



***Aztlander Scholarly Focus:* Rich A. Sandoval**

Continuing the Decipherment of Ancient Maya Textual Hand Signs: Altar Q and Beyond

Ancient Maya texts, from monuments and murals to painted pots and codices, combine hieroglyphic writing with richly layered iconography featuring rulers, deities, and other figures. A page from the Dresden Codex (**Fig. 1**) displays these elements in typical codex style. While facial features, body poses, and dress draw the eye, the precisely formed hands prove particularly intriguing. Their deliberate placement and meticulous shaping reveal how important hands were to Maya scribes. Yet what the scribes intended to convey has remained largely impenetrable.

A few ideas about specific hand-sign meanings have emerged, but without verification. The variation and patterning suggest something more complex than mere gestures – those spontaneous movements speakers use for emphasis or emotion. Instead, these hand forms resemble elements of signed language, making “hand signs” a more accurate term than “gestures.” Researchers familiar with Indigenous American signed language traditions have long suspected this connection. I’m among them, having studied how Arapaho combines spoken and signed language. But it took a visit to Copan in 2019 to really draw me to this mystery. I started with three working assumptions: First, these hand forms derive from signed language practices and can be formally differentiated as hand signs, each encoding concrete semantic meaning. Second, though formed as hands, they function as graphic symbols of a script and should be analyzed accordingly. Third, scribes used them not to supplement or duplicate hieroglyphic content, but to convey complementary information, much like the sign-speech combinations I studied previously.

I used these working assumptions to develop an approach that avoided past pitfalls. This required treating the problem as an issue of decipherment rather than iconographic interpretation. I could not base my analysis solely on visual similarities between hand forms and hieroglyphic imagery or forms from known sign languages. Sign-language analysis would only help define each hand form relative to others in a set. Beyond that, I needed to treat hand forms as graphic symbols of a script.

This meant identifying a highly controlled dataset with sufficient hand forms for strong formal analysis and some analyzable relationship between the hands and hieroglyphic writing or other specific information. Ideally, I needed a text with hieroglyphs that could reveal meanings of accompanying hand signs. A perfect Rosetta Stone



Fig. 1: The upper sections of page 9 of the Dresden Codex, shown here, exemplify the scribal integration of hieroglyphic-block writing, bar-and-dot numerals and figures with distinctly formed hands. Credit: The World Digital Library, retrieved from the Library of Congress Web Archives at: <https://www.loc.gov/item/2021667917>

was unlikely given my assumption that scribes composed texts with hieroglyphs and hand signs as complementary rather than redundant information. And no known texts even hint at a mapping between hieroglyphs and hand signs. I settled on Classic Copan’s Altar Q from the late 700s as the best option (**Fig. 2**). With 16 figures holding varied and patterned hand forms, this single text contained a relatively large, controlled set. It also offered well-documented features:

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a substantial, reasonably understood hieroglyphic inscription and associations with other texts and monuments. Its design also suggested complex interplay between the 16 figures and the hieroglyphic inscription.

My decipherment appeared in *Transactions of the Philological Society* in July 2025, titled “The Ancient Maya Script of Hand Forms Embedded in Figural Art: A Decipherment of Numerals Signed by the Rulers of Altar Q.” I demonstrate that hand signs of the four rulers on each Altar Q side panel encode the lower numbers of a specific Long Count date. The findings for each panel are verified through converging independent lines of evidence.

The East Panel provides the clearest example (**Fig. 3**). From left to right, the depicted rulers’ hand signs encode 0, 2, 0, and 0. Together with a hieroglyphic 9 embedded in the panel’s upper portion, this constitutes the Long Count date 9.0.2.0.0. The formal analysis emphasizes what is visually apparent, being that the hand forms of Rulers 10, 8, and 7 are identical, while Ruler 9’s differs, yielding pattern X Y X X. This pattern unmistakably matches hieroglyphic patterns in Long Count dates. Period Endings, among the most common Long Count expressions, typically end with two 0s and are practically the only hieroglyphic sequences ending with two identical symbols. From this we can hypothesize X = 0. Independently, the left handshape of rulers holding these hypothesized 0s matches the handshape used in a hieroglyphic head variant of numeral 0, while Ruler 9’s left handshape matches the handshape used in a hieroglyphic head variant of numeral 2 (**Fig. 4**).

A separate line of evidence emerges from context. The date 9.0.2.0.0 marks the death of Ruler 1, Yax K’uk Mo’, founder of the Copan dynasty and central to Altar Q’s narrative. Altar Q sits feet from his pyramid tomb. This panel faces both the pyramid and east, the ritual direction of beginnings aligned with the rising sun. Inside the pyramid, the Xukpi Stone commemorates 9.0.2.0.0. Altar Q functions not merely as sculptural text but as a ritual foursquare cosmogram (**Fig. 5**) constructing the entire 9th Bak’tun as the dynasty’s

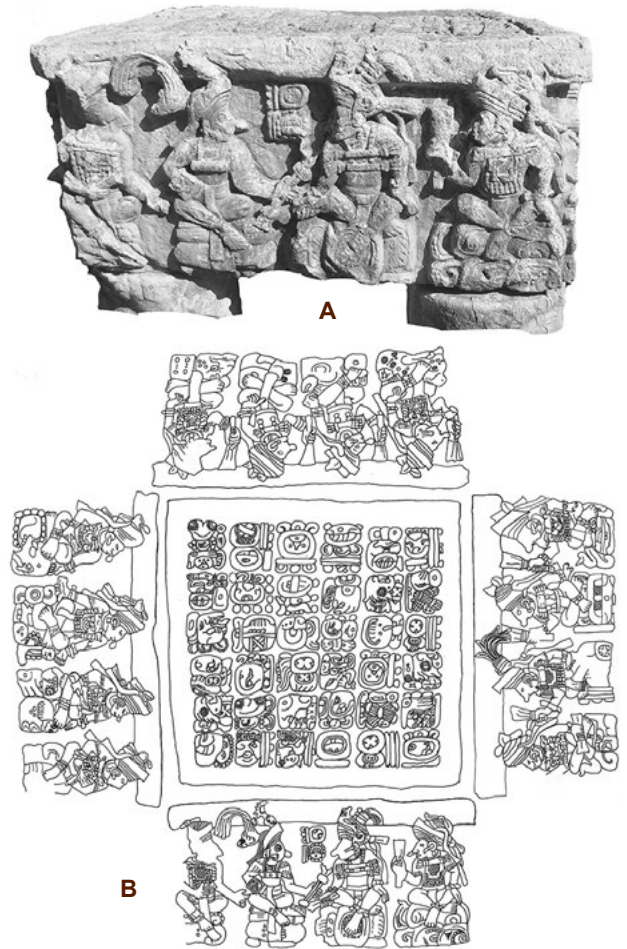


Fig. 2: Altar Q. (a) The photograph of Altar Q showcases its prominent West Panel. Each panel is approximately 1 m on the horizontal and half a meter on the vertical. (b) Shown here as a flattened illustration, Altar Q includes 36 hieroglyphic blocks on its topside, one proper hieroglyphic date on its West Panel, depictions of 16 rulers sitting on self-identifying hieroglyphs, and many elements of iconographic symbolism and embedding. Note that because the West Panel is positioned on the bottom, the topside hieroglyphic inscription is upside down.

Credit: **A:** Photograph by author. **B:** Drawing by author, following the interpretation of Linda Schele’s illustration in Schele & Freidel 1990, *A Forest of Kings: The Untold Story of the Ancient Maya*. Originally published in Sandoval 2025.

ceremonial project. The founder’s ascension, death, apotheosis, and enduring divine status are thereby associated with Altar Q’s eastern side. Being below the surface, the panel itself is associated with the underworld, making the founder’s death date especially relevant

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there. Additional independent evidence shows that Altar Q also implies 9.0.2.0.0 through various calendar-related qualities and relationships (see the original article for full documentation).

The findings, while robust, are specific to Altar Q and limited to numerals. Much remains unanswered about form, variation, and meaning in textual hand signs beyond this monument. Nevertheless, this initial decipherment provides a foundation for expanding research to other texts, testing hypotheses, and refining our understanding. The research has received positive attention, including from specialists who've offered suggestions for development. However, many have reacted with skepticism, particularly to the claim that figures in Ancient Maya art hold readable hand signs. The potential impact might seem too disruptive as it implies many texts aren't as well understood as epigraphers have assumed. Complete readings of numerous texts might require deciphering both hieroglyphs and hand signs. That's a difficult proposition, especially given that a vast body of literature rarely even alludes to the possibility that ancient scribes used textual hand signs for concrete meanings like Long Count dates.

The claim is unexpected in two additional ways. First, textual hand signs aren't presented as neatly isolated graphic units clearly ordered

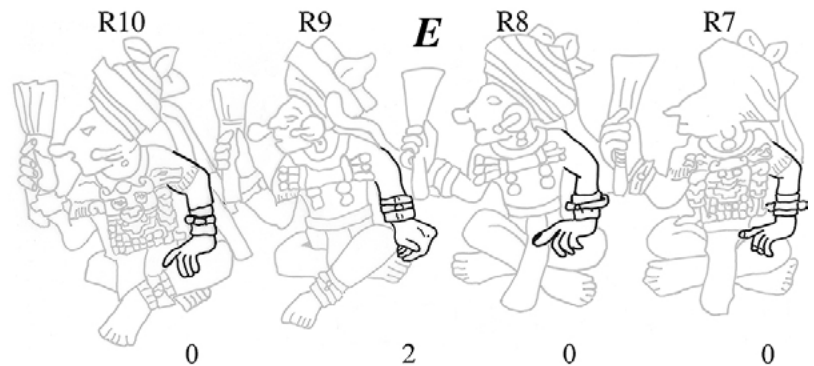


Fig. 3: East Panel of Altar Q, with left part of hand sign highlighted. Credit: Drawing by author, originally published in Sandoval 2025

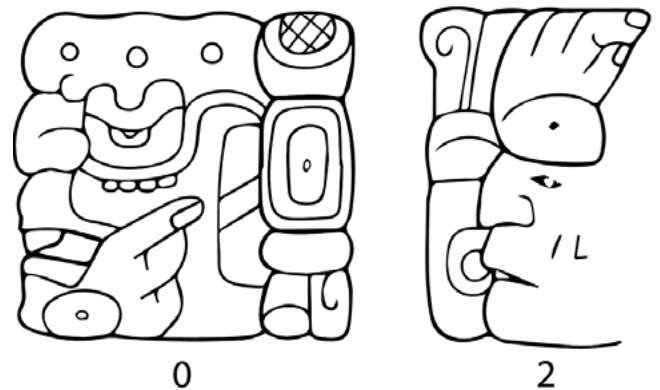


Fig. 4: MIH, a head variant of numeral 0, and CHA', a head variant of numeral 2. Credit: Drawings by Martha Macri & Matthew Looer, courtesy of the Maya Hieroglyphic Database (Looper & Macri 1991–2025). Images digitally upscaled from online originals.

in sequence, like the symbols of a typical script. Second, writing is often defined as the visible representation of speech, with scripts rooted in spoken language and including phonetic indicators. This holds true for well-known ancient scripts, even those like Egyptian and Maya hieroglyphs that have developed rich semiotic lives. A script composed of hand forms rooted in signed (not spoken) language would be typologically unique. One might also question the idea of numerical hand signs not based on obvious finger-counting principles.

From that perspective, some skepticism is understandable. What isn't understandable are dismissals lacking substance, especially those bordering on slander. One person publicly suggested my findings might result

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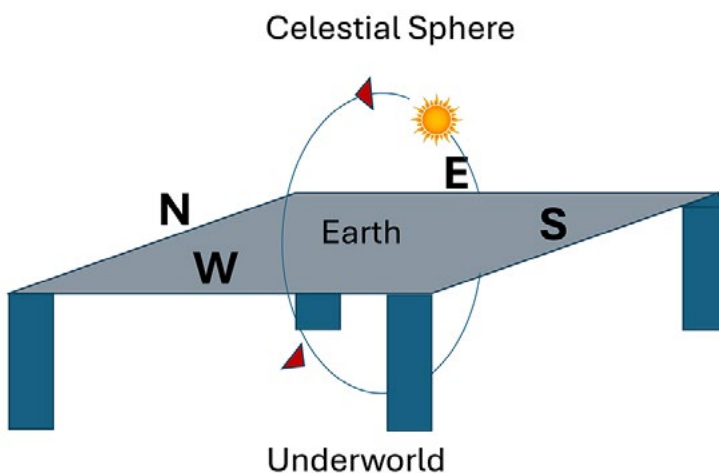


Fig. 5: Concept model for altar as cosmogram. Credit: Drawing by author.



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from misconduct. I've done my due diligence as a scholar, so the onus is on naysayers to provide detailed, substantive accounts reflecting the high standard to which I've presented my research. My article passed the rigorous vetting and peer-review process of *Transactions of the Philological Society*, a technical journal with a strong reputation for non-speculative data-driven articles with relevance to historical and comparative linguistics, including decipherment. The journal's reputation rests on nearly two centuries, including its role in initiating the Oxford English Dictionary. One can scrutinize all aspects of my research in the article's nearly 40 pages, 9 tables, 13 figures, and supplementary materials. I've provided extensive cross-checking documentation: indices locating crucial evidence, transparent data displays, and even computer code for my calendar-based numerical analyses. My cards are on the table.

To encourage engagement with my research, I use the remainder of this article to elaborate on credibility and methodology. I end with a plausible hypothesis as a clear yet provocative example of next steps for decipherment. I start by discussing aspects of the scholarly record that strongly support the claim that ancient Maya scribes created figures with textual hand signs as extra-hieroglyphic means of expressing numbers relevant to calendar and cosmology. Although unseen as such, the evidence has been in plain view.

Indigenous America represents a unique zone for linguistically complex hand-based communication. Expert employment of complex gesture and hand-signing practices within and among indigenous communities throughout Mesoamerica and North America was documented in the earliest colonial accounts of Spanish explorers (see Bonvillian et al. 2009). The similarities and geographic spread suggest a signed-language tradition existed on the continent long before European arrival. This is unique because signed language was used throughout such a broad area by hearing people as a means of communicating across spoken languages. This contrasts with hundreds of modern sign languages worldwide, which are almost exclusively rooted in deaf communities.

In linguistic terms, this Indigenous American tradition represents an areal phenomenon. The tradition

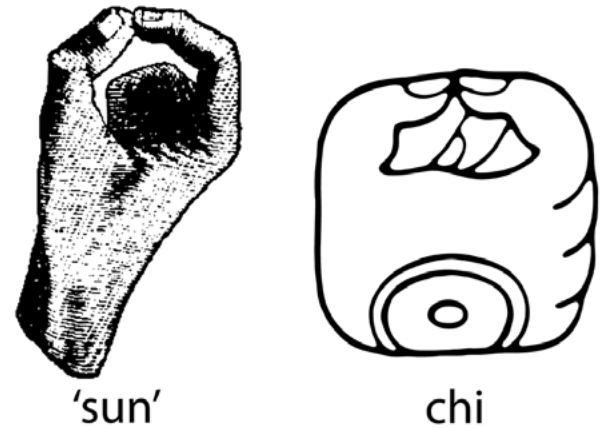


Fig. 6: Plains Sign Language 'sun' hand sign and Maya syllabogram chi. Credit: Drawing of 'sun' sign by Garrick Mallery, 1881, from "Sign Language among North American Indians". Public Domain, <https://www.gutenberg.org/files/17451/17451-h/17451-h.htm>; Drawing of chi glyph by Martha Macri & Matthew Looper, courtesy of the Maya Hieroglyphic Database (Looper & Macri 1991–2025). Images digitally upscaled from the online originals.

involved considerable variation in the relationship between hand form and meaning. But in some regional areas, hand-sign systems were conventionalized to the degree of constituting full sign languages. The best documented is Plains Sign Language (PSL), or Hand Talk by those who use it. Several dictionary-type documents were made in the 1800s, often associated with the US military given its practicality for communicating across dozens of spoken indigenous languages.

Ethnologist Garrick Mallery's documentation and theorizing is important here, especially his recognition of connections between PSL hand signs and hand forms in Ancient Mesoamerican art. Despite his careful work with PSL, he was too ambitious in his efforts with ancient art. But even then he saw what is more apparent now, that given the uniqueness of this signed-language tradition and similarities in hand forms across thousands of miles and years, some connection must exist.

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It's difficult to dispute the idea that hands were a salient and meaningful scribal resource for Ancient Maya scribes. Besides the variation and patterning in figures' hand forms, the hieroglyphs themselves are full of handshapes. Eric Boot (2003) highlights the diversity and extent of hieroglyphs with handshapes. In **Fig. 6**, previous page), we see a modern PSL hand sign from Mallery's documentation next to an Ancient Maya hieroglyph with nearly identical hand imagery. The former means 'sun' while the latter is the syllabogram chi, associated with 'sun' as a common component in the hieroglyphic spelling of K'inich 'sun god'. While the form-meaning associations may suggest a direct historical-linguistic relationship, such examples are hard to find. Using PSL or another modern Indigenous American sign language as a basis for interpreting Ancient Maya scribes' intentions is therefore dubious. However, there's a powerful point here. At minimum, similarities in forms and variety across such expanses of space and time support using the modern record as a basis of plausibility for the type of phenomena we should expect from ancient scribal use of textual hand signs.

The modern combining of signed and spoken language that was the topic of my earlier research gives credibility to the idea that ancient Maya scribes would employ a writing system integrating hieroglyphs and textual hand signs. A modern example from a close Maya community supports the plausibility of hand signs encoding time or moments in a calendrical cycle. Neuenswander (1981) provides an ethnographic account of Cubulco Achi Maya women who tracked time by noting the Moon's different phase shapes and positions. For this lunar-based count, the Achi women conceptualized time in groups of 20 lunar days, with important sub-groupings of 5 bounded by the four basic lunar-transition phases. The lunar-based counting involved conventionalized handshapes, orientations, and movements, each hand sign signifying a basic transitional phase. Neuenswander suggested this system likely stood in historical relationship with Classic Maya hieroglyphs, wherein similar handshapes are represented in strong association with moon imagery and cyclic meanings.

The use of figures as a writing medium deserves closer examination. The idea gains credibility from full-figure hieroglyphs, typically understood as full-bodied versions of deities or other figures that normally appear as fragments in hieroglyphic form. A stunning example appears in Copan Stela D, as demonstrated by Linda Schele's illustration (**Fig. 7**). The figures' bodies are compressed into hieroglyphic blocks but represent a phenomenon closely related to the more common figures in question, whose bodies are free of hieroglyphic constraints. The meanings of

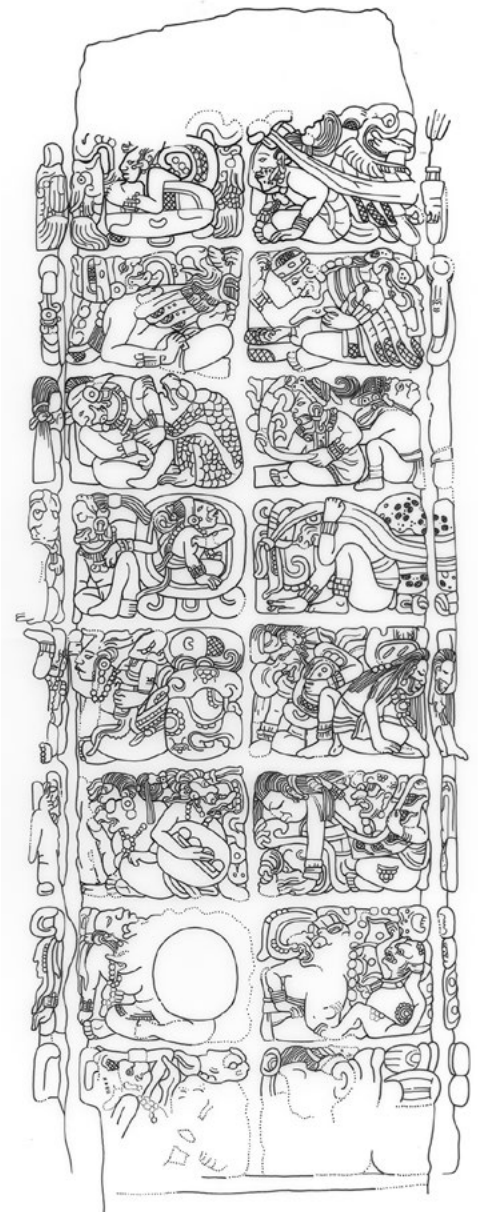


Fig. 7: Copan Stela D, with the top 6 hieroglyphs giving Long Count date 9.15.5.0.0. Credit: Drawing by Linda Schele. ©David Schele courtesy of Ancient Americas at LACMA (ancientamericas.org).

full-figure hieroglyphs further support my research claim. For example, the top half of full-figure hieroglyphs in the figure constitute the numerals of a Long Count date. The hands of full-figure hieroglyphs

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are interesting too. They appear meaningful. But as far as we know, full-figure hieroglyphs signal numerical meaning by embodying a number's patron deity. The hand forms therefore need not signal numerical meaning. However, these hand forms are as precise and varied as those of extra-hieroglyphic figures and they may function to reinforce basic figural meanings or to convey additional layers of meaning. Stephen Houston (2021), in his survey of full-figure hieroglyphs, argues for the latter. It's entirely likely that Maya scribes considered full-figure hieroglyphs as special cases of the extra-hieroglyphic figures at focus in my research. If so, textual hand signs would be just one feature a scribe could give a figure to signal numerical or possibly other meaning. This results in a numeral continuum of sorts, which I highlight in **Fig. 8** with a side-by-side comparison of Maya scribal variants for numeral 5, including the figure holding the 5 hand sign from my decipherment of Altar Q.

A lingering question is whether textual hand signs were exclusively Maya or used more broadly throughout Ancient Mesoamerica. There's good reason to posit the latter. A wide range of Ancient Mesoamerican texts include, and are sometimes dominated by, figures with precise and varied hand forms. The possibility that textual hand signs might be pan-Mesoamerican is underscored by the indigenous signed-language tradition as a communication system crossing spoken language boundaries. It's further emphasized by calendrical and numeral hieroglyphic signs being highly recognizable across Mesoamerican script traditions, whereas the primary language underlying any particular hieroglyphic script is entwined with spoken language.

As calendar-based numerals rooted in signed-language tradition, textual hand signs would be strong candidates for a symbol system used and recognized throughout Ancient Mesoamerica. Furthermore, Maya scribes actually associated full-figure hieroglyphs with a foreign central-Mexican style (Houston 2021).

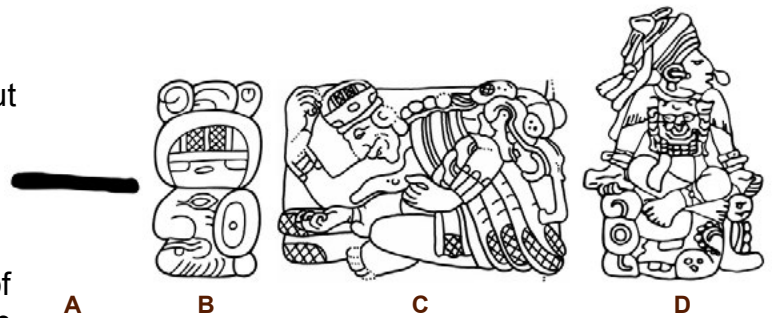


Fig. 8: Scribal variants for numeral 5. From left to right, bar, head variant, full-figure hieroglyphic variant (Copan Stela D, 5 Tun), extra-hieroglyphic figure variant (Altar Q, 5 Tun).

Credit: **A,B:** Drawing of bar and head variant by Martha Macri & MatthewLooper, courtesy of the Maya Hieroglyphic Database (Looper & Macri 1991–2025), with images digitally upscaled from the online originals; **C:** Full-figure drawing by Linda Schele ©David Schele courtesy of Ancient Americas at LACMA (ancientamericas.org); **D:** Drawing by author, originally published in Sandoval 2025

Similarly, Altar Q's content and design involve strong Teotihuacan themes, notably in the panels' embedded-hieroglyph style surrounding the ruler figures and their textual hand signs. Going forward, it would be prudent to test and refine the decipherment with non-Maya Mesoamerican texts.

So what's next? My decipherment of Altar Q's textual hand signs provides a strong albeit small foundation. We have examples of numerical hand signs from one text for roughly half the numbers in a 20 count. Much remains unknown about formation and scribal variation for these numeral hand signs, much less those we lack examples of.

Some might consider identifying a text with a hand form matching one from Altar Q, then determining whether the numerical value makes sense in the new context. This would be an immature interpretive move unsupported by current evidence. I would likewise resist comparing hand forms of full-figure hieroglyphic numerals with Altar Q numeral hand signs. Full-figure hieroglyphs express numerical meaning without requiring hand signs. Scribes may have created these hieroglyphs with hand signs that reinforce numerical meanings or convey other meanings. The constraint on full-figure hieroglyphic hand forms is insufficient for decipherment.

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The best course follows good decipherment methodology. Building on the initial decipherment, the most practical approach accords with the substitution method epigraphers use for Maya hieroglyphs: (1) Identify a text with a well-defined hand form, a strongly implied numerical value not encoded hieroglyphically, and a design making this hand form the most plausible candidate for the apparently missing value; (2) Hypothesize that the hand form is a hand sign with this value; (3) Compare this hypothesized numeral hand sign to Altar Q findings to test and refine the overall decipherment; (4) Continue gathering test cases.

I conclude with a test case that yields a plausible hypothesis, which may ultimately be falsified with further evidence. I use a well-known text so I can assume general knowledge of its content to highlight the decipherment method. I also mean to provoke further engagement, both because this text was created in a distant time and place from Altar Q and because it's iconic of Ancient Mesoamerican art and cosmology. The text is the Aztec Sun Stone (more commonly the Calendar Stone). Central to this monumental sculptural text of the 16th century is a solar face, which is embedded within the *OLIN* hieroglyph (**Fig. 9**). This is the hieroglyph for 4 Movement (*Nahui Olin*), the fifth Sun era or Fifth Sun (*Inic Macuilli Tonatiuh*), which was central to Aztec (Mexico) identity. Embedded in OLIN's corners are hieroglyphs for the four preceding Suns, so the Sun Stone embodies Five Suns (*Macuilli Tonatiuh*). The Sun Stone is nearly synonymous with this concept, yet '5 sun' is not encoded in any known hieroglyphic element and is only partially made explicit by the 'sun' meaning of the embedded solar face. The Sun Stone appears to be missing a visual element encoding the number 5, ideally affixed to the solar face.

Yet under-explained hands are attached to the solar face's sides. Each claw-like hand grasps a heart in deep cosmological symbolism around sacrifice. Aside from this iconography, little has been offered about the hands' form and meaning. Each has four fingers, an opposable thumb, and



Fig. 9: Olin from the Aztec Sun Stone and Altar Q Ruler 5. Credit: Drawings by author. Altar Q's Ruler 5 originally published in Sandoval 2025.

a palm that constitute a specific shape and orientation, not just a grasping action. Attached to the abstract solar-faced figure, the hands constitute a plausible hand sign. We can hypothesize a numeral hand sign with value 5.

The next step is a comparison with Altar Q's hand sign for 5, held by Ruler 5 (**Fig. 9**). At quick glance, the hand configurations might not look alike, especially to the untrained eye. But formal analysis using signed language parameters (handshape, placement, and orientation) proves crucial. Despite formal differences, the similarities are insightful. Notably, as I demonstrated in my original article, the base-5 boundary numerals (5, 10 and 15) on Altar Q are differentiated by having near two-handed symmetry of form across the parameters. The Sun Stone hands fit this schema even better by being completely symmetric. Additionally, both the hypothesized Sun Stone hand sign for 5 and Altar Q's hand sign for 5 have hand placement outside the figural body space (unlike Altar Q's hand sign for 15, which is inside). The handshapes are not so similar. The Sun Stone hand forms have a clear C handshape while Altar Q's hand sign for 5 has an A handshape. Additionally, the Sun Stone hands are pointing outward, while that is only a partial description of the Altar Q hands. A fuller description of hand orientation

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relative to the solar-faced figure is unclear. If the figure faces up from the abstract body the body is perpendicular to the Sun Stone's surface, and the palms are oriented almost identically to Altar Q's hand sign for 5. If the figure faces forward from the body, the body is parallel to the surface, and the palms are oriented differently from the Altar Q hand sign. Regardless of differences and unknowns, the hypothesized hand sign more closely resembles Altar Q's hand sign for 5 than any other Altar Q hand sign. The hypothesis is well supported, suggesting possible handshape variation for the hand sign for 5. However, verification and its value as evidence for overall decipherment depend on accumulating further case studies. Until then, our understanding of textual hand signs remains limited to Altar Q.

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