

# KING AND COSMOS

An Interpretation of the Aztec Calendar Stone





Monograph 4

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An Interpretation of the Aztec Calendar Stone

David Stuart



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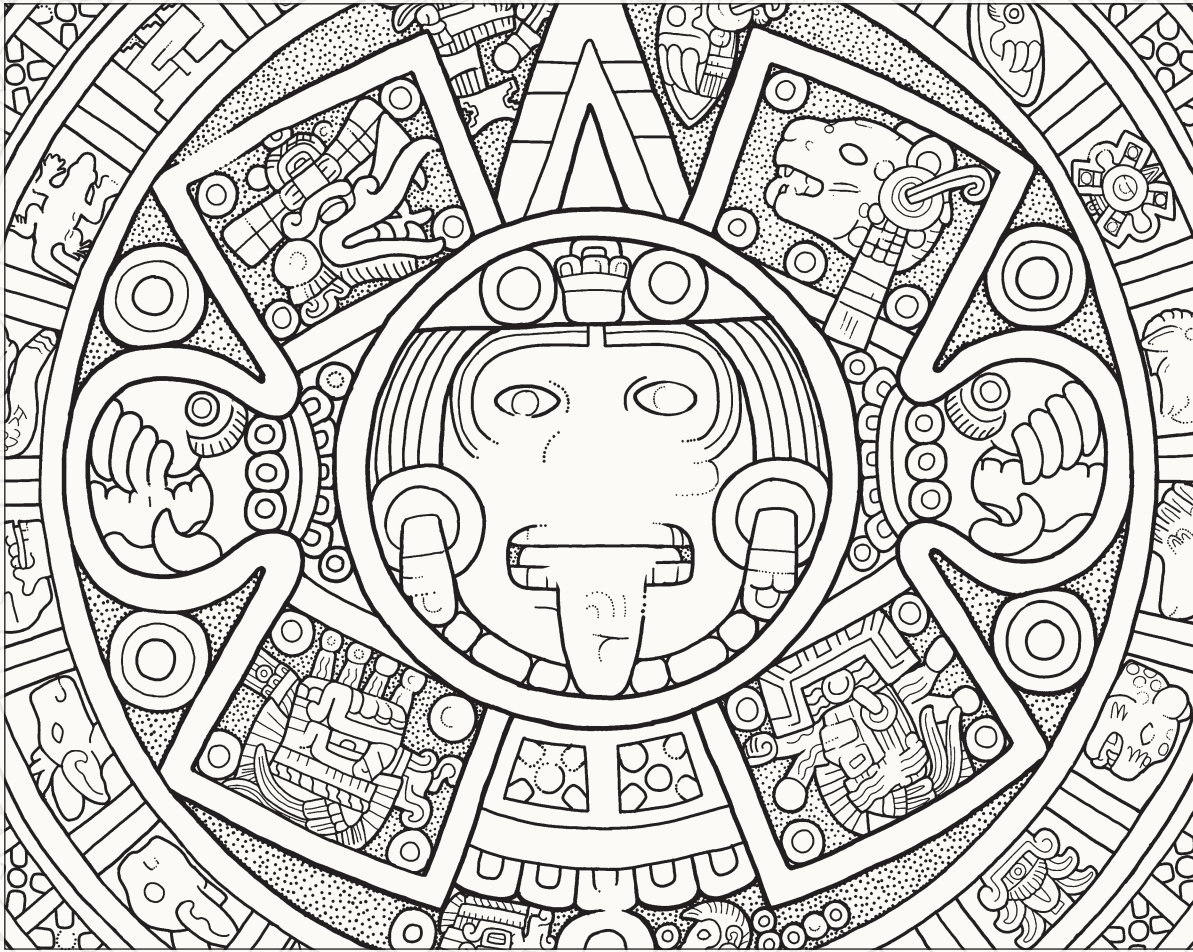
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And they venerated Four Motion as a day sign. Thus did they say, that it was the day of the sun. Moctezuma paid great honor to it. When it was this day, when Four Motion set in, they slew quail and offered incense before the image of the sun; they placed on it what was known as the spreading red arara (macaw) feather device. And at noon captives died and were slain [as sacrifices].

*Florentine Codex, Book 4, The Soothsayers*  
(Sahagún 1950-1982:Book 4:6)

## PROLOGUE

**T**his book focuses on one iconic artwork, the famous Calendar Stone or Piedra del Sol of Tenochtitlan, but it has a broader purpose in highlighting the close interplay of writing and iconography in the visual culture of Postclassic Mexico. Such close connections may appear obvious on a certain level, but I have long been struck by the lack of overlap in the study of Nahuatl writing on the one hand and Aztec art and iconography on the other. Art historians who specialize in Aztec visual culture do not often venture into the nuances of Nahuatl language, or study the intricacies of hieroglyphic forms that have for so long been dismissed as “merely pictographic.” And the opposite is true, too: those who study Nahuatl hieroglyphs tend to restrict themselves to the fine points of sign composition and spelling conventions. In reality the art and writing of Central Mexico, as elsewhere in Mesoamerica, are two overlapping categories, separate in many ways but fully integrated into a large visual system. I firmly believe that to study one requires expertise in the other. As early scholars such as Joseph Marius Alexis Aubin and Antonio Peñafiel realized, Aztec hieroglyphs are not mere pictographic symbols but, like other Mesoamerican scripts, first and foremost a complex system for representing words and utterances. At the same time each Nahuatl hieroglyphic composition is also a visually compelling artwork on its own, following centuries-old conventions of iconography and representational style. A great many examples of Mexica or Aztec iconography thus involve elements and forms that are language-based, otherwise employed as writing. More so than many have realized, much of Aztec art was designed and viewed through a Nahuatl lens.

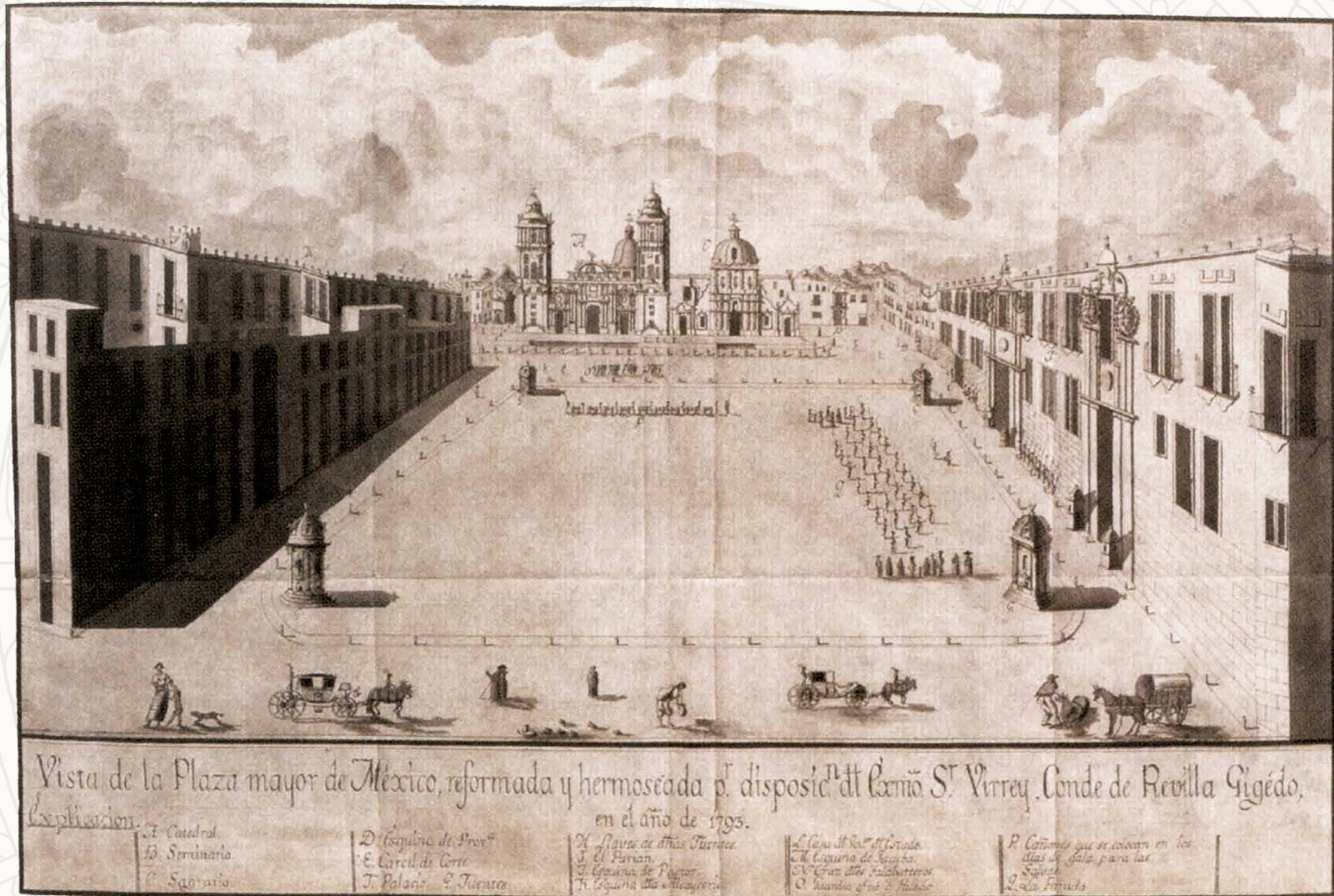
While my previous research has focused mostly on ancient Maya art and epigraphy, the present foray into Aztec topics is not as drastic a leap between subfields as one might imagine. I am firmly of the opinion that all subtypes of Mesoamerican iconography and script share a number of visual conventions and canons, as do, correspondingly, the methodologies underlying their study and interpretation.



The two subfields must advance together and with a firm awareness of each other. In this vein the present study of the Calendar Stone and its imagery builds upon my earlier research on the Classic Maya in two ways. I have long been fascinated by graphic conventions of Mesoamerican scripts and by the interactions of signs, hieroglyphs, and associated images. Second, beyond such purely visual considerations, I have long been interested in themes of ideology and the intersection of gods, imagery, and kingship (Houston and Stuart 1996; Stuart 1996). The present reexamination of the Calendar Stone channels these same themes, looking at the way signs and images interact in its visual composition, and also looking at the larger political and cosmological meanings they convey.

My keen interest in Aztec art and writing goes back to the early 1980s, when Henry B. Nicholson and Thelma Sullivan both encouraged me to pursue the study of Nahuatl hieroglyphs, a subject that they saw as poorly studied in those years. At that time Maya epigraphy and iconography took nearly all of my attention, but my delight in Aztec visual culture and the Nahuatl language grew steadily ever since and never waned. In graduate school I had the opportunity to enter into formal training in Classical Nahuatl under the careful eye of J. Richard Andrews, a brilliant teacher, and later still I looked on with great interest as new ideas and debates on the nature of Aztec writing emerged in the late 2000s (Lacadena 2008; Zender 2008; Whittaker 2009). Many of these newer ideas are refinements of much older ones, and all point to the linguistic sophistication of the hieroglyphic system.

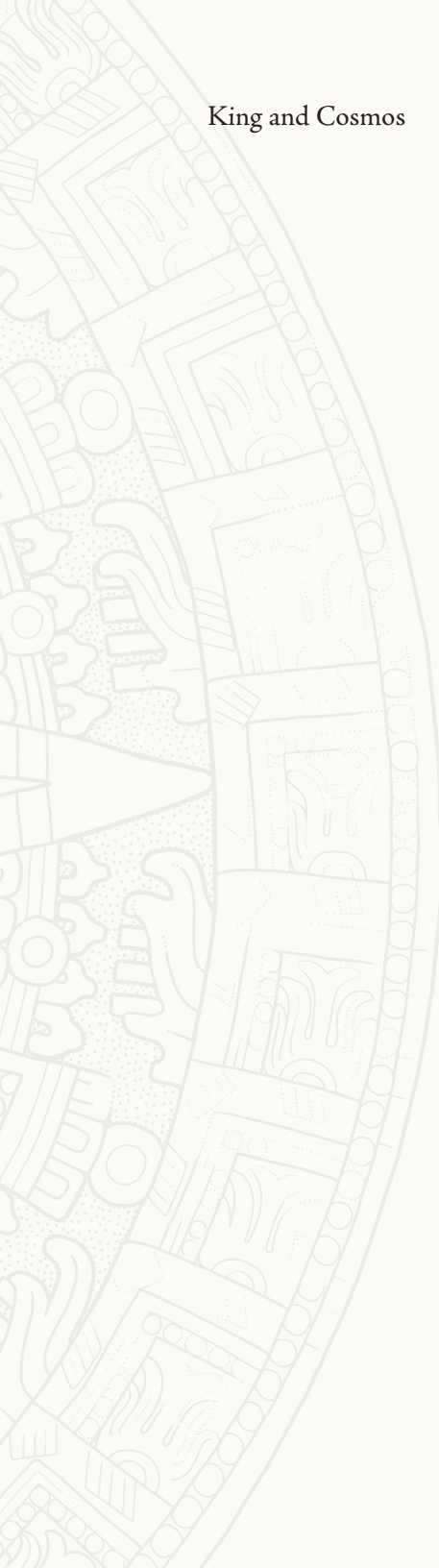
One brief item regarding orthography. In this study I employ Classical Nahuatl in three different but closely related environments: in words and phrases, in proper names, and in hieroglyphic transliterations. In the first category I generally follow the standard orthographies set forth in the important works of Andrews (1975, 2003) and Karttunen (1983). These systems do not always agree in their particulars, but they are important in that they indicate vowel length, unlike the spellings in Colonial era documents and vocabularies. In writing proper names of people and places I have opted to omit the marking of vowel length, following standard convention and for ease of reading (thus the deity name Tonatiuh appears in place of the general expression from which it is derived, *tonatiuh*). In the third area, transliteration of hieroglyphs, I follow the recent system that shows logograms in bold uppercase and syllables in lowercase, as in the name glyph of the ruler Moteczomah, spelled with the signs **TEK**<sup>w</sup>-so. The glyphic glosses are a bit cleaner and less reliant on the quirks of Colonial orthography, such that the hieroglyph that corresponds to the name of the sun, for example, is **TONATI**W. Vowel length is typically not represented in these glyphic transliterations, as it can sometimes change depending on a word's phonetic environment.



**Figure 1.** View of Mexico City's Plaza de Armas or Plaza Mayor as it looked in 1793, three years after the discovery of the Calendar Stone. The monument was unearthed approximately where the four lines of soldiers stand at right, in front of the Viceroy's Palace. The caption reads "Vista de la Plaza Mayor de México, reformada y hermosa da por disposición del Exmo. Sr. Virrey Conde de Revilla Gigedo en el año de 1793" (from González Gamio 2012:51).

## CHAPTER 1

## Toward a New Interpretation



On the verge of winter in 1790 an immense and ancient stone was discovered just under Mexico City's vast Plaza de Armas, what is today known as the Zócalo. Workers had already labored for weeks to prepare the area for an ambitious new public-works project to pave the plaza and its surrounding streets (Figure 1). They found the large stone only inches below the plaza's surface in front of the palace of the newly appointed Viceroy, Juan Vicente de Güemes Padilla Horcasitas y Aguayo, who had ordered the paving project as part of his efforts to bring new order to the chaotic and flood-prone city. The excavators no doubt knew they had something important, for it was the latest in a string of notable finds made in the course of the civic upgrades—buried offering chambers and a large carved statue of a demonic snake-being, the Coatlicue. This new find was different, however. The stone was large, flat, and rough, almost resembling unlikely *roca madre*, or bedrock. Further digging revealed a carved surface underneath and showed that the stone was resting facedown in the muddy soil. With ropes and pulleys the workers turned it with great effort, revealing a circular design of intricate detail and a ferocious-looking human face in the center. It was a curious marvel for all to look upon and ponder, including, one must imagine, the new Viceroy who resided only yards away. The most accomplished scholar and historian of Mexican antiquities at that time, Antonio de León y Gama, raced to see the sculpture soon after it was exposed. On examining its design he “was filled with joy at having found in it a faithful testimony, which confirmed what I, after so much labor





Figure 2. The Calendar Stone, or Piedra del Sol: (a) photograph by Jorge Pérez de Lara; (b) drawing by David Stuart.

and study, had written on the system of the Mexican calendars...” (Villela and Miller 2010:58). The prevailing idea was to rebury the huge stone that had caused an unwelcome pause in the ambitious renovations in the plaza, but León y Gama may have had a hand in convincing the Viceroy to allow it to be studied and displayed (Palacios 1921:5).

Today we of course know this great monument as the Calendar Stone or Sun Stone, the single most iconic image of ancient Mexico and Aztec civilization (Figure 2).<sup>1</sup> Over the two centuries since its discovery it has emerged as a symbol of the nation of Mexico and its indigenous legacy, not to mention a pervasive image in countless tourist shops in airports and archaeological sites. Given its obvious status as a cultural icon, there might seem little left to say about its interpretation, yet even basic questions regarding the significance of its detailed imagery and its intended meaning continue to be the subject of discussion and even fervent disagreement (García 1934; Widdifield 1981; Villela and Miller 2010). If nothing else, the varied interpretations of its design reveal that the full significance of this quintessential Mesoamerican object, like much of Aztec and Maya iconography in a broader sense, still remains beyond our reach. And as Villela, Robb, and Miller (2010:4) point out in the introduction to their thorough compilation of research and writings on the monument, “for all that has been written on the Calendar Stone, we can be sure that it has not yet fully revealed its secrets.”

In the pages that follow I propose several ideas that shed light on a few such remaining “secrets,” especially with regard to the study of the hieroglyphic forms and iconography that appear throughout the Calendar Stone’s complex and layered design. In doing so I build upon the firm foundations set down by many earlier writers who, over the course of the last two centuries, established most of what we know about the Calendar Stone’s original function and visual message. Many readers are probably aware of the long history of these interpretations, but a few words of background will help set the stage for the approach I take in the present work.<sup>2</sup>

As noted already, the earliest interpretations of the Calendar Stone were those made by León y Gama, who saw the stone just days after it was first exposed in the Plaza Mayor. His publication soon thereafter (León y Gama 1792) offered a systematic study of the monument as well as one of the first careful renderings of an ancient Mexican sculpture (Figure 3). He was already deeply knowledgeable of the written sources then available on ancient Mexican history and religion, including Clavijero’s *Historia antigua de México*, published only a decade earlier. With his firm knowledge of Aztec religion and the calendar, León y Gama was quick to see that the central image within the sun’s disc is domi-

<sup>1</sup> Throughout this study I will use the common label “Calendar Stone” in reference to the monument, with the understanding that it is not an entirely accurate description. “Sun Stone” and Piedra del Sol are other widely used terms in the scholarly literature.

<sup>2</sup> Villela and Miller (2010) published translations from important works on the Calendar Stone reflecting a wide spectrum of interpretations. Their compilation serves as an excellent and indispensable introduction to the history of Aztec iconography in general.



Figure 3. The first illustration of the "Calendario Azteca," from Antonio de León y Gama's 1792 publication. Engraving by Francisco de Agüera.

nated by the hieroglyph for “Four Movement” (*nāhui olin*) naming the current sun or cosmic era as described in the *Leyenda de los Soles* and other early sources (see Appendix) (see Figures 26 and 33). León y Gama furthermore proposed that the large Nahui Olin sign referred to the four “movements” of the sun during the year (two solstices and two equinoxes), an interpretation that was dismissed by later influential scholars such as Eduard Seler, but which still holds a significant degree of insight. He also recognized that the innermost circular band of the stone’s design, just surrounding the Nahui Olin glyph, is composed of the hieroglyphs corresponding to the twenty days of the *tōnalpohualli* (“day-count”) in their set order, beginning at the top with Cipactli (Crocodile) and running counterclockwise to Xochitl (Flower). For León y Gama all of these elements coalesced around a single theme—the perpetual mechanisms of time itself—and it was for this reason that he interpreted the stone as something akin to a sundial, or as a working, interactive “calendar.” Perhaps it was this characterization of the circular stone as an *almanaque* that soon motivated its placement in the side wall of Mexico’s main cathedral, vaguely resembling a massive bell-tower clock (and influencing no doubt, too, its perpetual vertical display to the public, as it is seen even today in the Museo Nacional de Antropología). In 1803 the newly revealed “Calendario Azteca” was seen by the explorer and naturalist Alexander von Humboldt (1810), who later republished the drawing from León y Gama in his widely read book on the ancient monuments of the Americas. This was a watershed moment, for Humboldt’s publication cemented the image of the newly dubbed “Calendar Stone” in the consciousness of European and North American intellectuals. And in summarizing many elements of León y Gama’s analysis, Humboldt no doubt did much to fix in the minds of many the sculpture’s dubious identification as a working timepiece or calendrical device.

Later in the nineteenth century, both Alfredo Chavero (1876) and Phillip Johann Josef Valentini (1878) placed the Calendar Stone within a much firmer historical and cultural context, carefully analyzing the imagery through the lens of sixteenth-century writings by Fray Diego Durán, Alvarado Tezozomoc, and others (see Villela and Miller 2010:91). Working independently (although not without some conflict) these two scholars linked the monument to the type of ceremonial stone known as *cuāuhxīcalli* (“eagle vessel”) used as platforms in gladiatorial sacrifice. In doing so they each made the key point that the monument must have been placed in a horizontal position, wherever its original setting and placement might have been. This simple point proved vital for many later interpretations, and we will see that the stone’s horizontal placement is a point of departure for various proposals I make below regarding the monument’s overall symbolism and possible original location.

Later contributions by Eduard Seler (1888, 1899, 1901, 1915) and Herman Beyer (1921) served as the basis for nearly all subsequent interpretations of the stone’s iconography, and their influence resonates strongly today. Both emphasized views of static solar imagery, rejecting León y Gama’s early notions that the stone served as some type of elaborate mechanistic timepiece. Seler put forth his interpretation in no uncertain terms:



[T]his “Aztec Calendar” is only an image of the Sun, no more and no less, and an expression of the conception the Mexicans connected with the sun. (Seler 1904a:797)

Beyer followed suit when he claimed that the monument “is an object dedicated to the solar cult and all—absolutely all—of its decorative motifs refer to the sun” (quoted in Villela and Miller 2010:119). Such assured tones appear simplistic and dismissive in retrospect, yet the careful methodologies of Seler and Beyer, combining rigorous visual comparison with keen linguistic awareness of Nahuatl, ensured that their insights would form a foundation for nearly all subsequent studies.

This would include the work of Enrique Juan Palacios (1921), who presented a detailed view of the Calendar Stone’s concentric designs, pointing to its many numerological patterns and symmetries, including several references to Venus cycles. For Palacios the monument was more properly a “Stone of the Sun and Venus,” and nearly every detail of the design was a numerical reference of some sort. While many of his observations today seem spurious or coincidental, others may prove correct. Not long after, Konrad Preuss, a German ethnographer and Seler’s associate, presented an important early counterpoint to the sun-centric interpretations of the time, noting that the grimacing face and knife-like protrusion from the mouth of the stone’s central face suggest a strong connection to images of the animate earth. Inspired by ideas of the Cora, whom he had studied, Preuss saw the design of the monument as incorporating elements of both the sun and the earth (Preuss 1931).

Preuss’s important ideas presaged a new wave of investigations that emerged in the 1960s and 70s. Navarrete and Heyden (1974) in particular developed Preuss’s insights and argued that the central face was that of the animate earth, Tlalteuctli (often spelled Tlaltecuhli).<sup>3</sup> They strongly advocated for the upward-facing position of the stone, which lent some credence to this idea. Townsend (1979) offered a similar interpretation in his important study of Aztec imperial art made around the same time. And in a somewhat related vein Klein (1976) rejected the traditional interpretation of the central face as Tonatiuh in favor of seeing it as the night sun, Yohualteuctli. Still other views have been offered, including Felipe Solís’s view that the central face is that of Xiuhteuctli (Solís Olguín 2000). We will revisit this complex debate later, noting that a good deal more can be said about the face and its complex assortment of proposed identities. For now it is simply worth noting that all of these previous interpretations concern mythological or cosmological identifications of the central face, yet as I argue below the persona of the visage probably holds a key historical significance as well.

It was in this era of renewed scholarship on the Calendar Stone that Umberger (1979, 1981:205, 1988) reaffirmed the presence of the name hieroglyph of Moteczomah II within the center of the Calendar

<sup>3</sup> The name of the “earth lord” is usually given in published sources as Tlaltecuhli (López Luján 2010), but here I opt for the spelling Tlalteuctli. As Andrews (1975, 2003) notes, /cu/ does not exist as a phonetic combination in Classical Nahuatl.

Stone's design, instantly providing a firm historical anchor for the monument. A century earlier Antonio Peñafiel (1890) had made the same observation, identifying the ruler's personal name glyph, but his insight failed to gain wide acceptance at the time. This was probably due to the great influence and assertiveness of Selser, who had insisted that the glyphic image of hair and a *xiuhhuitzōlli* diadem should be seen as a symbol of the "spirit of dead warriors."<sup>4</sup> With time Peñafiel's and Umberger's case generally won out, and today most scholars agree with the identification of Moteczomah II's name. This has in turn led to the natural conclusion that the monument was dedicated during this ruler's reign, sometime between 1502 and 1519. However, the historical attribution is still not universally accepted, as some continue to follow Chavero's view that the stone was carved in the earlier reign of Axayacatl (1469–1482) (see, for instance, Matos 2004:63). This seems based in part on seeing the 13 Reed year glyph at the top of the composition as a historical reference to the year 1479, and not as a mythological reference to the year of the sun's birth, as advocated by Selser (1904a) and Beyer (1921).

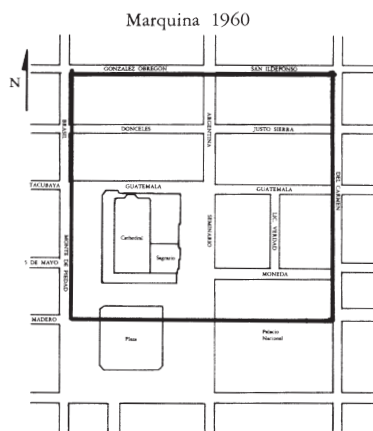
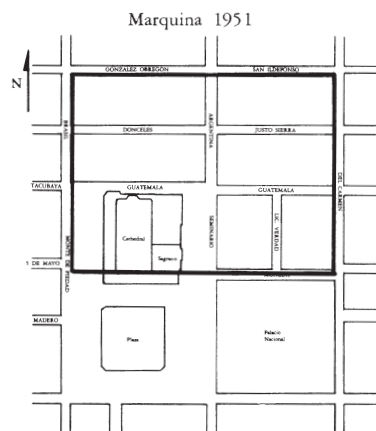
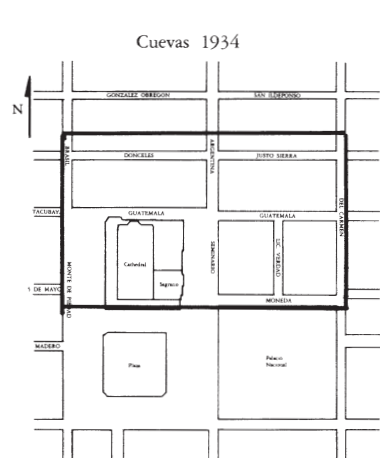
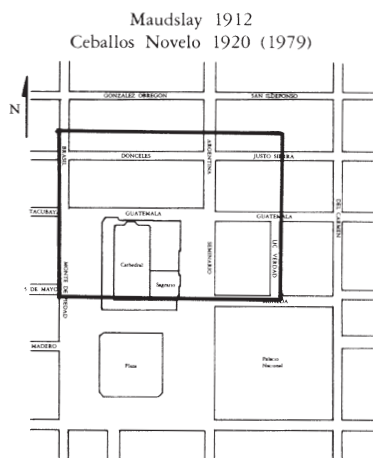
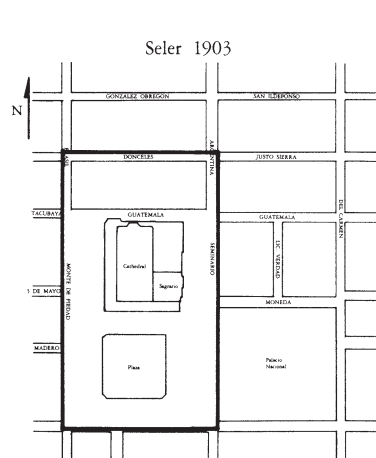
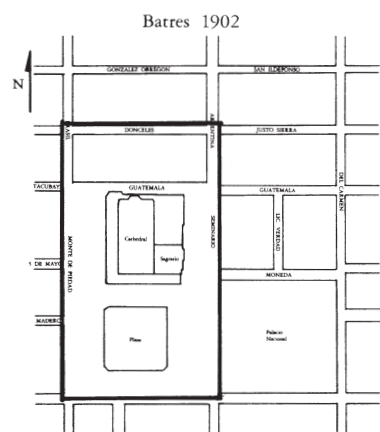
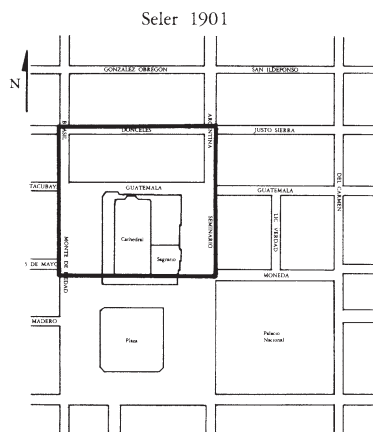
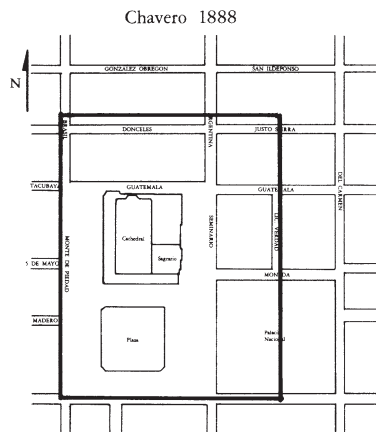
Where exactly was this massive monument originally placed? Its proper setting within the varied ceremonial spaces of central Tenochtitlan remains a key and surprisingly unresolved question. Ever since León y Gama's day, nearly all writers who have stated an opinion have placed the Calendar Stone within the ancient city's enclosed temple precinct. For example, Villela, Robb, and Miller (2010:16) state that the Calendar Stone was in close proximity to the Templo Mayor. Townsend notes that "undoubtedly it once occupied a prominent position somewhere in the main ceremonial center of Tenochtitlan, but the name and location of the building where it was originally placed have not been definitively traced" (Townsend 1979:63). Here Townsend's use of the term "main ceremonial center" might be taken to be equivalent to "central precinct." However, it is important to note that central Tenochtitlan consisted of a number of important ceremonial spaces, some restricted and others less so.

Past assertions that the Calendar Stone was originally set within the *enclosed* main precinct must be understood in light of the fact that the exact location and extent of this area was left unclear until the late twentieth century. Indeed, Chavero and Selser believed that the walls of the enclosure encompassed the modern Plaza Mayor (Boone 1987:40-41), whereas later excavations demonstrated that the southern perimeter of the precinct was to the north of the plaza, roughly where the front of the cathedral is today (Figure 4). In Chapter 3, I develop an alternative scenario, speculating that the 22-ton Calendar Stone

<sup>4</sup> Selser's interpretation of Moteczomah's name hieroglyph changed over time. In his analysis of the stone box in the Museo Nacional, where the very same glyph appears, he noted that he

formerly considered it simply as the hieroglyph of Motecuhçoma or—according to the literal sense of Motecuhçoma, "señor enojado," "angered lord"—as the hieroglyph of the fire god. Now I consider it for reasons to be presented presently, that this too, like the hieroglyph on the Hackmack Box, is to be explained as the *tonatiuh illhuicac yauh*, "spirit of the dead warrior." (Selser 1904e; see English translation in Selser 1992:101)

This modified view has exerted a strong pull on ensuing interpretations of several Aztec sculptures, but my own view is that Selser's first instinct—to see it as a royal name glyph for Moteczomah—was undoubtedly correct.



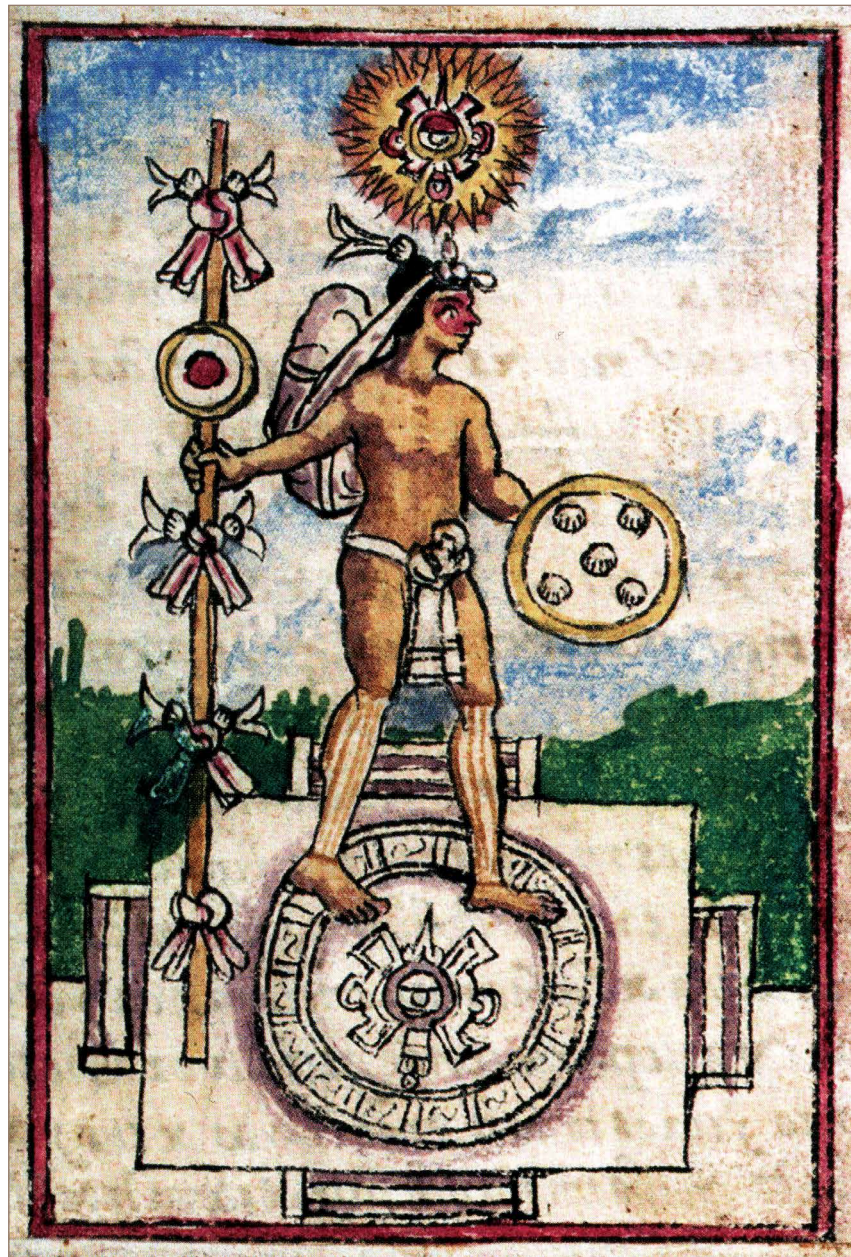
**Figure 4.** Early proposals for the location of Tenochtitlan's enclosed sacred precinct (from Boone 1987:40-41).

was placed not far from where it was discovered in 1790, in the southeastern area of the Plaza Mayor (or present-day Zócalo) of Mexico City. This would be well outside the walls of the ancient ritual precinct. Unbeknownst to many, the plaza seen today was an ancient open plaza or *tianquiztli* that was very much a part of Tenochtitlan's urban design, adjacent to the temple precinct to the north and the royal palace of Moteczomah II to the east (Matos Moctezuma 2012). The massive plaza and its market served as a key central place of great communal and cosmological importance, and the famed Calendar Stone may have played an important part in communicating this significance. Any statements regarding the original setting of the Calendar Stone must remain highly speculative, but wherever it was originally located, the significance of its design was integral to its placement and position.

Commenting on the original location of the Calendar Stone, Heyden (1968), Noguera (1973), and Umberger (1981) all followed Chavero's early assertion that it was set in a horizontal position, probably atop an open-air platform or altar known as a *mōmōztli*. A frequently cited illustration from Durán's *Historia de las Indias de Nueva España* shows a captive warrior standing atop just such a platform during the feast of Tlacaxipehualiztli ("The Flaying of Men"), with four sets of steps and bearing on its upper surface a round stone with an **OLIN** (*ōlin*, movement) sign (Figure 5).<sup>5</sup> The prisoner, soon to be sacrificed as a messenger to the sun, stands atop the circular design that strongly resembles the overall form of the Calendar Stone, as if performing his ceremonial battle on a cosmic stage. For a number of scholars, Durán's illustration has provided vivid evidence that the Calendar Stone was set into the upper surface of the platform, mirroring the sun at zenith high above. In this regard, it is surely relevant that Durán describes the ritual episode he illustrated as having occurred on March 17, very close to the vernal equinox (Durán 1971:186). Motolinía (1971:51) is even more explicit, noting that the ceremonies of Tlacaxipehualiztli were timed to correspond to observations of the equinox over Tenochtitlan (see Aveni and Calnek 1999:90).

As mentioned, Chavero was the first to note that the Calendar Stone belonged to the diverse class of circle-shaped altars called *cuāuhxīcalli*, "eagle vessels," places of human sacrifice and the deposition of hearts (Chavero 1874; Selser 1904c; Beyer 1921). A related category of stone monument was a *temalacatl*, "stone spindle," where captured enemy warriors were dispatched in public gladiatorial displays called Tlahualhuanaliztli. There has been a good deal of confusion and difficulty in parsing these two related monument types, even by early chroniclers such as Durán himself, it seems. Various writers use both *cuāuhxīcalli* and *temalacatl* almost interchangeably in reference to the Calendar Stone and other related circular monuments. The ambiguity is natural, and derives from the way both categories of stones

<sup>5</sup> To reiterate the orthography used in this work: when referring to hieroglyphic signs in the script I follow current epigraphic practice established by Lacadena (2008) and Zender (2008) where logographs are shown as uppercase bold transliterations (**OLIN**, **TONATIW**, **TIANKIS**, etc.). When referencing Nahuatl words or proper names I follow the more familiar conventions, usually showing vowel length except in the case of common proper names (Tonatiuh, *tianquiztli*, etc.).



**Figure 5.** Illustration of a gladiatorial sacrifice atop a circular stone surface and platform, from Diego Durán's *Historia General*. Note the solar sign marked *olin* at the zenith position.

overlapped in function and meaning as complementary stages of human sacrifice. As Durán explained in describing such a stage:

[T]hey were taken to a place of sacrifice, which was called *cuauhxicalli*, a smooth and plastered courtyard measuring about seven yards around. In this enclosure stood two stones; one was called *temalacatl*, which means “stone wheel”; and the other *cuauhxicalli*, which means wooden tub or eagle vessel. These two round stones were fixed within that courtyard one next to the other. (Durán 1971:177)<sup>6</sup>

I believe that the Calendar Stone’s imagery has a direct bearing on the question of its original location and spatial context, for its design relies on a complex arrangement of *hieroglyphic* forms that refer to concepts of place and axiality. Some of these glyphic forms are large, some are small, others are infixed or conflated with one another. Obvious among these is a particularly elaborate version of the solar disc, a hieroglyphic sign we know is read as **TONATIŪ** (*tōnatiuh*), “sun.” Later on I will make the case that this dominant hieroglyphic element is fused with another hieroglyphic sign **TIANKIS**, for *tianquiztli*, “marketplace, plaza, the Pleiades.” I should mention too that my ideas build upon a key observation made by López Luján and Olmedo (2010), who noted that a number of disc altars served in effect as three-dimensional hieroglyphic elements representing the sign **TIANKIS**, perhaps indicating their function as markers in large plazas and marketplaces. The Calendar Stone represents a greatly elaborated version of the same idea, but where the **TIANKIS** glyph is visually combined with **TONATIŪ** to cue centrality on both a local and cosmic scale. For now I will simply mention that seeing the Calendar Stone as a hieroglyphic design represents a new approach; nearly all previous analyses, grounded in the long-standing traditions of Aztec mythological research, have relied on a more generalized symbolic or iconographic method.

Apart from location, we will see that solar movement is also a significant part of the stone’s dynamic imagery, encoded through the inherent counterclockwise aspect of the design that was first noted by Townsend (1979:66). I will argue that this embedded movement replicates the cyclical progression of the daily and yearly sun as well as the ritual perambulations that probably occurred on or around the Calendar Stone itself (Taube 2000:320). In addition, I will present evidence that the sculpture’s well-known imagery of the sun and of the daily cycles of the *tōnalpōhualli* evoke and reflect its probable function as an aforementioned *mōmōztli* altar or platform, a “daily place” of ritual and activity known to occupy central plazas, markets, and open communal spaces (Heyden 1968; Noguera 1973; Umberger 1981; López Luján and Olmedo 2010).

Lastly, the present study will consider several of the smaller hieroglyphs on the Calendar Stone,

<sup>6</sup> This English translation by Heyden and Horcasitas (Durán 1971) shows a small but significant error in the name of the place of sacrifice. The translation gives it as *cuauhxicalli* while the original Spanish shows it to be *cuauhxicalco*, “at the *cuauhxicalli*” (see Durán 1967:1:98).

focusing especially on the two names integrated into the very center of the design. One of these, as we have seen, is an elaborate version of the personal name hieroglyph for Moteczomah II (Umberger 1979, 1981:205, 1988). However, in my view the graphic relationship of this name to the surrounding imagery has not been sufficiently described or explained. I believe that this royal name and its counterpart 1 Flint, the calendar name of Huitzilopochtli, serve to *identify* the much-debated face at the very center of the monument. In this interpretation the central face becomes a deified portrait of the ruler Moteczomah II in the guise of Huitzilopochtli, the Mexica patron god and the central figure of Tenochtitlan's political ideology. In seeing it as a monument to the Aztec ruler, I furthermore offer some circumstantial evidence that the stone may have been dedicated on or around the time of Moteczomah's accession in 1502. If correct, this new visual interpretation, presented in detail in the following chapters, adds a significant new historical and ideological aspect to the monument and its message.





## CHAPTER 2

## Image, Text, and Language

**M**y approach to the study of the Calendar Stone and related monuments assumes a close functional and analytical convergence between the roles of writing and iconography in the Mexica tradition, much as we see elsewhere in Mesoamerica. This method stems in large part from my own understanding of other Mesoamerican visual cultures, especially that of the ancient Maya, where the conceptual overlaps between image and text are strong. More specifically, I have grown increasingly aware that the ability to derive meaning from a Maya iconographic presentation relies on a deep understanding of hieroglyphic forms and conventions and the words they convey. And the reverse is true as well: the visual canons of the Maya script are very much based on specific iconographic programs and conventions. Numerous examples from different Mesoamerican traditions show that the graphic conventions of script and iconography grew hand in hand, even from the earliest stages, and Aztec-period art often exhibits the same intimate connection between iconography and writing.

This is not to say that we should simply conflate writing, iconography, or pictography as analytical categories. On the contrary, there is ample reason to see that ancient Mesoamericans were keenly aware that images could convey carefully encoded messages within a rigid framework of meanings and associations (iconography), whereas others followed distinct but related rules and conventions to represent the particulars of language to varying degrees (writing).

These two realms of visual communication developed together over many centuries throughout southern Mesoamerica and also in Central Mexico. They overlapped in creative and elegant ways that allowed for regular, even necessary crossover, but in so doing they led to some imprecision, if not

confusion, in modern descriptions and analyses of what constitutes writing in Mesoamerica.

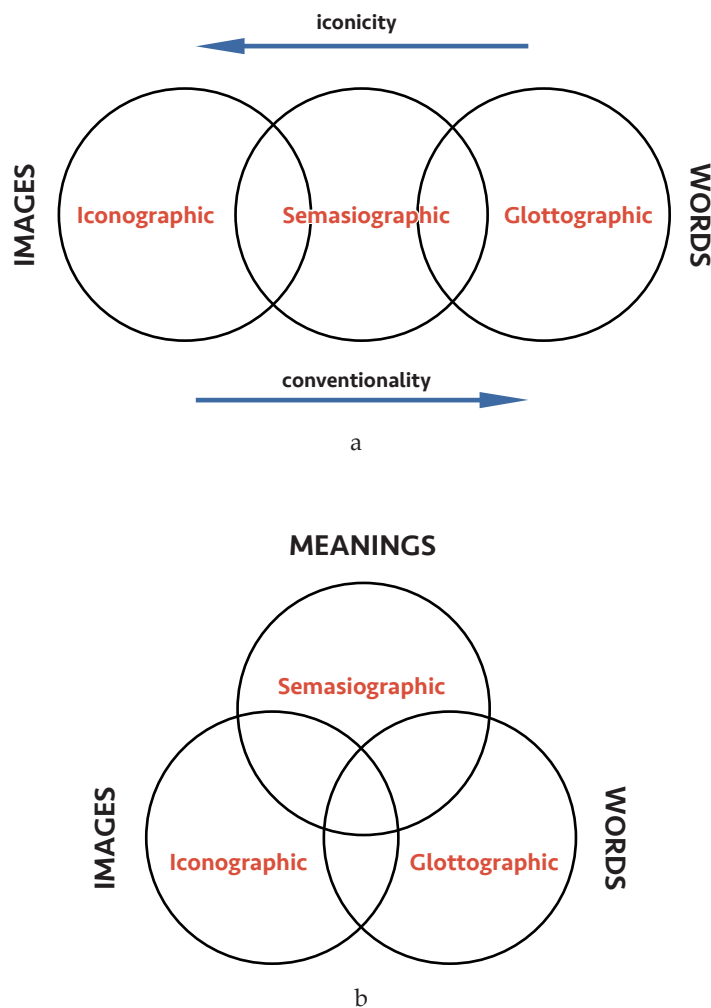
The blurring of lines between conceptual and functional categories of text and image seems very unusual to the western mindset, and it has led to a considerable amount of confusion and even misrepresentation about the nature of Mesoamerican scripts. Aztec (Nahua) writing stands out in this regard, with many early writers characterizing it in a general way as “pictographic” or even “ideographic.” Like other Mesoamerican writing systems, the Aztec script never was divorced from a clear iconic frame of reference. At the same time, those who have studied Aztec writing in the most detail have come to realize that it is of course very closely rooted in the Nahuatl language (Nicholson 1973; Lacadena 2008; Zender 2008). In this sense Aztec hieroglyphs conform to the rules of a true writing system, operationally and conceptually tethered to the wider visual culture and representational conventions of ancient Central Mexico.

The Calendar Stone offers an excellent if complex case study to demonstrate and examine this intractable relationship between iconography and writing. Its design, after all, is dominated by hieroglyphs: the Nahui Olin at the center, the names of the previous four suns or ages within its four “arms,” the ring of day sign hieroglyphs, and four other smaller hieroglyphs embedded within these larger elements. As Pasztory (1983:169) rightly noted, “whereas the early Mexica monuments represented figures without glyphs, the Calendar Stone consists of almost nothing else.” Here I would like to suggest that the presence of hieroglyphic elements on the Calendar Stone might be even more pronounced than has been previously supposed, and that the reading of these forms, as well as the interplay between them, leads accordingly to new interpretations of the stone’s deep cosmological and political meaning.

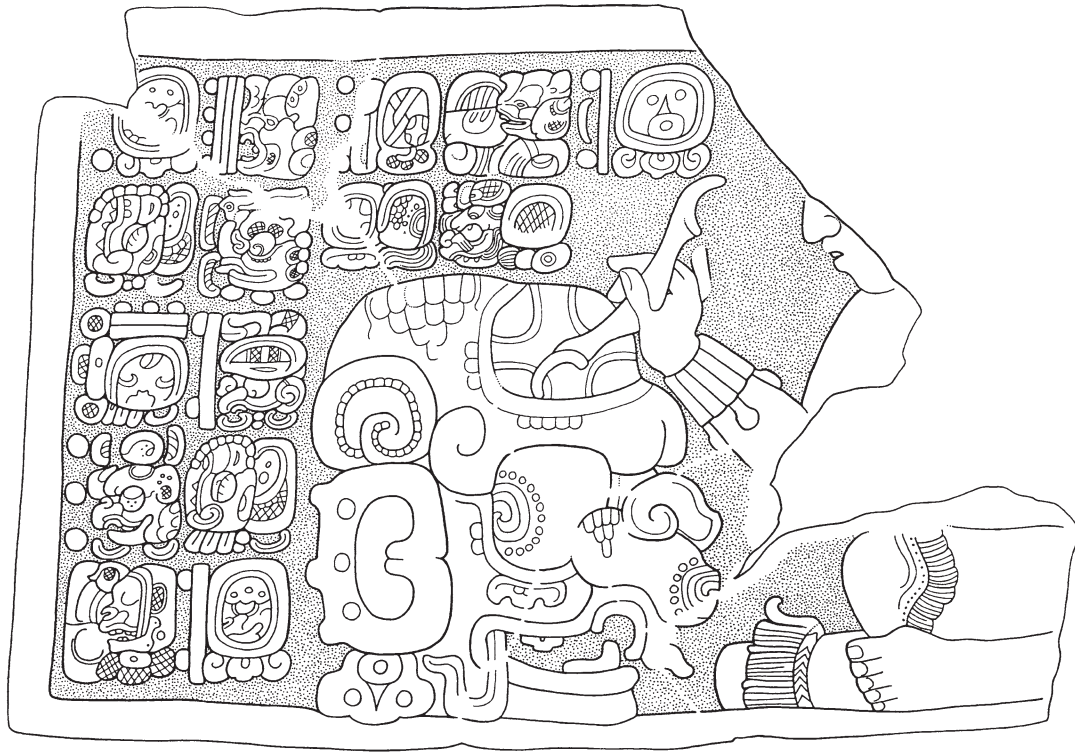
Boone in particular has commented on the intimate association of art and script in Postclassic Central Mexico, but she sees “writing” as a broad category that can be at times largely separated from language. As she puts it, “if one defines writing narrowly as spoken language that is referenced phonetically by visible marks, the Mexican system clearly does not fit” (Boone 2000:29). Elsewhere she has stressed that “in the semasiographic systems of the Mixtecs and Aztecs, the pictures *are* the texts. There is no distinction between word and image” (Boone 1994:20), and that “Aztec writing ... conveys meaning directly to the reader without usually having to form words” (Boone 2000:31). She thus assumes a very broad-based understanding of writing, encompassing all of the visual cues used to construct narratives in the graphic system of Central Mexican codices and other sources. But surely there is more to this issue, since we recognize that the Aztecs and other cultures of Postclassic Central Mexico also possessed a true script, a systematic phonetic means of writing Nahuatl words (Aubin 1849; Nicholson 1973; Galarza 1979; Prem 1992; Lacadena 2008; Whittaker 2009, 2021). As linguistically encoded forms, Nahuatl hieroglyphs were widely employed in the spelling of proper nouns and names, nearly always as direct labels for actors, places, or dates. Many years ago Henry Nicholson recognized such glyphs as a “structured subsystem ... utilizing an extensive repertoire of more or less standardized graphemes, often in combination up to five or even more” (Nicholson 1973:2). Many if not most details of grammar

are not represented, but such nominal constructions still must be seen as elements of writing, carefully arranged and formulated to represent specific expressions of Nahuatl language. We therefore can begin to discern how Central Mexican writing, and visual culture more generally, often entails something far more than semasiography (images divorced from word and sound). In contrast to Boone, I follow Nicholson and others (Prem 1992:53; Zender 2008:28; Whittaker 2021) in acknowledging some degree of distinction between pictorial images and hieroglyphic (that is, phonetic) elements, with the latter anchored in linguistic representation. But I agree with Boone's cogent observation that the two are intimately connected and often difficult to separate. Throughout ancient Mesoamerica, writing and "pictures" existed as categories that were by nature functionally symbiotic, playing off of one another in a closely-knit system of visual communication.

In an insightful overview of Precolumbian visual communication, Martin (2006) presents a nuanced discussion of many of these same issues, examining the complex interrelationships of word and image. He employs a three-part range of categories to examine the varieties of visual communication, with iconographic (purely image based) at one extreme and glottographic (sound-based) on the other (Figure 6a). Semasiographic forms, emphasizing the communication of



**Figure 6.** (a) Schematic representation of text-image relationships in Mesoamerican art, after Martin (2006); (b) a modified version of the same, with non-linear relationship between iconographic and glottographic systems.



**Figure 7.** Text-image interface on the Emiliano Zapata Panel, Palenque area (drawing: David Stuart).

meaning independent of language, exist in between these outer domains, usually as a culturally bounded means of visual dialogue. I agree with Martin's insightful discussion, but I would go further to note that its three analytical categories can often penetrate one another in nonlinear fashion, operating in ways set apart from a horizontal sliding scale. A Mesoamerican artist could, with great care and intention, communicate ideas based on an ingenious articulation of *both* the "iconographic" and "glottographic"—two domains that appear far removed from one another in the upper illustrated graphic, but which in fact can show considerable overlap.

Here I am reminded of the remarkable image on the so-called Emiliano Zapata Panel from Palenque, with its unique depiction of a stone carver (Stuart 1990) (Figure 7). The seated artisan—perhaps the recently deceased ruler K'inich Kan Bahlam himself—is shown carving into a large animated head that is labeled with stone markings on its surface. This exists in the

composition as a “physical object” receiving the cuts and incisions from the artist’s hand-held tool. It is visually based on the iconographic representation of “stone” as a serpent-like being, a well-established convention in Maya iconography (see Schele and Miller 1986:46; Stuart 2010). But here the object is a hieroglyph, conveying a verbal expression for the word *k’antuun*, “fine stone,” mentioned also, not coincidentally, in the adjacent text immediately above. The design of this curious image relies on different but concurrent functions of the image as both iconography—the animate essence of stone—and as the word for the thing itself, the *k’antuun*.

A similar dynamic seems to be at work in the Classic-period writing system and visual culture of the Cotzumalhuapa region of coastal Guatemala, whose language has yet to be determined. As Chinchilla Mazariegos (2011) has recently shown, the glyphic elements of Cotzumalhuapa writing can exist as “active participants” in complex visual scenes. Day signs can assume an extraordinary animate quality, to the extent that they “often acquire the qualities of living creatures, such as plants, animals or humans” (Chinchilla Mazariegos 2011:60). I would argue that traces of this same convergence of writing and visual form permeated all Mesoamerican traditions of writing, demonstrable in Olmec iconography (and possible script), at Teotihuacan, in Maya hieroglyphs, in the various systems of ancient Oaxaca, and in Late Postclassic Central Mexico.

Martin rightly notes that the three categories he describes are never discrete and isolated. For example, the supposed semasiographic nature of Mixtec pictorial manuscripts “obscures a deep penetration by glottographic components—which were plainly introduced to resolve ambiguity and expand semantic potential wherever possible” (Martin 2006:87). And given such ubiquitous tendencies, I would reframe the associations differently as a three-part, mutually intersecting system of associations (Figure 6b). Specific visual representations can operate anywhere within one, two, or three of these domains. That is, in many Mesoamerican visual systems a single “sign” may communicate, depending on its usage and context, (1) a purely visual message to convey as a depiction, (2) a more deeply encoded cultural meaning as a reference to an idea, or (3) a word or sound-based utterance. A depiction of a deer within a narrative scene may be “just” a deer, as shown in a hunter’s trap. Alternatively, the image of the animal may be used to represent a meaningful actor in a mythical narrative, a culturally specific participant. A deer sign (a body or a head) can operate in a system of writing as a day sign with a specific word value or even as a syllabic sign, conveying pure sound. In the Maya system in particular, a deer’s head could represent the day Manik, the logogram **CHIJ** (*chij*, “deer”), or the syllable **chi**.

In particularly rich and complex artworks the full message at times comes across through the interplay of these three categories. I suspect that the interpretations of many visual forms and compositions in Mesoamerican art, such as the Calendar Stone under discussion here, have either fallen short or have missed the mark by not recognizing the ways in which ancient artists

chose to employ interesting and innovative intersections of these domains. As I will argue here, the Calendar Stone has for too long been seen as a “symbol” or as a complex collection of symbols, something that operates comfortably within a decidedly semasiographic mode of communication that many have used to characterize the visual systems of Central Mexico (Boone 1994; Martin 2006). The great monument can also be said to operate very much as an elaborate iconographic image, in the vein of Seler’s characterization of it as “the sun and nothing more.” So far so good, but these characterizations offer only partial readings. The composition also relies on a close attention to language and hieroglyphic forms, showing a complex, multifaceted image operating in all of the analytical processes of image, sign, and word. In this sense its design and conception is quintessentially Mesoamerican.

Our challenges in parsing discrete categories of pictography and writing originate in no small part from a common misunderstanding of indigenous concepts that fed into a wider “visual culture system,” where overlaps and intersections abound. As a start, we can look at the Nahuatl word *tlahcuilōlli*, which is often translated as both “writing (*escritura*)” and “painting (*pintura*).” Such a double meaning would seem to blur any real distinction, but in fact it is a very general, all-encompassing term. *Tlahcuilōlli*, literally “a thing which has been painted,” is derived from the transitive verb *ihcuiloā*, “to paint, write, print, mark” (see Thouvenot 2010). We see that it is the descriptive reference of a physical *technique* equally applicable to the production of what we might distinguish as writing and pictorial images. The word itself reveals little about more specific indigenous concepts about categories of visual communication.

More helpful perhaps is the word *machiyōtl*, generally translated as “sign,” “symbol,” or “mark.” It is based on the irregular root “*mati* to know something,” and “*machiyōtl* a thing by which something becomes known” (J. Richard Andrews, personal communication, 1990). *Machiyōtl* most often refers to a *visual* form that conveys information in much the same way that logography does. In its use in the *Florentine Codex*, the word *machiyōtl* (*machiotl*) appears in contexts that leave little doubt that it refers to our understanding of a “hieroglyph”:

*Injc ce capitulo, itechpa tlatoa, injc centetl machiotl in jtoca ce cipactli, ioan in qualli tonalli in quimaceoia, in vncan tlacatia, in toqujichti, in cioa...*

First chapter, in which telleth of the first **sign**, which was named One Crocodile, and of the good **fortune** which they merited who were born then—men or women... (Sahagún 1950-1982:Book 4:1, emphasis added)

Throughout their translation of the *Florentine Codex* Anderson and Dibble (Sahagún 1950-1982) interpreted both *machiyōtl* and *tōnalli* as “day sign,” but they are in fact two very different words. *Machiyōtl* is the visual form of the day’s glyph, whereas *tōnalli* refers to the sun’s daily heat (*calor del día*, according to Molina’s 1571 dictionary), and by extension to the more abstract

essence of the day's name as a label for one's soul or fortune in life. The heat of one's body, also *tōnalli* ("a thing that has become warm"), was seen as a direct extension and manifestation of the sun's warmth (López Austin 1988:1:211).

Molina's *Vocabulario* connects *machiyōtl* to writing even more directly with the entry for "letra" which includes *machiyotlahtoliztli*, literally "the act of speech in the form of a symbol" (Molina [1571]1944:77v). Although its appearance in an early Colonial dictionary may well reflect an attempt to describe European alphabetic writing using indigenous verbiage, it is also worth considering the possibility that these terms were already in use, reflecting a sophisticated indigenous definition of writing and its close association with language. In fact, advances in discerning the patterns of phoneticism in central Mexican writing show that they can work much like other scripts in Mesoamerica in being highly systematized and tightly anchored to a particular language, hardly the loose ideographic or pictographic system as sometimes described (Nicholson 1973; Lacadena 2008; Zender 2008).

This foray into the conceptual relationships between art and writing brings up a larger methodological point on which we might best approach the Calendar Stone and numerous other examples of central Mexican iconography. Any Mesoamerican writing system, in addition to being fundamentally language-based, of course reflects the visual and artistic culture within which it develops. Writing, signs, and icons operate together within a complex and cross-referencing system of visual communication, resonating with imagery and ideas that have deep roots in culture history. At the risk of stating the obvious, it is important to note that the practice of iconographic research (and Mesoamerican art history in a broader sense) must take language firmly into consideration as much as it does formal or symbolic analysis. This is certainly true in Late Postclassic Central Mexico, where metaphor and speech play an essential role in the understanding of iconographic programs and forms (Alcina Franch 1995). Boone's point concerning "no distinction between word and image" agrees with some of what I advocate here, but only up to a point. Her position as I understand it presupposes that language is secondary in how images and words operate within a semasiographic system. In contrast, I view Nahuatl as a key natural component not only of the writing system but of iconography as well, given that the two are historically and visually anchored to a longer Mesoamerican visual system to which word, sign, and image were almost always visually and conceptually wedded. To reiterate, words and images were intimately connected even if there existed a functional distinction, sometimes quite subtle, between script and iconography. The categories complemented one another to express complex ideas that were culturally and often linguistically specific.

Two early and influential scholars of the Calendar Stone, Eduard Seler and Hermann Beyer, understood many of these subtleties and applied some of the methods just described.

Each brought a deep knowledge of Nahuatl and Mesoamerican visual culture into their interpretations of the monument, but they also took the Calendar Stone's image to be something simpler than I think it is—"an image of the sun, no more and no less," as Seler (1904a:797) put it. In later years Beyer had a similar reaction, countering those who saw the stone as some sort of deep repository of esoteric knowledge about Aztec religion and the calendar: "It is an object dedicated to the sun cult and all—absolutely all—of its decorative motifs refer to the sun" (Beyer 1921). Both scholars were right to bring the interpretation of the Calendar Stone down to earth, as it were, resting their analyses on firm understandings of the historical sources (those by Fray Diego Durán in particular), the Nahuatl language, hieroglyphs, and careful comparisons of visual data. Together Seler and Beyer prepared the ground for nearly all detailed studies of the stone's iconography.

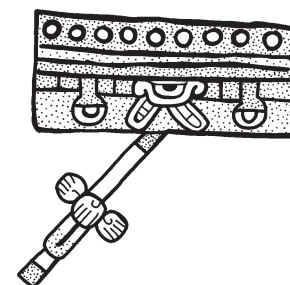
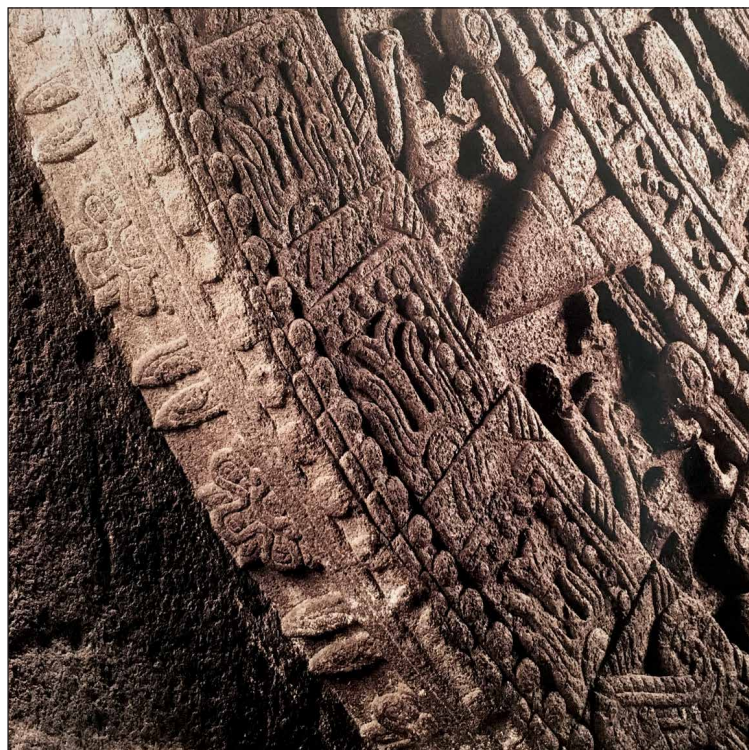
The use of hieroglyphs and their established lexical values as a foundation for iconographic interpretation has deep roots in Aztec studies, and in connection to the Calendar Stone in particular. For example, Beyer noted that the exterior celestial band of the Calendar Stone—visible only from the side, thus rarely reproduced in publication—presents an array of stars and "venus" symbols, representing the night sky (Figure 8). But in a key insight he saw beyond the superficial image and realized that it was a *hieroglyphic* form expanded into an iconographic element: "its meaning is known from its use in the hieroglyph of Moteczomah Ilhuicamina; there they represent *ilhuicatl*, sky" (Beyer 1921:119). Beyer correctly saw the band as nothing more than visual elaboration on the **ILWIKA** (*ilhuicatl*) hieroglyph in the script, therefore meaning no more and no less than "sky." The key point here is that the starry band, while visually representing the night sky, derives its actual meaning in the composition through a keen awareness of the conventions of script where the band is the word *ilhuicatl*. Revealingly, there does not seem to be a corresponding "day band" in Aztec iconography. The position of the *ilhuicatl* sky band on the exterior of the disc of the Calendar Stone was an ingenious artistic/ scribal device, used to provide a locational context and frame of reference for the disc-shaped composition atop the monument, a point we will return to near the end of this essay.<sup>7</sup>

Similar methods are now widely applied in the study of Maya iconography, where epigraphy and iconographic analysis have developed to become inseparable avenues of research, as they must be. We see the very same arrangement when considering the well-

<sup>7</sup> Beyer's approach here is far from universally accepted, and some still interpret it as a symbol of the night. For instance, Matos Moctezuma (2004:74) states that the outer band on the Calendar Stone "is clearly a band of the night sky which is, as we said, associated with the evening sun penetrating the underworld, night, Mictlan, the womb from which it will be born, triumphant every morning."

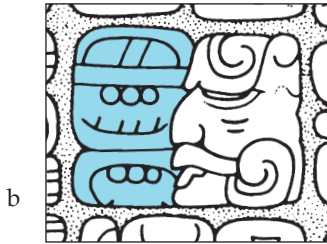


**Figure 8.** The outer edge of the Calendar Stone and its celestial (*ilhuitl*) band, compared with the logogram **ILWIKA** (in **ILWIKA-MI**, the name of Moteczomah Ilhuicamina) (drawings: Hermann Beyer, left, and David Stuart, right).



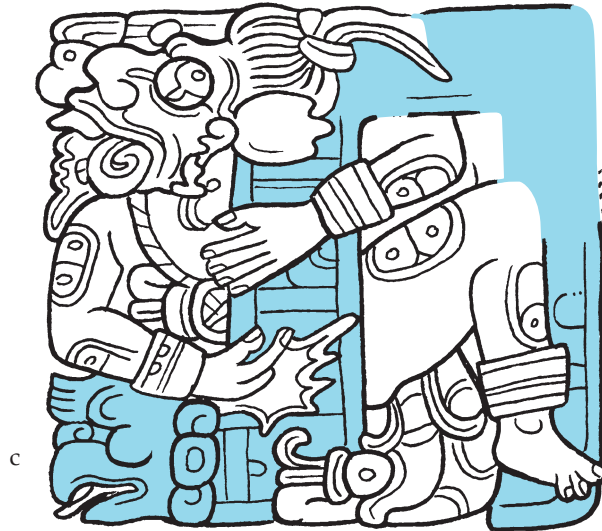


a



b

**Figure 9.** The Maya sky band: (a) iconographic sky band from codex-style vessel, K8999; (b, c) two equivalent hieroglyphic phrases from Yaxchilan, including the use of the sky band as CHAN.



c

known sky band of ancient Maya art, which can also assume a hieroglyphic function as the sign for **CHAN**, “sky,” even though compositionally it can be made up of a variety of elements we could associate with the night, such as stars and even *ahk’ab* signs (“night, darkness”) (Figure 9). The sky band illustrated here is just that—an artistic and scribal convention for representing *chan*, “sky,” as a word and as a location. Both the production and the reading of this hieroglyphic composition rely on an expert knowledge of iconographic forms and conventions as much as linguistic ones. A similar dynamic exists at all scales of Maya writing, from the simple to the visually complex.

We will readily extend this well-established idea of glyphic scalability in the Calendar Stone’s design in order to point out still larger hieroglyphs infixed into others. Many have discussed the presence of various hieroglyphic forms embedded within the Calendar Stone’s overall design (Umberger 1979, 1981), including the name glyph of Moteczomah II, the twenty day glyphs of the

*tonalpohualli*, the signs of the four previous “suns,” as well as three small calendrical references above and below the central Olin sign. As we will explore in some detail, all of these well-known glyphic elements are themselves embedded within an elaborate circular cartouche formed as a fusion of recognizable logographic signs in the Nahuatl writing system. In the case of this iconic sculpture, written forms and iconographic elements operate in a cohesive and inextricable system of visual communication.



TEMIX  
TITANZ

plata,

Templum ubi sacrificant,

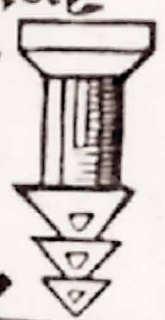
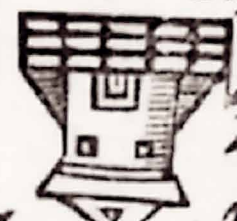


Capita sacri hatoru,



Laot.

Capiteu



Capita sacrificatoru,

Domus aialiu



CHAPTER 3  
A Daily Place

The ideas briefly outlined above regarding the nature of Aztec and Mesoamerican writing form a necessary baseline for probing deeper into the complex imagery of the Calendar Stone. Its layered hieroglyphic forms make direct *verbal* reference to Aztec conceptions of space-time, which in turn were designed and conceived to operate within the stone's original spatial location and orientation. At this point it is therefore necessary to take up the key question of the monument's original setting within the complex urban environment of Tenochtitlan, at least as can be discerned from indirect evidence.

Since the late nineteenth century scholars have realized that the massive disc of the Calendar Stone was designed to be in a horizontal position, possibly atop a raised outdoor platform, as we see vividly depicted in Durán's illustration of a stage for gladiatorial sacrifice, shown in Figure 5 (Chavero 1876; Heyden 1968; Noguera 1973; Umberger 1981; Fradcourt 1993).<sup>8</sup> It is also conceivable that the monument could have been placed directly into a stucco floor with no imposing platform, its sculpted surface jutting above the floor and requiring a short step for mounting and interacting. Perhaps this would still qualify as a *mōmōztli*, much like any other disc-shaped altar with solar designs. Whatever the case, not long after its discovery in 1790, the monument was rescued from the abuses of passersby and moved to the grounds of the Cathedral, on the north side of the plaza. León y Gama recorded the sculpture and offered his interpretation of the circular monument as a working "calendar," citing parallels with the pictorial documents and historical sources available at the time, and he made a number of important iconographic insights—arguably the first valuable iconographic study of any Mesoamerican artwork (León y Gama 1792). His insights included the identification of the central face

<sup>8</sup> Michel Graulich was not convinced of the stone's horizontal orientation, noting that it could also have been placed upright, presumably in a temple wall (Graulich 1997:162). I find this highly unlikely given the sheer weight of the stone, and considering the horizontal presentation of many similar solar designs in Aztec monumental sculpture.

as that of Tonatiuh, the sun god, inside the large hieroglyph for Nahui Olin, as well as the twenty day signs and the smaller embedded glyphs of the four previous eras. León y Gama's consideration of the stone as a calendrical tool or computational device may well have led to its *vertical* presentation on the exterior wall of the cathedral—an almost playful reference to a circular clock on a bell tower—where it remained for many decades. The constant vertical presentation of the monument ever since, in museums and countless reproductions, has forever altered our perceptions of its true nature as a sculpted horizontal surface, integrated into some larger architectural form and space.

Alfredo Chavero was the first to stress the horizontal orientation of the Calendar Stone when he interpreted it as an elaborate *cuāuhxīcalli*, or “eagle vessel,” a ritual container for sacrificial hearts and blood (Chavero 1876; Seler 1904a). This stems from Durán's extensive discussion of the ritual use and meaning of such stones, which he describes as bearing “images of the sun”:

It was decided by King Huehue Motecuhzoma that the likeness of the sun should be carved out of a very large stone and that a great feast should be made. Stonemasons were ordered to find a great Stone and having found it to paint the shape of the sun on it. In the middle of it they made a round basin, and from the edge of the basin rays came out, so that in that basin the blood of the sacrificed was collected in order that the likeness of the sun should enjoy it, and from this basin a spout came out, through which the blood was spilled. Around the border they were ordered to paint all the wars that there had been until that time, wherein the sun had granted that they be victorious with its favor and aid. (Durán 1967:1:191, translated from the Spanish)

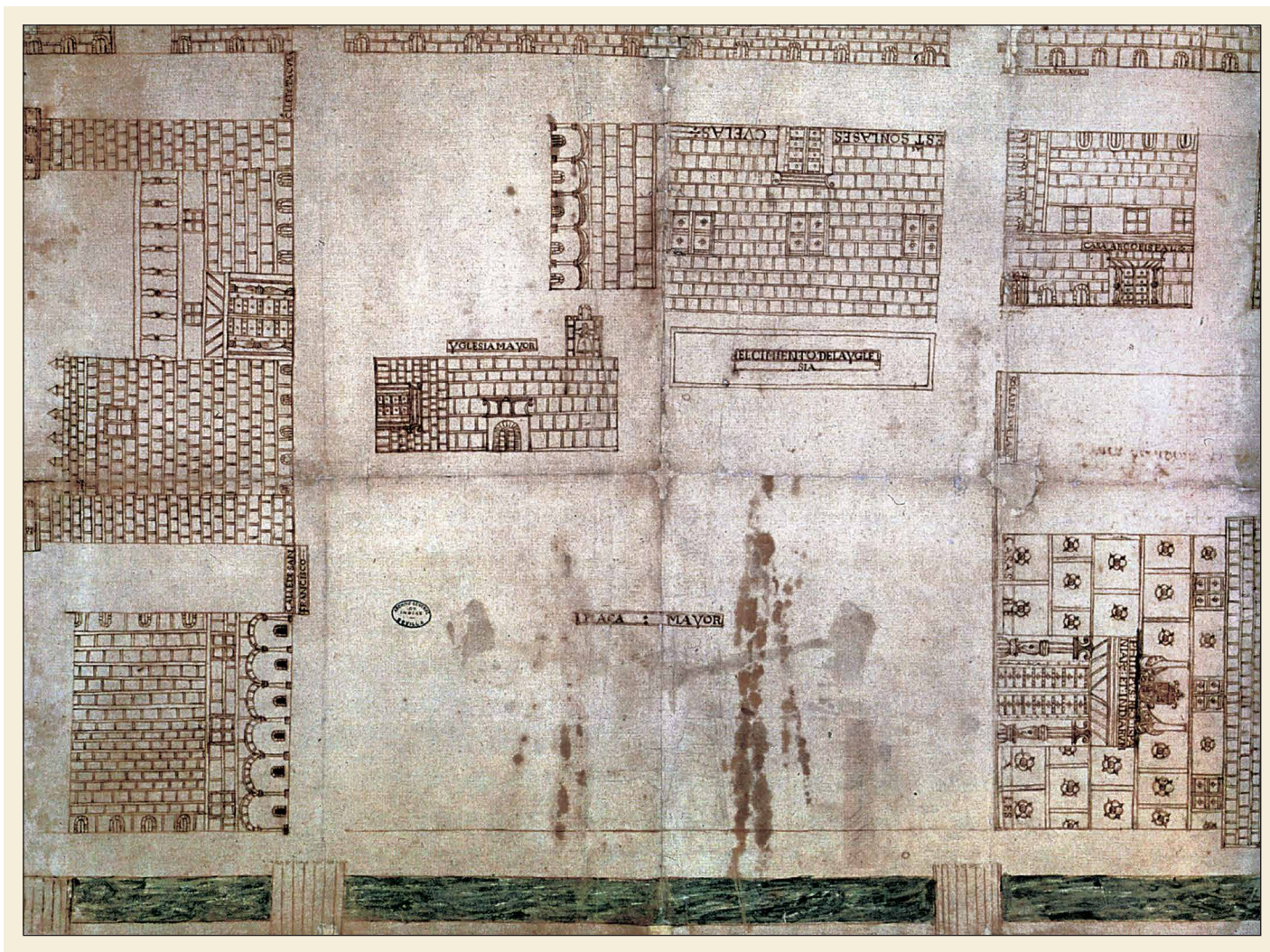
Based on Durán's description there can be little doubt that the famous monuments known today as the Stone of Tizoc and the “Archbishop's Stone” (or Stone of Moteczomah Ilhuicamina) are two surviving examples of such *cuāuhxīcalli*, as many other writers have noted. It is possible that the Calendar Stone was conceived as a variation on this same idea, with its overlapping emphasis on solar imagery and its circular format. While surely a stage-like place for sacrifice, it nevertheless remains to be seen if the Calendar Stone was ever conceived of as a true “eagle vessel” due to the obvious lack of a basin at the center (Baudez 2013:24). Nonetheless, there can be no question that the sculpted designs on the upper surfaces of many large and small *cuāuhxīcalli* show considerable crossover with the iconographic display of the Calendar Stone (Solís Olguín and Velasco Alonso 2004).

Once we acknowledge the essential horizontal nature of the monument, we naturally ought to consider its original placement and location in central Tenochtitlan. There is no question the stone was moved some distance before it was buried—it was discovered facedown, after all—but from where? Most writers have assumed it was set somewhere within Tenochtitlan's sacred precinct. For instance, Villela, Robb, and Miller (2010:16-17) posit that the Calendar Stone was originally placed in direct association with the Templo Mayor, perhaps a short distance from the massive Tlaltecuctli sculpture recently unearthed at La Casa de las Ajaracas. Others have posited that such a monumental sculpture, one of the largest of Tenochtitlan, naturally was meant to be experienced in close proximity to significant temples

and other monuments of the central precinct. As Matos Moctezuma notes, the Calendar Stone and other smaller monuments found in and around the Plaza Mayor “were removed from their original locations and transferred after the conquest to the places where they were found” (2012:27, translated from the Spanish).

In his original report León y Gama noted that the Calendar Stone was found “at a depth of only half a yard” during the digging of the main square on December 17, 1790. Four months earlier, workers had stumbled across the Coatlicue monument about 100 feet away to the east, near the southern corner of the Viceroy’s palace (today the Palacio Nacional) (Boone 1987:19). In his useful map of sculptural finds in central Mexico City, Mateos Higuera placed the Calendar Stone precisely in the southeastern area of the Zócalo (Mateos Higuera 1979:228). No record exists of any ancient architectural features that might have been associated with it, but the sculpture was clearly no longer in its original context, having been buried facedown sometime between 1554 and 1572 (Villela et al. 2010:16, 44, 48). So, was the Calendar Stone simply dragged from the sacred precinct soon after the Conquest, coming to rest near its eventual find-spot in the southeastern sector of the Plaza Mayor? This is the widespread assumption, it seems, based in part on the account by Cervantes de Salazar, who in his *Crónica de Nueva España* describes the lowering of large stone “ídolos” from the *huei teōcalli*, during the time of Moteczomah’s imprisonment in 1520 (Cervantes de Salazar 1914:343-344). Nicholson (1988:336-239) notes that these were likely to have been the principal votive images of Huitzilopochtli and Tlaloc that had been housed within the temple-shrines. But it could have included other large sculptures as well, including, as Boone (1999) argues, the famous Coatlicue statue that was unearthed in close proximity to the Calendar Stone.

Circumstantial evidence points to the possibility that the Calendar Stone was not originally set within the main temple precinct, located some distance to the north, and that its original placement was close to the place of its discovery in 1790. First, it seems implausible that this massive stone weighing approximately 22 tons was dragged over 250 meters from within the sacred precinct in 1520 or 1521, only to be left exposed in the Plaza Mayor for at least three more decades before its eventual burial sometime after 1554. Why move it with so much effort and leave it so exposed? Perhaps a more likely scenario is that the stone rested for a long time near its original location before it was overturned and buried. The plaza that later became the Zócalo was, after all, a major feature of Tenochtitlan’s urban landscape in its own right, located to the south of the sacred precinct and immediately to the west of the royal palace or *tecpan* of Moteczomah II (Matos Moctezuma 2012, 2015; Mundy 2015:76) (Figure 10). This vast open area is indicated as such on the famous map that accompanied the *Carta de relación* of Cortés, marked with the Latin gloss *Platea*, or “courtyard” (Figure 11). Interestingly, two small structures are indicated as having existed in the plaza, attesting to the existence of some types of architectural feature, perhaps platforms. Like many other urban plazas and courtyards in Mesoamerica, it no doubt was the site of many varied functions and activities (Ossa et al. 2017).



**Figure 10.** Early map with representation of the *plaza mayor*, ca. 1563. The early cathedral (*iglesia mayor*) is to the north, and the royal palace to the east. Archivo General de las Indias, Seville (from Mundy 2015:Fig. 4.3).



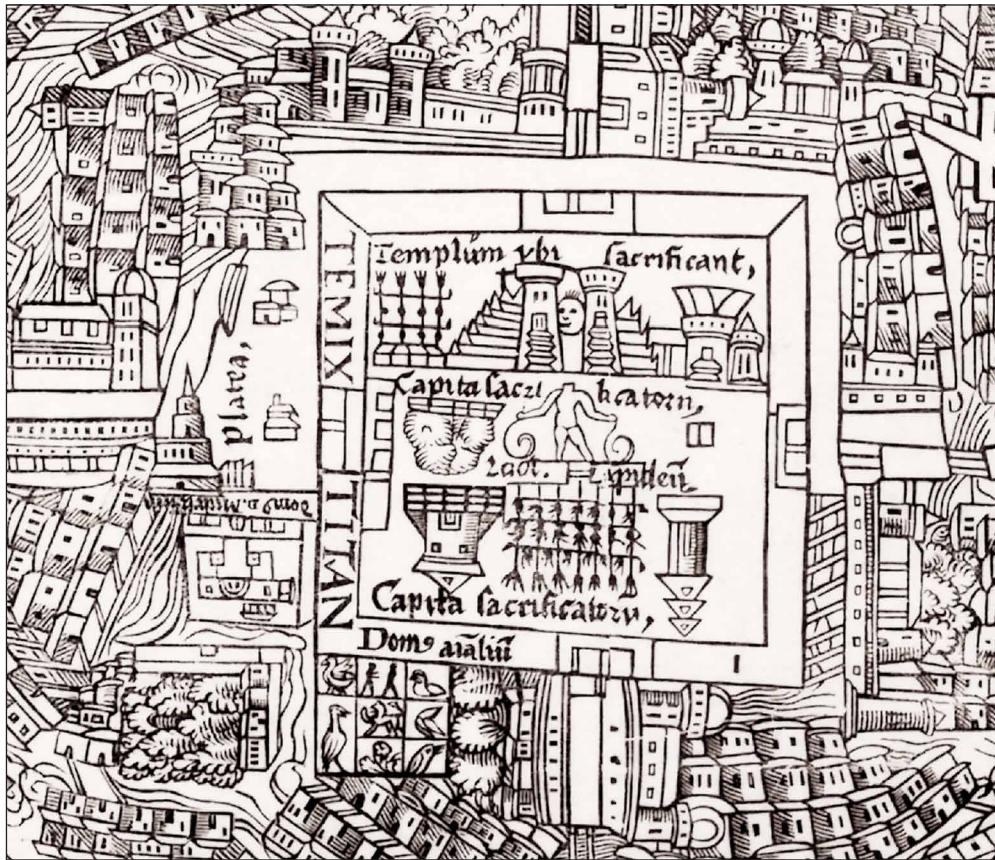


Figure 11. Detail of the 1524 map of Tenochtitlan, showing the plaza (“platea”) to the south of the temple precinct. The map is oriented with east at the top.

The plaza was directly in front of the royal residence of Moteczomah II, suggesting that the overall space was, by virtue of its location, heavily charged with symbols of Mexica authority and governance. As Susan Toby Evans (2004:15) has remarked, this physical connection between main plaza, royal palace, and temple precinct was a key aspect of urban design, where Tenochtitlan’s “main plaza, adjacent to the entry courtyard, sometimes functioned as a kind of palace anteroom.” The Calendar Stone would not have been out of place in such a central and regal locale. It seems reasonable to entertain the possibility that it was associated not with the main temple precinct but rather with the plaza where it was unearthed and its associated royal palace.

This is precisely the location where Durán remembers a large sacrificial stone being located for many years before its ultimate burial by the Archbishop Mantúfar in the late sixteenth century.

One of the stones which I have mentioned stood where the sacrifices were begun, and the other where the sacrifice ended. Many of us today have some knowledge regarding them, and one of the stones was in the main square of the city for a long time. It stood next to the canal where today an open-air market is held in front of the Royal Mansion.

Here a large number of Negroes formerly gathered continually to sport and to commit atrocities, sometimes killing one another. That is why the Most Illustrious and Reverend Lord Fray Alonso de Montúfar, of holy and laudable memory, Most Worthy Archbishop of Mexico of the Dominican Order, had it buried, in view of the crimes and homicides committed there. (Durán 1971:180-181)

This must be a reference to the Calendar Stone itself, as noted by Villela, Robb, and Miller (2010:16). As an aside, it is remarkable to read Durán's remembrance of a "large number of Negroes" who would routinely congregate around the monument. These African slaves, brought to Mexico in the very first years after the Conquest, seem to have used the imposing monument as a central gathering place within a nascent Colonial capital, directly in front of the Viceroy's palace. Was this indicative of some sort of semi-organized resistance by the slaves to the fragile order of Spanish rule? At the very least it seems to reflect their conscious appropriation of a very visible and fairly recent Prehispanic monument—a symbol of the indigenous idolatry that in those years had only recently vanished from the city's public sphere, but which would still have been very present and active in the countryside of New Spain.

At any rate, Durán's account gives the impression of a sacrificial stone of considerable size. More to the point, his specific description of the circular monument corresponds exactly to the spot in the main square where the Calendar Stone would be unearthed two centuries later (Villela et al. 2010:16). This places the monument in the large plaza to the south of the central precinct—what would later become the Zócalo—during the decades immediately following the conquest, exposed for many passersby to see and to ponder. I will expand on this key locational clue later in this study. For the time being, we need only recognize the monument's essential function as a sacrificial "stage" in a courtyard or large plaza, and perhaps in close proximity to the Plaza Mayor.

Early Colonial maps of the Plaza Mayor show that its basic proportions were much the same in the mid-sixteenth century as we see in the Zócalo today (Rubial García 2012). It was at this time that Cortés ordered the construction of his own palace over Moteczomah's *tēcpan*, directly appropriating the Aztec ruler's personal space and expression of royal authority. To the north of the plaza was built the early version of the cathedral, over what had been the southern portion of Tenochtitlan's central precinct (the Baroque-style cathedral seen today stands in this same location, completed finally in 1813). Despite the rebuilding some essential functions of this open space may have changed little from Precolumbian times. For example, the large Plaza Mayor (or Plaza de Armas, as it was later to be called) was the site of

an extensive marketplace or *tianquiz* that surely had Precolumbian beginnings. Cervantes de Salazar's important sixteenth-century description of the plaza, cited by Matos Moctezuma, states "here fairs or markets are held, *almodenas* are made, and all kinds of merchandise is found; here the merchants from all this land come with their own goods, and in short, to this square comes all the best in Spain" (Matos Moctezuma 2012:26, translated from the Spanish). A canal ran east-west at the southern side of the plaza, where today we find the streets named 16 de Septiembre to the west, and Corrigidora to the east (this is the same *acequia* mentioned by Durán) This was traversed by footbridges which can be seen in the Colonial map illustrated as well as on the map of the Cortés *Relación* (see Figures 10 and 11). This large canal remained a key means of access into the central market of the city well into the eighteenth century.

At first it might seem strange that a monument as large and imposing as the Calendar Stone could have been placed in such an open plaza or market, but the sources are clear that this is precisely where one would expect to find a sculpture with such solar symbolism. Often freestanding *mōmōztli* altars and platforms were designed to function in what seem "mundane" settings such as at crossroads and within the centers of plazas and marketplaces. Durán described the *mōmōztli* altars in some detail:

[I]n olden times there was a god of markets and fairs. This deity had his place upon a *momoztli*, which is like a roadside shrine or a pillory block. [...] Many of these stood along the roads, on street corners, and in the market.

In the shrines at the market places were fixed round carved stones as large as shields, each one bearing a round figure like that of the sun with flowers and circles carved around it. Some were carved with other images, depending upon the feeling of the priests and the importance of the market place and the town. (Durán 1971:273)

As prominent markers at the center of plazas and at intersections, many *mōmōztli* altars clearly held great spatial and ritual significance (Olivier 2003:172-174). Beyond their specific attributions to certain gods and symbols, they were used to define and highlight centers and intersections of space and movement, exterior "nodes" of urban and community design. Such *mōmōztli* platforms no doubt existed in and around the sacred precinct of Tenochtitlan and in plazas and courtyards both large and small. Lopéz Luján and Olmedo (2010) describe several of these circular stones that bear hieroglyphic designs of the hieroglyph for **TIANKIS** (*tianquiztli*), labeling the spaces in which they were found (Figure 12). We will develop this idea of "glyphic altars" much further, but for now I would simply entertain the possibility that the Calendar Stone, integral to its own architectural setting, was perhaps a very elaborate version of the same sort of stone, used to mark the central space of the large plaza of ancient Tenochtitlan, perhaps the most imposing *mōmōztli* of its time.

One aspect of the Calendar Stone that receives relatively little attention is its original coloration. As more recent discoveries of monumental sculpture show, large monuments displayed vivid polychrome adornment (Nicholson 1985; López Luján et al. 2016). León y Gama did not mention any coloration



**Figure 12.** Disc-shaped altar bearing the hieroglyph for **TIANKIS** (*tianquiztli*), “market, plaza” (photograph: Leonardo López Luján).

shows that the interior of the central circle, with its large Nahuatl Olin glyph, had a white background, highlighting it in relation to the surrounding imagery. This will prove relevant when we examine the other hieroglyphs of this central circle and the way they operate together to form a complex thematic focal point of the composition.

In his important 1921 study, Beyer claimed that the present form of the Calendar Stone did not reflect its original design and function—that it was in essence an unfinished sculpture. He argued that, as a proper *cuāuhxīcalli*, it must have been originally conceived as a tall cylindrical monument like the Stone of Tizoc (Figure 14), but this artistic vision was interrupted due to a large “break” in the underside of the stone that forced the carvers to redesign the monument as a relatively shallow relief. To Beyer, the thick unhewn rock surrounding the sculpted disc presented a “problem,” an unnecessary, inexplicable

in his initial description of the monument, suggesting that it was much faded at the time of its initial discovery. But studies early in the last century gave some indication of red, yellow, and blue-green color as part of its iconographic presentation, as first proposed by Roberto Sieck Flandes in the 1930s (see Matos Moctezuma 2004:55). This was based primarily on comparisons of motifs in the pictorial codices, and not on direct observation (Graulich 1997:167). While inaccurate in many respects, his polychrome reconstruction is often reproduced in publications to this day. A more recent and careful analysis overseen by Felipe Solís Olguín produced a different and more accurate array of colors, emphasizing red, yellow, and white (Solís Olguín 2000) (Figure 13). It is noteworthy that the more recent analysis



Figure 13. Reconstruction of the original coloring on the Calendar Stone as proposed by Felipe Solís Olgún (from Matos Moctezuma and Solís Olgún 2004:148).



**Figure 14.** The Stone of Tizoc, a monumental *cuāuhtēcalli* (from Matos Moctezuma and Solís Olgún 2004:Fig. 67).

aspect of the monument's supposed incomplete form. But is the surrounding form of the uncarved stone a problem, in fact? I am reminded of a close visual parallel in the disc-shaped Maya sculpture known as the "Motmot marker," once placed horizontally in a plaza floor in the early architectural levels of Copan, from where it was excavated in 1989 (Figure 15). This limestone monument was set flush into a plaster floor before a shrine or temple, leaving the circular scene exposed to the open air. As now displayed in the Museo de Escultura in Copan, the marker appears as a far more massive stone, very thick and consisting of much "extraneous" material, similar to the Calendar Stone. I suspect that the Aztec monument, while significantly larger, may have been similarly placed such that the sculpted



**Figure 15.** The Motmot marker from Copan, Honduras. This circular altar was placed flush with the plaza floor in front of the Motmot structure, an Early Classic version of Structure 10L-26 (photograph: Alexandre Tokovinine).

form of the disc was visible, with much of the surrounding stone forming part of the surface of a platform, or at least flush with it. I doubt, therefore, that the stony mass around the Calendar Stone should be seen as problematic, as Beyer saw it. It is not, in other words, an unfinished or broken sculpture. It is more reasonable to suppose that the rough outer portions of the stone were integral to the monument and conscious parts of the design, perhaps left by the artisans as a material expression of its stone materiality and raw “earthiness” (Stuart 2010). This is supported by certain intentional designs drilled or carved into this outer rough surface, perhaps holding astronomical meaning as celestial bodies and

constellations that are meant to be seen and understood in conjunction with the larger solar disc itself (Aveni 1980; Milbrath 2017).

I have often been struck how the general form and appearance of the Calendar Stone evokes the design of many Maya disc altars. Drawing a parallel from the distant Maya world (for example, Copan’s Motmot marker) may seem an unnecessary reach across time and geography, but I feel it is important to consider how the Calendar Stone is by no means a unique *type* of Mesoamerican monument, even beyond the confines of Mexica or Aztec sculpture. Aside from being a variation on the overlapping concept of the *cuāuhxīcalli* or *temalacatl*, the Calendar Stone is also a large and particularly elaborate example of an older and much more widespread monument type—sculpted horizontal discs—with roots in early Mesoamerican monumental art of the Middle Preclassic era (Figure 16). From this wider vantage point we find many similar disc-shaped sculptures that were placed in plaza floors or upon platforms, often in association with other sculptures and architectural features. I am reminded most of the raised disc altars that are common at Maya sites of the Classic period and before. Like the small *mōmōztli* altars of the Aztecs, Maya disc sculptures may be small, even portable, and they bear a variety of designs.

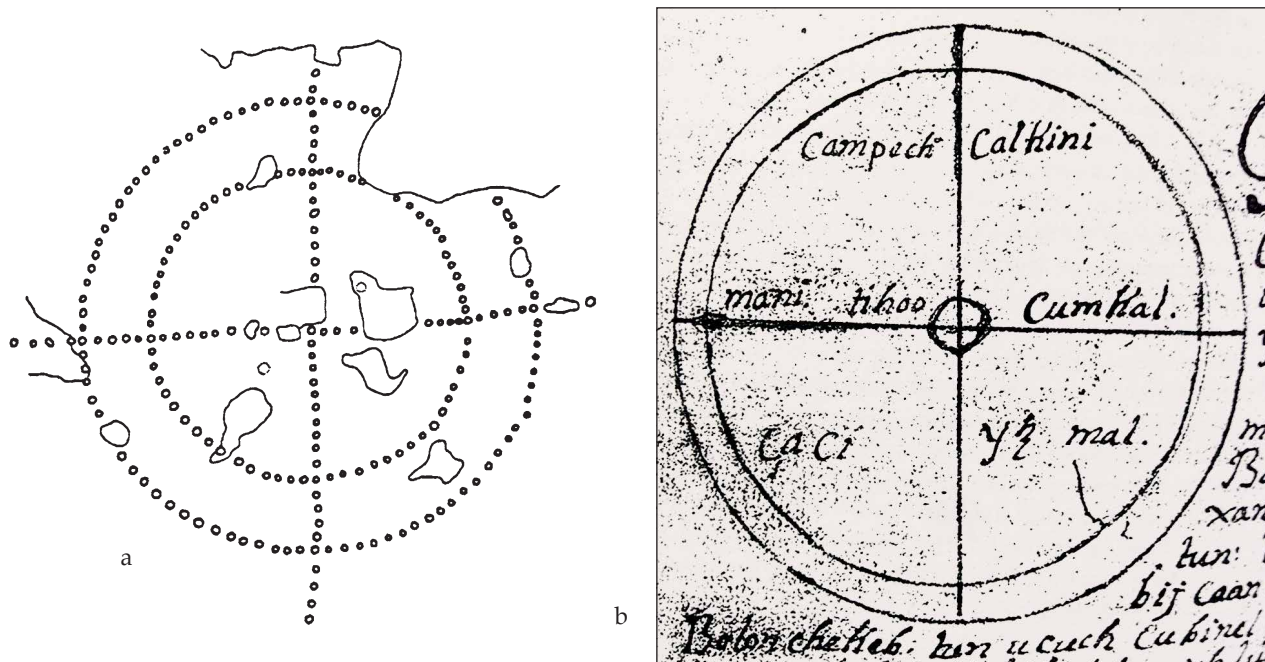


**Figure 16.** A stela and disc altar from the Middle Preclassic period, from El Naranjo, Guatemala, ca. 700 BCE (photograph: David Stuart).

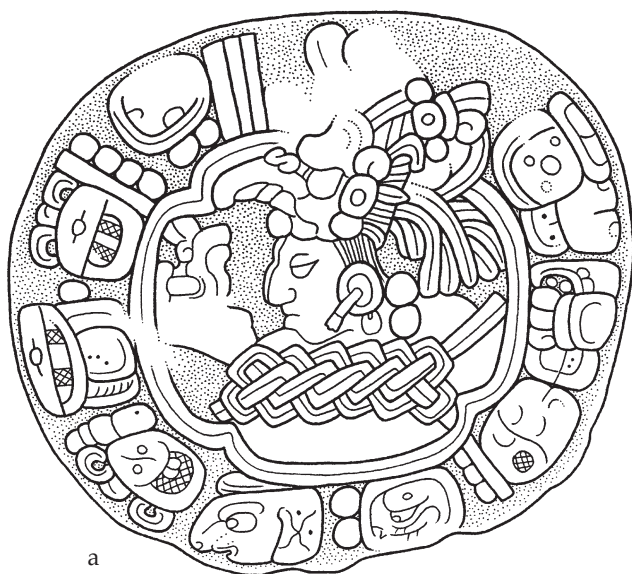


Many are uncarved. As I have suggested elsewhere, even non-sculpted monumental stones, be they stelae or altars, bore significant sacred meaning in their own right as material expressions of the earth and its stony substance, brought into more ceremonial spaces both public or domestic as interactive places for ritual engagement (Stuart 2010).

The circular shape of numerous altars, including the Aztec Calendar Stone, unifies them to some extent as expressions of the widespread and very ancient model of the universe found throughout ancient Mesoamerica (and indeed in native North America) emphasizing the shape of the observable horizon and centrality as a pivot-point of solar movement (see Sosa 1985:214, 220). This basic structure can be traced well into the Early Classic in the form of so-called “pecked crosses” that represent spatial-temporal mechanisms of the Mesoamerican calendar (Smith 1950:21-22; Aveni et al. 1978) (Figure 17a). The same circular perspective on space and movement served as the basis for some Colonial maps in Yucatan (Figure 17b) that integrated indigenous and European conventions and were based on models of solar observation (Restall 1999:200; Mundy 2000:117; Paxton 2009). Similarly, it would seem that



**Figure 17.** Circular and bisected representations of space in Mesoamerica: (a) pecked cross from Teotihuacan; (b) Colonial map of Yucatan from the *Chilam Balam of Chumayel*.



a

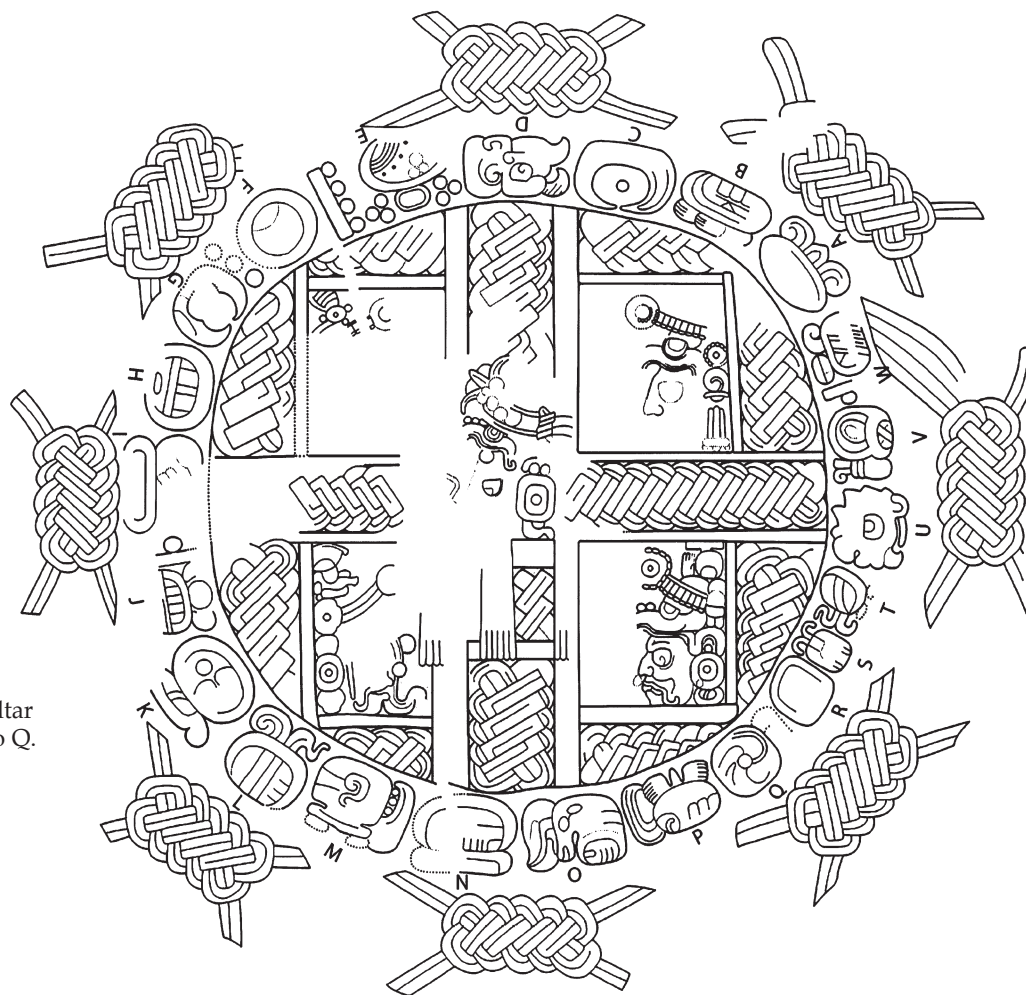


b

the upper surfaces of many ancient disc altars, while highly varied in design and conception, may also have served as microcosms and expressions of “cosmic centers,” replicating the form and function of the ritual *mesas* and altar-spaces of indigenous Mesoamerican ceremonies. Up to the present day such altars and ritual spaces have been explicitly conceived as interactive models of cosmological structures and relationships, where centers and four-point directionality are key (Girard [1962]1995:51-52; Sosa 1985; Freidel et al. 1993:123-172).

One example is a small stone from the region of Bonampak now housed in the Art Institute of Chicago (Figure 18a). This is a commemorative altar celebrating a specific deceased ancestor. The inscription of nine hieroglyphs runs counterclockwise around part of the stone and continues along the outer edge, providing

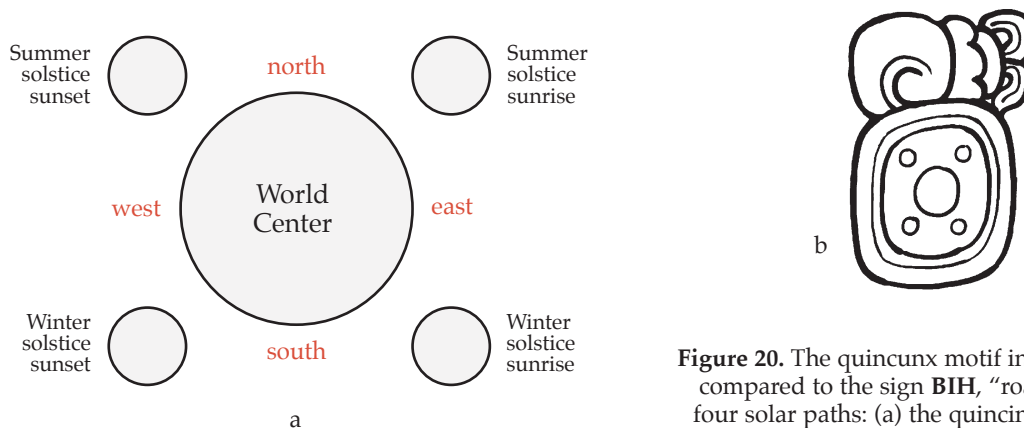
**Figure 18.** Sculpted Maya disc altars, perhaps solar pedestals or surfaces for incense-burning: (a) small Maya disc altar from the Bonampak region, Chicago Art Institute (drawing: David Stuart); (b) Tonina Monument 149 (drawing: Lucia Henderson).



**Figure 19.** El Palmar Altar 10. Drawing by Octavio Q. Esparza Olguín.

the date of the ancestor's death and the dedication of the stone some 29 years later. The deceased lord appears in the center within a quatrefoil design that represents a cavity or portal to upper or lower worlds. This central image, with its historicized portrait, possibly provided a small surface or stage for an incense burner or other ritual object. At Tonina, similar disc altars were burned directly, causing considerable damage to their surfaces (Figure 18b).

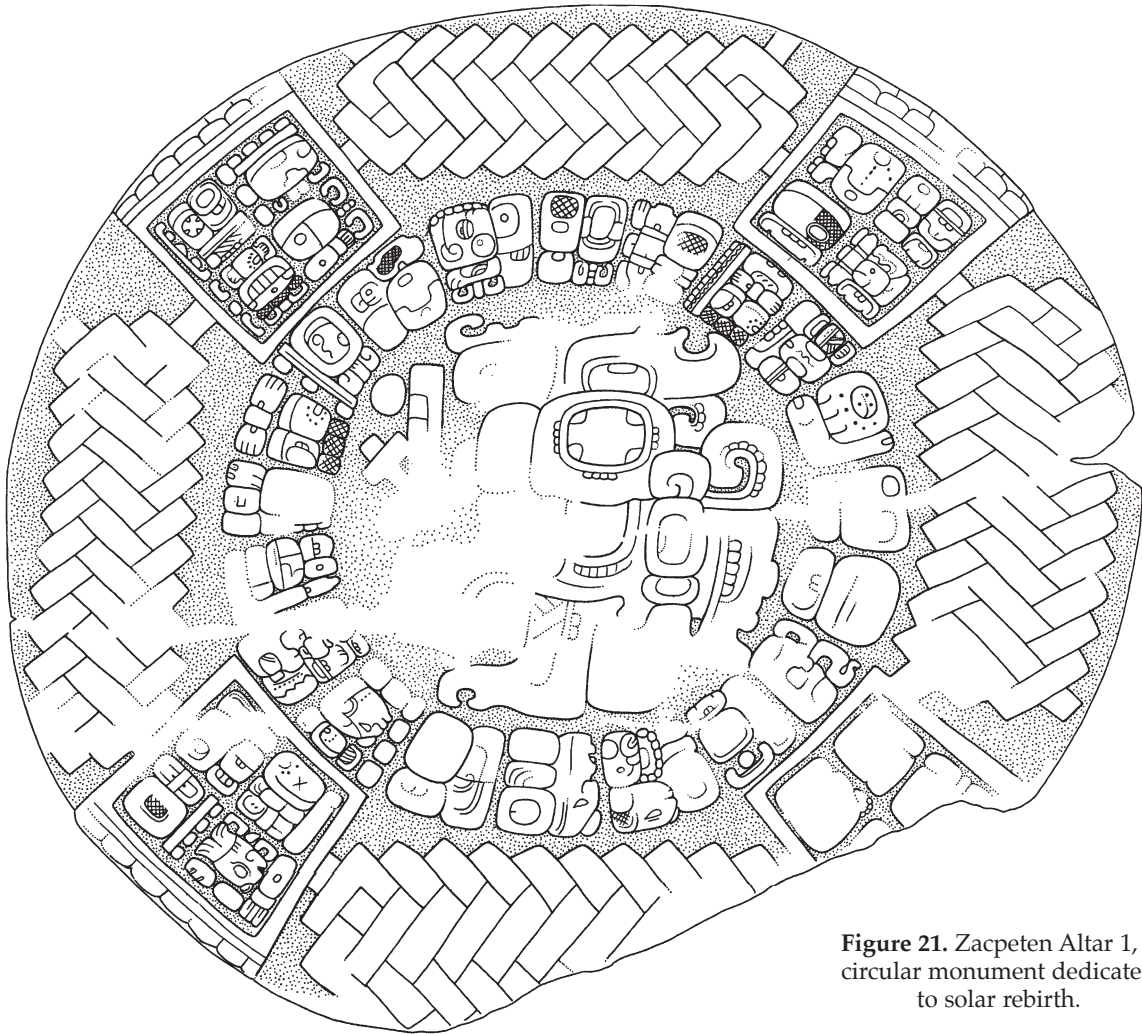
One particularly elaborate Maya disc altar from the site of El Palmar, Campeche, seems to emphasize solar movement (Figure 19). The intricate design of the stone shows five deity heads arranged in



**Figure 20.** The quincunx motif in Mesoamerica compared to the sign **BIH**, “road,” and the four solar paths: (a) the quincunx design; (b) the hieroglyph **OCH-BIH**, “to road-enter.”

a “quincunx”—the five-part format that was the model of solar cosmology throughout Mesoamerican cultures. In simpler presentations, the quincunx appears as a center-point surrounded by four other equally spaced points (Figure 20a). An abstract design, it is nonetheless rooted in observations of the sun and its yearly movement, with the four outer points representing the rising and setting positions of the sun during the winter and summer solstices (Girard [1962]1995:51-52; Gossen 1974; Sosa 1985; Carlsen 2009; Stuart 2011:78; Maffie 2014:200-201). For the Classic Maya the solstices were seen as the “four roads of the sun” (*chan u bih k’in*), crossing at the center point (Stuart 2011:82). It is probably for this reason that the Classic Mayan word *bih*, “road,” was written with a hieroglyph that replicated the simple quincunx form (Figure 20b). On the El Palmar altar this form is greatly elaborated, showing different deities as figurative aspects of this solar geometry. The faces are somewhat damaged, but they would all appear to be solar gods of different types, including K’inich Ajaw (at the center?) and GI at the lower left, perhaps an appropriate animated form of the summer solstice sunrise (see Stuart 2005:168-170). The twenty woven cords that intersect and “bind” these images no doubt have calendrical and cosmological significance as well. The El Palmar altar thus provides a circular model of solar movement within a spatial-temporal framework. As we will see, a similar five-part arrangement forms a basic design feature of the Aztec Calendar Stone as well.

Another Maya disc altar is Zacpeten Altar 1, dating to the end of the Late Classic period and possibly representing the four points of the solstice as a diagonal cross (Figure 21). The explicit theme of this altar is solar birth, as described in the circular text around its central image (Stuart 2009). At the center is a deity face that also seems to have close ties to solar phenomena, although it remains poorly understood. Unlike the altar from El Palmar, the circular stone from Zacpeten was evidently part of a stela-altar pair, placed before a stela that would have carried the portrait of a standing ruler



**Figure 21.** Zacpeten Altar 1, a circular monument dedicated to solar rebirth.

“interacting” with the altar itself. This was a common trope in Classic Maya monumental art, where the disc-like altar seems the focus of action and attention. As I argued previously, the flat circular form of such altars also makes reference to the appearance of ceramic plates or bowls, both being places of offering and sacrifice (Stuart 1996), an idea that resonates with the interpretation of many similar Aztec disc altars as *cuāuhxīcalli*, “eagle vessels.” A few representations from Late Classic ceramics show that



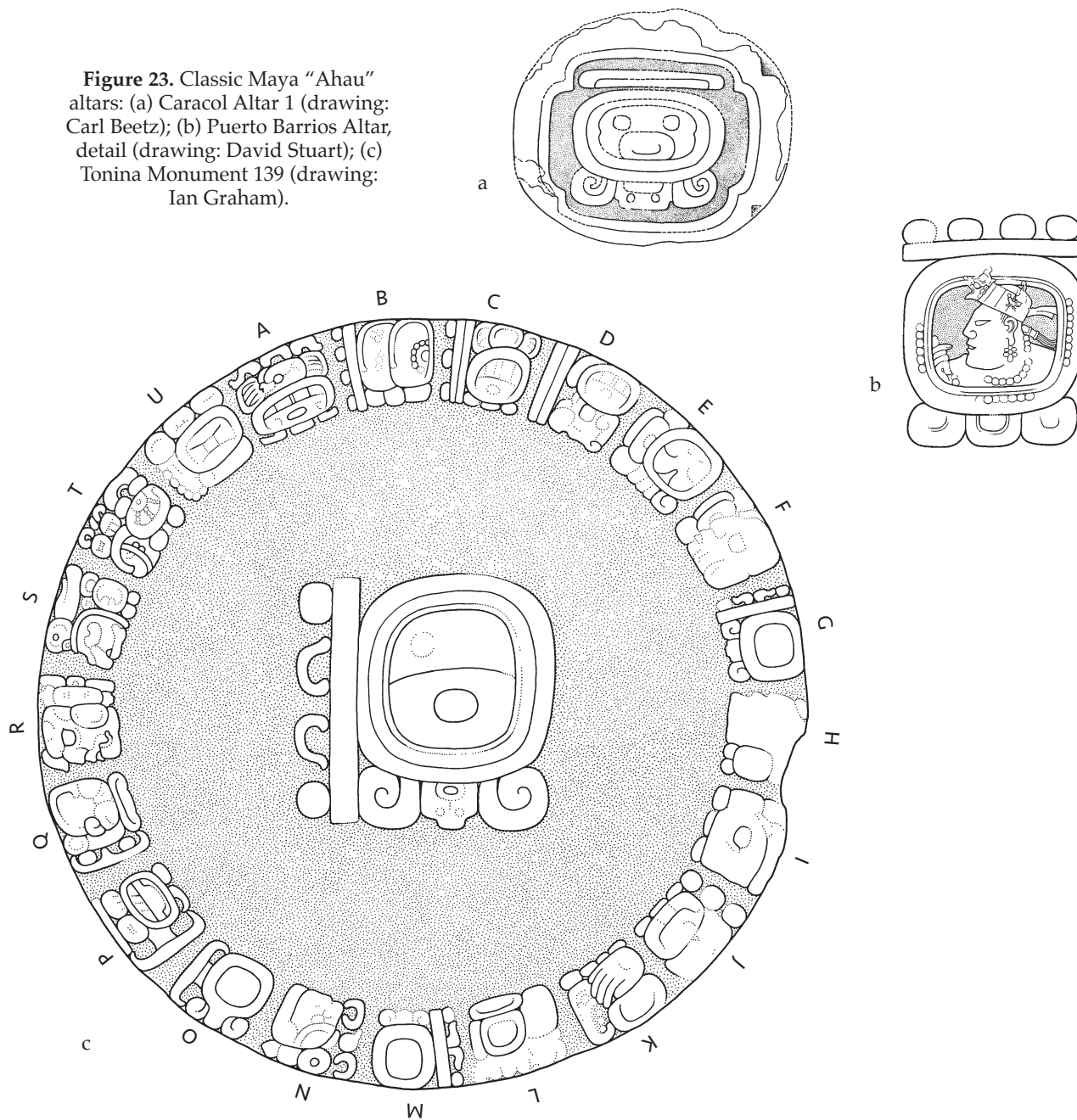
**Figure 22.** A stela-altar as a sacrificial stage, as depicted on K8719 (photograph: Justin Kerr).

Maya altars were places for heart sacrifice and other types of ritual execution, in addition to being surfaces for ceremonial fire and incense braziers (Schele 1984:9) (Figure 22). On one polychrome vase (K8719 in the Kerr database at [www.mayavase.com](http://www.mayavase.com)) from the Ik' or Ik'a' polity, on Lake Peten Itza, we find a particularly bloody scene of ritual decapitation where the victim lies prone atop a disc-shaped stone altar and before a stela. This occurred on a k'atun ending in the Long Count calendar, and was overseen by the local *ajaw* or ruler named Tayel Chan K'inich (Stuart 2014).

Evidence from Classic Maya sources reveals that disc-shaped monuments of various sizes were also designed as embodiments or materializations of time, as we see with the so-called "ahau altars" emblazoned with large, centrally positioned hieroglyphs for time periods (Figure 23a, b). Playing upon the basic meaning of the word *ajaw* as "ruler," Ahau day signs were at times personified as royal portraits (Stuart 1996) (see Figure 45). In many instances these stelae or altars bore specific named identities that referenced their temporal nature, as in the "Wuk Ajaw *tuun*" (the "Seven Ahau Stone"). While distant in time and space, I see these Classic Maya monuments as having considerable overlap in format and conception with the Aztec Calendar Stone, with its large, central hieroglyphic image that specifies and personalizes a moment or era in time.

We now see how the Calendar Stone and similar Aztec-period altar stones adhere to a very ancient

**Figure 23.** Classic Maya “Ahu” altars: (a) Caracol Altar 1 (drawing: Carl Beetz); (b) Puerto Barrios Altar, detail (drawing: David Stuart); (c) Tonina Monument 139 (drawing: Ian Graham).



and widespread Mesoamerican model, where disc-shaped sculptures both large and small replicated not only the sun but also its significance in a wider temporal and spatial setting. The designs we find on Maya disc altars are highly varied, but they share a common overall function as interactive surfaces for ritual display and offering. Thematically, all of the design elements mentioned here—personal portraits, solar movement and structure, and temporal embodiment, have a direct bearing on the Calendar Stone as well, and help to provide a much needed context for the deeper meaning and functionality of that monument in ancient Tenochtitlan.

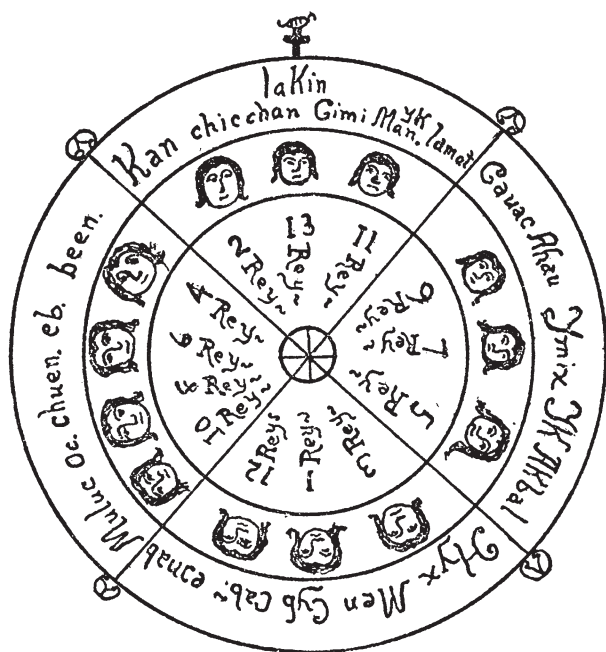
It is not difficult to extend these connections into the pictorial documents of the early Colonial period, when various indigenous artists continued to depict time and its structure in a circular format, most notably in the calendar wheels of highland Central Mexico or, as we have touched on above, the related *katun* wheels from Yucatan (Figure 24a, b). These in turn have strong correlations with the circular maps known from contemporary documents, just mentioned earlier (see Figure 17b). Spitler (2005) and Aveni (2012) have argued that many of these Colonial-era illustrations were deeply influenced by European designs and conceptions, but it is equally clear to me that the circular form upon which they are based was an ancient Mesoamerican mode for depicting the cyclical nature of time and its progression. Wheel-like representations of time and its cyclical mechanisms were as much Mesoamerican as European, with ample precedent in the Precolumbian past (they are in fact widespread throughout the world). The deeper Mesoamerican means of representing time as a circular form has been demonstrated by Taube's observation of a *katun* wheel from ancient Mayapan, integrated into the form of a turtle's shell (Taube 1988a) (Figure 24c). It is no coincidence that older Maya disc altars and circular platforms also assume the shape of turtle shells, which were seen as models of the earth and "containers" for deceased ancestors (Houston et al. 2006:182). From these strands of evidence, the Calendar Stone and its distant disc-altar cousins from the Maya world can be related to one another as temporal-spatial representations, structured models of the earth, the sun, and the passage of time. In this context, early Colonial Nahua and Maya artisans who represented calendar wheels may have been well prepared to integrate European design elements into these pre-existing concepts of time and centeredness.<sup>9</sup>

Many of these ideas return us to the altars known as *mōmōztli*, open-air ritual platforms whose name literally means "a daily place." We have already noted how the Calendar Stone was conceived

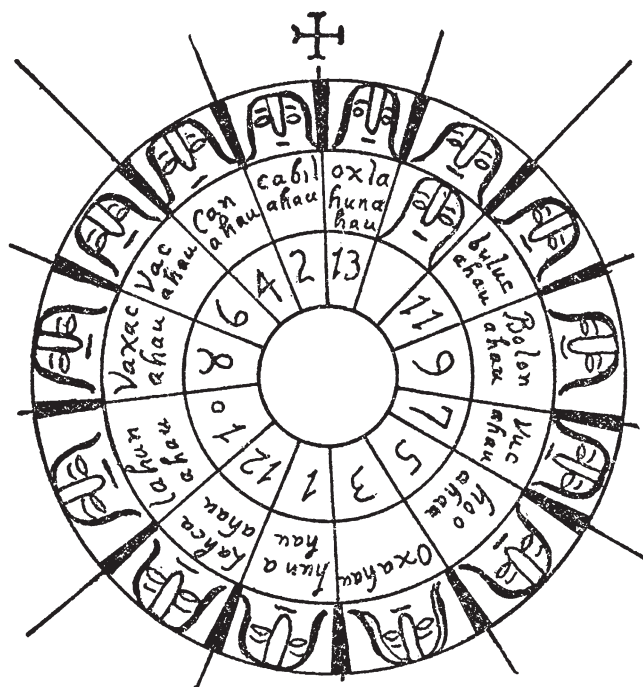
<sup>9</sup> Aveni (2012) presents a detailed discussion of depictions of the Mesoamerican calendars, emphasizing that circular diagrams for representing the mechanisms of time were developed only after the Conquest. Precolumbian representations, he argues, were instead based on square or quadrilateral forms, reflecting the four-sided cosmos. I find this argument unconvincing. A glance at the Calendar Stone and its circular depiction of the twenty days of the *tōnalpōhualli* immediately raises a counter-example, as do other cases discussed here. Rather than seeing a square-to-circle manipulation on the part of early Colonial priests and chroniclers, I believe there is compelling evidence that both squared and circular representations of time existed in ancient Mesoamerica, used in different settings, and that many Colonial-era diagrams drew upon comparable indigenous and European precursors.



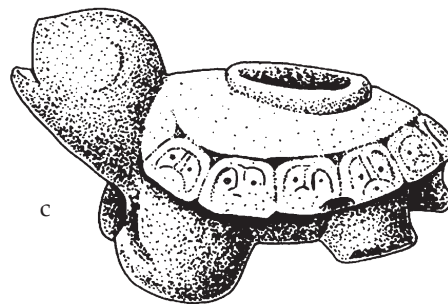
Figure 24. Katun wheels from Yucatan: (a) *Chilam Balam of Chumayel*, folio 39; (b) *Chilam Balam of K'aua*, folio 16r; (c) stone turtle effigy from Mayapan (drawing: Karl Taube).



b



a



c

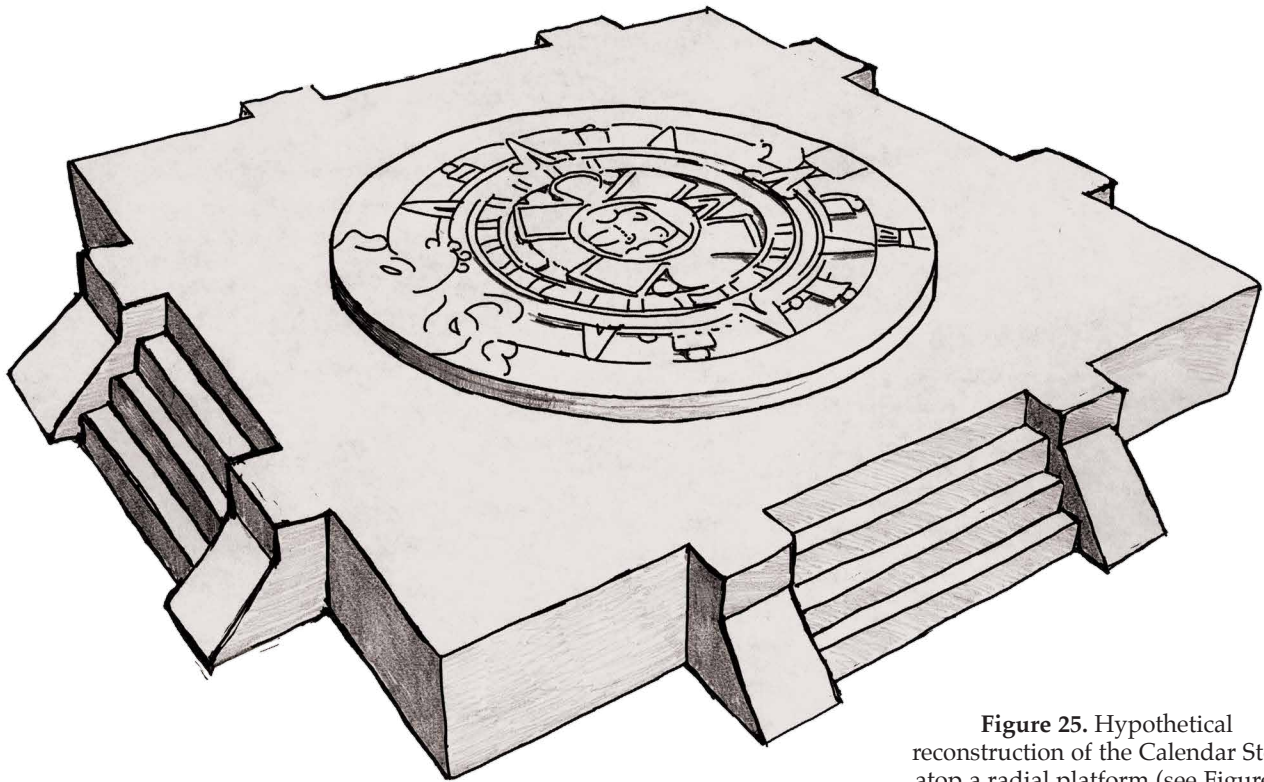
as a horizontal design, probably set into the upper surface of just such a platform or masonry altar. In that setting its circular flat surface would have been, using a basic comparison, similar in conception to the pecked crosses and other spatial-temporal models mentioned above. Durán famously describes the setting and position of one such solar disc sculpture—not the Calendar Stone itself, it should be stressed—during the early reign of Moteczomah I:

When the stone was finished and had been seen by the king, he ordered that a platform about as tall as a man be constructed, with four small staircases that would lead up to the stone. These staircases pointed to the four world directions: north, south, east and west. The whole structure was conceived according to their beliefs and traditions and demonic dreams. The monolith was then put upon the platform with ceremonial reverence. (Durán 1994:189)

Elsewhere Durán describes such open-air platforms as stages for the *cuāuhxīcalli* and *temalacatl* sacrificial stones, as depicted in his important illustration cited earlier (see Figure 5). Here it bears a striking resemblance to the format of the Calendar Stone with its center dominated by a large solar disc with a central Olin glyph.<sup>10</sup> Again, I would stress that the forms of these *mōmōztli* altars echo the designs and meanings of other altars in Mesoamerica, especially those of the Classic Maya.

The dimensions of the Calendar Stone are in keeping with the idea that it functioned as a stage for highly visible performance, a location for constant human movement as well as offerings and sacrifices (Figure 25). We can easily envision its placement atop a radial platform by referring back to Durán's key illustration (see Figure 5). And as with a *cuāuhxīcalli*, we can presume it was regularly anointed with the blood of warriors and victims who gave sustenance to the sun and the cosmos. The central visage of the Calendar Stone emphasizes this sacrificial function, with its biting teeth and the piercing blade-like tongue representing a deified consumer of flesh and blood. In this way, the design of the monument is carefully designed to be interactive with the unfortunate sacrificial subjects that stood atop it, whether they were moving in ceremonial combat or were deceased victims. We begin to see how, contrary to Seler and Beyer, the stone and its design is far from "just" a depiction of the sun, but (among many other things) an animated image of a deity that takes in the divine blood that nourishes it. The massive Tlalteuctli sculpture unearthed some years ago before the Templo Mayor shows the consumption of

<sup>10</sup> I should point out that the debate and discussion over whether the Calendar Stone should be best described as a *temalacatl*, a *cuāuhxīcalli*, or a *mōmōztli* perhaps misses a larger truth. Circular monuments of various sizes existed in various settings in Tenochtitlan, with slightly different but overlapping functions and conceptual meanings. They were not too separate in form nor in function, with their common solar iconography binding them to a certain degree, but each was conceived to exist in their own individual context and architectural environment. I think it would be a mistake to see *temalacatl*, *cuāuhxīcalli*, or *mōmōztli* as discrete types of art within some Aztec system of classification. No doubt such typological tendencies reflect our own impulses. These Nahuatl names and terms reflect functions and meanings within a spectrum of similar-looking stones. A "round stone" or "stone spindle" could also be an eagle vessel, but perhaps not in certain environments. Likewise a round altar might be a "daily place," but not always. These are significances and settings that could cross boundaries that we are accustomed to make in our own efforts of interpretation.



**Figure 25.** Hypothetical reconstruction of the Calendar Stone atop a radial platform (see Figure 3) (drawing: David Stuart).

blood in a far more explicit way, with the stream entering the mouth of the animate earth. I suspect that the Calendar Stone may have conveyed a similar idea through its direct anointment by the actual blood of wounded, executed victims.

The four-sided platform like the one Durán illustrated is a late example of a very ancient architectural form that existed far and wide in Mesoamerica (Cohodas 1980). A radial platform of similar large size and proportions to what may have originally supported the Calendar Stone sits before the Temple of the Moon, perhaps giving a vague sense of the sculpture's original setting within Tenochtitlan's sacred precinct a thousand years later. Indeed, it is interesting that such four-sided platforms are among the most archaic forms of ceremonial architecture in all of Mesoamerica, with examples known in the Maya area as far back as 1000 BCE (Inomata et al. 2013). In later Maya centers, they were the principle structures within so-called E-Groups, all closely associated with solar phenomena, eastern horizon

observation, and sometimes the marking of solstice sunrise. In later Classic Maya architecture, radial platforms of various sizes were used as stages for small altars or upright stelae, in a usage that perhaps echoes the original setting of the Calendar Stone. Coggins (1980) cogently linked these radial structures specifically with calendrical ritual and what she called “four-point diagrams,” noting their intimate connection to solar cycles in particular.

Four-sided radial platforms of Postclassic Central Mexico were elaborate variations on the concept of “daily place” altars Durán described. This literal sense of *mōmōztli* may seem enigmatic at first, but I think it is also particularly revealing about some of the concepts we have touched on thus far. For one, a “daily” altar would highlight the importance of such spaces and architectural forms as offering places on important days of the ritual calendar. Durán goes on to describe in some detail the food offerings made at a *mōmōztli* “in honor of the day named Etzalcualiztli...” As he notes, “the word is taken from *momoztlaye*, meaning ‘every day’” (Durán 1971:265). This word in turn is a reduplicated form of the noun *moztlā*, “tomorrow, next day” (see Andrews 1975:454). Thus the very name of these ceremonial locales implies the idea of “day-to-day” appearance and activity. If we consider the basic solar symbolism of *mōmōztli* that Durán describes, such altars would by virtue of their very name be manifestations of the sun’s daily repetitive motion and cyclical existence.<sup>11</sup> We will revisit this theme when we consider particular aspects of the Calendar Stone’s glyphic design; for now it is perhaps relevant to remind ourselves that the central image of the Calendar Stone is the day sign Olin meaning “movement,” surrounded by a ring of twenty sequential day signs of the *tōnalpōhualli*.<sup>12</sup> In this aspect of its design, then, the Calendar Stone is explicitly marked as a “daily place.”

<sup>11</sup> The word *mōmōztli* forms the basis of the Nahuatl place name of Momostenango, Guatemala, the Kiche’ Maya town noted for its public calendrical rituals based on the 260-day calendar. The place name marks it as the “town of shrines” or “town of altars” and “calls attention to the most distinctive characteristic of this municipality—the extraordinarily large number of outdoor shrines still in use by thousands of adherents to the indigenous religion” (Tedlock 1982:22).

<sup>12</sup> The presence of altars and small platforms marking the centers of plazas, marketplaces, and crossroads has persisted in some Mesoamerican communities even up into modern times, as noted in the case of Momostenango. In Jacaltenango, in the nearby western highlands of Guatemala, La Farge and Byers described the ubiquity of small cross shrines in ways that are remarkably parallel to the *mōmōztli* altars Durán encountered in central Mexico:

These little crosses are everywhere, at crossroads, on the tops of passes, in valleys and around the villages. One never sees one without its offering of flowers at its feet or on its arms, and over and over again one sees Indians who have reached the top of a hard climb stop to pray at one. In the main villages, in front of the main church and of chapels, or at important places such as Las Cruces in Jacaltenango, at the intersection of the two main streets and at the site of the week-day market, crosses are to be found, usually larger and more solid than the wayside ones. (La Farge and Byers 1931:187-188)

In addition, Evon Vogt’s descriptions of the cross shrines used by the modern Tzotzil of highland Chiapas are nearly identical: they are placed in patios, along roadsides, and at intersections, as well as in connection with altars on mountains and in caves (Vogt 1968:388). These are widely seen as “doorways” and “entryways” to the supernatural world, where ancestors and deities reside and are brought forth by continual offering and sacrifices.

Building on the key observations of Heyden (1968) and Noguera (1973) that the Calendar Stone was a particularly ambitious *mōmōztli*, I would suggest that it was conceived in particular as a center-point of space, ritual activity, and solar worship—a “daily place” in the central urban zone of Tenochtitlan, possibly in the *tiānquiztli* or market-plaza that is now the Zócalo of Mexico City. *Mōmōztli* altars, like *cuāuhxīcallis*, assumed many forms and sizes, ranging from small altar-stones to large raised platform surfaces. Many were carefully positioned inside and outside communities and within sacred precincts in order to symbolize and reflect the regular, daily movement and reappearances of the sun. In an obvious sense marketplaces were also “daily places.” Molina ([1571]1944) cites the names of markets that were timed specifically to certain spans of days, as in *cempoal tiānquiztli*, “fairs or markets that come every twenty days,” and *chicunoah tiānquiztli*, “fairs or markets that come every nine days.” *Mōmōztli* altars were thus used to mark important points of public space, especially centers, intersections, and nodes of communal religious and economic activity. And as I have already hinted at above, much of the symbolism directly conveyed in the Calendar Stone alludes to these ideas as well, couched in the interrelated themes of solar movement, the daily progression of time, and the representation of spatial centrality.



## CHAPTER 4

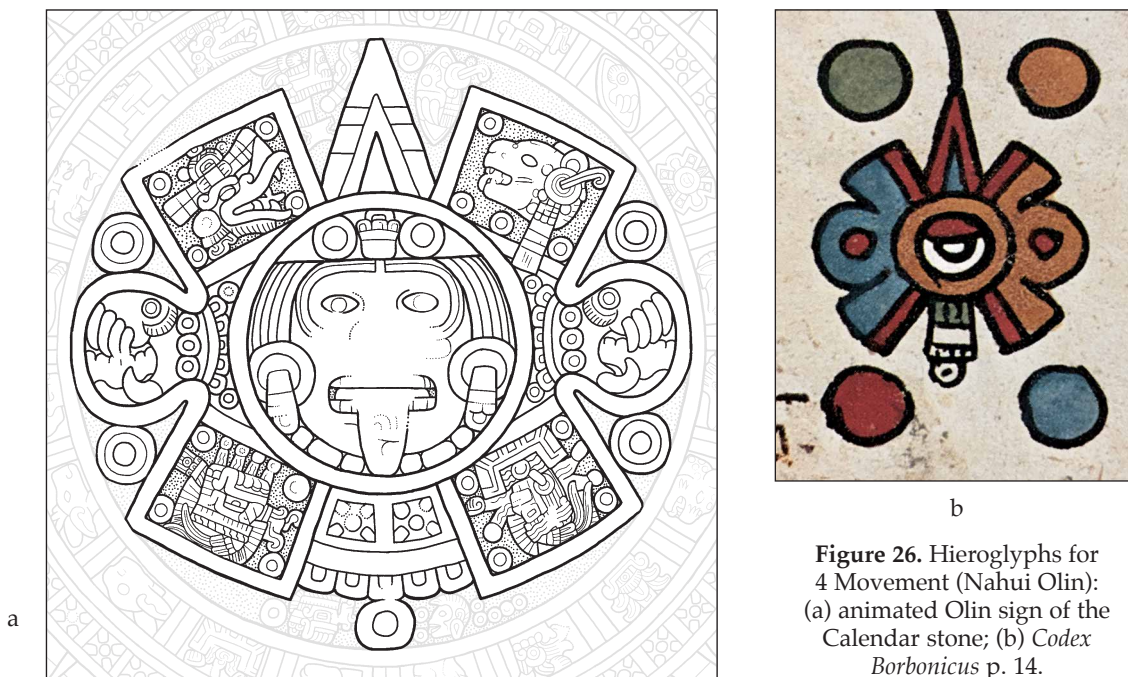
## Hieroglyphs, Time, and Identity

In the complex history of the Calendar Stone, the most contested issues of interpretation revolve around the proper identity of the central face. The debate has been ongoing, and the subject of considerable discussion over the last four or five decades (Nicholson 1993). The grimacing face is at once integral to the large solar disc as well as to the day sign that forms the Nahuatl *Olin* (Four Movement) name of the current sun or era. As Klein noted (1976:9), the face's location in the center of the **OLIN** points to it being a graphic elaboration on the central eye motif that appears in nearly all other (simpler) examples of the sign (Figure 26). This surely plays off of the full range of meanings of the Nahuatl noun *ixtli*, meaning "face, eye, surface" (Karttunen 1983:121).<sup>13</sup> It is the intrinsic and characteristic face of a person or a thing, not unlike the constellation of meanings that surround the Classic Mayan root *wuut* (Houston et al. 2006:28). The locative noun derived from *ixtli* is *ixco* (literally "at the face"), which means "on the surface" or "atop" something. It is natural to think that this was a very meaningful component of the design when the Calendar Stone was placed in its original position as a horizontal, stage-like surface.

This eye-to-face elaboration is an important detail to consider, for it suggests that the central face, as a more visually developed *ixtli* within the glyph, might be more integral to the **OLIN**, "movement," glyph than to the form of the solar disc. In depicting a face at the center, the Nahuatl-speaking artist(s) perhaps chose to develop the **OLIN**'s design in a way that was linguistically and conceptually logical. Interestingly, *ixtli* can convey also a more abstract notion of "identity"—the diagnostic "face" of a person or thing. The last of these definitions of *ixtli* is of special note given the many varied interpretations of the central visage proposed over the last several decades. Once more we see how language may serve as an important conceptual baseline for interpreting the Calendar Stone's composition and hieroglyphic design.

Before the 1970s scholars generally followed Seler and Beyer in seeing the central face as a portrait of Tonatiuh, the deified identity of the sun. Differing interpretations largely hinged on two features of

<sup>13</sup> In her important observation about the visual equation of the eye in **OLIN** and the face on the Calendar Stone, Klein (1976:9) cites lexical evidence from Mayan languages (Tzotzil and Yukatek), but neglects to mention the same semantic range of the Nahuatl noun *ixtli*.



**Figure 26.** Hieroglyphs for 4 Movement (Nahui Olin): (a) animated Olin sign of the Calendar stone; (b) *Codex Borbonicus* p. 14.

the central visage—the knife-tongue that emerges from the grimacing mouth and the clawed appendages that flank the face, each grasping a human heart in its talons. According to Navarrete and Heyden (1974) and Townsend (1979) these were clear indications that the face is that of Tlaltecuctli, the earth lord. As Navarrete and Heyden concluded:

[I]t seems to us that the face sculpted in the middle of the Aztec Calendar or Piedra del Sol is not Tonatiuh but Tlaltecuctli, who bursts up looking at the sky, according to the true position of the monument, sculpted and dedicated to the Fifth Sun, the sun of earth movement, Nahui Ollin, or 4 Movement. (Navarrete and Heyden 1976:374, translated from the Spanish)

Townsend (1979:69) furthermore noted, “the idea that the central mask of the Calendar Stone represents the face of the earth, and not the face of Tonatiuh, ‘the sun,’ is consistent with the enclosing glyph *ollin*.” This is apparently because of the common translation of *ollin* as “earthquake” (in fact its meaning is a bit more general, hence my preference for “movement” or “quake”), and perhaps too because the meaning of the corresponding seventeenth day in other Mesoamerican cultures includes “earth” (for example, the Maya day Caban [Kaban], derived from *kab*, “earth”). In his view the central visage represented “both the sacred earth and the territory of the Mexica nation” (Townsend 1979:69). Such interpretations



in favor of Tlalteuctli at the center of the Calendar Stone seem compelling for two reasons: the face's formal qualities as well as the stone's original orientation as a flat, upward-facing surface. Spatially this all seems to make considerable sense.

However, the interpretation of the face as Tlalteuctli failed to win over all specialists in Aztec iconography. In a nuanced and influential study, Cecilia Klein (1976) also called into question the traditional Tonatiuh identification but proposed that the central face is neither a direct representation of the sun nor of the earth. Rather she interpreted it as an image of Yohualteuctli, the "Night Lord," who Seler had specifically identified as the nocturnal sun within the underworld. This seems a refinement of the traditional Tonatiuh interpretation advocated by Seler himself and by Beyer, with Yohualteuctli being the sun in a more specific night aspect. As Klein noted, "since Yohualtecuhtli was a god of the earth, darkness, death and the south or center of the world, his appearance in a context of the world at the center of the earth in the middle of the night is far more logical than would be that of Tonatiuh" (Klein 1976:10). Klein thus suggested that a solar being of one specific type is at the center of the Calendar Stone, just not its more obvious aspect as the warming Tonatiuh who rises in the eastern sky. Her points are well taken and they can be developed and refined in light of the hieroglyphic identifications under discussion in this study. However, the rigid either-or dichotomies that sometimes underlie Klein's presentation seem to me an imperfect reflection of the more fluid senses of identity that Aztec artisans and theologians themselves gave to such religious imagery.

One especially innovative contribution from Klein was her introduction of nocturnal imagery and stars into the discussion. Building on Seler's identification of Yohualteuctli as the night sun, Klein noted Sahagún's connection of this god to the star Castor, which is part of the constellation named Mamalhuaztli, the "Fire Drill Sticks." This was one of the important stellar groups mentioned in connection with the New Fire ceremony, the other being the Pleiades, called Tianquiztli. The appearance of both constellations at or near celestial zenith signaled the drilling of the New Fire and the symbolic rebirth of the sun, hours before its emergence on the eastern horizon. The night-day opposition implicit in the Calendar Stone's central face thus becomes an expression of the concepts of zenith and nadir, regarded in Mesoamerican astronomy "as part of the unifying central world direction, [...] often conceptually synonymous and, at times, interchangeable" (Klein 1976:12).<sup>14</sup> It also expresses—and this is key to points I develop below—a "temporal contiguity between noon and midnight as well" (Klein 1976:12).

The emphasis on earth imagery during the 1970s represented a radical shift away from the ex-

<sup>14</sup> The importance of zenith orientations in Mesoamerica is discussed by Nuttall (1928) and by Aveni and Hartung (1981). As the latter authors note, celestial observers in the tropics (within 20 degrees of the equator) would perceive the movement of the sun and other celestial bodies as a linear pathway, whereas viewers further north or south would see movement along a more circulatory path, pivoting around the poles. Zenith passages were marked especially with regard to the sun and the Pleiades.

clusively solar interpretations of Seler and Beyer, but it was not without its detractors. Graulich (1992) rejected Navarrete, Heyden, and Townsend's view of the face as Tlalteuctli, stating that the idea of an earthly nocturnal sun was a misrepresentation of Mesoamerican cosmological beliefs, as he understood them. His own interpretation sees the central face as an "image of synthesis" highlighting zenith and nadir—and in this he seems to echo Klein's earlier interpretations. Part of Graulich's synthetic view is to see the central face and its surrounding Olin sign as being divided horizontally, its upper half an image of the rising sun, the east, and light, its lower half, with its "boca descarnada," a reference to death and night (Graulich 1992:293). This would have provided a basic indication of the stone's original orientation, with the upper part facing eastward—a view also put forward by Townsend. While I agree with the general idea that the central face communicates notions of vertical axiality and polar opposition, I believe Graulich was mistaken to see a fleshless mandible in the area of the lower jaw of the central face. A close inspection of photographs reveals no such feature. The grimacing face bears teeth and a protruding knife-like tongue, but the face seems to be presented as fully fleshed and therefore very much alive.

Felipe Solís Olguín offered the suggestion that the headdress of the Calendar Stone's central face might be best interpreted as a diagnostic feature of Xiuhteuctli, the "Turquoise Lord," considered the god of "the center of the universe, whose image has hybrid characteristics of the earth and underworld" (Solís Olguín 2000:36). He based this assertion mostly on a consideration of the headband's central jewel, seeing it as a variant of the *xiuhtototl* bird, considered a diagnostic feature of Xiuhteuctli (see also Matos Moctezuma 2004:63). It was also derived from the central placement of that deity in the famous time-space representation on the opening page of the *Codex Fejérváry-Mayer*.

Nicholson (1993:14) offered a strong rejoinder to many of the alternate interpretations that emerged in the 1970s and 80s, preferring to follow Seler's and Beyer's original interpretations that the central face was that of Tonatiuh, nothing more. As he put it, "despite all of the recent efforts on the part of many serious students to refute or significantly modify the traditional view that this image represents Tonatiuh, the diurnal solar deity, I believe the best evidence still supports this identification." Nicholson noted that the knife-tongue of the central face was not necessarily a strong diagnostic feature of Tlalteuctli, appearing with some frequency on images of other deities in Aztec iconography, including Tonatiuh and Xiuhteuctli, among others. In retrospect, Nicholson was surely correct in pointing out that the animate knife-tongue and clawed hands clutching hearts pertain to different supernatural beings.

Nicholson was unsure of the knife-tongue's debatable significance in Aztec iconography, noting the preference of Seler and Beyer in interpreting the knife blades emerging from the mouths of gods as "symbols of light" (Nicholson 1993:5). This idea seems to arise from the presence of knife blades in some representations of celestial bands, as we see on the perimeter of the Calendar Stone's carved disc. It is also possible that knife-tongues can be understood as having a more overt and direct significance

in relation to human sacrifice. More specifically, knife-tongues appear as features of several deities that symbolically pierce, cut, and consume the hearts from human sacrifice. As we see on the Calendar Stone's central face, the knife-tongue is itself animated with eyes and teeth, lending it a specific identity as the type of animated knife known as *ixcuauac*, "he who has an eating face" (Read 1998:126). This appears again on the Calendar Stone in the hieroglyph 1 Flint (Ce Tecpatl, equally translatable as "1 Knife"), placed directly above and to the right of the central face (see Figure 33). While the 1 Flint glyph here carries a specific mythological meaning, its direct association with the central face seems intentional, perhaps making a playful visual reference to the *tecpatl* in the mouth of the central face, and alluding to its role as a "consumer" of hearts in ritual sacrifice. When shown emerging from mouths, as in the center of the Calendar Stone, such sacrificial blades clearly work as visual metaphors for the tongues of the sun, the earth, or of other supernatural entities that ritually consume human hearts and flesh. The piercing of the chest in ceremonies of heart sacrifice can therefore be easily understood as a symbolic act of biting and consuming. This was perceived as an active role by many deities, needless to say, and not always a diagnostic of those gods associated with the earth. Again, in the study of Aztec iconography we are sometimes tempted to understand features as diagnostic elements of particular gods when in fact they might serve more generally to characterize their natures as representing types of divine beings.

A similar interpretation holds for the clawed hands at either side of the central face, integrated into the **OLIN** hieroglyphic sign. Both appendages are shown clutching human hearts in their long talons, providing a more direct allusion to the act of sacrifice and to one of the likely ceremonial activities that took place atop the Calendar Stone itself. They are most likely meant to be jaguar claws, as Seler originally proposed, but at times they seem to resemble more the talons of an eagle, or the claws of a Xiuhcoatl serpent, as Beyer later noted. Claws, talons, and knife-tongues are also generally diagnostic of the fearful *tzitzimimeh* "demons" that inhabited the night sky (Taube 1993; Boone 1999; Klein 2000).

This is a key point of evidence recently used by Milbrath (2017) to argue that the Calendar Stone conveys the imagery of a solar eclipse. She suggests that the central face should be interpreted as a type of *tzitzimitl* fused with the sun god Tonatiuh, building on Klein's and Graulich's observations that the central image has both diurnal and nocturnal aspects. Milbrath points to parallels from page 40 of the *Codex Borgia* and its possible depiction of an eclipse, and believes that the Calendar Stone represents a similar vision of the future end of the current era. As she puts it, the monument "must represent a future eclipse event, one that was feared by the Aztecs because it would be accompanied by earthquakes" (Milbrath 2017:23).

And so we continue to see a great deal of disagreement regarding the identity of the central face, and this in turn has led to radically different interpretations of the monument as a whole. Perhaps the sheer variety of interpretations signals an inherent ambiguity in identifying some Aztec deities as singular, discrete entities. That is to say, the rigid either-or dichotomies of those earlier studies go

against what we understand about the more fluid sense of identity that Aztec artisans and theologians could ascribe to much of their religious imagery. Nicholson (1971:408) himself noted that the features and themes surrounding Aztec deities were somewhat pliable, at times without set boundaries. The generalized and very complex notion of *teōtl*, usually translated as “god,” is relevant here, since it seems to have encompassed a number of ideas and intersecting categories of the sacred, including the gods themselves. The word may refer to an animate deity, but it also evokes a much broader concept of power and sacrality on a universal scale (Hvidtfeldt 1958; López Austin 1988; Read 1994; Bassett 2015).

Even decades after the various studies by Klein, Navarrete, Heyden, and Townsend, the identity of the central face of the Olin glyph continues to be debated. Again, I suspect that a lack of any firm consensus reflects the deliberate intention of the stone’s original designers to present a conflation of forms, identities, and spatial ideas. The face shows a combination of features that at once suggest Tonatiuh and the sun’s reflection on or within the earth. Seeing Tlalhteuctli at the center of the Calendar Stone need not lead to a rejection of Tonatiuh’s presence as well, nor for that matter the presence of Yohualteuctli, for all of these identities play into the overall significance of the central face. The orientation of the Calendar Stone as an upward-facing monument reflects its earthbound nature, but as we have seen, many Mesoamerican disc altars can have explicit solar imagery. Following Taube (2000) it might be more logical and correct to see the image of the central face as a reflection of the sun’s presence on the mirrored surface of the earth—as aspects of both earth and sun. In this way, and as we will soon explore further, it forms an axial representation, a pivot point binding the upper and the lower aspects of the cosmos.

What previous writers have neglected to point out is that the designers of the Calendar Stone may have been quite explicit in marking the identification of the face by means of surrounding hieroglyphic labels and elements. Two name hieroglyphs are embedded within the central design, placed directly adjacent to the central **OLIN** sign, and together these likely serve as labels of identity that have until now gone unrecognized or incompletely understood.

Thus far at least thirty individual (non-conflated) hieroglyphs have been identified on the monument in various sizes and positions, many calendrical in nature and with some embedded or infixed into larger forms (Umberger 1988).<sup>15</sup> As León y Gama established long ago, the large glyph for Nahui Olin (“Four Movement”) occupies the center of the disc as its proper name or label, elaborating on a format seen in numerous other presentations of solar iconography in Aztec art (Figure 27). Infix

<sup>15</sup> The terms *conflation* and *infixation* are used in Maya epigraphy to describe two common methods of sign combination. Conflation refers to the merging of two signs that occupy more or less the same graphic space, of similar size and proportion to one another. Infixation refers to the placement of signs of reduced size within the visual field of a larger sign. This former method is obviously in use in the Calendar Stone, where for example the glyph for Nahui Ehecatl is infixed within the larger Nahui Olin. As we will see, conflation also plays a significant role in the design’s composition. Both visual processes have ample precedent and are widespread in ancient Mesoamerica from Preclassic times (see Taube 2004:37).



a

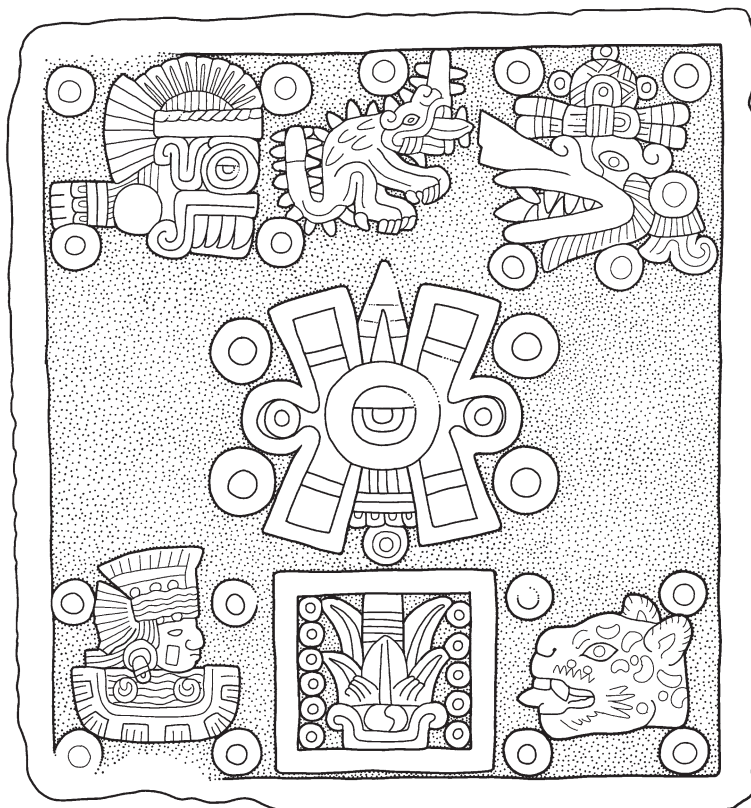


b



c

**Figure 27.** Solar discs with Nahui Olin or Olin signs in their center: (a) detail from the Teocalli of Sacred Warfare (photograph: David Stuart); (b) altar at Yale University Art Gallery; (c) the Placarte Block (b and c after Matos and Solís Olguín 2004:Figs. 50, 111).

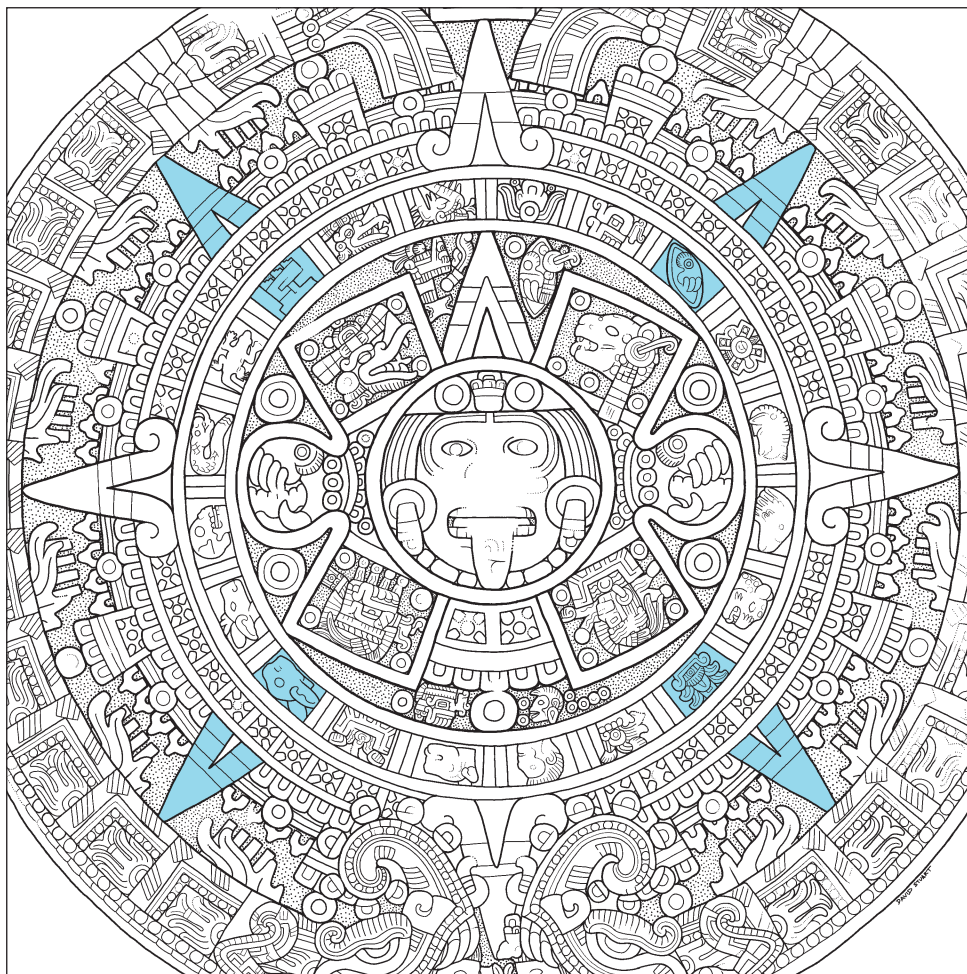


**Figure 28.** The Coronation Stone of Moteczomah II  
(drawing: David Stuart).

defining cosmic centrality—a feature that brings us back to the consideration of solar symbolism on disc-shaped altars throughout Mesoamerica. The center of both the Calendar Stone and the Coronation Stone is the focus of this symmetrical cosmic structure, the current age Nahui Olin, the pivot point and encapsulation of space-time. The four outer elements of the quincunx are the previous ages and seem to have arisen not only as evocations of the world quarters and directions, but more specifically the solstices on the eastern and western horizon—two northern extensions of the sun in the summer, two southern extensions of the sun in the winter (Girard [1962]1995; Stuart 2011:78). It is reasonable to think that the quincunx design of these five hieroglyphs, placed within the sign **OLIN**, “Movement,” references the specific observations of four solar “movements,” as León y Gama insightfully suggested at the time of the monument’s discovery.

within the four “arms” of the **OLIN** logogram we find the hieroglyphic designations for the four previous eras: Nahui Ocelotl (“Four Jaguar”), Nahui Ehecatl (“Four Wind”), Nahui Quiahuitl (“Four Rain”), and Nahui Atl (“Four Water”). This arrangement recalls the “quincunx” format that was discussed above in relation to some Maya altars, and which is also explicitly presented on the so-called Coronation Stone of Moteczomah II, where the same four hieroglyphs of the previous ages are displayed in the same relative arrangement, each again around a central Nahui Olin (Figure 28). This repeating presentation of the “era” glyphs in a quincunx format reproduces a fundamental and very ancient geometrical and astronomical principle in Mesoamerican spatial cognition and cosmology, determined by solar movement as a means of

The quincunx format of the design and the **OLIN** also makes a subtle visual reference to the four year bearers of the *tōnalpōhualli* (the twenty-day calendar). Looking carefully at the precise juxtaposition of elements, we see that the four outer “corners” of the **OLIN** sign align with the *tōnalpōhualli* or day-sign band where we find the signs of the four year bearers: Calli (House), Tochtlī (Rabbit), Acatl (Reed), and Tecpatl (Flint-Knife) (Figure 29). Surely this arrangement is intentional, as a visual



**Figure 29.** The four year bearers indicated by the four “corners” of the **OLIN**, and their association with the disc’s interstitial solar rays.

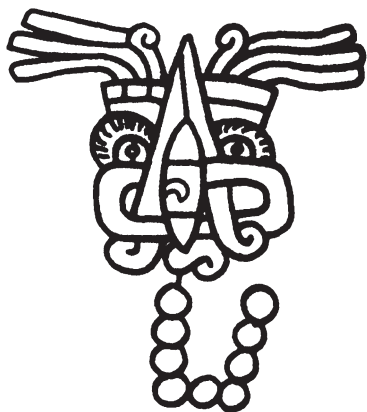


Figure 30. The trapeze-and-ray year sign with the calendar glyph 9 Flint, from *Codex Selden* 39 (drawing: Karl Taube).

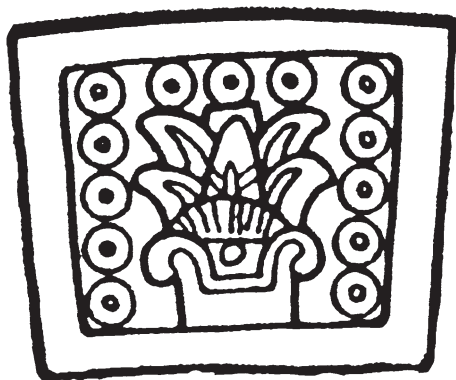


Figure 31. The 13 Acatl (13 Reed) year date (drawing: Emily Umberger).

recognition of the symmetry between the timeframes of cyclical creation and the cycles of the solar year. Furthermore, the four year-bearer signs appear at interstitial points of the circular design, marked also by the smaller “half-arrows” that are part of the larger **TONATIW** glyph. This visual association is perhaps related to the visual practice we find in the Mixtec codices where solar ray designs (or the “trapeze and ray”) are used to mark the year-bearer glyphs (Figure 30). If so, it might suggest that the presentation of the circular *tōnalpōhualli* band within a flattened and horizontal solar disc, orienting the four year bearers to the four world directions, was once some standardized form for presenting the day signs now only preserved in the Calendar Stone itself.

At the very top of the Calendar Stone we find the hieroglyph for Mahtlactli Omei Acatl (13 Reed) within a square **XIW** (*xihuitl*, “turquoise, year”) hieroglyphic element (Figure 31). Chavero (1875) saw this as a historical reference to the year 1479, in the reign of the ruler Ayaxacatl. Taking a less historical perspective, Seler (1904b:798) instead viewed the date as mythological, suggesting that 13 Reed refers to the year of Nahui Olin’s birth, as mentioned in the *Anales de Cuauhtitlan* and the *Historia de los mexicanos por sus pinturas* (see Townsend 1979:66). A primarily mythological function for this year-date seems likely, given its larger iconographic context within the monument’s design. The framed 13 Reed year hieroglyph is the center point from which “fall” or descend two prominent *Xiuhcoatl* serpents that curve around the outer edge of the stone’s design. Flames appear along these serpents’ backs and sides at regular intervals, surely pointing to their role as images of animate fire and heat. These encompass the sun and represent its radiant warmth.

They also move away from the 13 Reed glyph, perhaps as a figurative reference to temporal directionality away from that episode of creation. One meaning of the word *xiuhcoatl* is “year serpent,” and this sense is likely related to the juxtaposition of the two serpents on either side of the central 13 Reed year sign, as if they descend from it. In addition to representing the animate form of solar heat, the two *Xiuhcoatl* figures also perhaps indicate the linear directionality

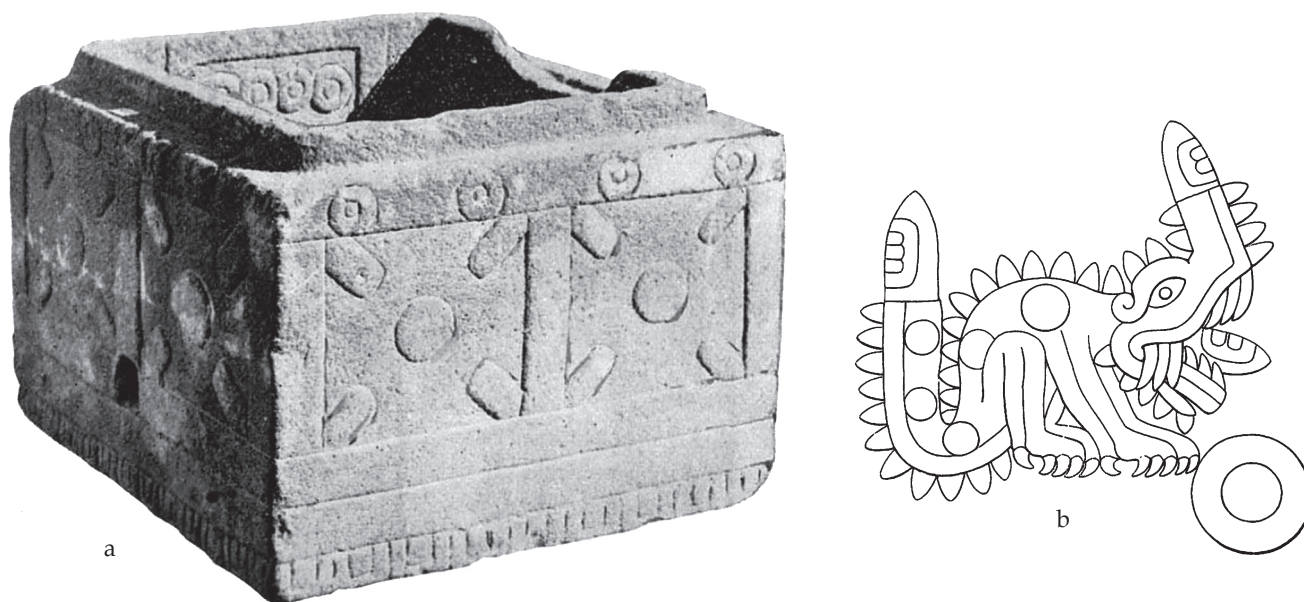


of annual time, and the dualistic nature of the years, with an essential subdivision into wet and dry seasons.

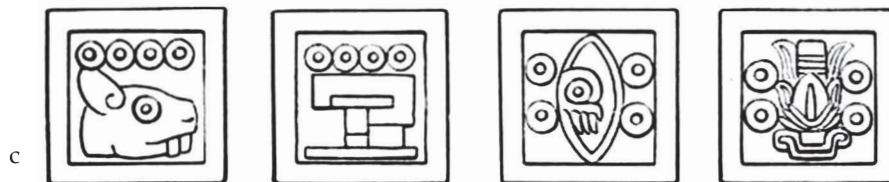
In an interesting twist to these mythical and historical interpretations, Townsend (1979:70) noted that the 13 Reed year glyph could also refer to the historical year 1427, “the year of Itzcoatl’s accession to power and the cruel beginning of an imperial vision, a time in which the Mexica began to conceive of themselves as great, and to create a sense of historical mission that propelled Tenochtitlan from the position of a backwater tributary city to a position of unparalleled might in Mesoamerica.” Such a politically-tinged interpretation resonates in a general way with my own new interpretation of the central face as a historical figure, as will be offered below.

Seler (1904b:798) noted that 13 Reed immediately precedes the year 1 Flint, a date of both mythical and historical significance for the Mexica that we have seen is also featured on the Calendar Stone, just above the large **OLIN** sign at center. Both dates are related to one another on several other sculptures (Umberger 1981:200). In the mythologized past 1 Flint was well-known as the year of the departure from Aztlan (perhaps 1065 CE), the starting point of Mexica history. In a more historical time frame, 1 Flint is also 1376, the year which saw the inauguration of Acamapichtli, the first ruler to be crowned after the settlement of Tenochtitlan some decades earlier. The resonances of 1 Flint through history continue in 1428, when Itzcoatl (the son of Acamapichtli) was also inaugurated and when he defeated the Tepanecs in what was widely seen as the beginning of the Mexica consolidation of power in the Valley of Mexico. Townsend (1979:63-70) and Umberger (1981:202) both stress that these recurrences of the sequential years 13 Reed and 1 Flint marked conceptual beginnings in both cosmological and historical senses: The birth of the sun, the birth of Mexica dominance and power, and the beginning of rulership. As the earlier of these two juxtaposed years, 13 Reed, featured so much more prominently on the Calendar Stone, might be alluding to a more primordial time frame, orienting the momentous event of Nahui Olin’s birth within a more general sense of timeless prehistory.

While it is clearly marked as a year date in its square frame (itself reading *xihuitl*), the significance of 13 Reed was no doubt also derived from its position as a day in the *tōnalpōhualli* day count. 13 Reed comes thirteen days after 1 Crocodile (Ce Cipactli), the starting point of the day count that was highlighted as the beginning of the calendar, if not the beginning of current time. This day is also considered the inauguration date of Moteczomah II in 1502 (Umberger 1981:267; Nicholson 1983:42), accounting for its prominence as a hieroglyph on the so-called Coronation Stone of Moteczomah, which we have seen presents an arrangement that echoes the inner cartouche of the Calendar Stone (see Figure 29). There the initial 1 Crocodile date of the 260-day calendar is featured atop the central image of Nahui Olin, and alongside the four hieroglyphs that reference the previous Suns of creation. 1 Crocodile is also highlighted on the Hackmack Box as well as inside another stone container in the collection of the Field Museum of Chicago, where it is accompanied by glyphic references to the four year bearers of the 365-day solar year (Figure 32). On all of these monuments 1 Crocodile takes on a symbolic role



**Figure 32.** (a) Tepetlacalli (stone box) with interior design displaying (b) 1 Crocodile and (c) the four canonical Year Bearers (from Holmes 1895:Pl. 54, Fig. 120).



as a reference to time's beginning as well as the inauguration of Moteczomah II, juxtaposing all of these interwoven meanings with the other canonical expressions of time periods that surround it. In a similar vein, it must be significant that the two most visually prominent date glyphs on the Calendar Stone, 13 Reed and 4 Movement, are both part of the same *veintena* (20-day period) that begins with 1 Crocodile, itself the beginning of the 260-day round. In their proper sequence these three dates work as emblematic expressions of three fundamental categories of time and their beginnings in Aztec cosmology, encompassing ever-larger scales and temporal units: 1 Crocodile (temporal beginning / 260-day calendar) > 13 Reed (solar birth / 365-day solar year calendar) > 4 Quake (era beginning / 52-year cycle).

Featured within the inner circle of the Calendar Stone's design and directly adjacent to the **OLIN**

sign are four smaller hieroglyphs grouped into two pairs (Figure 33). Like the four signs of the previous ages these are oriented to face one another along the central vertical axis of the composition. The upper two glyphs are large, even prominent, nestled in the negative spaces at either side of the protruding upper triangular “ray” of the Olin. On the left we see a royal *xiuhhuitzolli* headband with falling hair and various adornments, facing a calendrical reference to 1 Flint to the right (Figure 34). Below the Olin, carved as such shallow relief that they are difficult to see, are two date glyphs that also face one another across the same central axis. These are 1 Rain (Ce Quiahuitl) and 7 Monkey (Chicome Ozomatli). Umberger (1988) discusses these two dates in some detail and notes that 1 Rain is a day associated with human sacrifices made for the rejuvenation and strength of Moteczomah II. The significance of the day 7 Monkey seems less clear. Recently Milbrath (2017:20) has suggested that these two dates refer to a span of 33 days in the *tōnalpōhualli*, which approximates the “eclipse season.” At any rate, more will be said below of these two somewhat enigmatic dates, their symmetrical placement, and their relationship to the larger paired glyphs above.



Figure 33. The inner circle of the Calendar Stone and its hieroglyphs (photograph: Jorge Pérez de Lara).

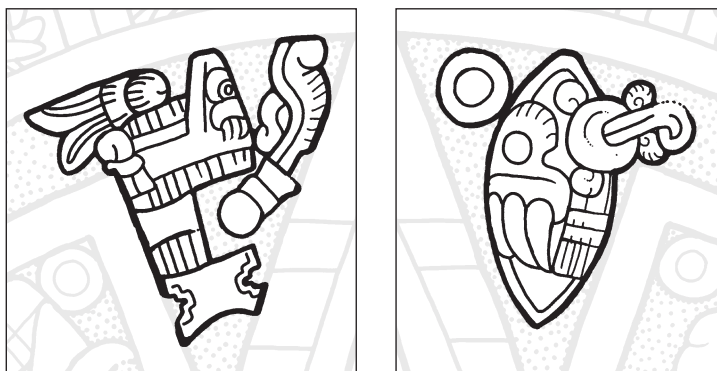


Figure 34. The two name or label glyphs of the inner circle: Moteczomah II (left) and 1 Flint (right).

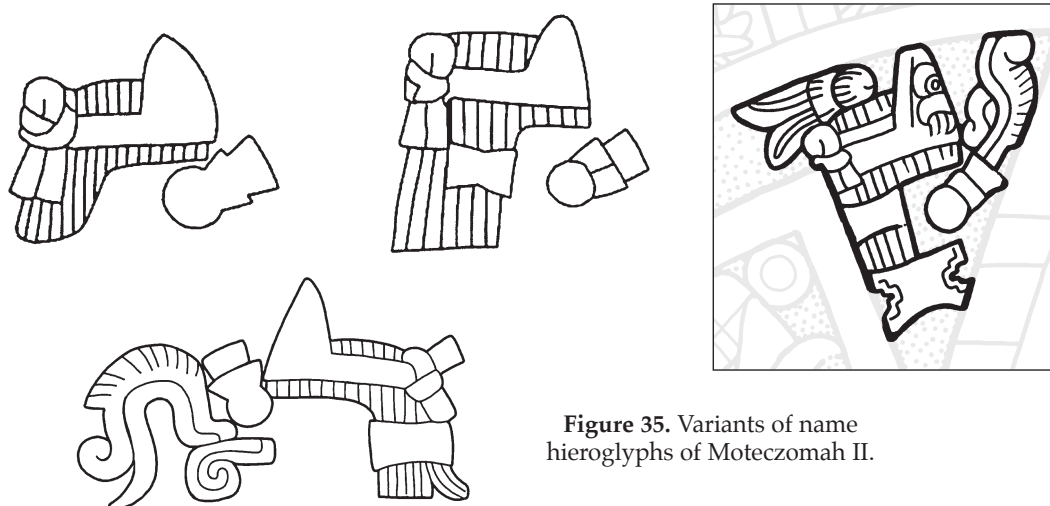


Figure 35. Variants of name hieroglyphs of Moteczomah II.

The position of the two larger glyphs in very close proximity to the central **OLIN** hieroglyph suggests that they may have direct bearing on the long-standing question of the identity of the central face (Stuart 2018b). The hair-and-headband glyph at upper left was interpreted by Seler and Beyer as a symbolic reference to the spirits of deceased warriors and, by extension, to the eastern sky (Seler 1904b; see also Taube 2000:322). Matos (2004:66) still maintains that the glyph is a title in reference to the ruler Axayacatl (Matos 2004:66), viewing the 13 Reed glyph as a reference to a historical year in the reign of that ruler. Graulich likewise advocates for Seler's original symbolic, ahistorical interpretation (Graulich 1992, 1997:177). However, as noted above, Peñafiel (1890) and Umberger (1979, 1981:205, 1988) interpreted it instead as an elaborate version of the well-known name hieroglyph of Moteczomah II, of which there are many examples in the pictorial documents (Figure 35). This historical identification is surely correct and is now accepted by many scholars (see, for example, Hajovsky 2015). In all of the many attested examples of the name, the pointed headband serves as the sign reading **TEK<sup>w</sup>** (*teuctli*, "lord"). This occurs in numerous other contexts besides the royal name, where its value is perfectly well established. The nose-plug jewel shown in the faceless name glyph likely represents the syllable **so**, for **TEK<sup>w</sup>-so**, a phonetic approximation of Moteczomah.<sup>16</sup> No matter how we parse the elements of the name glyph, the overall attribution has provided a key historical context for the later dating of the Calendar Stone between 1502 and 1519. Placing the monument in the reign of Moteczomah II would

<sup>16</sup> The two roots that comprise the royal name *Moteczomah* are the noun *tēuctli*, "lord," and the verb root *zōma*, "to frown, to grimace." Thus the two signs **TEK<sup>w</sup>** and **so** appear to signal these two core components. The *mo-* prefix is a reflexive particle that would not be written according to the known conventions of Nahuatl writing.

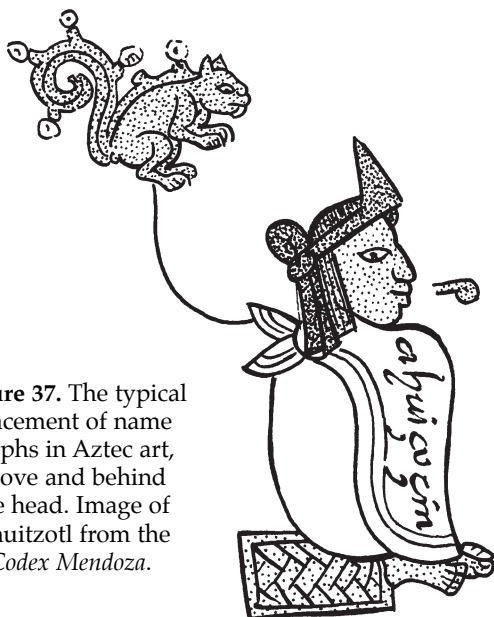


Figure 36. The 1 Flint glyph and comparative examples.

also agree with my speculations on the placement of the monument in the area of the modern Zócalo, at the southeast side of the ancient *tianquiztli* that fronted the palace of Moteczomah II.

The adjacent 1 Flint glyph, just opposite the ruler's personal name, carries a number of important meanings, as we have seen (Figure 36). As a year date 1 Flint was the departure of the Mexica from Aztlan (1064?), the inauguration year of the first Tenochca ruler Acamapichtli (1376), and Mexica victory over the Tepenecs early in the reign of Itzcoatl (1428). However, it is probably significant that the 1 Flint glyph on the Calendar Stone lacks the square *xihuitl* cartouche we customarily find with year glyphs, as on the 13 Reed date at the top of the stone's design. Perhaps 1 Flint should not be understood to be an explicit year record, but something more oblique and metaphorical. In fact, Umberger has suggested that 1 Flint should more correctly be seen as the calendrical name of Huitzilopochtli, the patron deity of the Mexica who was an embodiment of the sun, and in certain respects Moteczomah's supernatural counterpart. The identification of 1 Flint as this deity's calendrical name comes from the *Florentine Codex* where we read that "it was said to be the day sign of Uitzilopochtli" and "on this One Flint Knife, when it tarried for a day, they then made offerings to Uitzilopochtli, whose day sign it was, and to Camaxtli, god of the Uexotzinca" (Sahagún 1950-1982:Book 4:77). The same identification of 1 Flint with Huitzilopochtli appears in the *Crónica mexicayotl* (cited in Umberger 1981:56). The association is confirmed in an earlier sculptural context by the use of the 1 Flint hieroglyph directly adjacent to the small figure of Huitzilopochtli on the Teocalli of Sacred Warfare (see Figure 40).<sup>17</sup> The interpretation

<sup>17</sup> Unlike rulers or nobles, Aztec deities are apparently never referenced with hieroglyphs that directly express their proper names. That is, we have no attested cases of glyphs that attempt to "spell" the names of important gods such as Huitzilopochtli. Instead the convention was to refer to deities by their "calendrical names" corresponding to the day of their birth, such as 1 Flint, 9 Wind, and so forth. This an interesting distinction that contrasts with the conventions of Maya writing, for example, where names of rulers and gods were represented by the same conventions, often overlapping.



**Figure 37.** The typical placement of name glyphs in Aztec art, above and behind the head. Image of Ahuizotl from the *Codex Mendoza*.

of 1 Flint as the deity's name is bolstered by its visual juxtaposition with Moteczomah II's own name glyph, as if they are names reflective of one another. In addition to being a probable reference to Huitzilpochtli, we should not lose sight of the probability that 1 Flint carries overt symbolic allusions to heart sacrifice, by virtue of its very name.<sup>18</sup>

Most scholars accept the presence of Moteczomah's name glyph on the Calendar Stone, yet it is seen as no more than an isolated mention of the *tlahtoāni* who commissioned the monument, rather than as something more functional or integral to the surrounding design. However, the positioning of both the ruler's name and of the 1 Flint glyph (also a name) was careful and intentional, holding far more meaning for the Calendar Stone's larger composition and deserving of much more thought and consideration. For a start we can see that both glyphs are placed *inside* the central circle and thus seem closely related to the **OLIN** glyph and its central

face. Simply put, the placement of these two names in such close proximity to the **OLIN** suggests to me that they somehow serve as labels for it. I would go further and suggest the possibility that these glyphs identify the deity at the center of the **OLIN** and of Calendar Stone itself, specifying both historical and mythical aspects of the sun. In this interpretation, the central face is explicitly *labelled* as Moteczomah II as well as an embodiment of Huitzilpochtli, identified by his mythic calendar name 1 Flint.

Elsewhere in Mexica-Aztec art, name glyphs typically are placed above and behind the head of the subjects they label. We see examples of this in sculptures such as the Teocalli of Sacred Warfare or in pictorial manuscripts such as the *Codex Mendoza* (Figure 37). In the latter cases, a line always links the name hieroglyph to the head or shoulder of the subject, seemingly to emphasize the head as the place of identity. There are a handful of exceptions to this pattern, as we see on the Chapultepec rock sculpture with its own deified portrait of Moteczomah II (Figure 38) (Olivier and López Luján 2009; Hajovsky 2012). We will return to the nature of the man-god image in due course, but for now we

<sup>18</sup> I am reminded of the evident symbolism of the ancient Maya day 1 Etz'nab, equivalent to 1 Flint. In the mythological text of Temple XIX at Palenque, 1 Etz'nab is the day of the axe sacrifice of the great crocodile(s) by the dynastic patron god known as GI (see Stuart 2005:68-75). I suspect that the eighteenth day sign in both Maya and Aztec systems, representing an axe or knife blade, carried significant meaning as both a temporal and animate symbol of primordial sacrifice and by extension cosmic creation.

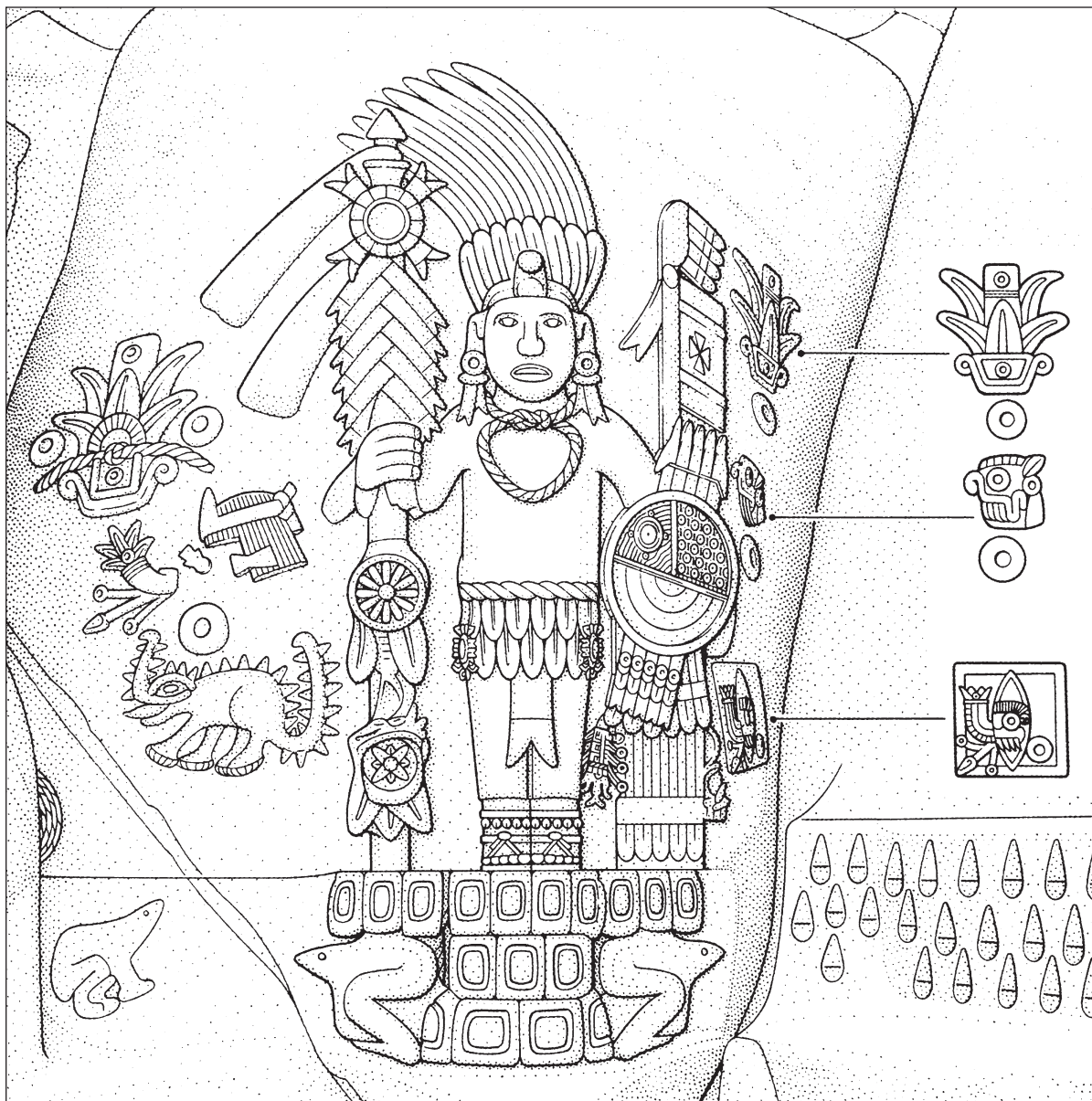


Figure 38. The Chapultepec rock sculpture (from Olivier and López Luján 2009).

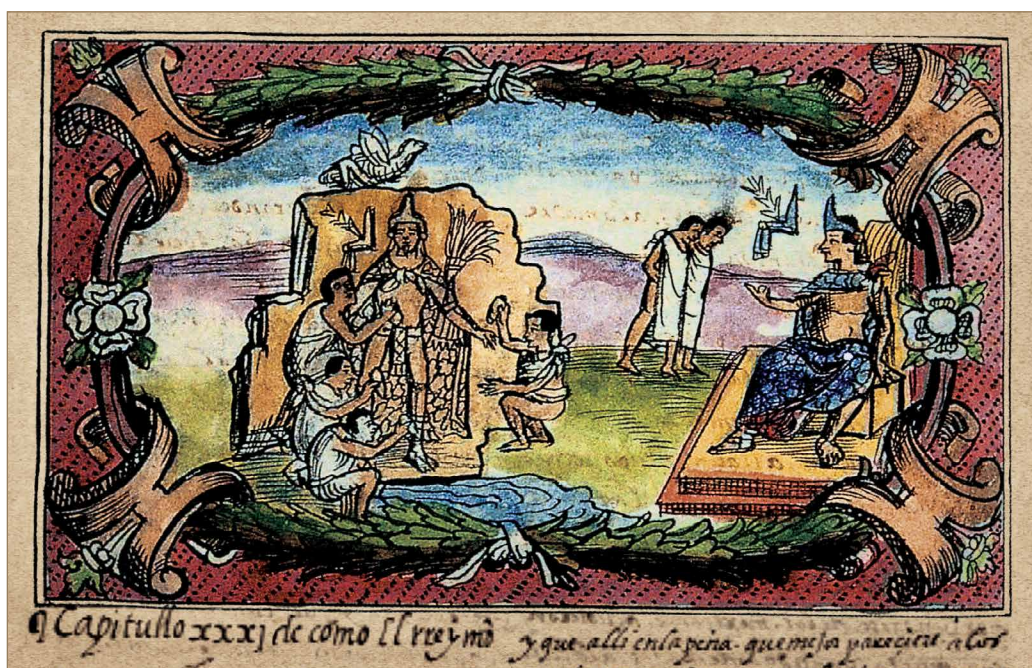


Figure 39. Moteczomah viewing the carving of his portrait at Chapultepec, from the *Codex Duran*, fol. 91v.

should point out that the name glyph is placed to the left of the image of the standing ruler, along with two other calendrical glyphs—the dates 2 Reed and 1 Crocodile. Other date glyphs appear on the opposite side of the portrait as well. In this case, it appears that the king's name works as part of a larger and more complex grouping of temporal indicators and identities. Curiously, in Durán's illustration of the carving of the Chapultepec portrait, the king's name appears alone and near the subject's head, reflecting the more common convention (Figure 39). The frontal view of the Calendar Stone's central face, with its hieroglyphic labels above, suggests a similar placement is at work.

If we see these two related glyphs as labels for the accompanying image, we naturally have to wonder how they pertain to the long debate about the identity of the central face as either the visage of the sun or of the earth. I doubt that the issue is so binary and oppositional, as explained above, and prefer to see an intention to convey multiple identities for the central face. But the key point here is that the monument would seem to provide its own explicit indication of two identities: one historical, the emperor Moteczomah II, and one mythological, the solar aspect of Huitzilopochtli. The face is directly labeled by these hieroglyphs as a portrait of the deified ruler who embodies and exemplifies the Mexica



patron god.

Despite the seemingly innumerable interpretations of the deified face at the center of the stone, no one has to my knowledge linked it to Huitzilopochtli or to any historical ruler. Nothing about the markings of the face would seem to conform to the common diagnostics of Huitzilopochtli, who is typically shown with a hummingbird headdress or backrack, holding a shield and other armaments (Boone 1989). It should be noted, however, that the distinctive curved lines around the eyes of the face appear also in Huitzilopochtli's portrait on the Teocalli of Sacred warfare (Figure 40), one of the most important Precolumbian images of the Mexica patron deity. Of course any distinctive costume elements and accoutrements "worn" by the character at the center of the Calendar Stone would be mostly invisible; we only see his grimacing face (*ixtli*) and a few head adornments. That the face presents us with such a "reduced" image may account for many of the debates regarding its identity. It remains ambiguous as a visual form, with only a limited ability to convey the diagnostic iconographic features of a single deity. But such a representation may also have presented an artistic opportunity, allowing formal



**Figure 40.** Detail of the Huitzilopochtli figure on the Teocalli of Sacred Warfare; note its associated 1 Flint name.





Figure 41. Comparison of the frontal “ray” of the OLIN sign with the *xiuhhuitzōlli* diadem.

juxtapositions and hieroglyphic labels to establish information as to the face’s precise identification(s). The viewer is presented with generalized identities involving the deified sun, and perhaps the earth as well, but as is so often the case in Aztec art overall, it is the hieroglyphs that complement and specify this ambiguous visage, equating its more generic form with the politically-charged identities of both Huitzilpochtli and Moteczomah II.

As Stephanie Strauss has pointed out to me (personal communication, 2016), one intriguing detail in the iconographic design might serve as indirect support for such an identification. If we consider the face to be a deified portrait of the *tlahtoāni* it is possible to see the large pointed form above the head, superficially just a feature of the OLIN glyph, as a playful visual reference to the ruler’s *xiuhhuitzōlli* turquoise diadem. Indeed, the shape is identical to the diadems when they are seen in frontal view (Figure 41). If this visual reference is intentional, we might even be able to see the long hair and the pierced nose ornament of the central face as allusions to the king’s own name glyph, where the diadem sign TEK<sup>w</sup> stands for the noun *tēuctli*, “lord,” a core term embedded within the name Moteczomah. I see a vague parallel as well in the juxtaposition shown in Durán’s illustration of the Chapultepec cliff sculpture, noted above, where the *xiuhhuitzōlli* on the *tlahtoāni*’s frontal portrait echoes the form of the

name hieroglyph, placed directly adjacent (see Figure 39).<sup>19</sup> Returning to the Calendar Stone, we should also note how the 1 Flint name glyph visually echoes the flint-knife tongue of the central face, offering another example of a close visual tie-in between image and associated hieroglyphic form.

Seeing the pointed form atop the Olin as alluding to the ruler's *xiuhhuitzōlli* diadem may seem highly speculative. But this is firmly in accordance with the playful design we know from nearby images in the Calendar Stone. For example, we already see this same visual crossover at work with the heart-grasping talons at either side, which likewise extend outward from the center, expanding the "corporeal field" of the face outward toward the circular edge that surrounds the Olin sign. The bejeweled talons are firmly and carefully embedded within the Olin's outline, and I would argue that the pointed diadem similarly occupies the glyphic design. Furthermore, below the face we see more jewel-like elements, including two *xihuitl* (XIWI) turquoise signs and an edging that suggests jade, *chālchihuitl* (the large circle below, between the small 1 Rain and 7 Monkey day glyphs, is a part of the jeweled design-work). I suspect that this is not mere embellishment, but plays off of the idea that it is the large collar of the face, complementing the smaller necklace just visible below the chin and balancing the representation of the diadem above. Both the necklace/collar and diadem occupy space within and outside the inner circle, unifying what would otherwise be discrete areas of the design. The combination of turquoise and jade elements has a direct parallel in the description of royal necklaces known as the *chālchiuhcōzcatl*, "jade necklace," worn by rulers and described in the *Florentine Codex* as *chalchiuhcozcatl, talcenqujxtilli in ololihqui, in veuej, chalchiujtl, ioan teuxiujtl*, "a greenstone necklace of round, large green stones and fine turquoise combined" (cited in Olko 2005:176).

The etymology of the ruler's personal name may well be relevant to the presentation of the central

<sup>19</sup> A thorough discussion of *xiuhhuitzōlli* diadems or headdresses appears in the excellent studies of Aztec royal insignia by Olko (2005, 2014). In her recent article on the Calendar Stone, Milbrath critiques my identification of the central face as (in part) Moteczomah, citing my online essay (Stuart 2016). She seems to misunderstand my proposal about the diadem and its role in connecting text and image:

[T]he iconography does not support such an interpretation, for the element he interprets as the ruler's peaked diadem is actually a solar ray, and Moteuczoma's peaked crown appears in his name glyph alongside. Furthermore, it seems unlikely that the ruler would commission a monument to represent himself as a dead solar god, when other such impersonations show the rulers as vibrant conquering gods, as on the Tizoc Stone.

In response, I would only say that the visual allusion to the *xiuhhuitzōlli* diadem is an intentional *fusion* with the pointed ray of Olin, a glyph that has its own complex visual history (see Neurath 1992). The appearance of the diadem in the adjacent name glyph of Moteczomah reinforces this association and visual overlap, with the hair and the diadem on the central face replicating the features of the name glyph and its embedded **TEK**<sup>w</sup> (*tēuctli*) logogram. Regarding the "dead solar god," Milbrath and I will have to disagree on this point. I see no reason to identify the central face as in any way deceased, and Graulich's (1992) earlier identification of the face's lower jaw as a fleshless mandible is erroneous. Rather, I see the central portrait as a vibrant image of a deified ruler as the sun, at the center of a cosmic axis defined by the sun at diurnal zenith and the Pleiades at nocturnal zenith. He is a ruler of cosmic import, very much alive and fearsome.



**Figure 42.** Aztec hieroglyphs merged with images: (a) portrait and name of Acamapichtli (*Primeros memoriales*, fol. 51r); (b) the name Axayacatl merged with his crowned portrait (*Matrícula de tributos*, fol. 2r).

face as well. The form *motē(u)czōmah* is most accurately translated as “He Has Frowned in Anger Like a Lord” (Andrews 1975:472). The two roots that comprise the royal name are *tēuctli*, “lord,” and *zōma*, “to frown, grimace.” In hieroglyphic spellings the signs **TEK<sup>w</sup>** and **so** appear to signal these two core components (the initial *mo-* is a non-first person reflexive prefix that would not have been written, according to the conventions of the Nahuatl script). If we look at the central face we see a grimacing expression familiar from numerous other representations of supernatural beings, including Tlaltecuctli, the earth lord, itself an allusion to the day Olin with its associations with movement and earthquakes. One might wonder if in addition to the presentation of the royal diadem above the face (**TEK<sup>w</sup>**), the artists have playfully made reference to the other core element of the king’s name, *zōma*, “to frown, grimace.” The frontal presentation of the central face, a “grimacing lord,” may itself be an allusion to the name of the king. Perhaps the artist made this direct but subtle reference to etymology in order to incorporate a familiar trope of Mexica earth iconography—the knife-tongue emerging from the grimacing mouth, etc.—thereby evoking the morally ambiguous powers of the sun, the earth, and the king.

Such a language-based analysis of the Calendar Stone’s frontal face, seeing it as a “meta-glyph” of some sort, may seem farfetched. Yet similar intimate overlaps between hieroglyphic names and portraiture appear with regularity in Mesoamerican art and may offer some precedent. Personal names commonly appear as glyphic elements incorporated into headdresses or as costume elements (Kelley 1982; Stuart 2012). Place names are also fully incorporated into iconographic compositions, in both central Mexican and Maya art. Something similar to what I am describing on the Calendar Stone seems to be at work in the image of the Aztec emperor Acamapichtli in the *Primeros memoriales*, where the grasping hand logogram that is standard in his name glyph (**MAPICH**, for *māpīchtli*, “fist”) is fused with his own bodily form (Figure 42a). Likewise, in the *Matrícula de tributos*, we find an unusual example of the glyphic name of the

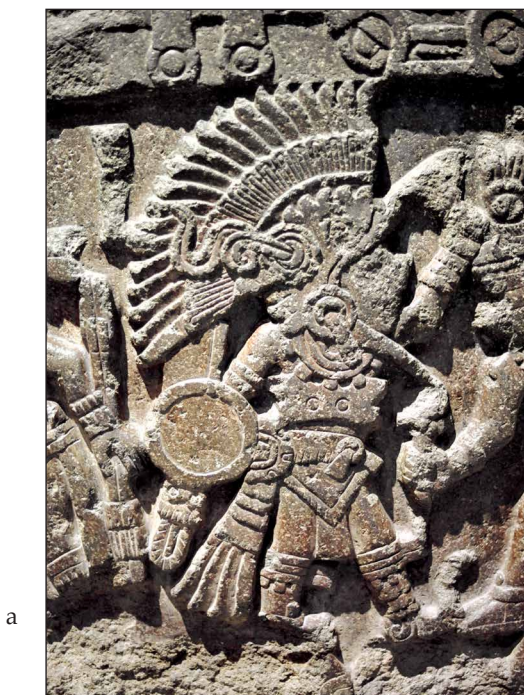
ruler Axayacatl (*āxāyacatl*) (Figure 42b). By convention this is usually **A-XAYACA**, spelled with a water sign (**A**) in front of a face or mask (**XAYACA**), but in the *Matrícula* the artist has fused the face glyph with the ruler's own crowned image. It seems plausible that the face of the Calendar Stone operates in a similar way, subtly evoking the form and meaning of Moteczomah's name hieroglyph, or at the very least the frontal presentation of a crowned emperor.

Given what we know of Mexica ideology and Mesoamerican religion in general, it seems appropriate that the central face would be individualized in such a way, linking the cosmic forces of the sun to the persona of the living ruler. The solar identification of the *tlahtoāni* is well-known, and was for example elegantly conveyed by the oration of Nezahualpilli, the king of Texcoco, at the accession ceremony of Moteczomah II, as described in Durán's *Historia*:

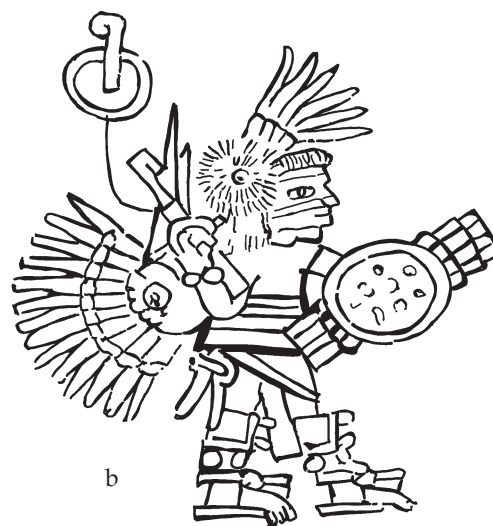
O most powerful of all the kings on earth! The clouds have been dispelled and the darkness in which we lived has fled. The sun has appeared and the light of the day shines upon us after the darkness that had been brought by the death of your uncle the king. The torch that illuminates this city has again been lighted and today a mirror has been placed before us, into which we are to look. (Durán 1994:391)

Here the poetic parallelism is made between the inauguration of the king, the rise of the bright sun, and the symbolism of the New Fire ceremony. The Mexica ruler was the dawning sun, an embodiment of a new age as well as a mirror of the community. Such ideas are widespread in ancient Mesoamerica and are reflected in numerous sources. To cite just one among the ancient K'iche' Maya, the "dawn" was a "metaphor [...] for the inauguration of a new age, particularly connected with the foundation of political power and legitimacy" (Christenson 2016:101).

To refine these concepts further, it is important to explore how the *tlahtoāni* was viewed as the embodiment and personification of the god Huitzilopochtli, a specific mythologized aspect of the sun. The solar identification of the Mexica tribal deity was a basic tenet of ancient Mexica ideology, the "central focus of worship for the Aztec-Mexica political system" who "came to embody the feats and aspirations of the Aztec-Mexica people themselves" (Boone 1989:1). The myth of Huitzilopochtli's birth was a metaphor involving solar birth and creation, famously replicated through spatial performance at his shrine in the *huey teōcalli* in the main precinct of Tenochtitlan. The god's main weapon, as described in Sahagún and elsewhere, was the Xiuhcoatl serpent representing shooting stars or the sun's piercing rays (Boone 1989:8), and of course these are the two dominant images at the outer edge of the Calendar Stone, as we have discussed. Umberger (1987:425) notes that "the ruler, Huitzilopochtli, and the sun are closely related in Mexica thought: the ruler is the human imitator of the god, and the fortunes of both are compared to that of the sun." We see this fundamental unity of ruler and patron god depicted in a very overt manner on the Stone of Tizoc, where the only image of the ruler identified by a name glyph shows him wearing the regal hummingbird headdress of the Mexica patron deity, perhaps combined with visual references to Tezcatlipoca as well (Boone 1989:18-19; Umberger 2008:88; Hajovsky 2015:104)



a



b

**Figure 43.** Aztec rulers in the guise of Huitzilopochtli: (a) Tizoc, from the Stone of Tizoc (photograph: David Stuart); (b), Chimalpopoca, detail from the *Codex Xolotl* (drawing: David Stuart).

(Figure 43a). Another related image in the *Codex Xolotl* shows the early Mexica ruler Chimalpopoca in the guise of Huitzilopochtli (Boone 1989:29-30) (Figure 43b). In both of these examples, it is important to note that the rulers' names appear behind and slightly above the portraits—a compositional device that may be present as well in the Calendar Stone where, as I argue, there is a similar fusion of identities encoded by the hieroglyphic labels. The two glyphs above the face are spatially wedged to it, giving complementary identities to an image that otherwise might seem rather generic or non-specific, an animated cosmic force and actor that is the sun, the earth, or some fusion of the two. It is the two hieroglyphs that give it a specific ideological and political message.

My proposal that the central face of the Calendar Stone presents a multifaceted set of identities—mythic, cosmic, as well as historical—finds agreement with more general truths about the nature of identity itself in ancient Nahua society, politics, and monumental art. As Umberger has noted, the notion of ethnicity for the Aztecs “was one of many social identities [...] and it could be invoked in flexible ways and manipulated for various reasons during public rituals and on commemorative monuments” (Umberger 2008:67). Here she emphasizes the fluidity and ambiguity inherent in groups, but the same

characterization could well apply to individuals whose identities could likewise be flexed and manipulated to fit specific ritual and political roles, depending on circumstances. Boone makes this point in her elegant assertion that “Aztec figural art is supremely multivalent,” wherein “a supernatural force that is manifest as a sacred image can be at one time the earth, at another time the sky, and at another time the underworld, the single figure embracing all, yet not remaining solely with one” (Boone 1999:193). Umberger similarly observes the relationships of rulers and deities in a way that helps frame the fused political and religious messages I have so far described in the Calendar Stone:

Politically powerful people were closely linked to the patron gods of the polities they represented; when ascending to the office they dressed as the patron gods and took on their powers to mediate between human society and the natural and supernatural forces of the territory. The deities, in turn, were the patrons of the units from calpolli size to city-state to province and empire, with the one at the top, as in the human hierarchy, being the god of the polity’s dominant group. (Umberger 2008:81)

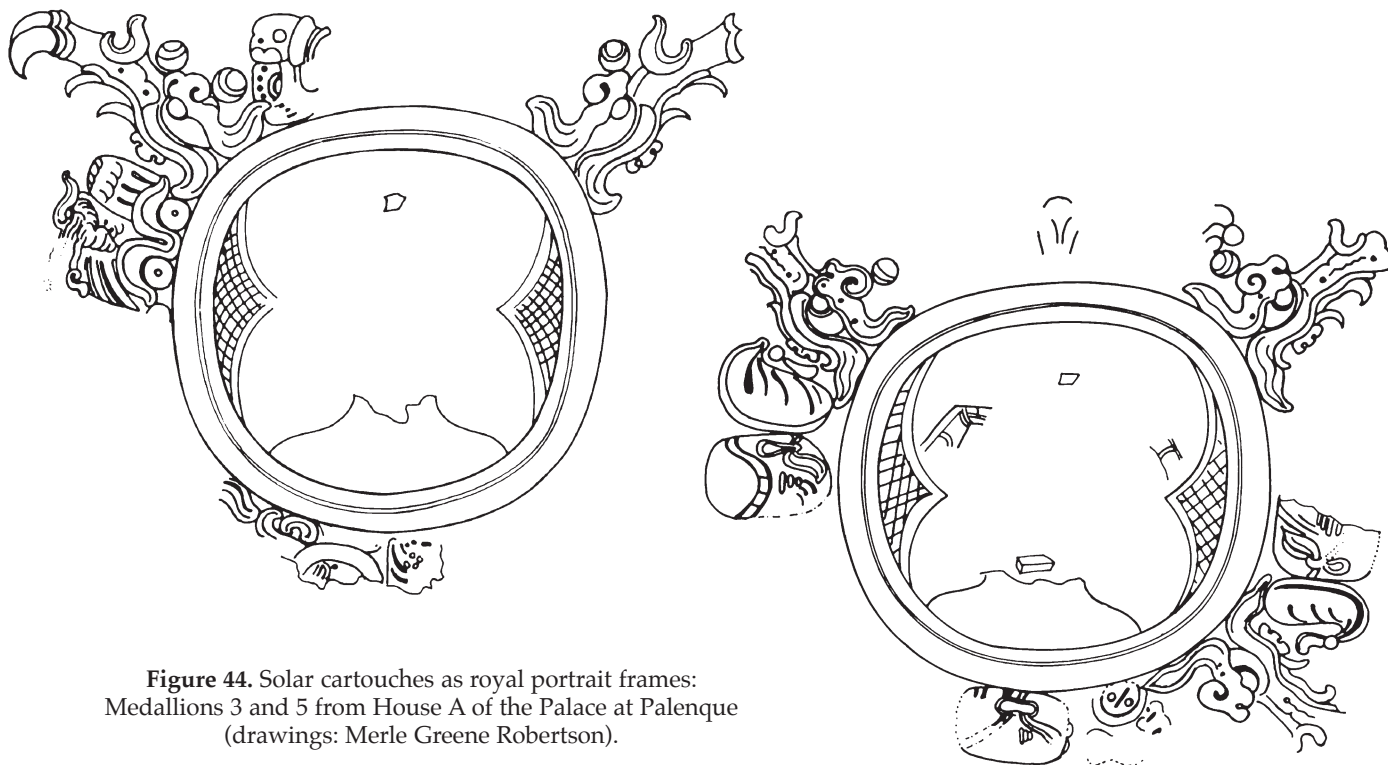
In this vein, the solar image on the Calendar Stone holds purposeful allusions to the horizontal earth, both explicitly identified with Moteczomah II and the Mexica patron deity. All exist as complementary and necessary aspects of an overarching identity that places the ruler at the center of both cosmos and empire, echoing many of the themes brought to light by Townsend (1979) in his important studies of Tenochtitlan monuments.

López Austin (1973) examined similar concepts in his classic study of mythology and its expression through deified leaders, so-called “*hombres-dioses*” who were imbued with supernatural powers even in their own lifetimes, and who came to be mythologized as culture heroes over decades and centuries. López Austin focused on the narratives of Quetzalcoatl as a mythologized figure, but he also masterfully demonstrated the deep resonance of such patterns elsewhere in Mesoamerica. In his view, the concept of “man-gods” was a pervasive feature in Mesoamerican worldview and concepts of authority. Yet whereas López Austin saw this phenomenon in terms of long-term historical change and ideological evolution, we can expand it to include the idea of deity embodiment as a more momentary or synchronic phenomenon. In Mesoamerica, rulership was often defined and expressed through its categorical overlap with the supernatural, and with the idea that rulers and high ranking nobles “embodied” deities and cosmological beings. At particular moments and in specific ceremonial settings, rulers throughout ancient Mesoamerica could be seen as embodiments of the sun and of specific calendrical cycles. In this light, it seems fitting that the main visage of the Calendar Stone could hold multiple identities, both historical and cosmological.

Such intersections of deity and king are now well documented among the Classic Maya as well. Some years ago Stephen Houston and I identified a common Maya hieroglyphic expression used in specifying the godly impersonations of rulers (Houston and Stuart 1996:298). This “impersonation phrase” is based on the formulaic term *u baahil ahn*, which incorporates the possessed noun *u baah*,

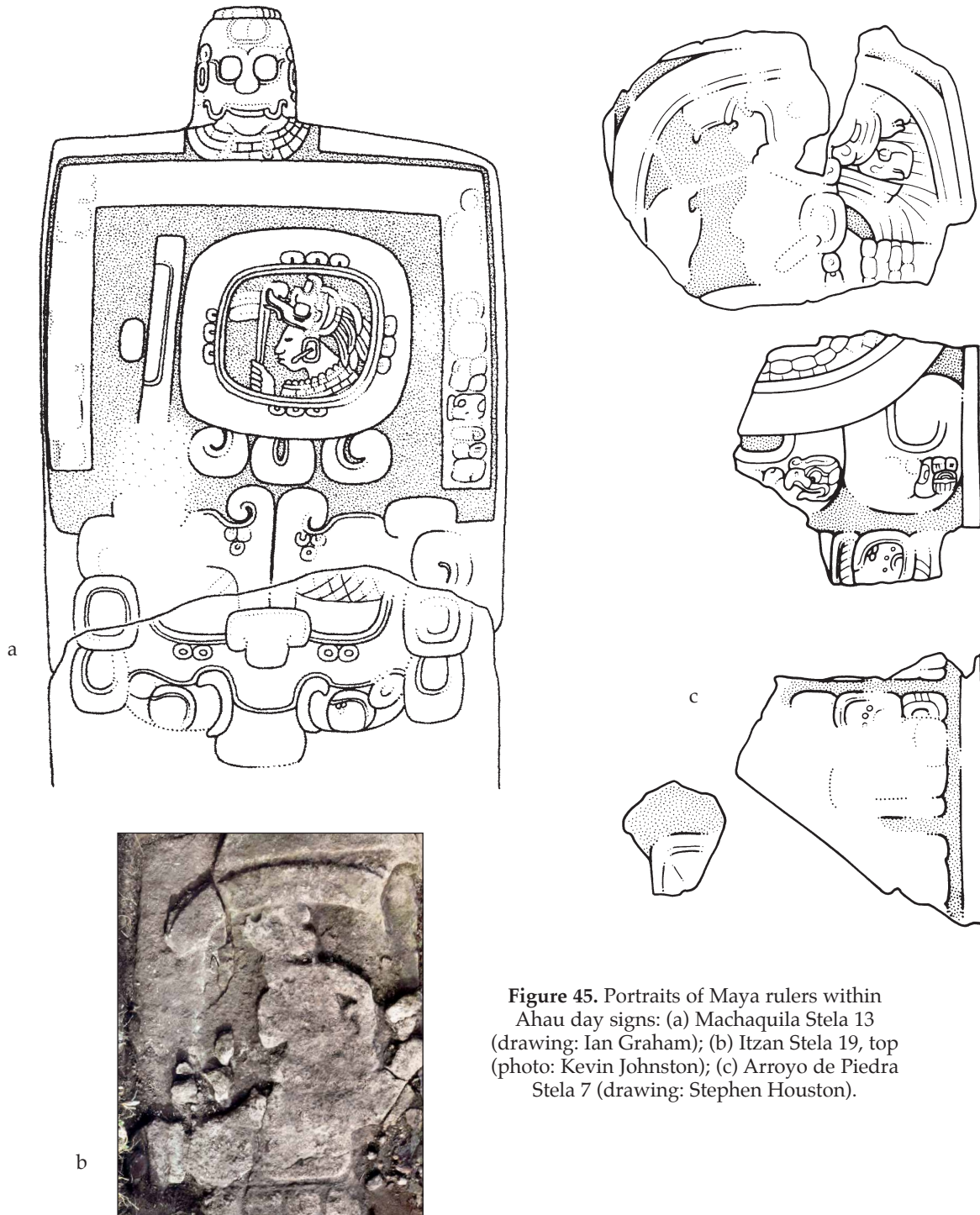
“his/her person, body self.” The precise meaning of *ahn* (spelled **a-nu**) remains undetermined, but the function of the full phrase is clear in specifying the fusion of a human and supernatural identity. In texts *u baahil ahn* comes before the paired personal names of the deity and of the historical actor (male or female) who embodies that supernatural. For example, in many cases rulers are explicitly named as embodiments or impersonators of the solar god K’inich Ajaw. We see this presented in numerous examples of Maya art and iconography as well, with large Maya sun cartouches serving as frames for frontal depictions of kings both living and deceased. Vivid examples of these appear for example on the wall of House A at Palenque, in a series of repeating portraits of the ruler K’inich Janab Pakal or his royal ancestors as solar deities (the K’inich honorific of his very name makes the same equation) (Figure 44).

Related to these fusions are representations of historical Maya kings as heads within Ahau day-sign cartouches, as we see on El Palma Stela 5 or on Machaquila Stela 13 (Figure 45a). In the latter example a local king of the Machaquila dynasty is portrayed within a hieroglyph for the period 6 Ahau. In parallel cases from Arroyo de Piedra and Itzan, other Maya kings appear within



**Figure 44.** Solar cartouches as royal portrait frames: Medallions 3 and 5 from House A of the Palace at Palenque (drawings: Merle Greene Robertson).





**Figure 45.** Portraits of Maya rulers within Ahau day signs: (a) Machaquila Stela 13 (drawing: Ian Graham); (b) Itzan Stela 19, top (photo: Kevin Johnston); (c) Arroyo de Piedra Stela 7 (drawing: Stephen Houston).

Ahau day glyphs (Figure 45b). These playful images are based on the simple meaning of the day name *ajaw*, “king” (Stuart 1996). In a similar vein, Maya kings could be shown on ritual occasions and upon their accessions as embodiments of katuns and of other units of time, as on the well-known “ascension motif” stelae of Piedras Negras, where the newly installed kings are visually linked to the enthroned lords of katuns or other time periods (Taube 1988b; Love 1994:26; Stuart 1996). I suggest that the Aztec Calendar Stone encapsulates a similar notion of royal identity, equating a specific deified ruler, Moteczomah II, not only to the sun and celestial power but to a particular calendrical and temporal form, Nahui Olin.

The “reflective” nature of the two name glyphs above the **OLIN** sign—that is, how they face one another across the bisecting center line—deserves further comment. The bilateral aspect of the Calendar Stone’s overall design is obvious, indicated at first glance by the facing Xiuhcoatl figures at the outer edge of the disc and the two heads that emerge from their mouths. The opposition of left and right halves is also indicated by the orientation of the hieroglyphs in the central part of the disc, including the four hieroglyphs within the “limbs” of the large Olin—Nahui Ocelotl and Nahui Atl are left-facing while Nahui Ehecatl and Nahui Quauhuatl are right-facing (see Fradcourt [1993]2010:278).<sup>20</sup> This vertical division of space accords with many other usages of bilateral symmetry in Mesoamerican visual design, where two or more juxtaposed identities “mirror” one another for narrative purposes. We see this at work in Aztec art in numerous other compositions, such as the so-called Dedication Stone of the Templo Mayor, an early Mexica sculpture representing two historical actors who are temporally merged (Figure 46). An imposing 8 Reed (Chicuei Acatl) year date within a square *xihuitl* frame dominates the design, corresponding to 1487, the year of a major renovation of the *huēi teōcalli* as recorded in the annals of the *Codex Telleriano Remensis*, among other sources. Above, we see the ruler Tizoc on the left and Ahuitzotl to the right, each shown bloodletting and feeding the earth as part of the symbolic dedication ceremony. In the center is the grass ball or bundle of auto-sacrifice, accompanied by the date record 7 Reed, perhaps the day within the year 1487. The depiction of two rulers on a single stone is highly unusual, but the point here is that the construction of this phase of the Templo Mayor was a joint enterprise, first begun by Tizoc and then completed by Ahuitzotl after the former’s death. The left-right depiction shows the living ruler on the

<sup>20</sup> Graulich (1992) argued for a horizontal division to the iconography and composition of the central portion of the disk, with an upper half representing the movement of the rising sun and the lower half the movement of the setting sun. I remain unconvinced of this analysis (the face’s lower jaw is not a fleshless mandible, as Graulich suggested) but instead see more dominating *vertical* division to this central design, running through the very center of the **OLIN** sign.

right, his deceased sibling and predecessor to the left, each as co-participants in the engendering of the earth.

The primacy of the viewer's right side is found also in Mexica architecture, the Templo Mayor being the most important and obvious example. Atop the *huēi teōcalli* were two major shrines, one on the viewer's right dedicated to Huitzilopochtli and its partner on the left, slightly smaller in size, dedicated to Tlaloc. It is no coincidence that the temple-shrine of the Mexica patron deity was the more important of the two and shown as the larger structure in the more accurate representations of the temple from early Colonial times (Boone 1987). Again, this left-right hierarchical arrangement represents a very old tradition in pan-Mesoamerican concepts of design, where bilateral symmetry is used to mirror two like-in-kind aspects of one or two entities. Often there is also an implied hierarchy in such arrangements, with the right side being the dominant or featured half, as we see for example with



**Figure 46.** Bilateral symmetry and temporal juxtaposition on the Dedication Stone of the Templo Mayor (from Nicholson 1983:53).

the right-side placement of Ahuitzotl, the living ruler and protagonist, on the Dedication Stone.

In ancient Maya art a similar use of bilateral symmetry plays a very important role in relating people and deities across temporal and narrative boundaries. One simple case can be seen on the front or eastern face of Altar Q, the well-known representation of Copan's dynastic history (Figure 47a). Here we see the sixteenth ruler Yax Pasaj Chan Yopaat at right accepting a ceremonial staff or torch from his distant predecessor at left, the dynastic founder K'inich Yax K'uk' Mo'. The living ruler occupied the throne nearly four centuries after the founder, yet the two interact in a composition based on mirroring and bilateral symmetry. The date hieroglyphs between the two figures mark the dividing line and specify the temporal moment, the day of Ruler 16's inauguration. Visually speaking, time seems ambiguous and imprecise, as the two rulers directly interact across several centuries. At Palenque we see a complex use of the same compositional idea, in the three main tablets of the Cross Group temples (Figure 47b). The scenes on all three tablets show two figures who are representations of the same ruler, K'inich Kan Bahlam, at two stages of life, the smaller figure being a six-year old boy and the larger a 48-year old man. Time is compressed and the two identities of the protagonist are juxtaposed with one another. "Sidedness" is again a key element of this design, with each temple providing a different aspect of the king on its right side. In the Tablets of the Cross and Sun the adult king is at right, whereas on the Foliated Cross (shown here) the child is at right. The meanings here remain somewhat obscure but will be developed further in a work on the Cross Group now in preparation.

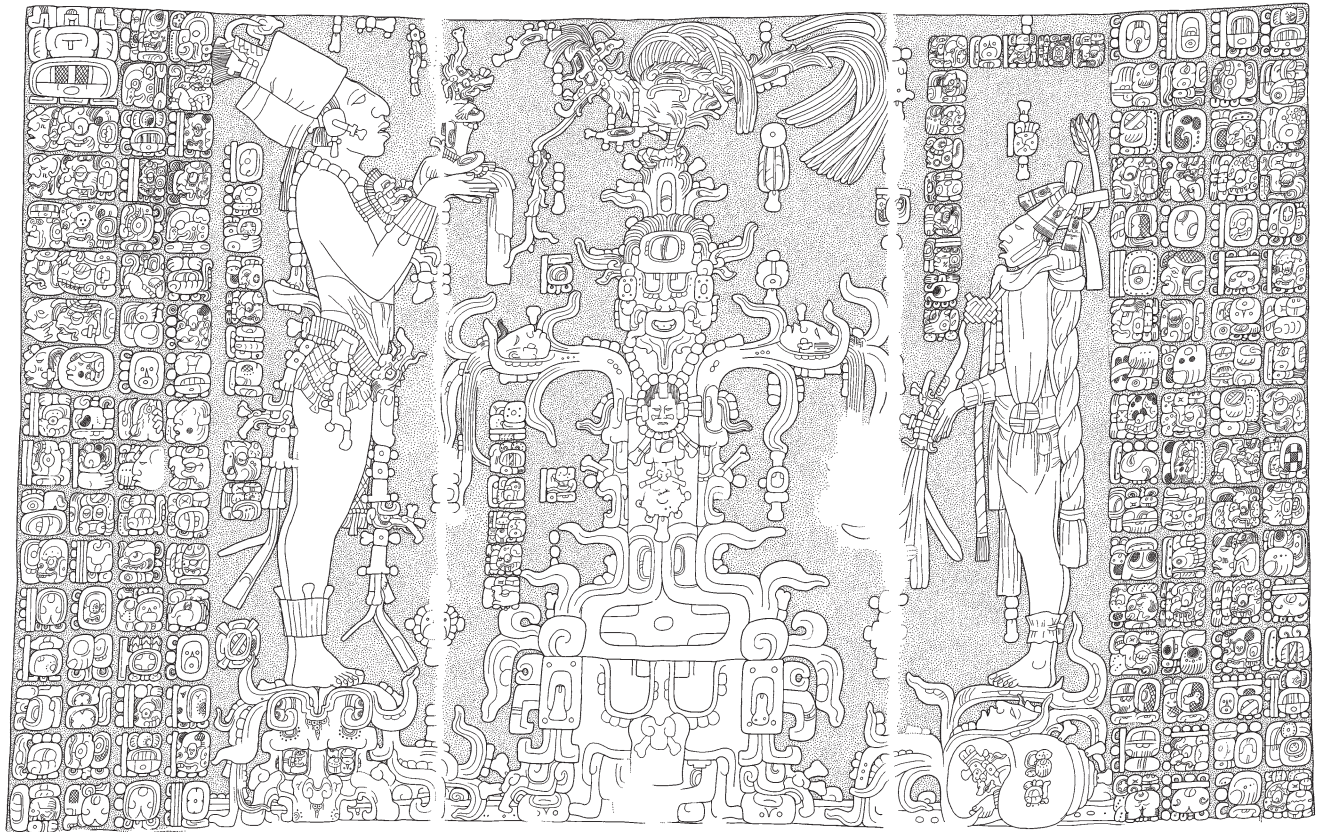
Returning to the Calendar Stone, we can explore the ways that the subtle bilateral symmetry works to provide other hierarchies and resonances of meaning. The 1 Flint hieroglyph at the upper right and above the central face is oriented in standard fashion, facing toward the left (see Figure 34). This placement may give it a compositional primacy, with the right side understood to be the dominant label or identifier. The name hieroglyph of Moteczomah II is opposite and oriented in reverse, facing to the right, suggesting that the solar face is identified principally as 1 Flint or Huitzilopochtli, while its secondary and underlying identity cites Moteczomah II. The face is "deified," but compositionally it carries clear and unmistakable personal markers of both god and king.

The small, barely perceptible glyphs below the **OLIN** may also relate to this symmetrical arrangement in some way, although their meanings are far from clear. A calendar record for the day 1 Rain is at left, facing to the right, perhaps paired compositionally with the personal name of Moteczomah II above. In the same way the glyph for 7 Monkey seems to be paired with the 1 Flint reference to Huitzilopochtli. The reason for this latter association remains unclear, but it is significant to recall Umberger's fascinating observation that 1 Rain was the day associated with blood offerings on behalf of the emperor, who, like the sun, required sustenance and strength through human sacrifice. How appropriate, then, to see the deified face of Moteczomah II at the center of the



a

**Figure 47.** Bilateral symmetry in Maya art:  
(a) Altar Q of Copan  
(photograph: David  
Stuart); (b) Tablet of  
the Foliated Cross at  
Palenque (drawing:  
David Stuart).



b



**Figure 48.** Upper panel of the Teocalli of Sacred Warfare, depicting Hutzilopochtli at left and Moteczomah II at right (photograph: David Stuart).

composition—at “center stage”—with his knife-tongue extended and ready to symbolically consume the victims of sacrifice.

Perhaps it is also significant that the same two protagonists shown as a fused image on the Calendar Stone, Moteczomah II and Huitzilopochtli, appear together on the Teocalli of Sacred Warfare, flanking a large solar disc (Figure 48). This composition bears a number of important parallels to the Calendar Stone, but with the three components visually separated rather than merged into a single hieroglyphic composition. The left-right opposition on the Teocalli’s scene reverses what we find on the Calendar Stone, with Moteczomah featured at right, facing the patron deity Huitzilopochtli at left. In the visage of the Calendar Stone his historical and political identity as the emperor is explicitly indicated by the name hieroglyph, yet perhaps secondary to that of 1 Flint (Huitzilopochtli).

The central face is replete with jewels—a jade flower on the forehead headband, large disc-shaped earspools, a beaded collar, and, just perhaps, a horizontal bar-like ornament in the pierced septum of the

nose (this detail is hardly visible in photographs, but was included in Beyer's reconstruction).<sup>21</sup> Several of these same features appear on the face within the central depression of the so-called "Archbishop's Stone," variously interpreted as the face of Tonatiuh or of Xiuhtecuhtli. The presentation of the bejeweled visage also immediately brings to mind Durán's description of the newly crowned *tlaltoāni* at his investiture ceremony in the royal palace, as he takes part in a large ceremonial dance where he was surrounded by two thousand noblemen:

After everyone else already at the ball [...] the king emerged, with a golden crown on his head, encrusted with many precious stones and with a rich plumage, [...] set in gold, very dazzling, and in the mouth a rich emerald set in gold, and in the nose another very transparent green stone, worn piercing the nose... (Durán 1967:2:309, translated from the Spanish)

In his important discussion of coronation rites at Tenochtitlan, Townsend quotes this same passage from Durán and links it directly to a symbolic act equating the ruler with Huitzilopochtli:

Enveloped in the smoke of copal, glittering with jade and gold reflections, and iridescent with the color of tropical feathers, the victorious *huey tlatoani* was encircled by the dancing lords. Standing at the center of the dance, close by the commanding drum, he was converted into a living icon: the heir to Huitzilopochtli, participating in his virtue and reaffirming his warlike purposes and aims, the image created by the dance placed him at the center of the imperial social sphere, echoing the position of Huitzilopochtli on the main pyramid in relation to the city. (Townsend 1989:169)

I am struck by Townsend's evocative description, based on Durán's account, for it describes much of what I have interpreted in the Calendar Stone itself, seeing the king-as-Huitzilopochtli in the center of a moving, circular stage. As an interactive monument the Calendar Stone is similarly "performative" in that it serves as a materialized expression of many of the same concepts and relationships. It may convey a slight suggestion, too, that the monument was dedicated around the time of Moteczomah II's coronation and investiture in 1502, much like the similarly themed Coronation Stone (see Figure 28).

The identification of Moteczomah II as the central face's historical (and non-exclusive) subject adds an important new dimension to the question of the monument's interpretation. I hesitate to come down one way or another in the long-standing debate over the face being that of the sun (Tonatiuh) or that of the earth (Tlaltecuctli) or yet some other cosmic being. In my mind the divergent interpretations carry a good deal of weight. However, I would stress that these are still only part of the highly complex and layered message conveyed by the design. Integrated with these broadly conceived identities are

<sup>21</sup> The jade nose-bar shown in many reconstructions of the central face appears in Francisco de Agüera's engraving of 1792 and again in several subsequent drawings and illustrations. Other artists chose to omit it, however. Today this detail is very difficult to confirm, except for some very faint indication of its curved end near the face's right ear. While it is possible that this nose jewel was much more visible shortly after the stone's discovery, we should entertain the possibility that it was an imaginative addition made early on and repeated by many other artists.

the two explicit and complementary labels of the central face as named individuals—the living ruler Moteczomah II and the deity Huitzilopochtli, both embodiments of the state and empire. Perhaps the central disc's playful allusions to the form of a circular mirror, as suggested by Graulich (1997) and Taube (2000), help to accentuate this idea of multiple identities—the face of the noon-time sun reflected by the earth, but anchored too in a historical frame of reference. Whatever broader significance the central face has as the animate sun, 1 Flint (Huitzilopochtli) and Moteczomah II are the two identities that were featured by the artist in this particular setting and design. The Calendar Stone thus becomes a much more overtly political statement, placing the king not only in the role of the reborn and perpetually moving sun, but also as the embodiment of the cosmic center, or navel, of time.





## CHAPTER 5

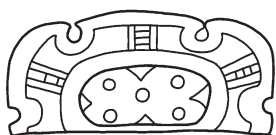
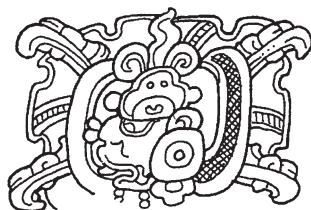
## Tonatiuh and the Solar Disc

**A**ztec representations of the solar disc, with its eight radiating points and concentric circles, are nearly always taken to be little more than a straightforward circular sun, much as Seler asserted in his own interpretation of the Calendar Stone as “an image of the sun, no more and no less” (Seler 1904b:797). Yet, as I have argued above, it would be more precise to say that the disc can be seen as a *hieroglyphic* form conveying in a direct way the Nahuatl word *tonatiuh*, the descriptive proper name of the rising, warming sun. The visual form of the solar disc can be traced in numerous examples in Aztec iconography and script, some less elaborate and therefore somewhat easier to analyze.

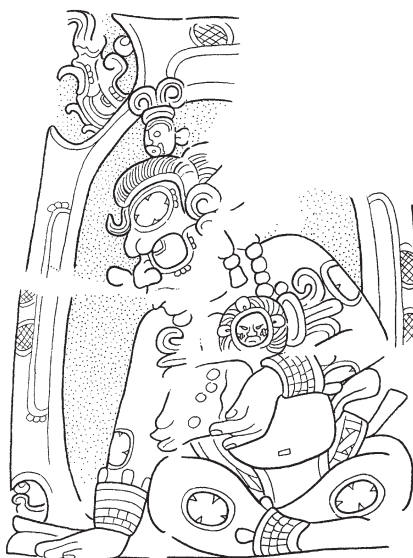
Considering the deep roots of Mesoamerican iconography, it is clear that the Aztec artisans did not innovate the image (and glyph) of the solar disc in cultural isolation. By the Late Postclassic period it was already a very old icon, traceable back to the visual culture of the ancient Maya where we see examples well over a thousand years earlier than when the Calendar Stone was produced (Tozzer 1957:119-121; Taube 2000; Solís Olguín and Velasco Alonso 2004:85-88) (Figure 49). The central element is, naturally, the **K'IN** sign, perhaps originating as a representation of a four-petaled flower blossom. By the Early Classic the outer border sometimes assumes an irregular or crenulated outline, which in its clearest examples is based on the **YAX** hieroglyphic sign (Figure 50). Early Maya solar cartouches can therefore be seen as elaborations on the hieroglyph **K'IN** or, more precisely, the conflated sign combination **YAX-K'IN**. *Yaxk'in* is well known as the name of a month in the ancient Maya solar-year calendar, derived in turn from the core meaning of *yaxk'in* as “new sun” in many Mayan languages, or more generally as “dry season.” It is interesting that Thompson (1950:11) suggested a meaning that nicely parallels the sense

of *tonatiuh* in Nahuatl: “the name probably refers to the morning sun who, refreshed by the sacrifices offered him, sheds the symbols acquired during his nightly journey through the underworld to appear in all his vigor.”

The earlier Maya solar cartouches shown in Figure 49 representing *k'in* or *yaxk'in* typically show small indentations or semi-circular cutouts at the four “corners.” These probably derive from the similar inset forms in the outline of the YAX sign. From these emerge the snouts of centipedes or “square-nose” serpents (sometimes called “Zip Monsters”), the latter strongly resembling Xiuhtli figures of Late Postclassic iconography, with their angled snouts and attached “jewels” or eye-like stars. Similar forms



**Figure 49.** Development of the solar cartouche from Maya precedents.



appear on Terminal Classic solar cartouches depicted in the art of Chichen Itza, which stand as clear visual precursors to the sun discs in Aztec art and script. The Late Postclassic Xiuhtli of Central Mexico, with its long segmented body, is likewise derived from images of caterpillars and centipedes (Taube 2012).

This very old visual association of solar discs and “radiating” centipedes is surely related to the two Xiuhtli serpents depicted on the outer edge of the Calendar Stone. We have already touched on these “year serpents” or centipedes with regard to their close connection with the 13 Reed year date at the top of the composition, but there is a good deal more to say about them. They envelop the solar disc within, and this is also surely related to the visual convention where “fire serpents” surround and

contain images of ritual fires. One such image appears on page 46 of the *Codex Borgia*, where four Xiuhcoatl serpents frame a ceremonial hearth, each slightly different in coloration according to its respective cosmic direction. Taube (2000:320) noted that the Xiuhcoatl may symbolize the animate meteors or shooting stars that lit the sacred fire within the turquoise enclosure where Nahui Olin was born. These are probably also conceptually related to sparks and embers that “shoot” from fire and from the sun. These roles seem to be part of a more general role of the Xiuhcoatl as a figure of animate light and heat, a bright, even blinding form that moves and radiates. Sahagún describes something along these lines in his account of a lightning strike on a church, related to him by a Franciscan friar:

Concerning this *xiuhcoatl* that they used to use as a portent. I heard Father Fray Francisco Tembleque say that a very severe storm was approaching one day when he was in the choir loft of that convent where he lived; he opened a little window to see the storm cloud; as he did so, a thunderbolt struck him in the left eye and ruptured it. For many days he had great pain, and it seemed to him that his eye was hanging out of its socket; and he was left blind. The thunderbolt did other damage to the church, to the altarpiece, and to the convent. The Indians who were there said they had seen this *xiuhcoatl* in the form of a great serpent leave the convent through the gatehouse. All those who saw it emerge remained stunned for a few days, which suggests that this was an artifice of the Devil and of the sorcerers who invoked him to do these things. (Sahagún 1989:132-133)

Both in folklore and in formal artworks the Xiuhcoatl represents lightning, fire, and “linear” heat that darts about and moves quickly, like the bright arrows and rays of lightning that cross the heavens. This role can also be traced to the “square-nosed serpents” and related characters in Maya iconography dating as far back as the Late Preclassic period.<sup>22</sup> And as “year serpents” (*xihuitl* also meaning “year”), the Xiuhcoatl may also have a broad meaning having to do with the linear arrangement and movement of the years, their bodies resembling the square turquoise segments of year lists as we see in many pictorial annals of early Colonial manuscripts (Boone 2000).

<sup>22</sup> Here I am thinking primarily of the so-called “Zip monsters” and centipedes that radiate from Maya solar discs, and of the elongated serpents with upturned snouts that descend from celestial bands, often flanking frontal stucco masks in architectural decoration. One interesting example comes from the stucco panel from the Margarita structure at Copan, where a skyband with descending snakes flanks the emblematic name of K’inich Yax K’uk’ Mo’. The two downward-facing snake heads at the sides are each adorned with a Chahk figure wielding an axe, surely to indicate their function as animate lightning bolts, like Xiuhcoatl. I consider these various serpents and centipede forms to be direct antecedents to the Xiuhcoatl of the Postclassic era, probably indicating an ultimate origin in Maya iconography.

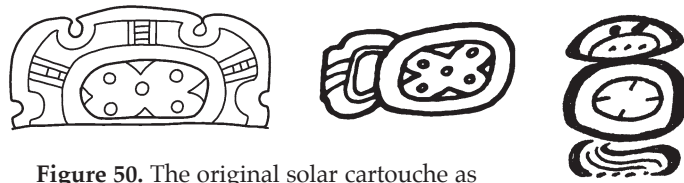


Figure 50. The original solar cartouche as YAX-K'IN (drawings: David Stuart).

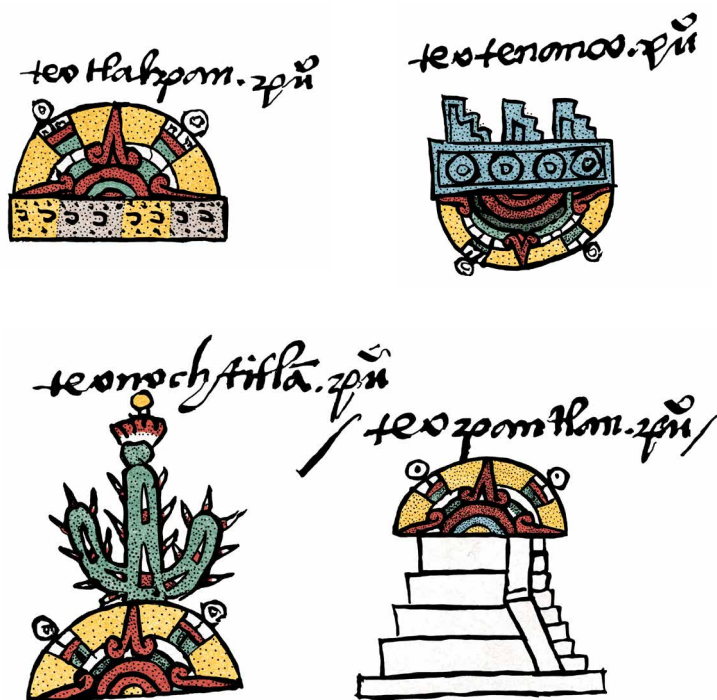


Figure 51. The logogram TEO (“god, holy thing”) in the Nahuatl script, depicting half of a solar disc: examples from various toponymic hieroglyphs in the *Codex Mendoza*, all used as an adjectival modifier.

his mouth emerges a scroll-like form that resembles the flame of the *tlachinolli* (“scorched earth”) motif, perhaps a more direct allusion to the dry season, the time of burning fields. The face emerging from the left-hand Xiuhtecuhtli bears hatch markings on the lower half, but otherwise its iconographic form is not too distinctive; he is difficult to identify with much certainty.

One well-known mythological role of the Xiuhtecuhtli is as the weapon wielded by Huitzilopochtli, the patron deity of the Mexica who was an embodiment of the sun and central to the ideology of the Mexica-Tenochca polity. The curved snout of the two Xiuhtecuhtli we see on the Calendar Stone, decorated by small attached eyes, replicates the curved end of the serpent-shaped atlatl weapon seen in several of Huitzilopochtli’s portraits from the painted manuscripts. As discussed above, a direct reference to Huitzilopochtli appears on the Calendar Stone as the glyph 1 Flint in the hieroglyphic captions in

On the Calendar Stone, the bodies of the two Xiuhtecuhtli serpents likely hold a similar significance as representations of the directionality of solar time and the course of the years. They surround the sun as representations of its heat and light, but their particular arrangement within the design, moving downward from the 13 Reed glyph, would seem to also accentuate that date’s significance as a temporal point of origin, the birth year of time in the current sun or era. As we have noted, the presence of two such snakes or centipedes may allude to the division of years into the two seasons. Profile faces emerge from these two serpents, each with knife-like tongues that replicate the form seen frontally in the central face. Their precise identifications are difficult to establish, although the one on the right is usually interpreted to be Xiuhtecuhtli (see Matos 2002:72), perhaps wearing his distinctive Cotinga bird (*xiuhtōtōtl*) forehead device. From

the center, a citation of the god's birth year. This would seem to "name" the sun itself (alongside other identities) and may support the idea that the two Xiuhcoatl images are a more specific mythological reference to two of his weapons, the heated arrows or solar rays (*tōnalmitl*) that he hurls outwards and downwards.

A more speculative point concerning the dual Xiuhcoatl images stems from their close relationship to the corporeal form of Huitzilopochtli. We see this connection on the Teocalli of Sacred Warfare, where the portrait of the standing Huitzilopochtli (or the priest in his guise) includes Xiuhcoatl as one of his feet (see Figure 40). His left leg is the serpent's elongated body, and the foot becomes the head of Xiuhcoatl, clearly recognizable with its upturned curved snout adorned with circular eyes and prominent rear fangs. A knife emerges from its mouth, as does a sole *tlachinolli* element (again without its customary *ātl*, "water," accompaniment). This raises the possibility that the two outer Xiuhcoatl forms on the Calendar Stone might help to convey a corporeal metaphor as well, as the two figurative "legs" or supports of the solar Huitzilopochtli/Moteczomah depicted in the center. The central face has talons or "hands" that are identical to the Xiuhcoatl's own clawed appendages, and perhaps it is not too much of a leap to see the two curving serpents as lower "limbs," accentuating the sun's animate body. At the very least the two arching Xiuhcoatl forms accentuate the Calendar Stone's concern with bilateral symmetry as it relates to the depiction of the animate sun's radiating body.

The basic solar disc appears as a sign in Nahuatl writing with two main variations. In the *Codex Mendoza* we see that the half version of the disc serves as the logogram for **TEO** (*teōtl*, "god, holy thing" (Figure 51). It is possible that its form here originated as the appearance of the sun rising or setting on the earth's horizon. The fuller disc is carefully distinguished in the *Codex Mendoza*, the *Matrícula de tributos*, and elsewhere to write the logogram **TONATIW**, as part of place names or personal names. This appears for example in the toponymic glyph for Tonatiuhco (Figure 52a) and again in the surname Tonatiuh

**Figure 52.** The logogram **TONATIW** ("sun"): (a) used in the place name Tonatiuhco, from the *Matrícula de tributos* (drawing: David Stuart); (b) another toponym (also Tonatiuhco?) on the Stone of Tizoc (photograph: David Stuart).



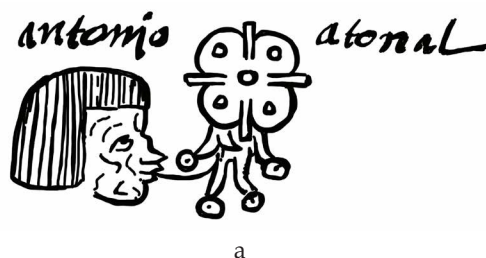
a



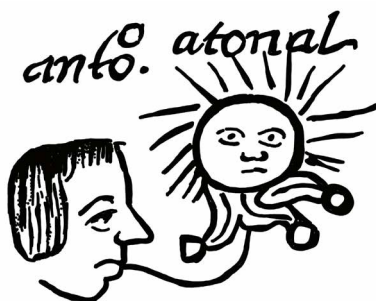
b



Figure 53. Use of the logogram of **ILWI** (“day”) in Nahuatl script, from *Codex en Cruz* (from Dibble 1981:2:13).



a



b

Figure 54. Late examples of **TONAL** in the name **A-TONAL**, from the *Matrícula de Huexotzingo*: (a) page 188; (b) page 410.

to write other words that might be loosely translated as “sun” or “day.” This suggests that it is a word-based sign, a true logogram, and not a broad symbol for concepts associated with the sun. As we have seen, the generic word for “day” and “fiesta” in Nahuatl is *ilhuitl*, roughly equivalent to the semantic scope of *k’in* and its cognates in Mayan languages. For this word we find a squared form with an internal double-scroll, no doubt one logogram **ILWI** (Figure 53) (Boone 2000:34) (another **ILWI** glyph, possibly a regional variant, represents a flower-like form with four outer dots, although this was used elsewhere to refer to units of twenty days). The point here is that the solar disc was never used to write the word *ilhuitl* or any other sense of “day”; it is restricted in function to conveying the word *Tonatiuh* in reference to the warming, moving sun.

It is sometimes suggested that the same solar disc hieroglyph sign could at times represent the more elemental noun roots **TONA** “solar heat” or **TONAL**, “day sign.” For example, Manrique Casteñeda (1989:165) assigns the sun disc the value **TONAL**, apparently based on an imprecise translation of *tōnalli* as “sol.” This reading seems to be indicated in later scribal practices in the Valley of

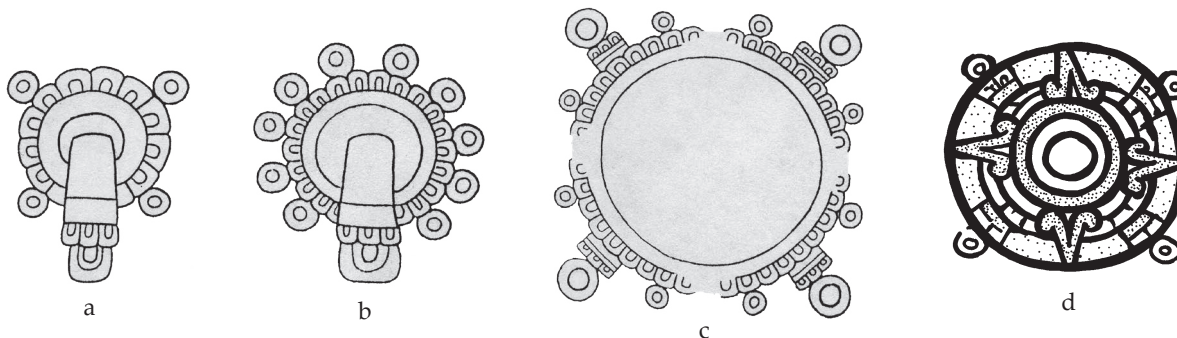
in more Europeanized examples. Seler (1904c) noted both the **TEO** and **TONATIWI** values in his discussion of a toponymic glyph on the Stone of Tizoc, combining the full disc with a “hill” element below (Figure 52b). He opted to read this as the place glyph for Teotitlan (see also Dibble 1971:327), although I see no reason to read the full disc form as anything but **TONATIWI**. The Stone of Tizoc glyph may therefore be a slightly more elaborated form of the toponym for *Tonatiuhco*, or present-day *Tonatico*, located not far from the Toluca Valley.

Significantly, the full solar disc hieroglyph seldom if ever seems to be employed

Mexico, where Europeanized sun images serve for either **TONAL** or **TONATIHW**. For example, in the *Matrícula de Huexotzingo*, the surname Atonal (“Water Day Sign”) is written **A-TONAL**, where **TONAL** appears as a fully Europeanized image of the animate sun (Figure 54b) or else as a flower-like element that bears a striking resemblance to the Maya **K’IN** glyph (Figure 54a). A similar sun sign appears in the toponymic glyph for Tonallan (**TONAL-TLAN**) in the *Codex Kingsborough*, as well as in the personal name Hueitonatiuh (“Large Sun”). Such late examples may point to an increasing flexibility in the use of some logograms in the sixteenth century. But the evidence suggests that the conventional solar disc, standing for **TONATIHW**, had a specific *hieroglyphic* role in pre-Conquest times that was anchored to that particular lexeme.

One diagnostic feature of all proper Tonatiuh discs (as perhaps they can now be called) is the prominent presence of jade jewels, or *chālchihuitl*, radiating outward in alternation with the pointing solar rays. These are related to the corresponding hieroglyphic sign, **CHAL-** or **CHALCHIHUI-**, best known as part of the place glyph for Chalco (Figure 55). Projecting jade beads appear at interstitial points in the full **TONATIHW** signs shown above, sometimes with an indication that they are attached to a larger jade disc or jewel integrated with the solar circle. Jade jewels are also clearly emphasized in the Tonatiuh disc that dominates the face of the Calendar Stone, which presents a much-elaborated version of this basic combination (Figure 55c). One noteworthy example of the emphasis on jade comes from a large feathered back device called a *quetzaltōnatiuh*, “feathery sun,” illustrated in the *Lienzo de Tlaxcalla* (Seler 1904a:610) (Figure 55d). As we see throughout Aztec-period writing and iconography, jade jewelry is integral to the representation of the solar disc of Tonatiuh. I have never encountered any representations of this **TONATIHW** sign where the jade adornments are not present.

Graulich (1992:294) presented a specific interpretation of the jade *chālchihuitl* beads and adornments on the disc of the Calendar Stone as symbolic references to the west and the setting sun, suggesting that they are structurally opposed to the solar rays that alternate with them, being symbolic refer-



**Figure 55.** The floral sign **CHAL**, “jewel,” and its relation to Tonatiuh discs (drawings: David Stuart).



Figure 56. The sun as the day sign “Flower” (Xochitl), from the *Florentine Codex*.

to the Late Postclassic Tonatiuh disc under discussion. And in direct contrast to Graulich, Taube also suggests that such jade imagery alludes to the eastern direction (i.e., the rising sun) given jade’s direct geographical associations with the Maya region. Perhaps relevant here is the point discussed earlier, that the jade-adorned solar disc itself has its historical roots in the art of the Classic Maya. Furthermore, it is no coincidence that the *chālchihuitl* sign represents a jewel-like flower blossom, like other sun-related signs and elements we have already discussed in Nahuatl and Maya writing.

No doubt the integration of shining jade and floral imagery is meant to evoke the bright, “blossoming” nature of the sunburst. This is most directly indicated in visual means by Durán’s use of a radiating sun to represent the hieroglyph of the day Xochitl, “Flower” (Figure 56). In Nahuatl, the verb root *cuepōni*, meaning “to shine, glow” as well as “to blossom, bloom,” or in Molina’s gloss, *abrirse y abrotar la flor, o la rosa, o resplandecer alguna cosa*. The connection to fire and burning is also directly

ences to the east. While this is an intriguing observation, it does not seem to be rooted in any specific textual or cosmological source. I prefer to see the alternating jewels and rays as visual characteristics of Tonatiuh, both integral to the hieroglyph itself. In this sense, jade surely alludes to solar brilliance and light—a convention that can be traced throughout Mesoamerica as far back as the Formative era, in close association with the iconography of the sun and other celestial beings (Taube 2005). Taube (1992:142) links the jade-adorned solar disk to representations of the bejeweled sun god-warrior in the art of Chichen Itza, heavily adorned with jade and shown within a disc that is the direct formal precursor



conveyed in the verb *xōtla*, “to burn, to catch fire, to run a fever; for flowers to burst into bloom” (Karttunen 1992:331). Again, I think these and other key aspects of Nahuatl language and poetics go far toward explaining fundamental visual metaphors in Mexica iconography.

Representations of jade suns also surely allude to the name *chālchihuitl tōnatiuh*, the “Jade Tonatiuh,” cited in the *Histoire du Mechtique*, a key sixteenth-century French translation of a lost original work, possibly by Fray Andrés de Olmos (Jonghe 1905:23). In what might present a fascinating (if confusing) connection to the long-established narrative of the Calendar Stone, *chālchihuitl tōnatiuh* is said to be the name of the first of the four previous suns or creations. It is difficult to know how this description should be reconciled (if it can be) with regard to the standard model of the four suns as recounted in the *Leyenda de los Soles*, where the first sun is Four Jaguar (see Appendix). Nonetheless it would seem that the description of the ancient primordial sun as a jade jewel was important in Aztec creation narratives and might be directly referenced by the form of the large **TONATIW** glyph as it appears on the Calendar Stone.

Returning to the Calendar Stone and its highly embellished **TONATIW** sign, there are a few other features of the design we have yet to explain. One element worthy of further comment is a ring of “turquoise” (*xihuitl*, **XIW**) signs that appear directly outside the band of the twenty day signs (Figure 57). We might naturally see this as another allusion to

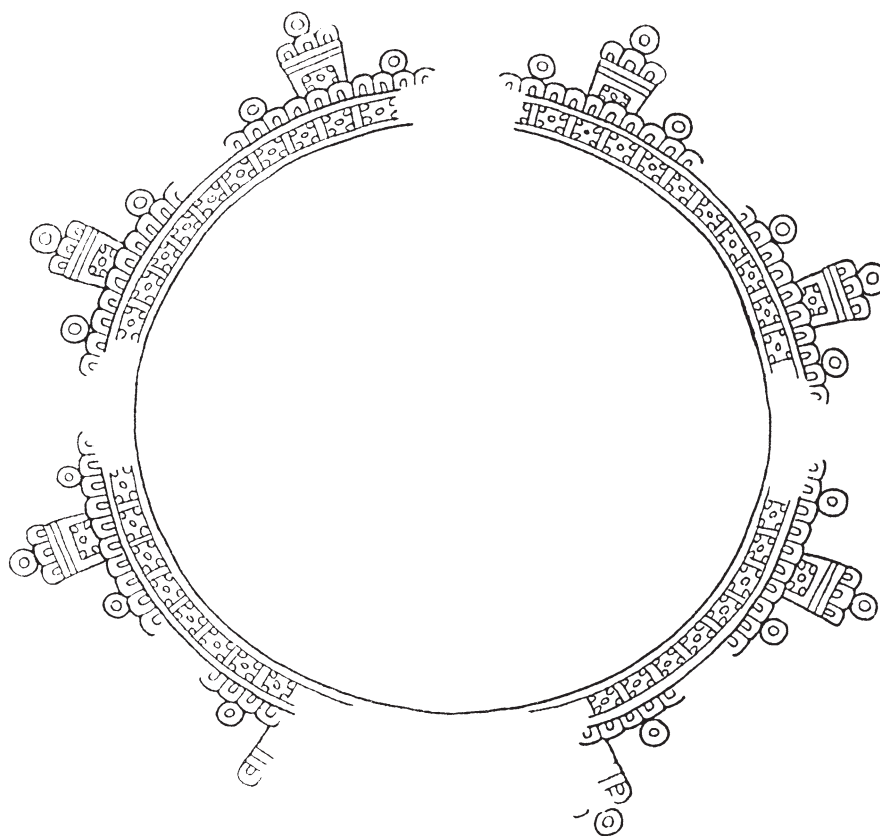


Figure 57. The ring of 52 *xihuitl*, “turquoise,” signs on the Calendar Stone (drawing: David Stuart).



**Figure 58.** A ritual stone box perhaps representing a three-dimensional *xihuitl* sign, Museo Nacional de Antropología.

Such boxes may have been used specifically for the holding of ritual implements or offerings associated with new year ceremonies (see Seler 1904e). Atop the box is a large 11 Flint (Mahtlactli Once Tecpatl) year glyph on its lid, within a square frame that elsewhere is itself a *xihuitl* sign. The box might also therefore be interpreted as combining some of these elements, functioning as a turquoise “frame” or “enclosure” for the year glyph and for the contents within a stone box. This again would suggest that the squared *xihuitl* year sign itself might have been a visual allusion to a turquoise enclosure for year hieroglyphs. That is, turquoise frames symbolically “contain” year glyphs such as 13 Reed or 11 Flint, and in painted manuscripts they almost always assume a blue or turquoise color. By virtue of being inside a turquoise enclosure or hearth, the glyphs for the years in effect become continually changing

jewelry and adornment, but there are more specific messages no doubt at work as well. Taube interprets this design feature as alluding to the turquoise enclosure or hearth where the current sun Nahui Olin was born, as described in Sahagún and other sources. In the *Codex Borbonicus*, a sacred turquoise hearth is shown lit as part of the New Fire ceremony, replicating the birth of the sun. It is natural to suppose that the alternate meanings of *xihuitl* as both “turquoise” and “year” (the sun’s annual rebirth) are closely connected, and symbolically reflected in this ceremony.

Three dimensional models of turquoise enclosures—figurative hearths and fireplaces—are possibly reproduced in the form of elaborately carved stone boxes (*tepetlācalli*) marked on their exterior by bands of *xihuitl* signs (see Figure 32c). One such ceremonial container in the Museo Nacional de Antropología, possibly unearthed at Texcoco, shows a band of *xihuitl* glyphs on its exterior, as if it were a miniature model of a cosmic hearth (Figure 58).

labels for the sun Nahui Olin, “reborn” every 365 days and coerced from the earth every 52 years.

If we closely examine the band of square *xihuitl* (XIW) elements on the Calendar Stone we see that there are 40 repeating squares represented in groups of ten ( $10 \times 4$ ), with yet more “hidden” by the bases of the larger solar rays. Spatially, each ray seems to obscure three additional square *xihuitl* signs, or twelve ( $3 \times 4$ ) in all. The complete band therefore contains a total of 52 *xihuitl* hieroglyphs, surely corresponding to the 52 years of the Calendar Round that determined the timing of the New Fire ceremony (Graulich 1992:292).<sup>23</sup> Precisely the same number of regularly spaced *xihuitl* glyphs (some obscured) appears in an inner band on the solar Tonatiuh disc atop the Stone of Tizoc, confirming the careful intentionality of the design and a standardization of a meaningful form (Figure 59). Beyond their simple allusion to the 52-year cycle, it is important to understand that these lengthy units of time were the “centuries” of Aztec timekeeping, the numerical building blocks of all five solar ages specified in the *Leyenda de los Soles* and referenced in the central design of the Calendar Stone. On the Calendar Stone, the same *xihuitl* band, like the adjacent inner *tōnalpōhualli* band with

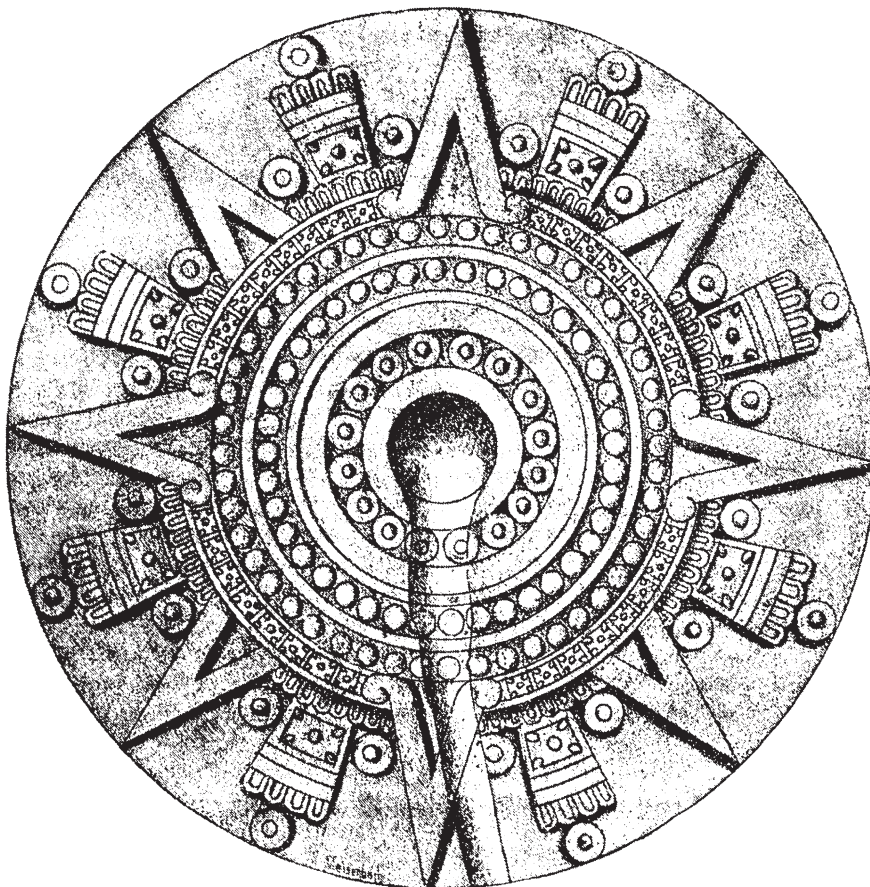


Figure 59. The disc atop the Stone of Tizoc, showing the 52 *xihuitl* signs (from Villela and Miller 2010:239).

<sup>23</sup> Graulich noted the pattern of the obscured *xihuitl* elements, but he counted a total of 53 rather than 52. I suspect this is a typographical error (see Miller and Villela 2010:258).



**Figure 60.** The sides of the Stone of the Four Suns, with alternating XIWI (*xihuitl*) and ILWI glyphs along upper edge (from Villela and Miller 2010:Fig. 10).

its 20 day signs, represents the internal breakdown of a fundamental unit in Mesoamerican time and calendrical reckoning. Both design elements are surely meant to be viewed together to signal totalities of basic calendrical units or temporal categories, of the days and years, increasing in duration as one moves from the central deified portrait of the ruler as the animate sun.

Another well-known Mexica sculpture, the cube-shaped “Stone of the Four Suns,” subtly conveys

a similar array of information about time's components and structure (Figure 60). The sides of the stone block are adorned with large hieroglyphs corresponding to the names of the four previous eras, presented much in the style and form of the glyphs in the four "arms" of the Calendar Stone's *olin*. The sequence of the time periods is presented again in counterclockwise fashion, beginning with Nahui Ocelotl and ending with Nahui Atl. Partially preserved above these large glyphs is a small horizontal band consisting of alternating *xihuitl* (XIW), "year," and *ilhuitl* (ILWI), "day," signs, once again directly alluding to the basic time units of years and days. If we count their constituent elements we see five *ilhuitl* signs and four *xihuitl* on each side, or a total of 20 day and 16 year glyphs. One must logically be a reference to the *tōnalpōhualli* and the other to a basic numerical unit of years, 16 being a subdivision of the 52-year cycle ( $16 \times 4$ ). The format of the "Stone of the Four Ages" seems all about the symmetries of repetitions of four, such that the presence of 16 years might have served as a graphical allusion of that larger number.

Returning to the Tonatiuh disc and its particular form on the Calendar Stone, it is important to remind ourselves that many solar representations in Aztec art integrate **OLIN** signs into their visual centers while omitting the four circles of the number prefix in Nahui Olin (see Figure 27). They are **OLIN** and nothing more, perhaps an abbreviated representation that grew out of long-term convention. Alternatively, if more intentional, it might indicate that "movement" alone can stand as a label for the sun without reference to the specific identity of "Four Movement" and the associated creation narrative. We may see this more generalized sense of **OLIN** in the remarkable solar image from the Yale University Art Gallery, where the quincunx format resonates with the central image of the Calendar Stone as well as with the Inauguration Stone of Moteczomah II (Figure 61). Here the large solar disc



**Figure 61.** Panel representing the Four Ages with a dominant central sun disc, Yale University Art Gallery.

is marked by a central **OLIN** without its customary number. What is noteworthy, however, are the complete calendar names for the four previous ages (Four Jaguar and so on) that appear as small hieroglyphs in the corners of the stone, each barely visible in their regular placement around the dominant solar disc. In this context the current sun is identifiable as Nahui Olin, but the design seems to make a careful contrast between the central **OLIN** element and the corresponding “era” hieroglyphs that surround it. Only the central glyph is stripped of its number, emphasizing the core term or day sign within its name. The presence of the word *olin* alone thus accentuates a more general sense of solar movement, and also a principal physical and metaphysical force of the cosmos.

The Calendar Stone presents an elaboration of these simpler forms, obviously, but its label of “Four Movement” would seem to be a play on this more fundamental idea of “movement” in a more general sense. This relationship between word and dynamic image is made explicit in the *Leyenda de los Soles*, where we read that “The fifth Sun, 4 Movement, is called the Sun of movement because it moves and follows its path.” It is possible that Aztec Tonatiuh discs that incorporate the “generic” **OLIN** hieroglyph may evoke a fundamental sense of “movement” without regard to any specific mythological narrative or mythology.

The significance of the number four is not often discussed in treatments of the Calendar Stone, but I believe it to be basic to the stone’s mythological and cosmological narrative. León y Gama originally proposed that the name Nahui Olin, “Four Movement,” was not simply the name of the sun but also a reference to “four movements” it took throughout the course of the year (two solstices and two equinoxes). Selser and Beyer rejected this outright, and today this interpretation is widely dismissed (see Villela and Miller 2010:82). However, the idea that Nahui Olin might playfully allude to “four movements,” not just to the day or era name, holds considerable merit. First, we know that the number four was an explicit symbol of solar movement. As stated in one passage from Book 7 of the *Florentine Codex*, the connection between the name Nahui Olin and the four stations of the sun throughout the course of its daily movement could not be more clear:

Every two hundred and sixty days, when his feast day came, then his festival was honored and celebrated. They observed it on his day sign, called Naui olin. And before his feast day had come, first, for four days, all fasted. And when it was already his feast day, when first he came forth, when he emerged and appeared, incense was offered and burned; blood [from the ears] was offered. This was done four times during the day—when it was dawn; and at noon; and past midday, when already [the sun] hung [low]; and when he entered [his house]—when he set; when he ended [his course]. (Sahagún 1950-1982:Book 7:1)

This account from Sahagún leaves little doubt that the four stations of the ceremony were meant to symbolically evoke the core meaning of the name Nahui Olin, the “four movements” of the sun’s daily path. This interpretation is bolstered by the image of the solar god on page 12v of the *Codex Telleriano Remensis*, where the handwritten caption reads “naolin, quiere dezir los cuatro movimientos del sol.”

And of course this agrees with the Classic Maya patterns noted earlier, where the sun is also described in hieroglyphic terms as having “four roads.” It is no great stretch to believe that the sun’s yearly “movements” (two solstices and two equinoxes) were similarly evoked by the name of the current age in Aztec cosmology.

The band of day signs that forms the innermost circle on the Calendar Stone is an elaboration of a particular design element found in other Tonatiuh discs. Usually the band is composed of well-defined rectangles separated by double bars. A fragmented example of a solar disc sculpture shows another case of the inner “sky band” as the series of day signs of the *tōnalpōhualli* (Figure 62a). Another close visual parallel occurs on the circular *temalacatl* stone from the region of Tehuacan, Puebla, displaying a large solar disc with a band of repeating elements within squared segments (Figure 62b). These are not day signs, but rather a set of sky-related images that resemble celestial bands in Mesoamerican iconography. In a much simpler example, this same inner band is represented by four **ILWI** (*ilhuitl*) glyphs, appropriately meaning “day” or “festival” (such bands are not to be confused with the “true” Aztec celestial bands discussed earlier that represent the word *ilhuiacatl*). All of the banded motifs we see in these solar discs are variations on a design element that have deep roots in Postclassic central Mexican sculpture and painting, all of which are ultimately derived from the skybands of Classic Maya



**Figure 62.** The *tōnalpōhualli* band and related segmented bands in solar discs: (a) fragmented solar disc sculpture; (b) solar disc from Puebla region (photograph: David Stuart).

iconography, where they served simply to mark celestial spaces and planes (Stuart et al. 2017) (see Figure 9). While the earlier Maya forms of the same celestial band are used to convey “sky” (*chan*), it would appear that central Mexican artisans adopted it for their own purposes, assigning it a more abstract function to convey a sense of temporality, like the *ilhuitl-xiuhuitl* band just discussed on the Stone of the Four Suns.

The day glyphs that encircle the central image of the Calendar Stone convey a clear message about time’s coursing as well as its punctuated movement. As representations of the days of the *tōnalpōhualli*, they also serve as the particular manifestations of the sun’s own heat, or *tonalli*. For this reason they perhaps appear within the “core” of the image, near the manifestation of the *sun’s* visage and identity. As is well known, the *tōnalli* was the heated life-force of the human body, the individual “soul” that determined one’s fate in life (López Austin 1988). To an ancient viewer, the closely placed band of *tōnaltin* (the plural of *tōnalli*) would have brought to mind the heat of the sun and the heat of Tonatiuh himself.

Other semantic elements in the word and name *tōnatiuh* are possibly relevant to the interpretation of the monument and its function. The proper name of the solar deity is based on the root *tōna* “to produce heat,” followed by the intransitive verb stem *yauh*, “to go” and an intervening *ti* “connective,” forming *tōna-ti-uh*, “one that goes along producing heat” (Andrews 2003:348). Thus the proper name of the solar disc and of the central face within it incorporates a basic verb of movement, of “going along.” It is probably no accident, too, that the face presents itself as an integrated part of the day sign Olin, “Movement.” Put another way, the idea of motion itself is lexically embedded within the image simply by virtue of its dominant subjects—Tonatiuh and Tlalteuctli, as well as Olin (and *tianquiztli*, as we will soon see). For an ancient viewer who was aware of the semantics of these names and labels, *motion* was a clear and inherent component of the design.

With respect to temporal motion, the twenty day signs start at the top-center of the ring and progress leftward, or counterclockwise (Townsend 1979:66). The same is true of the four “era” hieroglyphs displayed in the branches of the large Olin sign: the first is Four Jaguar, the second is Four Wind, the third is Four Rain, and the fourth is Four Water, replicating the sequence according to the *Leyenda de los Soles*, moving counterclockwise. These are not static representations of time units, but are rather shown in a deliberate sequence that requires movement, a “going along” (*yauhi*) as it were. As Townsend notes, counterclockwise motion was the dominant form of processions and ceremonial dances, what he calls a “prescribed direction” that existed well into the Colonial era (Townsend 1979:47). We will come back to this point momentarily.

The course of the year count, or *xiuhpōhualli*, also moved counterclockwise in space. The “calendar” depicted in the Tovar Calendar (see Tovar 1951) shows this arrangement for the 52 year signs, each existing in a “branch” attached to a central sun image (Figure 63). The sequence begins above the sun’s head with 1 Reed, then continues counterclockwise with 2 Flint in the next branch, then 3 House,



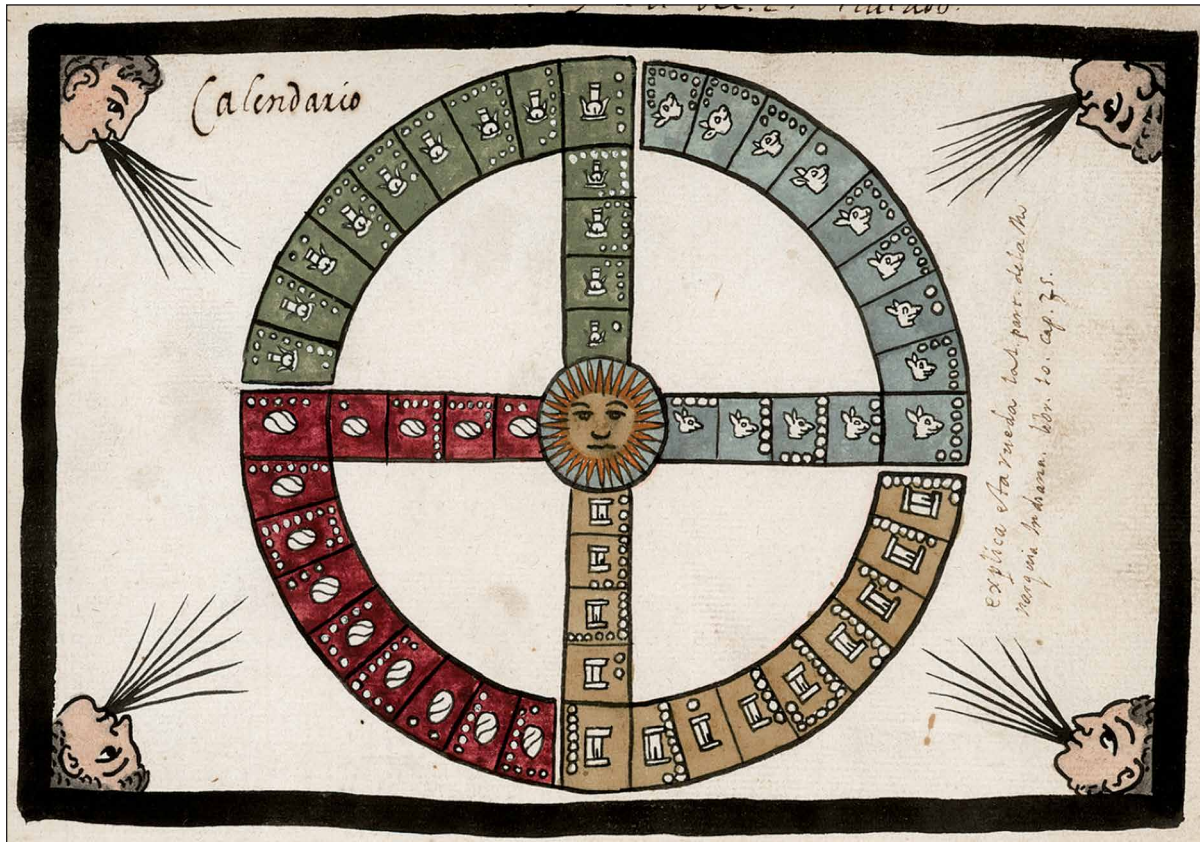


Figure 63. Counterclockwise movement in the year structure of the Tovar Calendar.

and so forth. In Book 7 of the *Florentine Codex* the course of years is described in directional terms, moving about counterclockwise:

One Rabbit. It is said [that this was] the year sign and year counter of the south. [...] Of the one [known as] Reed, it was said [that it was] as it were the sign of the east [...] And the third year sign, the one [known as] Flint, was called the sign of the north. [...] And the fourth year sign, the fourth in order, [was] the one known as House—the sign of the west. (Sahagún 1950-1982:Book 7:21).

This counterclockwise motion of the days, years, and 52-year eras indicated on the Calendar Stone (again, a *mōmōztli* or “daily place”) replicated the ways that humans moved and engaged with

the monument in its original setting. Fray Durán's famous description of a Fire Priest's circumambulation around a solar monument dedicated during the reign of Axayacatl (surely not the Calendar Stone) is relevant here (see Taube 2000:320):

[B]efore the sacrifice a fire priest came out of the temple carrying a great incense burner in the form of a serpent, which they called *xiuhcoatl*, "fire serpent," and which was already lit. The fire priest walked around the stone four times, so that the smoke from the incense bathed it, and finally he placed this upon the stone, where it finished burning. (Durán 1994:190-191)<sup>24</sup>

Durán does not specify any direction of movement in this ceremony, but I hazard to suggest that counterclockwise motion seems likely given how dominant such directionality is in other, well-documented settings.

As noted, counterclockwise processions are widely attested throughout Mesoamerican ritual and performance, from Colonial into modern times (Edgerton 2001:62, 305). It is connected to the dominance (the "goodness") of the right side and the north direction in bodily perception, as Gossen describes among the Tzotzil Maya of Chamula:

The fundamental orientation to the right also clarifies Chamula ritual treatment of space. In the first place, religious cargo-holders themselves possess an aspect of deity in that they share with the sun and the saints (the sun's kinsmen) the responsibility and the burden of maintaining the social order. While acquiring for themselves a sacred aspect through exemplary behavior and language [...] they metaphorically follow the sun's pattern of motion by moving to their own right through any ritual space in front of them. Thus there is an overwhelming tendency of almost all Chamula ritual motion to follow a counterclockwise pattern. The direction is the horizontal equivalent of the sun's daily vertical path across the heavens from east to west. (Gossen 1974:32)

Another statement by Gossen (1974:35) is relevant: "Ritual circuits, therefore, carry a great deal more information than would appear at first glance. They proceed counterclockwise because that direction is the logical horizontal equivalent of the annual solar cycle and the daily solar cycle."

The illustration of solar movement provided by Gossen and reproduced here (Figure 64) depicts this perspective of counterclockwise motion as the basic mechanism of space and time. In fact, this seems a pan-Mesoamerican notion of temporal, spatial, and ritual movement, found well beyond the Maya area. Among the Mixe of Oaxaca, the four year bearers of the native calendar move about their circular path each year in a counterclockwise rotation (Lipp 1991:54). And in a parallel to the

<sup>24</sup> Note here how a brazier is placed upon a circular altar, repeating a pattern already discussed concerning the ritual use of Classic Maya disc-shaped monuments. For an example of a Maya depiction of an incense burner atop a circular stone, see El Cayo Altar 4.

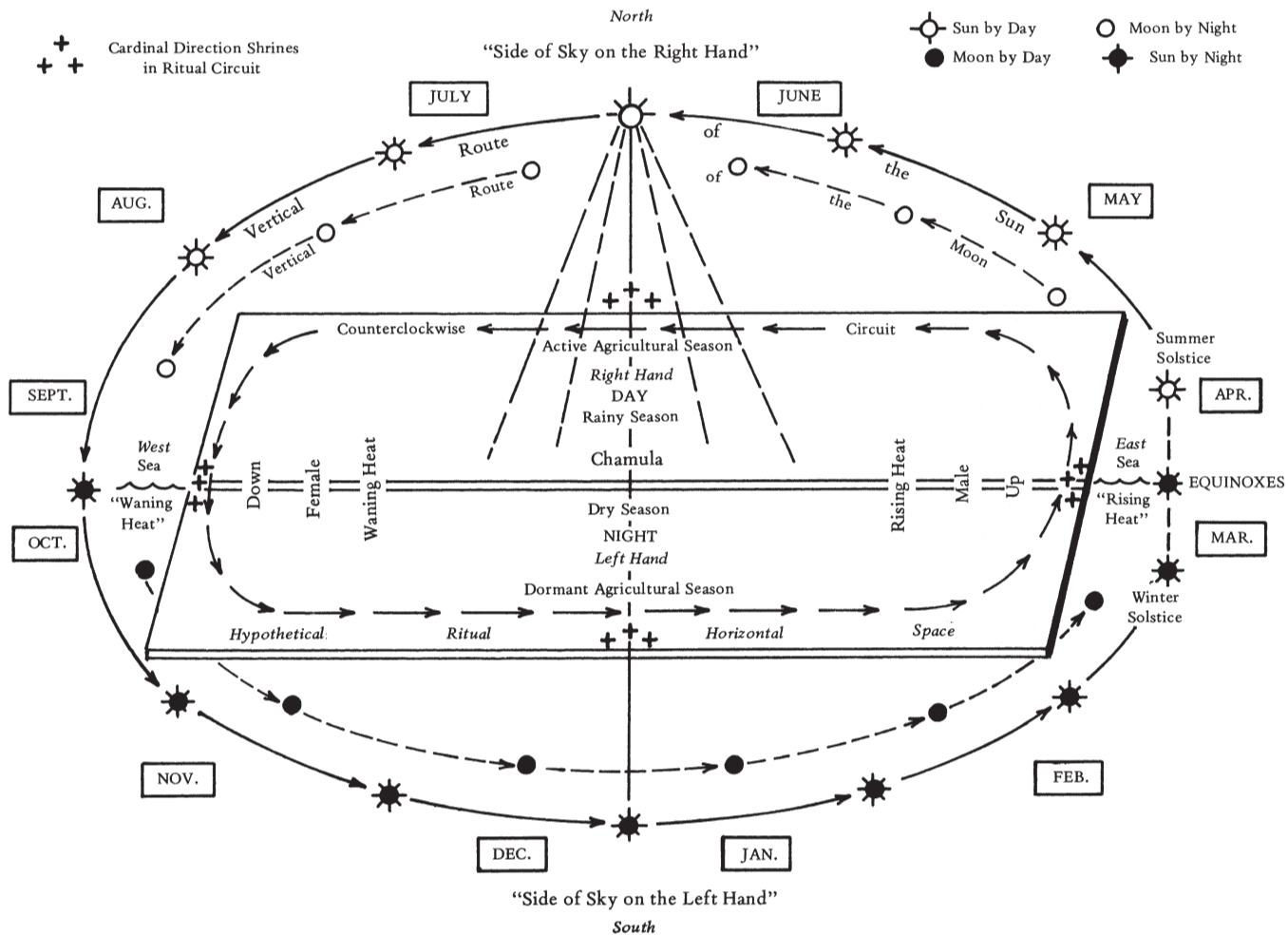


Figure 64. Gossen’s depiction of spatial-temporal solar movement as counterclockwise, among the Chamula Tzotzil (from Gossen 1974:74).

patterns described by Gossen, ceremonial processions among the Chatino of highland Oaxaca “generally proceed in a counterclockwise circuit” replicating the “passage of the seasons which they mark” (Greenberg 1981:117).

The encoded “turning” and “movement” of the Tonatiuh disc is not confined to monumental representations. A similar idea comes into play on a far smaller scale too, in the decoration of spindles (*malacatl*) used in the manufacture of maguey and cotton fibers and found in many domestic contexts throughout Central Mexico. The connection between these small objects of everyday life and the monumental solar sculptures is directly made in the term *temalacatl*, literally “stone spindle,” for the sacrificial altars we have examined. Brumfiel (2007) observed that a number of such objects excavated at Xaltocan, in the northern Valley of Mexico, are decorated with solar imagery, including discs. Indeed, some spindle whorls from Central Mexico replicate the **TONATIHW** hieroglyph and image (Figure 65). Brumfiel (2007:102) further identifies the use and design of a number of the spindle whorls from Xaltocan as expressions of cyclical movement, representing “all of the patterns of movement and change that sustained life in all its varied forms.” This idea is not at all confined to spindle whorls, but, as I suggest below, was likely conveyed by many other solar discs in Aztec art, all linguistically and visually expressing notions of cycles, “going,” and “movement.” Recently Nielsen (2017:138) has made a number of similar points in accounting for the relationships between all of these solar images, noting that “there seems to be a semantic overlap or metaphorical relationship between the act of spinning and sacrificing. In other words, the sacrificial sun-stones can be interpreted and compared to a giant spindle whorl, being instrumental in the efforts of securing heat, movement and energy to the cosmos.”

As we have seen, the very meaning of the sun’s name, Tonatiuh (“One who goes along becoming warm”), emphasizes its nature as the moving heavenly body par excellence, and the artisans behind the Calendar Stone brilliantly conveyed this underlying idea and identity through different visual means. It comes across most directly with the use of the dominant hieroglyphic sign **TONATIHW**, the



**Figure 65.** TONATIHW solar discs on spindle whorls (from Nielsen 2017:Fig. 6).

distinctively jeweled and radiant solar disc familiar from so many examples in Aztec-period writing and iconography, and which takes up most of the visible space on the monument. The two counter-clockwise sequences of the twenty days and of the four ages replicate not only the sun's daily path through the sky and under the earth, but also a larger-scale movement of years and eras of mythic history. The design thus communicates pervasive cyclical movement, complementing the direct message conveyed by the dominant **OLIN**, "movement" sign at the center, as well as the presumed function of the Calendar Stone as a sculpted *mōmōztli*, a "daily (i.e., tomorrow) place." To my mind, such visual allusions to movement and celestial orientation are as much a part of the Calendar Stone's design as the hieroglyphic and iconographic imagery carved upon it.<sup>25</sup> And as I elaborate in the next chapter, this elaborate messaging also includes a key reference to another major heavenly body that exists in conceptual opposition to the sun, while still complementing and accentuating many of these meanings touched upon thus far.

<sup>25</sup> Federico Navarrete (2011) offers a similar interpretive perspective for Nahua writing and monuments, emphasizing that many examples were far more than vehicles for text and image, but also meant to be understood through oral traditions and ritualized performance.

tequihua



tequihua

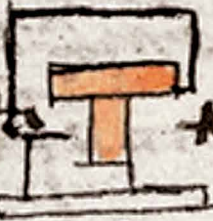


tianguiz



lugar de mercado / casa

tequihua



tequihua

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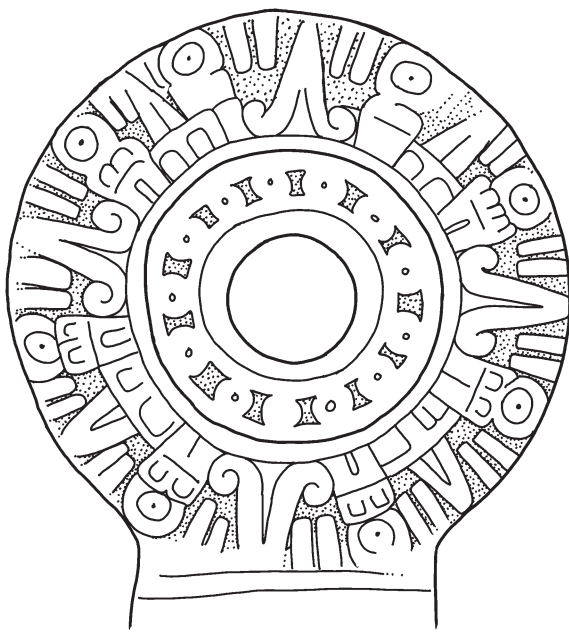


## CHAPTER 6

## Plazas, Pleiades, and Centrality

Not all solar discs in Aztec art and writing are the same. We have seen how the most basic form of their design corresponds to the hieroglyph for **TONATIUH**, showing a sunburst adorned with jade and flower imagery that was ultimately derived from Maya solar cartouches (see Figures 49 and 50). But if we examine other solar images in Aztec art, including that on the Calendar Stone, we find additional features and elements that do not seem to be part of the **TONATIUH** sign, all of which are in need of further explanation. These include an inner band of small dots or circles, for example, or bands of rectangles or squares that seem to occupy the position more or less of elaborate *tōnalpōhualli* day signs and *xihuitl* glyphs on the Calendar Stone. In addition, it is very common to see an outer display of “dashes” at or near the edge of the circular border. Both of these features are exemplified by the elaborate solar discs on the Teocalli of Sacred Warfare and on the ballcourt ring of Tepeaca (Figure 66).

At first these additional elements might be considered as elaborations on the standard Tonatiuh



**Figure 66.** Elaborated version of the solar disc from a ballcourt ring at Tepeaca (drawing: David Stuart).

or about the circle. The circle form is usually elaborated by a segmented border, and its most distinctive elaboration shows a circle with interior borders of dots and clusters of small parallel lines at the edges. The visual origin of this sign is difficult to know at present, but it is noteworthy that the representations of markets seem to be circular in plan, as if not necessarily bounded by linear walls and buildings. We will later revisit this issue and bring more to bear on the nature of the glyphic sign for **TIANKIS**.

A great many solar discs in Aztec iconography, including that on the Calendar Stone, clearly show the **TIANKIS** sign *in combination* with the **TONATIUW** logogram (Figure 70). A number of ex-

disc, but perhaps they are something more. Upon closer inspection we see that these features are specific to another circular sign in Nahuatl script, the logogram reading **TIANKIS** for *tiānquiztli*, “marketplace,” discussed briefly in Chapter 3 (Figure 67). This sign was first identified by Peñafiel (1885:233) and recently treated in more detail in an important study by López Luján and Olmedo (2010).<sup>26</sup> The **TIANKIS** sign appears in a variety of documents, often in place names such as Xaltianquizco (“At the Sandy Marketplace”) in the *Codex Mendoza*, as well as in the glyph for Tianquiztenco, (“At the edge of the Marketplace”) in the *Crónica de Huexotzingo*. It also may exist as a stand-alone sign for *tiānquiztli*, “market,” labeling central spaces, as we see in the *Codex Mendoza* (Figure 68). In one noteworthy example the hieroglyph becomes the circle-like stage for the representation of a marketplace and its many buyers, sellers, and commodities (Figure 69).<sup>27</sup> As we see illustrated in Figure 67, the sign is always circular and in its simplest form we see a few footprints on

<sup>26</sup> Although Peñafiel noted the *tiānquiztli* (**TIANKIS**) sign in this toponymic glyph, he saw its form as a “figurativo del mercado” (1885:233), perhaps indicating his reluctance to see it as a true hieroglyphic element.

<sup>27</sup> In his recent book on Aztec economics, Hirth (2015:74) illustrates the same market scene from Durán and states that the central element represents a shrine. This may be the case, but the overall image replicates a greatly enlarged hieroglyph for **TIANKIS**. That is to say, far from being a realistic depiction of a circular market area, it should primarily be understood as a figural scene integrated with a hieroglyphic element. Even in the late sixteenth century, indigenous artisans were experimenting with the broader overlaps of script, sign, and image so fundamental to the Mesoamerican visual tradition.





Figure 67. Varieties of the logogram for TIANKIS, or *tianquiztli*, "market, plaza."



Figure 68. Example of TIANKIS glyph (center) as "mercado," in the Codex Mendoza.

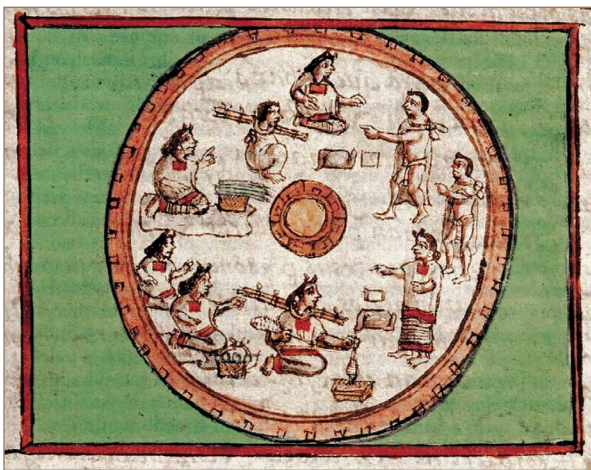


Figure 69. Durán's depiction of a market within a circular **TIANKIS** sign.

inner circle of repeating squares that we see on several **TIANKIS** variants would seem to visually correspond to the inner band of day signs immediately outside of the representation of *Nahui Olin*. The combination of **TIANKIS** and **TONATIW** is obscured somewhat by the sheer quantity of design elements, but it is there nonetheless, echoing a pattern found in many simpler representations of the solar disc, as we have seen in several examples, including the Teocalli of Sacred Warfare (see Figure 48) or atop the Stone of Tizoc (see Figure 59). In pointing out such features it is important to reiterate that no known examples of the **TONATIW** sign alone show this combination of features; they are instead

amples demonstrate the graphic fusion of these two forms, including the ballcourt ring from Tepeaca (Figure 66), where the dotted inner border of the solar symbol directly replicates the interior band of **TIANKIS** signs, and the small clustered lines at the edges are visible as well. In other representations the inner circle of **TIANKIS** assumes the form of squared sections, which are also replicated in some solar discs.

On the Calendar Stone we find the very same combination. The groups of clustered lines appear at regular intervals around the perimeter of the design, slightly hidden behind the flames that arise off of the backs of the two descending *Xiuhcoatl* serpents (Figure 71). The

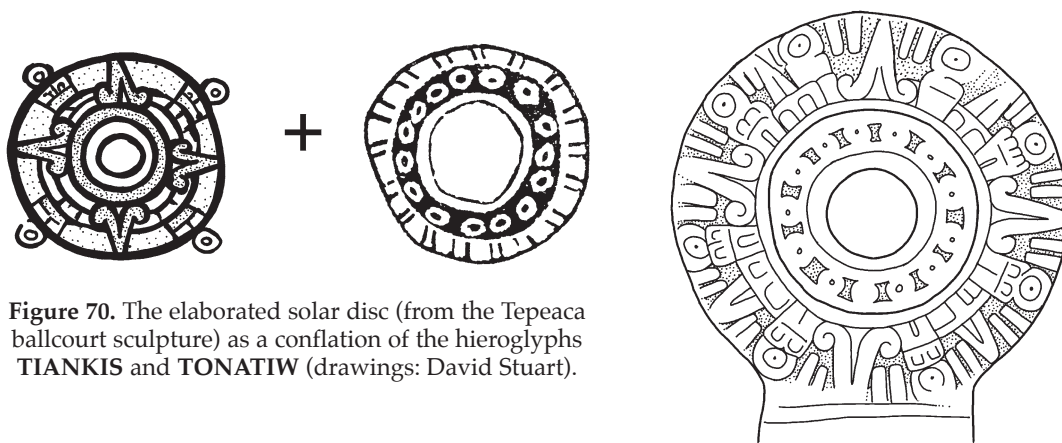
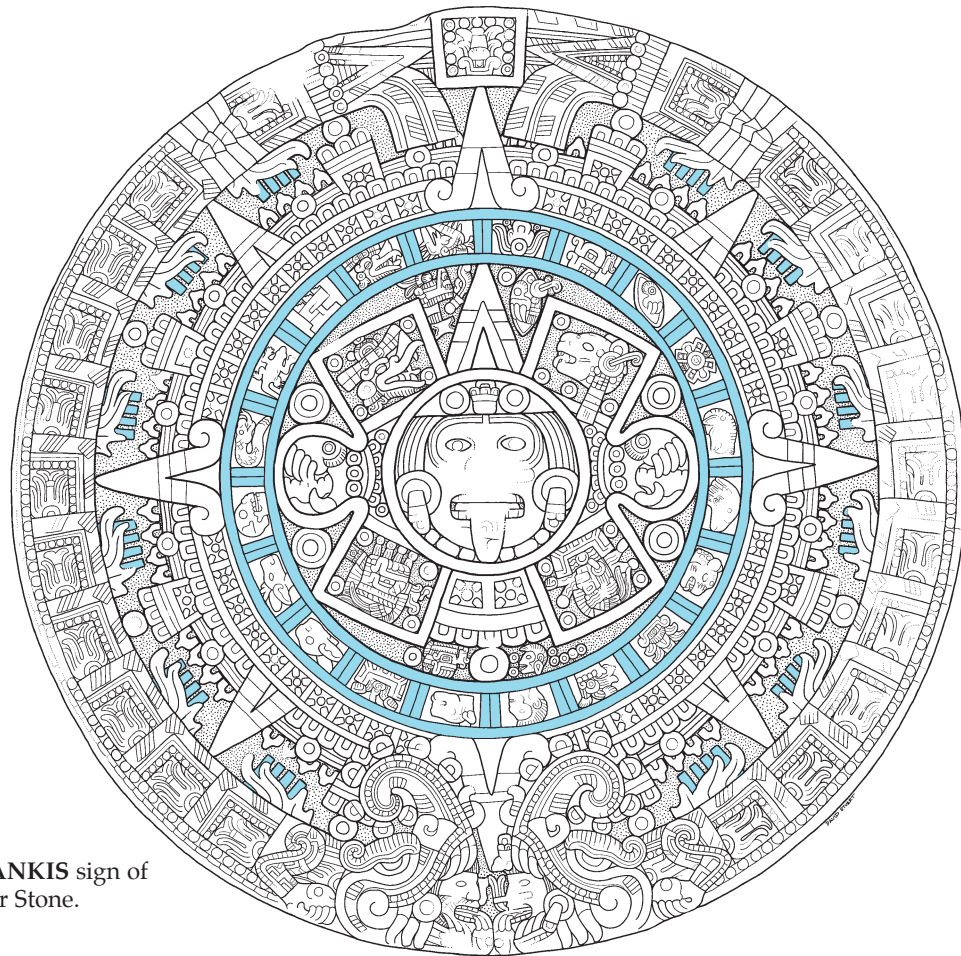


Figure 70. The elaborated solar disc (from the Tepeaca ballcourt sculpture) as a conflation of the hieroglyphs **TIANKIS** and **TONATIW** (drawings: David Stuart).



**Figure 71.** The TIANKIS sign of the Calendar Stone.

only found in certain elaborated solar discs where there seems little doubt that they are conflated or fused elements.

But why such a combination? Why would the concept or name for “marketplace” be graphically fused with the hieroglyph for the sun or the solar deity? To begin to answer this question we can look once again to the insightful article by López Luján and Olmedo (2010), who pointed to several surviving circular stone altars that represent the TIANKIS hieroglyphic sign. As mentioned, the authors link these stones to the *mōmōztli* altars (“daily places”) described by Durán as central markers for open marketplaces, as we have already discussed in some detail. López Luján and Olmedo observe



**Figure 72.** Mōmōztli altars with TIANKIS glyphs.

that the circular designs atop small monuments such as the Stone of Chalco (see Figure 12) are three-dimensional versions of the **TIANKIS** sign, or hieroglyphic forms writ large (Figure 72). This key observation provides an important conceptual baseline for ideas I will now explore in specific connection with the Calendar Stone, now that we have seen how it too functions as a *mōmōztli* altar whose visual form depends largely on the conventions of hieroglyphic writing and sign arrangement. In other words, the small altars with **TIANKIS** signs might be understood as a particular variation on a wider class of solar disc altars that include larger monuments such as the Calendar Stone itself.

The placement of *mōmōztli* stones in marketplaces served to define center points and important spatial axes within open spaces and plazas, much in the same way that fountains and wells do in the design of space in the later Colonial period. Their function, at least spatially, seems to be replicated by the European-style fountains one sees in some Colonial maps, where they similarly serve to “center” an open *tianquiztli*. Fray Durán’s statement about the ancient *tianquiztli* altars in markets bearing symbols of the sun is of course relevant to our discussion. It suggests that the Calendar Stone, with its fusion of the **TONATIW** and **TIANKIS** signs, could well have served to mark a *mōmōztli* platform that was centrally located within a large open space or plaza in Tenochtitlan’s central precinct. In this sense it may be understood as an extremely elaborate form of a “market” altar or *mōmōztli* discussed by López Luján and Olmedo, stressing cosmological and temporal concepts while also serving to mark centrality in a ritual plaza.

Another intriguing possibility is worth consideration. *Tianquiztli*, “The Market,” was the name the Aztecs gave to the Pleiades, the prominent cluster of stars that served to mark important times of the

year throughout ancient Mesoamerica, and in fact across the world (Aveni 1980:30-34). In Sahagún's *Primeros memoriales* we read that the Pleiades was the "Market" in a description of nighttime rituals: "And when the sign of the Fire Sticks, and also those of the Many and the Market reached their zenith, then the flutes were sounded, then it was called the time of the sounding of the flutes" (Sahagún 1997:154). The accompanying illustration in the *Primeros memoriales* shows the constellation named *tianquiztli* as a pointed circle grouping of stars (Figure 73). Painted examples of the hieroglyph for **TIANKIS** show a circular arrangement of white dots in its inner section, which bears a rough resemblance to the



Figure 73. The Pleiades (Tianquiztli) as represented in the *Primeros memoriales*.



Figure 74. The sign YOWAL (*yohualli*, “night”) in Nahuatl script.

arrangements of stars and constellations in the *Primeros memoriales*. It also shows a striking parallel to variants of the sign for YOWAL, “night” used by Nahua scribes (Figure 74). Klein’s proposal about the central face of the Calendar Stone being a depiction of the night sun or of Yohualtecutli, “Lord of the Night” might find support through this visual connection, as it suggests that the TIANKIS sign may have originated as a depiction of a stellar cluster. The night is indeed an important part of the Calendar Stone’s design and presentation.

Like numerous cultures across the globe, Mesoamericans recognized the Pleiades as one of the most important of all celestial bodies, essential to seasonal timekeeping and its ritual expression. The rising of the star cluster on the eastern horizon marked the beginning of the rainy season in May, and its disappearance on the western horizon in conjunction with the setting sun saw the onset of the dry season. The Pleiades always lie very close to the ecliptic, the sun’s path, making their interaction with the sun particularly noticeable and meaningful. In describing modern Nahua conceptions of the night sky, Sandstrom notes that:

The most important constellation is the Pleiades, called by the Nahuatl terms *miaquetl* (literally “many”) or *chicome sitlalij* meaning “7-stars.” The Pleiades have come to stand for the night sky in general, which the Nahuas refer to as *chicome ilhuicactli* in Nahuatl, or “7-sky.” (Sandstrom 1991:248)

This fundamental symbolic connection between the Pleiades and the night itself will enter into our discussions to follow, where they would seem to be fundamentally contrasted with the sun and its more obvious connections to the day.

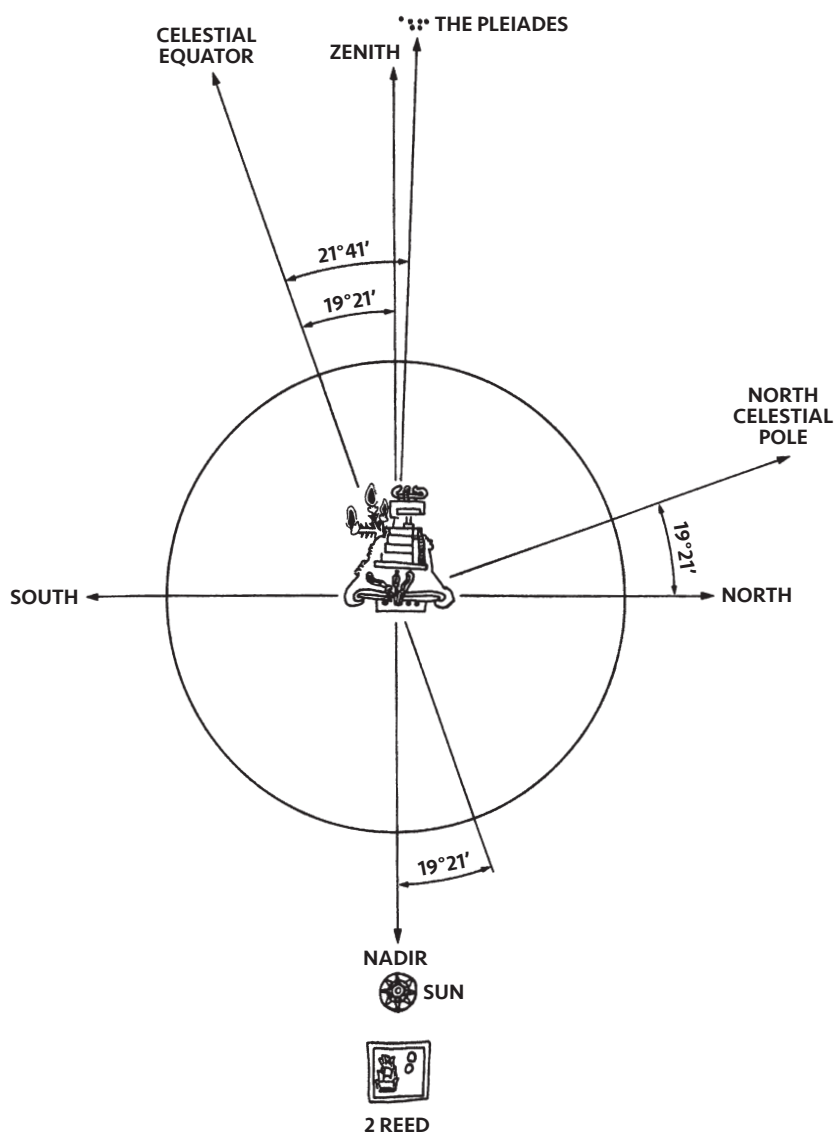
Among the ancient Aztecs the Pleiades are best known for the central role they play in the New Fire ceremonies of cosmic renewal, held every 52 years on the hill named Huixachtlan. In the familiar accounts provided by Sahagún, Durán, and others, the timing of the New Fire ceremony was astronomically determined by the observation of the Pleiades at midnight when the star cluster was at or near zenith in the night sky. According to Sahagún (cited in Aveni and Hartung 1981:51):

These are the representatives of the Pleiades which mark the fifth cardinal point. At the beginning of a period of 52 years, fire was newly kindled when the Pleiades were at zenith at midnight. The flaming up of this fire was a sign to the waiting anxious multitude that the world was not, as they had feared, to be swallowed up in darkness but that a new era would be granted to mankind.

The flames of the “new fire” were widely distributed to the houses and temples throughout the Mexica world, ensuring the presence of the sun’s heat (*tōnalli*) in both everyday and ritual space.

Accounts of the New Fire ceremony are explicit in making a fundamental connection between

the movements of the Pleiades (*tiānquiztli*) and the sun. Their spatial and temporal opposition in November defined an *axis mundi*, with the night sun, at nadir, positioned as the spatial opposite of the Pleiades at zenith (Milbrath 1980:292; Krupp 1994:205-208) (Figure 75). As Milbrath (2013:115) has put it, "They feared destruction would ensue if the Pleiades failed to cross the zenith at midnight, an event apparently coordinated with solar nadir in mid-November, exactly six months from the solar zenith." This astronomical moment was not only a cue for the New Fire ceremony, but it also signaled two important times of the agricultural year. Put another way, the possible juxtaposition of *tōnatiuh* and *tiānquiztli* expresses a fundamental and very meaningful astronomical relationship, each referring to a major heavenly body that defined the zenith, one in the day and one at night, one in summer and one in winter, each a conceptual reflection of the other. In determining the start of each 52-year cycle, the vertical axis determined by the Pleiades and the sun also served as the structural foundation for



**Figure 75.** Schematic representation of the opposition of the sun, Tonatiuh, and the Pleiades, Tianquiztli, on the New Fire ceremony in 1503 (from Krupp 1994).

all of the solar ages and eras, including that of Nahui Olin.

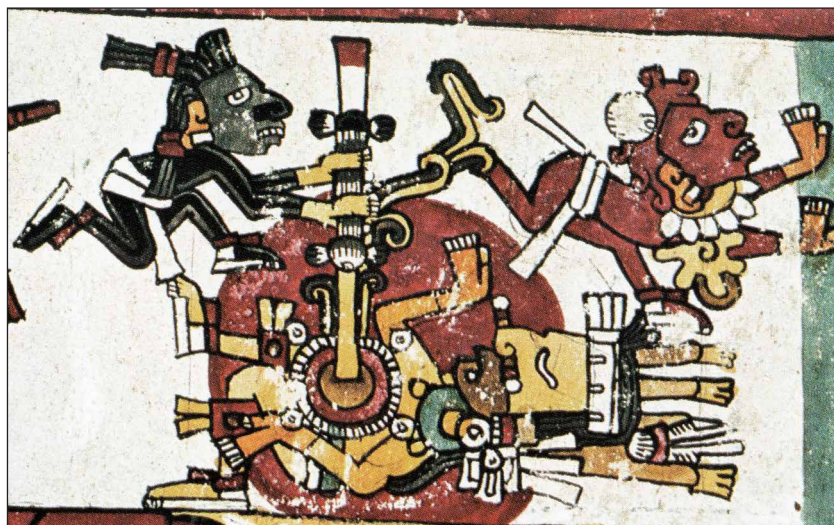
The vertical cosmic axis so strongly symbolized by the solar disc and by the Calendar Stone in particular was also associated with the symbolism of spinning fire-drills and the creation of the cosmic New Fire. In fact, a constellation that is closely associated if not equivalent to the Pleiades was called *māmalhuāztli*, “the fire-drill” (Seler 1904d:356-357). Such astronomical symbolism seems to resonate well with Taube’s (2000:319-323) brilliant observations on the importance of fire-drilling and fire-making in the Calendar Stone itself, as a depiction of the turquoise enclosure and a “dynamic portrayal of transformation and resurrection.” Here I would add that the very center of the stone’s design, the circle bearing the face of the day Olin, may have been the place of actual ceremonial burning and offering—the “spark” of the center. As we have seen, the portrait alludes not just to the sun and the earth but to the ruler of Tenochtitlan. Perhaps it is Moteczomah who is being reborn, in the form of Nahui Olin and Huitzilopochtli. One wonders if such themes of new fire and rebirth may have been emphasized because the Calendar Stone was dedicated at or near the start of Moteczomah’s reign.

I would extend this idea further by noting that the counterclockwise “spin” of the overall design, as described above, may allude also to the rapid motion of a fire-drill, set upon the cosmic navel as if a representation of the *axis mundi*, and through its motion replicating solar and celestial movement. This idea is supported by the representations we sometimes see in Late Postclassic art of fire-drilling onto a circular mirror or *chālchihuitl* sign, whose forms, as we have seen, are certainly incorporated into the Tonatiuh disc of the Calendar Stone (Figure 76). Seen in this way, the rotating design of the stone pivots about the animated center point, just as a vertical *māmalhuāztli* fire-stick spins upon a defined center point in order to create fire and heat (*tōnalli*). Is it possible that the center of the Calendar Stone was a place of actual ritual burning and offering of fire, in addition to its role as a stage for performative sacrifice? This is difficult to know, but I do wonder if the damage to the central face might have resulted from intentional burning. At any rate, the parallels to the culminating act of the New Fire ceremony are difficult to escape. Beyond the Calendar Stone, I suspect that many images of solar discs that incorporate both **OLIN** and **TIANKIS** signs are similarly complex representations of axially, time, and celestial movement, visually referencing the pivot point when the New Fire ceremony occurred, and when the present cosmic era would be renewed.

How appropriate then that the Calendar Stone, like a great many solar discs in Aztec art, shows Nahui Olin as the glyphic label not just for the sun, but for a graphic combination of the two hieroglyphic elements **TONATIW** and **TIANKIS**. “Movement” is not just solar but temporal and celestial, referencing the principal heavenly bodies of the day and of the night. To my knowledge the presence of the **TIANKIS** sign on many such discs has thus far gone unrecognized, yet it seems to be extremely important in such representations—in fact I would argue that it comprises much of the complex composite icon and therefore holds great cosmological significance.

Graulich (1992) rightly emphasized the image of the Calendar Stone as being a “union of oppo-





**Figure 76.** Sacrifice and fire-drilling into mirrors and/or jade discs, representing navels and cosmic centrality. From the *Codex Borgia*.



sites,” with symbolic references to both solar zenith and nadir. This is in general agreement with what I have laid out above, but I differ from Graulich’s particular interpretations in several respects. Whereas he saw a binary opposition indicated by the upper (zenith) and lower (nadir) halves of the circle, bisected by a horizontal line that runs across the face, I see the axis as encoded more frontally by means of two conflated hieroglyphs, each naming their vertical extremes (Sun vs. Pleiades). The visual fusion of **TONATIŪ** and **TIANKIS** both here and in many other solar discs presents this dualistic “whole” of opposites, representing the combination of the two sides of this cosmic axis. The face itself cannot be seen as having an upper and lower half (fleshed and defleshed), as Graulich saw it, but serves as the animate pivot-point of counterclockwise movement, as the axis itself.

The apparent citation of *tianquiztli* here and in other complex solar discs in Mexica iconography brings us back to the question of the original placement of the Calendar Stone. Like smaller circular *mōmōztli* altars that were marked with the hieroglyph **TIANKIS**, the Calendar Stone’s hieroglyphic components may allude to its original placement, perhaps in the immense plaza to the south of Tenochtitlan’s central precinct, in front of the palace of Moteczomah II. In other words, the very location where it was unearthed in 1790. As we have seen, this ancient marketplace was in its own way a centerpiece of ancient Tenochtitlan’s urban landscape, a place of communal activity and gathering that complemented the restricted space of the nearby temple precinct and the Templo Mayor. I am led to wonder if this great monument and the platform upon which it presumably rested might have created its own special central node within this immense plaza, marking it as an open-air reflection of the cosmos’s diurnal and nocturnal planes.

## CHAPTER 7

## Summary and Final Remarks

Over two centuries of scholarship have left us with innumerable interpretations and ideas about the Aztec Calendar Stone, many of them intersecting in different ways to create a deep and complex intellectual history (Villela and Miller 2010). Given the monument's iconic status as a national and cultural symbol, I was at first hesitant to add my own thoughts into the mix, knowing especially that any radical reassessment of the nature of its central face would stoke controversy. Yet I was heartened to know that my insights build upon a firm foundation long ago established by the early scholars who examined the stone and gave it a deep cultural context and meaning. Antonio de León y Gama, Alfredo Chavero, Eduard Seler, and Hermann Beyer were correct and insightful in many of their interpretations, and all laid enough groundwork to ensure that no present-day analysis of this iconic monument can be made *sui generis*. That said, my aim here has been to show that we should move beyond the purely religious and cosmological approaches to the

Calendar Stone and look at it afresh in terms of its hieroglyphic and historical messages. My thinking thus owes a great deal to the keen insights of Richard Townsend and Emily Umberger, building upon their “historical approach” by suggesting that the Calendar Stone was conceived as a deified royal portrait, a representation of a king within a cosmic framework. When reduced to its core elements, the Calendar Stone operates as a complex, layered image based on hieroglyphic signs, each component working together to convey an integrated message that the king exists as a personification of solar time, cosmology, and cosmic movement.

It is doubtful that the original designers of the Calendar Stone conceived of the monument in the way people now usually understand it, as a static image of the sun, following Eduard Seler’s lead from over a century ago. It may be far more accurate to see the monument as a two-dimensional representation that emphasizes celestial and temporal *motion*. Its essential and dominating form is a standardized conflation of two elaborated hieroglyphic elements—the signs **TONATIW** and **TIANKIS**—which work together to reference the solar zenith and the Pleiades, the unified elements of the diurnal and nocturnal zenith. These evoke movement through their visual unification, as cyclical replacements and reflections of one another in the heavens. Movement is conveyed too through the counterclockwise presentation of the day signs and of the glyphs of the four previous ages, pivoting about the center in a movement that evokes the path of the sun and other heavenly bodies across the sky (*ilhuicatl*) which symbolically serves as the frame of the entire composition. Of course movement is most directly indicated by the dominant **OLIN** sign at the center of this and other similar discs in Aztec iconography. Within the very center, about which all rotates, is the multivalent portrait of the ruler Moteczomah II, identified by name and also as the embodiment of the patron deity Huitzilopochtli, the pivotal cosmic actor par excellence. Movement works too on a grander time scale, for as Aveni and Calnek (1999) note, “the Aztec ideology of war and conquest emphasized the close relationship between the sun’s annual movements and the political course of the Aztec state.”

Movement, *olin*, was in addition a basic manifestation of the broader metaphysical and philosophical concept of *teōtl*, a word often translated as “god” but which we know has far more expansive and subtle meanings (Hvidtfeldt 1958; Maffie 2014:62; Bassett 2015). The juxtaposition of **TIANKIS** and **TONATIW** in elaborated solar discs emphasizes this conception of celestial movement—hence the **OLIN** at the center—and also points to the cosmic processes that went far towards articulating the very notion of divinity itself. Through this elemental idea of *olin*, the sun and the Pleiades, its opposite center-point in the cosmos, naturally define sacred spaces, timeframes, and innumerable resonances throughout the lived space and experience. The Calendar Stone can be seen in this light as an elegant expression of more general universal processes and structures, acting as a materialized and “placed” expression of *teōtl*, divinity—a divine stage.

The Aztec cosmos consisted of other spatial layers, of course—the bright sky of day, emitting its heat and life-force, as well as the nocturnal underworld with its associations with death and cosmic

uncertainty. As Hajovsky (2015:115) aptly puts it, the central visage of the Calendar Stone “faces upward toward the fifth direction (axis mundi), connecting the underworld to the upper world through the earthly terrain encountered by the stone.” This cosmological model of axial connectivity persists in the symbolism of ritual altars in present-day Nahua communities (Sandstrom 1991:286; Knab 2005:21). While the Calendar Stone symbolically evokes these spatial connections along the vertical axis, it is also an elegant representation of all of these levels—earth surface, solar sky, and nocturnal sky—each a spatial complement to the other. Contrary to Seler’s and Beyer’s statements that it is “no more and no less” than “only an image of the sun,” the Calendar Stone is a multi-layered presentation of opposed cosmic elements and of their movements, a cosmogram of great nuance and complexity. The solar disc of Tonatiuh may be visually dominant in the composition and design, yet other elements work together with it to give the image a dynamism and a broader spatial and cosmological message. And we must always keep closely in mind the rather obvious fact that the Calendar Stone was designed as an interactive space, a “stage” for gladiatorial sacrifice, wherein bodily movement was the nature of the performance, with solar movement encoded in the design.

In terms of formal presentation, the Calendar Stone’s conflated forms make use of a compositional method and design feature well established in Central Mexico and elsewhere in Mesoamerica. In so doing it may help to solve the long-standing debate regarding the identity of the central face. Its interpretation as the visage of Tonatiuh was first proposed by Seler and Beyer, and it remains perhaps the most common interpretation, fully endorsed many years later by Nicholson (1993). This basic identity seems very reasonable on the basis of its jeweled headband and facial decoration, and I concur that the face of the sun is the “baseline” of the stone’s center. But there is much more to it. The features that we commonly attribute to Tlalteuctli—the flanking claws and knife-blade tongue—are present as well. Perhaps these are not the true diagnostics of the animate earth, but rather the features of animate forces and cosmic beings that receive the blood of sacrifice, including the earth and the sun. Whatever the case, it remains quite possible, if not probable, that the central face represents a conflation of the sun and the earth, corresponding to planes that amount to mirrored aspects along the same vertical axis. Tonatiuh is the core animation of the **TONATIHW** logogram, whereas the Tlalteuctli would be the appropriate visage for the **OLIN** day sign, as well as something one might naturally expect to see emphasized on an upward-facing altar of such scale and prominence.

Nearly all previous discussions of the Calendar Stone have considered the identity of the central face in terms of broadly conceived cosmological and mythological ideas—the sun, Tonatiuh, or the earth, Tlalteuctli. Here I have argued that these approaches are by nature limited, stressing instead how the hieroglyphic labels on the stone point to more personalized identities of the *tlahtoāni* and the tribal patron god. These glyphic references in no way negate the variously proposed sun-or-earth aspects of the symbolism, but they refine the purpose and intent of the monument’s iconographic and glyphic design. 1 Flint is the name of Huitzilopochtli, which is one personalized aspect of the sun

(after all, Tonatiuh is not really a personal name, but describes the sun itself). Mirroring this identity is Moteczomah, also the sun and by nature an embodiment of the Mexica state. In this light, Tonatiuh and Tlalteuctli seem more remote and generalized as actual identifications, made obvious as iconographic references but remaining spatial and cosmological in scope. In terms of specific named identities, I believe that those of Moteczomah and Huitzilopochtli are prioritized and made explicit.

Such overlays of doubled and opposed identities—sun with earth, day with night, Tonatiuh with Tianquiztli, and Moteczomah with Huitzilopochtli—are manifestations of the inherent duality seen in Aztec art and philosophy (León Portilla 1956:157-177; López Austin 1980:1:303-318). As Graulich describes, “everything in the universe was believed to have two opposite or complementary aspects” (Graulich 1997:16, translated from the Spanish). In his own analysis of the Calendar Stone, Graulich stressed a binary aspect to the design, seeing a key distinction in the upper and lower halves of the circular design. My own understanding is different, but also relies on a similar organizational principle of “visual *difrasismo*.” I prefer to see the oppositions and complementations as conveyed by means of a *vertical* axis that bisects the composition into a left-right “mirroring,” explicitly identifying the central face as a composite historical-mythic being, the king *and* the patron deity. This verticality extends conceptually, I think, to an up-down axis that links zenith and nadir, passing through the center of the Calendar Stone and the platform on which it presumably once rested. Tonatiuh and Tianquiztli, the sun and the Pleiades, operated also as complementary opposites, forming the temporal axis of the universe that saw the rebirth of the sun and of solar heat.

As a visual merging of these many concepts of both celestial and earthly centers, the Calendar Stone served as an image not just of the sun and celestial phenomena, but of “centeredness” itself. Here it is important to turn to Maffie’s recent description of *nepantlah*, “center, middle,” as a key principle in Mexica-Aztec philosophies of change and movement (Maffie 2014:355-418). *Nepantlah* is a noun derived from the verb form *nepanoā*, “for things to intersect, join together” (Karttunen 1983:169). Following Karttunen, Maffie further notes that *nepantlah* “conveys a sense of abundant reciprocity or mutuality; or more precisely, reciprocity or mutuality that consists of a dynamic condition of being abundantly middled, betwixt and between, or centered” (Maffie 2015:355-256). *Nepantlah* is a relational noun for “center,” but it is also a fundamental idea of change, transformation, and becoming, of what defines the center of the cosmos and metaphysical arrangements of time and space. In so many ways *nepanōlli*, “something joined, crossed, formed by placing one thing atop another” describes the compositional philosophy of what I have described here as conflation—that is, a piling and intersecting of hieroglyphic forms. It is the process of layering these elements—the god Tonatiuh, *tianquiztli*, mirror, flower, sky, Moteczomah, Huitzilopochtli, and so on—that collaborate to make the Calendar Stone the symbol of all that moves about and defines the cosmic center. The sun is but one part of this overarching message of axuality and movement, with the explicitly marked image of *huēi tlahtoāni* as the pivot of all.

My novel interpretation of this great artwork as a deified portrait of Moteczomah II has found its

way into the popular news and media, meeting with varied reactions, some positive, others dismissive (Atwood 2018). Among the latter, most prominent are brief comments by Matos and by Hajovsky, each of whom reject my historical identification of the central face. These reactions appear to rest upon certain larger disagreements about the nature of Aztec (and Mesoamerican) art and the conveyance of royal identity. Matos makes the specific point that no Aztec ruler is ever shown with a protruding knife-tongue, therefore calling into question any possibility that the face is a royal portrait. Along similar lines, Hajovsky states that Moteczomah is elsewhere shown making offerings to the solar disc and is never fused with it (here he seems to refer to the image of the emperor on the Teocalli of Sacred Warfare, shown in Figure 48). These counterpoints also echo an objection expressed by Milbrath, who questions the idea of a fused ruler-god image, stating that Moteczomah would never be depicted as a “dead solar god” (a specific interpretation of the deity aspect that I happen to reject; the sun represented on the monument is very much alive, moving, and dynamic).

In response I can only reiterate an essential point in my analysis, namely that the visage of the Calendar Stone is not “just” a portrait of the king but a conflated image of both king and deity, carefully designed with specific features and iconographic references. Such fusions of identity or aspect are ubiquitous in the artistic presentations of rulers and elites in Mesoamerican art, especially on monuments. Kings and other elites are featured individuals and historical persons, but almost always in the guise of specific gods, supernaturals, or other ritual actors (Stuart 2018a). Simple portraits that emphasize an individual named ruler without some alternate “layered identity” are extremely rare. This characteristic of Mesoamerican art is seldom acknowledged in art historical studies, yet it lies at the heart of understanding many ideas of divine kingship among the Maya, the Aztec, and beyond (López Austin 1973).

Other monumental portraits of Moteczomah II (there are only two) bear out this fundamental point. The rock sculpture from Chapultepec is largely effaced, yet enough is left to suggest that the emperor was shown in the guise of Xipe Totec. On the Teocalli of Sacred Warfare he is shown in priestly garb making offerings to the newborn sun, along with his counterpart Huitzilopochtli, perhaps also a priest in a deity guise. Here the emperor’s identity is not simply historical, for he is directly associated with the deity name 1 Death, a reference perhaps to Tezcatlipoca, located directly behind him on the stone’s right side (as we have seen, Huitzilopochtli’s portrait is accompanied by his calendar name 1 Flint, in the corresponding position). In both of these portraits Moteczomah II assumes a particular role as the embodiment of a deity, a different one in each circumstance. Mexica sculpture is replete with depictions of rulers as gods—for example, on the Stone of Tizoc the emperor Tizoc appears as Huitzilopochtli, and on the so-called Aqueduct Relief Ahuizotl appears as Quetzalcoatl.

We therefore can see how this new interpretation of the Calendar Stone as, among other things, a portrait of Moteczomah II follows a well-established standard of deified representation for Mexica rulers. The stated objection that a ruler could never be represented with this-or-that supernatural fea-

ture assumes an unnecessary division between the political and the mythological, and contradicts an important aspect of royal portraiture found throughout ancient Mesoamerica. In art and in message, the personal identities of kings and other elites were routinely conflated with those of mythical and supernatural beings.

Moteczomah's deified portrait and the many hieroglyphs around it work together to present numerous layered messages, but the massive circular stone was itself a symbol of great potency. We have seen how large circular disc altars and stages—whether we call a given one a *cuāuhxīcalli* or *temalacatl*, and so on—are elaborate manifestations of a widespread and very old Mesoamerican idea of what might be called “cosmic modeling” for ritual interaction. Altars, mesas, and ceremonial surfaces are to this very day routinely conceived as structural representations of the four-sided and solar-centered cosmos. The Calendar Stone is perhaps the most grandiose expression of this idea in all of ancient Mesoamerican art, placing Moteczomah at the center of the dynamic temporal and spatial structure. Like many altars elsewhere in Mesoamerica, I suspect that the Calendar Stone was, in addition to its role as a place of offering and sacrificial “feeding,” also designed as a conceptual “navel” of the earth and of the universe. The idea of a navel or opening was, and remains, a fundamental symbolic function of many ceremonial offering places and altars that were considered cosmic center points (see Christenson 2016:168-170). On the Calendar Stone the relatively small circular opening where the deified ruler peers out to receive the blood of sacrifice is by itself suggestive of an opening or navel, and we should keep in mind that in Aztec iconography, depictions of earth-navels on Tlaltecuctli figures can appear as either a *chalchiuhuitl* jade hieroglyph (**CHAL**) or as an **OLIN** (Figure 76). Of course we have seen that both of these elements are featured within the elaborated design. This would suggest that in its original setting, wherever that might have been, the Calendar Stone would have also been seen as a symbolic navel-like opening, a place of cyclical (re)birth and movement.<sup>28</sup>

It is probably significant that the Nahuatl term for “navel,” *xīctli*, is also the word for “peephole” (Karttunen 1983). Symbolic navels are places of access and “seeing” between inner and outer realms. On the Calendar Stone the central circle strongly resembles an opening or hole, repeating the central cavities that appear on other solar discs, as seen for example on the sculpted sun disc in the Yale Art Gallery (see Figure 27b). And the ruler's deified face, as we have seen, is an elaboration of the more customary eye that we see looking out of the center of most **OLIN** day signs—a “peephole” of a type.

<sup>28</sup> One could go even further in making associations to a wider array of solar imagery in the art and imagery of indigenous American art, and beyond. On some level, the flattened, circular image of the sun and its motion replicates a ubiquitous design seen throughout the world—as medicine wheels in Wyoming, as Buddhist *mandalas*, or as “henges” in Neolithic Europe. Conceptually, I believe the Calendar Stone represents an elaborated Aztec vision of what amounts to a fundamental, even universal symbol (the solar circle) regarding the sun and perceptions of its motion. In this regard, León y Gama's initial interpretation of the Calendar Stone as a representation of Aztec time and its mechanisms was partially correct.



This centered “navel” from which Moteczomah gazes served as an important visual device for anchoring and binding the spatial categories we have discussed at length—a center and access point linking the sun with the earth, the past with the present, the god-king with the community.

The noun *xīctli* also appears in two other very interesting terms that bear on the interpretations given here. One is *āxīctli*, a “water-navel,” that refers to a spinning eddy or a whirlpool. Once more we are reminded of the inherent movement and spinning motion of the design of the Calendar Stone. More directly relevant perhaps is *tlēxīctli*, literally a “fire-navel,” which is the word for “hearth” or “fire pit.” This would easily relate to Taube’s interpretation of the Calendar Stone as a representation of the turquoise hearth, the place of solar rebirth that is so key in the narrative of Nahui Olin (4 Movement) and Tonatiuh. It also may be circumstantial support for my very speculative suggestion that the Calendar Stone was a place of drilling and ritual fires, in addition to being a stage for performative sacrifice.

Apart from these grandiose cosmological messages, I feel that much of the significance of the Calendar Stone lies in its allusions to the “mundane” ritual life of everyday experience. As Heyden and others have suggested before me, the sculpture was likely set into the upper surface of an elaborate *mōmōztli* platform or altar, a “daily place.” Keeping this in mind, its discovery in the southeastern area of the present-day Zócalo is probably significant and revealing. In pre-Conquest times this was also a vast open plaza just to the south of the city’s sacred precinct, dominated by the Templo Mayor. The nature of this open space is sometimes confused in the published sources, but most sources agree that this was the site of the original market of Tenochtitlan (Matos Moctezuma 2012)—a function that lasted well into the nineteenth century. This communal plaza surrounded by royal palaces was also a place of public ritual and congregation. *Tiānquiztli* was the word for “market” and also more generally for “plaza,” an open place of communal gathering and activity, and it may well be significant that this word was explicitly encoded into the design of the Calendar Stone and other solar markers.

Here I speculate, perhaps overly so, that the monument was unearthed in 1790 not far from its original setting, a central place where it served as an elaborate *mōmōztli* within what was an open and busy urban space. The large plaza or *tiānquiztli* was a spatial intersection of great social and cosmological importance, adjacent not only to Tenochtitlan’s temple precinct, but also near the convergence of causeways and canals that defined the city’s (and world’s) center. The plaza was even more directly oriented to the royal palace of Moteczomah II, just steps eastward from the Calendar Stone’s original find spot. The meanings and functions that surrounded Mesoamerican plazas have been explored in recent years (Wagner et al. 2013; Tsukamoto and Inomata 2014; Ossa et al. 2017), and these might be extended to the open area that was once adjacent to both Tenochtitlan’s restricted temple precinct and the royal palace. This sun-baked *tiānquiztli* was a large bustling market and locale for communal congregation, a “daily place” of no small significance, perhaps representing its own type of cosmic centrality as much as the Templo Mayor. Much of the plaza’s symbolic and spatial significance derived from its close proximity to Moteczomah’s palace, and the area may even have functioned as a sort of

“atrium” for the royal household itself (Evans 2004). Perhaps for this reason, the Calendar Stone was marked so explicitly with the name and hybrid image of the deified solar king. We should not forget, too, that it was a prominent stage for human sacrifice—an offering and “feeding” place physically connected not just to the plaza, but perhaps even more directly to the royal household.

In light of these connections, it is tempting to think that the Calendar Stone could have been dedicated on or around the time of Moteczomah II’s inauguration in 1502 (10 Rabbit), possibly set in front of his palace as a public expression of his new deified status as the embodiment of Huitzilopochtli, of the sun, and of the cosmic cycles of the cosmos. If carved around this time, its meaning was also surely accentuated by the anticipation of the New Fire ceremony a few years later in 1507 (2 Reed), a date defined by the opposition of sun and Pleiades and the manifest reactivation of the sun itself. Given the inseparability of the iconography of the solar deity from that surrounding the ruler, we should not lose sight of the political dimensions of this universal ceremony. For in the end it is important to stress that the designers of the Calendar Stone may have chosen an overt ideological and political message as a part of its exceedingly complex cosmological design, equating identities that were at once political and universal, historical and mythological. The face of Nahui Olin, the cosmic axis, is visibly labelled with the proper names of Moteczomah II and Huitzilopochtli, assigning specific designations to an image whose identity has long been debated and contested. The Calendar Stone thus presents the viewer and performer with an unmistakable *political* message, linking cosmic forces, community, and centeredness to the specific persona of the reigning king, all of which seems fitting in light of what we understand of Mesoamerican art and its role in the expression of worldview, metaphysics, and statecraft.

Five centuries ago all of these complex and overlapping messages may have sat visible in or near the great open *tianquiztli* of Tenochtitlan, in what would very soon become the Plaza Mayor of the new city of Mexico. There are intriguing indications that this great stone remained prominent and exposed for years after the overthrow of the Mexica, viewable by former citizens of the *huēi altepētł* of Tenochtitlan and newly arrived Spanish settlers and authorities. Eventually the monument would be buried just under the plaza surface, but not before many of its messages could be understood and pondered, still as a type of “daily place” in those early years of transition. For Nahua and Spaniard alike, the deactivated stone of the sun must have served as a poignant reminder of former Mexica glory, of a dynamic cosmic order overturned, and of the deposed emperor who was in the center of it all.

## ACKNOWLEDGMENTS

**M**any of the ideas presented in this study arose during the fall of 2016, in the course of teaching my undergraduate course on Aztec Art and Civilization at the University of Texas at Austin. While preparing and presenting a few lectures on Mexica sculpture, I found myself questioning some methods and assumptions that had informed previous studies and interpretations of the Calendar Stone. The students enrolled in my class showed great patience as I shifted my syllabus to focus on these new trains of thought, and their feedback during lectures played an important role in refining my own thoughts and methods. I must thank them for sharing in the excitement of those new ideas and discussions. Whether the ideas themselves prove correct or fruitful, time will tell.

My thinking on the deep structure of the Calendar Stone has benefited immensely from conversations and correspondence with a number of my colleagues in Mesoamerican studies, especially Stephen Houston, Leonardo López Luján, Karl Taube, Emily Umberger, and Marc Zender. Many thanks to them for keeping me from going too far off of the mark (I

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A preliminary version of these ideas was presented at the 2017 Sibley Conference at the University of Texas at Austin, and an overview of my interpretation was first presented publicly in a lecture at UT-Austin on March 24, 2017. A very brief overview of some of these interpretations was published in 2018 in *Arqueología Mexicana* (Stuart 2018b), and I thank the editors and commenters for their feedback and encouragement.

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Most of all I thank my wife Carolyn, and my boys Peter, Richard, and George, for all of their patience as I developed what amounted to a completely unexpected book project, diving head-on into the endlessly fascinating visual world of the Mexica.

## APPENDIX

*The Leyenda de los Soles*

**A**ntonio de León y Gama was the first to establish that the hieroglyphic content of the Calendar Stone made direct reference to the so-called “Five Suns” of Aztec cosmogony—Nahui Olin, “Four Movement,” the name of the current era, preceded by four others: Four Jaguar, Four Wind, Four Rain, and Four Water. By the time of the monument’s discovery in 1790 León y Gama had already been an energetic student of ancient Mexican history and religion, collecting many documents and Nahuatl texts on these subjects. Earlier writers such as Lorenzo Boturini Benaduci (1746) and Francisco Javier Clavijero (1780) had published on the nature of the ancient Mexican calendar and discerned its basic structure. León y Gama had refined these earlier, imperfect descriptions, and so when he first laid eyes on the stone soon after its discovery he “was filled with joy at having found in it a faithful testimony, which confirmed what I, after so much labor and study, had written on the system of the Mexican Calendars...” (quoted from Villela and Miller 2010:58).

Nearly a dozen ethnohistorical sources recount information about “Four Movement” and the mythology surrounding divisions of time and solar birth, but they are far from consistent in their nar-

rative details (Moreno de los Arcos 1967). The most familiar of these is a Nahuatl account from 1558 known as the *Leyenda de los Soles*, part of a larger manuscript compilation called the *Codex Chimalpopoca*. Certain features of language within the account suggest that the *Leyenda* was originally an oral account, a verbal expression based on an ancient pictorial document. By and large it is considered the most authentic version of the ancient creation myth of the Mexica Aztecs (León-Portilla 1963:37).

Here I present my English translation of the *Leyenda*, modified slightly from earlier published versions by Miguel León-Portilla (1963) and Primo Velázquez (1945):

Here is the account of the learned ones. A great time ago he (the Sun) formed the animals and began to give them food to eat. Thus it is known that this same Sun gave beginnings to so many things, 2513 years ago, prior to this day, the 22 of May, 1558.

This Sun named Four Jaguar lasted 676 (13 x 52) years. Those who died then for the first time, in that age, were devoured by jaguars in the Sun of Four Jaguar. And they ate Seven Grass, which was their nourishment, and they were devoured after thirteen years; all perished and was ended. Then, the Sun disappeared. It was the year One Reed. They began to be devoured on a day with the sign Four Jaguar. In this way it ended and all perished.

This Sun (is) Four Wind. Those who died a second time were carried away by the wind, in the Sun of Four Wind. As they were carried away they were turned into monkeys, and their houses and trees were all blown away by the wind. And they ate Twelve Snake as their nourishment. They lived for 364 (13 x 7) years until the one day when they were carried off by the wind, perishing on the day Four Wind. Its year was One Flint.

This Sun is 4 Rain. And those who lived in the Sun of Four Rain, the third (Sun), were destroyed because it rained fire upon them and they were turned into turkeys. The Sun burned, as did their houses. They had lived for 312 (6 x 52) years until that day when it rained fire. They ate Seven Flint as their nourishment. The year was One Flint, on the day 4 Rain, when those who were turkeys (*pipiltin*) perished.

The name of this Sun is Four Water, because there was water for 52 years. Those who lived in the fourth Sun, Four Water, lasted for 676 (13 x 52) years until they were destroyed. And they perished by being overwhelmed by the flooding water, when they were transformed into fish. The heavens came down upon them on that day (4 Rain). And Four Flower was what they ate as their nourishment. The day was in the year 1 House, on the day Four Water, when they all perished, when all the mountains disappeared, because it flooded water for 52 years.

The name of this Sun is Four Movement, the one in which we now live. And here is its sign, of how the Sun fell into the fire, into the divine hearth, there at Teotihuacan. It was also the Sun of our Lord Quetzalcoatl in Tula. The fifth Sun, Four Movement, is called the Sun of movement (*olin*) because it moves and follows its path. And as the elders continue to say,

under this Sun there will be earthquakes and hunger, and then our end shall come.

Many have written on this text and its significance, and its connection to the hieroglyphs and design of the Calendar Stone should be clear. Here I will only mention one interesting aspect of the numbers cited for the length of each age. The spans given (676, 364, 312, and again 676 years) are of course all divisible by 52, the longest being  $13 \times 52$ . In a sense, then, these are contrived numbers, based on the cycles of the New Fire ceremony and their inherent meanings as temporal units of solar life and rebirth. As we have seen, the Calendar Stone makes reference to this same numerology through its careful representation of 52 **XI**W “year” signs on one of its inner rings, revealing that 52 years and its multiples was seen as an integral concept to Tonatiuh and its specific manifestation as distinct suns and eras.

If we reckon 2513 years back from the year 1557, when the *Leyenda* was written, to reach the year 956 BCE, the subdivisions that result are:

955 BCE – 314 BCE	Four Jaguar
315 BCE – 48 CE	Four Wind
49 CE – 360 CE	Four Rain
360 CE – 1036 CE	Four Water
1036 CE – ?	Four Movement

Note that 520 years ( $52 \times 10$ ) takes us to 1557, just one year before this version of the *Leyenda* was written. Perhaps this is coincidence. Nevertheless, I find it intriguing that these temporal subdivisions may show a vague yet discernable correspondence to the familiar archaeological subdivisions we know from ancient Mesoamerican chronology. 955 BCE roughly corresponds to the beginnings of monumental architecture in Mesoamerica in the Middle Formative (or Middle Preclassic). And 1036 CE sits at the intersection of Terminal Classic and Postclassic. The previous era, beginning around 360 CE, represents an intensive period of interaction in Mesoamerica, with Teotihuacan exerting considerable control or influence throughout the region, as far as the Maya lowlands. A broad comparison might look something like this:

955 BCE – 314 BCE	Four Jaguar	Early and Middle Formative
315 BCE – 48 CE	Four Wind	Late Formative
49 CE – 360 CE	Four Rain	Early Classic
360 CE – 1036 CE	Four Water	Classic – Terminal Classic
1036 CE – ?	Four Movement	Postclassic

Obviously such “correspondences” are extremely loose and vague, and might even seem maddening speculations on my part. Still, it leads me to wonder if our scientifically-informed perceptions of ancient Mesoamerican cultural development, and in particular the well-known cycles of the urban and

political rises and falls in Central Mexico, reflect certain historical realities that were in turn perceived and analyzed by ancient Mesoamerican historiographers, couched within their own numerological and mythologized narratives. Could Four Jaguar refer to an age that we today recognize as witnessing the rise of complex political structures and urbanism? Could Four Rain label the era dominated by Teotihuacan? It is interesting to see that Four Movement, supposedly beginning in the year 1036, incorporates the overall time frame of the Mexica's own mythic history, including their migration legends from Aztlan and Chicomoztoc. As analytical units of time, these eras might well co-exist in indigenous sources and in our own understanding of the realities of archaeological chronology.

The time depth of two-and-a-half millennia represented in the *Leyenda de los Soles* is extraordinary, and recalls the scattered references within written Maya history that reach back into the same Middle Formative time frame. To cite one example, the first ruler named in Palenque's dynastic narrative in the Tablet of the Cross, U Kohkan Kaan ("Snake's Spine"), is stated to have ruled in this same general era. Whether he is "real" or "mythic" is beside the point. Perhaps we should readily acknowledge the awareness that indigenous Mesoamerican chroniclers had of their own very deep past, even if their narratives do not always conform very well with western concepts of historical structure and cultural development.



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