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The Venus "Shell-Over-Star" Hieroglyph And Maya Warfare: An Examination Of The Interpretation Of A Mayan Symbol

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**THE VENUS "SHELL-OVER-STAR" HIEROGLYPH AND MAYA WARFARE: AN
EXAMINATION OF THE INTERPRETATION OF A MAYAN SYMBOL**

by

CLAUDIA ANN VOIT

THESIS

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

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Approved by:

Advisor

Date

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Section 1

Introduction

In this work, I examine how the creation of the Maya “star-war” symbol may have been born out of inferences and interpretations, I will look at the methodological practices that were employed, and I will discuss where these interpretations stand today.

Initial encounters between the Spanish *conquistadores* and the indigenous populations of Mesoamerica revealed that the civilizations of Middle America, like all societies, engaged in violent conflict. The earliest Spanish expeditions to Yucatán and Mexico, which culminated in the conquest of Tenochtitlán by Hernán Cortés, provide multiple descriptions of indigenous military tactics, arms, and fortifications as well as factional disputes, alliances, and tribute relationships (Brown and Stanton 2003:1). The Spanish wrote many ethnohistoric accounts of the Aztecs, Totonacs, Maya, and Tlaxcalans, and their involvement in war. Yet, according to Brown and Travis (2003:1), “Our understanding of the nature, extent, and variability of pre-Columbian warfare remains limited.” Warfare is a complex human process involving a diversity of cultural variables. Thus, when examining Maya warfare events, we must be cautious in our interpretations of the material remains—particularly iconographic and epigraphic data such as the war symbol, Shell-over-Star, which is the subject of this thesis.

Warfare is a popular topic in Mesoamerican archaeology. Brown and Stanton (2003) explore a variety of methods employed in identifying and interpreting the material correlates of warfare. If one surveys this material, one notes that the nature of Maya warfare transformed over time. In addition to the material correlates of Maya warfare, the iconography and its interpretations must be considered, as well.

Olmec imagery has been variously used to expand on the topic of warfare. Reilly and Garber (2003:11) examined jaguar imagery from the Olmec Middle Formative period; they suggest that this imagery (the “war jaguar”) was an abstract form of visually representing institutionalized warfare in Mesoamerica during the Middle Formative Period (Figure 1). Maya iconography can be linked with Olmec:

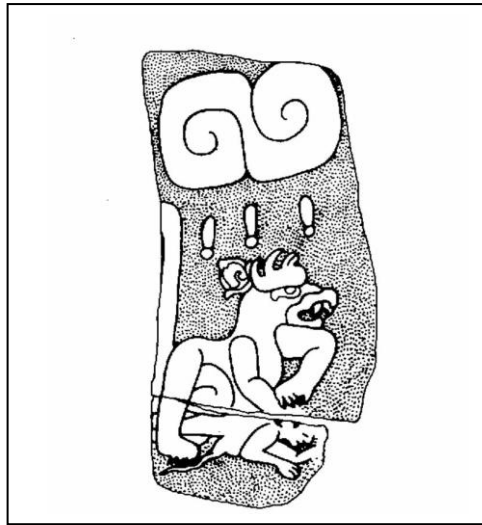


Figure 1: Chalcatzingo Monument 31 (after Reilly and Garber, 2003)

“...and themes strongly suggests that the ideology of warfare, as expressed in Olmec-style art (1200-400 B.C.), was couched in a supernatural framework based on images depicting feline domination over humans as well as the ideological concept of jaguarian transformation itself. This recognition lends support to our hypothesis, which interprets Olmec and other Formative period warfare representations as an expression of paradigmatic ideology strongly grounded in the larger artistic corpus of the Mesoamerican supernatural....” (Reilly and Garber, 2003:128)

Star and Venus symbolism (the subject of this thesis) of the ancient Maya is also considered an iconographic form of warfare (Figure 2):

“Of all epigraphically known warfare events, shell-star, or star-war events are interpreted to be of the greatest consequence. They are thought, by most epigraphers, to represent the defeat of one site by another.” (Schele and Mathews 1991:246).



Figure 2: Montgomery's Venus "Shell-over-Star" Symbol (after Montgomery 2006)

There are numerous, explicit references to war in the texts of the Maya, including many featuring the "star-war" glyph. According to Brown and Stanton (2003:12), the iconography of violent conflict (depicted along with the "shell-star" glyph) is quite common in Classic period (AD 300-900) lowland Maya monuments (but association was not always recognized).

For many decades, Sylvanus G. Morley (1946), Eric Thompson (1954) and Alfred Maudslay (1899) perpetuated the romantic notion of the peaceful Maya. According to Schele (1986), the discovery of the Bonampak murals, along with Webster's study of defensive features at the site of Becán (1976a, 1976b) challenged the "peaceful tradition" and opened the floodgates of iconographic and epigraphic interpretations of warfare and sacrifice. During the 1970s, the notion of the "not-so-peaceful" Maya was further supported by the rapid decipherment of Maya hieroglyphic texts. But what is of utmost importance when examining Maya astronomy and warfare is the protracted process by which the "shell-star" hieroglyph was earlier deciphered. Similar to the idea that the Maya were not the peaceful people once portrayed, our view of the "shell-star" glyph seems to be changing, as well. Aldana's study (2005) has generated increased attention to the subject. He examines the connection between the "shell-star" record of war and observations of Venus and challenges the statistical methods scholars have employed in making

this connection. Aldana, instead, appeals to the historical contexts of the rulers engaged in this warfare, and examines what evidence (if any) supports the timing of Classic Maya warfare and the appearance of the planet Venus (Aldana 2005:1). This controversy is the central subject matter of this thesis. I will examine the earliest references to the “star-war” glyph (the few fully deciphered) to evaluate inferences of warfare and how these inferences became enmeshed in interpretive tradition among Maya scholars. By examining a modern planetary ephemeris, one can see that there are many astronomical “events” and “patterns” observable on any given night. What some of the early scholars such as Aveni, Schele, and others may have done is see patterns in randomness. On any given night, one can see astronomical occurrences such as planetary alignments, planetary conjunctions, and even mistake one celestial body for another. The assumption of patterns, I believe, has interfered with our interpretation of one of the most important Mayan cosmological symbols. I show how scholars are still subscribing to these traditions today, and how the latest research by Aldana, Guenter, and Boot reveals that we need to reexamine the interpretations of this hieroglyph. Additionally, I have incorporated new research regarding annual meteor showers and “star war” dates. This research suggests that there is no correlation (using the GMT) of annual meteoric activity to securely dated “star war” events.

Section 2

How Do We Know the Venus Hieroglyph Refers to the Planet Venus?

Early accounts of the Venus glyph can be found in Sylvanus Morley's *The Ancient Maya* (Morley 1946:309) According to Morley, Venus was considered one of the most important celestial bodies observed by ancient Maya astronomers (Figure 3A, 3B). He noted that there were at least two names for the planet: *Noh ek*, which he translates into "the great star"; and *xux ek*, referred to as "the wasp star." He goes on to note that Landa discusses the planet as the 'morning star' but gives no specific name for it (Morley 1946:309).



Figure 3A: EK' (ek'/Ek') (T1510af) 1 n. "star"; represents one-half of the full "star" glyph 2 n. "Venus"? Half of the complete "star" glyph

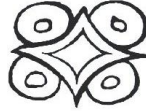


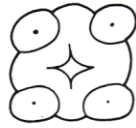
Figure 3B: EK' (ek'/Ek') (T510) 1 n. "star" 2 n. "Venus"? The complete "star" glyph (after Montgomery 2006)

But there are other translations for Venus as well. Below I have included many examples of Mayan translations for the planet (Table 1).

Table 1: Maya names for Venus (after Montgomery 2006)

| |
|---|
| <p><i>EK'</i> (T510af): "star", represents one-half of the full "star" glyph <i>EK'</i> (T510): "star", the complete "star" glyph Also referred to as "chac ec (a reddish wasp that does not sting) <i>Oczah kin</i> (he who makes the sun-enter the underworld) <i>Ho 'zan ek'</i> the star of the evening <i>Noh ek</i>: big star <i>Chac ek</i>: red of great star <i>Xux'ek</i>: wasp star <i>Noh ich</i>: great eye (refers to the concept of twin) Sign represented different personalities, gods such as Xiuhtecuhtli In the Dresden Codex, seen as "red or great" possibly referring to Venus</p> |
|---|

From Martha Macri's *New Catalog of Maya Hieroglyphs, Volume One* (Figure 3C):



T 0510b



Figure 3C: éek' /ek' (n): Star; planet; Venus
 Day 08: Lamat/Lamb'at; háab' patron: Yax/Yax 2. Picture: star
 1916-1950 Gates (1931:149): 'venus'.
 1951-1980 Kelley (1976:38, 39): "ek" or "kanal"? Knorozov (1967:102: "lem" 'star'.
 1981-1990 Justeson (1984:339): J. Fox, J. Justeson, P. Mathews, B Riese" 'star' (not 'black'; cf.
 Lowland Mayan "*e:k"" 'star'L proto-Yukatekan "*e'k'," proto-Ch'olan "*ik"" 'black'): F. Lounsbury:
 Venus' L. Schele, D. Stuart" 'Venus' and 'star'. (after Macri 2003:230)



T 0002

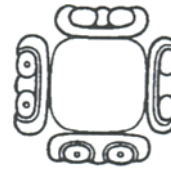


Figure 3D: éek' /ik' (n): Star; planet; Venus
 Day 08" Lamat/Lam'at; háab' patron" Yax/Yax
 3. Picture" star
 1566-1915 Seler [1898] 91990:212): Venus.
 1951-1980 Kelley (1976:38, 39): "ek" or "kanal"? 'star'; Knorozov (1967:100): (=K353); "lem" 'star'.
 1981-1990 Grube (1990a:97): = T0001; Justeson (1984:316): J. Fox, J. Justeson: = T0024; suffix "-il,"
 perhaps other "-VI" suffixes; B. Riese" "I do not see the evidence for J. Justeson's proposal."
 1991-2002 Davoust (1995:553): "uh" 'collier'; /u/, /li/?; Knorozov (1990, vol. 1:90): "ek;ech" "
 "estrella"; Ringle and Smith-Stark (1996: 335-38): 0003 (retired) = 0001b (after Macri 2003:230)

The Venus hieroglyph appears as a set of eyes with squiggly lines either above or below, similar to those of a crocodile peering above the water. Venus, as described in Montgomery's *Dictionary of Maya Hieroglyphs* and Macri (2003), is represented as *EK'* (ek'/Ek') (T510af) ("T" represents the hieroglyphs labeled by Eric Thompson) and also looks like a set of eyes (Montgomery 2006:89) (Figure 3A). When referred to as *IK'* (T510), complete star, it looks like two pair of eyes with a diamond shape in between (Figure 3B). How can we be sure that this symbol has been solidly deciphered? Closs states:

“One of the earliest identifications of a non-calendrical Maya glyph resulted from Ernst Forstemann’s recognition of the glyph for the planet Venus; Forstemann (in 1906) noted a common feature to be found on pages 46-50 of the Dresden Codex. At the bottom of each of these pages, the numbers 236, 90, 250 and 8 totaling 584, are recorded. He recalled that 584 is the best whole day approximation to the number of days in a mean Venus revolution. He also linked the number 8 to an 8 day period of invisibility at inferior conjunction, a traditional reckoning observed by some Mexican groups. Förstemann concluded that the pattern of dates found on these pages referred to four astronomical positions of Venus, fixed in the Calendar Round, over an interval of 65 Venus rounds of 584 days or 104 vague years of 365 days. A glyph which appears in all the columns associated with the sequence of dates was identified as a name glyph for Venus.” (Closs 1978:147)

According to Closs, one of the Yucatec names for Venus is *Chac Ek*, “Great Star.” This is a common name for Venus in many different Mayan languages. When the terminology is compared to the structure of the Venus glyph (which includes the prefix “great,”) the main sign of the Venus glyph signifies “star” (Closs 1978:147). Closs points out that the Maya term “star” could be used as a proper ‘appellation’ of the planet Venus. Closs suggests that *ek* might signify *lucero*, “morning star, Venus, Lucifer”, as well as *estrella*, “star” (Closs 1978:147). He questions whether the *ek* glyph refers to Venus in particular, or to “star” in general, when it occurs without prefixes. If we examine the glyph on page 47 of the Dresden Codex, one could infer that it implies Venus. Closs notes rightly that the *ek* glyph without prefixes is found in celestial bands together with symbols of the sun and moon. This, according to Closs, further supports the decipherment as Venus (Closs 1978:148). Closs suggests, however, that when the *ek* glyph has qualifying prefixes, it may refer to stars or planets other than Venus.

The Dresden Codex (which I will refer to as the “Dresden”) lends strong evidence to support the notion that Venus is an accurate decipherment of this symbol. The Dresden is an almanac (Figure 4A) most likely produced between the twelfth and fourteenth centuries in the northern Yucatan, and which was and later found in a German library in the nineteenth century (Coe

1983:3). It is one of four surviving Maya Codices and is fashioned from flattened bark of a breed of the Ficus tree, which is surfaced with lime to provide gloss. (For a detailed look at the pages of the Dresden Codex, see Aveni 2001:184-193, and Eric Thompson's *A Commentary on the Dresden Codex, a Maya Hieroglyphic Book* (1972).

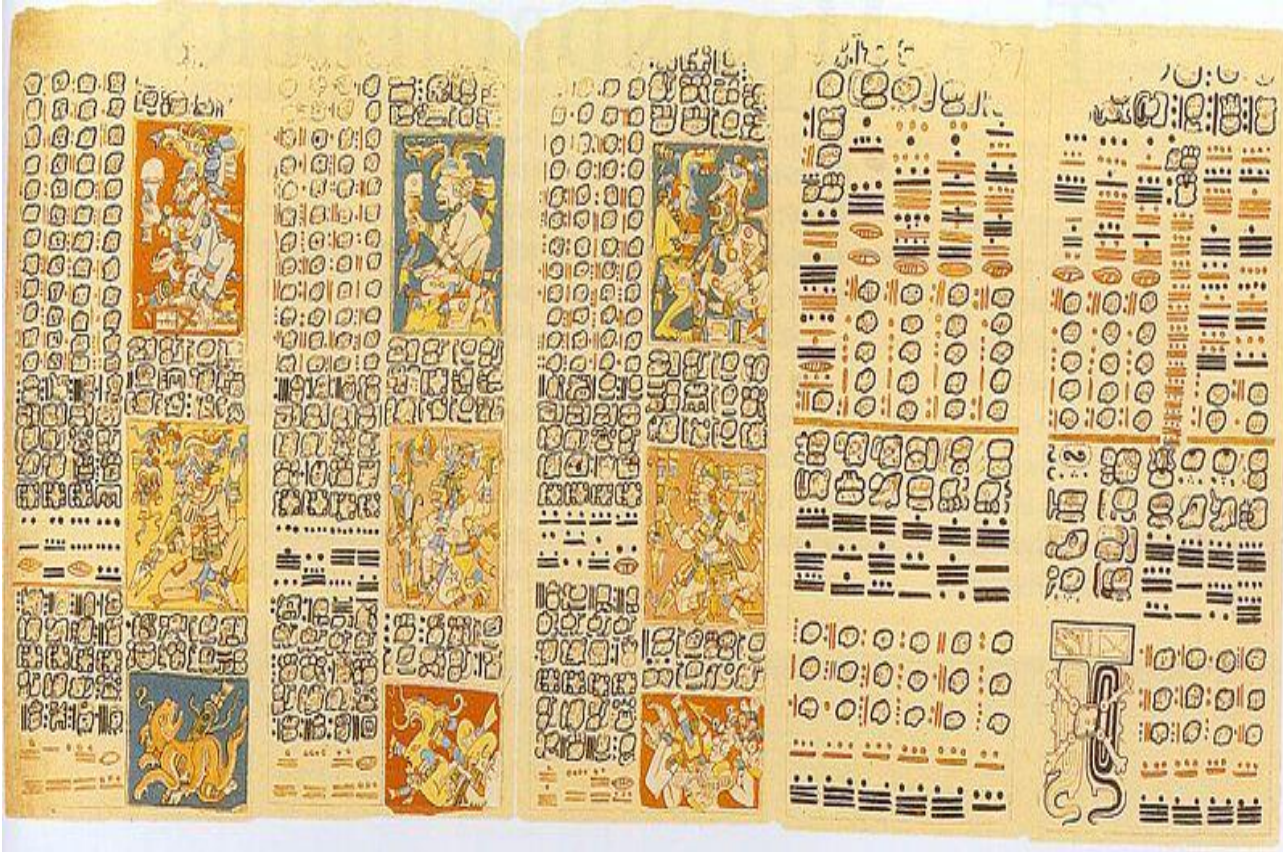


Figure 4A: Image of some of the pages of the Dresden Codex (after Humboldt 1810:416)

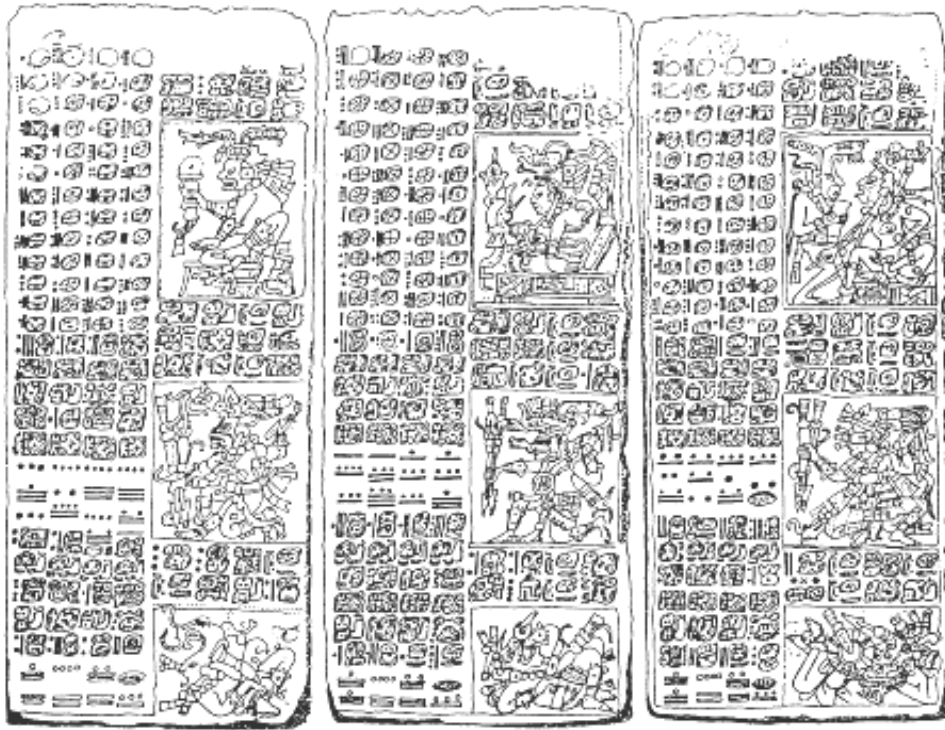
Ernst Forstemann was the first to recognize that the four columns on the left of pages 46 through 50 of the Dresden (Figures 4B-4C) tracked intervals within the 260-day count that summed to 584 (Aldana 2005:307). The latter number, he deduced, was very close to the synodic period of Venus (the cycle between one maximum elongation, its furthest point from the sun, and the

next). Venus goes behind the sun and disappears for 8 and 90 days, respectively. Förstemann presented data from his own observations from 1882 through 1884 to justify the periods of 8 and



| | | | | | | |
|---|-----|-----------|---------|-------------|---------|------------|
| I t r o d u c t o r y R i n g | G | Table | Tzolkin | Elderly | Tzolkin | Death |
| | l | | | | | |
| | y | of | a | d | a | d |
| | p | Multiples | Totals | Black Bacab | Totals | Lahun Caan |
| | h | | | | | |
| | s | L | b | (Venus #1) | b | e |
| C | D | Intervals | God K | Intervals | Jaguar | |
| D | 584 | | | | | c |
| a | | c | f | c | f | |
| t | | (2920) | | | | |
| e | | | | | | |
| s | | | | | | |
| | | Page 25 | Page 46 | Page 47 | | |

Figure 4B: Pages 25, 46, and 47 of the Venus Tables (above) and general structure of (below) the Dresden Codex (after Wells 1991:296)



| | | | | | |
|---------------|---------------------------|---------------|----------------------------------|---------------|----------------------|
| Tzolkin Dates | Old Bacab | Tzolkin Dates | Goddess I | Tzolkin Dates | Sun God |
| a | d | a | d | a | d |
| Totals | Ta Ah Sik Cimi (Venus #3) | Totals | Chac ... wa te k'a(?) (Venus #4) | Totals | Kakatunal (Venus #5) |
| b | c | b | e | b | e |
| Intervals | Maize God | Intervals | God 1048 Turtle God | Intervals | Warrior God |
| c | f | c | f | c | f |
| Page 48 | | Page 49 | | Page 50 | |

Figure 4C: Pages 48, 49 and 50 (after Wells 1991:297)

90 as reasonable accounts for Venus's invisibility, which always occurs during inferior and superior conjunctions. Förstemann confessed a lack of comprehension regarding the asymmetry between the other two intervals:

“As to the evening star period of 250, and the morning star period of 236 days, I confess that my astronomical knowledge is too small for me to be able to explain this inequality; in reality it is usual to give these two periods, which are not exactly equal, 243 days each” (Förstemann 1891:121).

Several years later, Förstemann advanced his understanding of Dresden Page 24 and suggested that it was a table of multiples of Venus periods. He found thirteen multiples of 2,920 (= 5 x 584), three multiples of 37,960 (= 13 x 2,920), and four anomalous intervals that were multiples of 260 (Aldana 2010:307). Förstemann provided an overall interpretation of Page 24 of the Dresden based almost exclusively on numerical patterns:

“We find that the Indian writer desires to say this: I am here treating especially the periods consisting of five successive Venus years, bringing them into harmony with the solar year and the tonalamatl [a divinatory almanac used in central Mexico before the Spanish conquest] I am at the same time considering a second important period, that in which the two heavenly bodies of the second class, the moon and Mercury, come together in their orbits, a period made up of four unequal parts. Just in the same way is each individual Venus year divided into four unequal parts, which appertain to the east, north, west, and south and are ruled by certain deities, which I can mention only in part, owing to lack of space. Lastly, I would add that each of the five Venus years of a period is dominated as a whole by a deity, and the signs of these I give here” (1894:443).

Thompson suggested that the Dresden contained both invocations and divinations that revolve around weather, agriculture, drilling with sticks, disease, and medicine, along with predictions and ceremonies. Most of all, however, the almanac had a numerological purpose, according to Thompson, “to bring all celestial and human activities into relationship with the sacred almanac by multiplying the span they were interested in until that figure was a multiple of 260” (Thompson 1972:27). The 260 day counting schemes consist of a five-fold equi-partitioning of

time into 52-day periods. Celestial cycles known to have been recorded in the Dresden include the synodic periods of Venus, Mars, and Mercury, zeniths and equinoxes of the Sun, and eclipse cycles of both the Moon and the Sun. The Venus tables denote the importance of the planet within Maya astronomical practices. According to Aveni:

“For the Maya the importance of Venus, above all other planets, cannot be overstated. It was called *Noh ek* (great star), *chac ek* (red star), *sastal ek* (bright star), and *xux ek* (wasp star). The early chroniclers commented on the Indians’ propensity for watching it. Mexican friar Motolinia tells us that “next to the sun they adored and made more sacrifices to this star than to any other celestial and terrestrial creature” and “they knew on what day it would appear again in the east after it had lost itself or disappeared in the west...: they counted the days by this star and yielded reverence and offered sacrifices to it.” (Aveni 2001:184).

Much attention was given to the planet because it is the only bright planet that appears closely attached to and influenced by the sun. It is visible for many days (about 263) in the early morning sky (in the east) very near the sun. This number also may link Venus to the Maya Tzolk’in Calendar which is 260 days long. Then, after a period of invisibility (about 50 days), Venus reappears in the evening sky after sunset for about 263 days—thus, a bright beacon in the sky outside of the sun and moon. The Tables are similar to eclipse tables elsewhere in the Dresden. The function of the Tables serves as a warning regarding the appearance of the planet (Aveni 2001:184).

The opening page (Figure 5) is akin to a user’s manual, made up of the length of the table and Long Count dates that correspond to the *lub*, or the entry point in the table.

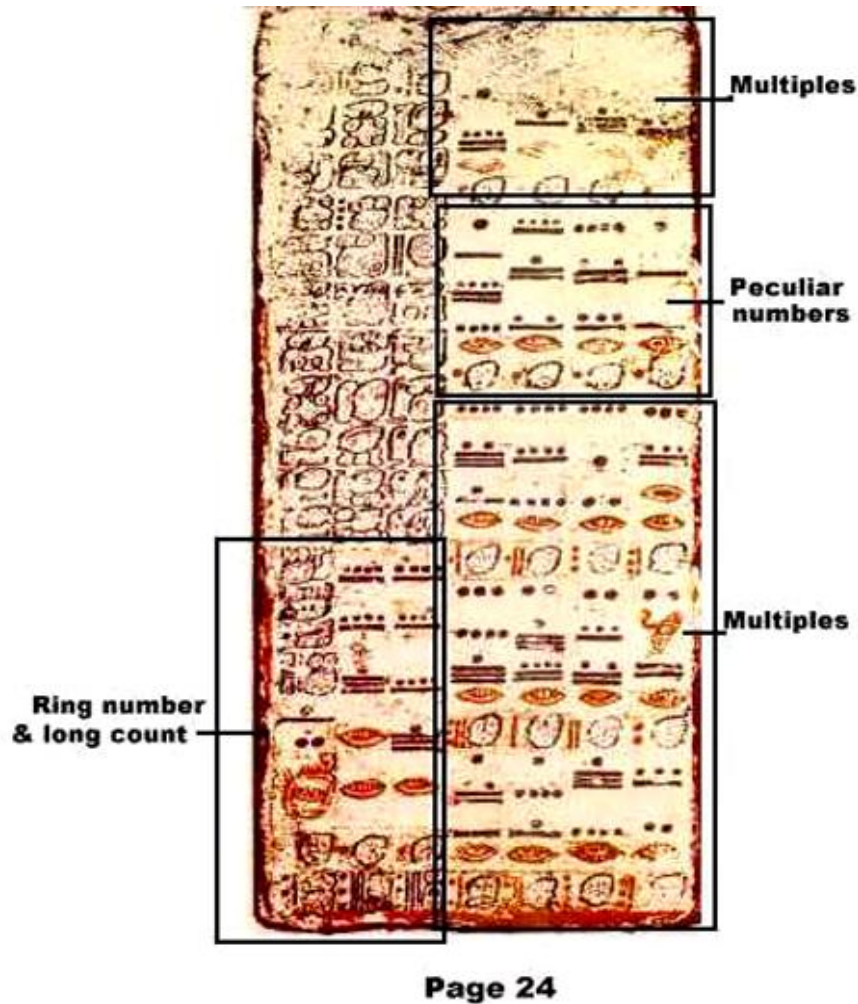


Figure 5: Opening page of the Venus Tables (after Thompson 1972)

The other pages contain information regarding Venus ritual which includes a long chain of important dates in the 260-day calendar associated with the planet along with accompanying pictures. If we examine the remaining pages (Figure 6), the four lower numbers which are written in red, are repeated on all the pages. They read 236, 90, 250, and 8. The black numerals two sections above, represent cumulative totals of 236, 236 (=326+90), 576(=326+250), 584(=576+8), 820 (=584+286), and so on. Förstemann deduced that the numerical value of 584 represented an approximation to the average *synodic period* (the interval between successive

identical configurations of the planet relative to the sun) of Venus. This calculation can also be called the Venus period and the numerical value of 584 days can be subdivided into periods of



$$236 + 90 + 250 + 8 = 584$$

Figure 6: Page 48 from the Dresden Codex showing the numbers that add up to 584 (bottom left)

visibility and invisibility. Modern astronomers have put this number at 583.92 days (Aveni 2001:186). The images on each page constitute various representations of the Venus god (Figure 7), *Kukulcan* (called *Quetzalcoatl* in Nahuatl) spearing different victims (those figures appearing at bottom right).



Figure 7: Kukulcan, the feathered serpent. (after Spinden 1913:15)

In addition to Förstemann, Edward Seler's description also supported the theory that this table referred to the planet Venus (Seler 1904:382-391). He moved the collective understanding further by comparing Förstemann's work with that of several of the known Mexican codices. The Mexican codices are pictorial documents that are some of the only such references we have as original sources of pre-Hispanic cultures. There are two classes of codices: those constructed on deerskin and on paper (before the discovery of America) and those on Maguery or European paper. These codices form a key to our knowledge of the people of Mexico (Saville 1901:534). Seler's eye for iconography was instrumental when comparing the Dresden Codex Venus pages

to the imagery and calendric patterns within the Codices Telleriano-Remensis, Aubin, Borgia, and the Anales de Cuauhtitlan (Aldana 2010). These associations spurred him to depart from Förstemann's view that the Venus Table illustrations depicted the repeated battles between the Sun and Venus. Instead, Seler saw a direct correspondence between the imagery of the Borgia Codex and the description of *Quetzalcoatl's* apotheosis as Venus in the *Anales de Cuauhtitlan*.

The many specific connections between this passage and the imagery and text of the Venus pages have since formed the core of scholarly views of Venus in the Dresden Codex (Aveni 2001:184-196). One of these connections is the recognition that each period of Venus's (in)visibility is associated with a cosmic region such as east (the glyph can be found with directional glyphs represented throughout the pages of the Dresden).

Thomas Barthel made the connection of Venus as one of the planets in the "planetary band" that is depicted on the sarcophagus of Pacal (Figure 8), the king of Palenque (Kelley, Milone 2005:362).

Venus
Glyph



Figure 8: Sarcophagus lid, Palenque, Temple of the Inscriptions (after Closs 1978:202)

The symbols seen on the lid of the coffin represent the seven planets of the ancient world (Kelley and Milone 2005:362). In the number six position is Venus and it is referred to by Barthel as “the star-glyph representing Venus” (Kelley, Milone 2005:362).

Additionally an earlier examination by Seler (1902-1903/1960-1961:17-19) suggested that three dates in the mythical past at Palenque were three dates connected to gods. These three gods could be identified if the dates corresponded with their calendar names. This suggestion is further supported by Kelley, and is now accepted as the births of the three gods associated with

the Palenque Triad, the three temples of the so-called Cross Group of Palenque. They are believed to be representations of the birthplaces of the three patron gods of Palenque. Each temple is dedicated to one of the Triad Gods and given the designated numbers of GI, GII, and GIII (Kelley 1965). The dates and births were recorded as:

| | | |
|------------|----------------|----------------------------|
| 1.18.5.3.2 | 9 Ik 15 Ceh | Birth of GI—Venus |
| 1.18.5.3.6 | 13 Cimi 19 Ceh | Birth of GII—“Jaguar Baby” |
| 1.18.5.40 | 1 Ahau 13 Mac | Birth of GIII—(God K) |

According to Kelley: “Nine Wind (9 *IK*) was the name of *Quetzalcoatl* (the feathered serpent) in central Mexico, the equivalent of Maya *Kukulcan*, widely identified as Venus (Kelley, Milone 2005:363).

In, *Astronomical Knowledge at Bonampak*, Floyd Lounsbury says: “From the Codex we learn also the hieroglyph of Venus, which occurs in two principal variants. These appear to be in free variation, since their selection correlates in no consistent way with either astronomical or textual context. The glyph is composite. Its first component, prefixed or super fixed, is the sign that is otherwise attested as signifying the color ‘red’ and as being phonetically *chac* in Yucatec Maya. Whether the Maya saw Venus as red, or whether the sign was employed here as a rebus for *chac* meaning ‘giant’, is uncertain.” (Aveni 2009:144)

Lounsbury (1971:229) goes on to discuss whether the Maya interpreted Venus as red, or whether *chac* meant ‘giant.’ If we subscribe to the 16th Century Dictionary of Mutal, *chac ek* and *noh ek* each have a couple of meanings: ‘red star’ and ‘great star’. Lounsbury also suggested that the term ‘great star’ is dominant in other Mayan languages, especially as a Morning Star. One would infer, from this, that Venus most likely was referred to as ‘great star’ rather than ‘red star.’ From an observer’s point of view, Venus does not appear red. Its atmosphere is composed of carbon dioxide and sulfuric acid, which makes it highly reflective of the sun’s light. One would see the color of Venus, from a naked eye observation, as mostly white. Only if volcanic activity

spewed particles into the atmosphere would there be a remote chance that Venus had any red coloring. This, then, leads us to the question of the solidity of the Venus translation. If we examine Aldana's epigraphic examination of *EK'*, we shall see that even the translation of the Venus hieroglyph, alone and not in compound form, has been called into question (Aldana 2005:305)—but only by Aldana.

Summary

Venus (*Ek'*) held great importance for the Maya. Found on the pages of the Dresden Codex, as well as celestial bands depicted on pottery, it appears to be a solidly deciphered Mayan hieroglyph. Ernst Förstemann recognized the link between Venus because the symbol is represented in the Dresden along with numerical computations that match the number of days in the planet's mean revolution. These numbers are 236, 90, 250, and 8, totaling 584 days. He linked these numbers to four astronomical positions of Venus, fixed in a Mayan Calendar round. These numbers are linked to the solar year and had a purpose: To bring celestial and human activities into relationship with the sacred almanac. The Venus Tables denote the importance of the planet within the culture's astronomical practices. Venus is depicted on celestial bands with the Sun and the Moon; it is depicted on the coffin of Pakal, (the King of Palenque); the cross group of Palenque, and many other monuments in Mesoamerica. Venus is also associated with *Quetzalcoatl*.

Section 3

The “Shell-Star” Hieroglyph and the Interpretation of Venus Imagery with War



Figure 9: The Shell-over-Star Glyph

According to Aveni, Floyd Lounsbury’s study of the Long Count dates (which measure longer periods of time using a vigesimal scheme) associated with a battle scene in the mural painting on the temple walls of Bonampak may have been the “seed” that started the association of Venus with warfare in the 1970s. This imagery contains the coronation of a ruler alongside scenes of warfare (Aveni 1997:129). Lounsbury determined that inscription dates on the murals of Bonampak were associated with Venus. He suggested that these dates match actual morning heliacal (first visibility in eastern horizon) risings as seen from that site in the eighth century A.D. (Aveni 1997:129)

Ian Graham was the first to elaborate on the idea that the “shell-star” glyph was related to Maya warfare (Graham 1967:14). Referring to the Naranjo date 9.9.18.16.3 7 Akbal 16 Muan: “The reading for this Shell-Star glyph is “war at Naranjo...because of the infixed Naranjo Emblem Glyph, the reading is strengthened by a similar glyph in verbal position at Dos Pilas Stella 16.” (Graham1967:14). In 1978 Mathews “accurately” deciphered its meaning as a verb signifying an act of war (Reents 1980:10). Later, Linda Schele and David Freidel (Schele and Freidel, 1990:130) coined the term “star-war” in their descriptions of war events that were related to the planet Venus. Ever since, numerous scholarly accounts of the glyph are connected

with Maya war. The following includes a sample of references purporting a connection of Venus to Maya warfare.

“...Their competition, which is the focus of our next story, was resolved violently in A.D. 378 by means of an innovative type of warfare we call Tlaloc-Venus war, or sometimes simply “star wars.” (Schele and Freidel 1990:130)

“Soon after they adopted this kind of war, which we shall call Tlaloc-Venus war, the Maya began timing their battles to particular points in the Venus cycle (especially the first appearance of eveningstar) ...” (Schele and Freidel 1990:147)

“Most of all, decisions about when and where to do battle became tied to the cycles of Venus and Jupiter. It was a kind of holy war timed by the stars.” (Freidel, Schele and Parker 1993:296)

“Initial work by Kelley (1977), Closs (1979) and Lounsbury (1982) established that these compounds frequently correspond to key points in the cycle of Venus, whilst Riese (1984a) first demonstrated that many are also linked to acts of war (over eighty percent can now be connected to such engagements). It seems clear that the malevolent nature of Venus we see in Post-Classic sources, such as the Dresden Codex, has some application during the Classic, and that the Maya timed certain military campaigns to coincide with celestial events. (Martin 1996:1)

“I have focused so intently on the Maya worship of the planet Venus for two reasons, first, to give an idea of the depth of Maya astronomical calculation and prediction, and second, to offer clues for finding representations of the planet in the unwritten record. Given the importance the Maya accorded it, we ought not be surprised to discover Venus imagery turning up in sculpture, statuary, and mural paintings all over the Maya area and beyond. In these contexts we discover that one of the primary directives of Venus watching concerned the conduct of war.” (Aveni 1997:128-129)

“Initiating the first episode of widespread war at Caracol is a *ch'ak* event, most likely a battle (in our estimation) carried out by Tikal against Caracol in A.D. 556. This was followed in A.D. 562 by a full-blown star-war against Tikal....A star-war against Naranjo is recorded in A.D. 631 and again five years later. That the star-war event had a major impact on Naranjo....” (Brown and Stanton 2003:177).

“Lounsbury’s paper on Maya dates inscribed at Bonampak demonstrates the tight fit between dates of actual (or ritual?) battles’ and the appearance of Venus at its celestial stations. His work

demonstrates the extremes to which some ancient people could be guided by the stars.” (Aveni 2009:9)

“There is now very good evidence that warfare loomed large in the minds of Maya rulers and their chroniclers. A possible glyph for war has been identified, which consists of the glyph for Venus above glyphs representing a shell, the earth, or the name of a site.” (Bricker 1995:225)

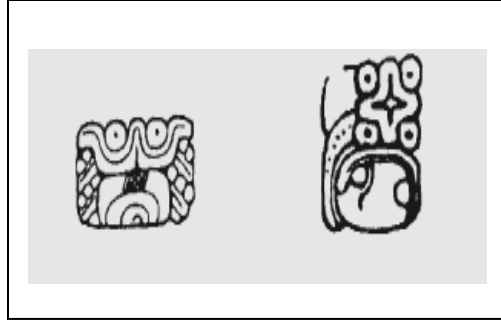


Figure 10A and B (after Bricker 1995:226)

Closs (1978) discusses the “shell-star” glyph at length in *Third Palenque Round Table*. Two of the most common star compounds (the hieroglyphic sign for Venus coupled with another hieroglyph such as the shell) are called Earth Star and Shell Star. These two forms of star compounds *are* related, according to Closs (1978:148). In figure 11, The Vase of the Seven Gods (the vessel shows six gods seated with crossed legs) depicts many occurrences of Venus-related inscriptions.

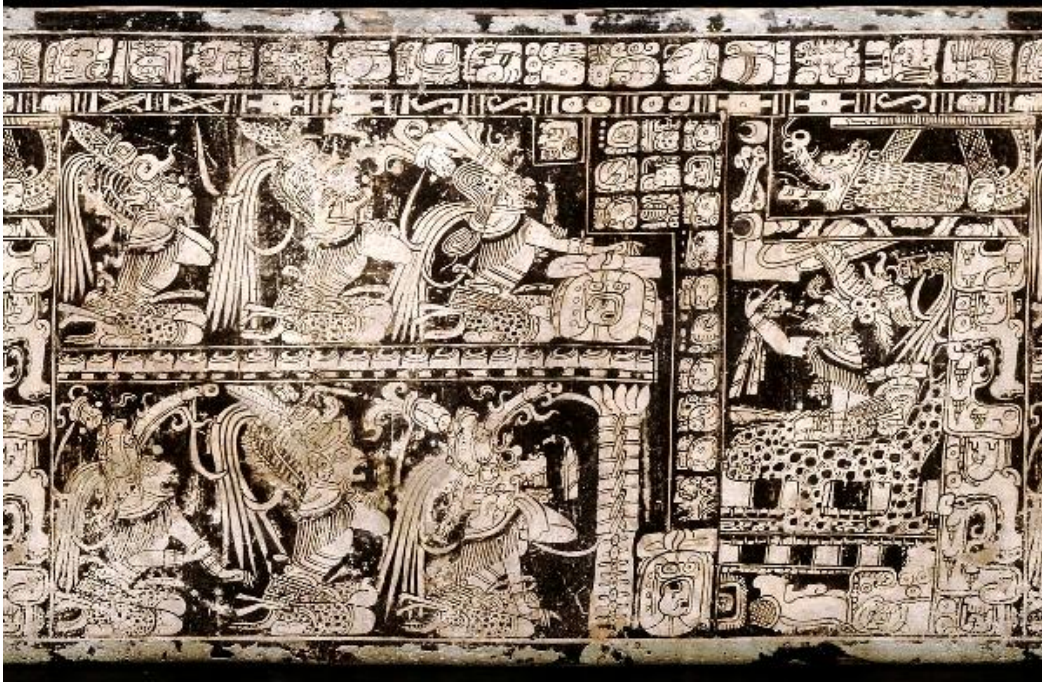


Figure 11: Vase of the Seven Gods (Found at Naranjo)

There are seven gods in a sequence that starts with the seated deity. Traveling right to left along the upper row of gods, we see that the principal deity is Deity 1, who is seated on a jaguar throne; he is called God L. The earth/shell star glyph appears at the foot of God L's throne and another is seated in front of Deity 2, who is depicted with his hand resting on top of the glyph. God L and Deity 2 are twins and Closs suggests that the earth/shell star glyph is associated directly with them. Coe (1973) suggests that the picture on the Vase of the Seven Gods occurs in the underworld. The upper section (figure 11 above) of glyphs is a "primary standard" text, which can be seen on many vases. Below is the sky-band consisting of repetitions of five signs: Imix, Crossed-bands, Kan-cross, Lazy S and Venus. Closs suggests that the absence of symbols for the sun and moon means that the Venus symbolism is meant to be emphasized. Just below the Venus sign is a secondary text which opens with the Calendar Round date 4 Ahau 8 Cumku, the

base date of the Maya Long Count. The date ties the vase very closely, argues Closs, to the Dresden Venus Table (Closs 1978:151).

God L is also in the Venus table of the Dresden Codex. He is displayed as a black deity who appears as a manifestation of Venus on page 46. (Figure 12) His spears symbolize the death-dealing shafts of light that emanate from the planet Venus as heliacal rising after inferior conjunction (Closs, 1978:150).



Figure 12: Page 46 from the Dresden Codex depicting God L (upper right of page)

We see the same date recorded on page 24 (the introductory page) of the Table in the Dresden (Figure 13). The date is followed by a verb and then the name glyph of God L, which includes the Venus title.



Figure 13: Page 24 of the Dresden Codex (after Thompson 1972)

Deity 6, according to Coe, is God GI (short for “god number one” because we don’t know his actual name) of the Palenque Triad (Coe 1975:14). He is depicted with long ‘barbel-like’ whiskers and a thorny oyster shell that covers his ear. There is a decorated Ahau (political ruler) with a numerical coefficient of 1 directly above his head, showing that 1 Ahau is a title most likely connected to G1 (Coe 1975:14).

Thompson (1970:250) suggests that the date may have been used as a collective title of the Venus gods. In this connection, notes Closs, there is an *ek* glyph in the brief text inscribed on the Vase of the Seven Gods. Closs states that the birth date of GI is the day 9 IK (9 Wind)—the birth date of *Quetzalcoatl*. Closs indicates (1978:151) that deities 3 and 4 are Venus gods as well as deity twins and they wore a conical hat of jaguar skin, considered, likewise to be an important attribute of *Quetzalcoatl* in the Codex Borbonicus and Codex Magliabecchiano (Closs 1978:151). Closs goes on to say:

“There is a rather peculiar relationship between God L and some of the Earth Star glyphs which may be significant. In his appearance on the vase, God I is shown with so called jaguar spots around the mouth. This is appropriate enough for a Venus deity since there are references in the Books of Chilam Balam to “jaguar faced 1 Ahau with the protruding teeth.” However, this feature is most frequently found as an identifying trait of the god of the number 9. It is therefore interesting to observe that the Earth Star glyphs in Figure 21 and on the Vase of the Seven Gods have an apparent coefficient of 9.” (Closs 1978:148, 151).

What were Closs’s interpretations of the earth/shell star hieroglyph as of 1978? The main elements of the hieroglyph compound are the *ek* glyph that symbolizes “star” or “Venus” and the *cab* glyph signifies “earth.” He suggested that *Cab* (Figure 14) maintains the alternate meaning of “bee” and “honey.”

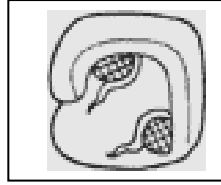


Figure 14: *Cab* (after Montgomery 2005)

“Since Earth Star almost certainly refers to Venus, it is reasonable to attempt a decipherment by seeking Venus titles conformable to the structure of the glyph. The form of the glyph suggests the reading *Cab Ek*, “Earth Star,” “Bee Star” or “Honey Star.” The Motul dictionary suggests similar term *Xux Ek*, which translates to “Wasp Star,” as a name for Venus as morning star. (Closs 1978: 152)

According to Closs, there is a detailed description of the Maya word *Xux* suggested by Ralph L. Roys in *Lexico de la fauna Yucateca* of Santiago Pacheco Cruz:

“Wasps, well-known insects whose sting caused inflammation. They construct their nests on the branches of trees and the eaves of houses. The nests are called *u pak xux*. Their honey and the young wasps are edible.” (Closs 1978: 152)

Closs argues that this reference to the “edible” honey of the wasps provides a link between the suggested *Cab Ek* and *Xux Ek*. There is also, says Closs, “evidence which favours a relationship of bees with *Xux Ek*” (Closs 1978: 152). More of this argument can be seen on page 152 of the Third Palenque Round Table Volume IV (Closs 1978:152).

Closs linked the Earth Star with the Shell Star throughout his examination of the glyph(s) mostly because the two often appear together (Figure 15).

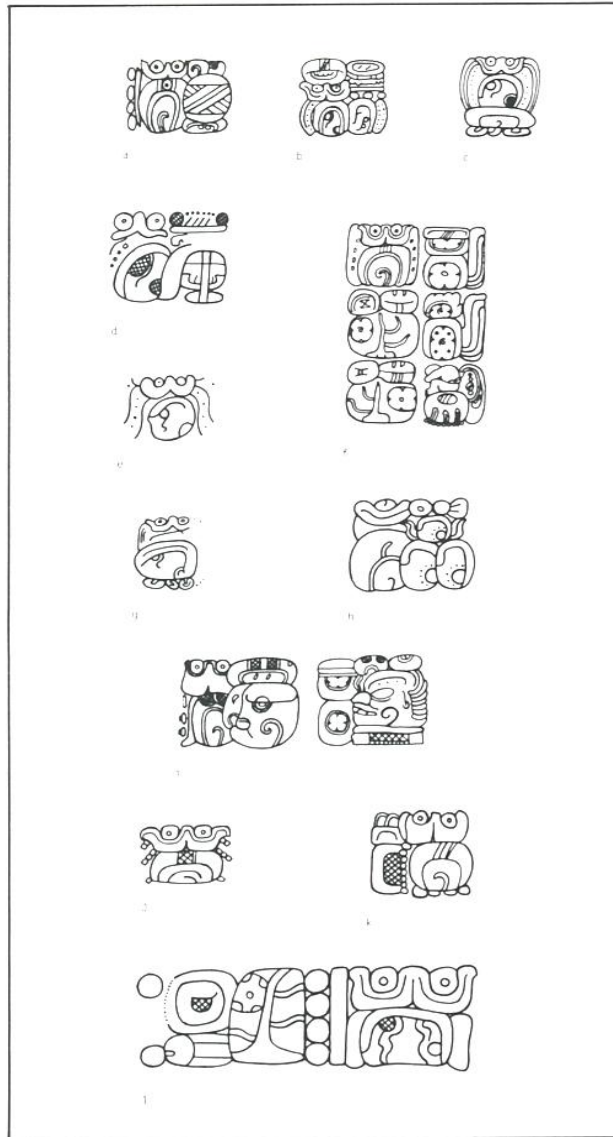


Figure15: Closs's Earth and Shell Star glyphs from the inscriptions (after Closs, 1978:148)

He goes on to suggest that the Shell Star should be read as *Box*, which is a general Mayan word for shell. He suggests that Shell Star, then, can be read as *Ek Box*. The Yucatec words *ek* and *box* both carry the additional meaning of “black”. Closs suggests that it may have been a term for a ‘black Venus god such as God L (Closs 1978:152-153). Gods L, M, Y and Z (gods depicted in the codices) form a closely related group of black deities. God L functions (as noted above) as

a Venus god. There is scattered evidence, Closs notes, that these black gods all have Venus affiliations (Closs, 1978:153). Thompson suggested that the *Ek* in the name of *Ek Chuah* may refer, not to his black color but to “star”, this provides another clue to the initial interpretations of the term. If *ek* signifies “black,” “star” and “Venus,” then it may, argues Closs, carry all three connotations simultaneously. When used in the star compound (the “star-war” glyph), the author believes, then we need to pay close attention to the fact that *ek* could refer to one of the other terms rather than Venus. Closs provides an explanation which may lend support for the black color of the Venus gods; He proposed that the body and face of *Kukulcan* was painted black because he was the pre-eminent priest and the originator of self-sacrifice which consisted of drawing blood from the ears and other blood gorged parts of the body. He also argues that related practices were discovered among the Maya—when the Maya fasted they blackened their faces with pine-torch soot and drew blood continually from their bodies (Thompson, 1970:172). Closs notes that Diego de Landa made reference to the practice of fasting as well, but Closs does not expand on the statement (Closs, 1978:153). There may have, however, been times when the Maya were just referring to *ek*, when in compound form, as ‘black’ or ‘star’, if so, this is important. This lends more evidence that the Maya, when discussing the “star war” glyph may not have been discussing Venus at all, especially in those cases (as Aldana has noted on his Venus Round, pg.64) where Venus was not present at all during a so called “star war” event. While Closs provides many interpretations of the glyph, there is no reference to war in his examination of the “shell star” glyph. It is thus vital that we go back and scrutinize initial translations of hieroglyph to gain a better translation.

A common characteristic shared by all Mesoamericans groups was the horizon-based system of astronomy (Aveni 1977). Significant aspects of Venus are the heliacal (the first annual

morning or pre-dawn appearance of the planet) risings of Venus after inferior (Venus passes between Earth and the Sun) and superior conjunction (Venus passes behind the Sun as viewed from Earth), the greatest eastern and western elongations of Venus from the sun, periods of greatest brilliancy, and intervals of retrograde motion centered at inferior conjunction (Aveni 2001:83). Venus's brightness increases until about a month after its first appearance when it reaches a maximum far point exceeding that attained by any other of the planets, and shines brightly in the eastern sky an hour before the dawn. Closs gives a detailed analysis of the mean position of selected points of the Venus cycle (measured from inferior conjunction) (Closs 1978:154). He goes on to show Gregorian positions and Venus day numbers of Earth and Shell Star dates according to the Thompson (Closs 1978:155). Thompson calculated these numbers from the tables of Tuckerman (cited from Closs, 1978:155). There are only two dates which exhibit a relationship associated with greatest eastern elongation (elongations occur when an inner planet's position, in its orbital path, is at tangent to the view from Earth): one from the Temple of the Inscriptions at Palenque (which is about 9 days before greatest eastern elongation) (Figure 16).



Figure 16: A passage from the Middle Tablet of the Temple of Inscriptions considered to be a record of the maximum elongation of Venus (after Aldana 2005)

The other inscription is from Throne 1 at Piedras Negras (an event that occurred about 3 days after greatest eastern elongation). Closs notes (1978:155-156), however, that “in order to appreciate the accuracy of these estimates it has to be realized that in a 10 day period near greatest eastern elongation, the relative distance between longitudes of Venus and the sun changes by less 0.4 degrees while the relative distance itself is more than 45 degrees. In fact, for several days near greatest eastern elongation Venus will appear stationary with respect to the sun.” Closs (1978), again, examines these facts in great detail, and includes additional dates (1978:155-156). Because Closs does not provide any reference to war in *his* analysis of the “shell star” glyph, we need to reexamine if Venus was visible during all of the star war dates.

Where do we see the star compound in the Maya inscriptions? According to Closs, it is rare to find the star compound (a compound is two or more Mayan words put together, the star compound typically involves the sign for Venus) in the inscriptions (Figure 17). In addition to the mentioned above locations, it can be found in two texts from Copan.



Figure 17: The Star War hieroglyph (after Montgomery 2005)

Altar R (figure 19) at that site associates Venus with an important date of that city which is believed to be the inaugural date of a ruler who took the astronomical name of “New-Sun-At-Horizon.” (Kelley 1977:70)

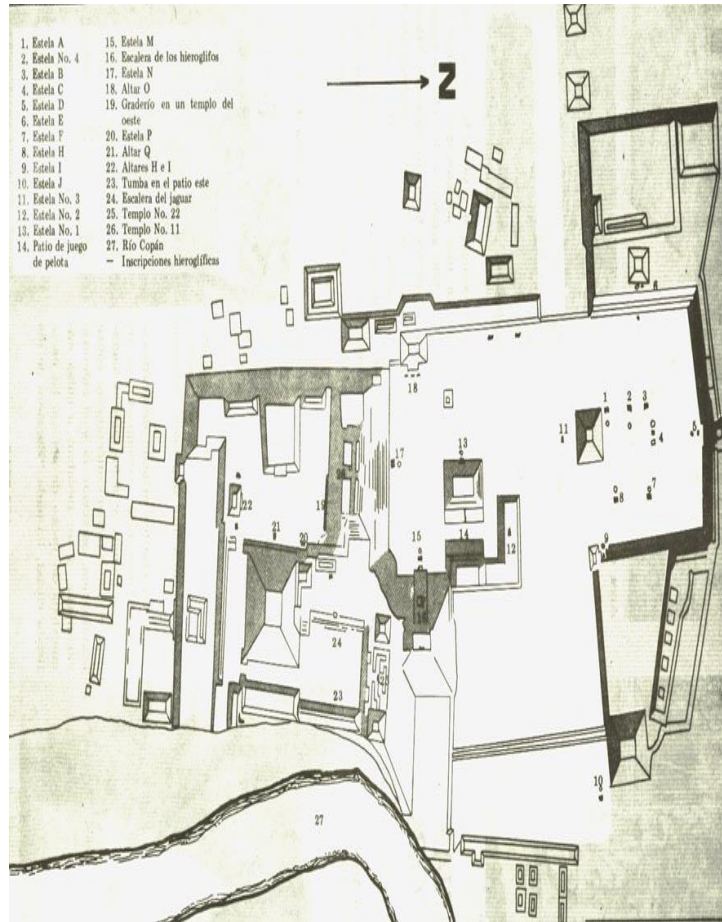


Figure 18: Map of Copan



Figure 19: Altar "R" at Copan. Read from top left to right (after Closs 1978)

The date does not reveal a significant Venus position, but may be significant in that the Venus glyph is preceded by a moon glyph which is preceded by a glyph whose main sign is *mol*, which means ‘to join together.’ Kelley (1977:70) suggests that this passage may refer to Venus in conjunction with some specified lunar position. Venus and the moon were in astronomical conjunction (having the same celestial longitude) within a few days of the given date (Closs, 1978:156-157). This is not particularly notable, however, since this phenomenon can occur almost once a month. An occultation—The passage of a celestial body across a line between an observer and another celestial object (like another planet or a star)—on the other hand, is a rare configuration and it may have occurred near the date in question (Closs 1978: 157).

Temple 11 is the location of the second star compound (Drawing by Linda Schele) at Copan (Figure 20). The associated date is read as 5 Cib 10 Pop (Figure 21). According to Closs, this date occurs at the termination of the retrograde (the point when a planet appears to move backwards on its orbital path) motion of Venus following an inferior conjunction.



Figure 20: Temple 11 at Copan (photo by author)

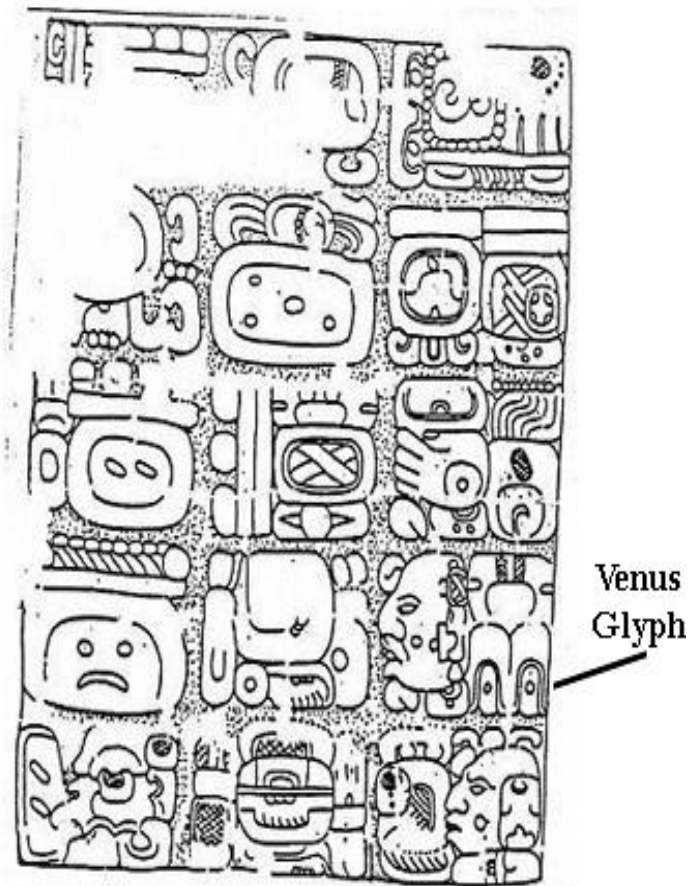


Figure 21: Linda Schele's drawing (Venus glyph second from bottom right) of panel at Temple 11. (Aldana, personal communication)

I have included data collected March 21, 2010 of the view (Figures 22 and 23) of sunset as seen from $14^{\circ} 50.272$ N, $89^{\circ} 08.460$ W (elevation of 2047 feet) from Copan (image shows view of the sky from Temple 16 (that I will refer to as T-16) located directly near Temple 11 (T-11) (I used T-16 because there were too many, very tall, trees thwarting my view from T-11).

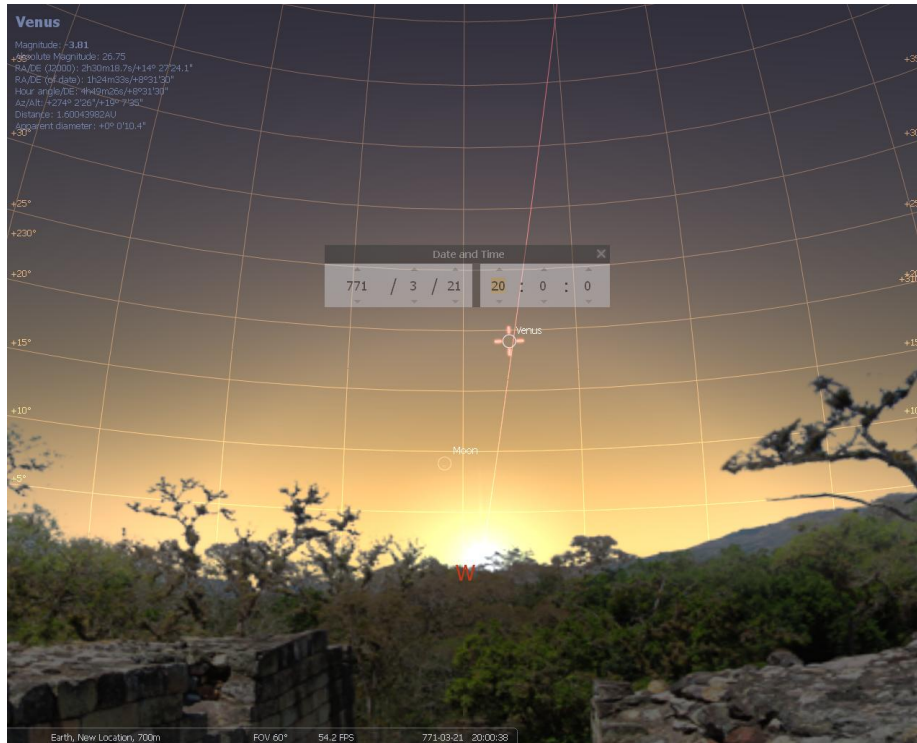


Figure 22: Image of sky as it appeared 771 A.D. (The date of the Venus inscription on T-11 at Copan). Western horizon as viewed from T-16. The Sun is setting and Venus (highlighted with pink marker) was also setting and they were both directly lined up with an east west passage on the top of the temple. Panoramic Image converted into Stellarium Sky Program by author

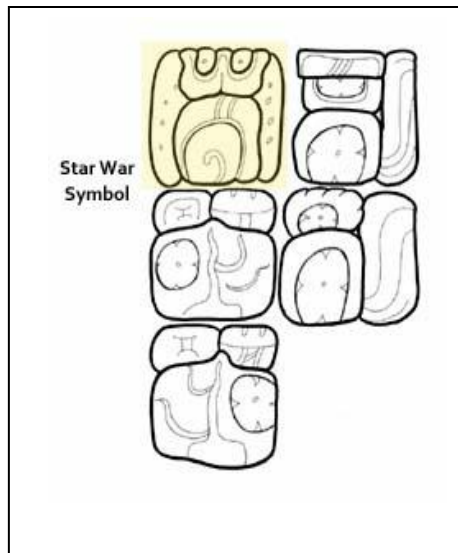


Figure 23: Close up of figures in top left of Figure 22

The inscription on one of the panels of T-11, already depicted on page 39, is one of eight located inside the very top section of the Temple. A number of scholars are working on the

translation of the panel (including the north/east panel depicted). I have been in conversation with Martha Macri regarding the complete translation, but she has suggested that because there are badly worn areas on the panel, we may never know the complete message. Additionally, I did not find the Venus panel at T-11. My plan is to continue investigations of the panels and contact others who may be working on the translations; in addition, I would like to continue corresponding with Macri on the matter. Additionally, I did not see the panel at the Copan Museum. My conclusion at this time, based on correspondence with Macri, and having little skill in decipherment of Mayan hieroglyphs, rests on the fact that these panels still are not fully deciphered; therefore, we do not have a solid translation of the two Venus hieroglyph compounds.

Another Example of the “Shell-Star” glyph can be found in the Middle Panel of the Temple of the Inscriptions, Palenque, the inscription opens with the same “shell star” glyph already depicted on page 38 — (figure 16):



Following the “shell-star” glyph is the glyph for East and then one of unknown meaning (the glyph located in the upper right corner). Next we see the West glyph (located under the Venus glyph), and the text closes with a glyph which includes a headless body (bottom symbol) found elsewhere in astronomical contexts.

“The glyph of unknown meaning which follows the directional glyphs has T559 [Thompson’s catalog number for directional glyphs, page 359, Schele] as its main sign and carries the super-fix T168. Lounsbury has demonstrated that T168 is to be read as *Ah*, *Ahpo* or *Ahau*, all of which may be translated as “Lord. The glyph also contains a *kin*, “sun,” infix which appears on different sides of the main sign in the two occurrences of the glyph. The only other instance of T168:559 containing a *kin* infix is found on the East Panel of the Temple of the Inscriptions. The other occurrences of the compounds are found in the codices.” (Closs 1978:159).

According to Closs, the T168:559 glyph appears twice and seems to be related to an astronomical passage opening with a Venus glyph. The same depiction can be seen on page 24 (the introductory page) of the Dresden Venus Tables. The same clause also appears twice in the Dresden lunar table, once on Dresden 53a and once on Dresden 58b (Closs 1978:159).

Summary

There were several early references to Venus that may have initialized the association of Venus to warfare; Lounsbury’s study of the long count dates (found at Bonampak); Ian Graham’s association of the “shell-star” to Maya warfare; and Matthews, Schele and Freidel who began to freely use the term in their research. Depictions of the Venus compound that contain two or more hieroglyph’s can be found in the Dresden Codex, on the Vase of the Seven Gods (also depicted in the Dresden), at text panels in Copan, and many other Mesoamerican sites. The glyph appears, also, to be closely connected to various deities such as God L. Some of these deities are portrayed holding spear(s), which represent ‘death-dealing’ shafts of light that

emanate from the planet. These shafts of light appear to be linked to the heliacal rising of the planet. The Venus war glyph can also be found on the Middle Tablet of the Temple of Inscriptions at Palenque, (which exhibits a relationship associated with greatest eastern elongation of the planet). Venus is connected to the birth date of *Quetzalcoatl* (the feathered serpent) and appearing in the Codex Borbonicus and the Codex Magliabecchiano (Bricker and Bricker 2007:108). Venus deities are also found in the Books of Chilam Balam. Early interpretations by Closs, are *Ek'* (star or Venus), but there are also other affiliations for *Ek'* such as “black”. Also, the other glyph that Venus appears with is *cab* which means bee or honey. In the Dresden Venus Tables, the planet is often coupled with directional glyphs.

There are several factors that contribute to the author’s cautious view of the solid translations of the “star-war” compounds; First, there are relatively few fully deciphered “star-war” compounds to begin with, and some of these are worn down and difficult to see. Second, if we look at Closs’s interpretations of the compound, there are a few different interpretations. Third, after Graham (1967), Matthew (unpublished work 1977), Schele (1982), Schele and Mathew (1998) and Schele and Friedel’s (1990) tentative decipherments of the glyph, other scholars followed suit without question and began to freely use the term. Assuming the association to be valid, scholars began to search for a statistical correlation between the appearance of Venus and warfare.

Section 4

Statistical Methods and Numerical Claims

Below I present quotes of scholars who assumed argument that there was statistical validity to the war/Venus association.

“The date of the Uaxactun conquest, January 16 A.D. 378, has no astronomical significance that we can detect, but this event is also the earliest known appearance of the international war ritual. The astronomical associations may have come later and then spread to other societies using this type of warfare... Certainly, the association clearly had been made within forty years of the conquest because two related events in the reigns of the next two Tikal kings, Curl-Snout and Stormy-Sky, were timed by astronomical alignments.” (Schele and Freidel 1990: 147)

“The *EK*’ portion of this compound has been identified throughout Classic art, inscriptions, and iconography in the two variations used in the thirteenth-century Dresden document. Both variants have often been read as specifically standing for the planet *Chak Ek*’, although Kelley (1980) has noted in passing that the strict identification of *EK*’ with the planet Venus is “inaccurate.” (Aldana, 2010 n.d.)

“Too much of what continues to be written about Maya calendars and astronomy is based upon ideas that were originally formed nearly a century ago and the basis for these beliefs has not been reinvestigated. For example, the “Star War” events almost certainly have no connection to astronomy at all. People got caught up in the fact that this was a war verb that utilized the star symbol, but there is actually no reason to believe this is a reference to an astronomical event at all. Let alone a connection to Venus.” (Guenter, 2010)

The last quote is part of a series of responses from an ongoing conversation between Johan Normark, Gerardo Aldana, and Stanley Guenter contained in a blog (<http://haecceities.com>) accessed online. Guenter believes that the “star-war” glyph most likely had little connection to any astronomical event what so ever. According to Guenter, “The ancient Maya obviously believed that stars could rain down misfortune on certain people and kingdoms, but this doesn’t

mean that the Maya organized their warfare by the cycles of Venus or meteors or anything of the sort” (Guenter 2010 <http://haecceities.com>).

Gerardo Aldana argues the explicit connection between the “star-war” glyph and the timing of Venus is flawed with statistical claims (Aldana 2005:307). He suggests that scholars have relied on statistical methods (including “numerical coincidence”) to support their claims. Let us now examine how he challenges the results of these claims. First, I examine the iconographic evidence. Then, I review his argument for the use of historical contexts (Aldana incorporates all known “star-war” events onto a Venus round diagram) of the rulers themselves who engaged in “star-wars” to see if they subscribed to timing warfare to the appearance the Venus. Finally, I will discuss his suggestion of an alternative approach to looking at the “star-war” in a new interpretation of the symbol.

Here is the opening quote of Aldana’s 2005 article “Agency and the Star War Glyph: A Historical Reassessment of Classic Maya Astrology and Warfare” in (*Ancient Mesoamerica*), which sets up the critique of the (association):

“An important question facing scholars investigating the ancient past is the extent to which intellectual activity may be recovered from the archaeological record by statistical means. If, for example, we look to studies of ancient European astronomy, we confront arguments for astronomical knowledge embedded in archaeological remains that rely entirely on statistical patterns. In 1981, Anthony Aveni provided a very poignant caveat to such treatments. Using the ceque lines of Cuzco, for instance, Aveni demonstrated that statistical treatments can prove misleading, if not completely wrong. In this case, statistical attempts to correlate the numerous ceque lines to astronomically observable phenomena require a conclusion that no association exist whatsoever. Nevertheless, in consulting ethnohistorical records, Aveni encountered a number of statements clearly designating an astronomic inspiration behind some of these lines. And some of these served very important calendric functions for the ritual and agricultural life of the city. Thus, Aveni presents a case in which the idiosyncrasies of history directly contradict the generalizations of statistics. As he concludes, “In Andean archaeoastronomy, ethnohistory does not confirm orientations—it generates the hypotheses and rationale for conceiving of them in the first place” (Aldana 2005:305)

Maya studies allow us to go beyond ethnohistorical inspiration and look at actual records that allow us to critique statistical approaches to reconstructing intellectual activity. Aldana challenges what Schele, Freidel, Closs, Kelley, Lounsbury, Aveni, Hotaling, Nahm and others have asserted concerning the meaning of the so called “star-war” symbol— All of these scholars have suggested that the verb containing an *EK*’ (star) element *is* related to Venus and Maya warfare, but Aldana believes that this “star-war” connection was built on a flawed statistical suggestion. Scholars using these statistical approaches incorrectly assumed a correlation when statistically there was none. We may, instead, examine proclamations made by the rulers themselves who commissioned the recording of battles using the “star-war” verb. (Aldana 2005:305). “This approach places the burden of proof on the beliefs and activities of individual people, thus by-passing appeals to the statistical revelation of cultural attitudes.” Overall, Aldana argues that the rulers did not associate the idea behind the “star-war” verb to Venus. He goes on to open up dialogue regarding a suggestion by David Stuart. Stuart (cited in Aldana 2005) notes that meteoric phenomena (a theory that I will examine by cross-referencing Aldana’s noted war events with annual meteor activity) may be linked with the verb (Aldana 2005:305).

The correlation between Venus and the “star-war” glyph may be the result of methodological “trends” in modern archaeoastronomy, such as the use of statistical correlation, and not a “product” of the astronomy practiced by the Maya. Aldana notes:

“This shaky foundation can be found in the works of Aveni and Hotaling 1994: S21-S54; Coe 1993:189; Kelley 1977:57-74; Lounsbury 1982:143-169; Martin 1996:223; Nahm 1994:6-10; Schele and Freidel 1990.” (Aldana 2005:306)

He notes that Coe has provided a good example of how the interpretations of the Maya culture are linked to perspectives of the archaeologists—especially since Maya inscriptions have only

recently been deciphered (decipherment of the texts began to flourish in the 1970s). Aldana used the example that before this, and for some five decades earlier, American scholarship portrayed the Classic Maya as a “humble collection of milpa farmers led by pacifistic priests obsessed with time and the celestial bodies” (Aldana 2005:307). The decipherment of the Dresden Codex, which entails tables charting the phases of Venus, eclipse periods of the moon, at the time, supported the interpretation of a pacifist ideology. The acceptance of this ideology led scholars like Kelley and Tedlock to investigate whether the dates recorded on the ancient monuments were separated by intervals corresponding to astronomical cycles such as the rise and setting times of Venus (Aldana 2005:307). According to Aldana, “in many cases” these observations could have ascribed standardization or intentional periodicity to coincidences of numerical factorizations; in other words, warfare may have taken place while Venus was visible, but that does not necessarily mean that the Maya rulers selected that particular war event to coincide with the appearance of Venus. Venus is visible throughout most of the year, therefore, scholars attempting to correlated warfare with the appearance of the planet were able to do so easily. Aldana goes on to note that to “pre-decipherment Mayanists, when this approach was successful, even more support was given to the idea of numbers and astronomical content, with still little understanding of the hieroglyphic content.” Ernst Förstemann suggested that the glyph “couplet” that appeared through the Venus Table appeared to be linked to the planet Venus (Aldana 2005:307). Thompson, according to Aldana, demonstrated that *Chak Ek'* (purported to mean “great star”) is the name in both modern and colonial Maya languages for Venus, and that “it corresponds nicely with Förstemann’s glyph couplet” (Aldana 2005:307).

Kelley, Closs, and Lounsbury noticed that the occurrence of many of the representations of the verb corresponded to Venus events. These scholars sought astronomical cycles within Classic

period inscriptions with “little regard for context” and referred to *Ek'* as *Chak Ek'* (Aldana 2005:307). The work of these scholars helped lay the foundation of the warfare/Venus connection (or, in Aldana’s words “perpetuate the trend”) when the decipherment of the hieroglyphs was just taking root. This was a time when scholarly critique focused less on the use of iconographic based methodologies. Aldana believes that Schele’s work further fueled the fire using Stephen Houston’s Long Count research on the Bonampak text in Room 2. Room 2 depicts a battle that took place on August 6, 792 AD, and the presentation of captives presided over by a ruler of Bonampak. The painted cartouches refer to a series of astronomical phenomena that were visible in the night sky. “Houston believes that the day sign depicted clearly is not *Chikchan*, as Lounsbury had read it” (Aldana 2005:307). But Schele argued that *Chikchan* was still a possible translation, and this, according to Aldana, supported her translation of the text. Without the *Chikchan* reading (in this case an epigraphical error), the “star-war” interpretation is not warranted. It appears, however, that the interpretation was already entrenched and, in his words “was already too great to be slowed for complete cautious reassessment” (Aldana 2005:307).

If we examine the body of technical literature that currently supports the “star war” interpretation, by first looking at the *ek'* glyph as Venus, and then compare it to the interpretation of the “star war” verb, we see that the identification of Venus with *Ek'* originated, following Aldana, in the interpretations of the Dresden Codex (Aldana 2005:307). The phases of Venus are connected with a “formulaic” glyphic text. “The compound *Chak Ek'* occurs in each column, but sometimes the *Chak* prefix is dropped. According to Aldana, “Scholars have noted this “substitution” and argued that *Chak Ek'* and *Ek'* must be equivalent and that both served as proper names for Venus” (Aldana 2005:307). But Aldana believes that there are a couple of

factors that argue against this argument, along with an additional variable that makes the association even more unlikely.

The first argument is one of context. Maya scribes who recorded the name of a specific planet over and over were bound to refer to the planet as “the planet” –especially in the Dresden, where the writer was writing about “the star”, or “the great star.” Aldana suggests that since the writer most likely was not writing for a public audience, he employed “economy of words.”

“This is all the more forgivable in the Dresden Codex, when the difference amounts to the writing of “the star” for “the great star.” Since the author of the manuscript was not writing this for a public audience (or possibly for anyone other than himself), such economy of words is not far-fetched but expected” (Aldana 2005:307).

Aldana’s second argument involves the Eclipse Table, directly after the Venus Table in the Dresden Codex. The Eclipse Table contains a number of scribal errors regarding eclipse computations. For instance, page 53 discussed the sequence of 177, 353, and 502 but instead says the sum of 177, 177, and 148 but it should have said 177, 354, and 502. They claim that this was a copyist’s error and that this error is isolated and does not appear throughout the rest of the table (a rolling computation). The scribal error allows for an alternative possibility that “the occasional omission of the *chak* prefix in the Table was an oversight (Aldana 2005:308). Finally, Aldana notes that Barbara Tedlock suggested that in modern K’iche and Colonial Yucatec languages, all the planets were called “red stars” (“red star” in this case is a planet) (*kaqch’umil* and *chachac ek*)—this, suggests Aldana, is a possible translation of *chak ek’*. He also goes on to note that even though we might invoke reference to another celestial body, Venus is the only one that has the orbital period numbers listed above, so we are sure that the table itself does refer to Venus in particular (Aldana 2005:308).

Aldana goes on to note, however, that there is more reason to deny the identification of *EK’* with *Chak Ek’*, claiming that there are instances of the *ek’* glyph that argue for the reading, more

generally, as “celestial body.” In Bonampak, and at Copan (in Structure 10L-22), for instance, we see patterns of multiple *ek'* signs in one iconographic construct that implies the constellations were being referenced. Aldana suggests that this is how Schele and Lounsbury interpreted them in their identification of the peccaries and the turtle in the Bonampak murals (Figure 24). In other words, as in the example of Kelley and Tedlock, certain instances of *ek'* should not be associated with Venus, rather, as discussed in Closs’s example, *ek'* could have just meant ‘star’, or even the term ‘black’ (Aldana 2005:308).

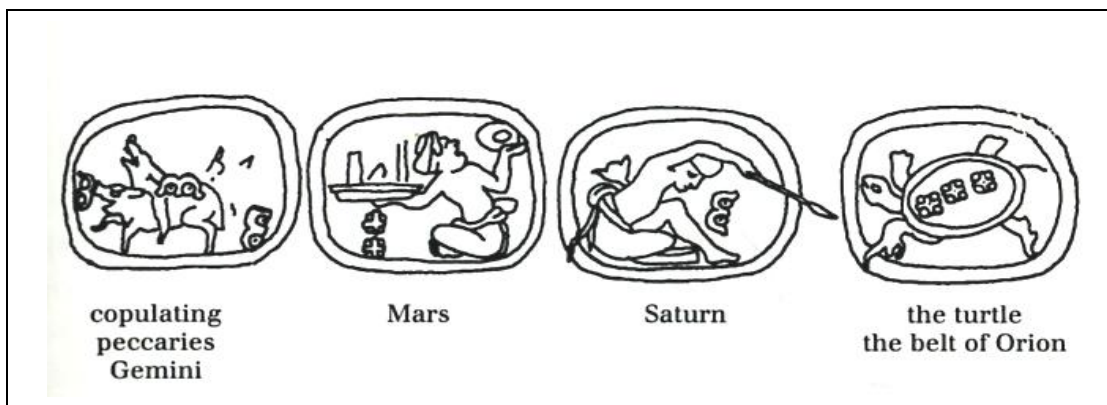


Figure 24: Bonampak’ cartouche drawings by Linda Schele (after Freidel, Schele, Parker 1993:81)

Schele and Lounsbury also agreed with Aveni and Closs who both argued that the placement of the *ek'* icon in a figure is linked with the planet Venus (Aldana 2005:308). Aldana counters, that the scribes were more meticulous than these arguments indicate. He claims that when depicting a celestial or divine being’s identity, the scribes represented them with a headdress or mask and that the markings elsewhere on the entity were meant to be representative. For example, water icons meant that the body was made of water; “*kawak*” (stone) markings denoted that the object was made of stone. If we employ this logic, says Aldana, the *EK'* markings should indicate that a body was composed of celestial “stuff” (Aldana 2005:308).

But the “star” glyph shows up in at least three name sequences that argue against its having dual identity. One example is the mother of *Tum Ol K'inich* depicted at Caracol as *Na Batz' Ek'*. The next example is an early Classic jade ornament, which depicts the name of a god as *Sak' Ik' Muyal [?] Ek'*. Another example is a late Classic stela at Copan which records an event related to “*Ajaw Chak Ek' U Ok Jun Winik Ajaw.*” Aldana believes that three examples of *EK'* require three distinct adjectives and imply that the Maya scribes were being precise in their meaning. He argues we honor this precision and read *EK'* exclusively as the generic term for celestial body (Aldana 2005:308).

There is a strong argument for questioning the epigraphic treatment of the verb, but there also is a “strong” astrological claim associated with it. Aveni and Lorren Hotaling, according to Aldana, conducted a thorough and comprehensive study that analyzed old and new data. They employed a chi-squared statistical test to examine probability of Venus appearance during a “star-war” event. (Aveni and Hotaling, 1994:34-35) This exercise led them to conclude that there *could* have been a correlation between war and Venus during the Classic period if:

“On the day of the given event, one allows the planet to have been *near*: First evening appearance, last evening appearance, first morning appearance, greatest elongation, maximum altitude, or just “high in the sky”” (Aldana 2005: 308). Aldana calls this argument weak because Aveni and Hotaling based the statistical analysis on Venus being anywhere “near” particular positions (i.e. first evening appearance in the sky, etc). He notes that Aveni further generalizes his correlation by saying that, “when Venus was not visible, another planet “high in the sky” could substitute for it. Obviously, these are very, very broad or easily met conditions and lend support to Aldana’s argument that Aveni and Hotaling have built a weak foundation for claims

about the verb. Aveni's lack of specificity with respect to the location of the planet reveals cracks in their argument starting with data selection.

In addition to the above argument, their analysis further included a classification of Venus-related events into three categories (Aldana 2005: 307-309). To start, "they described as a "linguistic glyph tag associated with a date—the so-called 'star' events connected with some form of the main sign T510 [numbers founded by Eric Thompson] or 'star verb'". Aldana notes that almost every data point they selected does connect an occurrence of the *ek'* glyph (T510) with a date, and not all of the occurrences were as part of verbs or related with "star-wars." He notes that a number of them were just instances of the *ek'* glyph in the discussion of family history of *Ix Batz' Ek'*...so, these were references to a person's name—not a celestial body at all. Aldana goes on to note how *Ek'* related events were also incorrectly read as Long Count dates (Aldana 2005:308). His table (Table 2) depicts non "star-war" events (wars without a Venus event) and what he claims are erroneous dates used in studies that were trying to correlate with the existing "star-war" theory (Aldana 2005:309).

Table 2: Non-"star war" events and erroneous dates used in studies seeking to corroborate the "star war" theory (after Aldana 2005)

| Study(a) | Long Count | Calendar Round | Monument | Hieroglyphic Event | Venus Event(b) |
|----------|-------------------------|---------------------|------------------------|--|----------------|
| a | 9.612.4.16 5 | Kib 14 Wo | Caracol Stela 3 | Birth of Ix Batz' Ek' | Last A.M. |
| a | 9.7.10.16.8 | Lamat 16 Ch'en | Caracol Stela 3 | Arrival of Ix Batz' Ek' | Last P.M. |
| a | 9.9.4.16.2 | 10 Ik' 0 Pop | Caracol Stela 3 | (no <i>ek'</i> glyph) | P.M. GE |
| a | 9.9.9.10.5 3 | Chikchan 3 Kej | Caracol Stela 3 | Arrival under the auspices of Ix Batz' Ek' | P.M. GE |
| n | 9.11.11.9.17 | 9 Kaban 5 Pop | Ch'ok Mutul | Capture | -- |
| a | 9.14.10.0.0 GE, P.M. | 5Ajaw 3 Mak | Copan Stela F | Moon or phonetic 'ja' | First P.M. |
| a | 9.14.15.2.3 | 2 Ak'bal 1 K'ank'in | Ch'ok Mutul Stela 8 | Mention of ajawtahk | P.M. GE |
| a | 9.15.3.6.8 3 | Lamat 6 Pax | Mutul Stela 5 | God/House name | P.M. GE |
| a | 9.15.15.12.16 | 5 Kib 10 Pop | Copan Structure 10L-11 | K'alwaniy Chak Ek' | First P.M. |
| a | 9.15.4.6.14 (c) | 6 1 x 2 K'ayab | Ch'ok Mutul HS | "Star War" | |
| a | 9.16.12.5.17 | 6 Kaban 10 Mol | Copan Altar R | Accession of Yax Pasaj | P.M. GE |
| n | 9.17.16.14.9 | 4 Muluk 2 Sak | Yokib Stela 12 | Capture | - |
| a | 9.18.4.9.17 (d) | 10 Kaban 10 Zotz' | Yokib Stela 12 | "Star War" | |

aa = Aveni and Hotaling (1994); n=Nahm (1994).

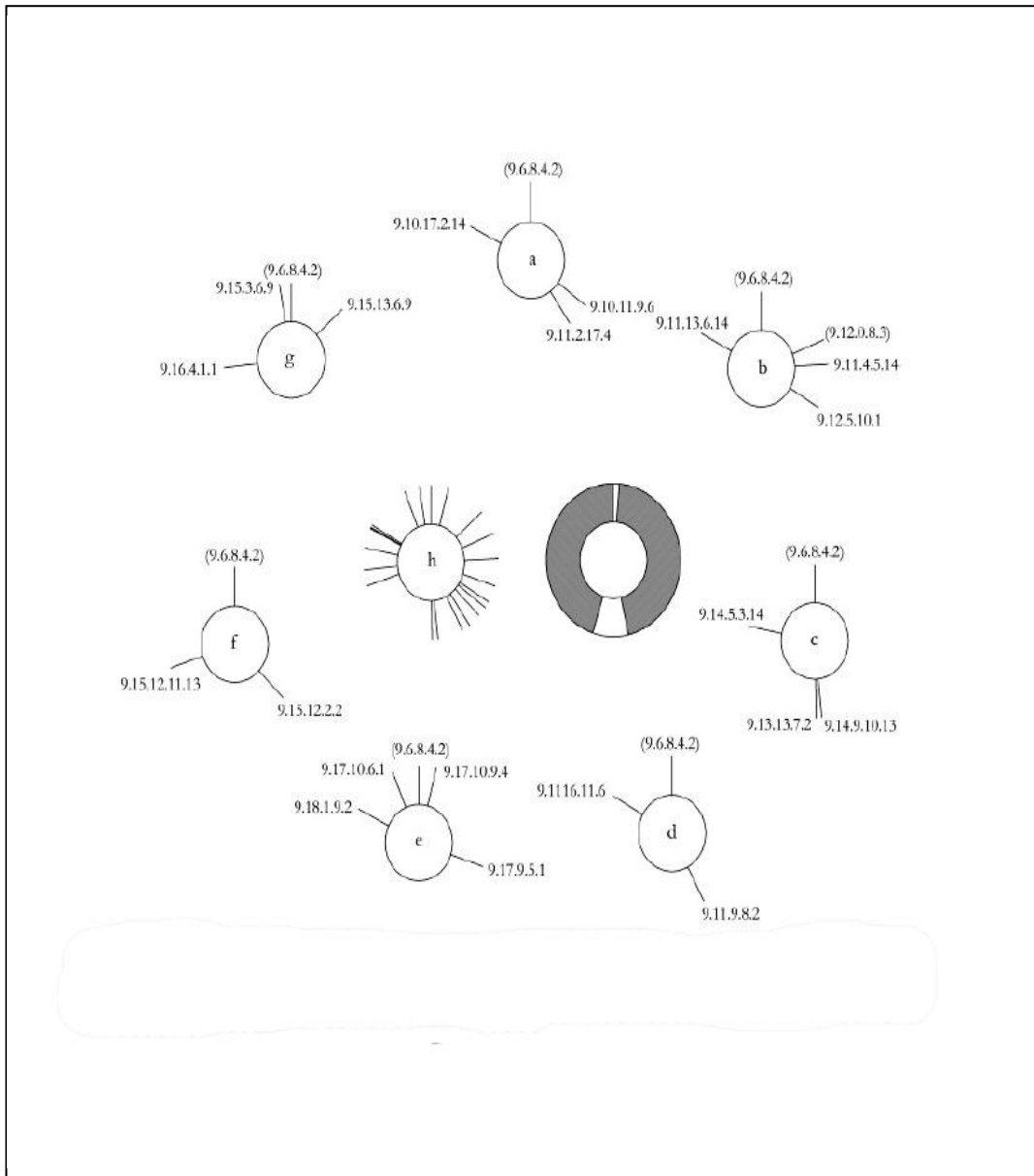
B Aveni and Hotaling (1994:Table 1, S26–S29). These are the "Venus events that most closely match the date in real time." GE ! greatest elongation.

c Date should be 9.11.17.8.19 6 Kawak 2 K'ayab.

d Date should be 9.18.1.9.2 7 Ik' 10 Zotz'.

Another example depicting the flawed nature of statistical analysis related to the association of Venus and dates is that of Werner Nahm (Nahm 1994: 6-10). Several of Nahm's dates were interpreted by him to match his argument. Aldana asserts that Nahm selected the date that best fit the notion of a timing correlation of Venus to warfare (Aldana 2005: 309). This observation further supports the argument that scholars need to carefully consider those data, their selection, and how they will be presented—otherwise, a very weak foundation is constructed, upon which others (especially junior scholars) mistakenly build their research.

Statistics alone are not an appropriate means of analyzing Maya astronomy unless the method can accurately pin point a planet's position in the sky. Aldana argues that the rulers themselves had to make choices when conducting war and whether it was “politically warranted,” whether specific omens were relevant to the war, and which wars should have been depicted on the monuments. He further adds that there is “no confirmed correlation between the Classic Maya and Julian calendars.” This argument is beyond the scope of this thesis, but can be found in other works by Aldana (2001a). There, Aldana employs a method, using the technique of identifying Maya rulers who individually followed a practice of timing their battles with Venus. He suggests that if a sky watcher kept a basic tally of the days of visibility (of the planet) during its various phases, he/she would be able to construct a table that allows one to see visibility and invisibility of Venus for a span of eight years. The sky watcher would be able to construct a way to predict its visibility (or non-visibility) and time them with ceremonial events. The Table in the Dresden, Aldana notes, suggests that the different phases of the planet might have been linked to different omens for the Classic Maya. He plotted the intervals of dates of “star-war” events onto a Venus round, a diagram that allows one to correlate the phases of Venus with recorded “star-war” happenings (Figure 25).



(Figure 25) Positions of Star War events in the cycle of Chak EK: [a] Balam Ajaw, B'aakal (II); [b] Ruler 2, Yokib; [c] Balaj Chan K'awill, Mutul (II); [d] Itzamnaaj K'awill, Mutul (II); [e] Ruler 7, Yokib; [f] Yik'in Chan K'awill, Mutul; [g] Itzamnaaj Balam and Yaxun Balam, Pa'chan; [h] Center left circle showing all events superimposed. Center right circle shows idealized Venus phases, with shaded periods of visibility (263 days each).

He plotted intervals produced by the dates of successive battles as fractions of the 583.92 period of *Chak Ek'*. The planetary cycle was graphed as a circle and marked with the “star-war” events at fractions of 360 degrees. He used only those war events from rulers who recorded more than

one “star-war.” Aldana makes an important point about rulers and their motives for making historical records:

“...scribes were recording official history on the public monuments from which these battle records were extracted. If a ruler believed in the oracular quality of the “star-war” battle, then surely he would have included that oracular character in the records that he presented to the public. If for instance, he believed that the “star-wars” should be conducted (or would have favorable outcomes) only when undertaken under a specific station of Venus in its cycle, then the battles corroborating this belief most likely would have been publicly commemorated” (Aldana 2005:310).

Aldana employed the earliest occurrence (*Yajaw Te' K'inich's* conquest at Tikal on 9.6.8.4.2 7, Ik' 0 Sip) of the “star-war” verb in the inscriptional record as the “zero” reference (Table 3).

| King, City | Date | Chak' Ek' Cycle | Source |
|--|-------------------------------|-----------------|-----------------|
| Yajaw Te' K'inich, Caracol | 9.6.8.4.2 7 Ik' 0 Sip | 0 | St. 3 |
| Tum Ohl K'inich, Caracol | 9.9.18.16.3 3 Chikchan 3 Keh | 332.4 | St. 3, Nar HS 1 |
| Balam Ajaw, B'aakal (II) | 9.10.11.9.6 13 Kimi 14 Tzek | 204.1 | ? |
| | 9.10.17.2.14 13 Ix 17 Muwan | 480.3 | M. 6 |
| | 9.11.2.17.4 10 Kan 17 Yax | 234.6 | ? |
| Balaj Chan K'awiil, Mutul (II) | 9.11.4.5.14 6 Ix 2 K'ayab | 140.7 | HS2 |
| | 9.11.13.6.14 3 Ix 17 Muwan | 481.1 | HS2 |
| | (9.12.0.8.3 4 Ak'bal 11 Muwan | 110.5 | HS2, HS4 |
| | 9.12.5.10.1 9 Imix 4 Pax | 196.8 | HS |
| Itzamnaaj K'awiil, Mutul (II) | 9.13.13.7.2 7 Ik' 5 Xul | 291.1 | St. 1 |
| | 9.14.5.3.14 8 Ix 2 Kumk'u | 455.7 | St. 25 |
| | 9.14.9.10.13 1 Ben 16 Tzek | 282.9 | St. 26 |
| Ruler 3, Mutul (II) | 9.15.4.6.4 8 Kan 17 Muwan | 338.6 | St. 2, St. 16 |
| Ruler 2, Yokib | 9.11.9.8.12 5 Eb 15 Kumk'u | 247.0 | St. 2, St. 35 |
| | 9.11.16.11.6 5 Kimi 9 Pop | 485.3 | St. 2, St. 37 |
| Ruler 7, Yokib | 9.17.9.5.11 10 Chuwen 19 Sip | 175.9 | T. 1, St. 2 |
| | 9.17.10.6.1 3 Imix 4 Zotz' | 545.9 | Th. 1 |
| | 9.17.10.9.4 1 Kan 7 Yaxk'in | 25.0 | St. 15 |
| | 9.18.1.9.2 7 Ik' 10 Zotz' | 479.4 | St. 12 |
| Yik'in Chan K'awiil, Mutul | 9.15.12.2.2 11 Ik' 15 Ch'en | 217.0 | L. 3 |
| | 9.15.12.11.13 7 Ben 1 Pop | 408.0 | L. 3 |
| Itzamnaaj Balam and Yaxun Balam, Pa'chan | 9.15.3.6.9 4 Muluk 7 Pax | 567.6 | HS2* |
| | 9.15.13.6.9 3 Muluk 17 Mak | 80.1 | St. 33* |
| | 9.16.4.1.1 7 Imix 14 Tzek | 428.6 | L. 8/41 |
| Naranjo | 9.10.3.2.12 2 Eb 0 Pop | 109.7 | ? |

Table 3: Securely dated “star war” events (after Aldana 2005:312)

According to Aldana:

“It now appears, however, that even the tangential information we had hoped to gain about Classic-period astronomers has been undone by this study. Had some method linking the timing of battles to the movements of the planets been observed, we might have gained insight into the job description of this particular member of Maya society. Now, though, the most one can say is that the astronomer may have been consulted only insofar as to inform the war council about whether *Chak Ek*’ was visible in the night sky. What we have gained through this study, though, are increased degrees of freedom in which to explore the meaning of the [star-war] verb. We thus approach it now without the conjectural bonds linking it to Venus.” (Aldana 2005:313)

We can, given Aldana’s argument, cease using the term “star-war” and simply employ the verb in the form of EK’-X. If the statistical data are weak and the foundation for the argument can be considered flawed then the assertions so many scholars have made regarding the verb are likewise suspect. Stanley Guenter writes:

“The glyph is actually a star raining down on the victim, and seems to be a metaphor for enduring catastrophe, somewhat similar to our own idiom “star-crossed lovers”. The ancient Maya obviously believed that stars could rain down misfortune on certain people and kingdoms, but this doesn’t mean that the Maya organized their warfare by the cycles of Venus or meteors or anything of the sort.” (Guenter 2010, personal communication between Guenter and Johan Normark)

Summary

There are numerous accounts linking the shell-star glyph to warfare. Aldana and Guenter argue that the way in which the chi-squared method was used by scholars to support their claims (based on imprecise location of the planet) led to inaccurate results. Iconic and historical contexts are also used to support Aldana’s argument, including a Venus Round, which associates each well dated “star-war” event to the appearance (or not) of Venus. These observations strongly suggest Maya rulers did not time warfare to Venus sightings. There are also instances of

Ek' that argue for the strict reading of the compound as "celestial body." If this is the case, we must question the epigraphic treatment of the compounds.

Section 5

Interpretations, Iconography, and Meteor Showers

Joyce Marcus (Marcus 1992:360) suggests that the Maya epigraphic texts contain ‘selective’ propaganda and a ‘self-serving’ history, thus, we, should not accept these astronomical data on face value alone. We can support her argument with the Caracol case. The archaeological data indicated to Marcus that the site’s epigraphic record of aggression in the early part of the Late Classic period is ‘strongly’ correlated with growth, site cohesion, and prosperity on all social levels. These are, according to Marcus, all expected outcomes of successful warfare (Marcus1992:360). The epigraphy and imagery might lead one to surmise that Caracol maintained similar success in war at the close of the Classic period, but the archaeological record indicates otherwise.

“And a closer examination of the Terminal Classic hieroglyphic records finds only *chu’ah* and *ch’ak* events with a complete lack of *hubi* and shell-star events. Thus, while the results of some forms of successful warfare are amply reflected in Terminal Classic imagery at Caracol (not only on monuments but also on molded-carved ceramics), the general Caracol populace does not appear to have benefited from warfare in the same way that it did earlier.” (Marcus 1992)

Marcus continues her argument, stating that Caracol’s archaeological record helps interpret and amplify the differences that are apparent in the epigraphic data. The author believes that the Caracol case, like our star-war examples, suggests the need to cross-reference the epigraphic data with the statistical evidence from Aveni (correlating positions of Venus in the sky during these time periods).

In 1995, Eric Boot suggested a tentative decipherment of the “star-over-shell” war expression as /hay/ which means “to destroy” (Boot, 1995) (Figure 26).



Figure 26: “Star-Over-Shell” war expression (after Boot 1995)

He argues that there is the presence of water stacks on the left and right of the central element. These water signs, says Boot, could indicate *HA*’ “water” and spell part of the root of the verb expressed by the “star-over-shell” collocations. Boot makes an interesting analogy, not unlike the suggestions by Aldana (2005) and Stuart (1995) regarding rain from the sky—which could be interpreted as meteoric activity.

“Very tentatively I suggested that the “Star” element may have been an abbreviated Sky Band, for instance to be found in the Dresden Codex Page 72 (with the large crocodile entity emerging from the side of the Sky Band; actually from the “Star” sign of the Sky Band) and pouring water from its opened jaws. This water stream may be considered a torrential or destructive rain from the sky. In correspondence on this same war expression with Barbara MacLeod in November 2009 I now suggest that these war expressions may read /hay/ for “Star-over-Shell” and /hay kab/ for “Star-over-Earth,” still based on a torrential and destructive rain from the sky.” (Boot 1995)

Could the ‘rain from the sky’ mean that the Maya were avid watchers of meteoric activity, and so the glyph is referring to meteor storms? Aldana (Personal communication: February 2010) states his “Star-War” article (2005) meant to only infer the *metaphorical* side of correlating meteors with the “star-war” glyph. He suggests that “it would be impossible to engage any kind of ‘timing’ of warfare with meteor phenomena.” He goes on to suggest that there are various

metaphors appealing to meteors as arrows/spears of the gods throughout Mesoamerica. His statement that it would be impossible to associate warfare with meteoric activity, I found, was provocative. Obviously, random meteor events cannot be predicted, but an event like the Perseids, Leonids, Geminids, or any of the other annual showers *are* predictable to within a few days. I believe that the Maya *could* pinpoint annual shower events. The predictable annual meteoric activity that we know of today also occurred during the Classic Period in the general latitude and longitude of Guatemala, thus, the Maya who were avid star-watchers, may have kept track of meteoric activity. I decided to test this correlation with the “star-war” events. Aldana commented to me:

“Of course I’m also (and have been) biased against invoking the GMT [Goodwin, Martinez, Thompson correlation] to check if any ‘Star-War’ dates correlated with regular [meteoric] shower events, but I’m realizing now that it didn’t occur to me to just check whether the intervals of separation might match up. That at the very least would be worth confirming—even as a negative result, it would be useful. So yes, I do think this is a good idea” (Aldana, Personal Communication: February 2010)

To this end, I constructed a ‘Meteor Round,’ using the GMT (Figure 28). This technique is the same as Aldana’s Venus Round — In this case the “star-war” dates are superimposed onto a meteor graph. The dates are broken up into the twelve months of the tropical year (365.242199 days). On the chart I place every annual meteor shower that is visible in the latitude and longitude of the Mesoamerican region. Before I did that, however, I had to translate the “star-war” dates from the Aldana Venus Round (see figure 27, page 61)

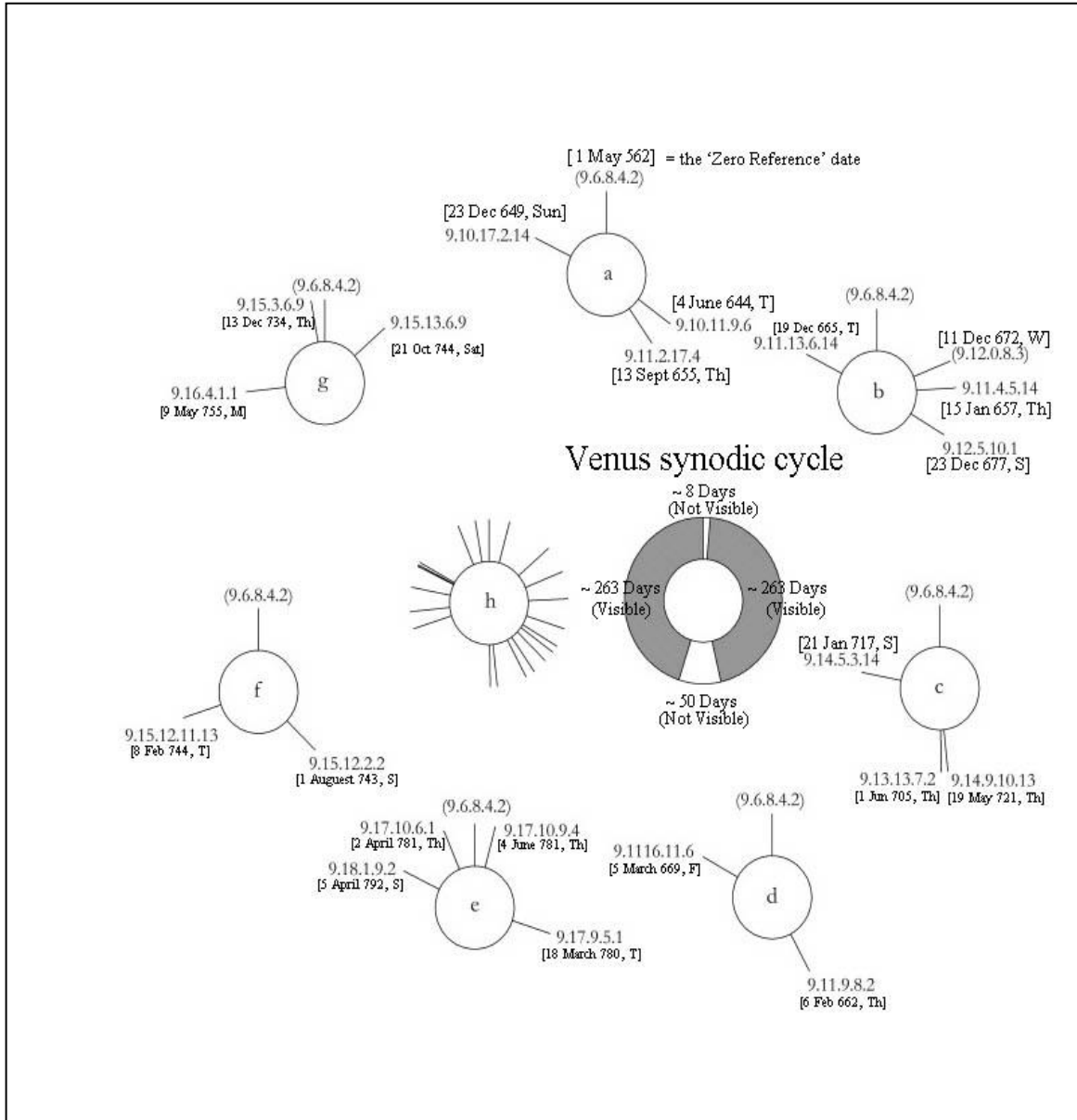


Figure 27: In this scheme, the author (with permission of Gerardo Aldana) incorporated GMT (Goodwin/Martinez/Thompson) dates onto the original 'Venus Round' published by Aldana. Under each Maya date, is the date translation using the Gregorian Calendar which is in use today.

Included in Table 4 are the official names given in the International Astronomical Union meteor shower list of all of the predictable, annual meteoric activity:

| Shower | Time |
|-------------------------|---------------|
| Quadrantids | Early January |
| Lyrids | Late April |
| Eta Aquariids | Early May |
| Arietids | Mid-June |
| Southern Delta Aquarids | Late July |
| Alpha Capricornids | Late July |
| Perseids | Mid-August |
| Kappa Cygnids | Mid-August |
| Orionids | Late October |
| Southern Taurids | Mid-November |
| Northern Taurids | Mid-November |
| Leonids | Mid-November |
| Geminids | Mid-December |

Table 4: List of predictable, annual meteor showers

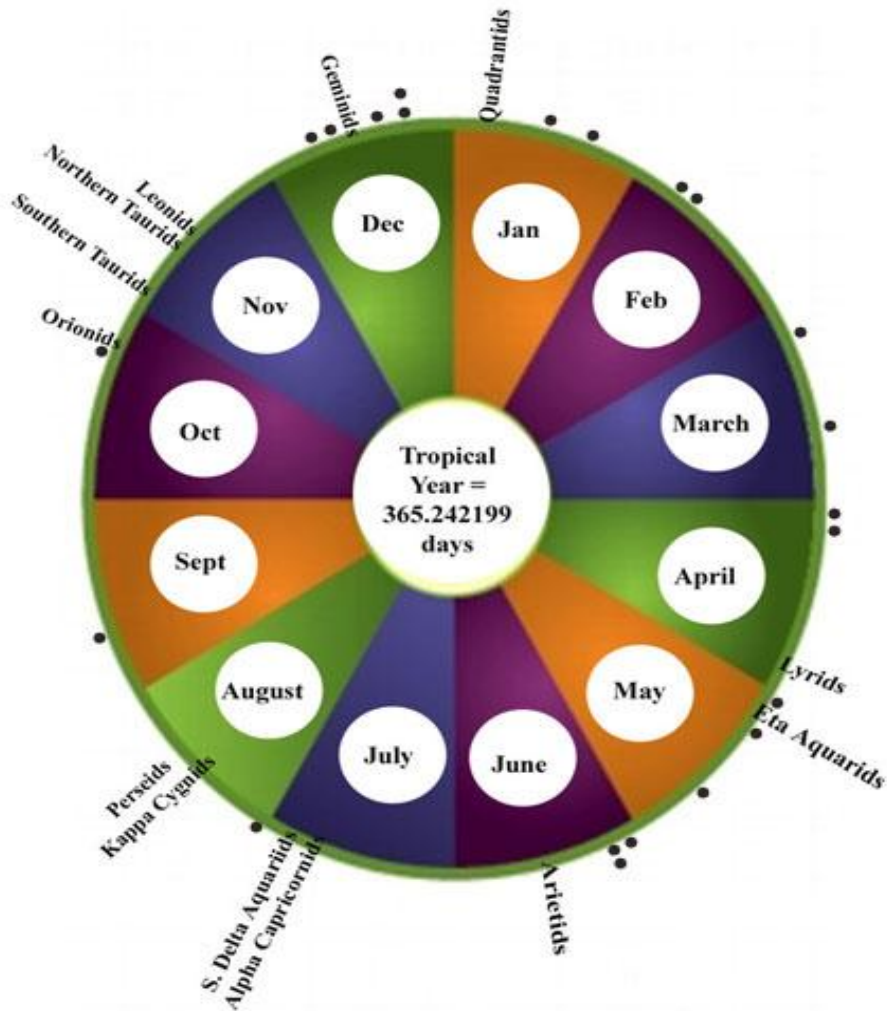


Figure 28: Author's model depicting annual meteoric activity and "star-war" events. Each annual meteor event is depicted onto a tropical year (the length of time that the Sun takes to return to the same position in the cycle of seasons, as seen from Earth) calendar. Additionally, each dot represents the dated "star-war" events from the Aldana article.

When I compared the annual meteor showers with the warfare dates on Aldana's Venus round, I was disappointed. My hope had been to see a correlation between the "star-war" events and annual meteor showers; instead the so called "star-war" events take place evenly throughout the year. January has an annual meteor shower but the two "star-war" events take place well after. The months of February, March, and April (cool and dry months) have many war events but rarely correlate with a meteor shower (just the Lyrids at the very end of April). May, June, July and August (with high temperatures and high precipitation levels) have many showers, but only one wartime event occurs close to Eta Aquarids. There is no pattern for the remaining months of the year. The exception is that December has five war events that seem to circle the Geminids. This month is the only slight correlation one can see using this method. This result in line with Aldana's earlier comment to me must be viewed as a negative result. Aldana's argument then may be viewed as supported and the reference to meteors potentially metaphorical. Another possible correlation might consist of war events and annual weather conditions such as rainfall, a question worthy of future testing

Summary

Joyce Marcus suggests that epigraphic text by the rulers contain selective propaganda. She uses the Caracol case and claims the archaeological evidence goes against the claims of success in warfare. Additionally, the "meteor round" constructed here produced a negative result. This tells us that the Maya did not time warfare with meteoric activity. The suggestion by Aldana and Boot that the star war symbol may hold metaphorical meaning and could be interpreted as rain is intriguing and will be considered for future research by the author. Further, I suggest that we need to examine the length of each war if possible. If a war took place over an extended period

of time, then perhaps Venus did eventually appear during the event. But this does not necessarily mean that the Maya ruler intended warfare only when Venus was visible. Using Marcus's argument, it is possible that a ruler may have, after the fact, recorded the event even if Venus was not present at the start, but just visible at some point during the event.

Conclusion

Alfred P. Maudslay (1850-1931), an Englishman, was responsible for the first comprehensive publication of the Maya inscriptions. Next, Ernst Förstemann (1822-1906) was the German librarian who worked out many of the details of Maya calendrics and astronomy. In addition, Eduard Seler (1849-1910) was the German scholar and leading Mesoamericanist who likewise made great contributions to the field. Cyrus Thomas (1825-1910) was an American anthropologist and main proponent of the phonetic approach to the glyphs in the late nineteenth century. I believe it is with these scholars that we find where it is that current (or at least over the last three to four decades) scholars have extracted the concept of an association of war and Venus. Going back to “square one” we get a better idea of where the cracks in the foundation of the Venus-Warfare association of knowledge initially lay. Where is it that extraordinary scholars like Peter Matthews, Linda Schele, Anthony Aveni and others based their interpretations? Who associated Venus with the war glyph in the first place? We know that Ian Graham and Gales Healy appear to be the very first scholars to mention the two hieroglyphs together, and make the connection (whether accurate, or not) to the compound. How accurate are these interpretations? So much of modern archaeoastronomical information is based on the methodological (especially statistical when examining “star-wars”) practices of the last few decades—if there are cracks in the foundation of this growing field, then now is the time to reevaluate the data.

We must tread lightly when examining the data with regard to the “star-war” events. The epigraphic and iconographic data must be open to multiple interpretations undergoing careful analysis of the context. Additionally, as Brown and Stanton (2003) suggest, scholars must have a better understanding of warfare in general. Further, I argue that we must re-examine the astronomical data relevant to the timing of warfare and when a war event was recorded epigraphically. War can go on for a very short period of time, or in some cases, many years. The epigraphic evidence needs to be scrutinized. If an event is recorded in the text, we might want to ask ourselves how long a particular war occurred. If a “star-war” went on for months, then it is more likely that a heliacal Venus event may have taken place sometime during the war—this, then, would place a thorn in the Aldana argument and his Venus Round.

Aldana opens a critique of the association of Venus appearances with “star-war” events in his 2005 Agency article. His in depth analysis using securely recorded “star-war” dates and his Venus Round chart are intriguing, to say the least, and suggest that the planet may not have been visible during these “star-war” dates. This would lead scholars to question the use of statistical analysis to pin point astronomical occurrences. Boot, Guenter, and Aldana’s recent suggestion that the glyph may represent some sort of metaphorical meaning of a shower, more specifically a shower of ‘catastrophe’ also must be considered.

How we examine the archaeological record of warfare is also important. By correlating warfare events epigraphically, using the stone monuments and stucco facades, we can gain a clearer picture of the reality of these events. The Caracol texts include the earliest known example of Maya “shell-star” event dated to A.D. 562; it marks the defeat of Tikal, Guatemala, a site 76 kilometers away from Caracol. The material remains at this site can be “tightly dated” and thus it is now possible to correlate the two epigraphically recorded periods of successful

aggression with other social contexts (Brown and Stanton 2003:171). This method can be applied to other epigraphically rich sites such as Copan and Dos Pilas. The Petexbatun Regional Archaeological Project (which focuses on Dos Pilas), and the Caracol Archaeological Project (Brown and Stanton, 2003:179) are integrating hieroglyphic texts (the actual records) with archaeological data. The Petexbatun Project examines Maya warfare from the standpoint of a site that was produced and destroyed by warfare. Dos Pilas seems to have expanded its polity in the Late Classic period and then fell into an early and tragic decline during a siege and sacking incident that occurred just after A.D. 760. Epigraphic evidence (depicted on pottery and monuments), like those found at these sites, is now playing a central role in our understanding of Maya warfare. These examples support the claim made by Aldana that we need to pay attention to the dates recorded on the monuments. The research at Caracol highlights the importance of the hieroglyphic record as well, but also shows the need to use archaeological information as part of a battery of methods to test the validity of our “star-war” theoretical foundations. When we combine the archaeological and historic information, we gain a better perspective on the reality and the variability of Maya warfare, including the “star-war” events. When examining Caracol, “shell-star” warfare resulted in the physical incorporation of Naranjo into the Caracol polity. In the author’s opinion, this political move further supports Aldana’s argument that the Maya rulers did not wait for the appearance of Venus to carry out their goal of taking Naranjo. If a ruler saw fit to overcome a nearby polity, they would act when they needed to act—a time that is most advantageous for the event.

Finally, Closs suggests that when the *ek* glyph has qualifying prefixes, it may refer to stars or planets other than Venus. If this is the case, epigraphers will need to reconsider these prefixes in the context of the, few, fully deciphered star-war examples. Continued exploration of these

projects, a better understanding of the hieroglyphs, and continued examination of solidly recorded “star-war” events which are backed up with epigraphic and archaeological evidence will only enhance our understanding of the so called “star-wars.”

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ABSTRACT**THE VENUS “SHELL-OVER-STAR” HIEROGLYPH AND MAYA WARFARE: AN EXAMINATION OF THE INTERPRETATION OF A MAYAN SYMBOL**

by

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For decades, Maya scholars have associated the Mayan “Shell-Star” (also referred to as “Star-War”) hieroglyph with Maya warfare. Put forward by scholars such as Floyd Lounsbury and David Kelley, and later advanced by Linda Schele, David Freidel, Ian Graham, Peter Matthews, Anthony Aveni and others, there are now dozens of published articles and chapters relating the hieroglyph to Venus and warfare. Venus is one of the most notable celestial objects outside of the Sun and Moon and was highly visible to the inhabitants of the Maya world. The Dresden Codex (an astronomical almanac) contains important information about the planet Venus, and the calendar section was deciphered by the librarian and mathematician, Ernst Förstemann in the late 1800s. In his decipherment, he deduced that the numbers contained in the tables must be connected to the orbital period of the planet. There is no other planet with the same orbital period as Venus. Förstemann suggested that the decoded astronomy tables were used by the Maya to determine when to wage war. This interpretation, along with others, like Floyd Lounsbury’s study of Venus and the Long Count date at Bonampak were the seeds that have led to methodological errors that first began to take root in Maya research. The idea of the Venus

association with warfare took hold and continues to propagate. Many scholars continue to assert that the “shell-star” glyph *is* related to warfare events. Others, like Gerardo Aldana, and Stanley Guenter, have recently come forward to reexamine and question the hieroglyph and its relationship, if any, to Maya warfare. I suggest, further, that methodological errors may have occurred along the way. I propose that these errors include data lost in translation, and inaccurate translations. In addition, the statistical analysis of Venus cycles has weak points. If this identification of the errors is correct, we need to re-evaluate the weakened foundation on which we are building our assertions about the role of Venus in Maya warfare. In this work, I examine the initial and subsequent interpretations of the Mayan “shell-star” hieroglyph, a symbol that has begun to generate an increasing amount of discussion among Mayan scholars over the last several years. In addition, I discuss new arguments (like that of Gerardo Aldana) regarding the role of Venus in Maya warfare. Finally, I would like to provide some suggestions for future research regarding this subject.

AUTOBIOGRAPHICAL STATEMENT

Two Fellowships at Wayne State University (in 2009 and 2010) allowed me to conduct studies on the relationship between the planet Venus, annual meteoric activity, and Classic Period Maya warfare in Copan, Honduras. This research involved traveling to Copan and obtaining permission from the Honduran government to conduct archeological research on Temples 11 and 16. Additionally, I am co-founder of a telescope mirror company called Telescope Mirror Blanks.com.