31 = *Ekchuah*?), and different captured animals, an armadillo (?) in the trap loaded by heavy stones, a turkey seized by the snare, a deer seized by the snare, a deer impaled on the pointed flint erected in the bottom of the pit, a pizote seized by the snare, and a turkey entangled in the hunter's net. Each figure is accompanied by a group of four hieroglyphs (as a rule). The first hieroglyph is the same in all the groups (see Fig. 2, page 45, and my Figs. 31-33), and undoubtedly refers to the action of capturing.

This action is clearly indicated by the form of the hieroglyph that exhibits the head of the victim with the bloody, empty eye-hole, the conventional symbol of sacrifice. This head is held within a sling, the knot of which is seen on the summit. Compare the more accurate design of this hieroglyph in Fig. 18, taken from the Dresden Codex 60\*. In this hieroglyph all is figurative and ideographic; no trace of phonetic constitution can be observed.

The fourth hieroglyph of the group (Fig. 29) is interpreted by Professor Thomas as the second day of the month *yax-kin*. But this is obviously erroneous. There does not exist a numeral designation with crosses between the dots. Fig. 29 seems a variant of the hieroglyph seen in Fig. 30 placed on a bowl. In the latter hieroglyph, the second element signifies *kan*, the yellow color. It is replaced in Fig. 29 by the element *kin*, the sun. The hieroglyph Fig. 30—which in a former communication was interpreted by Professor Thomas as signifying "moisture"—occurs on different pages of the Dresden Codex among the figured representations of offerings (turkey, lizard, fish, deer). Undoubtedly it means an eatable thing, perhaps honey.

I do not enter into a discussion of the second sample given by Professor Thomas (Fig. 3, p. 45), because I find nothing in it that might impel me to accept the translation given by him.

As to Professor Thomas's third sample (Fig. 4, p. 45), I agree with him that the boards covered with the hieroglyphic design of the day *cauac* may be intended for "wood" or "wooden." The same board is seen in Troano 12\*<sup>c</sup>, but fitted with a twisted handle on its surface. Here the first and fourth hieroglyph of the group are also seen; the second one is wanting. Variants of the first hieroglyph occur in Troano 35\*, 35<sup>b</sup>, 34<sup>b</sup>, and Cortes 21\*, where the figure below shows the god beating a drum. Professor Thomas's explanation, *mul-cin*, "collect together," is merely hypothetical. The same applies to the fourth hieroglyph. It is the same as that given by Landa as expressing the sound *x*. It is materially identical with that of a well-known deity exhibiting in his face the same characteristic design as the face that forms the essential part of this hieroglyph. In Troano 11\* this hieroglyph accompanies the elements which seem to express the action of weaving. And on the two contiguous plates, Codex Troano 35\* and Cortes 22, it is connected with red numerals and forms a row alternating with rows of various offerings. It is scarcely probable that in all these cases the reading *xaan* should correspond to the matter expressed.

The problem of the Maya writing is a difficult one. I cannot convince myself that the list given by Professor Thomas as letter glyphs acts as a key to its interpretation. For the samples of translation he adduces are not forcible, and include misunderstandings. In my opinion, in the present state of things it would be far more appropriate to point out the real meaning, as to the matter expressed, of each hieroglyph. The determination of their phonetic value will then follow, and consequently will then be done with much more accuracy.

DR. SELER.

Steglitz, Germany, Aug. 7.

#### The Fundamental Hypotheses of Abstract Dynamics.

IN Professor MacGregor's interesting paper "On the Fundamental Hypotheses of Abstract Dynamics," the suggestion is made that a fourth law of motion should be added to the three laws of Newton. The proposed law is, in effect, that the magnitude of the stress between any two particles depends solely upon the distance between those particles. Combined with Newton's third law, the new law is thus stated:—

"Natural forces may be considered to be attractions or repulsions whose magnitudes vary solely with the distances of the particles between which they act."

The reason assigned for introducing this law is that "the fundamental hypotheses of dynamics should either include" the law of the conservation of energy "or give it by deduction." This reason seems hardly sufficient. In order that the law of the conservation of energy may be true it is not necessary that the stress between two particles shall depend solely upon the distance between them. It is necessary only that "the work done during any change of configuration of a system of particles acted upon