

The Bat Sign in Maya Hieroglyphic Writing: Some Notes and Suggestions, Based on Examples on Late Classic Ceramics

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Now air is hush'd, save where the weak-eyed bat / With short shrill shrieks flits by on leathern wing
William Collins, 1746

The catalog of Maya hieroglyphs, organized and categorized by J. Eric S. Thompson and published in 1962, contains one sign that represents the head of a bat, Glyph 756 (or simply T756). Thompson provided four variants for this sign (Figure 1).

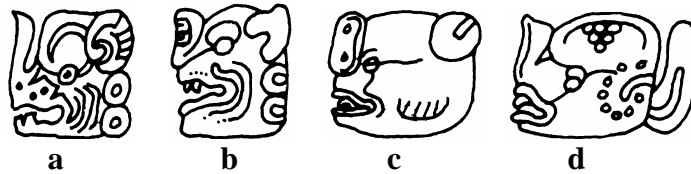


Figure 1: The Thompson “Bat Sign” T756 (drawings by Kornelia Kurbjuhn [Kurbjuhn 1989: 110], after Thompson 1962: 343, 455)

In his description of the sign, Thompson (1962: 348) opened with the following paragraph:

The role of Glyph 756, a reasonable naturalistic representation of the leaf-nosed vampire bat, is perplexing. Despite its ubiquity on the monuments, it appears in the codices only as the month sign *Zotz'*, which means “bat” in most Maya languages and dialects.

Unfortunately, Thompson made a mistake here. The “bat sign” does appear outside the context of the month sign in the Maya codices or screenfold books (e.g. Dresden Codex, Page 17, B3 & C1: **ya-BAT.SIGN**; see below).¹ Additionally, two of the four variants he provided are confluations of two separate signs. T756c is a conflation of T756a-b with T568a **lu**, while T756d is a conflation of T756a-b with T528 **ku** (the postfixed scroll-like sign is actually the lower part of a **-wa** sign that served as a phonetic complement to a superfixed **'AJAW** sign on Copan Altar U).²

In this essay I provide some notes and suggestions on the origin and possible reading of the bat sign in Maya hieroglyphic writing. These notes and suggestions mostly are based on examples in hieroglyphic texts on Late Classic Maya ceramics.

Thompson’s description of the animal represented in the glyph, “a reasonable naturalistic representation of the leaf-nosed vampire bat,” is generally accepted. In 1950, he described the sign simply as “the head of the leaf-nosed bat” (Thompson 1950: 108). It has to be noted that some epigraphers have suggested that different bat species may be represented in the “bat sign” (Lopes and Davletshin 2003: 5). This, according to these epigraphers, may explain the possible different values (logographic and syllabic), of the T756a-b “bat signs.”³ To this I return below. In the Maya calendar the “bat sign” designates the fourth month *Sotz'*, as noted by Thompson and others before him (Figure 2). The actual month name is derived from the work of fray Diego de Landa, who named the fourth month in the late Postclassic to early Colonial Yucatec Maya calendar «Tzoz» (Landa n.d.: MS, folio 40v, **T3o3**). The Yucatec month name *Sotz'* is further substantiated in the so-called Books of Chilam Balam (written in the early Colonial period), for instance in the Book of Chilam Balam of Chumayel, in which the name of the fourth month is given as «çodz» (Gordon 1913: MS 23, **çodz**).



Figure 2: The month sign “Bat” (drawings by Kornelia Kurbjuhn [Kurbjuhn 1989: 163], after Thompson 1950: Figure 16, 35-44)

There are some unique examples that provide good indications that in Classic Maya writing (a.k.a. epigraphic Maya) the month name may have been *Sutz'*, or even *Sutz'il* (Figure 3).

At Chichen Itza and Yaxchilan there are two rare examples of the month name spelled T756-*tz'i*, as first discussed by Stuart (1987: 3) (Figure 3a,b). A unique example of this month name (Liman and Durbin 1975; Justeson 1983; Stuart 1987), on a column of unknown provenance in the collection of the St. Louis Art Museum,⁴ spells *su-tz'i*. This spelling may be indicative of the fact that the logographic value of the T756a-b “bat sign” is **SUTZ'**. A unique spelling *su-T756* can be found on a ceramic sherd excavated at Tonina and which is exhibited at the site museum (Figure 3e,f). This particular spelling directs to a transcription *su-SUTZ'*. The month name thus may have been *Sutz'*. Although *soz'* is the most common word for “bat” in Maya languages, *sutz'* “bat” is found in Ch'ol, Ch'olti' (extinct), and Ch'orti' (Kaufman 2003: 570-571).⁵

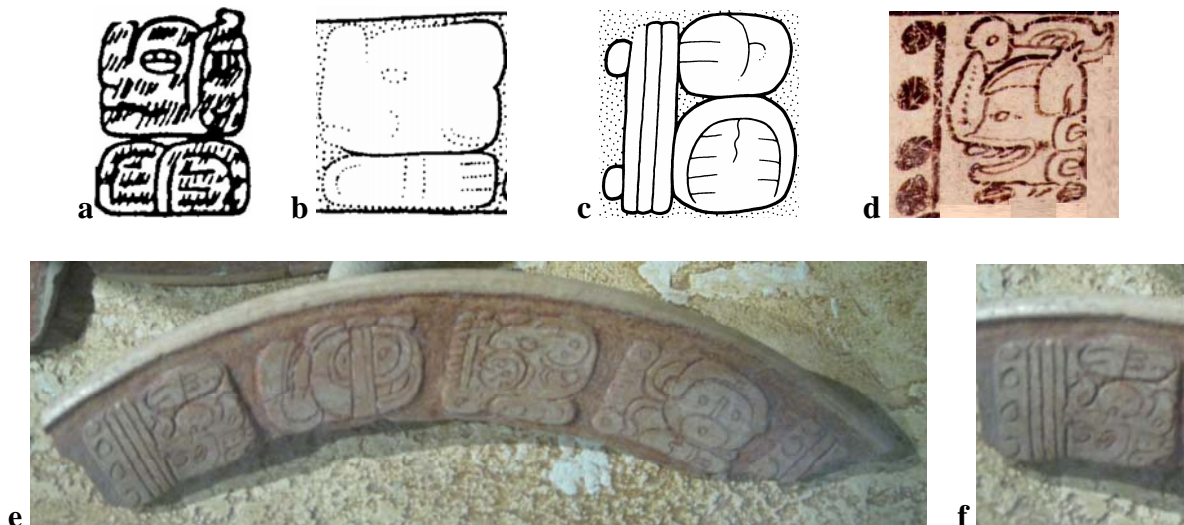


Figure 3: Rare and unique substitutions in the “Bat” month name, a) Chichen Itza, Water Trough Lintel: A5 (drawing by Hermann Beyer), b) Yaxchilan, Hieroglyphic Stairway 1, Step 1: 61 (drawing by Ian Graham), c) St. Louis Art Museum, Column: C1 (drawing by Simon Martin), d) Kerr No. 0955 (photograph by Justin Kerr), e) Tonina, Ceramic Sherd, f) Tonina, Ceramic Sherd, detail of month name (photographs by the author)

Another unique example can be found in the text of Kerr No. 0955 (Figure 3d), a vessel painted in the Codex style or tradition and providing part of the king list of the KanVI (with -V- either /u/ or /a/) dynasty of Dzibanche/Calakmul. The spelling includes the number 9, possibly *balun* in Classic Maya,⁶ and the common numeral classifier *-te'*. The month name itself is spelled **SUTZ'-la**. This spelling may hint at a transliteration Sutz'il. This I base on the rare spelling examples in which **-tz'i** is employed; the phonetic complement **-tz'i** may provide the vowel of the final syllable in Sutz'il.

At present I have not yet identified another spelling of the month Sotz' that ends in **-la** and which may lead to a final suffix *-il* (but note Kerr No. 2094: E1, also a Dynastic Vase, for a possible **-la**). It has to be noted that a suffix *-il* on a Classic Maya month name is not unique. The month Pax can be found spelled **[PA']xi** and **PA'-xi**, but also as **pa-xi-la** on Kerr No. 1813 and **[PA']xi-la** on Ixzutz Stela 4 (Boot 2004: 3-4). Both Pax and Paxil were names of the sixteenth Classic Maya month.

As Thompson suggested, the bat (*Chiroptera spp.*) represented by the bat sign in T756a-b is a leaf-nosed (vampire) bat. However, (New World) leaf-nosed bats (*Phyllostomidae*) are a most common group of bats in Central and South America and this group contains 143 species, including some vampire bat species. A recent census in Belize showed that 47 leaf-nosed bat species in 5 sub-families were identified (Consejo.bz 2007-8). Which species of leaf-nosed bats would thus have been represented in Classic Maya hieroglyphic writing? Or in Classic Maya iconography for that matter.

Most leaf-nosed bats, but not all species of the *Phyllostomidae* family, have a fleshy protuberance which sits on top of the nose and which can be as long as the head of the bat itself. Facial features can differ considerably among species, from a short stubby snout to a slender elongated snout, from small ears to long ears, and from short haired to long haired (Figure 4).

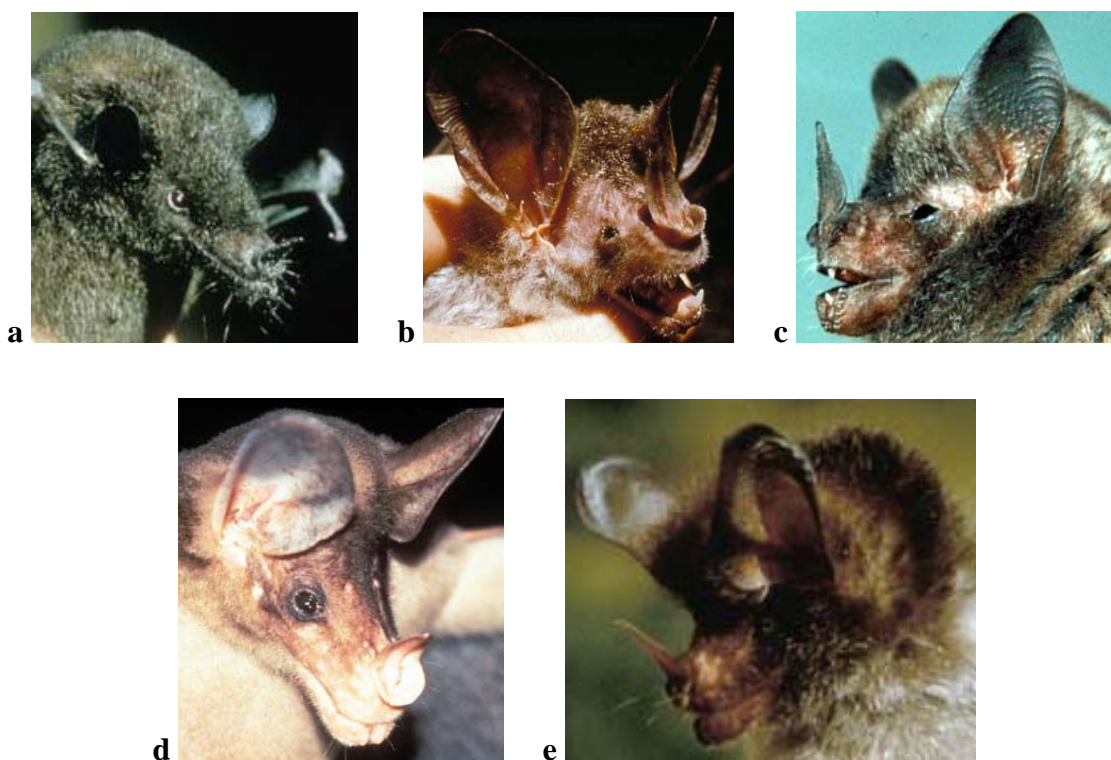


Figure 4: Bat species endemic to Belize and Honduras, a) *Hylonycteris underwoodi*, b) *Chrotopterus auritus*, c) *Carollia brevicauda*, d) *Vampyrus spectrum*, e) *Micronycteris hirsuta* (all photographs © The ASL Mammal Image Library, not to be reproduced without written permission, except for educational purposes; images edited and digitally enhanced by the author)



Figure 5: A sample of bat signs from dedicatory texts on ceramics: a) Kerr No. 0508, b) Kerr No. 0530, c) Kerr No. 0731, d) Kerr No. 4551, e) Kerr No. 8339 (all photographs by Justin Kerr), f) Caracol, Structure I2 (photograph Caracol Archaeological Project)

Also feeding habits differ considerably. Leaf-nosed bats can be long-tongued and nectar-feeding (e.g. *Hylonycteris underwoodi*, Figure 4a). Leaf-nosed bats also can be carnivorous, and they can feed on local bird species that can be as big as doves. That last species is the *Vampyrum spectrum*, or American false vampire (a.k.a. Linnaeus's false vampire, Spectral bat), the largest bat species on the American continent (Figure 4d).⁷

A sample of bat signs from dedicatory texts on ceramics shows some of the stylistic and iconographic variation in the representation of the bat head. In some cases the nose and the leaf-like protuberance seem to be merged (Figure 5a,b),⁸ while in others nose and leaf-element are separated (Figure 5c,e). Sometimes the internal ridges of the ears are visible (Figure 5c,d). These ridges are common to many leaf-nosed bat species (Figure 4b,c,e). In one example, the leaf-like protuberance seems to be a separate element placed on the nose and elongated snout or rostrum (Figure 5d), while in the unique example found on a fragmented polychrome vessel excavated in 2007 at Caracol (Chase and Chase 2007: Cover photo, Figure 20e) the protuberance is placed detached from the nose on an elongated snout or rostrum (Figure 5f). The internal patterning of the protuberance by this Maya artist seems to identify it as a feather. If the scribe would have drawn it as a leaf, he would have applied a different pattern. If correctly deduced of course; it would, however, provide a unique insight into the perception, identification, and qualification of animal body parts based on comparison with other natural phenomena.⁹ All examples clearly show the ears and teeth of the bat.

The example from Caracol is most interesting as the snout or rostrum is clearly elongated, something which also is present on Kerr No. 4551 (Figure 5d). Could these examples indicate a specific species of bats? In Maya art and hieroglyphic writing the dominant carnivores of the animal kingdom are well represented, like the jaguar (*balam*), the eagle (*kok mut*, *tz'ikin*), the (rattle) snake (*chan*), the centipede (*chapat*), and the alligator (*ahin*). It would not surprise me if the *Vampyrum spectrum* or American false vampire, the carnivorous and largest bat species in the Americas, served as a template for the leaf-nosed bat sign in Maya hieroglyphic writing and iconography.¹⁰ However, at present, there is no definitive evidence to support this idea.

The T756a-b bat sign in these dedicatory texts is employed as a syllabic sign. It substitutes for T263a and both signs operate as **tz'i**. The Caracol example not only is of interest for the variation in the bat sign.¹¹ The remaining part of the text provides a local variation of the generally standardized dedicatory formula on ceramics, with some intriguing substitutions (Figure 6). The opening sign at A as well as the closing section starting with L are lost, unfortunately (I am also not sure if J and K

indeed are in direct order), but the remainder (Figure 6c) can be transcribed as [B] GOD.N [C] **yi-chi** [D] 'u [E] **tz'i** [F] **ba** [G] **li** [H] **yu-[k'i]bi-la** [I] **no**[SOUTH] [J] ? [K] **tu-ma-ki** [L & further] The dedicatory verb, spelled in this variation of the dedicatory formula, with the GOD.N head, remains undeciphered. This dedicatory verb for instance is common to ceramics from Altun Ha', located in northern Belize.¹²



Figure 6: Fragmented polychrome figure bowl from Structure I2, Caracol, Belize (photograph and drawings Caracol Archaeological Project; digitally edited and enhanced by the author).

The **yi-chi** spelling employs the deer head for **chi**, an acrophonic reduction from **CHIH** “deer.” The signs at D-G spell 'u **tz'i** **ba** **li** for *utz'ibal* “(it is) the/his writing,” employing a “xok” variant for 'u and a “skull-and-kawak-sign” variant for **ba** (also evolved through an acrophonic reduction, note **BAK** “skull”). The “skull-and-kawak-sign” variant for **ba** is particularly common in the Late Classic dedicatory texts from the greater El Zotz' area (e.g. Kerr Nos. 1901, 3387, 5509, 8393).

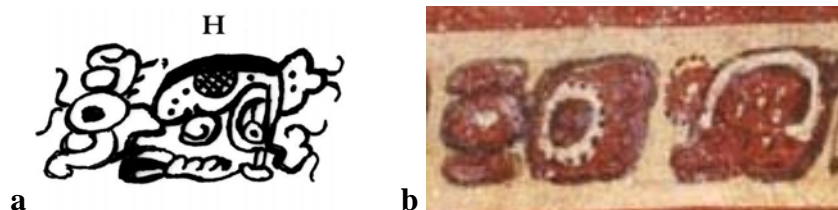


Figure 7: A comparison of the “vessel type” collocation on the Caracol vessel (a) and Kerr No. 7979 (b)(photograph by Justin Kerr)

It is followed by a complex collocation for the vessel type at H, which I transcribe **yu-[k'i]bi-la**. The central sign seems to be a conflation of the T77 **k'i** and the T764var **bi** (T764 serpent sign with infixed T585; but note that T585 is actually a *pars pro toto* reduction of T764var) signs.

The top of the head of the serpent sign on the Caracol bowl (Figure 7a) seems to contain a part of T77 **k'i**, replacing the common infixed quincunx. On Kerr No. 7979 **yu**, **k'i**, and **bi** follow in sequence (Figure 7b), note the large round spot of T77, encircled by small dots, and the quincunx infix in the **bi** serpent sign. The Caracol spelling ends in **-la** for a full spelling of **yu-[k'i]bi-la** or *yuk'ibil*, in which *y-* is the prevocalic third person possessive pronoun, *uk'ib* “drink-instrument” (*uk'*- “iv. to drink”; *-ib* “place of; instrumental suffix on intransitive roots”), and an *-il* possessive suffix. The item *yuk'ibil* would thus mean “(it is) the/his drink-instrument.” Also in the dedicatory text on another Belizean ceramic the *uk'ib* vessel type terminates in an *-il* possessive suffix (Baking Pot, Bedran Group, Burial 2, Vessel 2; Colas, et al. 2002: Figure 5a).¹³

After the vessel type probably the name and titles followed of the patron or owner of the vessel. His title sequence opens at position I with *nohol* “south,” followed by an undeciphered collocation (due to the fragmentation of the bowl). The last remaining collocation spells **tu-ma-ki**, providing only the last part of the paramount title of the Caracol kingdom, K'uhul K'antu' Mak “God-like K'antu' person” (common spelling: **K'UH-K'AN(-na)-tu-ma-ki**, e.g. Caracol Stela 3: D13a, D18a). The vessel may thus have been produced within Caracol or within the vicinity of the Caracol kingdom, and perhaps for local elite purposes (as it was found locally). Intriguingly, the upper most rim text (Figure 6a-b) is not a readable hieroglyphic text, but a so-called pseudo-text (in part the text is even repetitive). To my knowledge this is the first ceramic vessel that employs two rim texts, painted parallel to each other, one of which is “pseudo” and one of which is a genuine readable text. This vessel may be suggestive of the fact that pseudo-texts were actually a separate tradition, perhaps not entirely derived from “real” hieroglyphic writing.¹⁴ A full analysis of the two texts on the Caracol vessel, as well as a comparison to other late Classic pseudo-texts (Calvin 2006), has to await a future occasion.

The next observation I present in this essay is on the examples of the bat sign in the Maya codices and the Landa manuscript (Figure 8).

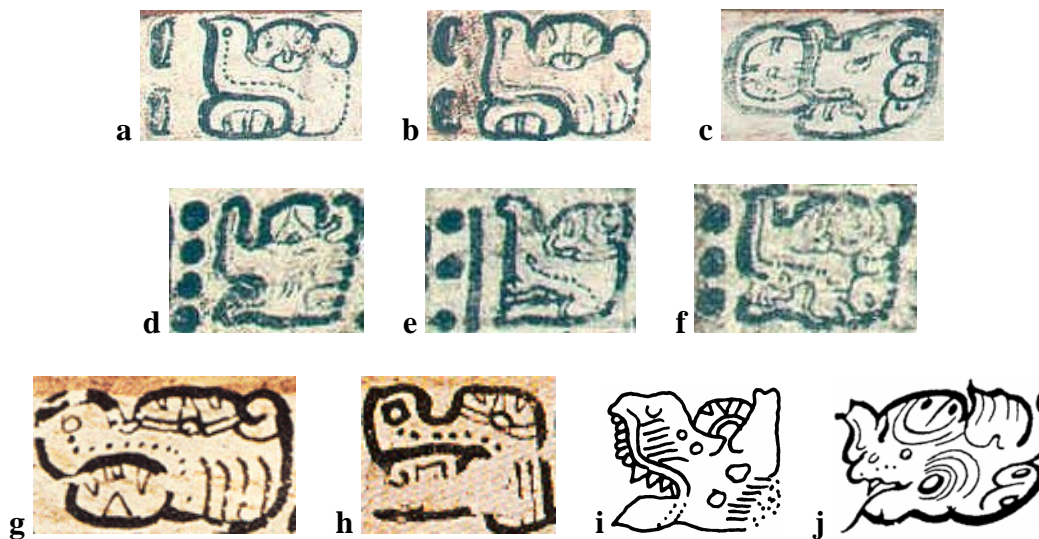


Figure 8: Examples of the “bat sign” in the Maya Codices and Landa: a) Dresden Codex 17, B3, b) Dresden Codex 17, C1, c) Dresden Codex 37, B3, d) Dresden Codex 46, C, e) Dresden Codex 47, B, f) Dresden Codex 47, C, g) Madrid Codex 40, B1, h) Madrid Codex 41, C4, i) Landa, fol. 40v, j) Plate from Calakmul, Structure 2, Tomb 4 (drawing by Simon Martin)

The examples in Figure 8a and 8b may spell **ya-xu?** for *yaxu[n]* “lovely cotinga” (Dresden Codex Page 17, B3 illustrates a bird, most probably a lovely cotinga; the other text is not accompanied by an image). An element that most of the examples illustrated in Figure 8 have in common is the *ak’bal*-like element in the top of their head (with the exception of the example in Figure 8c).

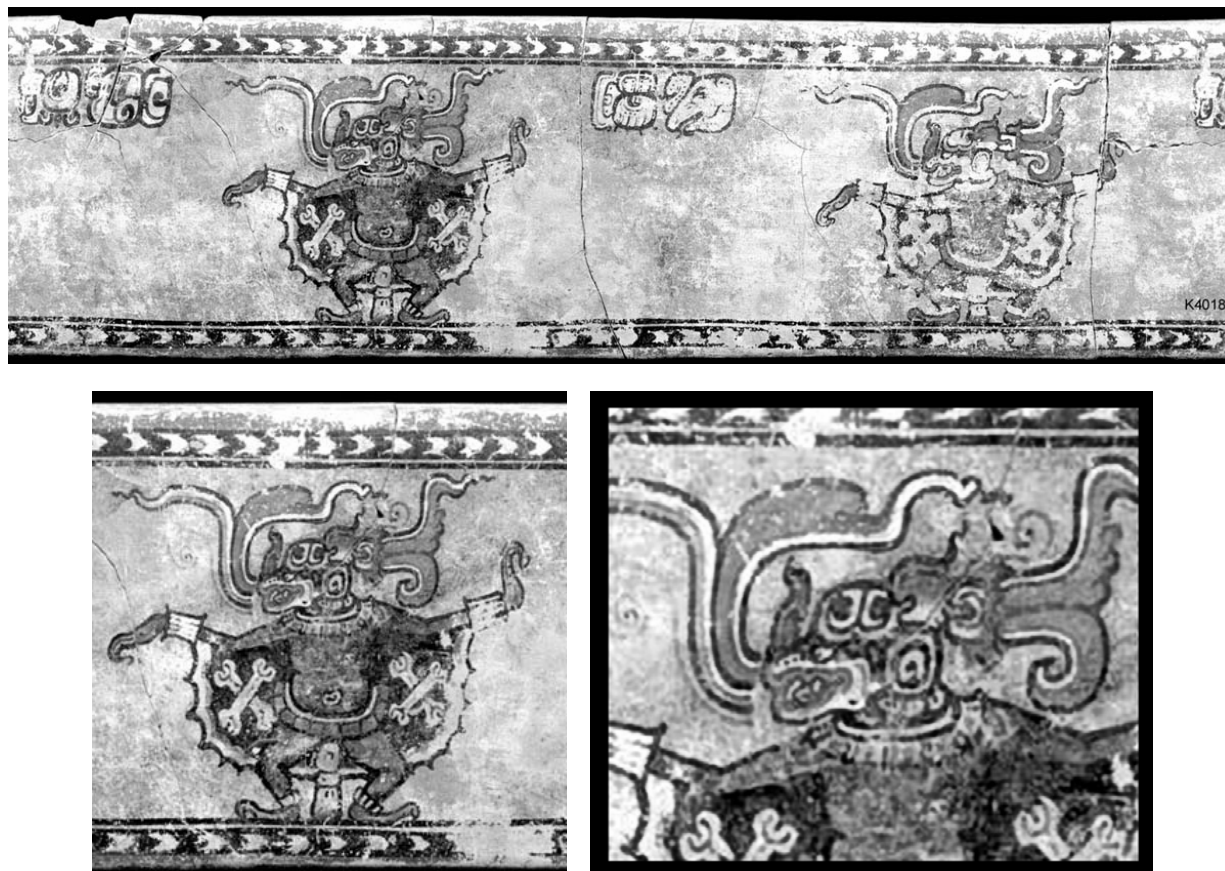


Figure 9: A Chama area vase, Kerr No. 4018 (rollout photograph by Justin Kerr; photographic details enhanced by the author employing BenVista PhotoZoom Pro 2.3.4 software)

On several polychrome vessels from the Chama area in the Alta Verapaz, Guatemala, a pair of anthropomorphic bats (or bat impersonators?) is depicted (e.g. Grant 2006: Fig. 5.1; Dieseldorff 1894: 576). An example from the American Museum of Natural History in New York is illustrated in Figure 9. The bat easily can be identified as a leaf-nosed bat that has an elongated nose or rostrum. The top of the head of the (anthropomorphic) leaf-nosed bats in these examples from the Chama area all include an *ak’bal*-like sign. The origin of the inclusion of the *ak’bal*-like sign is unknown, but may be based on the common nocturnal activities and habits of bats (*ak’ab* “darkness; night”). The wings of the bats are set with crossed bones, probably providing an association with death.

This particular iconic representation of the bat head was also known in the central Maya lowland area during the Late Classic period, testament to which is the rare example of the T756a-b **tz’i** bat sign in the text on a Codex Style plate from Calakmul, Structure 2, Tomb 4 (Figure 8j).

The two examples of the bat sign in the Madrid Codex provide yet another interesting detail. In their mouths they hold a small T521 **WINIK** sign (Figure 8g,h). This is a rare feature of bat signs in hieroglyphic writing. At Tonina, on Monument 96, part of the text identifies at E the **yu-lu-xu** or *yulux*

“the carving” of at F *k’antunil* “precious stone,” a term of reverence for some stone pedestals (e.g. Tonina Monuments 95 & 182), stone panels (e.g. Palenque’s Tablet of the 96 Glyphs; Pomona, Fragmented Panel), and stone altars (e.g. Emeliano Zapata, Panel 1), of the Tonina king (the title *ux winakhab ajaw* at G refers to the contemporary king, his name is found in the next text panel) (Figure 9a). Now note the bat sign employed for the syllable **xu**; it has a small T521 **WINIK** sign in its mouth. The word *winik* means “man/hombre; gente” (Kaufman 2003: 86-87).

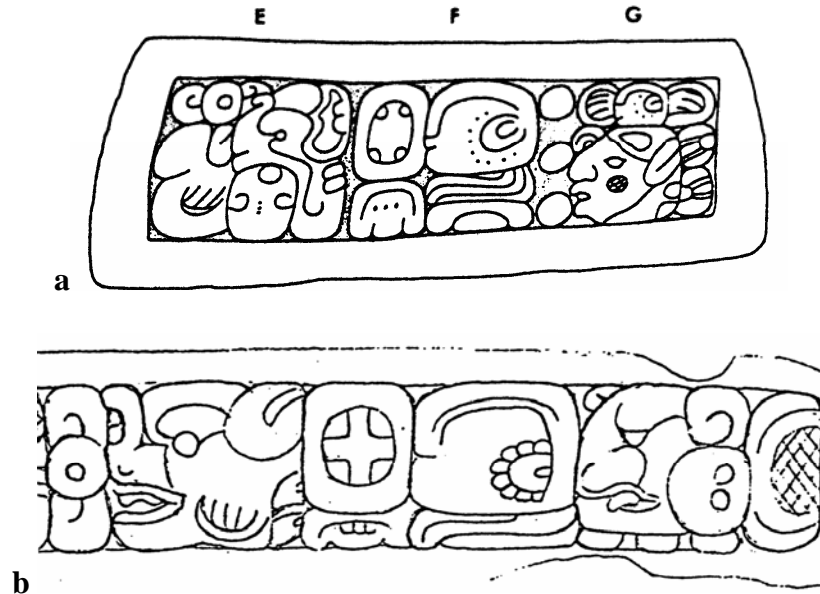


Figure 9: Examples of bat signs at Tonina: a) one of the sides of Tonina Monument 95 (drawing by Peter Mathews), b) one of the sides of Monument 182 (drawing by David Stuart)

For this particular iconic inclusion I present a tentative mythological explanation: as the sacred book of the K’iche’ of Highland Guatemala the Popol Vuh indicates, at a certain point the hero twins entered the house of the Kama’ Zotz’ or “Death Bat” (Christenson 2007: 160). In this house, named Zotz’iha (“Bat House”), people were eaten by bats (in this house the head of Hunahpu is cut off by the Kama’ Zotz’). The bat is thus a ferocious animal, associated with death. Perhaps the glyphic representation of the bat holding the *winik* “man/hombre; gente” sign in its mouth refers to this part of the myth or a comparable myth. This explanation may find some support in another hieroglyphic animal sign; also the sign **KOJ** “puma” (e.g. Piedras Negras Ruler 3 name), a predatory feline, has a T521 **WINIK** sign in its mouth.

The example at Tonina of the **xu** bat head with infixed T521 **WINIK** sign is at present unique to monumental sculpture. A parallel dedicatory text on Monument 182 employs a regular version of the T756a-b bat sign in the spelling **yu-[lu]xu~yu-xu[lu]** (Figure 9b).¹⁵

In the above examples the T756a-b bat sign was employed by Maya scribes as the logogram **SUTZ’** and as the syllabograms **tz’i** and **xu**. However, the T756a-b bat sign occurs in yet another context, although at present the example is “unique.”¹⁶

In this particular context the T756a-b bat sign is employed as the syllabic sign for **’u**. This most interesting example can be found on a ceramic vessel that carries the paramount title of Hix Witz (as *hix witz ajaw*), Kerr No. 1387 (Figure 10). The rim text on this vessel is a local adaption of the standardized dedicatory formula and contains the sequence **’u tz’i-ba li**, in which the sign for **’u** is a bat sign. The scribe employs T263a as the sign for **tz’i**.



Figure 10: The phrase **'u tz'i-ba-li** on Kerr No. 1387 (photograph by Justin Kerr)

The sequence **'u tz'i-ba li** can be transliterated *utz'ibal* “(it is) the/his writing.” The two small black dots within the top part of the bat head may hint at an infixed *ak'bal*-like sign (compare to Figure 8j).

In conclusion, in this essay I discussed some examples of the bat sign in Maya hieroglyphic writing, specifically in examples on ceramics. As the main sign for the month *Sotz'* it may have obtained the logographic value **SUTZ'**, based on a specific pattern of phonetic complementation and complete syllabic substitution (**SUTZ'**, **su-SUTZ'**, **SUTZ'-tz'i**, **su-tz'i**) (Figure 3).

As a phonetic sign **tz'i** it can be found employed in spellings as **'u-tz'i-ba-li** for *utz'ibal* “(it is) the/his writing” (Figures 5-6) This value is generally accepted among epigraphers and T756a-b **tz'i** substitutes for T263a **tz'i**, as evidenced by Stuart (1987: 1-4), for which several other contexts can be provided (e.g. the Kerr No. 8019 *putz'* bone needles, with **pu-tz'i** spellings). However, there are other spellings that suggest yet another syllabic value for the T756a-b sign, namely **xu** (Lopes and Davletshin 2004: 5-6), as first suggested by Nikolai Grube. With its putative value **xu** the bat sign is employed in the spelling **ya-xu**, possibly for *yaxu[n]* “lovely cotinga” (Figures 8a,b).¹⁷ As a remote possibility I would like to suggest that both syllabic values are onomatopoeic in origin. The **tz'i** syllabic value is possibly based on the sharp chirping (*tz'irping*) sound produced by many bat species (for echolocation purposes), while the **xu** syllabic value may be based on the sound huge swarms of bats produce as they leave their places of rest, like caves or the now vacated rooms among the Late Classic ruins (e.g. the bats at the Governor's Palace at Uxmal, a most impressive spectacle).

A final example (and “unique”) presented in this essay on the T756a-b bat sign provided a context in which the sign clearly obtained yet another syllabic value, namely **'u**. The bat sign, depending on context so it seems, may thus have had multiple values, namely **SUTZ'**, **tz'i**, **xu**, and **'u**. A full diachronic and synchronic study may show if indeed different bat species and thus perhaps different names for bats provided the templates for the bat sign and ultimately the different values.

In this essay also the naturalistic portraiture of the bat sign, as described by Thompson, was discussed in some detail, and images of several leaf-nosed bat species were provided (Figures 4-5). In a future essay the bat in Classic Maya iconography will be discussed at more length.

Acknowledgments

For comments on an earlier version of this essay I thank Barbara MacLeod, Jennifer Newman, and Christian Prager. Their comments and suggestions guided the improvements made in the present version; however, any remaining mistakes and/or fallacies are the sole responsibility of the author. As always, unless otherwise stated, the opinions expressed in this essay are mine.

Endnotes

1) Already Seler (1908 [1894]: 648) and Tozzer (1910: 365) note that on Dresden Codex Page 17B-C and 38B one can find the bat glyph. Perhaps Thompson considered this to be a different sign (due to the infixed sign in the mouth area on Page 17B-C?), but, if he did, he did not provide a separate entry in his catalog. In 1956, Zimmermann cataloged the bat sign as his Glyph 722. He included the examples on Dresden Pages 46 and 47, as well as Page 38B, but was doubtful if the last example belonged there (Zimmermann 1956: 67).

2) In this essay, in transcription bold face capital letters refer to logographic signs or logograms (e.g. **SUTZ'**), while bold face normal letters refer to syllabic signs or syllabograms (e.g. **su**). Transliterations are placed in italic letters (e.g. *sutz'*). Translations are placed between quotation marks (e.g. "bat"). There is no reconstruction of possible complex vowels (-VV-, -V'V-, -V[V]h-), either in the root or the suffix of words. In this essay, I refer to the hieroglyphic texts most commonly placed around the rim of a ceramic vessel as dedicatory texts as they contain a variation of a standardized dedicatory formula in Classic (or "epigraphic") Maya. In other studies these texts are referred to as Primary Standard Sequence (a term introduced by Coe in 1973). It was Stuart (1995: 99), who, in regard to Classic Maya inscriptions, suggested that most texts fall within two loosely defined categories, dedicatory and narrative. He applied these terms in subsequent research and I follow his suggestion in this and previous studies on dedicatory texts on Classic Maya ceramics.

3) There is another sign that contains a small bat head, that is T267. This sign is a composite of three signs, the first of which is the small bat head. The value of the sign is still unknown. It is used as a superfix on a possible augury in the Maya codices (e.g. Dresden Codex, Page 4, C1), in the name of the Triad Progenitor at Palenque (e.g. Temple XIX, Bench, South Side: L3, M2), and in the name of Ruler 4 at Piedras Negras (e.g. Piedras Negras, Altar 2, Support 2).

4) As noted by several epigraphers, the text refers to the king of Bonampak as the subordinate lord to the king of Tonina. The monument may thus come from the (greater) Bonampak area (see for instance Miller and Martin 2004: 141).

5) The spellings **su-tz'i** and **su-SUTZ'** for *sutz'*, the word for "bat" in Ch'ol, Ch'olti' (extinct) and Ch'orti', may lend support to the thesis that Maya writing originated in the eastern Ch'olan language area and that Maya hieroglyphic texts predominantly reflect the language(s) from that area, with only occasional appearance of vernaculars (cf. Houston, Robertson, and Stuart 2000).

6) I base the reading *balun* "nine" on a collocation written '**AJ-tz'i-ba** for *aj tz'ib* on Kerr No. 0772, in which the sign for **ba** is the head variant for number 9, T1003a. In a calendar or counting context, the T1003a sign represents the number 9, either *bolon* or *balun* (in nominal context, specifically in mythological narratives, T1003a reads Yax Balam). However, in the context of the Aj Tz'ib title, there is not a single example that employs the syllabic sign for **bo** (which would be acrophonically derived from *bolon*). Based on the fact that **ba** is one of the preferred signs (the other is **bi**, but in a different context), I take T1003a to represent **BALUN**, which in this Late Classic context was reduced to simply **ba**. In Late Classic contexts there are other examples in which CVCVC words acrophonically were reduced to CV syllabic signs. Note the **BALAM** sign in one of the Tonina Stucco Façade texts (in the phrase **ba-CH'AK-ka-ja-'u-K'AB**) or the **BALAM** sign in the dedicatory text on Kerr No. 2206 (in the phrase '**u-tz'i ba-li**).

7) The wingspan of the American false vampire can be as wide as 92 centimeters (36 inches) and the body can weigh as much as 185 grams (6.5 ounces) (Roots 2006: 120). Navarro L. and Wilson (1982: 1) state that the wingspan generally measures between 0.7 and 1.0 meter; the typical leaf-element of the American false vampire is large, on average some 17 mm. The "known range of [the American false vampire] is from Veracruz, Mexico, south to Trinidad, Central Brazil, and Peru," with the southern boundary at 14°S (Navarro L. and Wilson 1982: 1, Figure 3).

8) Note the infixed **TE'** sign in the mouth of the bat. Here *te'* operates as the optional numerical classifier.

9) In Maya iconography, a large spot covers the tip of the feather, a line of smaller dots descends down the feather. This pattern is common to feathers on several species of raptorial birds (e.g. note sparrow hawk on Kerr No. 0530 or the harpy eagle body on a fallen sand stone block from Tonina [Miller and Martin 2004: 145]). The pattern of leafs is different, as can be seen in early examples of T115 **YOP** "leaf." Also note the huge (tobacco) leaf in the headdress of the ruler depicted on Piedras Negras Stela 5.

10) Also Tozzer (1910: 365) considers the different species that may have provided the template for the bat sign. He provides the names of three species, *Vampyrus spectrum*, *Artibeus jamaicensis*, and *Phyllostomos hastatus panamensis*.

11) The lower right corner of the Caracol variant of the bat sign shows a T281 *k'an*-like infixed sign, common to for instance T757 **BAH/ba**. There are other examples of bat signs that have this particular infix, for instance Kerr No. 2803.

12) See for instance Kerr Nos. 2993, 3034, 5436, 5446, and two vessels excavated at Altun Ha' itself (cataloged as RP 276-001 and RP 336-002). The GOD.N dedicatory verb is not exclusively common to dedicatory texts from Altun Ha', it is for instance also common to dedicatory texts from the Nebaj (e.g. The Fenton Vase, Kerr No. 0558,) and Chama area (e.g. Kerr No. 6999), the Xultun area (e.g. Kerr Nos. 1547, 3743), the Naranjo-Buenavista del Cayo-Holmul area (e.g. Kerr Nos. 4379, 4464, 5977, 7750), as well as Yotz (e.g. Plate in German Collection, Kerr No. 7786). On rare occasions it is employed in Codex Style and related ceramics (e.g. Kerr Nos. 1872, 3230, 8457), in a text possibly from Hix Witz (e.g. Kerr No. 3636), on ceramics from Los Alacranes (e.g. Kerr Nos. 5241, 7524), and in Chochola Style related texts (e.g. The San Diego Bowl, Kerr No. 2292).

13) This particular infixation of T77 **k'i** into the **bi** serpent sign may be the origin of the vessel type collocation spelling **yu-bi** (e.g. Kerr Nos. 0681, 1335). Possibly the [**k'i**]**bi** composite became abbreviated to simply **bi**. Alternatively, a different ordering of the signs **yu-k'i-bi** may have led to the **yu-bi** spellings. Note as such Kerr No. 7190, which provides the double vessel type spelling **yu-bi-k'i yu-k'i-bi** (in previous research I interpreted this spelling, erroneously, as **yu-bi-li yu-k'i-bi**, Boot 2005: 11). Spellings **yu-bi**, in any regional style, may thus be abbreviations of the spelling **yu-bi-k'i**, in which final **-k'i** was dropped.

As I suggested at another occasion (Boot 2005: 10-11), the **yu-bi** spelling may be a valid spelling for an alternative vessel type *yub* (perhaps *yubil*), based on the noun *ub* "smeared or painted object."

14) A large Holmul style plate, now on exhibit at the Museum of Fine Arts in Boston (and cataloged as MS0605), also contains a combination of a readable, "real" or "true," text and "pseudo-text." The readable text is painted on the floor of the plate, while the "pseudo-text" run along the inside rim of the plate. For a photograph and drawing of these particular texts, see Reents-Budet 1994: 84-85.

15) The two texts at Tonina actually may read *yuxul k'antunil*. This would explain the prefixed third person possessive pronoun *y-* on *ulux* "carving" and the possessive suffix *-il* on *k'antun* "precious (i.e. ripe, completed) stone." *Uxul k'antun* would thus be a composite noun; perhaps based on the order **yu-lu-xu** also *ulux k'antun* may be a valid option. That *ulux* (see note 17) may be an actually root, note as such the spelling **K'AL-ja ji-chi 'u-lu-xu na-ja** on Kerr No. 8076.

16) Kerr No. 8815 is a carved ceramic with an incised dedicatory text around the rim. This text contains a sequence that can be transcribed as 'u T756 **tz'i-ba li**, which may be either 'u 'u **tz'i-ba li** or 'u **tz'i tz'i-ba li**. But more importantly, at present I am not sure if the incised text is of ancient origin as certain details in the incised text are "out of the ordinary."

17) The most common context in which the T756a-b seems to function as **xu** is within the context of the spellings **yu-lu-xu** (see Figure 9), **yu-xu-lu-li/yu-xu-li** (e.g. Kerr Nos. 3199, 8017, 8254), and **yu-lu-xu-li** (e.g. Kerr No. 3844), both on carved monuments (see Figure 9 in this essay for two examples from Tonina) and carved and incised ceramics. Barbara MacLeod has researched these spellings for many years, although her most recent suggestions, from the period 2003-2009, have not yet been published. Possibly the spellings **yu-lu-xu-li** hint at a paired expression **ul-xul* "gouge, skewer (*ul*) - slice, cut (*xul*)" (MacLeod, personal communication via e-mail, January 10, 2009). There are spellings **yu-lu-xu** and **'u-lu-xu**, which do not have a final **-IV** sign, but MacLeod considers these to be abbreviated spellings (personal communication via e-mail, January 14, 2009). Also note the two spellings **yu-xu-li-li** in the inscription of the Akab Dzib Lintel at Chichen Itza, which hint at an *-il* possessive suffix. As space is limited in this essay, a full analysis of these spellings has to await another occasion.

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