

MAYAN FIRE GLYPHS

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The history of the decipherment of the Mayan 'fire' glyphs shows clearly how the dominance of calendrical studies so long prevented proper utilization of known data, even when they had some calendrical importance. In the present paper, an attempt will be made to re-define the characteristics of the glyphs which mean 'fire', to eliminate a number of glyphs which have been called 'fire' on very dubious grounds, and to examine the context, in the inscriptions, of those glyphs which do mean 'fire.' In particular, it will be pointed out that Spinden extended the meaning 'fire' from the original determination of Seler to a host of other glyphs, and that Eric Thompson introduced major confusion by equating these glyphs with the 'sky' glyph. Available evidence suggests that 'fire' in the inscriptions refers primarily to ceremonial, although the glyphs may occasionally occur as part of personal names.

The principal subject of the paper will be the glyphic combination T122:563a. The meaning of T122:563a was first determined by Seler (1902-23, I, 397) ("es bezeichnet also vielleicht in Brand gesetztes Holz oder das Feuer selbst"). This meaning, 'fire', based on the distribution of glyphs in the codices, was widely accepted. The context is quite clear in a number of cases where the meaning seems adequately proven within a limited range of variation. On *Dresden* 40b we find the parrot god holding two torches, with a glyphic text U 'fire' *ti caan can (nal?) moo kin tun haab*, "the fire in heaven of Four X Macaw —drought." The 'fire' glyph with the possessive prefix is side-by-side with the obviously distinct 'sky' glyph, also first determined by Seler. The meaning clearly refers to some manifestation of 'fire' but, as far as this passage goes, might equally well be read 'torch'. The passage which immediately follows shows a dog with torches, but here the 'fire, torch' glyph is T49:110, also found on D36a with God B holding torches.

On *Madrid* 38b are a series of deities drilling fire. The first passage may be given the approximate meaning 'drills his fire Itzamna'; 'fire' is found with possessive *u* prefixed. The 'drill' glyph (T589) has been identified by Beyer (1937, p. 120) as a drilled Spondylus shell. Thompson (1962, p. 217) indicates that T589:93 means 'drill fire'. This is almost certainly an error. The parallel passage on M38c shows the deities drilling a flint knife, rather than a fire-drill, and the object drilled is indicated by T49:112. T112 is a representation of a flint knife. Here 'drill fire' is inappropriate, yet the verb 'drill' (T589) still has affix T93. This affix is found with verbs elsewhere and is surely merely a grammatical particle of some kind. In these passages, 'fire' is indicated by T122:563a; here, this combination might equally well mean 'fire-drill', but 'torch' would be inappropriate here, and 'fire-drill' would be inappropriate on *Dresden* 40b, so I conclude that this glyph group means simply 'fire'.

Beyer (1937, p. 71) regarded T563a as a fire-wood bundle, and T122 as flames arising from the burning wood (Beyer, 1937, p. 82), hence making a picture of fire. This may be based largely on D19c, where the moon goddess is shown as the bearer of fire, which is represented on her back, by glyphs. Here T122 has been given a form which closely approximates the normal representation of smoke in the codices. I know of no other combination of two glyphs to form an ideograph in any such fashion, and very strongly doubt that this is the correct explanation here, although I am inclined to accept the identification of T122 as curls of smoke. On *Madrid* 11b, T122:563a recurs with a deity holding a torch. In all other cases, either there is no pictorial context, or the context neither supports the meaning 'fire' nor indicates any other meaning.

In 1924, Spinden (1924, pp. 202-3) attempted to extend this meaning from the codices to the inscriptions. A more restrained attempt to do this would have been of considerable value, but Spinden regarded a large number of distinct glyphic combinations as meaning 'fire'. The 'smoke' curls of T122 were confused with a distinct type of curls (T44), which may be associated with water. T44 was normally associated with T563b, which has a marked visual similarity to T563a. In other cases, the meaning 'fire' was extended to T44 when it was prefixed to the completely distinct glyphs, T502 or T612, which bear little resemblance to T563a. In one case, the meaning was extended to T563a, although the affixes bore no shadow of a resemblance to T122. This chaotic extension was largely due to the failure to recognize that similarity of context needed to be shown when even slightly different forms were lumped together. I think it may safely be said that

at least seven of the glyph combinations shown by Spinden for 'fire' should have been recognized as having distinct meanings from 'fire' and from each other.

In 1950, Eric Thompson took four of the glyph groups confused together by Spinden and further confused them with the original 'sky' group of Seler and with at least an additional seven glyph combinations. Maintaining that this potpourri consisted of nothing but 'variants' of the 'sky glyph', Thompson (1950, p. 166) wrote "It would seem that this is probably the sky symbol, not that for fire... One cannot identify an element as 'sky' in one glyph (Spinden's 'observation of the sun at the horizon') and as 'fire' in another (his 'new fire' or 'sacred fire' glyph) unless one can show a reason for the transmutation." Of the twenty-one occurrences of glyphic combinations which he labels as 'sky elements' in his fig. 31, six are 'sky', two others may be 'sky', and three are 'fire'. I do not believe that any of the remainder mean either 'sky' or 'fire'.

At that time, Thompson (1950, fig. 43, n° 70) read T122:563a as "sky symbol with brilliance prefix." By 1958, this is quietly dropped and he speaks of "the fire symbol with flames rising from it" (Thompson, 1958, p. 303) which he read simply as *kak*, 'fire'. In 1962, with the appearance of the *Catalog*, Thompson writes of glyph 563, "It has long been recognized that this is a glyph for fire with the more restricted meanings of sacred fire or bundle of fire wood." Confusion still plagues these remarks. First, there is not a shadow of evidence that glyph 563 ever means 'fire' except when affix 122 is prefixed. The visually based identification as a bundle of fire-wood seems to have little to recommend it, and, despite agreement between Spinden and Thompson, there seems to be no reason to suppose that the 'fire' glyph carries the inherent connotation of 'sacred fire'. Finally, it should be abundantly clear from statements made by Thompson himself that Zimmermann and Gates were correct in distinguishing T563a from T563b as separate glyphs. The latter has a crossed element infixed. Thompson (1962, p. 185) writes "When the infix is absent, Affix 44 also disappears, but is usually replaced by Affix 122." Put differently, there is a consistent difference in the compounds in which T563a appears and those in which T563b occurs. He points out that T44:563b normally occurs with Period Ending or Calendar Round dates. This is not normally true of T122:563a, although Thompson emphasizes some rare cases of apparent substitution, in arguing the identity of T563a and T563b. Thus, T563a is consistently different from T563b visually, is accompanied by different affixes, and is found in different contexts. The rare cases of apparent substitution may have completely

different meanings, or may be due to the Mayan equivalent of "spelling errors". Thompson's argument seems to me like maintaining that there is no distinction between 'there' and 'their' in English because people occasionally write one of them for the other.

There is still no satisfactory reading of T122:563a. Whorf (1942, p. 493) read the two glyphs as *to-kak*, which he said was meant for *tok k'ak*, 'burning fire'. Thompson's attempt (1950, p. 147) to read T122 as *lelem*, 'brilliancy', is tied to his unfortunate identification of the 'fire' glyph with the 'sky' glyph. His argument that the curls "represent fiery light" (Thompson, 1950, p. 167) seems unverifiable and unlikely. Thompson later seemed to regard T563 as *kak*, read in the same way whether T122 is present or absent. Knorozov (1955a, p. 73, nos. 108, 114; p. 85, n° 111) read both glyphs as *poc*, and regarded them as phonetically repeating each other. The *Motul* dictionary defines *poc* as "calentar a la lumbre alguna cosa". There seems to be little evidence to support this postulated change in meaning to 'fire'. Cordan (1963, p. 60) maintained that T122:563a was always associated with storm and rain (which is untrue, since fire-drilling has no such connotation). Since the modern Lacandonos call lightning "the tongue of God," he regards T122 as a tongue, *ak*, and, reversing the order of the glyphs, reads *cha-ak*, 'lightning storm'. I see nothing to recommend any of these interpretations.

In Appendix I, I try to identify briefly, insofar as possible, the various glyphs identified by Spinden as 'fire' or by Thompson (1950) as 'sky'. Besides T122:563a, 'fire' and T49:110, probably 'fire' or 'torch', I believe that T669 is *ka*, and that T669:669 is to be regarded as a phonetic rendering of *ka-k(a)*, 'fire'. Because this is still controversial, the inscriptional material will be presented separately in these two categories, although I think there is overlapping of subject matter.

There seem to be a number of cases in which 'fire' glyphs occur in clearly ceremonial contexts. Among the most interesting of these are three texts clearly associated with the 819-day count. Texts B and D, both from Yaxchilan, have T122:533a in the third glyph block. In the fourth glyph block, in both cases, I think a deity name is present. The new Walter Randel stela has a passage which seems to overlap in subject matter, although the details are differently presented. It likewise contains a date in the 819-day count and a clear 'fire' glyph is present. The IS associated with Text B is the presumed birth date of Bird Jaguar and the IS on the Walter Randel stela seems to be associated with the glyph I have suggested should mean 'emerge' in the sense of 'be born' (Kelley, 1965, p. 95).

The dates of the 819-day count of the first two texts differ from each other by 52 tuns and 110 days, whereas the third text is later than the 2nd by $2 \times (52 \text{ tuns} + 110 \text{ days})$. Since 819 days is well over two years long, this is the closest approach which the 819-day cycle can make to the 52-year cycle. These texts to me highly reminiscent of the later custom of making a new fire at the beginning of a 52-year cycle.

A fourth possible case is to be found in the complex of dates at Palenque from the TC, TFC, and TS. The IS date of text D, 9.16.10.0.0 1 Ahau 3 Zip is exactly 60 CR after 1.18.6.12.0 1 Ahau 3 Zip, a base in the 819-day count and the nearest one after the dates which I regard as the 'birth' of various deities. These dates must therefore fall near an approach of the 52-year cycle and the 819-day cycle. The text of the TC opens with a date 8 Ahau prior to the Maya era and is associated with a base of the 819-day cycle. The parallelism of the texts is such that we would have expected the TS and the TFC to have bases of the 819-day cycle as well. While I have no suggestions about the TS, there is a very interesting possibility in connection with the TFC. Here the date 1.18.5.4.0 1 Ahau 13 Mac is followed by an entry which was long read as 1.14.19, 7 Yax. It has recently been realized that the glyph read as '1 tun' is actually 1 Cauac. The interval 14.19 counted forward from 1 Ahau 13 Mac does, in fact, reach 1 Cauac 7 Yax. However, it is, at least, a curious coincidence that if the interval 14.19 is counted *back* from 1 Ahau 13 Mac the date reached is 1.18.4.7.1 1 Imix 19 Pax, the next preceding base in the 819-day count. These inscriptions at Palenque are so full of apparent errors or of hidden meanings that this seems to me a definite possibility. There seem to be no recognizable fire glyphs in either the TC or the TFC but in the TS the head form of 'fire' is present. Again, the inter-relationship of the three texts is such that this may well be relevant. This possible fourth example of an apparent relationship between 'fire' the 819-day cycle and the 52-year cycle is much less obvious than the other three but our understanding of the texts is still so shaky that it seemed worthwhile to point this out. Table I shows the relationships of these various dates.

The 'fire' glyph recurs at Yaxchilan in other clearly ceremonial contexts. In Structure 23, Lintel 24 has the date 5 Eb 15 Mac, in the 4th katun of Shield Jaguar, with a 'fire' glyph in D1a. The glyph for 'blood offering' is also present and the accompanying scene shows a woman passing a cord with thorns through her tongue. Lintel 25 of the same building has the date 5 Imix 4 Mac, likewise indicated as in the 4th katun of Shield Jaguar, directly followed by the 'fish-in-

hand' glyph. The scene shows a woman offering a bowl which contains the instruments of blood sacrifice to a deity in the mouth of a serpent. Proskouriakoff (1960, p. 470) has shown the association of this motif with the 'fish-in-hand' glyph. A head variant of the 'fire' glyph appears in C1b. The head may alter the meaning somewhat (perhaps to 'fire deity'?) but direct evidence is lacking. The same date of the 52-year cycle, 5 Imix 4 Mac, is found on the upper step of the middle doorway of Structure 44 at C10. Here its long count position is 9.12.9.8.1. In C12 we find the 'fish-in-hand' glyph and in D12a 'fire' appears. In each of these three cases, the 'fire' glyph occurs with the month Mac in connection with apparent religious rituals.

A very close parallel to these Yaxchilan passages is to be found on Stela I at Copan. In C1 is the 'fish-in-hand', while glyph block C5, like those at Yaxchilan, has the "*kan-dog*" title, and includes the blood-sacrifice glyph as well as the 'fire' glyph. The apparent associated date is 9.8.0.10.8 10 Lamat 6 Pop. This is one of the few cases where the drawing in Maudslay is seriously in error, as it does not show T563a, as expected.

In each of the three cases at Yaxchilan, the 'fire' glyph is present with dates in the month Mac in connection with apparent religious rituals. According to Landa (ed. Tozzer, 1941, pp. 162-4), there was a festival to the Chacs and to Itzamna during the month Mac, and a day or two before "They hunted for all the animals and creatures of the field, which were to be had and which there were in the country, and they came together with them in the court of the temple... They placed in the middle a great faggot of dry sticks tied together and set upright, and first burning some of their incense in the brazier they set fire to the sticks, and while they were burning, they took out a great many of the hearts of the animals and birds and threw them into the fire to burn... When all the hearts were consumed, the *Chacs* extinguished the fire with the pitchers of water." It has been supposed by Thompson, following Long, that this festival is associated with the so-called "burner period" of the colonial manuscripts. Thompson (1950, pp. 99-101) has a full discussion of the burner period, which was celebrated in connection with the days Chicchan, Oc, Men, and Ahau, passing through different phases in association with the numbers, 3, 4, 10, and 11. The ceremony described by Landa is called *tuppkak*, 'extinguishing of the fire'. The *u tup kak ah toc* (*tup* probably miswritten for *tupp*) of the 'burner period' falls on 11 Chicchan, 11 Oc, 11 Men, and 11 Ahau. In Landa's typical year, 11 Oc fell on 7 Mac. Thompson, therefore, believes that Landa mistook a "movable feast" of the 260-day calendar for one of the monthly

festivals, despite his differentiation between them. Moreover, Landa mentions a similar ceremony in Pax, and 11 Men would have fallen in Pax in Landa's typical year. This ceremony was supposed to be to the Chacs, to bring rain. The Mayan Chacs correspond to the Aztec Tlalocs. In the Aztec months Tozoztontli, corresponding to Mac, and Etz'alqualiztli, corresponding to Pax, there were child sacrifices to the Tlalocs, to bring rain. This correspondence between the Mayan and Aztec sacrifices supports Landa's view against Long and Thompson. Supporting their view is the fact that the date 5 Imix 4 Mac, which occurs in two of our texts, is the day after 4 Ahau, which is one of the 'burner' days, and the date 5 Eb 15 Mac is two days after 3 Oc 13 Mac, which, again, is one of the days of the 'burner' period. Since Landa says that the fire ritual preceded the festival to Itzamna and the Chacs by a day or two, our dates may be those of the festival, with text comments on the preceding fire ceremony. This might suggest that the 'burner' period was celebrated at the conjunction of the 'burner' days and the month Mac. The Copan parallel shows no connection with Mac, Pax, or any of the 'burner' days and suggests the possibility of coincidence.

Since the associations are ritual and recurrent, one might expect similar glyphs in texts 52 year apart. Morley (1938, iv, p. 409) had held the view that a date of the 52-year cycle might recur in a different long count position in the inscriptions of Yaxchilan. Thompson has (1946, p. 70) objected to this on the grounds that there are no authenticated cases of CR anniversaries. In a later paper (Thompson, 1952) he argues that particular dates are associated because they are accompanied by similar glyphs. Here I think a sharp differentiation should be made between glyphs referring to historical events (which we would certainly not expect to repeat in any detail) and glyphs referring to cyclical or ritual phenomena which certainly might show repetition. If the date 9.12.9.8.1 5 Imix 14 Mac is the same as the date on Lintel 25, this would put the 4th katun of Shield Jaguar very early. However, placed 52 years later it would give 9.15.2.3.1 5 Imix 14 Mac as falling in the 4th katun of Shield Jaguar, agreeing with the date 9.14.8.12.5 in the 4th katun of Shield Jaguar, and with 9.15.6.13.1 7 Imix 19 Zip on Lintel 56 in the 5th katun of Shield Jaguar — a date likewise associated with a 'fire' glyph. While the problem of Shield Jaguar's chronology is not nearly as simple as these remarks might suggest (cf. Proskouriakoff, 1963), this does indicate that the date referred to on Lintel 25 may be 52 years later than that in Structure 44. Unfortunately, in the present state of our understanding of the hieroglyphs, both 5 Imix 4 Mac and 5 Eb 15 Mac seem to

be associated with the 4th katun of Shield Jaguar, which is structurally impossible, since the dates are separated by a minimum of 24 years. 5 Eb 15 Mac would seem to be 9.13.17.15.12, as the next later occurrence is well into the reign of Bird Jaguar. In spite of the clarity of the inscription, one wonders if 5 Eb 15 Mac is not an error for 3 Eb 15 Mac, which would fall in the same month as 5 Imix 4 Mac.

The 'fire' glyph is also present on Yaxchilan L31, which is part of the same text as L29 and L30. Here it is associated with the date 9.16.13.0.0 2 Ahau 8 Uo and is immediately preceded by T207:671. T207 is the rattle of the rattlesnake, which is *tzab* in Yucatec, and 671 is the 'manik' type hand (phonetically *ce* or *che*, ff. Knorozov 1955a, p. 66, n° 14). These glyphs are found together on D10b with the verbal suffix T47, where they refer to the act of holding out a bowl with an offering. In passages on D32b-D35b, the glyph group is associated with the figure of Chac on the mouth of a serpent in passages which also contain an offering glyph (T 1.1038b). The accompanying figures do not show offerings. On M21d-22d, T207:671 is in the correct position to be the verb, and the deities below are shown holding out an object which seems to be a fan. The reference does not seem to be, directly, to offerings. On Yaxchilan L31, it is apparently a verb referring to some action done to, or with, the fire in the following glyph. While the context is still obscure in detail, it is clearly ceremonial. While it may well be coincidence, it seems worth while to point out that Uo, in which this occurred, corresponds to Aztec Xocotlhuetzli, in which captives were burned alive as an offering to the fire god.

At Yaxchilan, another 'fire' glyph appears on Lintel 10 at E1b. The date is (9.18.17.13.10) 5 Oc 18 Zotz. Directly following the date is a hand glyph with an apparent verbal suffix, then the "half-darkened *ahau*", and then the 'fire' glyph. It is of interest to note that the "half-darkened *ahau*" or a very similar glyph occurred with a prefix of 'six' in the previously mentioned 'fire' passages of texts B and D of the 819-day count. Most of the L10 text seems to be historical, but this may be an interpolated ceremonial reference.

The 'fire' glyph also appears on Yaxchilan L42 at E2. Here it is preceded by the agentive *ah* (of Knorozov, 1955a, p. 72, n° 96) and hence should read approximately 'the burner' or 'fire-maker'. The glyph of Bird Jaguar appears at E4. The opening date has usually been read 12 (or 13) Ahau 8 Yaxkin; if 12 Ahau is correct, the true date is probably 9.16.1.2.0, because of the mention of Bird Jaguar, rather than Morley's 9.13.8.7.0. The possibility of reading 11 Ahau

should not be entirely excluded, since 11 Ahau is one of the days of the 'burner' period, but would be either 40 years earlier, or 12 years later, the later being possible.

At Palenque, 'fire' appears twice in the middle panel of the Temple of the Inscriptions, at J7 and N4. Both are in the lengthy passage following the katun ending 9.12.0.0.0 10 Ahau 8 Yaxkin. The recurrence of the date 8 Yaxkin seems to be a coincidence, as this Palenque inscription is largely concerned with a series of katun endings. At J7, 'fire' has the prefix *yax*, 'new'; this is the only reference to 'new fire' which I have found in the Mayan inscriptions. In N4, 'fire' with unusual prefixes appears preceding the name of Berlin's God GIII. I have maintained that this god is a war god (see Kelley, 1965) and Dutting (1965) thinks that he is a fire god. The 'head variant' of the 'fire' glyph (to which Thompson assigns the single number T1035) occurs on the tablet of the so-called "Temple of the Sun" at C5 in a passage dealing at length with this god. GIII seems to be identical with or closely similar to the deity of Uo, and it has been pointed out that the Aztec equivalent month was that of the furnace sacrifice to the fire god. This supports Dutting's view, but is not entirely incompatible with the characteristics of the war god. The "half-darkened ahau" also appears in this text at D1; both the "half-darkened" glyph and 'fire' recur on the Death's Head Monument, near the TFC.

In a number of other cases, little can now be said about the meaning of the occurrences. On Ixkun Stela 2, 'fire' appears in B7 on the date 9.17.9.0.13 3 Ben 6 Kayab. It is the second of three glyph blocks which intervene between glyphs F and D which is very unusual. A doubtfully dated 'fire' glyph appears on St. U, Pusilha, at B9. Morley (1938, iv, p. 60) suggests the date 9.16.0.0.0 2 Ahau 13 Zec, but puts three question marks after it, which is probably equivalent to saying it is undated. Since the *Paris* codex does give a 'fire' glyph associated with katun 2 Ahau, this may offer some very slight support to Morley's date. Equally doubtful is the dating of the 'fire' glyph on the mural of Room 1, Structure 1, Bonampak, at H2a in the IS inscription. Morley read 9.13.0.3.4 (7 Kan 12 Zec) and Thompson read 9.18.0.3.4 (10 Kan 2 Kayab) (Ruppert, Thompson and Proskouriakoff, 1955, p. 57). The day after 10 Kan is 11 Chicchan, a 'burner' day. Whether this is involved will ultimately depend on a closer reading of the text.

Another apparent example of the 'fire' glyph, in the mural of Room 2 at Bonampak, seems to be part of a personal name. The identification of the prefix as T122 is certain, and the remainder is probably T563a, as given by Thompson. A head variant of 'fire' occurs on Copan Altar

K at 02a. I suspect that this is part of a personal name, as are also two probable occurrences in the Hieroglyphic Stairway at Copan. There also seems to be a 'fire' glyph on Stela 2, Santa Rosa Xtampak, at B4. The date of the stela is not known, and the single standing figure depicted on it does not aid in determining the nature of the reference. A badly eroded example in J1 of Zoomorph P at Quirigua is without a recognizable immediate context. In general, this monument seems to deal with some very complex cycles, and ceremonialism seems most likely to be the explanation. A clearcut example at Naranjo on St. 29 at F15 is not in a context which is meaningful to me, and the same is true of a reference on Altar 2, Mountain Cow, at C2. A badly destroyed glyph on Pusilha E, at B7, is probably 'fire' as listed by Thompson in his *Catalog*, but the context is unhelpful. Finally, at I'3 of Temple VI at Tikal is a 'fire' glyph apparently associated with a date 4 Caban 15 Pop. One is reminded of the Aztec date 'four olin' on which the world will be destroyed; nothing else in the context helps, however.

I should mention that the glyph in G3 of Naranjo 12 does not look like 'fire' to me in Maler's photo. It is very eroded, and the context not clear. I am likewise doubtful of the existence of a 'fire' glyph in the reused inscription of Md. 2, Copan. The alleged example from the jade earplug at Palenque may have prefix T122, but the 'main sign' is not T563, either a or b. Thompson mentions an example from Ikil L2, H, which is not available to me.

At Chichen Itza, T122:563a is not found, but there are clear indications of extensive fire ceremonialism in a lengthy inscription of the Casa Colorada. Here and elsewhere at Chichen Itza we find T669:669 which Knorozov read *ka-k(a)*, 'fire'. For a discussion of the correctness of the identification of T669 as *ka*, see my paper, "Kakupacal and the Itzas" (Kelley, 1967). The context here seems to me to offer substantial support to this identification.

The opening date of this inscription has been read by Thompson as 10.2.0.11.3 5 Akbal 1 Zec, while Knorozov (1963, p. 420) reads 10.2.0.1.9 6 Muluc 12 Mac. The month, in glyph block four, is clearly *Ma-c(a)* rather than *Ze-c(a)*, but I am not prepared to express myself on the rest of the date. A later date in the same text is 10.2.0.15.3 7 Akbal 1 Ch'en. References which seem to be ceremonial and refer to fire are numerous with both dates. The first occurrence is in glyph block 6, which I read *ah kak*, 'the burner'; in glyph block 13, as first pointed out by Barthel (1955a, p. 13), we have 'drill' with the 'dog' affix as found in *Dresden*, followed immediately by *ah kak* again in glyph block 14. Barthel and I are agreed that this refers to a fire-

drilling ceremony, although our reasons are different, since he does not accept the reading *ah kak*. In glyph block 20, we have the 'fish-in-hand' glyph which denotes the serpent ritual (offering?), and which was associated with 'fire' at Yaxchilan and Copan. In block 31, after the second date, *kak* appears with *ti*, 'at, on', followed by 'drill' again in block 32. Barthel (1955a, p. 19) sees in the affix a penis, and regards this as a ritual drawing of blood from the penis. The identity seems doubtful, and was already rejected by Brinton (1895, p. 90). 'Drill' with the 'dog' affix appears again in block 38, and block 39 is, once more, *ah kak*, as is block 45. In block 52, *kak* is followed by *ah* in block 53, presumably prefixed to a different 'actor' glyph.

To find fire-drilling associated with the 'fish-in-hand' rite in the month Mac seems clearly reminiscent of the Yaxchilan records. The association with Ch'en is unexplained. Other occurrences at Chichen are not as obviously ceremonial, and no useful purpose would be served by detailing them here. Some may refer to warfare rather than ceremony, but there is no clearcut evidence.

APPENDIX. Glyphs which have been confused with or resemble 'fire'.

In the accompanying table, I have given separate numbers to those glyph groups which I wish to discuss separately, but which have been lumped together either by Spinden or Thompson. Numbers 2, 3, 4, 5, 6, 7, 11, 12, 13, and 14 were called by Spinden (1924, pp. 202-3) 'ceremonial fire' glyphs. Numbers 4, 5, 6, 7, 8, 10, 15, 16, 17, 18, 19, and 20 are called by Thompson (1950, fig. 31, nos. 52-72) 'sky' glyphs. The first glyph of the 'fire' group (T122) is prefixed to numbers 1, 4, 12, and 17. The second glyph of the 'fire' group (T563a) is found in 3 and 4. Z1347 (included among the several glyphs still called 'sky' by Thompson as T561) is definitely present in 15, and may also be found in 16 and 17).

Number 2 is the 'cycle' glyph with a *mol* prefix, taken from the middle panel of the Temple of the Inscriptions, Palenque, and identified with a glyph of 'the Sacred Fire' by Spinden. Thompson (1950, fig. 26, 11) mislabels it a *pictun* glyph. Neither the form nor the use justify either of these identifications, and the parallel passages indicated that it should refer to something like 'new cycle'. For comparison, I have included in 1 the actual *pictun* glyph, which neither Spinden nor Thompson included in their groupings, although it has T122 prefixed, which number 2 does not.

The fifth group is the glyph of the god of the month Ceh. It has

been referred to as a symbol of sacred fire not only by Spinden but by Morley and others. The prefix is T44 and the 'main sign' is T563b rather than a. Groups 6 and 7 differ primarily in the number of curls, which I am now inclined to think is not significant. Certainly they do not seem to be significant in groups 13 or 14. Groups 6 and 7 are distinguished from group 5 by the crooked cross bar, rather than the straight cross bar of 5. The distinction seems to recur with considerable consistency, and is, I think, intended. Groups 6 and 7 are included with group 5 as T44:563b by Thompson.

Group 8 is Glyph B of the lunar series, and group 9 is a locative glyph which Barthel (1953, pp. 92-3) reads as a mythological "Place of the two Reed Bundles." Barthel feels that group 9 may correspond to the 'elbow' element in Glyph B, but rightly rejects the identification of group 8 with 'sky'.

The so-called 'sun-at-horizon' glyph (group 16) shows the *caban* glyph, associated with the earth; the sun glyph, *kin*; and a third glyph which has been generally accepted as the sky glyph. The whole seems to form a very reasonable ideograph for 'sunset', 'daybreak', or something of the sort. In texts, it seems to indicate a 'day' (or 'night' or 'dawn' or '24-hour period'). However, I am not completely convinced that the identification as a sky symbol is correct. Where it is clear and uneroded, the 'sun-at-horizon' glyph normally shows a curved line where the 'sky' glyph group has crossed bands. This is a minor distinction, and some drawings of the 'sky at horizon' group do show crossed bands. In some cases, examination of photographs does not seem to me to justify the drawing, but I have not examined all cases. However, the majority of cases clearly show the curved line, not the crossed bands, and the curved line does not occur in the 'sky' glyph group at any place that I have noted. This may be merely a graphic device because of the peculiar nature of the glyph, but it seems better to treat it as a possibly important distinction.

Thompson (1950, p. 298 and fig. 43, nos. 17-23) reads a certain glyph group (number 19) doubtfully as 'rainy sky'. This is the Emblem Glyph for Yaxchilan, identified by Berlin (1958) —an idea which was, of course, completely unknown when Thompson was writing. However, there was no adequate reason, even then, for identifying the glyph with the 'sky glyph'. The affix is sometimes present and sometimes absent, but the top is split in a way which is completely unlike the 'sky' glyph. Number 20 is also the Yaxchilan Emblem Glyph, as can be demonstrated from context, despite the physical variation indicated by the infixed "antennae".

The glyph for the deity of Zec (number 18) is very similar to the Yaxchilan EG and has likewise been regarded as a sky glyph. It was originally identified as a solstice glyph, by Spinden. The lower halves of these glyphs are formally similar, but number 18 lacks the crossed bands typical of 'sky'. However, substitution in parallel passages at Palenque for the regular 'sky' glyph shows that the latter may sometimes have this form. Nonetheless, it normally seems to be distinguished from 'sky'.

A glyph quite different from the Yaxchilan emblem glyph, found on D72c, has also been read by Thompson as "rainy sky", a reading in which he was partly anticipated by Cyrus Thomas (1893, p. 263) who read the group as 'water, rain'. The prefix is also supposed by Knorozov to indicate rain. The glyph is tilted on its side, and the crossed bars are more like those of my groups 6 and 7 than like the bars of 15, generally. Nonetheless, I have included it, doubtfully, with the generally accepted 'sky' glyph.

In group 14, the glyph from D40a is a locative glyph for some mythical place. Seler supposed that it was identical with the other glyphs shown, from the inscriptions. These glyphs should be analyzed to determine whether that is a feasible meaning in the inscriptions, as I am inclined to think.

I have previously identified group 17 as the personal name of a ruler from Quirigua (Kelley, 1962b, p. 328). The main glyph is 'sky', and the first of the prefixes is T122, which might, perhaps, lead to some suspicion that Thompson was correct in ignoring the distinction between 'fire' and 'sky', particularly since some versions of this seem to show substitutability of T563a for T563b. Nonetheless the other occurrences make it clear that the distinctions are normally important.

BIBLIOGRAPHY

References to the Aztec month feasts are from Sahagun (1948). For sources of Maya texts, see Thompson, 1962, except as otherwise noted.

BARTHEL, Thomas

1953 "Regionen des Regengottes", *Ethnos* 18, pp. 86-105, Stockholm.

1955a "Versuch über die Inschriften von Chich'en Itza Viejo", *Baessler-Archiv*, n.f., 3, pp. 5-33, Berlin.

BERLIN, Heinrich

1958 "El glifo 'emblema' en las inscripciones mayas", *Journal de la Société des Américanistes de Paris*, 47, pp. 111-119, Paris.

BEYER, Hermann

1937 *Studies on the inscriptions of Chichen Itza*, Carnegie Institution, Contrib. to Am. Arch. 21, Washington, D. C.

- BRINTON, Daniel G.
1895 *A Primer of Mayan Hieroglyphics*. Philadelphia.
- CORDAN, Wolfgang
1963 *Götter und Göttertiere der Maya*. Bern.
- DÜTTING, Dieter
1965 "Algunas consideraciones sobre el trabajo de H. Berlin, 'The Palenque Triad'", *Estudios de Cultura Maya* 5, pp. 135-144.
- GATES, William
1931 *An outline dictionary of Maya glyphs*, Maya Society, Publ. 1, Baltimore.
- KELLEY, David H.
1962a "Fonetismo en la escritura maya", *Estudios de Cultura Maya*, 2, pp. 277-317.
1962b "Glyphic evidence for a dynastic sequence at Quirigua, Guatemala", *American Antiquity* 27, pp. 323-335.
1965 "The birth of the gods at Palenque", *Estudios de Cultura Maya*, 5, pp. 93-134.
1967 "Kakupacal and the Itzas" (this volume).
- KNORZOV, Yurii
1955 "La escritura de los antiguos mayas", *Academia de Ciencias de la URSS*, Moscú.
1963 *Pis 'mennosti' Indeynev Maya*, Academy of Sciences, Moscow.
- LANDA, see Tozzer
- MAUDSLAY, Alfred P.
1889-1902 *Archaeology. Biologia Centrali-Americana*, 5 vols. London.
- MORLEY, Sylvanus G.
1937-38 *The Inscriptions of Peten*, Carnegie Institution, Pub. 437, 5 vols. Washington, D. C.
- PROSKOURIAKOFF, Tatiana
1960 "Historical implications of a pattern of dates at Piedras Negras, Guatemala", *American Antiquity* 25, pp. 454-475.
1963 "Historical data in the inscriptions of Yaxchilan, I", *Estudios de Cultura Maya* 3, pp. 149-167.
- RUPPERT, Karl; J. Eric THOMPSON and Tatiana PROSKOURIAKOFF
1955 *Bonampak, Chiapas, Mexico*, Carnegie Institution, Pub. 602, Washington, D. C.
- SAHAGÚN, Bernardino de
1948 "Relación breve de las fiestas de los dioses", *Tlalocan* 2, pp. 289-320.
- SELER, Eduard
1902-23 *Gesammelte Abhandlungen zur amerikanischen Sprach-und Alterthums Kunde*, 5 vols. Berlin.
- SPINDEN, Herbert J.
1924 *The Reduction of Maya dates*, Peabody Museum Papers 6, No 4, Cambridge, Mass.
- THOMAS, Cyrus
1893 "Are the Maya Hieroglyphs Phonetic?" *American Anthropologist* 6, pp. 241-270.
- THOMPSON, J. Eric
1946 "The dating of structure 44, Yaxchilan, and its bearing on the sequence

- of texts at that site", *Notes on Middle American Archaeology and Ethnology*, N° 71, pp. 62-73, Carnegie Institution, Washington, D. C.
- 1950 *Maya Hieroglyphic Writing: Introduction* Pub. 589, Carnegie Institution, Washington, D. C.
- 1952 "The Introduction of Puuc style of dating at Yaxchilan" *Notes on Middle American Archaeology and Ethnology*, N° 110, Carnegie Institution, Washington, D. C.
- 1958 "Symbols, glyphs, and divinatory almanacs for diseases in the Maya Dresden and Madrid codices", *American Antiquity* 23, pp. 297-308.
- 1962 *A Catalog of Maya Hieroglyphs*, University of Oklahoma Press, Norman, Oklahoma.
- TOZZER, Alfredo M.
- 1941 *Landa's Relación de las cosas de Yucatán*, Peabody Museum Papers, vol. 18, Cambridge, Mass.
- WALTER Randel Art Gallery
- 1966 Advertisement inside back cover, *Art News*, Sept., 1966.
- WHORF, Benjamin L.
- 1942 "Decipherment of the linguistic portion of the Maya hieroglyphs", *Smithsonian Institution Annual Rep. for 1941*, pp. 479-502. Washington, D. C.
- ZIMMERMANN, Günter
- 1956 *Die Hieroglyphen der Maya-Handschriften*, Hamburg.





QUIR F, C16 b
1. PICTON



2. PAL. INSCR. M, L3



3.



M15 b
"SKY SYMBOL
WITH BRILLIANCE
PREFIX"
4. 'FIRE'



D19 c
"FIRE"



YAX. L31, J4



PUSILHA U
B9



BONAM.
MURAL
RM.1, STRUC.1
15 H2 a



PAL. INSCR. M
J7 a
'NEW FIRE'



IX KUN
ST.2, B7



COP. ALT. K
30



PAL. SUN A1-B2



PN, L2,
A1-B2



NAR.23, H16



P.N. L3, E1
8. GLYPH B, 55



9. D68 b



COP. M, B7 b



13. COP. S, G16



10. YAX. L35, A6



7. PAL. INSCR. W, D12



11.



12. COP. I, D3



14.



PAL. CROSS, Q9



D40 a



D40 b
HIS FIRE AT HEAVEN
15. SKY



D40 c
AT HEAVEN



D72 c
"RAINY SKY"?



D47 b
GOD 'TEN SKY'



COP. U, C2



COP. Q, E4



TIK. T4, L3, C4
16. "SUN-AT-HORIZON"



QUIR E (W)
A8 b
17. "TWO-LEGGED
SKY GLYPH"



LOS HIGOS I
1516

18. DEITY OF
ZEC



YAX. L2
P1
19. YAXCHILAN
EMBLEM GLYPH



PN L3, K1
20. UNIDENTIFIED
EMBLEM GLYPH