



Glyph Dwellers

Report 87

December 2023

A New Drawing of the Maya Femur in the Yale University Art Gallery

Matthew Looper

Department of Art and Art History, California State University Chico

The collection at the Yale University Art Gallery includes a human femur carved with a Mayan hieroglyphic text and a human figure.¹ Acquired by the Gallery in 1991, the work was illustrated and discussed in detail shortly thereafter in an article by Adam Herring, published in the *Yale University Art Gallery Bulletin* (Herring 1995; see also Anonymous 1992:163). In his article, Herring discussed this object in the context of carved trophy bones in Maya art and posited a likely Late-Terminal Classic Puuc origin for it, based largely on the iconography and style of carving. After examining the femur in Spring 2023, I redrew it to represent its text and image more accurately (**Fig. 1**). In this report, I make several observations about the femur's text, while acknowledging the contributions previously made by Herring.

The object in its current state exhibits highly varied preservation, with some portions largely intact, especially toward the distal end (the top in this case), but also the proximal end. A large portion of the middle shaft is completely missing, and has been replaced by a modern restoration which, together with its mounting, provides stabilization. A human figure occupies most of the surface, while about a quarter of it—the "back"—preserves the hieroglyphic text. The restored length of the bone is approximately 30.5 cm, which is somewhat small compared to the maximum sizes of femurs recovered from Classic Maya burials. For example, Márquez and del Angel (1997:Table 4.3) give a mean of 41.62 cm for male and 38.99 cm for female femurs.

¹ Additional details and images can be found on the Yale University Art Gallery website: <https://artgallery.yale.edu/collections/objects/59084>

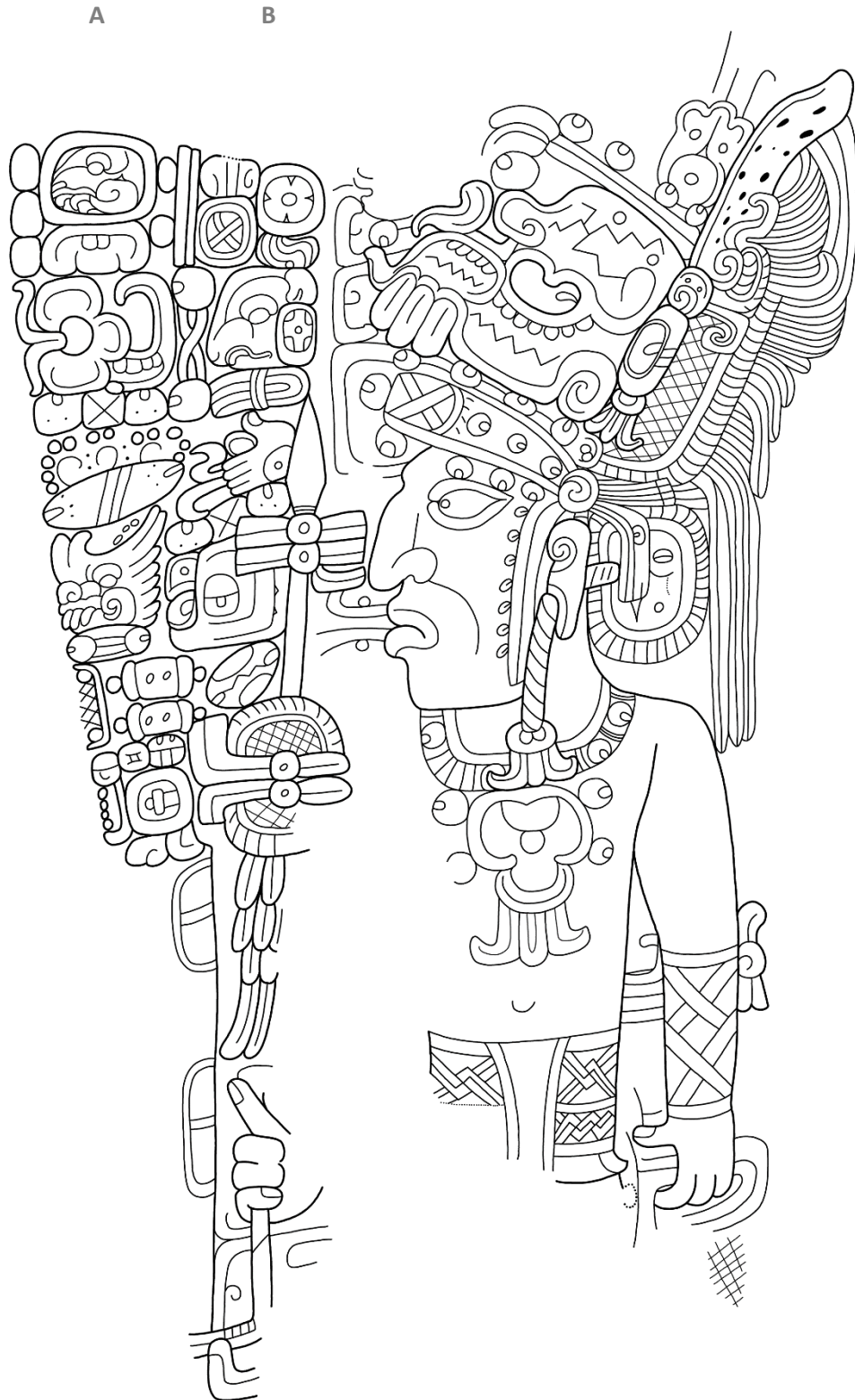


Fig. 1a. Bone Carved with a Male Figure and an Inscription. A.D. 750–1000. Yale University Art Gallery 1991.130.1. Purchased with a gift from Frederick R. Mayer, B.A. 1950, and the Leonard C. Hanna, Jr., Class of 1913, Fund. Rollout drawing of upper section by Matthew Looper.

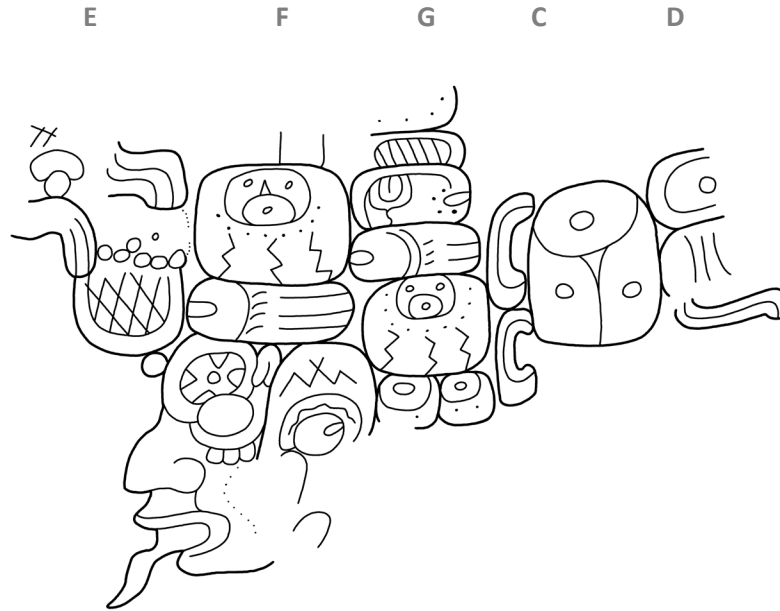


Fig. 1b. Bone Carved with a Male Figure and an Inscription. A.D. 750–1000. Yale University Art Gallery 1991.130.1. Purchased with a gift from Frederick R. Mayer, B.A. 1950, and the Leonard C. Hanna, Jr., Class of 1913, Fund. Rollout drawing of lower section by Matthew Looper.

The portrayed figure is a male facing to the viewer's left and wearing a headband marked with crossed-bands and studded with numerous disembodied eyeballs. The knotted fastening of the headband appears above the ear, which is perforated by a rope. The rope dangles downwards to the neck and terminates in a trefoil element. The space behind the head is filled in by a feathered disk, and a lock of hair, decorated with small beads, descends in front of the ear. The main personification head of the headdress has the form of a skeletal centipede, also adorned with disembodied eyeballs. Breath scrolls emerge from its mouth and nostril. The personification head has a mirror-marked earflare topped by a scroll and with a pendant trefoil element below. Behind this assembly extends a large "wing" consisting of a semi-oval crosshatched panel with a cut-feather border out of which longer quetzal feathers emerge, spreading upwards and downwards towards the back. There is also a large stuffed spotted tail, probably that of a jaguar, that projects upward from the rear of the headdress, as well as a bivalve shell-like T533 **AJAW** face at the very top of the headdress.

The figure's necklace consists of a feathered band studded with eyeballs, from which hangs a pectoral with a lobed shape, eyeball decorations, and pendant trefoil element. The motif inscribed inside the pectoral is probably the T503 **IK'** "wind" glyph identifying the ornament as a jadeite jewel (see Taube 2005). The figure's belt is partly visible, composed of two horizontal bands of interlace patterning, and the loose end of the loincloth hangs over the front. The left forearm, which is visible, is wrapped from wrist to elbow in diagonal interlacing and knotted at the elbow. Although the area adjacent to the figure's left hand is damaged, he may be holding a bag, shield, or possibly a "Toltec"-style spear thrower (Burdick 2010:123). In his right hand, he holds a spear which has double-tied bands just below the point. Halfway down the shaft, between the point and his hand is a feathered disk, also decorated with double-tied bands

and with several tiers of feathers below. Adjacent to the spear are a pair of mirror-signs which seem to fill in the empty space below the upper glyphic text.

As remarked by Herring, the Yale femur image conveys an overall martial theme, particularly through the skeletal headdress of the figure and by the spear that he holds. The symbolism of death is also conveyed by the abundance of disembodied eyeballs that decorate the figure's headband, necklace, and pectoral. The emphasis on warfare seen here is also found on another carved human femur published by Coe (1973:cat. 82). Like the Yale femur, this bone has a full-length portrait of a warrior holding a spear carved on one side, while a hieroglyphic text occupies the other. Femurs are also associated with sacrificial imagery in Maya art, as in the murals of Bonampak Room 3. Here, two of the principal dancers preside over a captive sacrifice, dancing with axes made from blood-stained femurs (**Fig. 2**; Miller and Brittenham 2013:138). However, it is not certain that all of these are human bones, versus those of some other large mammal like a white-tailed deer, which may have femora measuring up to about 28 cm in length. In Maya art, femurs are also part of the iconography of Akan, a deity of death and drunkenness (Grube 2004a; Taube 2018:33).



Fig. 2. Bonampak, Room 3, detail South Wall, Mexico, Maya, 791 CE. (Reconstruction, Yale University Art Gallery, Gift of Bonampak Documentation Project, illustrated by Heather Hurst and Leonard Ashby).

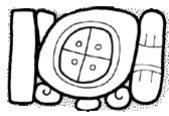


The human femur seems to have special martial symbolism not only among the ancient Maya, but elsewhere in Mesoamerica (Burdick 2010:121-127; see also Helmke 2020). For example, Sahagún (1981:59–60) indicates that as part of the captive sacrifice ritual sequence of Tlacaxipehualiztli, the captor of the sacrificial victim hung his victim's femur, wrapped in paper and dressed in a jacket, feathers, and a mask, from the top of a pole. This trophy/offering was thereafter referred to as a "god captive." However, femurs may also have been kept as relics of deceased ancestors. This is suggested by some royal burials such as Tikal Burial 85, which was missing both the cranium and femurs (Coe 1990:147). Another example is a perforator fashioned from a human femur from Ek' Balam (Misc. Text 7), the text of which indicates that it was a bone from the body of (*ubaakel*) the priest (*ajk'uhu'n*) Ukit Ahkan, who is presumed to be the father of the ruler with whom the bone was buried, Ukit Kan Le'k To'k' (Fitzsimmons 2009:169; Lacadena García-Gallo 2004:79–83, 107–108; Vargas de la Peña et al. 2020:376–377). In this case, the text clearly states that the bone was a relic taken from the burial of a priest, carved, and then interred with another individual, possibly his son.

The "back" of the Yale femur is inscribed with a hieroglyphic text that was arranged into two sections. The upper clause, roughly aligned with the head and shoulders of the figure on the other side, is complete and mostly readable. It is organized into two columns and six rows, though these are not perfectly gridded, owing to the thinning of the bone towards the middle of the shaft. The lower text, however, is very incomplete, and seems to have wrapped around most of the lower section (the proximal end) of the femur. There are at least five columns and an unknown number of rows in this section, though again, the grid is not readily apparent. As a result, the understanding of the lower text is incomplete.

The upper text begins with a Calendar Round (CR) date of 3 Chikchan *12 Wo/Sip followed by *k'in* or *uk'inil* 'day' (A1-B1). Interestingly, here we see the use of a T23 -*na* phonetic complement for the day Chikchan. This is unique, suggesting that the value of the 'snake' logogram in the day sign context might have been identical to its value outside of this context (**CHAN/KAN**), though **CHIKCHAN** is also possible, given the northern Yucatan origin of the work. Such complementation patterns are not common in Maya texts, found in various regions during the Late Classic period, including **LAMBAT?-ta** at Copan and on the "Zurich Panel," **KAB-ba** at Chunchimay 2, and **a-AJAW-wa** at Chuncanob (Fig. 3).²

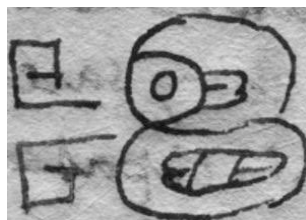
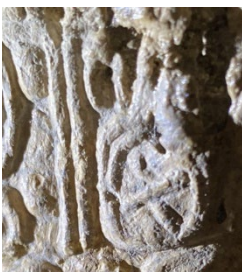
² At Palenque, a **la** sign sometimes appears postfixed to the **AJAW** day sign, possibly indicating a suffix -*al* for the day name, and therefore likely corresponding to the equivalent of this day in Ch'ol and Tzeltal, Ajwal.



- a. Day name **CHAN/** with **-na** complement. b. Day name **LAMBAT?** with **-ta** complement. c. Day name **KAB** with **-ba** complement. d. Day name **AJAW** with **a-** and **-wa** complements.

Fig. 3. Examples of phonetic complements on logograms representing day names in the 260-day cycle. **a.** Yale femur, block A1. Photo by author; **b.** Zurich Panel C3. Drawing by Alexandre Safronov, https://wayeb.org/drawings/col_stendahl_panel.png; **c.** Chunchimay 2 Capstone pA1. Drawing by author; **d.** Chuncanob Capstone 1 E. Drawing by Daniel Graña-Behrens, after Graña-Behrens (2002: Taf. 47).

The crossed-bands **AT** logogram that appears with the 365-day position indicates either **Wo** or **Sip**, though the superfix is not clearly either **IK'** or **CHAK**, which would be expected in each case (**Fig. 4a**). One possibility is that the superfix is T67 **wo**, in which case, the month could be a bilingual spelling of **Wo/Ihk'at**, similar to the spelling of the month in Landa's *Relación de las Cosas de Yucatan* as **wo-ik'-AT**, in which the first grapheme cues the Yucatecan name for the month **Wo**, followed by the two graphemes used canonically in earlier Ch'olan-language texts (**Fig. 4b**; for various examples and interpretations, see Kettunen and Zender 2021:145–146; Lacadena and Wichmann 2002:383; Martin 1997:854; 2017; Matsumoto 2017:108). Another example of a bilingual spelling for the month appears at Terminal Classic Chichen Itza: **IK'-ta-wo-i** (**Fig. 4c**).



- a. Femur, block B1a. b. Month **Wo** from Landa's *Relación de las Cosas de Yucatán*. c. Las Monjas Lintel 4, A4.

Fig. 4. Femur text 365-day cycle compared to bilingual spellings of the month **Wo** in northern texts. **a.** Photo by author; **b.** Photo by Harri Kettunen, after Kettunen and Zender (2021:135, Tab. 1); **c.** Drawing by Ian Graham, after Bolles (1977:271).



As Herring (1995-6:51) noted, this unorthodox method of writing the 365-day position with a coefficient of 12 rather than the expected 13 is the "Haab-plus-one" formula found commonly in Late and Terminal Classic Puuc-region texts (see also Graña-Behrens 2002:Tab. 36). The *k'in* 'day' (or *uk'inil* 'its day') reference that accompanies the CR is also seen of the Northern region during this period, though in other cases, the *k'in* follows the 260-day position, rather than the 365-day position (Graña-Behrens 2002:62–63, Abb. 24a-c). Examples include the "Brussels Slab" (from the Xcalumkin area), Xcalumkin Panel 2, and Sayil Stela 4 (Graña-Behrens 2002:319, 419, 420). Although there is no way of fixing this CR in the Long Count, several possibilities that fall within the Late-Terminal Classic period are:

9.16.8.17.5	3 Chikchan 13 Wo	8 Mar. 760
9.18.1.8.5	3 Chikchan 13 Sip	20 Mar. 792
9.19.1.12.5	3 Chikchan 13 Wo	24 Feb. 812
10.0.14.3.5	3 Chikchan 13 Sip	7 Mar. 844

The second row of the upper text begins with *yilaj* 'witnessed' (A2), followed by **u-BAH-ji**, a Late Classic spelling of *ubah* 'his image', in which the *h/j* distinction has collapsed (see Grube 2004b). The same phrase following a CR also appears in other texts, where *yilaj ubah* 'his image witnessed' introduces the name of the protagonist or the deity that the protagonist impersonates. This is the case on Ceibal Stela 9, where *yilaj ubahil [an]* precedes the name of a Waterlily Serpent deity, which is followed by a 'god-taking' expression by the ruler (**Fig. 5**). On a carved vase from the Oxkintok-area (K4732), *yilaj ubahil an* introduces the title *kaloonte* followed by the name of the protagonist (**Fig. 6**). In other cases, *yilaj ubah* introduces a *ch'ab/ahk'ab* 'power' expression, as on Chinkultic Monument 28 and the Tablet of the Scribe at Palenque. In the Palenque case, the expression is phrased in second person, rather than third person as elsewhere: *yilaj abah ach'ahbil awahk'abil* 'witnessed, your image, your power/offering (creation and darkness)' (**Fig. 7**).



Fig. 5. Ceibal Stela 9, detail of text. Photo by John Graham, MHD Archives.



Fig. 6. K4732, detail. Rollout photo by Justin Kerr.



Fig. 7. Palenque Tablet of the Scribe, detail. Photo by author.

On the femur, it is likely that *yilaj ubah* refers to the presentation of the image of the person depicted on the other side of the bone. His name seems to occupy the next four blocks. First at A3 is clearly *took'* 'flint', the spelling of which as **to-TOK'** is mostly seen in northern Late-Terminal Classic texts at Ek Balam, Chichen Itza, Yula, and Oxkintok, the only southern example being Copan Altar L. This is followed by block B3 which is composed of an open hand (T670) holding a small oval, preceded by a T122 'fire' sign (**K'AK'**) and with a T178 **-la** below the hand. In the script, the open-hand grapheme can have several different functions, depending on what it holds; in this case, the **-la** complement probably signals (**Y**)**AL** 'throw', yielding *yal k'ahk'* 'throws-fire' for this block. Next at A4 the name continues with a probable T760 **XOK** main sign with a subfixed elongated grapheme, which looks like the complement T110 **ko**, even though T102 **ki** would be expected in this context. The last component of the name at B4 includes T743 **a** or T741 **AK**. One possibility is that this block gives the final component of the personal name as *ahk*. Therefore, the name of the protagonist could be Took' Yal K'ahk' Xok Ahk.

In the next row, we see three components. The first sign is clearly T12 **AJ**, the agentive prefix. The second element consists of two stacked identical signs that look like double earflares in profile, connected by a

dotted rectangle. The last element in this row is T570 **BAK** 'bone, captive'. Given that this sequence follows the name above, it is likely that this is a numbered captive expression, and that the unknown "stacked" sign is a number. It looks suspiciously like the possible doubled T367 '6' that appears as part of a deity name on Chichen Itza Akab Dzib Lintel (see Boot 2005:309), though the critical S-curve element of the '6' allograph is absent on the femur (**Fig. 8**). Therefore, at present, I take this to be the representation of an unknown numeral.



Fig. 8. Chichen Itza Akab Dzib Lintel, C1. Photo by Ruth Krochock, MHD archives.

Finally, at A6 is *ajaw* 'lord', spelled with a main sign that includes an encircled motif similar to a profile earflare. This **AJAW** variant appears elsewhere in northern texts, including the Kabah Hieroglyphic Platform, Uxmal Altar 10, and the Halakal Lintel (**Fig. 9**). Again, this glyphic detail confirms a northern origin for the femur. In sum, the upper text of the femur gives the date, followed by the introduction to the image of the protagonist, followed by his proper name, a title referring to the number of captives he had taken, and the title 'lord'.



a. Kabah Hieroglyphic Platform, east block 1.



b. Uxmal Altar 10 A4.



c. Halakal Lintel G6.

Fig. 9. Examples of "Earflare" allograph of **AJAW** from northern texts. **a.** Drawing by Nikolai Grube and Hugo Moedano K. (Grube 1986:fig. 17); **b.** Drawing by Ian Graham (Graham 1992:115); **c.** Drawing by Ruth Krochock.



The lower text of the femur wraps around the proximal end, more-or-less opposite the projecting neck and head. At least five columns are apparent, with the only the lowermost glyphs in these columns preserved. It is not clear exactly where the text ends; however, because the column marked C in the drawing aligns approximately with the text in the upper portion of the work, I begin the analysis with this column.

The signs appearing in column C are T122 **K'AK'** (or T126 **ya**) and T178 **la**. *K'ahk'al* would be an adjectival form of 'fire', while *yal* would most likely be either 'throw' or 'speak'. The glyphs in column D, which extend partly over the lesser trochanter, are difficult to read, but the top one seems to be a disk, perhaps T511 **PET**. The sign below is missing, but it seems to end in a T116 **ni** syllabogram, yielding a possible *peeten* 'island', so perhaps this is a toponym: *K'ahk'al Peeten*. On the other side of the lesser trochanter is an irregular passage that is difficult to make out, but it seems to partly overlap onto Column E, which preserves the remains of another **ni** and a T93 **ch'a** sign. Not enough of this column is preserved to understand its function in the text.

The next column (F) begins with an unclear sign over two syllabograms: T502 **ma** and T77 **k'i**. Below this is another block, which extends onto the projecting neck, that looks like the head of the Sun God (T1010), together with a skull, possibly rendering a personal name: *K'in(ich) Jol*. But since the Sun God head can also be the numeral '4' and the skull is '10', it is possible that these graphemes spell out the number 14.




The next column (G), begins with an eroded sign that might be T501 **ba**, followed by **ka-KAB**. If the identification of the upper sign is correct, then this may be a title familiar from many Maya texts, *bahkab*, literally 'first (on) earth'. The **ka-KAB** spelling here is particularly prominent in texts from Chocholá ceramics, which come from the Oxkintok area of Campeche. This provides additional support for the assignment of this object to the northern Maya area. The next block in this column is T77:502:178 **k'i-ma-la**, of unknown significance, though Martha Macri (pers. comm., 2023) notes that the resulting term, *k'imal*, is similar to a toponym located to the west of Izamal in the province of Ah K'in Ch'el, *K'imbila'* (modern Kimbilá; Barrera Vásquez, Bastarrachea Manzano, and Brito Sansores 1980:400). If related, this usage would again be consistent with the proposed northern provenance for the femur.

In sum, the lower text is mostly of unknown significance, though at least one column preserves a title. This suggests that the other parts of this text may provide additional names and titles, possibly pertaining to the person mentioned in the upper text, or possibly to a relative. Without the intervening middle portion of this object, it is impossible to understand its overall content.




Table 1. Text of femur (Bone Carved with a Male Figure and an Inscription. A.D. 750–1000. Yale University Art Gallery 1991.130.1. Purchased with a gift from Frederick R. Mayer, B.A. 1950, and the Leonard C. Hanna, Jr., Class of 1913, Fund). Photos by Matthew Looper.



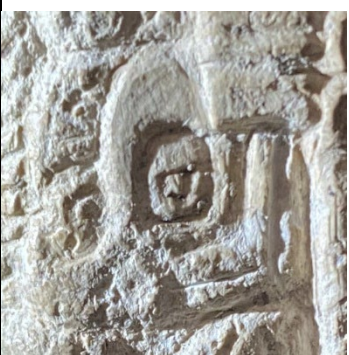
Upper text

	A1	4 CHAN/KAN/ CHIKCHAN-na	chan/kan chan/kan/chik- chan	4 Chikchan
	B1a	12 wo/IK'/CHAK- AT	lajchan/lajka' ihk'at/chakat/wo	12 Wo/Sip
	B1b	K'IN-ni	k'in/k'inil	day







	A2	ILA-la-ja	<i>yilaj</i>	witnessed
	B2	u-BAH-ji	ubah	his image
	A3	to-TOK'	took'	Took' [part of name]


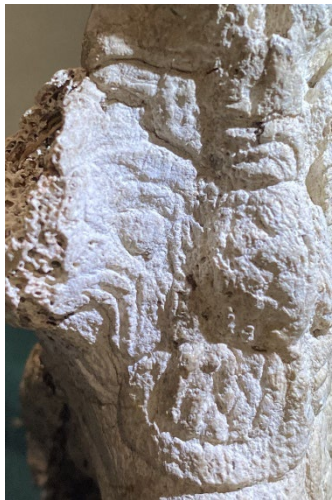



	B3	(Y)AL-la-K'AK'	yal k'ahk'	Yal K'ahk' [part of name]
	A4	XOK?-ko?	xok?	Xok? [part of name]
	B4	a/AK	ahk?	Ahk? [part of name]



	A5	aj-??	aj ??	he of ??
	B5	BAK	baak	captives
	A6	a-AJAW-wa	ajaw	lord
Lower text				
	C1	K'AK'?-la	k'ahk'al?	K'ahk'al?



	D1	PET?-ta?-ni	peeten?	Peeten?
	E1	??-ni?-ch'a	??	??
	F1	??-ma-k'i	??	??



	F2	K'IN?-JOL?	k'inich jol?	K'inich Jol?
	G1	ba?-ka-KAB	bahkab?	first-on-earth?
	G2	k'i-ma-la	??	??

Acknowledgments: I would like to thank Megan S. Doyon at Yale for providing access to this object as well as for sharing materials relating to it. I also thank Martha J. Macri, Yuriy Polyukhovych, Maksym Styuflyayev, and David Mora-Marín for helpful comments on the essay. I am very grateful to Justin Kerr for his kind permission to publish his rollout photographs of Maya vessels and still photographs of other objects. Thanks as well to Mary Miller for allowing me to include a detail of the rendering of the Bonampak murals.

**References:**

Anonymous

1992 Acquisitions: 1991. *Yale University Art Gallery Bulletin*. [Yale University, Yale University Art Gallery]: 95–165, 2.

Barrera Vásquez, Alfredo, Juan Ramón Bastarrachea Manzano, and William Brito Sansores

1980 *Diccionario Maya Cordemex: Maya–Español, Español–Maya*. Mérida, Yucatán: Ediciones Cordemex.

Bolles, John S

1977 *Las Monjas: A Major Pre-Mexican Architectural Complex at Chichén Itzá*. Norman: University of Oklahoma Press.

Boot, Erik

2005 *Continuity and Change in Text and Image at Chichén Itzá, Yucatán, Mexico: A Study of the Inscriptions, Iconography, and Architecture at a Late Classic to Early Postclassic Maya Site*. Leiden: CNWS Publications.

Burdick, Catherine

2010 Text and Image in Classic Maya Sculpture: A.D. 600-900. Ph.D. dissertation, University of Illinois at Chicago.

Coe, Michael D.

1973 *The Maya Scribe and His World*. New York: Grolier Club.

Coe, William R

1990 *Excavations in the Great Plaza, North Terrace, and North Acropolis of Tikal*. Tikal Report 14. Philadelphia, PA: University Museum.

Fitzsimmons, James L

2009 *Death and the Classic Maya Kings*. Austin: University of Texas Press.

Graham, Ian

1992 *Uxmal*. Corpus of Maya Hieroglyphic Inscriptions 4(2). Cambridge, Massachusetts: Peabody Museum of Archaeology and Ethnology, Harvard University.

Graña-Behrens, Daniel

2002 Die Maya-Inschriften Aus Nordwestyukatan, Mexiko. Ph.D. dissertation, Ph.D. dissertation, Rheinische Friedrich-Wilhelms-Universität.

Grube, Nikolai

1986 Die Hieroglyphenplattform von Kabah, Yucatan, Mexico. *Mexicon* 8(1): 13–18.



2004a Akan—the God of Drinking, Disease, and Death. In *Continuity and Change: Maya Religious Practices in Temporal Perspective*. Daniel Graña-Behrens, Nikolai Grube, Christian M. Prager, et al., eds. Pp. 59–76. Acta Mesoamericana. Markt Schwaben: Verlag Anton Saurwein.

2004b The Orthographic Distinction between Velar and Glottal Spirants in Maya Hieroglyphic Writing. In *The Linguistics of Maya Writing*. Søren Wichmann, ed. Pp. 61–81. Salt Lake City: University of Utah Press.

Helmke, Christophe

2020 Tactics, Trophies, and Titles: A Comparative Perspective on Ancient Maya Raiding. *Ancient Mesoamerica* 31(1): 29–46.

Herring, Adam

1995 After Life: A Carved Maya Bone from Xcalumkin. *Yale University Art Gallery Bulletin*: 48–63.

Kettunen, Harri, and Marc Zender

2021 The “Month Signs” in Diego de Landa’s *Relacion de Las Cosas de Yucatan*. *The Mayanist* 3(1): 131–152.

Lacadena García-Gallo, Alfonso

2004 The Glyphic Corpus of Ek’ Balam, Yucatan, Mexico. Crystal River, Florida: Foundation for the Advancement of Mesoamerican Studies.

Lacadena García-Gallo, Alfonso, and Søren Wichmann

2002 The Distribution of Lowland Maya Languages in the Classic Period. In *La Organización Social Entre Los Mayas: Memoria de La Tercera Mesa Redonda de Palenque*. Vera Tiesler Blos, ed. Pp. 277–326. Mexico City: Instituto Nacional de Antropología e Historia.

Márquez, Lourdes, and Andrés del Angel

1997 Height among the Prehispanic Maya of the Yucatán Peninsula: A Reconsideration. In *Bones of the Maya: Studies of Ancient Skeletons*. David M. Reed and Stephen L. Whittington, eds. Pp. 51–61. Washington, D.C.: Smithsonian Institution Press.

Martin, Simon

1997 The Painted King List: A Commentary on Codex-Style Dynastic Vases. In *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases*, vol. 5. Justin Kerr and Barbara Kerr, eds. Pp. 846–867. New York: Kerr Associates.

2017 Secrets of the Painted King List: Recovering the Early History of the Snake Dynasty. Maya Decipherment: Ideas on Ancient Maya Writing and Iconography: Posted May 5, 2017. <https://mayadecipherment.com/2017/05/05/secrets-of-the-painted-king-list-recovering-the-early-history-of-the-snake-dynasty/>.

Matsumoto, Mallory

2017 From Sound to Symbol: Orthographic Semantization in Maya Hieroglyphic Writing. *Writing Systems Research* 9(2): 99–122.

Miller, Mary Ellen, and Claudia Brittenham



2013 *The Spectacle of the Late Maya Court: Reflections on the Murals of Bonampak*. Austin: University of Texas Press.

Sahagún, Bernardino de

1981 *Florentine Codex: General History of the Things of New Spain. Book 2: The Ceremonies*. Arthur J. O. Anderson and C. E. Dibble, trans. Monographs of the School of American Research, No. 14, Part III. Santa Fe and Salt Lake City: School of American Research and University of Utah Press.

Taube, Karl A

2005 The Symbolism of Jade in Classic Maya Religion. *Ancient Mesoamerica* 16(1): 23–50.

2018 Author's Introduction. In *Studies in Ancient Mesoamerican Art and Architecture: Selected Works by Karl Andreas Taube*, Vol. 1. Marc Zender, Joel Skidmore, and Chip Breitwieser, eds. Pp. 12–75. San Francisco: Precolumbia Mesoweb Press.

Vargas de la Peña, Leticia, Alejandra Alonso Olvera, Victor Castillo Borges, and Alfonso Lacadena García-Gallo

2020 Ek' Balam: A Maya City in the Urban Landscape of Yucatan. In *The Maya World*. Scott R Hutson and Traci Ardren, eds. Pp. 364–383. London and New York: Routledge.

Glyph Dwellers is an occasional publication of the Maya Hieroglyphic Database Project at California State University, Chico, California. Its purpose is to make available recent discoveries about ancient Maya culture, history, iconography, and Mayan historical linguistics deriving from the project.

Funding for the Maya Hieroglyphic Database Project is provided by the National Endowment for the Humanities, grants #RT21365-92, RT21608-94, PA22844-96, the National Science Foundation, grants #SBR9710961 and IBSS1328928, the Department of Native American Studies, University of California, Davis, and the Department of Art and Art History, California State University, Chico. Additional funding for this project was provided by a Franklin Research Grant from the American Philosophical Society.

© 2023 Matthew G. Looper. All rights reserved. Written material and artwork appearing in these reports may not be republished or duplicated for profit. Citation of more than one paragraph requires written permission of the publisher. No copies of this work may be distributed electronically, in whole or in part, without express written permission from the publisher.

ISSN 1097-3737