

Of Mice and Monkeys:  
the Value and Meaning of T1016, the God C Hieroglyph

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**T**HE SUBJECT OF THIS STUDY is the head glyph identified as the name of “God C” by Schellhas (1904:19-21) and assigned the number 1016 by Thompson (1962). This sign (Fig. 1a-c), commonly thought to represent a monkey, is one of the more frequent elements in Maya script and occurs throughout the span of the hieroglyphic writing system. A Late Pre-classic Period example occurs on Kaminaljuyu Stela 10 (Fig. 2) in an important text which also contains several other prototypes of Classic Period signs. T1016 is especially prevalent in the Postclassic codices: Gates (1978:99) stated that it “occurs nearly 500 times, of which 22 are in the Paris, 21 in the Dresden, and the rest in the Madrid.” My own preliminary concordance of the codices reveals 205 examples, making T1016 the 23rd most frequent element in those texts (Note 1). T1016 is also common in the Classic Period monumental inscriptions. For example, there are 69 instances of its use at Palenque, where it is the 31st most frequent element. In our concordance of some 40,000 Late Classic Period signs, including Palenque (Ringle & Smith-Stark n.d.), T1016 ranks 41st with 191 occurrences.

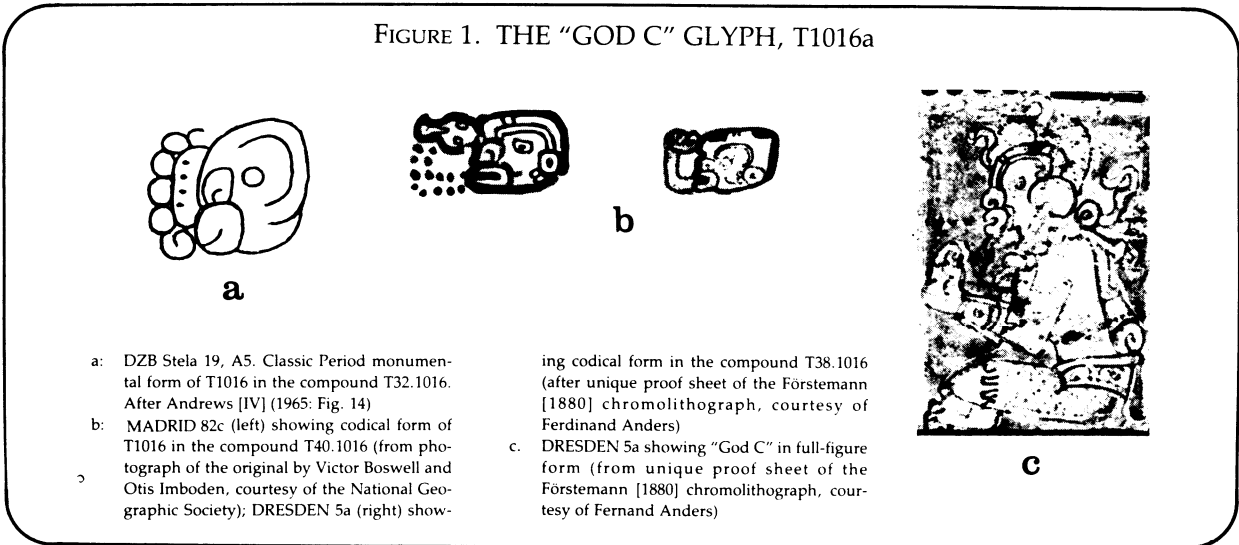
PREVIOUS INTERPRETATIONS OF T1016

Despite its frequency, T1016 remains poorly understood. Schellhas (1904:19-21) identified it as a deity primarily because of its appearance in several scenes in the codices (Fig. 1c), but admitted that it “is one of the . . . most difficult figures of the Maya manuscripts” and that it “can be identified with none of the representations of the gods handed down to us.” Schellhas believed that it had astronomical importance, noting that God C is frequently present in the sign for “north,” and suggested that it be identified with the polar star. Förstemann (1904, 1906) generalized this identification to include the entire constellation Ursa Minor. Schellhas was somewhat uneasy with the identification of God C with north because it seemed to be contradicted by its appearance with all four cardinal points on Madrid 10c. Nevertheless, God C did appear to have some sort of astronomical association since it appears at the top of the:

...cross-shaped tree of God B, which denotes the lofty celestial abode. Indeed, these passages prove positively that a heavenly body underlies the idea of this deity. (Schellhas 1904:20).

Förstemann (1904:562) was the first to identify T1016 as a monkey. He aligned it with the day *Chuen* because God C appeared on page 5 of the Dresden Codex. This, according to Förstemann, is part of a *tonalamatl* (or *tzolk'in*), 23 days before a representation of an ocelot and a vulture, which he identified with the Aztec days *Ocelotl* and *Cozcaquauhli*. This would align

FIGURE 1. THE "GOD C" GLYPH, T1016a



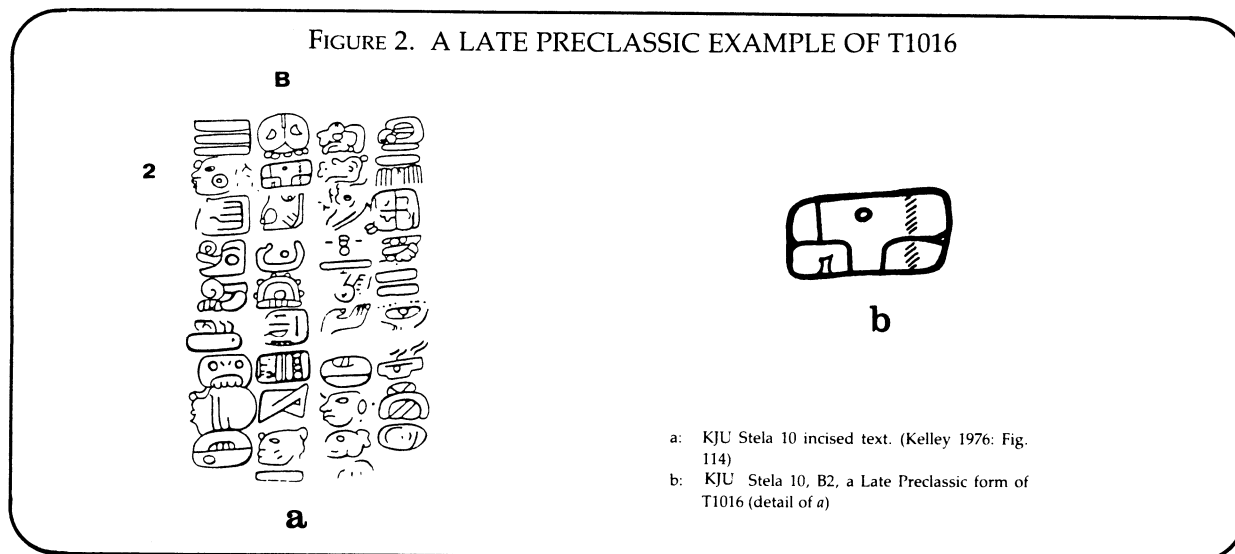
the day associated with the God C figure with the Aztec day *Ozomatli*, or "monkey."

Gates (1978:103-104) doubted both these conclusions. He noted that many well-known Maya deities conflict with their supposed day alignments in Förstemann's scheme. He also saw that in the Dresden Codex—which he believed to be more carefully executed than the Madrid—the glyph for "north" *never* occurred with T1016, but with his glyph [G]71, also Thompson's 1037, which was not necessarily a monkey. In support of Gates, I know of no examples where T1016 appears as the day sign for *Chuen*. Gates (1978:106-107) suggested that T1016 had a more general meaning such as "lord," "lordship," or as a verb "honor or worship." Thompson, in his monumental *Maya Hieroglyphic Writing* ([1950] 1971), illustrated several other contexts for T1016. He seconded Gates's interpretation, but suggested a broadening of the meaning to include "the wise one" or "the craftsman" (1971:80), thereby encompassing the putative association of T1016 with *Chuen* and, by extension, with *ah chuen*, glossed as "artificer" or "craftsman" in the Motul dictionary (Martínez Hernández 1929:85). He also noted its appearance, with the prefixes 9 and the "water group," as the Lord of the Night G1. Thompson ([1950] 1971) also gives several examples of T1016 in glyphs of the Lunar Series, notably Glyphs E, X2, and B.

Bricker (1983) recently suggested that T1016 represented "zenith," Yucatec *kaan*, rather than "north" (Note 2). In support of this, she cites a possible logosyllabic rendering T25.1016:23 on Madrid 70a (Bricker 1983: Fig. 2e). One objection to this is that T25 occurs many times in the Madrid Codex in contexts where Set A personal pronouns would be expected and might be better understood in cases such as the first person plural pronoun *ka*. Another objection is that this is the only example in the Madrid or Dresden codices in which T23 is suffixed to T1016. The most recent opinion is that of Schele and Miller (1986: 48), drawing upon earlier work of David Stuart. They identify God C as the personified form of blood, based upon its frequent occurrence as part of the "water group" affix and in scrolls they believe represent blood. For reasons given below, this meaning seems too restrictive.

#### THESIS

IT IS THE CONTENTION OF THIS PAPER that, in agreement with the original suggestion by Barthel (1952:94), T1016 represents the Yucatec Maya word *k'u*, Cholan *ch'u*, and their cognates in other Mayan languages (Note 3). *K'u* is glossed in the Motul dictionary (Martínez Hernández 1929:523) as *dios, las casas o templos en que se adoraba a Dios: las piramides antiguas o lugares de adornacion de los indios gentiles* ("gods, the houses or temples in which god was wor-



shipped: the ancient pyramids or places of worship of the native Indians"). This descends, according to Fox (1978: Entry 81), from the proto-Mayan (PM) root \**k'ux*, meaning "god, sacred, to believe, soul, heart, cedar" (with affixes). Occasionally T1016 may also have functioned phonetically as the syllables *k'u* and *k'o* in Yucatec and as the syllables *ch'u* and *ch'o* in the Cholan languages, but either because the sign was too important to be used syllabically, or because the number of possible morphemes using *k'u* or *ch'u* was limited, T1016 seems to have functioned mainly as a logogram. I shall first present structural and iconographic evidence showing that the contexts of T1016 are consistent with this definition and argue against its identification as a specific deity. I shall next present some phonetic evidence supporting the reading, and then analyze several contexts of T1016 that further support the *k'u* reading. In choosing Classic Period evidence for these readings, I have relied mainly on Palenque texts to minimize the possibility that examples are being drawn from more than one language.

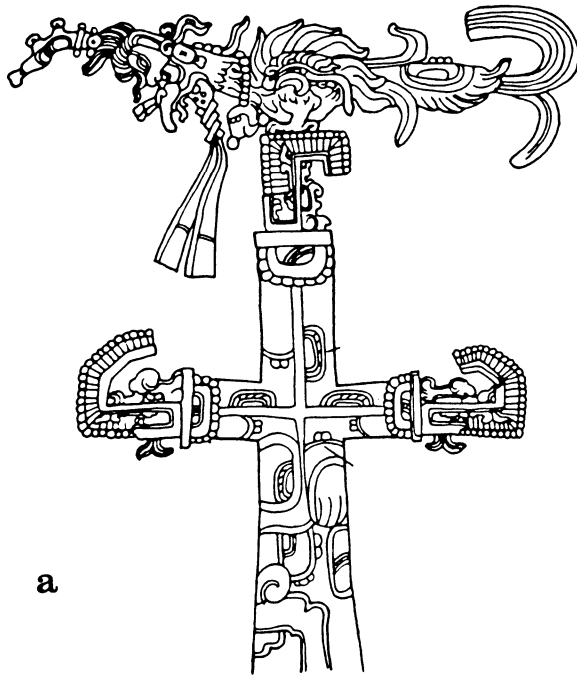
#### THE DISTRIBUTION OF T1016

**T**HE FIRST ARGUMENT against the existence of a "God C" is that he does not appear in Classic Period iconography as a distinct figure, although T1016 is a common glyph and depictions of monkeys are not uncommon. The head never appears as the monkey-head variant of *k'in* in depictions of monkey scribes and craftsmen, nor as a glyph for the day *Chuen*. Although it might be argued that he was a Postclassic innovation, the frequency of T1016, his supposed name, in Classic Period texts would argue against this.

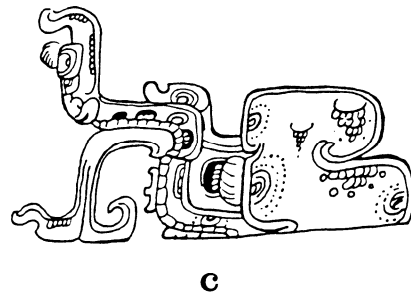
The context in which the T1016 head (and its near relation, T1017) *does* appear in Classic Period art is as a profile infixed in images of various animals, plants, and deities. It can be seen in the trunk of the "world tree" on Pacal's sarcophagus (Fig. 3a) and on the Tablet of the Foliated Cross, in a frog or toad on a Late Classic polychrome vase (Fig. 3b), in the head of the "Cauac monster" (Fig. 3c), and in the heads of various deities. I think the explanation that best fits these disparate contexts is that T1016 functions as a marker of supernaturals, deities, and sacred objects in general, in accord with the reading suggested above. This would encompass its appearance in sacrificial scenes but would not necessarily be limited to them.

If some such range of meanings is associated with T1016, it would explain the difficulty of associating T1016 with a specific deity, since the sign would instead be a general term applicable to gods as a class. The Late Classic "Vase of the Seven Gods" (Coe 1973: No. 49), illustrates the

FIGURE 3. T1016 AND T1017 AS SUPERNATURAL MARKERS IN MAYA ART

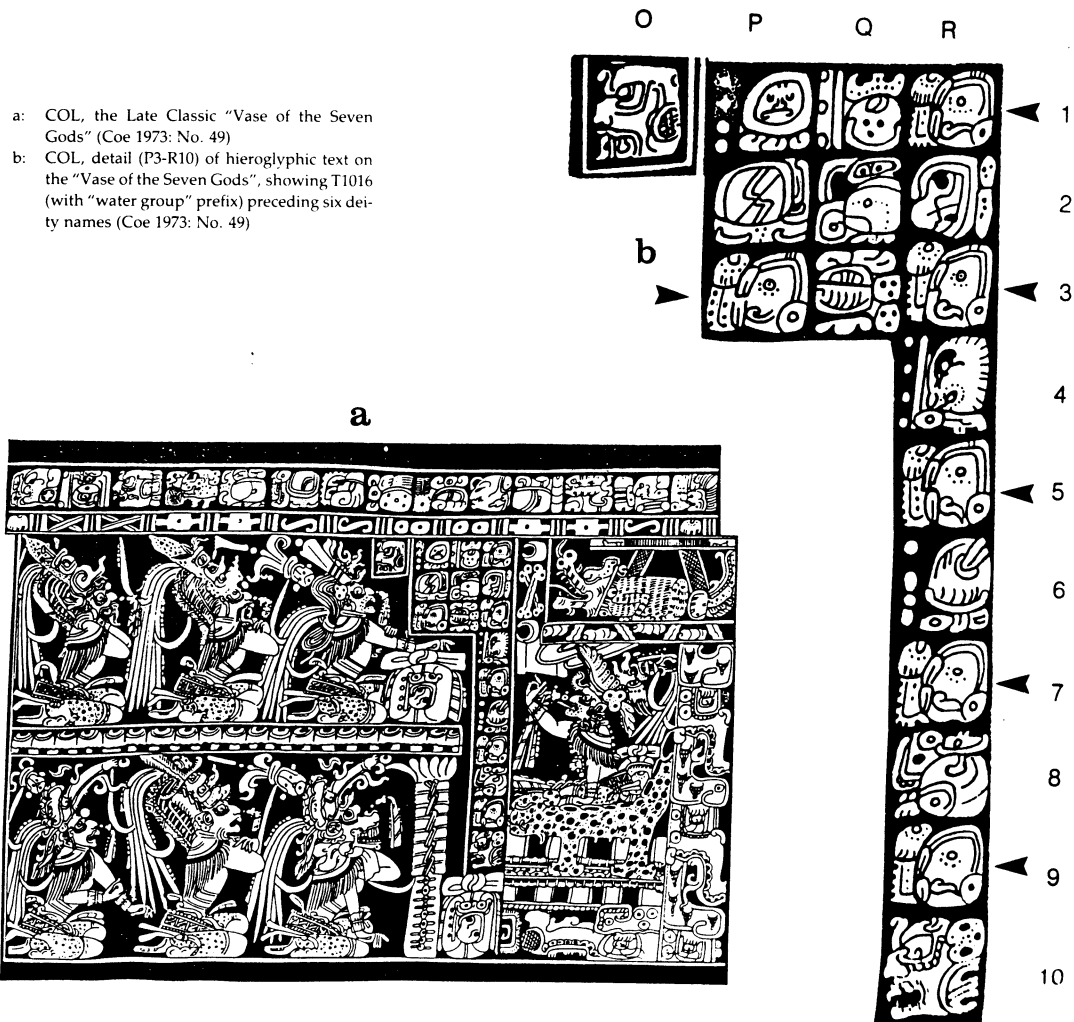


- a: PAL Temple of the Inscriptions, sarcophagus lid, detail showing "world tree" with infixed T1016 face (Schele and Miller 1986: Plate 111b)
- b: COL, detail of Late Classic painted vase with T1016 face as part of toad or frog deity (after Robicsek & Hales 1981: Vessel 47)
- c: COL detail of Late Classic painted vase showing T1016 as part of a "Cauac Monster" (Metropolitan Museum of Art, New York [Schele & Miller 1986: Fig. 23])



Photograph © Justin Kerr

FIGURE 4. T1016 AS A TITLE FOR DEITIES



use of T1016 as a title (Fig. 4a). God L is shown seated on a throne facing six other deities arranged in two tiers. The text beginning at P1 quite clearly mentions the names of these six deities (Fig. 4b). Although it is difficult to match each figure with his particular name glyph, each nominal is prefixed by the identical glyph block T36v.1016. Similar clauses are frequent in the codices. Figure 5a gives examples from pages 83-84 of the Madrid Codex, in which T36v.1016, in the second glyph block of each clause, precedes the names of six gods. Only one god below these clauses has the head of God C, and he is explicitly named *Itzamna* above. Again, the most logical interpretation is that T36v.1016 is here functioning as an appellative or title of some sort.

One case where T1016 may function as a deity name is on Madrid 101c (Fig. 5b), where it appears with the prefix 13. This suggests the *oxlahun ti k'u*, the 13 gods of the heavens mentioned in the books of Chilam Balam, the *Ritual of the Bacabs*, and several other colonial documents. Although first in the clause, XIII.1016 is quite clearly the god's name since *Itzamna*'s glyph occurs in the same position above the preceding picture. The name would thus gloss as *oxlahun k'u*. Although the glyph compound lacks an element for *ti*, *oxlahun k'u* is attested in the *Chilam Balam of Tizimin* (cf. Edmonson 1982: lines 863-64, and *oxlahun k'u* appears in three other places in Bricker's (n.d.) transcription.

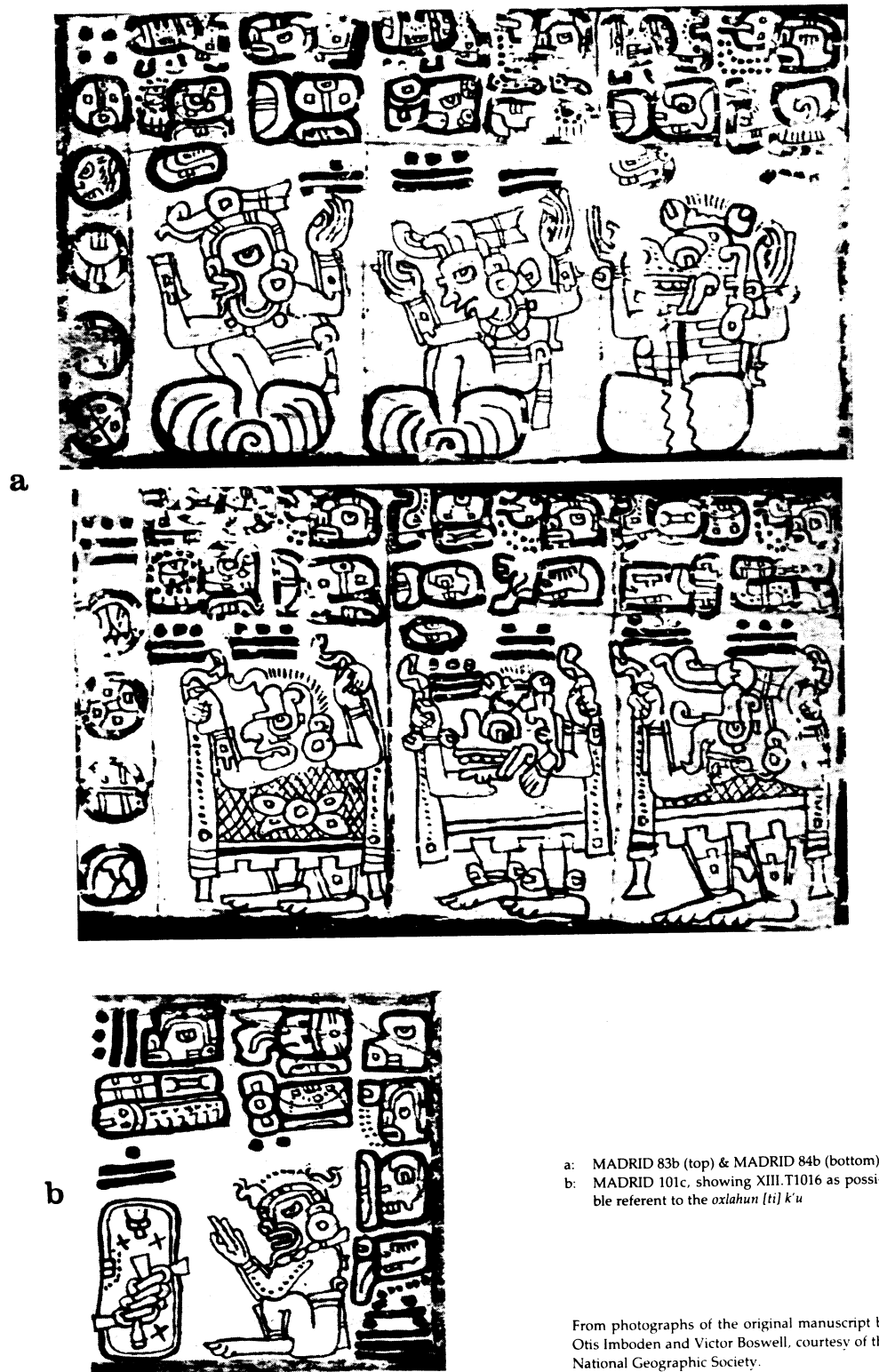


FIGURE 5. T1016 IN THE MADRID CODEX

## PHONETIC EVIDENCE

THE PHONETIC EVIDENCE is unfortunately limited, most probably for the reasons given above. As noted by Carlson and others, the clearest example of such a reading comes from Landa's illustrations for the month *Cumku* (*kumk'u*). Several of Landa's month glyphs are represented both by the familiar canonical forms and by syllabic spellings. *Pop*, for instance, was written as (687b:687b).551:130 (Fig. 6a). The usual Classic form is 551:130, but Lounsbury (1973) has shown that 687b has the syllabic value *po*, yielding the syllabic rendering **po-p(o)**. Landa's glyph for "Cumhu" (Fig. 6b), as he gives it, or "Cumku," as given in other sources, is (528:1016)A.155v:506. The latter part, 155v:506, is the Classic form of the month, and I believe 528:1016 is a syllabic representation. The reading of T528 as *ku* in some contexts is well established, and I believe T1016 represents the final consonant-vowel (CV) of the month, or *k'u*, leaving *m* unrepresented.

The correct form of the month was almost certainly *Kumk'u*. As Thompson (1971:106, note 3) states, only Landa records it as *Kumhu* (written "Cumhu" in the manuscript [folio 38]). Both *Kumk'u* (as "Cumku") and *humk'u* are given in the Pérez dictionary (1866-1877:62) and in the compendium of Colonial Yucatec Maya by Swadesh, Alvarez, and Bastarrachea (1970). In the Chilam Balam of Tizimin, *Kumk'u* and *Kunk'u* are both present, while in the Chilam Balam of Chumayel only *Kumk'u* is attested. Sánchez de Aguilar ([1639] 1937:142) also gives *Kumk'u* (as "CumKu"). The Cordemex dictionary (Barrera Vásquez et al. 1980:352) gives *humk'u* as an alternate gloss, citing Pérez and Swadesh et al. Thus, it seems clear that the last syllable was *k'u*. While *kumk'u* means "kiln" or "potter's oven," perhaps the meaning here is rather "seating of the god," from the Yucatec verb *kum*, probably related to the Cholan *chum*, "to seat."

There remains the matter of why T1016 was associated with this syllable. Although T1016 may not be directly associated with *Chuen*, there can be little doubt that it is a monkey head. The personified *k'in* glyph of Yaxchilan Lintel 48 shows a monkey with a mouth and head similar to that of T1016, as do several polychrome pots (e.g., Robicsek and Hales 1981: Vessel 47). There are two species of monkeys native to the Maya area—the howler monkey and the smaller spider monkey. In Yucatec and other languages, the term for howler monkey is *batz*. An examination of comparative day terms (Thompson 1971: Table 3) shows that *batz* is the term used in other Mayan languages for the Yucatec day *Chuen*. Therefore, it would seem that the howler monkey, rather than the spider monkey, was associated with this day. If T1016 depicts a spider monkey, as I believe, this might explain its non-appearance as a glyph for this day.

From photographs of the original manuscript, courtesy of the REAL ACADEMIA DE LA HISTORIA, Madrid.

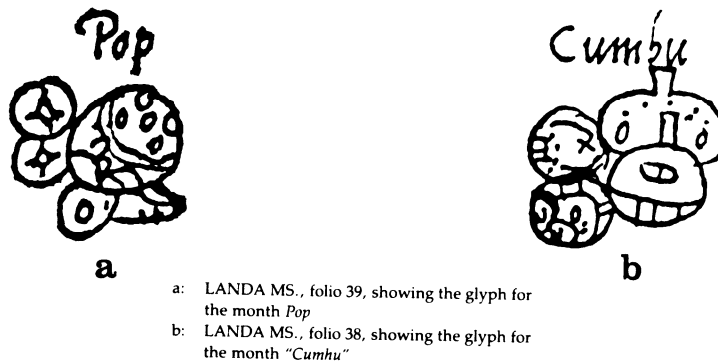
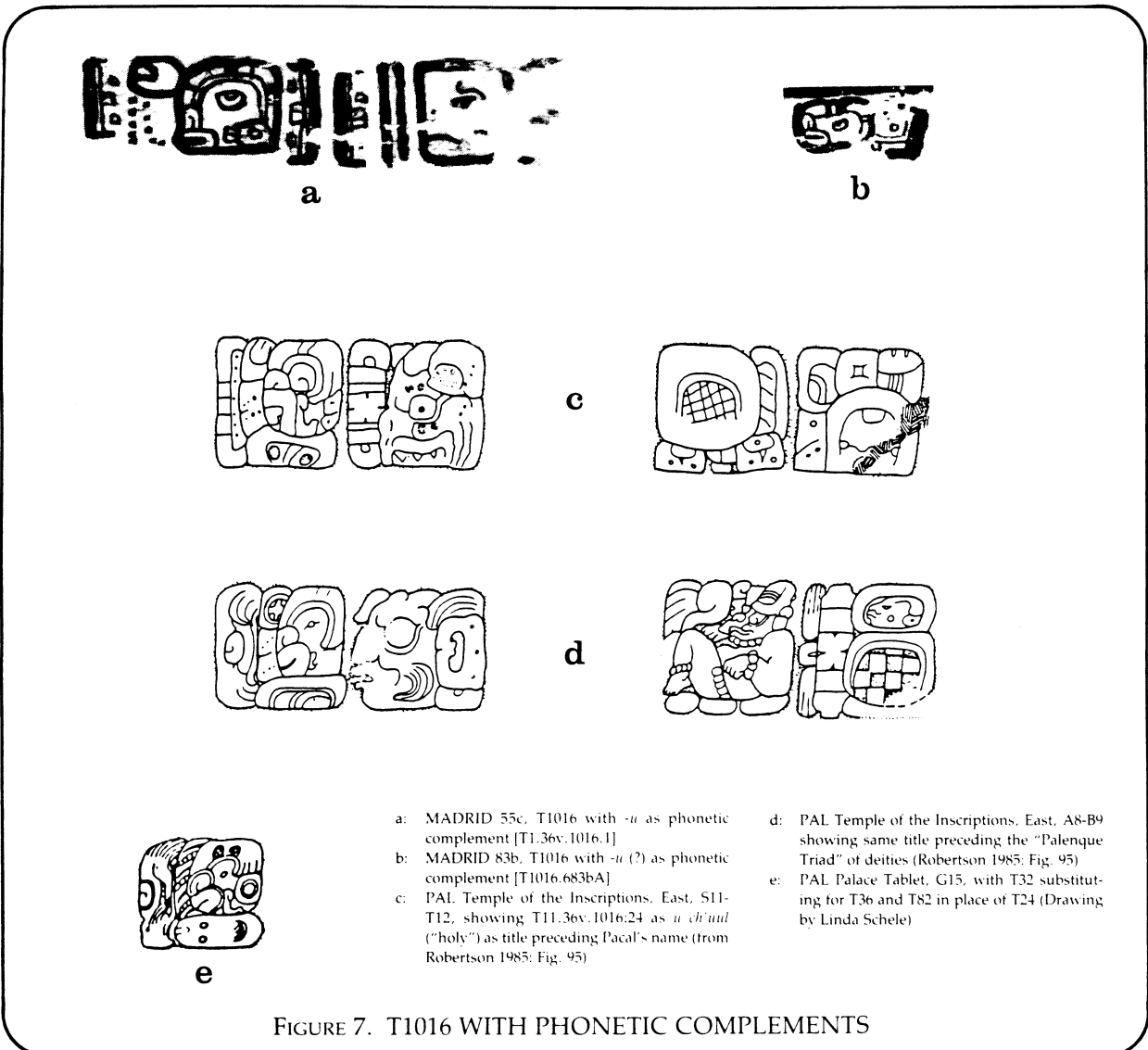


FIGURE 6. THE MONTHS *POP* AND "CUMHU" IN THE LANDA MANUSCRIPT

The usual word for spider monkey in most of the Mayan languages, including Yucatec and Cholan, is *maax*. Justeson (1976) has suggested that in many cases syllabic signs were represented by roots of consonant-vowel-(consonant) [CV(c)] form, where “c”, if present, represents a weak consonant such as “h,” “ʔ,” “y,” “w,” etc. Neither *batz* nor *maax* can be accommodated to this principle, and yet the variety of contexts in which T1016 occurs suggests that it was not simply a logogram. In some of the Highland languages, however, there is another etymon for spider monkey, reconstructed as *\*k'oy* in proto-Mayan by Kaufman (1962: Entry 24). Edmonson (1965:103) cites *q'oy* for “spider monkey” in Quiché. Campbell (1977:47) records its presence throughout the Quichean group except in Kekchi, reconstructing *\*k'o:y* for Proto-Quichean. While Highland glosses are, in general, to be avoided, I believe in this case the extreme antiquity of the sign and its presence in Late Preclassic Highland texts (see Figure 2) may argue for its origin outside the Lowland languages. A parallel case would be T168, which seems originally to have had the meaning *ah po* (Lounsbury 1973), a title restricted to Highland Maya groups, but which was later read as *ahau* in the Lowlands. If this root was passed to the Cholan languages, the initial consonant would have undergone the shift *k'* to *ch'*. The vowel may also have undergone a shift from *o* to *u*, giving a root approximating *ch'u* (Note 4).





There are a few cases of apparent phonetic complementation to support this reading. On page 55c of the Madrid Codex (Fig. 7a), T1016 is followed by T1, long recognized as the third person Set A pronoun *u*. I am not familiar with any grammatical suffix *u*, however, making it likely that T1 is here functioning as the complement to the vowel of *k'u*. On Madrid 83b, a series of scenes depicts deities emerging from a split version of T17 (see Figure 5a). The second block of each clause has T1016 as the main sign, and the last two have T36v as the prefix. The first, however, has no prefix and has T181/683b as a suffix (Fig. 7b). T181 and its main sign equivalent, T683, signify both the moon, Yucatec *u*, and the syllable *ah*. If it has the former value here, this may be another case of a final phonetic complement (Note 5). Finally, several T1016 compounds have T24 or T82 suffixed (Fig. 7c-e). The latter has been read as *lu* or the ending *-ul*, thereby suggesting that the vowel of T1016 was *u*. The root *k'ul* also means “god” in Yucatec.

#### OTHER COMPOUNDS CONTAINING T1016

**T12.1016:23 and variants.** The common compound 12.1016:23 (Fig. 8a,b) occurs eight times at Palenque. Probable variants appear as 12.36b.1016:23, on Tableritos (G3), and as \*.36a.1016:23 on Leg 2 of the Del Río Throne (A6). (In the latter, T12 may have been shaved of

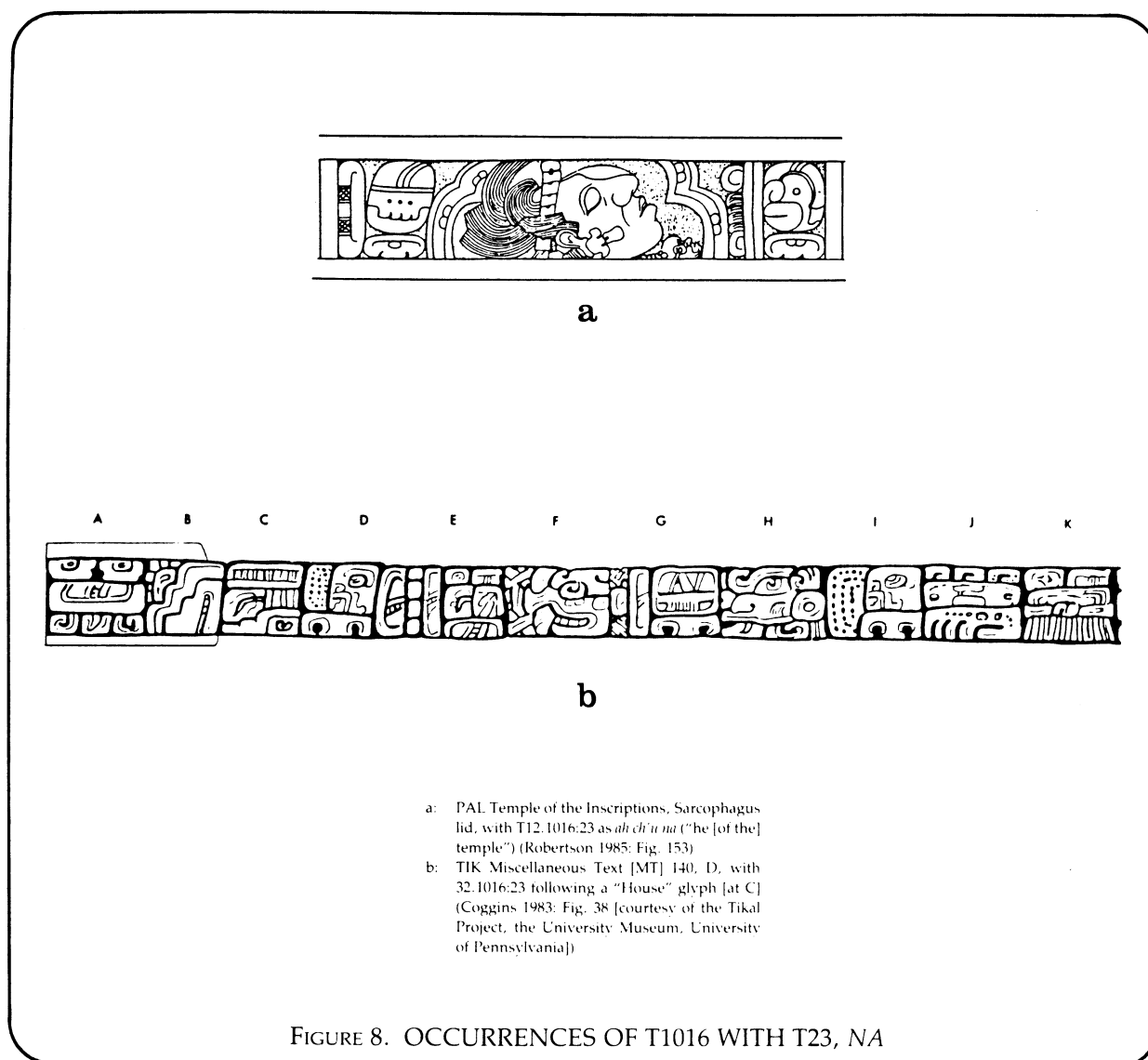
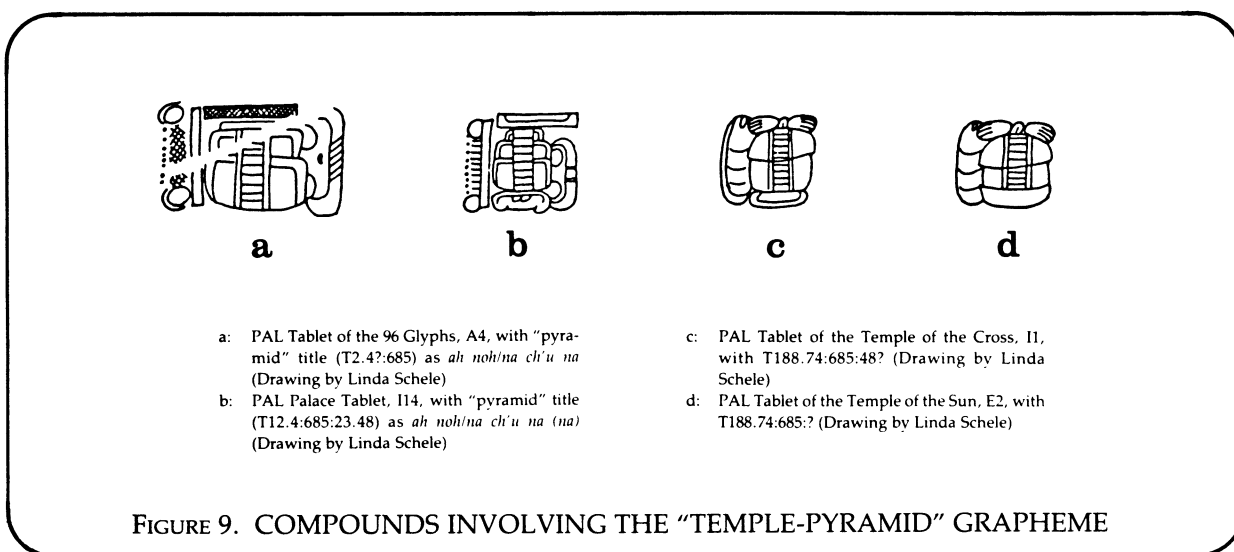


FIGURE 8. OCCURRENCES OF T1016 WITH T23, NA

Of these ten examples, three occur on the feet of the Temple of the Inscriptions sarcophagus and four on the top, in a series of repeating phrases. Although their meaning is not clear, they probably refer to Pacal, since no other name glyphs are apparent. Still another example—part of a clause also found on the sarcophagus top—occurs on a fragment from the Palenque aqueduct. The contexts of the examples from the Tableritos and from the throne leg are obscure, but the former is clearly a text of Pacal's and the latter mentions dates within his reign.

The readings of T12 as *ah* and T23 as *na* are well established, and so a reading for this compound might be *ah ch'u na*, "he of the temple" (literally, "god's house"). The titles *ah k'u* and *ah k'u na* are attested in Yucatec for priests (Note 6). Here, however, I think the title refers specifically to Pacal's monument to himself, the Temple of the Inscriptions, since no other ruler of Palenque carries the title. This receives some support from a structurally similar compound with T685 as a main sign, which I believe substitutes for T1016 (Fig. 9a-d). The first two examples, T12.48?:685.4 and T12.48?:685:23.4, are the only other compounds at Palenque to have T12 as a prefix and T23 as a suffix. Although both texts postdate Pacal's reign, the phrases in which the title occurs again concern Pacal. The Palace Tablet example occurs after his name in a clause recording his death date. The other occurs with the *katun* ending date of 9.11.0.0.0. Sign T685 quite clearly depicts a pyramid (Fig. 9), and, if it is a substitute for T1016, would nicely support the identification of T1016 as *ch'u* or *k'u*. The prefixes to T685 seem to be T48, read either as *na*, "first" or "foremost," or, as suggested in the conclusion, *noh*, "great." (They may also be the coefficient 5, for which I have no explanation.)

The 12.1016:23 combination occurs at other sites as well. I would read the compound T25.1016:23 on Madrid 70a as *ka k'u na*, "our temple." Unfortunately, there is nothing in the accompanying drawing to confirm or deny this reading. There is, however, a more confidence-inspiring variant of the compound on Tikal Miscellaneous Text 140 (see Figure 8b), a blackware vessel from a dedicatory cache in Str. 5D-46 of the Central Acropolis (Coe 1967: 69-70; Coggins 1983: Fig. 38). The variants T32.1016:23.24 and T32.1016:23 occur at positions D and I respectively. At position C is the "house" glyph, which possibly refers to the building being dedicated (Stuart 1987); Jaguar Paw's name glyph is at J. The (?) *k'u na* compounds suggest that the names that followed were in some way connected with the building, either as the royal sponsors, the persons making the dedication, as temple attendants, or a combination of these. Depending on the correct interpretation of T32 (see below), two readings are possible. If T32 is an agentive pronoun, the compound would parallel that of T12.1016:23, already discussed. If, however, T32 is a phonetic complement or a determinative, as I suspect it is, then



the correct reading might be the Cholan cognate of the Yucatec *k'uya'n*, meaning “consecrated” in the Cordemex Dictionary. (Here the compound might be *ch'uyanil*, “consecration”.) Another possibility is that it represents the Cholti or Chontal root *ch'una(n)*, “to keep safe, deposit, safe-guard, hide something,” also appropriate for a dedicatory cache. Alternatively, it may simply refer to the temple above the cache.

**The T1016 Title and the Water Group.** T1016 most commonly occurs in the compounds T1.36v.1016:24 or T36v.1016 (Figs. 4, 5 & 7c-e). The compound T1.32.1016:24 I believe may be read as *u k'uul* or Cholan *u ch'uul/ch'uul*. Yucatec *k'ul* (*ku-ul*) means “sacred thing, sacred, divinity, holy,” obviously an appropriate title for the leaders of Classic Maya cities such as Palenque, who explicitly claimed divine descent. The term is also present in Chontal: Knowles (1984) cites *ch'ul-ha* for “holy water” and the phrase *chuil maria madalena* is found in the Paxbolon papers (Smailus 1975:96). (Note that in the latter text glottalized and unglottalized *ch* are not always distinguished.)

The prefixes T32 and T36 and their variants have not been read satisfactorily (Note 7). In many cases they would seem to function structurally as the equivalent of *ah*, the male agentive pronoun. Such a reading would find support from Thompson's (1971:274-277) identification of the glyph as representing water and associated symbols. If so, T32/36.1016 may represent the title *ah k'ul*, an important honorific during the colonial period, designating a representative of a *cacique* or a *batab* (Barrera Vásquez et al. 1980:421). In Classic times it may have been a title adopted by the rulers themselves, something akin to “the holy one.”

There are, however, problems with this reading. T12 precedes T32 or T36 in several instances, including the Palenque Tableritos (G3) and Yaxchilan Lintel 53 (G2), making a reading of the latter as *ah* improbable. Another problem is the manner in which the T1.32.1016:24 compound is written: T32/36 is almost invariably the same size as T1016 and overlapped by the T24 suffix, while other prefixes are longer and overlap T24. I have suggested elsewhere (Ringle 1985:154) that in such cases the more tightly bound prefix usually functions as a phonetic complement or a semantic determinative (Fig. 7c-e).

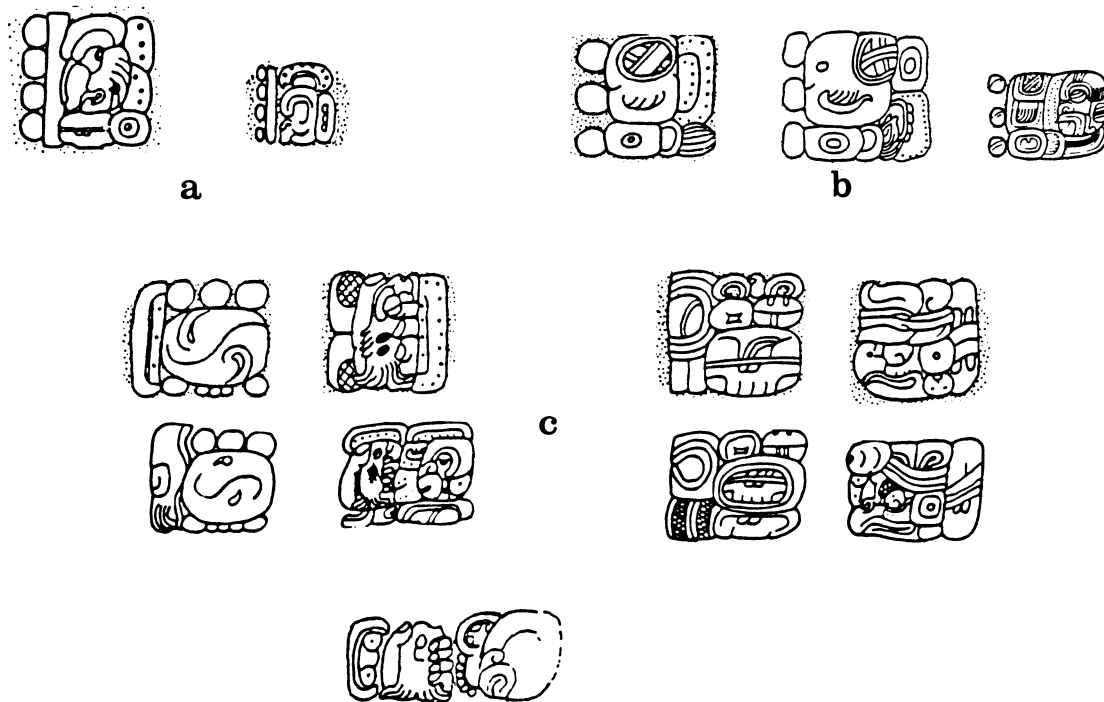
If Thompson's original identification of the sign as representing water is modified slightly, an acceptable motivation for the sign can be suggested. Love (1987) has shown that *ch'ah*, “droplets”, was the probable reading for T93 in the codices and, given the latitude in vowel representation indicated by many phonetic complements, this could well be the reading for T32/36. However, Knowles' (1984) recent Chontal word list has several even closer candidates:

<i>ch'ul</i>	drops of liquids, lard, etc.
<i>ch'ul</i>	benediction
<i>ch'ul-(e[l])</i>	to drip

Since the root *k'u/ch'u* has no final consonant, the phonetic complement in this case can stand for the root as well.

I believe this is the meaning of T36 when prefixed to names and Emblem Glyphs: It designates a person or place as “revered,” “holy,” or “sacred.” The various infixes (T1016, T16, T281, etc.) to the T36 variants reinforce this meaning of preciousness or sacredness, but basically T32 and T36 are interchangeable. The hypothesized role of T32/36 as a semantic determinative would explain its appearance in the name glyph of *Bolon Yocte* (Fig. 10a), where it may both precede and follow the main sign, suggesting it is not functioning as a phonetic complement. It also has a somewhat unstable position in the Palenque Triad introductory glyph, which is written as both III.597.32:59 and III.597:59.32. Figure 10b shows that T36 and T32.1016 may substitute for T32 in this compound. Finally, several phrases in which T714 is the verb (Fig.10c) have as the immediately following elements either T32, T1:(36.1016):24, or T36.1016, again suggesting all are equivalent to *k'u/ch'u* or *k'uul/ch'uul*. The use of droplets as an icon for sacredness may also explain their presence as “decorative” motifs surrounding objects

FIGURE 10. T1016 AND THE "WATER GROUP"



a: PAL Palace House D, Pier F (left), and the Tablet of Temple XIV, A9 (right), showing the variable position of T32/36 in the name *Bolon Yocle* (Drawings by Linda Schele)

b: PAL Tablet of the Temple of the Foliated Cross, L3 (left); PAL Palace North Gallery Tablet, g5 (center); and TIK Stela 26, zB7, showing the equivalence of T32, T36, and T32.1016 in the "Palenque Triad Introductory Glyph" (drawings by Linda Schele [the PAL examples] and William R. Coe—the latter

from Jones & Satterthwaite [1982: Fig. 44])

c: PAL Tablet of the Temple of the Foliated Cross, L10-M11 (top row); PAL Tablet of the Temple of the Cross, O9-O12 (middle); and PNG Lintel 2, L1-M1 (bottom), as clauses having T714 as a verb, followed by T32, T36, and T1016 (drawings by Linda Schele [Palenque examples] and David Stuart—the latter from Schele & Miller [1986: Plate 40a])

d: YAX Lintel 30, H1, showing "birth" glyph with droplets (Graham 1979 [CMHI 3.2]:69)

and texts. Figure 10d shows the use of droplets around the birth glyph of Bird Jaguar on Yaxchilan Lintel 30.

**T1016 in the Lunar Series.** T1016 occurs frequently in the Lunar Series as part of Glyph D of the Lunar Series, usually with a coefficient of 1, in Glyph X2, where it emerges from the mouth of a monster of some sort, in glyph X2a (Linden 1986), and in several less frequent contexts. T1016 forms the main sign of Glyph B in one indisputable case (Fig. 11a) and in one very probable case (Note 8).

Glyph B normally has as a main sign T758 or T287, often with T110 as a subfix or infix (Fig. 11b,c,d). T758 has not been conclusively identified: Grube and Stuart (1987) suggest *koh* or "cougar," while Stuart (1987) tentatively gives *ch'o*. The latter reading suggests T758 was motivated by the root for "rat" in many Maya languages: *\*ch'ohok* as reconstructed for Proto-Cholan, and *\*ch'o'h* for Proto-Mayan (Kaufman and Norman 1984: Entry 121). In several languages the final consonant is *h*, as in Proto-Tzeltal-Tzotzil *\*ch'oh* (Kaufman 1972: Entry 200). The root is also *ch'o* in Yucatec and, perhaps because it was a later loan from Cholan languages, does not show the typical [Cholan *ch'*]-[Yucatec *k'*] correspondence. Thus, T758 probably substituted for T1016 only in Cholan inscriptions.

FIGURE 11. T1016 IN THE LUNAR SERIES



a



b



c



d



e



f



g



h



i



j



k



l



m



n

a: PAL Temple of the Foliated Cross, Jamb, A4, showing T204.1016.187

b: PAL Temple XVIII, Jamb, A8, showing T1.758?.187 (Thompson [1950] 1971: Fig. 37.14)

c: PAL Temple XXI fragment, B, showing T1.758a:110.187 (Schele & Mathews 1979:553)

d: PAL Tablet of the Temple of the Foliated Cross, B11, showing T204.287:110.187 (Thompson [1950] 1971: Fig. 37.19)

e: QRG Stela E, C8, showing T1.757:110.187:116? (Thompson [1950] 1971: Fig. 36.32)

f: DRESDEN 5b. T589.758 as the "drill" verb ho-ch'(o)

g: DRESDEN 6b. T589.758

h: DRESDEN 5b. T589.765 as ho-(o)c or ho-(o)och

i: DRESDEN 6b. T1.589.93 as ho-ch'(a)

j: MADRID 38c. T589.93 as ho-ch'(a) (f-j) after drawings by G. Stuart in Love [1987]

k: PAL Palace Tablet, C17. T758.110, the "rodent-bone" title, as ch'och (drawing by Linda Schele)

l: PAL Temple XVIII stucco. T758[110] as ch'och (Schele & Mathews 1979:542)

m: NMP Stela 15. D2a. T1:187:604A:110v (drawing by Barbara MacLeod, courtesy of Richard Levanthal)

n: PAL Tablet of the Temple of the Cross, B12 [T513v?:.187] (Thompson [1950] 1971: Fig. 36.23)

This reading of T758 is supported by rare substitutions of T757, *ba*, or "pocket gopher," for T758 in Lunar Series Glyph B (Fig. 11e) and some possible examples of the "rodent bone" title (e.g., on Naranjo Stela 18, [G6 and G10]). Although T757 is usually read *ba*, "pocket gopher," the Cordemex Dictionary gives *ba* as a Maya synonym of *ch'o*. In such cases, T757 would either have been a plausible scribal error, or would have had a secondary reading as *ch'o*.

A stronger piece of supporting evidence comes from a substitution noticed by Love (1987: Fig. 2e-g), who shows three examples of "dog-like" heads (Fig. 11f-h) substituting for T93 in the "fire-drilling" verb on pages 5b and 6b of the Dresden Codex (Fig. 11i,j). Although the last of these is T765 (for which I have no explanation), the latter two are T758 variants. Love shows that T93 had the phonetic value *ch'a*, thus having a different vowel than the proposed reading for T758. However, in these compounds, T758 and T93 occur as postfixes probably functioning as phonetic complements, known in many cases to violate vowel harmony. In this instance I suggest the "fire-drill" compound reads *hoch'* in Yucatec, meaning "to drill or perforate" (Barrera Vásquez et al. 1980:218) (Note 9). T589 takes the suffix T580 (-*ol*) on pages 8 and 9 of the Dresden Codex, which would be the proper -V + *l* suffix for a root with an "o" vowel. The meaning of these passages is not yet clear.

A reading of *ch'o* for T758 may indicate that the “rodent bone” title, T758:110, represents the proto-Cholan root \**ch'ok*. Grube and Stuart (1987) note that the title (Fig. 11k,l) occurs with rulers at Palenque before their accession to power. I have scanned the contexts of T758:110 there and generally support their conclusion. The root \**ch'ok* means “unripe, immature, young child” according to Kaufman and Norman (1984:Entry 122), and the following entry occurs in the Paxbolon Chontal text: *chumvanihix ta ahaulele paxtun uch'ochocal uppenal paxbolonacha*, “was seated as lord Paxtun, youngest son of Paxbolonacha” (Smailus 1975:74). Knowles (1984) adds that the root may also mean “son, daughter, child” in modern Chontal. The first CV is often duplicated to give *ch'och'ok* (Beekman & Beekman 1953; Aulie & Aulie 1978) (Note 10).

With regard to Lunar Series Glyph B, the reading of the rodent-bone title as “unripe, immature, young” may suggest something about the position of the moon in one of the lunar periods. The occasional substitution of T1016 for T758 in Glyph B is probably another example of scribal latitude in writing roots having the vowels *o* or *u*. It may also suggest that T1016 retained *ch'o* as a possible meaning, perhaps because of its suggested derivation from Proto-Quichean \**k'oy* (Note 11).

Another example of Glyph B comes from Nim Li Punit Stela 15 (Fig. 11m). Here Glyph B is rendered as T1:187v:604A:110. (The third sign also occurs under T149 [Thompson 1962:54], but since that number conflates two distinct glyphs, it is best referred to as T604a.) Landa's gloss of *k'u* for T604 has been widely accepted by most epigraphers. Given its substitution here for T1016 and the proposed *k'u* reading for the latter in Yucatec, this would seem to be strong supporting evidence if the text was in Yucatec. Justeson, Norman, and Hammond's (n.d.) analysis of the Pomona jade ear flare does suggest that Yucatec was being spoken in southern Belize as early as the Late Preclassic Period.

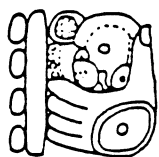
This interpretation conflicts, however, with the proposed reading of T758/1016:110 as *ch'ok*, since that root is not attested in Yucatec to the best of my knowledge. A second possible interpretation is that since almost all of the evidence for reading T604 as *k'u* comes from Yucatecan texts, T604 may have represented *ch'u* in Classic Cholan texts, again reflecting the *k'-to-ch'* Yucatec-to-Cholan sound shift.

The substitutions of T287 and T513v in Glyph B (Fig. 11d,m) suggest these two also began with the syllables *ch'o* or *ch'u*. T287 has been assumed to represent eyes. The sign motivation here might be the Chol *ch'ujlel i wut* (Aulie and Aulie 1978:55), cognate to the Yucatec *k'ulel ich*, “pupil [of the eye]” or, literally, “spirit of the eye or face.” Presumably, T287:110 would also represent *ch'oc/ch'uc*. T513v remains unexplained.

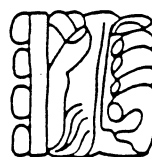
**T1016 as Lord of the Night G1.** T1016 occurs in the most common form of the first Lord of the Night (Fig. 8a) prefixed by a coefficient of nine. The above reading of T1016 immediately suggests that G1 represents the *bolon ti k'u*, a series of gods mentioned in several of the Chilam Balam books and in the *Ritual of the Bacabs* (Roys 1965), and thought to be lords of the underworld. An interesting variant of G1 from Piedras Negras (Fig. 12b) substitutes T714 as the main sign, again with a coefficient of nine (Note 12). Proskouriakoff (1973) showed that T714 elsewhere was a verb in sacrifice/“vision” scenes at sites such as Yaxchilan, and most epigraphers have accepted that reading. Bricker (1986:133), for instance, reads it as *tok'*, “to bleed,” and Schele and Miller (1986) as “to let blood.”

These two aspects of G1 seem to be paralleled in other Mesoamerican Lords of the Night series. Kelley (1976: Fig. 31) aligns G9 with *Xiutecuhkli*, and G1, therefore, with *Itzli*, god of the obsidian knife, although noting that this alignment is far from satisfactory. Kelley (1972; 1976: Fig. 31) also provides a somewhat more secure alignment of the Aztec and Zapotec series. The equivalent to *Itzli* in the latter (and G1) is *Mdoyet*, glossed as “Nine Spirit” or “Nine Image,” and strikingly similar to *bolon k'u* or *bolon ti k'u*. The problem with this interpretation is that it ignores the function of T670 in the first G1 compound (Fig. 12a) and does not immediately indicate a satisfactory reading for T714 as a verb.

FIGURE 12. T1016 AND T714 IN THE GLYPH OF THE FIRST LORD OF THE NIGHT, G1



a



b

a: PNG Stela 25, A9 [IX.38v.1016:670] (Thompson [1950] 1971: Fig. 34.1)

b: PNG Stela 36, A5 [IX.714] (Thompson [1950] 1971: Fig. 34.2)

Some rethinking about the meaning of T714 is necessary before its relation to T1016 can be explained. T714 is not directly associated with scenes of auto-sacrifice, but rather with the appearance of the so-called “Vision Serpent” after such sacrifices, as depicted on Yaxchilan Lintels 13-15, 25, or 38-40, with figures holding a double-headed serpent from which God K heads emerge (CMHI 3[1]:35-39; CMHI 3[2]:85-89). Another example occurs on Tikal Lintel 3 from Temple I. The scene shows a seated ruler, presumably “Ah Cacao,” with a huge Water-Lily Jaguar behind him. The lintel is like the others from Temples I and IV in showing large beasts or deities towering over seated nobles. I believe these figures are structurally similar to the Vision Serpent in other scenes associated with T714, and presumably the jaguar’s manifestation on Temple I results from an earlier sacrifice by Ah Cacao. The accompanying clause at C3-D5 (Fig. 13a) is somewhat different from most other occurrences of T714 and sheds light on the nature of the verb. The following glyph block at C3 is the locative T89d—*tu* (“from” or “to”)—followed by T712, the usual glyph for sacrifice. On Yaxchilan Lintels 13 and 14, T712 is shown within the offering bowl from which the Vision Serpent arises and it probably depicts some form of receptacle for blood (Fig. 13b). I suggest the Tikal clause depicts exactly this scene, the vision (here a jaguar) rising up from the sacrificial offering (T89.712) on 12 Edznab 11 Zac. Immediately following the date and preceding the clause is a verb at C2 of unknown meaning, followed by a jaguar head prefixed by T86 at D2 (and F12). I believe this can be identified as the name of the Water-Lily Jaguar since he too has a T86-like motif above his head.

A reading of T714 as referring to some aspect of the vision, rather than sacrifice *per se*, resolves certain difficulties of syntax. Most clauses with this verb are immediately followed by deity heads—often God K—rather than the names of the nobles depicted in the scenes. Names of nobles are either mentioned substantially farther along in the texts or not at all. The deity glyphs could be interpreted as either subjects or objects of such clauses, but the former seems the more conservative explanation.

Two interesting substitutions at Yaxchilan suggest a reading. Yaxchilan Lintel 13 depicts the appearance of the Vision Serpent, but here the “fish-in-hand” event is prefixed by an eroded rodent head which I believe is T758 (Fig. 13c). On the fragmentary Yaxchilan Stela 21, for which there is no accompanying scene, T714(?) has T32.1016 as a prefix (Fig. 13d). Given the suggested readings for T758 and T1016, this indicates that T714 began with either *ch’u* or *ch’o*. The example from Tikal (see Figure 13a) appears to be prefixed by T32 (more clearly in the recent re-drawing by William Coe [and see Coe & Shook 1961: Fig. 15]), reinforcing the equivalence of T1016 and T32 and their occasional use as phonetic complements.

From its inflectional pattern, T714 is either an intransitive or a passive verb, since two examples—on Yaxchilan Lintels 14 and 15 (Graham & von Euw 1977 [CMHI 3,1]:37,39)—have the perfective suffix T181 but lack Set A pronouns. In neither case would an interpretation as “bleeding” or “sacrifice” fit, since in many clauses both the imperfective and perfective forms are followed by God K heads with no preceding locative.

One interpretation that might explain this use of T714 is that it corresponds to the Lowland root *ch’uk* (sometimes *chuk*), variously glossed as “to take, grab, seize” (Note 13). This would account for the appearance of the grasping hand in T714 and for T670 in the T1016 Lord of the Night compound (see Figure 12a). Presumably the infixed fish would function as a terminal phonetic complement and, indeed, an example from the Casa Colorado at Chichén Itzá (Fig. 13e) shows T714 with a T25 suffix.

The root *ch’uk* also means “to spy upon, to watch, to lie in wait for” in both Yucatecan and Cholan languages, suggesting the actions of the protagonists of the vision scenes as they await the appearance of the serpent from the bowl. *Ch’uk* is a transitive root, but in the inscriptions apparently was usually inflected as a passive. This also seems the most likely interpretation of those examples with T130 as a suffix, which has been suggested to be related to the Chorti pas-

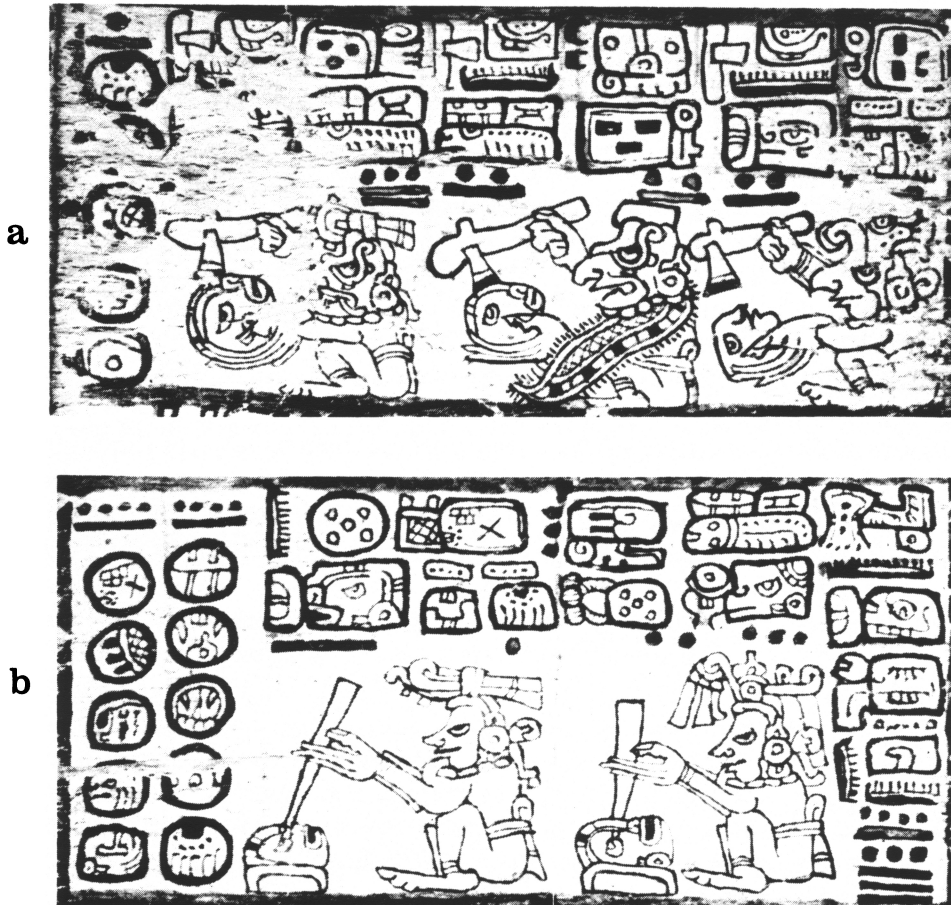




sive suffix *-wa* (MacLeod 1984:79-80). Thus, these clauses would have read, "X was awaited," or "X was watched," where X would have been the deity name as the syntax indicates.

Another possible interpretation is that T714 is related to the Chol root *ch'ojiyel*, glossed as "levantarse" (Aulie and Aulie 1978: 55). For example, the translation of Mathew 28:6 ("He is not here, for He has risen as He said He would") given in a modern Chol Bible is: *Mach w'ix an. Come tsa'ixch'ojiyi che' bajche' tsi' yl* (Anonymous 1977). A related root is *ch'uyel*, meaning "levantarse (una cosa pesada)" (Aulie and Aulie 1978:56), and in Yucatec the cognate is *ch'uy* (Barrera Vásquez et al. 1980:145). Both are transitive verbs. In this case, the terminal *k* represented by the fish might be the passive suffix *-k* found in Chontal (Knowles 1984). Applied to the inscriptions, then, the clauses would describe the rising of the Vision Serpent from the sacrificial bowl. The clause from Tikal Temple III (see Figure 13a) might be phrased as "12 Edznab 11 Zac [unknown event] Water Lily Jaguar, he arose from the blood receptacle from/to/of [unknown] Lord Cacao."

Neither case yields a particularly persuasive reading of Lord of the Night G1. An additional problem with the second reading is that it cannot explain the appearance of T130 as a suffix, since that too is supposedly a passive suffix. Resolution of these problems must therefore wait.



a: MADRID 97b  
b: MADRID 101a

From photographs of the original manuscript by Otis Imboden and Victor Boswell, courtesy of the National Geographic Society.

FIGURE 14. T1016 AS AN ICON FOR "MASK" OR "IDOL"

**T1016 as an Icon for “Mask” or “Idol.”** Disembodied examples of T1016 occur several times in the codices as offerings (Madrid 96c, 100d) or as masks (Madrid 97b, 98c, 101b) (Fig. 14). Two readings are possible. If T1016 could represent either *ch’u* or *ch’o* in Classic contexts, it may then have represented Yucatec *k’u* and *k’o*, the former being the Yucatec root for “idol” and the latter the word for “mask”. (Note that in most of the Cholan languages the root for mask is *k’o* and this play on vowels could not occur. An exception is Choltil “*choh*”, probably *ch’oh*, attested in the Moran vocabulary [Moran 1935:43].) Alternatively, T1016 might have been used to indicate that a deity sculpture was being produced. Landa (cited in Thompson 1970:190-191) states that idols were sculpted of *k’uche*, or cedar, so that T1016 might have been a play on both the material being used and the object being produced.

#### CONCLUSION

I have attempted to establish that T1016 may be read as Yucatec *k’u*, Cholan *ch’u*, with the meanings “god,” “sacred,” holy,” “idol,” “temple,” “pyramid,” and “cedar,” among others. I have suggested that it was used as a supernatural marker in the codices and as a specific title for deities and deified rulers in texts, and that it cannot be interpreted as the name glyph of a single deity (although deity names may incorporate the root). It also appears in codical scenes showing the carving of masks, which also supports the proposed reading. T1016 also enters into the compound T12.1016.23, which appears to refer to either the title of a priest or to someone buried in a temple (e.g., Pacal). Another compound, T1.32/36.1016:24, seems to be a title of reverence that may have had the reading *u ch’ul* or *u k’uul*. The water group also appears to be equivalent in meaning to T1016.

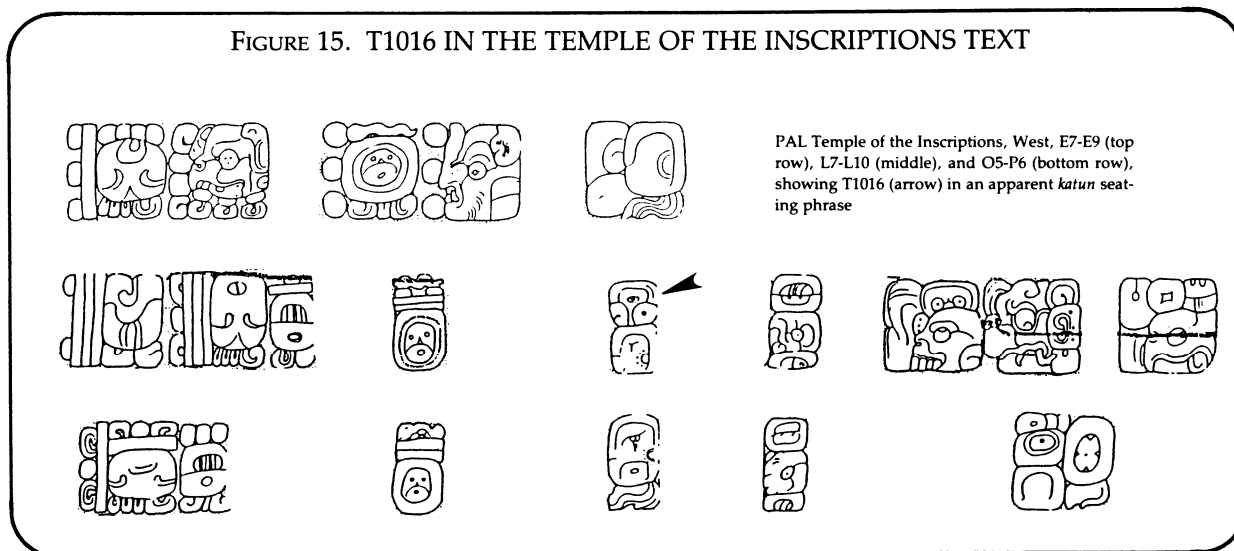
I have also tried to show that T1016 occasionally seems to have substituted in compounds where an *o* rather than a *u* seems called for, and have suggested that a secondary reading may have been *k’o/ch’o*. This would then reinforce another proposed reading—T758 as *ch’o*, or “rat.” The latter seems to give productive readings of *hoch’* for the T582.758 “fire-drill” compound and *ch’ok* for the T758:110 “rodent bone” title, indicating a younger person, a minor, or, perhaps, a person of lesser nobility. The co-substitutions of T758 and T1016 with T287 in Glyph B of the Lunar Series suggests that T287 may be derived from the Yucatec and Chol words for the pupil of the eye, *ch’ulel i wut* or *k’ulel ich*.

The substitution of T714 for T1016 in the compound for the first Lord of the Night suggests that the former was phonetically similar to T1016. A reading of *ch’uk*, “to spy, watch over, witness,” is suggested for T714, although it may also be *ch’ohiyel*, “to rise up”. Both refer to the appearance of the Vision Serpent after acts of auto-sacrifice, rather than to the act of sacrifice itself.

T1016 occurs in several other contexts that cannot yet be explained. One of the most puzzling is on the West Panel of the Temple of the Inscriptions at Palenque where T1016 occurs over a *tun* sign (Fig. 15). The syntax of the clause and comparisons with similar clauses from the same text indicate a *katun* seating is being referred to, but the proposed reading of T1016 suggests no feasible explanation. Victoria Bricker has suggested (personal communication) that this might be an imperfect, abbreviated version of *chum tun*, here given as *ch’u tun*.

I have also avoided the problem of the appearance of T1016 in some glyphs for north in the Madrid Codex. One explanation might be scribal carelessness, as Gates suggested, since it is not so used in the Dresden or during the Classic Period. Another might be that the compound represents *nohec* (*noh ek’*), the term given by Moran (1935:47) for north (although elsewhere it signifies Venus). This would suggest that T4 and T48 were read as *noh* and T1016 as *Ek*. Support for the former comes from the occasional substitution of T4 and T48 for T23, *na*. In general, the distribution of T23 is distinct from that of T4 and T48, suggesting they shared the same consonant but differed in the vowel represented. Support for T1016 as *ek’*, “star,” might come from

FIGURE 15. T1016 IN THE TEMPLE OF THE INSCRIPTIONS TEXT



its appearance in sky bands. Whether the T1016 monkey was associated with “star” or “north” because of the color of its fur—for *ek’* means “black” as well—or because the constellation appeared to be a monkey to the Maya, as Seler suggested, remains to be established. Finally, it is possible that *na/noh k’u* was another method of designating north and was simply never recorded in colonial dictionaries.

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#### ACKNOWLEDGEMENTS

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#### NOTES

1. Statements about the distributions of hieroglyphic elements are based on computerized transcriptions and concordances of hieroglyphic texts made by the author and Thomas Smith-Stark (n.d.). Statements regarding morpheme distributions are based upon computer concordances to Chontal and Cholti texts—the Paxbolon papers and the Moran dictionary—transcribed by the author, and on Yucatec texts, including the Books of Chilam Balam of Chumayel and Tizimin, transcribed by Victoria R. Bricker.
2. To lessen confusion among the various orthographies, all glottalized consonants are marked by *’*. Thus “c” in colonial orthography is here “k’” and “k” in colonial orthography is here “k’.”
3. Barthel’s equation of the God C head in Landa’s *Cumku* glyph with *ku* seems obvious in retrospect. Given its relatively early date of publication (1952), it is equally remarkable that Barthel’s equation was not followed up in the literature of the time. The *ku* assignment is also in agreement with Carlson’s independent 1987 reading (cited by Taube [1988:68-69]) and that of David Stuart (personal communication, March 1988).
4. *Chuen* is suggestively similar to the proposed reading *ch’u*. The derivation of the day *Chuen* is obscure: Justeson et al. (1985:24) suggest that *Chuen*, #*chowen* or #*chuwen*, found in the Popol Vuh and in Chol and Yucatec, derives from the Proto Mixe-Zoquean root \**tzawi’*. Brinton (1893) cites a “Tzendal” (Tzeltal) root *chiiu* meaning “monkey,” and associated with *Chuen* in the Lara dictionary. Not having access to the Lara dictionary, I do not know if glottalized consonants were recorded. If not, *chiiu* might be a reasonable approximation of the proposed root by one unfamiliar with glottalizations. The opposition of *Ah Chuen* to *Hun Batz* in the Popol Vuh might also suggest that the former is a spider monkey.
5. Support for the bivalency of T181/683 is found on 58b of the Madrid Codex, where T533, *ahau*, is followed by two T181 signs. I interpret these as the phonetic complements *-ah* and *-u*.  
An alternative possibility is that the signs were reversed by scribal error. If so, this may suggest the equivalence of T181 and the water group. It will be suggested below that the water group may possibly have the reading *ah*.  
o. Barrera Vásquez et al. (1980:423) give *ah k’u nail winik* as “eclesiástico, hombre de la iglesia.” Heath de Zapata (1978:45 [folio 20r]) gives *ah k’ul cizin* as “idólatra[r]” and *ah k’ulem ts’ib* as “escri[p]tor Sagrado.”
7. In our forthcoming concordance of the inscriptions of Palenque (Ringle and Smith-Stark n.d.), we propose including all water-group elements as lettered variants of T36. Those without the small sign at the top will be lettered variants of T32.

8. The example occurs among the Palenque bodega stucco glyphs from the Temple of the Sun (Schele and Mathews 1979: No. 337). These come from a fallen Long Count date recorded on the exterior pier of the building, and so Glyph B is the most likely identification. However, the T1016.187 compound is fairly frequent in contexts other than the Lunar Series, so this identification is not certain. There are also other possible examples of T1016 as Glyph B at Copan.
9. Stephen Houston's article (1988) appeared after the initial submission of this paper. Houston reaches identical conclusions to those given here concerning the drill glyph and T589.
10. It appears that T758 had both the value *ch'o* and *ch'och'ok* since it could stand with or without the complement T110. The variants of T758 with T110 infix indicate just that.
11. Fox and Justeson (1984:62,73) suggest a similar latitude with regard to T512/515, which apparently could be used as either *to/chu* or *tulchu* in various compounds.
12. IX.714 also occurs after an "inauguration" or "heir apparancy" glyph on Yaxchilan Hieroglyphic Staircase 3, Step 3, at C12 ; and on Quirigua Stela J, at E5.
13. The initial consonant is unclear. Kaufman and Norman (1984: entry 100) reconstruct Proto-Cholan \**chuk*, but both *ch'uk* and *chuk* are attested in Yucatec (Barrera Vásquez et al. 1980:111,143). Moran (1935:7) has the entry <*chuclu*> for *asirse*, but Moran does not represent glottalized consonants. Knowles (1984) cites the Chontal root *ch'* for "grab, take," probably related to Yucatec *ch'a*.

## LIST OF REFERENCES

- ANDREWS, E. WYLLYS [IV]  
1965 Archaeology and Prehistory in the Northern Maya Lowlands: an Introduction. In *Handbook of Middle American Indians*, 2, edited by Robert Wauchope (Gordon R. Willey, volume editor), pp. 288-330. Austin: University of Texas Press.
- ANONYMOUS  
1977 *I T'an Dios*. La Biblioteca Mexicana del Hogar, A.C. México.
- AULIE, H. WILBUR, AND EVELYN W. AULIE  
1978 *Diccionario Ch'ol*. Serie de vocabularios y diccionarios indígenas 'Mariano Silva y Aceves,' no. 21. México: Instituto Lingüístico de Verano.
- BARRERA VÁSQUEZ, ALFREDO, ET AL.  
1980 *Diccionario Maya Cordemex, Maya-Español, Español-Maya*. Mérida, Yucatán, México: Ediciones Cordemex.
- BARTHEL, THOMAS S.  
1952 Der Morgensternkult in den Darstellungen der Dresdener Mayahandschrift. *Ethnos* 17:73-112. Stockholm.
- BEEKMAN, JOHN, AND ELAINE BEEKMAN  
1953 *Vocabulario Chol*. México: Instituto Lingüístico de Verano.
- BEYER, HERMANN  
1937 *Studies on the Inscriptions of Chichen Itza*. Carnegie Institution of Washington, Contributions to American Archaeology, no. 21. Washington.
- BRICKER, VICTORIA R.  
1983 Directional Glyphs in Maya Inscriptions and Codices. *American Antiquity* 48:347-352.  
1986 *A Grammar of Mayan Hieroglyphs*. Middle American Research Institute, Tulane University, Publication 56. New Orleans.
- BRINTON, DANIEL GARRISON  
1893 The Native Calendar of Central America and Mexico: a Study in Linguistics and Symbolism. *Proceedings of the American Philosophical Society*, no. 31, pp. 258-314.
- CAMPBELL, LYLE  
1977 *Quichean Linguistic Prehistory*. University of California Publications in Linguistics, no. 81. Berkeley.
- CHILAM BALAM OF CHUMAYEL  
See Edmonson 1986.
- CMHI, OR CORPUS OF MAYA HIEROGLYPHIC INSCRIPTIONS  
See Graham 1979; Graham and von Euw 1977.
- COE, MICHAEL D.  
1973 *The Maya Scribe and His World*. New York: The Grolier Club.
- COE, WILLIAM R.  
1967 *Tikal: a Handbook of the Ancient Maya Ruins*. Philadelphia: The University Museum, University of Pennsylvania.
- COE, WILLIAM R., EDWIN M. SHOOK,  
AND LINTON SATTERTHWAITE  
1961 *The Carved Wooden Lintels of Tikal*. Tikal Report No. 6 in *Tikal Reports Numbers 5-10*, pp. 15-112. Museum Monographs of the University Museum, University of Pennsylvania. Philadelphia.
- COGGINS, CLEMENCY  
1983 *The Stucco Decorations and Architectural Assemblage of Structure 1-Sub, Dzibilchaltun, Yucatan, Mexico*. Middle American Research Institute, Tulane University, Pub. 49. New Orleans.
- CORPUS OF MAYA HIEROGLYPHIC INSCRIPTIONS, OR CMHI  
See Graham 1979; Graham and von Euw 1977.
- EDMONSON, MUNRO S.  
1965 *Quiche-English Dictionary*. Middle American Research Institute, Tulane University, Pub. 30. New Orleans.  
1982 *The Ancient Future of the Itza: the Book of Chilam Balam of Tizimin*. Austin: University of Texas Press  
1986 *Heaven Born Merida and its Destiny: The Book of Chilam Balam of Chumayel*. Austin: University of Texas Press.

- FÖRSTEMANN, ERNST  
 1904 *The Day Gods of the Mayas*. In *Mexican and Central American Antiquities, Calendar Systems, and History*, translated by Charles P. Bowditch. Smithsonian Institution, Bureau of American Ethnology, Bulletin 28, pp. 557-572. Washington. [original German version appeared in *Globus*, vol. 73, nos. 8 & 9, 1898]
- 1906 *Commentary on the Maya Manuscript in the Royal Public Library of Dresden*. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, vol. 5, no. 2. Cambridge, Massachusetts.
- FOX, JAMES A.  
 1978 *Proto-Mayan Accent, Morpheme Structure Conditions, and Velar Innovations*. Unpublished Ph.D. dissertation on file at the Department of Linguistics, University of Chicago.
- FOX, JAMES A., AND JOHN S. JUSTESON  
 1984 Polyvalence in Mayan Hieroglyphic Writing. In *Phoneticism in Mayan Hieroglyphic Writing*, edited by John S. Justeson and Lyle Campbell, pp. 17-76. Institute for Mesoamerican Studies, State University of New York at Albany, Publication No. 9. Albany.
- GATES, WILLIAM E.  
 1978 *An Outline Dictionary of Maya Glyphs*. New York: Dover Publications, Inc. [Originally published by the Johns Hopkins Press for the Maya Society, 1931, in an edition of 207 copies]
- GRAHAM, IAN  
 1979 *Corpus of Maya Hieroglyphic Inscriptions, Volume 3, Part 2: Yaxchilan*. Cambridge, Massachusetts: Peabody Museum of Archaeology and Ethnology, Harvard University.
- GRAHAM, IAN, AND ERIC VON EUW  
 1977 *Corpus of Maya Hieroglyphic Inscriptions, Volume 3, Part 1: Yaxchilan*. Cambridge, Massachusetts: Peabody Museum of Archaeology and Ethnology, Harvard University.
- GRUBE, NIKOLAI, AND DAVID STUART  
 1987 *Observations on T110 as the Syllable ko*. Research Reports on Ancient Maya Writing, No. 8. Washington: Center for Maya Research.
- HEATH DE ZAPATA, DOROTHY ANDREWS (EDITOR)  
 1978 *Vocabulario de Mayathan*. Mérida, Yucatán: Area Maya. [Two versions of this work exist—one Maya-Spanish; the other, Maya-English]
- HOUSTON, STEPHEN D.  
 1988 The Phonetic Decipherment of Maya Glyphs. *Antiquity*, 62:126-135.
- JONES, CHRISTOPHER, AND LINTON SATTERTHWAITE  
 1982 *The Monuments and Inscriptions of Tikal: The Carved Monuments*. Illustrations by William R. Coe. University Museum Monograph 44, Tikal Report No. 33, Part A. Philadelphia: The University Museum, University of Pennsylvania.
- JUSTESON, JOHN S.  
 1978 *Maya Scribal Practice in the Classic Period: a Test Case of an Explanatory Approach to the study of Writing Systems*. Unpublished Ph.D. dissertation on file at the Department of Anthropology, Stanford University.
- JUSTESON, JOHN S., WILLIAM M. NORMAN, LYLE CAMPBELL, AND TERRENCE KAUFMAN  
 1985 *The Foreign Impact on Lowland Mayan Languages and Script*. Middle American Research Institute, Tulane University, Pub. 53. New Orleans.
- JUSTESON, JOHN S., WILLIAM M. NORMAN, AND NORMAN HAMMOND  
 N.D. THE POMONA JADE FLARE: A PRECLASSIC MAYAN HIEROGLYPHIC TEXT. In *The Origin of Classic Maya Iconography*, edited by Elizabeth P. Benson. Princeton, N.J.: Princeton University Press.
- KAUFMAN, TERRENCE S.  
 1964 Materiales lingüísticos para el estudio de las relaciones internas y externas de la familia de idiomas mayanos. In *Desarrollo cultural de los Mayas*, edited by Evon Z. Vogt and Alberto Ruz Lhuillier, pp.81-136. México: Universidad Nacional Autónoma de México.
- 1972 *El Proto-Tzeltal-Tzotzil*. Centro de Estudios Mayas, Cuaderno 5. México: Universidad Nacional Autónoma de México.
- KAUFMAN, TERRENCE S., AND WILLIAM M. NORMAN  
 1984 An Outline of Proto-Cholan Phonology, Morphology, and Vocabulary. In *Phoneticism in Mayan Hieroglyphic Writing*, edited by John S. Justeson and Lyle Campbell, pp. 77-166. Institute for Mesoamerican Studies, State University of New York at Albany, Publication No. 9. Albany.
- KELLEY, DAVID H.  
 1972 The Nine Lords of the Night. *Contributions of the University of California Archaeological Research Facility*, vol. 5, no. 16:53-68. Berkeley.
- 1976 *Deciphering the Maya Script*. Austin: University of Texas Press.
- KNOWLES, SUSAN  
 1984 *A Descriptive Grammar of Chontal Maya (San Carlos Dialect)*. Unpublished Ph.D. dissertation on file at the Department of Anthropology, Tulane University.
- LINDEN, JOHN H.  
 1986 Glyph X of the Maya Lunar Series: an Eighteen-Month Lunar Synodic Calendar. *American Antiquity* 51:122-136.
- LOUNSBURY, FLOYD G.  
 1973 On the Derivation and Reading of the 'Ben-Ich' Prefix. In *Mesoamerican Writing Systems*, edited by Elizabeth P. Benson, pp. 99-144. Washington: Dumbarton Oaks.
- LOVE, BRUCE  
 1987 *Glyph T93 and Maya "Hand-scattering" Events*. Research Reports on Ancient Maya Writing, No. 5. Washington: Center for Maya Research.

- MACLEOD, BARBARA  
1984 Cholan and Yucatecan Verb Morphology and Glyphic Verbal Affixes in the Inscriptions. In *Phoneticism in Mayan Hieroglyphic Writing*, edited by John S. Justeson and Lyle Campbell, pp. 233-262. Institute for Mesoamerican Studies, State University of New York at Albany, Publication No. 9. Albany.
- MARTÍNEZ HERNÁNDEZ, JUAN  
1929 *Diccionario de Motul maya-español atribuido a fray Antonio de Ciudad Real y Arte de lengua maya por fray Juan Coronel*. Mérida, Yucatán: Talleres de la Compañía Tipográfica Yucateca.
- MORAN, FRAY FRANCISCO  
1935 *Arte y Diccionario en Lengua Choltí: a manuscript copied from the Libro Grande of fr. Pedro Moran of about 1625*. Facsimile of the manuscript, with introduction by William E. Gates. Publication No. 9 of the Maya Society. Baltimore. [Note that new pagination begins each of the three main sections. The present work cites entries in the *Vocabulario*, the final section]
- PROSKOURIAKOFF, TATIANA  
1973 The Hand-grasping-fish and Associated Glyphs on Classic Maya Monuments. In *Mesoamerican Writing Systems*, edited by Elizabeth P. Benson, pp. 165-178. Washington, D.C.: Dumbarton Oaks.
- RINGLE, WILLIAM  
1985 Notes on Two Tablets of Unknown Provenance. In *Fifth Palenque Round Table, 1983*, edited by Virginia Fields, pp. 151-158. San Francisco: Pre-Columbian Art Research Institute.
- RINGLE, WILLIAM M., AND THOMAS C. SMITH-STARK  
n.d. *A Concordance to the Inscriptions of Palenque, Chiapas*. Middle American Research Institute, Tulane University, Pub. 55. New Orleans. [forthcoming]
- ROBERTSON, MERLE GREENE  
1983 *The Sculpture of Palenque, Volume 1: The Temple of the Inscriptions*. Princeton, N.J.: Princeton University Press.
- ROBICSEK, FRANCIS, AND DONALD M. HALES  
1981 *The Maya Book of the Dead: The Ceramic Codex*. Charlottesville, Virginia: The University of Virginia Art Museum. (distributed by the University of Oklahoma Press)
- ROYS, RALPH L.  
1965 *Ritual of the Bacabs*. Norman: University of Oklahoma Press.
- SCHELE, LINDA, AND PETER MATHEWS  
1979 *The Bodega of Palenque, Chiapas, Mexico*. Washington, D.C.: Dumbarton Oaks.
- SCHELE, LINDA, AND MARY ELLEN MILLER  
1986 *The Blood of Kings: Dynasty and Ritual in Maya Art*. Fort Worth, Texas: Kimbell Art Museum (George Brazillier, Inc., Publisher).
- SCHELLHAS, PAUL  
1904 *Representation of Deities of the Maya Manuscripts*. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, vol. 4, no. 1. Cambridge, Massachusetts. [originally appeared in German edition, Dresden, 1897]
- SCHUMANN G., OTTO  
1973 *La Lengua Chol, de Tila (Chiapas)*. Centro de Estudios Mayas, Cuaderno 8. México: Universidad Nacional Autónoma de México.
- SMAILUS, ORTWIN  
1975 *El Maya-Chontal de Acalan*. Centro de Estudios Mayas, Cuaderno 9. México: Universidad Nacional Autónoma de México.
- STUART, DAVID  
1987 *Ten Phonetic Syllables*. Research Reports on Ancient Maya Writing, No. 14. Washington: Center for Maya Research.
- SWADESH, MAURICIO, MARÍA CRISTINA ÁLVAREZ, AND JUAN R. BASTARRACHEA  
1970 *Diccionario de Elementos del Maya Yucateco Colonial*. Centro de Estudios Mayas, Cuaderno 3. México: Universidad Nacional Autónoma de México.
- TAUBE, KARL ANDREAS  
1988 *The Ancient Yucatec New Year Festival: The Liminal Period in Maya Ritual and Cosmology*. Doctoral dissertation presented to the Faculty of the Graduate School of Yale University. On file at the Department of Anthropology, Yale University. (two volumes)
- THOMPSON, J. ERIC S.  
1962 *A Catalog of Maya Hieroglyphs*. Norman: University of Oklahoma Press.  
1970 *Maya History and Religion*. Norman: University of Oklahoma Press.  
1971 *Maya Hieroglyphic Writing: An Introduction*. Norman: University of Oklahoma Press.  
1972 *A Commentary on the Dresden Codex: a Maya Hieroglyphic Book*. *Memoirs of the American Philosophical Society*, vol. 93. Philadelphia.

