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by Marc Zender

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Teasing the Turtle from its Shell: AHK and MAHK in Maya Writing*

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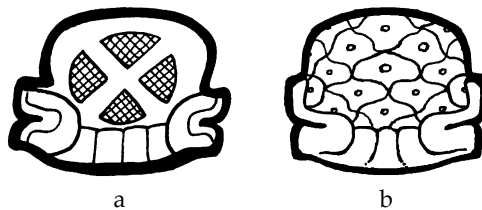


Figure 1. "Turtle Shell" Glyphs: (a) MAHK "carapace" and "cover"; (b) AHK "turtle." All drawings by the author.

Formally similar but nevertheless distinct signs remain a constant challenge to students of the ancient Maya script. Previously I have argued that a number of signs traditionally considered identical are in fact quite distinct, as demonstrated by formal divergences and consistent distributional differences. One such is the sign for "raccoon," long identified with the well-known sign **OOK** "dog" (Zender 2005b). Another is the "flaming akbal" sign (Zender 2005a), once seen as either the compound sign **K'AHK'-AK'AB** (Thompson 1962:99-101) or the *pars pro toto* torch of **K'AWIIL** (Macri andLooper 2003:171-172).¹ One hallmark of these long-neglected signs is that they have become known by superficially descriptive nicknames (e.g., "flaming akbal"), their distinct identities having been overlooked in the numerous and hitherto only partially successful attempts to compass the bewilderingly diverse Classic Maya script (see Zender 2006).

In this paper, I would like to explore another sign long hidden in plain sight, and to consider the evidence for splitting two signs traditionally lumped together (Figure 1). Although each of these signs rep-

resents the profile carapace of a testudine (i.e., a turtle, tortoise or terrapin), careful examination of their formal features, distributions and lexical associations reveals them to have been quite distinct entities, rigidly distinguished by scribes throughout the life of the script. As discussed in detail below, there is in fact strong reason to see the first sign (Figure 1a) as the depiction of a turtle shell carrying the value **MAHK** "carapace, shell," and, less specifically, "cover, enclosure." By contrast, the latter sign (Figure 1b), while also depicting a turtle shell, has long been known to carry the value **AHK** "turtle," and is therefore best thought of as the *pars pro toto* depiction of a "turtle" proper. That both signs represent turtle shells is thus less significant than their divergent functions. Whereas the first is purely denotative, actually depicting what it represents (i.e., a carapace), the second is connotative, in that it represents but one salient feature of a larger entity (i.e., the whole turtle). In what follows, I attempt to tease this recalcitrant turtle from its shell. But more than that, I seek to highlight some methodological and theoretical issues that should be taken note of by those who would catalog the Maya signary, extend its characteristic

* Editor's note: *The PARI Journal* is proud to present another milestone in Maya epigraphy. General interest readers will find much to profit from, particularly in the sections entitled "Turtles and Turtle Shells in Maya Art" and "The Mysterious Princess of Mahk."

¹ The term *pars pro toto* (literally "part for the whole") refers to a graphic convention whereby one part of an object conveys the idea of the whole.

distinctions into iconography, or use epigraphic evidence in the construction of anthropological models.

History of the Problem

The modern confusion of the MAHK and AHK signs can be traced back to the 1930s, when Hermann Beyer (cited in Thompson 1962:244) first proposed that the main sign of the glyphic compound for the thirteenth month, Mac, depicted a “turtle carapace” (Figure 2).² Building on this insight, and referencing entries in the Vienna and Solis Alcalá dictionaries of Colonial Yucatec, Thompson noted that “it is of considerable interest to observe that *mac* means inter alia turtle carapace” (1962:244). Unfortunately, this prescient observation has had little impact on the field (see below), and Thompson himself initiated a considerable amount of confusion by lumping the “turtle shell” encountered in spellings of the month Mac (Figures 1a and 2) with yet

another “turtle shell” sign (Figure 1b), identifying both as T626 in his influential catalog.³

But Thompson was not alone in lumping these signs. Yuri Knorosov (1955:73) had earlier proposed “*ac*” as the reading of both signs and, writing at the same time as Thompson, David Kelley (1962:23) would argue that “we can be quite sure [the turtle shell] is read *aac* in the month Mac” (though see Kelley 1976:176 for a more balanced appraisal). As such, a number of epigraphers have proposed that the most common form of the Mac hieroglyph (Figures 2a-c) be transcribed as **ma-*AK*** (e.g., Lacadena 1995:346; Montgomery 2002:83). Similarly, in their *New Catalog of Maya Hieroglyphs*, Macri and Loooper (2003:63) have followed Thompson in lumping the two carapace signs together, designating them as “AL3 **áak/ahk**” in their system.

Clearly there are some marked differences of opinion regarding the values of these signs, as well as a growing popular consensus regarding their status as essentially equivalent entities (i.e., allographs) with the value **AK** or **AHK**. Nevertheless, David Stuart (1985:180) has noted that Thompson’s *mak* reading deserves careful consideration, and has further proposed that at least one of these “shell” signs may actually carry the phonetic value **MAK** (see also Stuart, in press). Although Stuart has not published his arguments for this distinction, I am convinced by my own observations (first circulated in email form in 1999) that such a separation is indeed warranted. Indeed, a review of the behavior of the “turtle shell” signs in the script leaves no doubt that two distinct entities are involved.

Formal, Distributional and Lexical Distinctions

To begin with, Beyer’s initial identification of these signs as turtle carapaces was undoubtedly correct (Figure 1). Despite some key differences in internal detail (to which I will return in a moment), both signs manifest the same general morphology and specific outlines, clearly representing profile (pleural) views of a turtle shell. Particularly clear is the rounded dome of the dorsal carapace, beneath which is a somewhat stylized cross-section of the turtle’s ventral shell, or plastron, characterized as three or more individual segments. As with a real turtle shell, the hieroglyph also

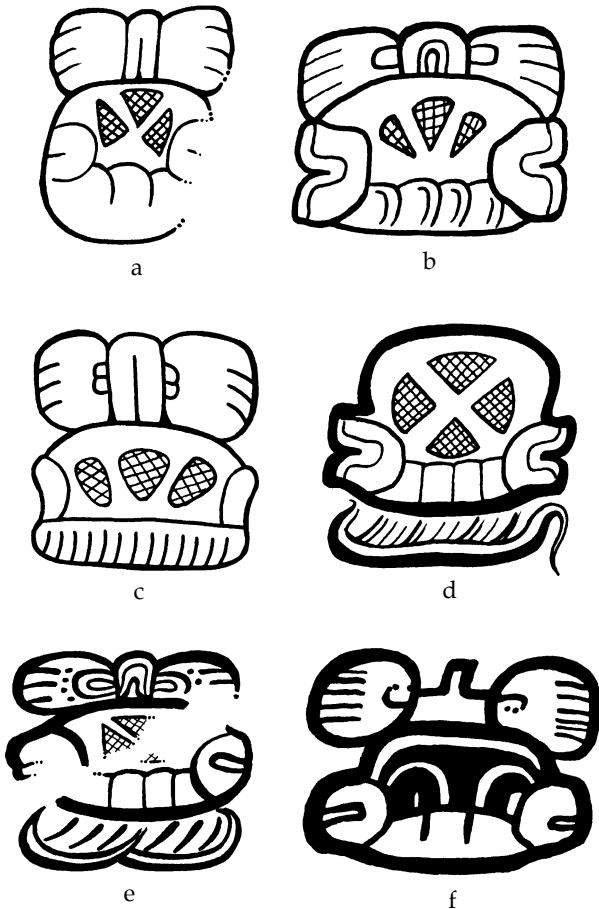


Figure 2. Spellings of the month Mac: (a) **ma-MAHK**, Yaxchilan L. 24; (b) **ma-MAHK**, Yaxchilan H.S.3, Step 1, tread; (c) **ma-MAHK**, Yaxchilan L. 25; (d) **MAHK-ka**, Palenque Temple XIX bench, south; (e) **ma-MAHK-ka**, Palenque, Tablet of the 96 Glyphs, A7; (f) **ma-MAHK**, Dresden Codex, p. 69b.

² At this stage, the reference to “Mac” as a name for the thirteenth month comes entirely from Colonial accounts of the Maya calendar, particularly that of Diego De Landa. Benjamin Whorf (1933:22-24) first proposed the phonetic reading of this month on the basis of **ma-ka** spellings, but his solution was not generally accepted until some thirty years later (cf. Kelley 1976:173, figs. 61 and 176).

³ An additional point of confusion stems from Thompson’s (1962:244, 453) illustrations of this sign, both of which actually represent conflation of the signs **K’AN** and **AHK**.

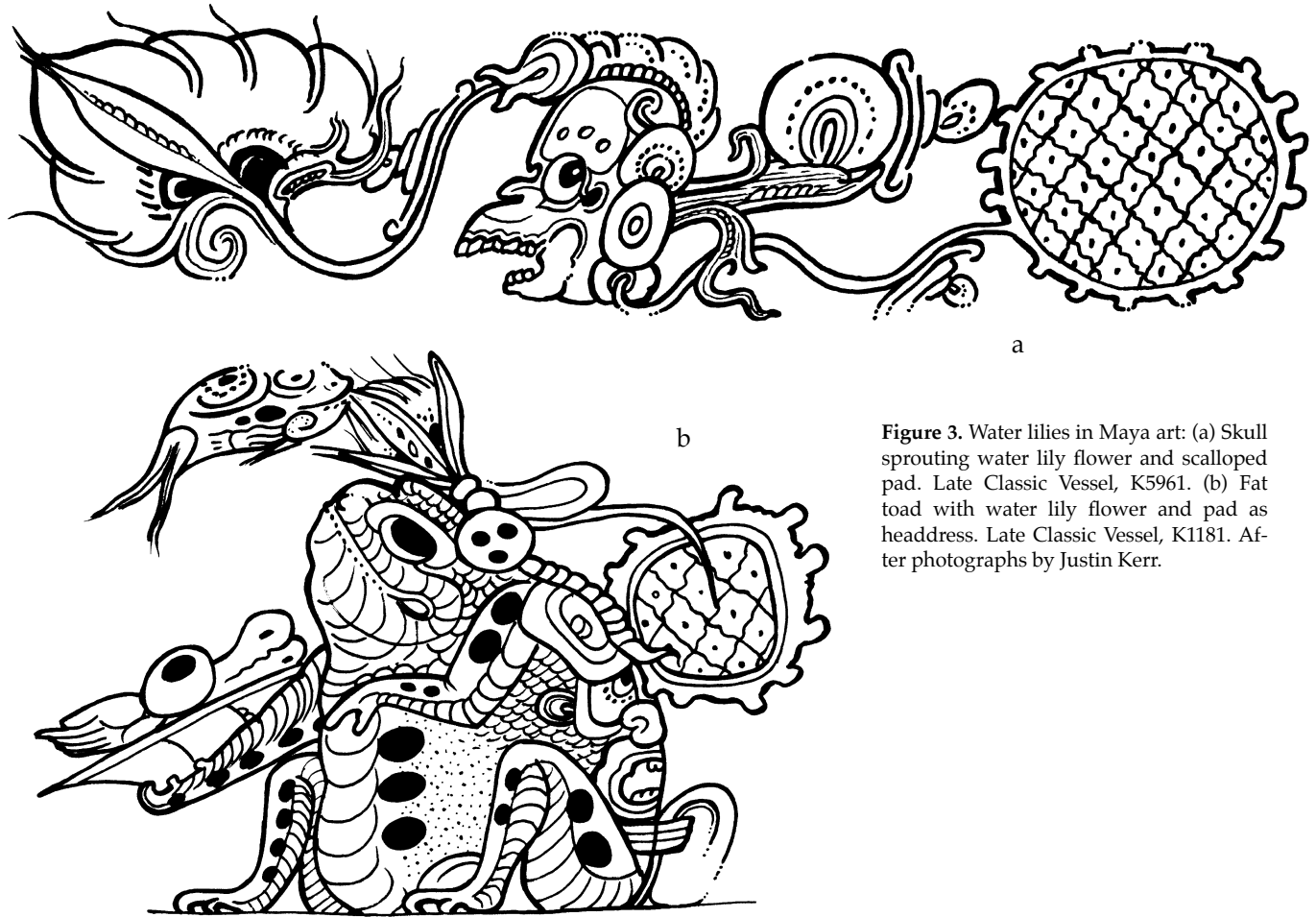


Figure 3. Water lilies in Maya art: (a) Skull sprouting water lily flower and scalloped pad. Late Classic Vessel, K5961. (b) Fat toad with water lily flower and pad as headdress. Late Classic Vessel, K1181. After photographs by Justin Kerr.

shows apertures for the turtle’s head, limbs and tail. In all, these signs could hardly be more evocative of turtle shells, and so it comes as little surprise that their iconic origins were correctly deduced by Beyer despite the absence of phonetic evidence for their readings.

The only real distinctions between these signs are the emblematic markings carried on the dorsal carapace. The shell employed in spellings of the month Mac (Figures 1a, 2a-f) is always marked by three or four black triangular elements (cross-hatched in incised texts), a design whose origins are unfortunately rather obscure, but which may perhaps have served to designate the dorsal markings of a particular species of turtle.⁴ The other carapace (Figure 1b) displays a wavy reticulated pattern frequently infixed with small circles. Long understood as a reference to the veined surface of the water lily (*Nymphaeae spp.*; see Miller and Taube 1993:184 and Schele and Miller 1986:46, fig. 24), this motif is indeed a frequent feature of scalloped-edged lily pads in Maya art (Figure 3).

In a later section of the paper I will revisit these two patterns with respect to the depictions of turtles in art, but suffice it to say for the moment that these two shells

are at least minimally distinct with respect to these motifs. That is, these forms never overlap in the same context. Spellings for the month Mac always involve the form with the blackened triangles (Figure 2), while the contexts of the “water lily”-marked forms are equally exclusive. By way of example (Figure 4), Yaxchilan Lintel 10 exhibits a number of interesting spellings of the warrior epithet of the early ninth-century ruler K’inich Tatbu Skull III: *Uchan Ahkul Mo’* or “Master of Turtle Macaw” (cf. Martin and Grube 2000:137, who translate the title as “Master of Turtleshell Macaw”). Of these, the first two (Figures 4a-b) clearly employ the “water lily” markings typical of the AHK shell, whereas the third (Figure 4c) and fourth (not shown) both substitute the phonetic elements **a-ku**. The blackened-triangle MAHK shell never appears in this construction. Numerous other examples of this separation can be cited, including ten distinct iterations of the warrior epithet

⁴ One possibility might be the Mexican box turtle (*Terrapene carolina mexicana*). Adult females of this species occasionally have black triangles and blackened scute interstices on their vertebral and pleural shields (Buskirk 1993).

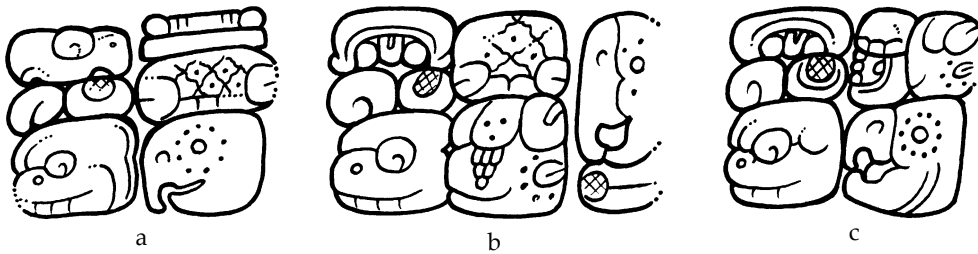


Figure 4. The warrior epithet “Master of Turtle Macaw”: (a) U-CHA’AN a-AHK-MO’, Yaxchilan L.10, B3; (b) U-CHA’AN AHK-[ku]lu MO’-o, Yaxchilan L. 10, C3-D3; (c) U-CHA’AN a-[ku]lu-MO’, Yaxchilan L. 10, F8.

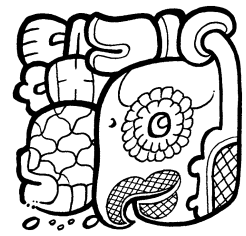


Figure 5. The name of K’inich Ahkal Mo’ Nahb III. Palenque Temple XIX bench, south.

of K’awiil Chan K’inich of Dos Pilas, “Master of the Ahkul Lord” (Martin and Grube 2000:62)⁵ and almost two dozen examples of the names of the Palenque rulers Ahkal Mo’ Nahb I, II and III (Figure 5).⁶ As with the Yaxchilan examples, none of these contexts provide any evidence of substitution between the **AHK** and **MAHK** turtle shells. Nor is there any evidence in any other context of one of these signs replacing the other. This failure to substitute in identical contexts means that the signs cannot be considered allographs.

Another important piece of evidence comes from a careful analysis of other signs with which these “turtle shell” glyphs can be either complemented or substituted. Thus, it is important that the **MAHK** sign can be complemented by initial **ma-** (Figures 2a, b, c, f), final **-ka** (Figure 2d) or both **ma-** and **-ka** (Figure 2e). Further, as is well-known, the **MAHK** shell can be entirely replaced by the syllabic spelling **ma-ka**. By contrast—in any context other than the proposed overlap in the glyph for the thirteenth month—the **AHK** sign is *never* complemented by *either* **ma-** or **-ka**, and certainly never substitutes for **ma-ka** spellings. Similarly, as demonstrated by David Stuart (1987:20), the **AHK** sign can be complemented by either initial **a-** (Figure 4a) or final **-ku** (Figure 4b), and can even substitute for **a-ku** spellings and other **AHK** glyphs, such as the T741a “turtle head” (see also Stuart 1999). The **MAHK** sign, by contrast, has no such complementation or substitution pattern in any context. Given this robust set of distributional differences, it is impossible to sustain a picture of these signs as allographs.

A final consideration stems from the failure of an **AHK** reading of the blackened-triangle carapace to explain all of the pertinent examples, even within the restricted domain of spellings for the thirteenth month. Thus, while the traditional **ma-AHK** explanation seems to work in contexts where the shell is complemented by **ma-** alone (e.g., Figures 2a, b, c and f) or even by both **ma-** and **-ka** (Figure 2e), how can it possibly explain those contexts where only the final **-ka** appears (Figure 2d)? That is, if the blackened-triangle sign were indeed **AHK**, then this spelling would only provide **AHK-ka**. Not only would this be a very deficient spelling of the month name (probably *Mahk*), but it would also run

afoul of the previously noted consistent associations of **AHK** with **-ku** complements (and never with **-ka**).⁷ All told, the formal distinctions of these signs, their failure to substitute for one another, and the constraints offered by varying examples leave one with no option but to discount entirely the notion that these signs could be equivalents.

But how does one explain the odd coincidence of two “turtle shell” signs with distinct values? In order to sustain the distinctions argued for above, it should be possible to turn to some pertinent Mayan languages for a rationale that might motivate this feature. To begin with, that *ahk* means “turtle” (and not narrowly “carapace” or “shell”) can be readily demonstrated:

Proto-Ch’olan	<i>*ahk</i>	“tortuga (turtle)” (Kaufman and Norman 1984:115)
Ch’ol	<i>ajk</i>	“turtle” (Aulie 1948:1, Aulie and Aulie 1996:4)
Chontal	<i>ac</i>	“tortuga (turtle)” (Keller and Luciano 1997:3)
Col. Tzotzil	<ok>	“aquatic turtle” (Laughlin 1988, I:152 and II:473)

⁵ The locations and spellings are as follows: AGT St.1 (three examples), **AHK-AJAW**; AGT St.5, **AHK-AJAW-wa**; DPL H.S.3, Step 3 (C2), **AHK-*AJAW-*wa**; TAM H.S.2 (F2b), **a-AHK-AJAW-wa**; CNC H.S., **AHK-lu-AJAW**; SBL Str. A14, panel 9 (WW2), **a-[ku]lu-AJAW-wa**; Late Classic Vessel (K1599), **a-[ku]lu-AJAW-wa**; TIK Str. 5C-49 vessel (K2697), **a-[ku]lu-*AJAW-wa**.

⁶ As summarized by Stuart (1999) the spellings of the “turtle” portion of these names are all either **a-ku-la** or **AHK-la** (with both the “turtle shell” and the T741a “turtle head” variants of the logograph). As Stan Guenter (personal communication, 1999) has noted, there are also two examples of abbreviated **a-ku** spellings on the Temple of the Inscriptions sarcophagus lid (at positions 18 and 21).

⁷ This explanation would also founder on modern understandings of scribal conventions, in which a **ma-AHK** spelling would yield neither *mahk* nor *mak* but rather *ma’ahk* or the like. That is, when a syllabic sign precedes a logograph with a distinct consonantal or vocalic onset, the result is not phonetic complementation but phonetic accretion. Similarly, a **ma-AHK** spelling would never correspond to syllabic **ma-ka**. Rather, it would correspond to **ma-a-ka** or, perhaps, **ma-ku**. Given that a syllabic spelling of **ma-ka** substitutes for a spelling of **ma-** preceding a logograph, there is actually no other option but that the logograph have the value **MAK** or **MAHK**.

Col. Yucatec	<aac>	“Nombre genérico de la <i>tortuga</i> de la que existe alguna variedad en tamaños, clases i pintas. ... Los hay de mar i de tierra.” (Pacheco Cruz 1939:9)
Yucatec	áak	“tortuga (turtle)” (Bastarrachea et al. 1992:77)

As recognized by Kaufman and Norman (1984:115), these forms all show predictable developments from Western Mayan **ahk* (with an internal *h*) a form largely conserved into Proto-Ch’olan and almost certainly reflected by the **a-ku** spellings in the script (Stuart 1999). Given this form, it seems only reasonable to conclude that the **AHK** sign does not narrowly represent a “turtle shell” at all, but was rather employed as a *pars pro toto* device for indicating the whole turtle. This explains why the **AHK** shell alternates with the T741a “turtle head” (also **AHK**)—i.e., both are synecdochical proxies for the whole turtle. This is a widespread and well-known convention in Mesoamerican writing systems (Figure 6), where the head or other salient physical feature of an animal (e.g., its carapace) frequently alternates with depictions of the entire organism.

The situation with respect to the **MAHK** sign is

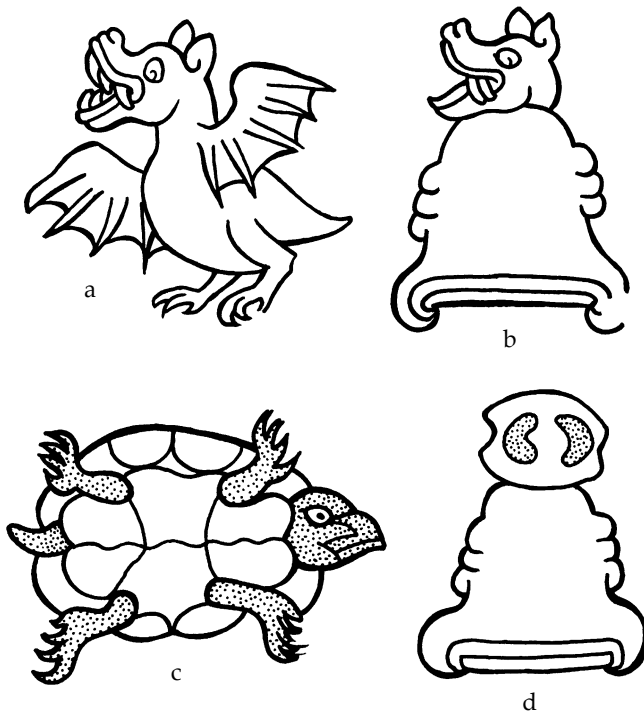


Figure 6. *Pars pro toto* representation in Aztec writing: a) **TZINAKAN** for *tzinakan[tlan]* “where bats abound,” *Mendoza* 15r; b) **TZINAKAN-TEPE** for *tzinakan-tepe[k]* “on the hill of bats,” *Mendoza* 10r; c) **AYO** for *ayo[tlan]* “where turtles abound,” *Mendoza* 47r; d) **AYO-TEPE** for *ayo(tzin)tepe[k]* “on the hill of (little) turtles,” *Mendoza* 46r.

somewhat more complicated, but only because the etymology of *mahk* is itself involved. As it turns out, almost all words of the form *mak*, *maak*, *ma’ak* or *mahk* in Mayan languages are ultimately derived from the root *mak*, which is a fairly widespread transitive verb meaning “to cover someone or something” and/or “to (en)close someone or something.” Various derivations of this verb are possible, including compound noun formations (via suffixation with a root noun), intransitive/passive derivations (via infixation of *h*) and, most interesting for our purposes, nominalizations (also via infixation of *h*). In what follows, I review this root and its multifarious derivations for the information they provide about the semantic scope and syntactic identity of *mak* under different morphological guises.

The transitive root *mak* “to cover, (en)close”

Ch’orti’	<i>mak-i</i>	“cerrar, tapar, cubrir, encerrar (close, cover, cover over, encircle, enclose)” (Hull 2005:81)
Ch’ol	<i>mäk</i>	“cerrar, tapar” (Aulie and Aulie 1996:71)
	<i>mäk</i>	“to cover, shut out from sight, to stop up” (Aulie 1948:20)
Col. Tzotzil	<mak>	“cover (bowl, pitcher, pot, waterjug), ... fence in, ... shelter, shield (with one’s body or one’s shield)” (Laughlin 1988, I:253)
Tzotzil	<i>mak</i>	“close, cover, ... shield...” (Laughlin 1975:225)
Yucatec	<i>mak</i>	“to cover” (Bricker et al. 1998:177)

On the basis of these and other glosses, Kaufman and Norman (1984:125) reconstruct Proto-Ch’olan **mäk* “to cover, close” and are also able to reconstruct progressively older forms with essentially the same meaning (e.g., Proto-Mayan **maq*).⁸ Given a core form like *mak* “to cover, close”—as well as modern glosses such as Ch’orti’ *mak-i* “to enclose” and Tzotzil *mak* “to shelter” and “to shield”—it is hard not to see the pertinence of this root to the **MAHK** “turtle shell” sign. Indeed, if it can be shown that derived nominalizations of this root (such as “enclosure” or “shelter”) are possible, then this would perhaps motivate the use of a “turtle shell”

⁸ I am dubious of Kaufman’s reconstruction of Proto-Ch’olan **mäk* with the sixth-vowel (*ä*), as there is no evidence for such a stage in the history of Eastern Ch’olan languages. In any event, given Ch’orti’ *mak-i* and the **ma-ka** spellings in the script, it is clear that *mak* would have been the Classic Ch’olti’an form of this verb.

to communicate these concepts.

Verb-noun compounds involving *mak* “to cover, (en)close”

Ch’orti’	<i>makte’</i>	“cerco (fence)” (Hull 2005:81)
	<i>maktun</i>	“stone fence, any enclosure built of stones” (Wisdom 1980:522)
	<i>makti’-r</i>	“tapón (cover)” (Pérez Martínez 1996:135)
Ch’ol	<i>mäkotot</i>	“door” (Zender, field notes 2000)
Chontal	<i>mäcpam</i>	“tapa (cover)” (Keller and Luciano 1997:157)
	<i>pam</i>	“cabeza (head, top)” (Keller and Luciano 1997:180)
Tzotzil	<i>mak na</i>	“door” (Laughlin 1975:225)
	<i>hmak-be</i>	“assassin, highwayman” (Laughlin 1975:225)
Yucatec	<i>xmaktun</i>	“stone chicken coop” (Bricker et al. 1998:478)

These derived nouns all share the basic structure of *mak* + NOUN, and thus revolve around the meanings NOUN-cover(ing), NOUN-closer and NOUN-enclosure. Particularly instructive are Ch’ol *mäkotot* “door” (literally “house-closer”), Tzotzil *mak na* “door” (also “house-closer”) and the Tzotzil compound agentive noun *hmakbe* “highwayman” (literally “one who is a road-closer”). Also interesting are Ch’orti’ *makte’* “fence” (literally “wooden enclosure”), Ch’orti’ *maktun* “stone enclosure” and the Yucatec term *xmaktun* “stone chicken coop” (literally “little stone enclosure”). As discussed below, such meanings consistently reappear for *mak* in other derivational settings.⁹

The detransitivized stem *mahk* “be covered, (en)closed”

Ch’orti’	<i>majkib</i>	“cárcel (jail, prison)” (Hull 2005:80)
	<i>mahkib</i>	“enclosure” (Wisdom 1980:251)
Ch’ol	<i>mäjquel</i>	“nublarse (to become cloudy)” (Aulie and Aulie 1996:71)
	<i>mäjquibäl</i>	“cárcel (jail)” (Aulie and Aulie 1996:71)

The Ch’ol form *mäjquel* (*mähkel* in regularized orthography) reveals that an intransitive or passive stem can be formed from *mäk* “to cover” via insertion of *h*, after which it is marked as an incompletive intransitive (-*el*)

and carries the meaning “become cloudy (in the sense that the sky ‘is covered’ by clouds).” A passivized form of *mak*—*mahk-aj-Ø* “he/she is covered, (en)closed” is encountered with some frequency in Classic Mayan inscriptions (see Lacadena 2004). Further, as David Stuart (1985:178-180) has noted, the **MAHK** sign itself is occasionally used in such constructions. On Piedras Negras Stela 8 (B19b), the spelling **ma-MAHK-ja-ji-ya** (probably to be understood as *mahk-aj-iiy-Ø* “since she was enclosed”) directly substitutes for parallel spellings of **ma-ka-ja** (*mahk-aj-Ø* “she is enclosed”) on other monuments, such as Piedras Negras Stela 1 and the Shell Texts from Burial 5.

Detransitivization is a necessary step for the derivation of an instrumental noun from a transitive root in the Ch’olan languages (Bricker 1986:44-45). Thus, both Ch’orti’ *mahkib* “jail, prison; enclosure” and Ch’ol *mähquibäl* (*mähkib-äl*) “jail” provide evidence of having gone through *both* the process of intransitivization (via infixation of *h*) and instrumentalization (via suffixation of the well-known *-ib* instrumental suffix). From *mak* “to cover, (en)close” we derive first *mahk* “to be covered, (en)closed” and then *mahkib* “jail, prison; enclosure.” The shift of meaning from “enclosure” to “jail” can be reasonably explained on the basis of similar semantic shifts elsewhere (e.g., English *cage*, borrowed through French from Latin *cavea* “hollow, cavity”).

The derived noun *mahk* “cover, enclosure” and “carapace, shell”

Ch’ol	<i>majk</i>	“nest (of mice)” (Aulie 1948:18)
	<i>majk</i>	“tapa, tapón (cover, plug)” (Torres and Gebhardt 1974:18)
	<i>majkil</i>	“covering, shawl” (Aulie 1948:18)
Tzotzil	<i>mok</i>	“fence” (Laughlin 1975:227)
Col. Yucatec	<mac>	“galápago o concha (marina), nácar, carapacho de animal” (Pacheco Cruz 1939:156, citing Pío Pérez 1866-1877)
Yucatec	<i>máak</i>	“cover” (Bricker et al. 1998:178)

One feature shared by all or most of these forms is the infixation of *h* into the root *mak*, thereby deriving

⁹ Given the productivity of these verb-noun compounds in modern Ch’olan languages, I wonder whether they might finally provide some explanation for the enigmatic Classic *mak-ohl* ritual (e.g., Machaquila Stela 5: **u-ma-ka-OHL u-WAY?-ya 1-TZAK-TOK**’, perhaps to be understood as *u-makohl u-way juuntzaktok*’ or “it is the heart-covering of Juuntzaktok’s cistern”).

a noun meaning “cover” or “enclosure.”¹⁰ Moreover, all of the terms have broadly similar senses which connect not only to other derivations from the verb *mak*, but also more narrowly with one another. Thus, while Ch’ol *majk* “nest (of mice)” seems rather specific, it is probably only a narrow instantiation of the more general sense of “enclosure.” Similarly, while the Colonial Yucatec term <mac> (probably *máak*, and ultimately from **mahk*) meant “shell, carapace” it probably had the same etymology as these other forms. That is, given that a turtle’s carapace is in fact his enclosure or covering, the specific term for “shell, carapace” most likely derives from the general term “cover, enclosure.”¹¹

Taken together, the epigraphic and linguistic evidence provide an excellent rationale for a MAHK value of the “shell, carapace” sign as distinct from the AHK value of the *pars pro toto* turtle’s shell.¹² Given this evidence, it may prove instructive at this point to revisit the characteristic formal distinctions between the MAHK and AHK signs in the domain of iconography. As will be seen, much of interest emerges when one examines artistic depictions of turtles with the preceding linguistic evidence in mind.

Turtles and Turtle Shells in Maya Art

Intriguingly, the MAHK sign has no ready correlate in Maya art, which seems exclusively focused on turtle shells with “water lily” markings. Thus, in a number of scenes from the extensive 260-day almanac on pages 12-18 of the *Madrid Codex*, playful turtles swim or come down like rain in the Chahk-sent waters of flood, eclipse and year renewal (Figures 7a-b). A similar turtle appearing on page 71a (Figure 7c) has excited a great deal of

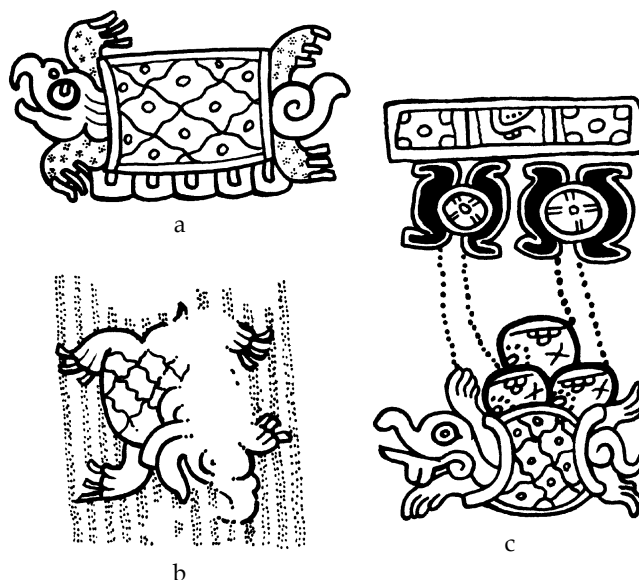


Figure 7. Turtles in the *Madrid Codex*: (a) Swimming turtle. Madrid, p. 17. (b) Falling turtle. Madrid, p. 13. (c) Celestial turtle. Madrid, p. 71.

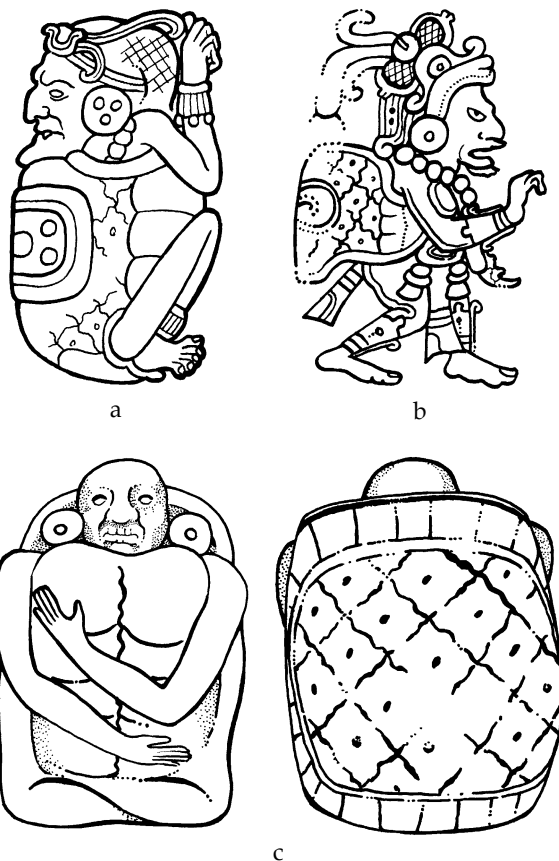


Figure 8. God N’s characteristic turtle carapace: (a) Quirigua Zoomorph P (after Taube 1992:95 and author photographs). (b) Dresden Codex, p. 60a. (c) Two views of an unprovenanced ceramic figurine, K2980 (after photographs by Justin Kerr).

¹⁰ For the Ch’ol forms, it should be noted that the *-j-* is merely an orthographic device, as there is no longer any contrast between original **j* and **h* in this language. Similarly, and noting that the Colonial term is imperfectly recorded, Yucatec *máak* (with “high” tone) must derive from an earlier form with infix *-h* (Hironymous 1982), namely *mahk*. Finally, the Tzotzil form is the result of several typical sound changes in that language: short-*a* (with the exception of transitive verb roots like *mak*) changed to *o* and CVhC forms were simplified to CVC (Kaufman 1972:21-22). Thus, Tzotzil also appears to have derived *mak* as *mahk*, which then underwent the following changes: **mahk* > **mohk* > *mok*. This explains why Tzotzil still has *mak* “to close, cover, shield” alongside the derivative *mok* “fence (i.e., an enclosure).”

¹¹ A similar derivation underlies the Latin word *testudo* or “tortoise,” referring to “[a] shelter formed by a body of troops locking their shields together above their heads” (Simpson and Weiner 1989). *Testudo* literally means “a covering,” and ultimately derives from *testa* “shell.”

¹² To the extent that *mahk* really signified “freshwater tortoise” and *ahk* “turtle,” as Pío Pérez suggests, scholars might also consider the possibility of an original species-based distinction between the *mahk* and *ahk* “turtles.”

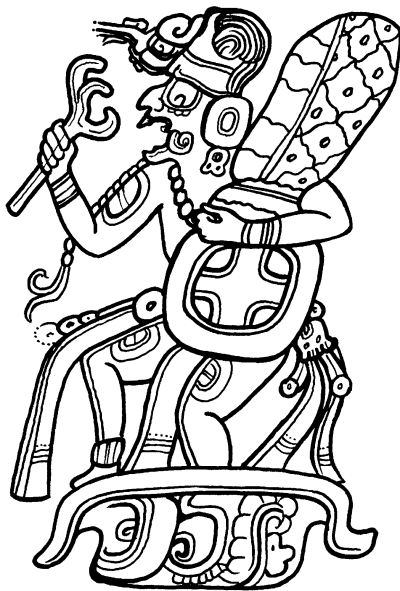


Figure 9. Turtle shell drums and antler drumsticks: (a) Performer dressed as rabbit. Late Classic vessel, K3040. (b) Supernatural riding in a canoe. Late Classic vessel, K731. After photographs by Justin Kerr.

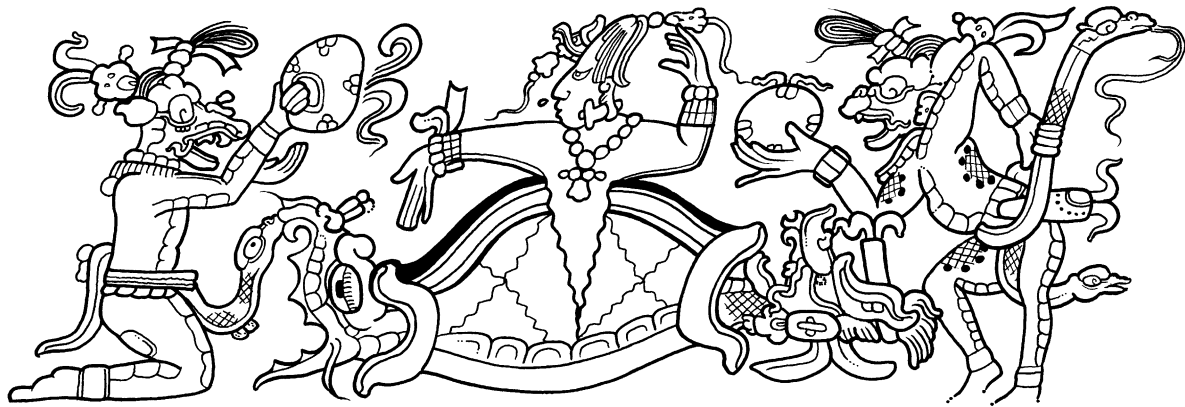
discussion about the cosmological significance of the three “stones” carried on its back, as well the dotted cords which apparently anchor it to a skyband in association with paired “eclipse” signs (see Freidel et al. 1993:80-82). Whatever the specific significance of these turtles, their resemblance to the **AHK** sign could hardly be clearer. All are marked with the “water lily motif,” providing ample illustration of the artistic model from which the **AHK** sign was apparently drawn.

Turtle shells also appear frequently among the di-agnostic attributes of God N, an aged god of the earth, widely associated with thunder, music and the directional mountains (Taube 1992:92-99). In numerous depictions from both the Classic and Postclassic periods, God N either emerges from or wears a turtle shell that is in all respects indistinguishable from the **AHK** sign. The “water lily motif” labeling the dorsal carapace is clear in all three examples (Figures 8a-c), as are the ventral plastron and the apertures. One unprovenienced ceramic figurine (Figure 8c) is particularly interesting in that the front view clearly delineates the conformation of the ventral plastron, while the rear view provides an unimpeded appreciation of the entire dorsal surface. Further, the head of God N can actually be removed, perhaps in order to make it appear that he has fully retracted it into his shell enclosure.

As Karl Taube (1992:99) suggests, “[t]he tortoise shell and conch commonly worn by this being may refer to the association of this god with thunder, since both the conch and the tortoise carapace are used as instruments to imitate the sound of thunder.” This association of chelonian carapaces with music making is well borne out by Classic Maya imagery. Thus, on a Chama style vase, a masked performer beats on a turtle carapace with a deer antler (Figure 9a). Similarly, as is well known, Room 1 of the late eighth-century murals of Bonampak also portrays a group of musicians drumming on turtle shells with deer antlers (Villagra 1949:17-18).¹³ They are flanked not only by individuals playing maracas, trumpets and the standing drum, but also by probable comedians (glyphically identified as *baahz’am* “clowns”) who wear the masks and costumes of the freshwater lobster and caiman, as well as those of wind and water gods (see Miller 1995:60-61). Among the Tzotzil “the turtle shell is considered the earth lord’s ... musical instrument” (Laughlin 1975:67), and in one Late Classic vessel scene (Figure 9b), a small canoe carries a supernatural passenger (possibly the Stingray Paddler) to the place of the Maize God’s emergence. Like the aforementioned musicians, he too beats on a turtle shell drum with a large deer antler.

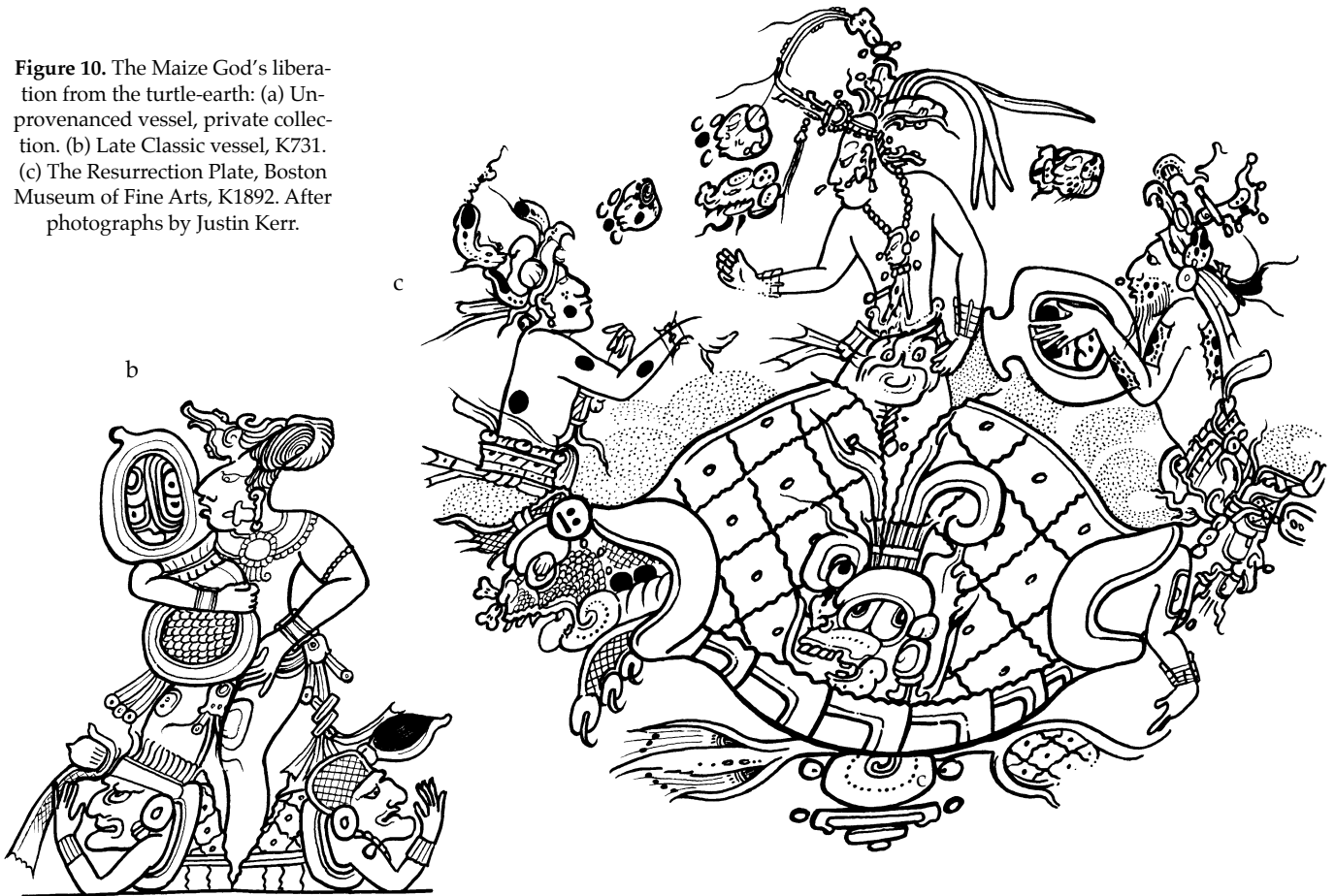
Quenon and Le Fort (1997:893-894) have suggested that the striking of the turtle shell probably simulates thunder, while the associated striking of the turtle-earth by an axe-wielding Chahk signifies lightning. Could it be that the turtle shell drums are ingredients of rainmaking rituals? In one scene from the Late Pre-classic murals of San Bartolo, the growing Maize God is depicted within a great turtle enclosure, dancing

¹³ It is worth noting that these and other turtle shell drums are usually painted yellow. This may help to explain the **K’AN** sign (meaning “yellow” or “pale”) that frequently marks turtles and other pale or yellow objects in Maya art.



a

Figure 10. The Maize God's liberation from the turtle-earth: (a) Unprovenanced vessel, private collection. (b) Late Classic vessel, K731. (c) The Resurrection Plate, Boston Museum of Fine Arts, K1892. After photographs by Justin Kerr.



b

c

and beating on a small turtle shell drum with antlers (Taube, in Saturno 2006:75). Flanked by the gods of rain and surface water, the dance and accompanying thunder may have been intended to conjure up thunderclouds and rain to assist in the Maize God's release from the turtle-earth.

This brings us to the most important context of the turtle shell in Maya art: the so-called resurrection of the Maize God (Figure 10). Numerous treatments of this theme are known, though all have as their central mes-

sage the eruption of the Maize God from the cracked surface of the earth (almost always represented by a split turtle shell marked with the "water lily motif"). No single image contains the entire story, yet by comparing a number of these scenes a fuller picture of the event emerges. When this event is considered in tandem with linguistic evidence relating the terms "shell," "enclosure" and "prison," then we also gain a clearer understanding of the turtle's role in the story. The turtle-earth was not a symbol of generative power, but

rather a grim dry-season prison from which the Maize God needed to be liberated.

In one Late Classic vessel scene (Figure 10a), the Maize God escapes from the turtle flanked by two Chahk figures brandishing burning lightning weapons. As first articulated by Taube (1993:66-67), these deities have just cracked open the dry surface of the earth to release the maize seed stored within. K'awiil, lightning incarnate, emerges from the rear conduit of the turtle, perhaps as an acknowledgement of his own important role in liberating maize from the underworld (Martin, in press).

On another Late Classic polychrome vessel (Figure 10b), the Maize God carries a gourd of water and a bag of maize seed (Saturno et al. 2005:31-33), and is also released from the turtle by a blow from the lightning axe of Chahk (not shown). As mentioned above (Figure 9b), another accompanying supernatural probably summons thunderclouds and rain by beating on a turtle shell drum. From the cracked shell beneath the Maize god emerge two aspects of God N in his role as aged, directional thunder god. As with the preceding scene, the escape of the Maize god was probably a noisy affair, accompanied by the booming of thunder and torrential rain.

On the Codex style "Resurrection Plate" (Figure 10c), the emergent Maize God (Juun Ixim) is accompanied by the Hero Twins. Although his precise role is unclear, Juun Ajaw may be scattering seeds into the jagged hole previously made by the gods of lightning, thunder and rain. Yax Baluun, for his part, clearly pours rain water onto his father's sprouting form from a large, narrow-necked vessel. The flowing water, indicated by a dilute brown wash, pours into the hole and cascades along the dome of the turtle's carapace. Below, freed from the earth and gasping for air and moisture, an elegantly detailed turtle—the veritable eidolon of the T741a AHK "turtle"—emerges from its shell, while the selfsame god of surface water depicted in the San Bartolo scene emerges from its rear. That the entire event was considered to have taken place on a floating island of earth is suggested by the cut-shell "water stacks" motif and water lily flower and pad attached to the bottom of the mammoth turtle shell (cf. Figure 3).

Taube (1985:175) has argued that the split turtle shell should be taken as a reference to the earth, which a number of Mesoamerican cultures saw as resting on the rounded back of a great floating turtle (see also Taube 1988:198). I concur with this assessment, but would add that the numerous and varied references to rainwater in these scenes (e.g., water vessels, gourds, and gods of rain, lightning and thunder) suggest that the turtle's back does not represent a moist and fecund field, but rather a milpa after a period of prolonged, dry-season drought: a dried and hardened surface that

needed to be furrowed and irrigated in order to liberate the maize seed within. Indeed, some recent and compelling analyses of the jagged "split" motif—such as that which characterizes the turtle carapace in these scenes—illustrate that this was no quiescent emergence, but rather a loud and audible "breaking" of the dry earth, coupled with a veritable explosion of maize onto the surface (Houston and Taube 2000; Martin 2004).¹⁴ Like a turtle shell, the hardened dry season milpa is a symbolic "enclosure" or "prison," in which the Maize God waits for Chahk and his lightning axe (K'awiil) to provide the earth-shattering jailbreak and spring rains which seasonally liberate him from captivity.

Given that these depictions may owe as much to the etymological relationship of "carapaces," "enclosures" and "prisons" as they do to the symbolic associations of turtles with the earth, it is interesting that all of these depictions slight the MAHK "shell, carapace" sign in favor of the AHK "turtle" sign proper. There are several ways that we might attempt to explain this distinction. For one, it may have been of some importance that the symbol evoke the turtle in its entirety, rather than just its shell. For another, unity in representation may have been sought, such that even though the turtle shell alone would perhaps have been sufficient in some scenes (such as those involving shell drums), it may have been deemed less confusing to have a single symbol for both turtles and turtle shells in art. Finally, however, one cannot help but feel that there may be a very different logic at work in iconography as opposed to writing. In art, the depicted object (e.g., a turtle) seems to carry not only denotative functions (e.g., turtle, shell, musical instrument), but also numerous potentially exclusive connotations (e.g., thunder, earth, prison). By contrast, and despite a penchant for *pars pro toto* representation, Maya writing tasked specific, formally distinct signs (e.g., MAHK and AHK) to either connote turtles or denote shells, with further metaphorical interpretation and elaboration being left largely to the mind of the interpreting reader. These interesting questions deserve further attention, and obviously cannot be resolved here. Yet whatever the ultimate explanation for these distinctions, one thing is clear: the MAHK sign has no representation in art, and is as fully separate from AHK as it is in the writing system.

¹⁴ The shallow dry season soils of Yucatan are criss-crossed by networks of cracks and central depressions very similar in appearance to the reticulated pattern on the back of the turtle. One wonders whether such designs may actually have originated as dried and cracked river mud on the turtle's back, a design that would have been reinforced by the pattern of dorsal scutes on the turtle carapace. Over time, this initial design may have been influenced by the iconography of water lilies.

The Mysterious Princess of Mahk

It might seem at this point that we have explored a significant amount of data concerning turtles and turtle shells, but have ultimately little to show for it beyond splitting what had previously been considered a single sign for “turtle shell” into two. If we have incidentally reviewed some of the methodological and theoretical tools that allow us to make such confident distinctions, and have extended the scope of these distinctions into Maya art, then the end result is still the same: much ado about turtles. It is precisely such narrowly focused studies as this one that Joyce Marcus (1992:xix) condemns in her preface to *Mesoamerican Writing Systems*, where she decries the epigraphic obsession with “hieroglyphic prefixes and suffixes” and “what the man in the street calls ‘cracking the code’” (a snide allusion to Michael Coe’s similarly titled book, which appeared the same year). To Marcus, only the big anthropological questions matter, such as the role of writing in the archaic state, or the sociopolitical functions of royal marriage.

Yet as some measure of the importance of paying attention to “hieroglyphic prefixes and suffixes” before stampeding off into grand theory, I would like to outline some interesting implications of the **MAHK** and **AHK** distinction for the political history of Machaquila, where an enigmatic “turtle shell” emblem glyph (Figure 11) has hitherto confounded our understanding of local and regional political interactions. As will be seen, a better understanding of the particulars of this one case also has repercussions for our appreciation of Classic Maya royal marriage in general.

This block of hieroglyphs first came to light in the early 1960s, when Ian Graham (1967:51-99) made two brief research trips to Machaquila to map the ruins and document its monuments. On these and later trips he was also able to record 22 fragments of the hieroglyphic stairway of Structure 4, a Terminal Classic palace, much of which had been removed from the site by petroleum geologists in the late 1950s. More recently, archaeologists and epigraphers from the Universidad Complutense de Madrid have undertaken five full field seasons of excavations at Machaquila, and have uncovered over 30 additional fragments of the hieroglyphic stairway, a number of which have been successfully fitted to the fragments recorded by Graham (see Ciudad Ruiz et al. 2004, Iglesias and Lacadena 2003, Lacadena and Iglesias 2005).

At present, and while the chronology of the monument remains uncertain, it now seems likely that this stairway was commissioned by the king “Scorpion” Ti’ Chahk, who may have ruled sometime after AD 840 (Iglesias and Lacadena 2003:69; Lacadena and Iglesias 2005:679-681). As first noted by Fahsen (1984:94) the stairway makes reference to at least two women,

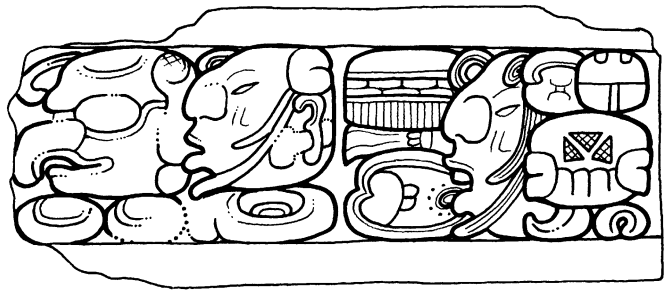


Figure 11. The name of *Ix Mahk Ajaw*, “The Princess of Mahk.”
Carved Stone Step, Machaquila Structure 4.

and Lacadena and Iglesias (2005:680) have now demonstrated that one of these was a local woman from Machaquila while the other, probably her mother, carries the foreign emblem glyph **IX-MAHK-AJAW** (*Ix Mahk Ajaw* “Princess of Mahk”) (see Figure 11).¹⁵ Noting the presence of the otherwise unaffiliated verb **i-HUL-li** (*i-hul-i-Ø* “then he/she arrives”) and the potentially connected record of a lapse of twenty years, they further propose that the main topic of this inscription was the twenty year anniversary of the Princess of Mahk’s arrival at Machaquila.¹⁶

Given her prominent mention in the inscription, it has long been supposed that the Princess of Mahk came from a prestigious or powerful place, but her precise site of origin has proven impossible to identify. In the early 1980s, Houston and Mathews (1985:7, fig. 3j) identified her emblem with the archaeological site of Cancuen, a proposal which is occasionally cited as evidence of a marriage alliance between Cancuen and Machaquila (e.g., Fahsen, Demarest and Luin 2003:713; Schele and Mathews 1991:245, Table 10.3). Yet there are strong reasons to doubt the association of the **MAHK** emblem with Cancuen. As Houston (1993:116-117) observed in the early 1990s, this spelling lacks the **ya**-prefix and **K’IN** infix otherwise characteristic of the Cancuen emblem glyph (see also Houston 1992a:23 and 1992b:28). An actual example of the female version of the Cancuen emblem appears on Dos Pilas Panel

¹⁵ Although the oral presentation of their argument followed the traditional reading of this sign as **AHK**, Lacadena and Iglesias (2005:680) have graciously incorporated my **MAHK** reading into the published version of their paper.

¹⁶ Lacadena and Iglesias (2003:681-682) convincingly argue that the elements preceding the Princess of Mahk’s emblem are best read as the name of the Structure 4 compound (Plaza F). Yet my own study of the block on display in Guatemala City (Figure 11) suggests that their reading of **HUUN-la na-ji OTOOT** (*Huunal Naah Otot* “Headband House of the Palace”) may need to be slightly amended. While eroded, the initial sign may actually be the sky bird **CHAN**, and there is definitely a **TUUN** “stone” sign conflated with **OTOOT**. I tentatively suggest the reading *Chanal Naah Tuun Otot* “Heavenly House (of the) Stone Dwelling.”



Figure 12. The name of Lady “G1” K’awiil. Dos Pilas Panel 19 (after a drawing by David Stuart).

19 in the name of Ruler 3’s consort Lady “G1” K’awiil (Figure 12), and a comparison of the two forms is particularly devastating to any proposed identity between these two emblems.

Unfortunately, another point of confusion entered the literature when Houston proposed a reading of the Princess of Mahk’s emblem as “Lady Akul Ahaw” (Houston 1992b:29, fig. 8a; 1993:118, fig. 4-22a), grouping it with the emblem of *Ahkul Ajaw*, the famous captive of K’awiil Chan K’inich of Dos Pilas. Houston has convincingly associated this *Ahkul* emblem with the historic and modern site of San Juan Acul, located some 12 kilometers north of Dos Pilas. Yet his association of Lady Ahkul Patah of Bonampak with this toponym (Houston 1993:118, fig. 4-22) is less convincing, particularly since *Ahkul Patah* is likely to be a personal name in this context. In any event, and based on these associations, Houston suggested that San Juan Acul “contributed ladies, one of *ahaw* status, the other of *sahal*, to the dynasties of Machaquila and Bonampak” (Houston 1993:117). This proposal has been embraced by a number of scholars, particularly Lacadena and Iglesias (2005). Nevertheless, it should now be clear from the consistent separation of **MAHK** and **a-ku(-lu)** that the Princess of Mahk’s emblem (Figure 11) can have no association with the *Ahkul* emblem of San Juan Acul.

Despite the best efforts of epigraphers, then, the origin of the Princess of Mahk remains a mystery. For some reason, no sculptor in the whole of the Petexbatun (or anywhere else for that matter) saw fit to carve

even a single additional example of this emblem. Given this general absence of citations, and considering the *Mahk* emblem’s unique context at Machaquila (i.e., as the site of origin of a woman who married into the local dynasty), I would venture that a smallish site in the vicinity, perhaps somewhere along the Río Machaquila, will eventually prove to be her place of origin.

If this seems opposed to much that has been written on the importance of royal marriages to political alliances, particularly in the context of hierarchically asymmetrical sites (Marcus 1992:249-259), then this is because I find much of this work epigraphically erroneous and highly misleading with respect to the pattern of sociopolitical organization derived therefrom. As Schele and Mathews (1991:245) pointed out some time ago, there are in fact “relatively few cases of royal interdynastic marriage.” At that time they knew of nine examples in total: a number which has not climbed dramatically in the last decade, and from which we can now subtract the Cancuen-Machaquila connection. Moreover, only one of these sites (Naranjo) celebrates the more or less contemporary arrival of a foreign woman. Most of the other references are restricted to parentage statements or post-mortem memorials recorded years (in some cases decades) after the event (Martin and Grube 2000:131). This suggests that the actual sociopolitical relevance of these marriages (at least as recorded in the inscriptions) resonated not between the cities exchanging wives, but rather between parents and their offspring, mediated by the need to demonstrate a royal pedigree (Zender 2004:365-366).

It would be foolhardy and polemical to contend that royal marriages had no immediate sociopolitical currency, yet it is crucial to note that Classic Maya alliances (whether forged through marriage, warfare or other means) were inherently unstable entities, frequently rupturing in succeeding generations (Houston 1993:138-139). Further, some marriages follow so closely on the heels of conflict that, at least in such instances, bride capture or even tributary concubinage may be equally apt characterizations of the mechanisms involved (see Martin and Grube 2000: 131). Given these data regarding the actual historical circumstances in which intersite bride exchange took place, it is exceedingly difficult to support Marcus’s sweeping contention that “[r]oyal marriage alliances played an essential role in the overall political and economic strategies of the ... Maya” (Marcus 1992:259). Coupled with the not inconsequential consideration that the Princess of Mahk is unlikely to have hailed from a powerful royal dynasty, it would seem that instead of evidence for the centrality of marriage alliance to Classic Maya sociopolitical organization, we have here a definite and revealing instance of too little attention being paid to those “hieroglyphic prefixes and suffixes.”

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Neg. No. 10313, Courtesy of the Museum of New Mexico.

Morley's Diary, 1932

Editor's note

A leading archaeologist of his time, Sylvanus Griswold Morley was an Associate of the Carnegie Institution of Washington, the foremost organization excavating archaeological sites in Mexico, Guatemala and Honduras in the early part of the twentieth century. This diary continues his account of the Carnegie Institution's expedition to Calakmul begun on April 3, 1932. Morley's professional companions were his wife Frances, Karl Rupert, John Bolles and Gustav Stromsvic. Reference is made to biologist Cyrus L. Lundell, who conducted the first scientific investigations at Calakmul and brought the site to the attention of the Carnegie Institution.

April 23 - Saturday

The last full day at the ruins and a busy one. When Frances and I got over to the breakfast table there was mail for us! Jesus had got in from Central Buenfils with the mules that are to take Karl and John to the new ruin and brought back three letters for me. One from Brydon repeating a telegram from Reygadas thanking me in the Minister's name for having offered the Institution's hospitality to His Excellency but regretting to advise me that his visit had been indefinitely postponed. One from Harry at Chichen Itzá — very brief — advising of the same matter and containing a newspaper clipping to the same effect. And one from Don Ambrosio saying he was sending along the mules I had asked for yesterday.

After breakfast some time between 7 and 7:30 John and Karl got off for Central Buenfils. Their plan is to lunch there and push on immediately thereafter for the ruins. Make a dry camp there tonight, see the ruins tomorrow morning and return to Central Buenfils late tomorrow afternoon.

As it was still a little too early to photograph I went over to Stela 33 to see how Gustav had turned it, i.e. whether it would make an afternoon or morning picture. It is about mid-morning.

Frances and I set out from camp with Genaro, Isidro, and Rafael about 8:20. We went first to Stela 75 which

was in a splendid cross light bringing out the I. S. on the left side very clearly. From here we went to Stela 59 and thence to 70 and the reused Stela 66 at the Ball Court.

The light after the first good flashes at Stela 75 was miserable — low lying clouds sweeping over from the east and giving more shade than allowing the sun to peep through. This indifferent photography weather continued all morning.

Stela 88, 57, 58, 26, and 24 were visited. At Stela 57 we had an unfortunate minor accident. Rafael Paat in pushing over the lower half of Stela 57 working with the entire gang got his finger in the way so that it got jambed and I am very much afraid he will lose the nail. I sent him in to camp with a note to Tarsisio to wash his finger in clean water and to keep him there until we came in, when we would dress it.

Gustav had spent a considerable time building a platform 17 feet above the sculptured laja and Frances is going to photograph from there tonight. It is strong enough but small and the greatest precaution must be taken not to fall off it.

Just before leaving the west end Gustav put the main gang digging out a chultun and some of these I borrowed to turn over a few of the fragments of Stela 56 which had fallen on its base. In digging under the largest piece Francisco Quijano broke a delightful little jar or vase of this shape of rather crude ware. All of the fragments were recovered and we are taking them back to Chichen Itzá with us.



As soon as we returned to camp Frances dressed Rafael's finger. It looks badly and I am afraid he will lose the nail.

Gustav spent the afternoon taking notes on his metates and packing his pottery fragments, not counting the two whole pieces which we got, though broken in finding, the one found at the base of Stela 56 by Francisco Quijano this morning and the other found by Gustav the other day in excavating around Stela 89, he has five of our empty wooden boxes filled with sherds.

Tarsisio and Arturo spent the afternoon in packing and Frances and I in photographing.

Immediately after lunch the light was just right on Stela 17, which despite the fact that it did not yield me a date is nevertheless a very nice monument. Frances took this before our boys came, in fact they delayed so long down at the aguada that I had to send Tarsisio after them.

We were going back to the west end after luncheon and in passing Stela 29 noticed that its Initial Series was in splendid light. As this is one of the two earliest surely dated stelae I have found here, it seemed a good time to catch it, which Frances did exposing two negatives.

From here we continued on to the west end, photographing Stela 65, the lovely little stela with no glyphs on it; the left side of Stela 67 and Stela 69 giving their re-

spective Initial Series; two exposures of Stela 88, though the light was a little passe.

From here I told the boys to make for camp by the shortest route possible as I knew the light would be going from in front of Structure D.

It was lucky we had photographed Stela 18 immediately after luncheon as it was entirely in the shade by the time we got back at 3 o'clock.

But Stela 9 and also the top fragment of Stela 13 were in excellent light and Frances exposed what we hope are some good negatives here.

The light conditions were perfect. But by three the sun is moving fast in this part of the world and before we had quite finished with the last side of Stela 9 — it is sculptured on all four sides — the sun had dropped behind a tree.

Then the axe brigade was called to operate. Isidro went after what appeared to be the offending tree and Alberto another. Isidro got to his first and this proved to be the one which was cutting out the light and our remaining pictures we took without further encroachments of shadow.

From here we went up to Structure A where we wanted to get a few last pictures of the beautiful Stela 51. We took several of these, including close-ups not only of the heads but also of heads and shoulders.

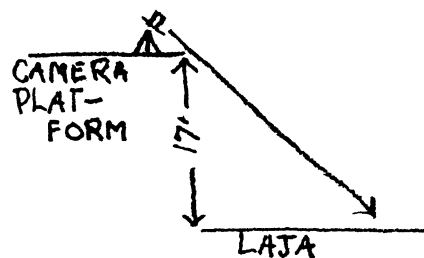
Frances has wanted a picture of ourselves at "The House of Darkness" which picturesque name Karl has applied to Structure C because its exterior walls are covered with some sort of a mold or lichenous growth which has stained them black — very black.

On our way back to camp from Structure A we stopped at this "House of Darkness." I climbed the supporting platform standing just below the building proper while she focused the camera. Then setting the shutter and removing the slide she joined me and Genaro took the picture.

It was a little after four when we got back to camp and I let my boys go as they are returning after supper to help us photograph the laja by flash-light.

After bathing we began to get ready for this venture in night photography as we wanted to go up to the laja immediately after supper and get the camera set up before darkness fell.

Gustav had built a platform 17 feet above the laja and this was to be the eyrie from which the laja was to be taken.



Supper like luncheon was a much reduced affair as far as those "present" were concerned. It was a little early so that we could get off for the laja while daylight lasted.

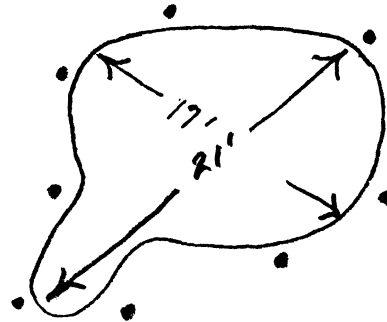
Immediately after supper with the camera, tripod, candles, flash-light, and the flash-light gun we set off for the laja at the west end, Frances, Gustav, Tarsisio and I. We told Arturo, who stayed behind in camp, to send the boys in as soon as they had come up from their camp at the aguada.

On reaching the laja the first operation was to lash the camera tripod firmly to the platform. Gustav's nautical training came in just right here. To begin with he was as much at home in this lofty eyrie as though he were on the mizzen mast, and secondly he lashed that tripod so firmly to the platform, that the latter would have fallen before the tripod could have come loose.

I carried up the camera to him next and then he fastened this to the tripod.

Meanwhile Frances and Tarsisio had been putting up a row of candles around the edge of the laja. This I had measured the other day, it is 21 feet wide by 17 feet long or high. They had planted 8 lighted candles around the edge of this to outline it and as it grew darker Gustav focused the camera so that the eight lighted candles appeared in the ground-glass. Then we flooded certain parts of the sculptured laja with the concentrated lights of our several flash-lights so that he could focus sharply on the relief and bring it to the very best definition possible.

While we were at this our boys came up from their camp, all of them including Rafael who had been hurt in the morning. Ten of them, all in fact except Laborio and Jesus who were off with Karl and John and Victor Audi-nette and Emilio who had gone in this morning.



Finally Gustav pronounced the focus the best that could be achieved and I got out the flash-light gun. In order to shield the flare from the camera I put the gun behind the camera-case and let her go. Frances, who was looking at the relief, said it came out magnificently, but as for me the flash in that Stygian darkness almost blinded me.

In all we took 6 exposures, 4 from up on the eyrie and 2 from selected points on the laja itself, the two latter being close-ups of the principal figures.

Finally at 8:05 we were through and gathering all our impedimenta together we returned to camp.

The boys had a couple of lanterns, a petroleum flare, and with our electric flashes we must have presented a weird picture as we threaded our way through the blackness of the forest in Indian file, a sort of wavering, bobbing fiery serpent. But the wild life of the bush gave us a wide berth. Arturo was waiting at camp lantern in hand.