



Mesoweb Publications

CONTRIBUTIONS TO AMERICAN ARCHAEOLOGY, NO. 11

MAYA CHRONOLOGY: THE FIFTEEN TUN GLYPH

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Three text-figures

[Issued August 30, 1934]

In his first and epoch-making incursion into the decipherment of Maya glyphs, J. T. Goodman wrote of the 360-day period, now called the Tun: "This period is the real basis of the Maya chronological system."¹ Nevertheless, some later writers have suggested that the Maya count, like the Julian, was based on the day, forgetting that the Maya Uinal will no more fit into the vigesimal system than, to use Teeple's simile, will the twelve months of our system fit into the decimal system. Had the Maya system been based on the day, the third unit would inevitably have consisted of four hundred days, as was the case in the Cakchiquel and Quiche calendars. The Maya certainly used a normal vigesimal system in counting such things as soldiers, tobacco leaves, cacao and land measurements. Furthermore, every known unit in the Maya calendar has in its composition the symbol for the 360-day year, either the Tun variety or the Cauac type and, as far as we can tell, the word Tun entered into the composition of the names of all these higher periods. Had the Kin been considered the basis of the Maya count, one would expect to find its hieroglyph in the higher periods and its name entering into the composition of the terms used to designate these periods. It would seem that Goodman and Teeple are unanswerable. Morley holds a somewhat different view. He writes:

"The very general practice of closing inscriptions with the end of some particular 5-Tun period in the Long Count, as 9.18.5.0.0 or 9.18.15.0.0 or 9.19.0.0.0, for example, seems to indicate that this period was the unit used for measuring time in Maya chronological records, at least in the southern cities."²

In the sense that the quarter Katun intervals were emphasized by the Maya, Morley is

¹ Goodman, 1897, p. 23. ² Morley, 1915, p. 166.

undoubtedly right. Nevertheless one can scarcely call them units, since most emphasis was placed on the interval that coincided with the end of Katuns; less emphasis on the interval that coincided with a half Katun; and least emphasis on the intervals that marked the completion of the first and third quarters of a Katun. We attach exactly similar degrees of importance to the hour, half hour and quarter hours, yet no one would suggest that the quarter hour is our time measure.

Accepting then, the Tun as the basic unit of the Maya count, glyphs for the Tun, the Katun (20-year period), the Cycle or Baktun (400-Tun period), the Great Cycle or Piktun (8000-Tun period) have been identified as well as other glyphs for the end of a Tun, the end of 5 Tuns and 0 Tuns.

The first three were identified by Goodman.¹ The Great Cycle was first identified by Morley² and proved correct by Long.³ Morley has also the credit for the End of a Tun Glyph,⁴ while to Beyer is due the discovery of the 0 Tun.⁵

Morley, who was the first to prove the value of the 5-Tun glyph, believed that it could be used indiscriminately for either the fifth Tun or the fifteenth Tun in a Katun.⁶ Other writers on Maya epigraphy have endorsed this view. Even Beyer, who approaches Maya glyphs with the thoroughness of a Thomas Wentworth, writes: "Fifteen Tuns were evidently regarded as 5 Tuns after 10 Tuns as the Mayas had no special hieroglyph for this unit, but employed the hotun glyph."⁷

The use of the same glyph for the fifth and fifteenth Tuns after a Katun would be in accordance with the Morley theory of the 5-Tun time unit. However, were this theory correct, there would be every reason to believe that their zeal for the redundant would have led the Maya to carve 5-Tun period glyphs after dates that closed Katuns or half Katuns. Actually no case is known where a Hotun glyph is found with a Katun or half Katun ending.

On the other hand, a Tun-ending glyph is very frequently carved after a Katun or half Katun ending date. The presence of Tun glyphs or 0-Tun glyphs and the entire absence of Hotun glyphs on these occasions, taken in conjunction with the known Maya love of loquacity, surely indicate that the Maya did not consider the 5 Tun to be a unit in their system, but merely a division of the next highest unit in their vigesimal system. In our own decimal system we similarly stress the numbers 25, 50 and 75, not as units in the decimal system, but as convenient subdivisions of our second unit in the decimal system. In modern usage the emphasis is not so strong as it might be, owing to conflict between the decimal system and the old systems of Babylonia.⁸

¹ Goodman, 1897.

² Morley, 1915, p. 118.

³ Long, 1923, No. 39.

⁴ Morley, 1920, pp. 153 and 379.

⁵ Beyer, 1932, pp. 108-109.

⁶ Morley, 1915, pp. 166, and 1915*a*.

⁷ Beyer, 1932, p. 113

⁸ Examples of the decimal system are silver and golden weddings; of the Babylonian system our coming of age at 21, the Biblical three score and ten, and diamond jubilees.

If the thesis that the Maya time count was strictly vigesimal and based on the Tun is to be proved correct, there should exist a glyph, distinct from that found at the close of a fifth Tun, to indicate the end of the fifteenth Tun of a Katun.

Actually such a glyph exists. As long ago as 1897, Goodman, in his mania for reading nearly every element in Maya hieroglyphic writing as numerical, came to the conclusion that the glyph associated with 15 Tuns on Stela J at Copan¹ indicated fifteen Tuns. He correctly interpreted the numerical bar and winged Cauac as representing 5 Tuns, but then he read the frame-like element to the left of the main body of the glyph as having a numerical value of three. This number he proceeded to use as a multiplier for the rest of the glyph, reaching 15 Tuns in a most un-Maya manner. It was not until this present study had been worked out, that the writer came across this passage in Goodman, revealing once again the strong foundations of Maya epigraphy laid by that great pioneer.

A careful examination of all the apparent glyphs marking the end of 5 and 15 Tuns has revealed two distinctive types, which may be termed Types A and B.

Type A (fig. 1) consists of three elements: (1) A Tun sign of the Winged Cauac variety, (2) a numerical bar representing five; (3) a bracket-like element denoting "end of" or "conclusion of," which, it will be noted, includes within a hypothetical extension of its horns both the numerical bar and the Winged Cauac. The three elements together can be plainly translated as "End of 5 vague years." All the examples of this Type A which I have been able to collect, save one to be discussed later, are shown on figure 1. Through the courtesy of Doctor Morley I have been able to incorporate in this series a number of examples culled from the unpublished material to be used in his forthcoming *The Inscriptions of the Peten*.

To the right of each glyph is given the date with which it is associated, together with the designation of the monument on which it occurs and the site. It will be noticed that in every case the associated date falls at the end of 5 Tuns, and in no case does it coincide with the end of 15 Tuns.

Type B (fig. 2) also consists of three elements. The Winged Cauac and the numerical bar are the same as in Type A, but the bracket-like element is replaced by a variable prefix. In most cases this takes the form of a regular glyph standing on a pedestal, while in two or three cases it takes the form of an outward flaring flame-like element. It will also be noted that the numerical bar, or part of it, is sometimes above this prefix, a position, which as already noted, never occurs when the ending bracket is used in Type A.

All the examples of Type B which I have been able to collect are shown on figure 2, together with data as to monument, locality and associated date. It will be noted that in every case the associated date falls at the end of 15 Tuns.

The evidence would indicate that Type A was used exclusively for the end of 5 Tuns; Type B to

⁶ Maudslay, Vol. I, Plate 67, south side, B6, lower half.


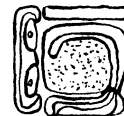
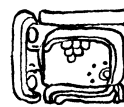
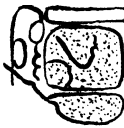



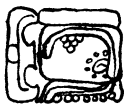




	Piedras Negras	St.	39	9.12.5.0.0
	Piedras Negras	St	9	9.15.5.0.0
	Piedras Negras	St.	22	9.16.5.0.0
	Piedras Negras	St.	18	9.17.5.0.0
	Piedras Negras	St.	12	9.18.5.0.0
	Quirigua	St.	J	9.16.5.0.0
	Quirigua	St.	A	9.17.5.0.0
	Quirigua	St.	C	9.17.5.0.0
	Quirigua	Alt.	P	9.18.5.0.0
	Copan	St.	J	Fifth Tun
	Yaxchilan	Lint.	3	9.16.5.0.0
	Copan	St.	I	9.12.5.0.0

Fig. 1—Examples of Type A of the Winged Cauac glyph with coefficient of five, together with designation of monument on which each occurs and the associated date.

mark the end of 15 Tuns.

There are, however, a few dubious cases. The first glyph shown on figure 3 is copied from Morley's drawing of the East Altar of Stela 5 at Copan. This consists of an ending sign (not shown) made by placing a hand over a moon glyph to the left of a hermaphroditic glyph, combining elements of both Types A and B. At the top is an apparent ending bracket, but of quite unusual depth and with the dots and V element not projecting more than in normal cases. Next appears the flaring-flame element, while below is the numerical bar and Winged Cauac. While the ending sign would indicate Type A, the flaring-flame element would indicate Type B, which is here required. Unfortunately, no photograph of this altar has been published, but it is possible that the element identified as an ending bracket is something else.

At Pusilha the date 9.10.15.0.0, 6 Ahau 13 Mac is given on Stelae D and Y, but in both cases the glyph which might have denoted the end of the period is weathered. In the case of Stela Y this glyph follows immediately after the month sign, 13 Mac. The bracket-like ending sign is very clear, but the rest of the glyph is very badly weathered. All one can see is the top edge of an element immediately below the bracket. This is definitely wavy, and can not therefore represent either the top of the numerical bar or the top of the Cauac element. One is justified, therefore, in rejecting this as a 5-Tun glyph.

In the case of Stela D the glyph which follows immediately after the month date, 13 Mac, is not the 15-Tun glyph. This occurs at H11. A drawing of it, so far as it can be made out, is given on figure 3. There is a possible ending bracket, but from above project two branching elements resembling flames. Clearly the whole can not be an ending sign. Indeed, it bears a certain resemblance to the flaming element found on the glyph of Stela K, Quirigua (fig. 2). The whole glyph seems rather to belong to Type B. T. A. Joyce, of the British Museum, who has been kind enough to check the drawing with the original, writes that it appears to be correctly delineated, although it is hard to make out details on the original.

Altar 1 at Yaxchilan carries the date 9.15.15.0.0, 9 Ahau 18 Xul, but the 5-Tun glyph appears to belong to Group A, while an example of Group B is here required. There is, however, no published photograph showing the details of the glyph. From evidence at present available, it must be classed as definitely wrong. Since its superfix is weathered, the Hotun glyph on Stela 2 at Piedras Negras has not been included in this discussion. It can probably be correctly assigned to Group A, as required by the date (9.13.5.0.0).

Of the total number of glyphs of both types, twenty-four can be correctly assigned to their respective groups in agreement with the hypothesis that Type A is only found in association with the end of Tuns, while Type B is confined to the dates that mark the end of the fifteenth Tun. Three examples are dubious. Of these, two appear to fit better into the required Type B, while the third is,





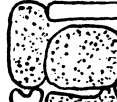






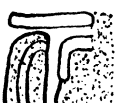
	Piedras Negras	St.	25	9. 8.15.0.0
	Piedras Negras	St.	36	9.11.15.0.0
	Piedras Negras	Alt.	2	9.11.15.0.0
	Piedras Negras	St.	6	9.12.15.0.0
	Piedras Negras	St.	1	9.13.15.0.0
	Piedras Negras	St.	16	9.16.15.0.0
	Quirigua	St.	D	9.16.15.0.0
	Quirigua	Alt.	G	9.17.15.0.0
	Quirigua	St.	K	9.18.15.0.0
	Copan	St.	I	9.11.15.0.0
	Copan	St.	J	Fifteenth Tun
	Piedras Negras	St.	40	9.15.15.0.0

Fig. 2—Examples of Type B of the Winged Cauac glyph with coefficient of five, together with designation of monument on which each occurs and the associated date.

in all probability, not a Winged Cauac glyph at all. One, according to present evidence, is definitely in the wrong group. In percentages the results are: In agreement with the hypothesis, 85.7 per cent; dubious, 10.7 per cent; wrong, 3.6 per cent.

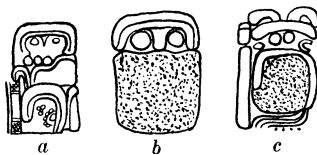


Fig. 3—Dubious examples of the Winged Cauac glyph; *a*, East Altar of Stela 5, Copan; *b*, Stela P, Pusilha; *c*, Stela D, Pusilha.

It would appear that the percentage of agreement is sufficient to prove the hypothesis. Accordingly we can say definitely that Type A should be used only with dates that end five Tuns, while Type B should be used only with dates that fall on the end of fifteen Tuns.

Before attempting any translation of the meaning of the glyph of Type B, let us turn for a moment to an examination of the so-called Lahuntun glyph. Morley has suggested, and almost certainly with perfect correctness, that this glyph marks half completion. He writes:

- “The glyph standing for this period [10 Tuns] is composed of three essential parts.
 “1. A superfix consisting of two lined elements flanking a central dot.
 “2. A bar, or sometimes even two or three, probably all parts of the same element,
 “3. The main element, possibly half of a general sign for zero or completion.”¹

After showing that this sign represents half, he proceeds to give it the name Lahuntun, a word indicating ten Tuns. The point is not very important, but it would appear that the name Lahuntun is wrongly applied to this glyph. Morley himself points out that the glyph is also used to express half a Cycle. It can not therefore have the meaning 10 Tuns, but clearly must convey the meaning of half.

According to the Motul Dictionary, the expression two and a half leagues was written *Tancoch tu yoxppel lub*. This can be translated “Half [lacking] to three leagues.” Aguilar gives the expression *Tancoch tu campel huabil* [sic] as meaning three and a half score years,² although actually it means three and a half years, literally “Half [lacking] to four years.”

It is clear, then, that the Maya had a word for half, but that this was not used exactly as we would use it. To express sixteen and a half Katuns, the Maya would say “A half short of seventeen Katuns.” There are, accordingly, good grounds for thinking that the glyph in question should be translated as half lacking to the completion of a period or unit. Actually there is a glyph for 10 Tuns, but it is merely the ordinary Tun glyph with a coefficient of ten, or a Winged Cauac glyph with a similar coefficient

¹ Morley, 1915a, p. 197.

² Aguilar, p. 96

in the case of late inscriptions.

Since there are good grounds for believing that the so-called Lahuntun glyph was read in the sense of half lacking to the completion of the period, is it not equally probable that our Type B glyph should be read as “Five vague years short of a Katun?” Unfortunately the glyph element to the left of the Cauac element is in practically all cases too obliterated to be used as possible proof of this contention.

An examination of the inscriptions on stone and wood reveals that the Maya undoubtedly distinguished between the normal or head variant Tun signs on the one hand and the Winged Cauac glyph for the same period on the other hand, for they are by no means interchangeable.

The Winged Cauac glyph is never used in Initial Series or Secondary Series counts, whereas the Tun sign, in its normal or head form, was invariably employed in these cases. On the other hand, the Tun glyph is never found replacing the Winged Cauac glyph as a marker for the end of a fifth, fifteenth or twentieth Tun of a Katun.¹ However, both forms appear to be used on late stelae to mark the end of the tenth Tun, but these occur at a period when old usages were breaking down.

One might, then, deduce that the Winged Cauac glyph was only used to express complete years of 360 days, or their multiples up to nineteen, whereas the Tun variant was used in counts that might involve other units, such as Uinals and Kins.

Long has conclusively shown that the words *haab* and *Tun* were both used in the Seventeenth Century, and probably at an earlier date, for the 360-day period,² yet many workers in the Maya field continue to employ the word *haab* as though it referred to the 365-day year. Probably this reluctance to accept the evidence produced by Long is largely due to the prevalent interpretation of Cuch-haab, as the bearer of the 365-day year.

However, as Long has pointed out, the year bearer did not function in the five nameless days when the year lay dormant in bed. Landa gives us a very strong hint that the year bearers and year deities were supplanted during the nameless days by the Red, White, Black and Yellow Uayeyab.³

In the famous passage of the death of the Water Thrower we are told that six *haab* were lacking to the end of the Katun.⁴ May not this be a close parallel to the meaning suggested above for the fifteenth Tun glyph—five vague years lacking to the end of the Katun?

The word Tun means precious stone, and in this connection Beyer has suggested that one of the elements of the normal Tun glyph represents a jade disk,⁵ while Spinden opines that jade beads may

¹ Lintel 2 at Yaxchilan is no exception since the end of 5 Tuns after 4 Ahau 3 Zotz must be meant to record that this date is five Tuns after the important 9.16.1.0.0, and not a fifth Tun of a Katun of the long count.

² Long, 1924, pp. 575-580.

³ Landa, Sections XXXIV and XXXV. R. Roys, in a letter written December 1933, states that he agrees with Long that *haab* was used for the 360-day year in the early post-Conquest period.

⁴ Martinez-Mani chronicle, p. 9.

⁵ Beyer, 1930, p. 5.

have been used before the invention of glyphs to mark the completion of a vague year.¹

On the other hand, the Winged Cauac glyph has the Cauac rain element combined with the sun tail, the whole probably meaning wet and dry seasons, which combine to form a vague year.

Since we know that there were two distinct glyphs for the same period and, in Yucatan, two distinct words for this period, it would not seem unlikely that the term *Tun*, or a closely related Old Empire word, was used for the normal jade glyph, while the term *haab*, or a cognate Old Empire term, was used for the Winged Cauac rain glyph. Indeed, it is possible that the word *haab* is related to *ha*, the Maya word for rain or water. Dr. Andrade, whose opinion I asked on this matter, thinks that the relation is as likely to exist as not.

It is true that the two glyphs were not distinguished in usage in quite the same way as the words were distinguished in meaning in the Chilam Balam, but this difference may be due to the length of time elapsed between the period of the inscriptions and the time of the Spanish Conquest, or to a lack on our part of a complete knowledge as to how the two terms were used in the Sixteenth Century. At least we have no knowledge as to what word the Maya of the Sixteenth Century would have used to express the oral equivalent of a Secondary Series.

Although there is practically no proof for these identifications, yet it is obviously incorrect for us to employ the same term for two distinct glyphs, which are usually used in distinct ways.

There is no word in English to correspond to the period of 360 days. I would suggest, therefore, that the term *Tun* be used as heretofore when translating the normal or head variants of the Tun, but that the word *haab* be used in translating the Winged Cauac glyph, with the reservation that this translation is not based on complete proof, but is used for convenience.

Similarly I would suggest that the glyph usually known as *Labuntun* be translated in future as "half period," and that the term "End of 10 Tuns" be used only where the ending sign is found with a Tun glyph, to which is attached a coefficient of ten.

This hairsplitting nomenclature may appear to some to savor of mere pedantry, but if we are to understand thoroughly Maya hieroglyphs, it is essential that we reproduce in our translations as closely as possible the small distinctions the Maya themselves made. Thereby we throw one more plank into position on the bridge we are building across that ocean which separates our mentalities from those of the Maya.

SUMMARY

1. The basis of the Maya count was the Tun, or 360-day period, not the day.
2. The 5 Tun was not the basis of the Maya count, but was merely an important division of the second unit.
3. A special glyph is found only with dates that mark the conclusion of fifteen Tuns after a Katun. This can be distinguished from the so-called Hotun glyph, by the substitution in the former glyph of an attached glyph or a flame-like element for the bracket-like element found only in the latter glyph.
4. This special glyph in all probability means that five years of 360 days were lacking to the completion of the period (a Katun, or very rarely, a Cycle).

¹ Spinden, 1924, p. 158.

5. The so-called Lahuntun glyph is the glyph for half. It should be translated as "Half [lacking] to [completion]."

6. The winged Cauac glyph may have had the meaning of Haab. This term, as Long has demonstrated, was used for the 360-day year under certain circumstances. It is suggested that it be employed to render the Winged Cauac glyph to distinguish it from the regular Tun glyph.

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