

White Paper: The Role of Venus in the Cosmologies of Mesoamerica, West Mexico, the American Southwest, and Southeast

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Abstract

This paper assembles differing but related Native American views of Venus as seen from the perspectives of cultural contexts of varied complexity. Ascribed values and packets of symbolic meanings attributed to Venus are examined between Mesoamerica, West Mexico, the American Southwest and Southeast. In Mesoamerica the timed disappearances and reappearances of Venus became a metaphor for life cycles of both maize and humans. As a bellicose planet, Venus was widely associated with both war and death as well as with the complementary notion of renewal. Its associations with a war/fertility complex among maize agriculturalists was/is pervasive. We address case studies that consider how Venus ideology was manifest in art and ritual in the different areas under investigation. Background events for historical interaction especially between the Southwest and Mesoamerica are briefly considered.

Introduction: Falling for the Sky. It is clear that in real world terms Venus and its wanderings have no physical impact on human societies. Nevertheless, the planet itself and its movements are observed, conceptualized, and assigned meanings that, in turn, do affect societies in very real and complex ways. As background for this discussion of the significance of Venus within the cosmologies of Mesoamerica and related societies in North America, it is useful to review in general how the celestial principles of cosmic order play major roles in the human quest for comprehending and managing an uncertain world -- a comprehension necessary in order to maintain the cosmos and assure prosperity and stability in a challenging existence. This effort in understanding has resulted in a cosmos viewed as animated with innumerable powerful spiritual forces that exhibit patterned behavior. The identification of these forces, usually cloaked in human or animal guises, or a combination thereof, enables humanity to interact with them in a prescribed manner, and thus exert some measure of perceived control.

Unlike Las Vegas, what happens in the sky does not stay in the sky. People pipe it down to earth, where celestial activity is believed to have terrestrial impact. In fact, it does. The fundamental cycles of time that govern our lives originate in the sky. The sun's risings and settings impose a rhythm of day and night. The waxing and waning moon adds a monthly beat that seems awkwardly calibrated to what really matters—seasonal change. Seasonal change is also signaled by the stars and accompanied by the annual migration of the sunrise and sunset along the horizon.

In an effort to integrate our experience of the world, we project the pattern of life—birth, growth, death, and generational replacement—upon the cyclical renewal of celestial objects and establish a bond between living things and celestial objects that encourages their personification.

As agents of power, celestial objects have been personified as gods, spirits, demons, heroes, and creatures to be observed, served, and emulated.

Events in the sky seem to drive circumstances on the ground, and it takes power to drive anything. The sky has been recognized as a divine realm of transcendent power that plays a role in ordering the world, maintaining its stability, energizing its operation, and sustaining its life through cyclical renewal.

Complementary opposition is embedded in the process of cyclical renewal. Reinforced by the successive advance and retreat of light hours and dark, full moon and new, stars present and absent, high sun and low, north sun and south, hot weather and cold, dry months and wet, nature's dynamic equilibrium seems to be a fundamental property of the cosmos, leveraged by the behavior of the sky.

Because some celestial objects actually are linked to the earth's capacity for life, we are inclined to think other celestial objects and events affect us, too. We are pattern-seeking creatures, and we merge observation with belief to confer fabricated meaning on celestial events that have no physical relationship to conditions on earth. The Maya, for example, associated Venus with the rains in part because one of the planet's configurations periodically, but selectively, accompanies the arrival of the rainy season. Mesopotamian and Chinese astronomical omens are extensions, through belief, of the power of the sky to govern, foretell, or announce affairs on earth.

Cosmology, in a sense, is an exercise of ordered space, time, power, and relationships undertaken to forge a sense of what the world is, how it works, and what it takes to live in it. That mythic cosmic order appears to be imposed by the heavens and revealed in the action of the objects that populate the sky. Because they are overhead, they are visible to all but out of reach. Their travels in the celestial realm tell us they are independent and active. They advertise their power with light that seems to originate within them. Although they are free to move, most of them adhere to regulated trajectories that govern the sky and activate the world below. Through cyclical renewal, they are eternal. Performing as gods, they demand our attention and indicate how we should act to help maintain the world's order and nature's balance. They broker directionality, seasonality, the calendar, and abstract concepts like divinity, immortality, and reciprocity.

Celestial objects are not the only source of cosmic order, but because they reveal the elemental structures of space and time so reliably and transparently, they inevitably are enlisted to outline and monitor the cosmological framework of ideology. Through ritual, ceremony, and other symbolic expression, people ally themselves and their institutions of economic, political, social, and moral order with cosmic order. They legitimize their place in the world by acting in congruence with the cosmic structure and flow. They punctuate the passage of time at critical moments with symbolic acts to help maintain the framework that allows life, the universe, and everything to endure.

Cosmology is the element of ideology that consolidates the fundamental character and behavior of the world. Ideology is a cohesive, defining belief system that emerges from a shared symbolic narrative. It enhances social cohesion, cements cultural identity, mobilizes communal behavior, and reinforces shared values. It tempers politics, economics, religion, social relationships, and personal behavior. It is revealed in the symbolic systems that compress ideological content into the arts, architecture, ceremony, ritual, wardrobe, domestic activity,

kinship systems, performance, myth, and more.

The sky and principles of cosmic order are often incorporated into these cultural enterprises and can often be recognized because celestial references often borrow from natural models. The role of ideology in cultural change remains an issue of debate, and that is in part due to an incomplete understanding of the nature, purpose, and effect of ideology. Real progress in this realm requires identification of the central themes of ideology and clarification of their purpose in the symbolic narrative. Cosmology is one of those central themes, and the sky unambiguously puts cosmology on display.

This paper assembles differing but related views of Venus as seen from the perspectives of cultural contexts of varied complexity in Mesoamerica, the American Southwest, and the Southeast. In Mesoamerica in particular, an “obsession with time” (Carrasco 2000:25) led to a complex calendar based on celestial events, including the cycles of Venus. The timing of warfare was regulated by the Venus calendar (Carlson 1991), and its appearances and disappearances became metaphors for life cycles of maize and humans. Mesoamerican Venus calendars and other sources indicate that Pre-Columbian sky watchers were well aware of a pattern of relationships between the 8 year cycle of Venus and its coordination with the onset of the rainy season (Sprajc 1993a and b). Sprajc makes a case for the importance of Evening Star appearances in this role (see also Milbrath 1999:162). On the other hand, Taube (2009:176-77; Schaafsma and Taube 2006:271) makes the convincing argument that the association of Quetzalcoatl as Morning Star in Postclassic Mesoamerica is associated with the east, the rising sun, as well as with rain-bringing winds of the gulf. Both arguments provide models based on Mesoamerican observations that link Venus to rain and agricultural fertility.

In addition researchers present evidence that warfare and the taking of captives destined for sacrifice among the Maya was coordinated with the movements of Venus (Carlson 1991; Lounsbury 1982; Milbrath 1999:193-96; Schele and Freidel 1990 and others). In concert with its patterned behavior, the Mesoamerican Venus was connected to a war/fertility complex that goes back to Teotihuacan (Carlson 1991:7 and 53). In Mexico Tlaloc-Venus warfare was the means by which blood offerings were transformed into water through the capture of prisoners for ritual sacrifice. Carlson asks the essential question of whether the association between Venus, rain, maize, and fertility is rooted in the ancient mythic/cultural tradition of the transformation of blood into water via Venus-linked war and sacrifice, or whether there is an astronomical/calendrical basis for these beliefs – or both? In general, in Mesoamerica and in the cosmologies of West Mexico and the American Southwest, stars are feared, regarded as dangerous, and their association with conflict is pervasive. Morning Star is often perceived as the Sun’s warrior, defeating darkness as it rises, and both the Sun and Morning Star are implicated in sacrificial rites that, in turn, serve to maintain cosmic balance.

. Venus metaphors associated with a war/fertility complex were appropriated by maize farmers throughout the areas under consideration. We address case studies that consider how Venus/Morningstar ideology was manifest in art and ritual in the different areas under investigation. Issues of historical connections especially between the American Southwest and Mesoamerica are briefly reviewed.

Venus and the great eclipse of 1496 in Codex Borgia 39-40. Cosmology plays a role in a unique Mesoamerican narrative that has been interpreted as both an account of the creation of the

cosmos (Boone 2007) and an epic narrative of the journey of the planet Venus into the underworld (Seler 1963). The Codex Borgia, a Preconquest religious manuscript from Tlaxcala in Central Mexico, records an 18-page narrative featuring a great variety of Venus gods, each apparently representing a transformation of the planet during its 584-day synodical cycle. Research has helped determine that Borgia 29-46 depicts four phases of the Venus cycle embedded in a sequence of festivals that depict annual rituals of cosmological significance. Seasonal festivals of cosmological significance are found world-wide, the most familiar to us being Christmas, celebrating the birth of Christ around the winter solstice each year (Milbrath 2007, n.d.).

Pages 29-46 of the Codex Borgia are filled with intriguing astronomical images. Many are related to the annual sequence of festivals, but most seem to focus on the Venus cycle, tracking the planet over the course of a year. A few images seem to record observations of specific astronomical events that are embedded in the narrative of the annual cycle. The most interesting is a scene on Borgia 40 depicting a solar deity covered with sun disks and stars (Fig. 1a). Each sun disk has a wedge cut out, like solar eclipse symbols in Aztec art, as on the Bilimek Vessel which shows the eclipsed sun has a cut-out wedge filled with star symbols to represent the darkness of the eclipsed sun (Milbrath 1997, 2007). On Borgia 40, nine different Venus gods cut open sun disks and remove hearts from the wedge-shaped wounds. The attackers all wear the curved shell earrings associated with Quetzalcoatl, and three also wear his spiral, conch-shell pendant. Most also wear Quetzalcoatl's necklace of Oliva shells and his distinctive headdress with red rays on a black ground of stars.

Venus in the Borgia narrative is most often represented by Quetzalcoatl, who has a transformational quality because Venus changes over the course of its cycle, shifting from the morning sky to the evening sky and back again, with periods of invisibility between the two phases. On page 40, the attack on the sun is led by the central figure, representing Quetzalcoatl in a hummingbird guise, painted with a stripe running through his eye, a form of face paint found repeatedly on other avatars of Quetzalcoatl, including one on the right of page 40. Another variant represents Ehecatl-Quetzalcoatl with a red buccal mask with an elongated beak or snout displaying a squared nose, representing the wind god (Ehecatl) aspect of Venus. This figure wears a "top hat" also seen on a serpent variant of Ehecatl, an elongated creature with front paws and stars on his body, who floats over the roof of the temple below. In other parts of the narrative, the Ehecatl-Quetzalcoatl serpent has a starry volute on his head, and sometimes is seen swallowing or disgorging an anthropomorphic transformation of himself, as in the central scene on page 30 (Fig. 1b). In other pages of the narrative, Quetzalcoatl is shown as a sacrificial victim with a black face and white body painted with red spots, as on Borgia 42, which shows Venus disappearing in Superior Conjunction (Fig. 1c). During a relatively long sojourn in the underworld, Venus appears in a number of transformations, such as the skeletal Camaxtli-Mixcoatl and the decapitated Morning Star (Tlahuizcalpantecuhtli) gods seen on page 45 (Fig. 1d). We will return to discuss these images when we trace the actual astronomical events shown on Borgia 29-46.

Studies of Borgia 25-28 and pages 53-54 indicate that the codex depicts real-time Venus events (Aveni 1999; Bricker 2001). Anthony Aveni's (1999, 2001:71) research suggests that page 27 covers the period from 1467 to 1519, representing a complete 52-year period that began with a Venus event in the year 1 Reed. The day 1 Crocodile in the year 1 Reed coincides with the last visibility of the Evening Star (Bricker 2001; Hernández 2004). This makes an apt introduction to a narrative sequence on pages 29-46 that was originally described by Seler as the underworld journey of Venus.

Seler (1963, 2:9-61) interpreted pages 29-46 as a narrative of Venus events, depicting the disappearance of Venus as the Evening Star and its reemergence eight days later as the Morning Star. Karl Nowotny (1961:246-247, 1976:26-27) points out, however, that the day signs most common in the pages are not related to the four-day intervals typical of a Venus calendar. Because the Mesoamerican ritual calendar of 260-days used to record dates is composed of 20-day periods (veintenas), the cycle integrates with the canonical Venus cycle of 584 days so that there is an interval of four days between days marking the end of each synodic cycle of Venus. Instead of this pattern, the day signs on pages 29-46 are spaced at intervals of five days, a format used in calculating dates in the solar year of 365 days. Nowotny emphasized that certain images on Borgia 29-46 represented annual festivals, an interpretation followed by Anders et al. (1993) who recognized eight different rituals, although they did not recognize specific links to the annual festivals.

Research suggests that the structure of the 18-page sequence is determined by the 18 veintenas or festivals in the year rather than Venus events, and the Venus events are all represented in the context of a single year (Milbrath 1989, 2007). In this analysis, each page represents a 20-day period linked with a single veintena festival, but the imagery suggests that the festivals represented paired events, representing two festivals covering 40 days. For example, pages 33 and 34 both focus rituals performed in a temple that seem to be formatted in similar fashion, representing a festival pair.

Nowotny (1961:249) identified the central deity on page 33 as a Xipe figure on a round stone, even though he overlooked links to the annual festival honoring Xipe Totec. In the colonial period codices, Xipe Totec appears exclusively in representations of the Tlacaxipehualiztli festival. The image on page 33 Xipe lying dead on a round stone depicts an episode in this ceremony after the sacrifice of Xipe Totec. Correlating Borgia 33 with Tlacaxipehualiztli indicates an association with the spring equinox, based on the festival dates compiled in numerous sources (Milbrath 2007). The Aztecs oriented their twin temples on the main pyramid so that the sun disk would rise between the temples on the spring equinox during the festival of Tlacaxipehualiztli (Aveni 2001:236-238; Aveni et al. 1988). The sun disk above the peaked temple roof on Borgia 33 suggest that the sun was observed rising behind the Tlaxcalan temple on the spring equinox. The representation of the Xipe festival on page 33 is one of six festivals that can be identified in the imagery of the 18-page sequence. Others appear on pages 37, 40, 44, 45, and 46. This sequence of festivals helps place the narrative in relation to the annual cycle, helping pinpoint which eclipse event is represented on page 40. Surveying all the solar eclipses seen in central Mexico during the late Postclassic period (A.D. 1350-1520), indicates that the best candidate is a total solar eclipse that took place on August 8, 1496 (Milbrath 2007).

The solar eclipse in August 1496 dominates the imagery on page 40, but this scene is set in the context of the Miccailhuitontli festival in August with the hummingbird god representing a principal actor (Fig. 1a). The hummingbird is an apt symbol of this festival, which took place at the height of the rainy season. Indeed, throughout the Borgia sequence images of hummingbirds, bees, and flowers appear only on pages that correspond to festivals that took place during the rainy season. The hummingbird god, represented by the Aztec god Huitzilopochtli in the Mexica capital, was one of two deities honored in the Aztec version of the festival in August (Nicholson 1971). Here, on Borgia 40, Quetzalcoatl in a hummingbird guise is substituted for the Aztec hummingbird god, Huitzilopochtli, because the Tlaxcalans, bitter enemies of the Aztecs, were not going to depict the Aztec tribal god in a codex featuring the Tlaxcalan calendar.

The 18-page sequence closes with a fire ceremony on page 46, which correlates with the 15th veintena, Panquetzaliztli. Central Mexican accounts tell us that an image of the fire serpent was

burned in Panquetzalitzli, and the fire serpent is almost present in Aztec codices representing this festival (Milbrath 1989:116; Sahagún 1950-1982, 2:147). Borgia 46 shows smoldering fire serpents surrounding a hearth-fire with an olla containing Quetzalcoatl. In the scene below, Quetzalcoatl drills a fire on the back of a fire serpent, in accord with descriptions of the Panquetzalitzli festival, when an effigy of the fire serpent was burned. . The fire drilling seems to be linked with the winter solstice festival in Panquetzalitzli, which closes out the astronomical narrative in the Borgia sequence. The entire 18-page sequence covers a 365-day period ending around the winter solstice in 1496.

With the chronological framework established by the representations of specific festivals from the annual cycle and the year designated by the solar eclipse event, the details of Venus imagery in the 18-page narrative can now be explored page by page. The first page (29) shows Venus-Quetzalcoatl burning in a cuauhxicalli, a stone bowl designed to hold the hearts of sacrificial victims. The bowl seems to hold burned ashes of a skeletal Venus god. This page represents the transformation of the Evening Star into the Morning Star described in the Anales de Cuauhtitlán, which recounts that Quetzalcoatl traveled from west to east and set himself on fire, spending eight days in the underworld before emerging as the Morning Star (Bierhorst 1992:36; Velazquez 1945:10-11). The transformation on page 29 shows Venus consumed by the solar fire when the planet disappeared in Inferior Conjunction on January 3, 1496, a date based visibility parameters with a mountainous horizon (3° elevation) at a little over 19° latitude (Lange and Swerdlow 2006).

Page 30, the second page of the 18-page sequence, depicts the heliacal rise of the Morning Star on January 12, 1496 during the festival of Tititl (Fig. 1b). Here Venus is a brilliant rayed disk symbolizing the newly emerged Morning Star. Quetzalcoatl's rayed headdress clearly represents a segment of the resplendent Venus disk on Borgia 30 (compare Borgia 9, 19, and 30). The Ehecatl figures in the center of the disk may represent the sacred wind at dawn lifting up the rising Morning Star.

During the Morning Star phase Venus shoots up in the sky, taking only 80 days to reach its maximum altitude above the eastern horizon. This rapid ascent culminates on page 33 with a scene showing a black variant of Quetzalcoatl seated facing another Venus avatar, who is sometimes referred to as "stripe-eye." Both appear on the top of a temple, an appropriate position for Venus near its maximum altitude as Morning Star during the period represented by page 33 (3/11 – 3/30/ 1496). The stripe-eyed Venus god makes his first appearance as the dry season comes to a close, and this avatar of Venus appears repeatedly as the narrative carries on through the rainy season.

On page 35, stripe-eyed Quetzalcoatl plays ball on a court featuring the sun in the underworld. Alongside is a footpath showing Venus as the black Quetzalcoatl beginning his descent down the path with a companion god who combines traits of Ehecatl and Tezcatlipoca. This page corresponds to the period when the Morning Star phase began a very slow descent appearing each morning a little closer to the horizon. And on page 36, the black Quetzalcoatl is replaced by stripe-eye Quetzalcoatl, representing the Morning Star at the onset of the rainy season, descending each night closer to the eastern horizon. On pages 37-38, the nocturnal path of descent continues and stripe-eye Quetzalcoatl emerges at the end of the path through the jaws of his alter-ego, Ehecatl-Quetzalcoatl. The entire cycle of Venus as Morning Star comprises a period of around 260 days, with the descent interval taking place over the course of nine festivals, representing an interval of 180 days.

Xolotl begins a much shorter path of descent, encompassing a period of no more than 40 days, which begins on page 37 and reaches the end tumbles from a platform on page 38,. Xolotl, traditionally interpreted as Quetzalcoatl's twin and an aspect of the Evening Star, actually represents

Mercury. The narrative sequence in the Codex Borgia reflects the observed position of Mercury in the morning sky during 1496, and the two descending paths seem to show twin trajectories of descent that pair the movements of Venus and Mercury.

Pages 39-40 represent the latter part of the Morning Star phase, with Venus approaching closer and closer to the sun each day. Page 39 shows Quetzalcoatl and a solar god in a circle of descent with a footprint path leading to the open jaws of the earth monster. During the period represented by page 40, Venus was still the descending Morning Star, but it was seen only briefly in the dawn sky because it was now so close to the sun (Fig. 1a). At the time of the total solar eclipse, the sky turned completely dark in the afternoon and Venus dramatically reappeared near the sun in the west. Multiple Venus gods attack the solar disks because the planet Venus was seen as an agent of the eclipse event. This recalls representations of Venus as an eclipse monster in the Dresden Codex eclipse tables and ethnographic accounts that say Venus is the cause of eclipses (Milbrath 1999:26-27, 162, Figure 5.1a). Imagery associating Venus with a solar eclipse also appears on the Aztec Bilimek vessel, where the heavily armed Venus God, Tlahuizcalpantecuhtli, flanks the eclipsed sun.

Page 42 shows the death of the Morning Star in Ochpaniztli when Venus disappeared on September 18, 1496 (Fig. 1c). The imagery depicts Quetzalcoatl's sacrifice on the ball court and a skeletal manifestation of the god is shown at the bottom of the page on a cross scaffold positioned in the jaws of the Earth Monster.

Venus also appears in multiple images on page 45 (Fig. 1d). As the invisible Morning Star, Venus is represented by the skeletal Venus god on a skull platform with a tree. He carries the hunting net associated with Camaxtli-Mixcoatl, the god honored in Quecholli, the veintena corresponding to page 45. Decapitated heads of Tlahuizcalpantecuhtli ("lord of dawn"), identified by the distinctive quincunx face paint, refer to the death of the Morning Star. These heads surround Quetzalcoatl who is crowned by a Venus symbol but he is encased in a funerary bundle because Venus has not yet emerged in the evening sky. Quetzalcoatl is seated on an obsidian throne with flowery blood flowing from his buttocks. This represents excrement of the stars, a well known metaphor for seasonal meteor showers (Milbrath 1999:42, 250). Given the dates associated with page 45 in November, these showers are probably the Leonids, which peak around November 15, during the festival period represented on page 45.

The next page (46) shows the reemergence of the Evening Star (11/27/1496) in the festival of Panquetzaliztli. Venus appears as Quetzalcoatl rising from a hearth fire in the center of the page. He then drills a fire on the fire serpent's body encasing the fire god, Xiuhtecuhtli, a god featured in his fire serpent aspect in the Panquetzaliztli festival.

Borgia 29-46 details only one year of the eight-year Venus almanac, but the same general pattern of Venus events would recur eight years later. The year highlighted in the festival calendar 29-46 is of considerable astronomical significance because the total solar eclipse in 1496 was probably seen as a cataclysmic event (Milbrath 1997). Furthermore the 18 festivals coordinated perfectly with Venus events, because the veintena sequence began with the disappearance of the Evening Star on page 29, then followed with the reemergence of the Morning Star on page 30. Venus remained visible as the Morning Star for around 260 days, disappearing on September 18, 1496 for a period of 72 days. The planet reemerged as Evening Star on November 29, at the beginning of the Panquetzaliztli festival, a festival that also coincided with the winter solstice and the onset of the dry season. The entire sequence apparently tracks the Morning Star through its period of visibility,

through its disappearance in Superior Conjunction, and its reemergence as the Evening Star just prior to the winter solstice on page 46.

Study of the seasonal cycles and Venus events is essential to advancing our understanding of the magnificent set of paintings in the Codex Borgia. The ability of Mexican artists to represent complex ideas using representational images means that glyphic writing was not an essential component to conveying astronomical knowledge. By combining the study of iconography and astronomy, it now seems possible to decode this unique set of pages, allowing us to appreciate the integration of art and science characteristic of ancient Mesoamerica. The real-time astronomical events are set in the context of the festival calendar, which helps us to see how the seasonal cycle was integrated with cosmology. The account of Venus descending into the underworld is a paradigm for the death and rebirth of the gods in Mesoamerican cosmology, but clearly the Borgia narrative was set in the context of real-time events and long observations of astronomical cycles.



Figure 1a.Codex Borgia 40 (after Byland 1993).



Figure 1b. Codex Borgia 30



Figure 1c. Codex Borgia 42



Figure 1d. Codex Borgia 45

Morning Star West Mexico. Among the least understood cultural regions in Mesoamerica is West Mexico. Widely accepted as the northernmost extension of Mesoamerican societies, the onset of the Aztatlán tradition signaled a dramatic shift in social, political, economic, and religious organization during the Postclassic period (AD 900-1521). With these changes in religion came a marked increase in the use of symbolism that suggests a strong degree of Central Mexican contact and influence (Meighan 1976; Ekholm 1942). One such change includes the first appearance of anthropomorphic figural motifs on ceramics recently identified as representing a local version of the Central Mexican Morning Star deity Tlahuizcalpantecuhtli (Mathiowetz et al 2008; **Figs. 2a-2d**). In order to further inform our understanding of the character attributes of this deity and the role he plays in the religion of people in West Mexico both now and in the past, it is integral to study the cosmology and contemporary traditions of Venus ritual and symbolism among the Huichol (Wixarika) and Cora, the presumed descendants of Aztatlán people. In doing so, recent research has concluded that the Aztatlán-tradition information networks and religion played a key role in the dramatic cultural developments and the transmission of new ideologies, especially those centered on the Sun and Venus, which occurred across Northwest Mexico and the American Southwest after 1200 CE (Mathiowetz 2008b; Mathiowetz et al 2008; Schaafsma 2000). Due to space constraints, the following section will offer a brief discussion on the identification, characteristics, and temporal appearance of Venus symbolism in ancient and contemporary West Mexico.

It is not a coincidence that the cosmology of Venus as Morning Star in Central Mexico, West Mexico, and the American Southwest bear remarkable similarities. While specific design motifs do not necessarily correspond on a precise one-to-one ratio, it is in the core underlying packet of ritual metaphors where we find remarkably similar analogues in associating the Morning Star with warfare or hunting and the production of cold, frost, snow, lightning, and rain for the promotion of future agricultural and vegetal abundance. In West Mexico, particularly in the core coastal area of the Aztatlán tradition in Nayarit, southern Sinaloa and parts of Jalisco and Durango, the initial depiction of the Morning Star as an anthropomorphic deity replete with skeletal features and ornamented with stars (stellar eyes) and knives or darts emanating from the head, occurs as a motif in ceramic designs and carved stone reliefs roughly between 900-1100 AD. The appearance of these motifs coincides with increasing evidence of Central Mexican influence in material culture and symbolism in West Mexico during the Postclassic period.

The importance of the Morning Star to contemporary West Mexican people is exemplified among the Huichol where he is an important culture hero whose attributes include being a hunter and the precursor of the Sun, a deity who "makes the first milpa appear with the seeds of his sprouting bow", an important creator figure who establishes the arrangement of the world, and a being who introduces all of the important ceremonies and rituals (Preuss 1996: 130). Among the Tepecan of Azqueltan, Jalisco, at least two-thirds of all prayers begin with an invocation to the Morning Star (Mason and Agogino 1972: 11). These prayers highlight the close link between the Morning Star, arrows, lightning, and cold. One prayer begins thus: "There beneath the east is it formed whence he (Morning Star) hath sent his lightning and spoken" (Mason 1918: 94). A separate prayer draws clear connections with the purifying nature of cold weather linked to the Morning Star: "With thy arrows thou wilt purify us; thou wilt quit from us the pestilence which surroundeth us beneath thy heavens. From there [the east] thou wilt lead thy

path. Thou wilt cleanse us with the cold which is thy hand, with which thou wilt intensify for us thy spirit" (ibid.: 99). Notably, contemporary West Mexican indigenous perceptions of the Morning Star's visage shed light on identifying Morning Star imagery in the archaeological record of the Aztatlán tradition. For example, Huichol offerings to the Morning Star consist of triangular shaped pieces of bamboo that are painted to represent "the spirit of the arrow". These arrows are designated as his "face" or "aspect" (nealika) (Seler 1990-1998:4:188-190). That the Morning Star's face is perceived of as an arrow lends support to the interpretation of skeletal faces adorned with stellar and arrow/knife imagery as depictions of the Morning Star in the Aztatlán tradition in West Mexico.

In Mesoamerican cosmologies, including in West Mexico, the Morning Star as warrior leads the young Sun out of the underworld at dawn. It should come as no surprise then that the first identifiable appearance of anthropomorphic Morning Star symbolism coincides with the widespread appearance of symbolism and worship of the young solar deity Xochipilli first in West and Northwest Mexico which thereafter becomes firmly entrenched across the American Southwest by 1300 CE (Mathiowetz 2008a, 2008b; Mathiowetz et al 2008; Schaafsma 2000). During the Postclassic period, the development and northward dissemination of remarkably similar belief systems and metaphors centered on Venus across such disparate regions suggests historically related cultural developments and not the independent invention of Venus ritual complexes during this era. This dissemination should be characterized as coinciding with the expansion of Postclassic Period information networks that likely involved the physical movement of people between these regions.

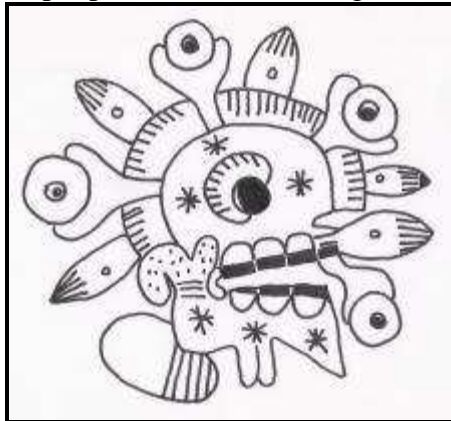


Fig. 2a



Fig. 2b

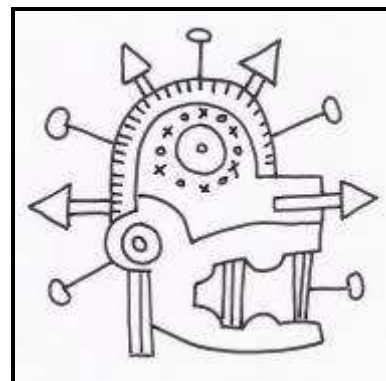
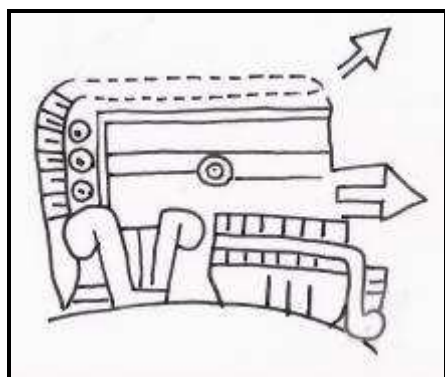


Fig. 2c

Fig. 2d

Figure 2: Examples of Venus as Morning Star symbolism in the West Mexican Aztatlán tradition.

- a) Detail of interior of vessel with representation of skeletal Morning Star deity. Note crested head and flint knives and stellar eyes emanating from head and face, Museo Regional de Nayarit. Cerritos Polychrome (900-1100 CE). Drawing from photo by Michael Mathiowetz.
- b) Skeletal deity with crested ruff, projecting flint blades and stellar eyes, Museo Regional de Nayarit. Drawing from photo by Michael Mathiowetz.
- c) Probable Morning Star deity. Detail of side panel on engraved back mirror, unknown West Mexican provenience. Museo de Arqueología del Occidente de Mexico, Guadalajara, Jalisco. Drawing by Michael Mathiowetz.
- d) Depiction of head of skeletal being with darts and circular elements likely representing stars emanating from the head and face. Detail of interior of Ixcuintla polychrome (1100-1350 CE), Amapa, Nayarit (Drawing by Michael Mathiowetz after Bell 1960: fig. 51).

Morning Star and the War/Fertility Complex in the American Southwest. The multi-valent Mesoamerican Venus packet of metaphors as previously described (see also Baird 1989; Carlson 1991; Milbrath 1999; Sprajc 1993a and b; Tedlock 1996) appears to be basic to concepts linking war and fertility as a complementary system manifest in the Pueblo Southwest after ca. 1350 CE (Schaafsma 2000; 2005). The close relationships argue for cultural/historical associations, but which were adapted to a differing level of social complexity.

In the American Southwest, historical continuity between Pueblo IV imagery and Pueblo ethnography provides a door into the complex meanings of the pre-contact petroglyphs and mural depictions (ca. 1325 – 1600 CE). Images featuring the Morning Star and Sun are situated in war-related contexts (Schaafsma 2000; 2005). The visual vocabulary of the Venus complex includes stars, star/serpent conflation, star deities including the War Twins, and kachinas, as well as warriors carrying weapons and star-bedecked sun shields. The Pueblo IV four-pointed Morning Star icon bristles with metaphorical implications. It is frequently conflated with eagle attributes, and stars may sport projectiles in eagle feather headdresses and extended talons, the latter identifying this star as a scalper. These feathered stars represent a synthesis with Knifewing, deity of the zenith, who ethnographically is often credited with doing the scalping, as he empowers the human agent. In addition there are contemporary images, ritual items (Figures 3a and b), impersonations, as well as oral traditions that participate in this star/rain/maize conceptual packet.

The Morning Star's association with the horned and feathered serpent alludes to cultural/historic connections with Tlahuizcalpantecuhtli, a Morning Star aspect of Quetzalcoatl (Mathiowetz et al. 2008; Schaafsma 2000:Pl. 9, and p.152). The relationships between Mesoamerican deities such as Quetzalcoatl/Mixcoatl, and Tlahuizcalpantecuhtli in Mexico and between the Horned Serpent and the Morning Star in the Southwest are extremely important aspects of this complex (see Mathiowetz et al. 2008).

Ethnographically, among the Pueblo star deities embodying several of the attributes of the Mexican complex is the star-faced Hopi sky god Sotunquangu (Figure 3c), a warrior who brandishes a serpentine lightning bolt as a weapon. His other associations are with ice and cold, fertility, the maturation of corn, and inventor of scalping, the latter related to blood-letting and human sacrifice, all in the interest of an abundant maize crop (see Bunzel 1932:133). The blood of the enemy is said to "nourish the earth." Parsons (1929:266) makes the case that the association of Morning Star, scalps, and corn is a widespread Puebloan complex, and the ethnographic literature is rife with references to scalps taken in battle that are inducted into villages as rain-makers (Bunzel 1932:678-79; 1933:133; Stephen 1936:97; Stevenson 1904:578-590). In several cases scalps or heads are taken by Corn Girl supernaturals (Parsons 1926:60; 1929:266; Tedlock 1972:85-132) or poetically "enter" the corn fields (Bunzel 1932:678). Scalps become "rain persons" by virtue of the Corn Priest's prayers (Bunzel 1933:133).

In addition, Parsons (1939:181-82) notes that scalps themselves were called Morning Star at Hano, conflating the two concepts. Stars in the Pottery Mound murals were interpreted by the Acoma as "soul-faces" (Hibben 1975:134), an interpretation that is reminiscent of the Aztec association of stars with dead warriors and sacrificial prisoners (Nicholson 1971:426). If stars can be equated with these dead, it is easy to make the case that they are equivalent to scalps, and in any case, the warrior dead contribute to the maintenance of the universe. We see here the seeds of ritual conflict, or at a minimum conflict incited or justified by the need to obtain scalps that will, in turn, insure adequate rainfall for the next growing season and general well-being.

Underlying the notion of blood-for-water, is the idea of reciprocity mentioned previously -- sacrifice to the earth in exchange for a good maize harvest. One of the underlying conceptual themes in Mesoamerican and other American cosmologies is the demand for reciprocity between humans and the supernatural powers—a reciprocity enacted through offerings and sacrifice to ensure successful maize harvests and human prosperity. In the Pueblo Southwest, offerings usually take the form of prayer sticks, although these in fact may substitute for living beings. Yet the complementary relationships between war and fertility is dramatically portrayed in a Pottery Mound kiva mural that balances contingent of warriors with a row of rainmakers (Schaafsma 2000:Pl. 12). The same complementary relationship between Morning Star sacrifice and fertility is dramatized in the Arrow Sacrifice of the Pawnee (Chamberlain 1982:55-71; Hall 1997 and see following) and Mesoamerican cosmologies, indicating that what is outlined here is part of a still larger American program.

As noted previously, recent studies have addressed the question of how Epiclassic and Postclassic events in Mexico and the Aztatlan tradition contributed to the expansion of economic, trade, and ideological relationships in the north (see also McGuire 2009). In summary, we propose that although there is no evidence for a Venus calendar in the Southwest, the fundamental cosmological Venus metaphors were incorporated into Pueblo ideology as they were deemed beneficial to the rain-making endeavors. We suggest that the Venus (Morning Star) metaphors were successfully adapted to a much simpler Puebloan society as they not only expanded and empowered rain-making beliefs, but also fostered ideological cohesion and rationalized conflict. (Having taken a scalp was a nearly universal requirement for admission to a Pueblo war society). The war societies themselves, along with the kachina cult, were useful in promoting village integration and unity, contributing to the formation of large Pueblos prevailing in the Southwest at this time. The cosmology, implemented by priests and warrior societies

endured because it was useful both perceptually and socially, even without an elite nexus of astronomers, scribes and codices and the esoteric powers they embodied. In this way, despite vastly differing levels of complexity between the Pueblo Southwest and Mesoamerica, basic metaphors of a Venus complex were preserved in a less stratified society.

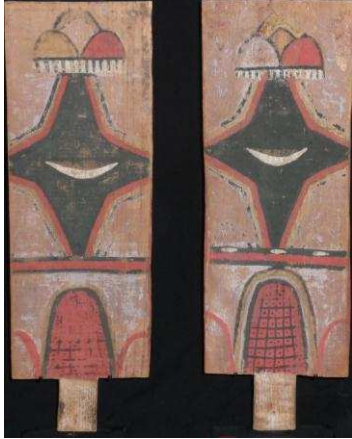




Figure 3a. Wands used in Hopi women's Mamzrau rites aimed at promoting fertility, favorable weather and success in war. The bearer of these wands may be referred to as "kaletaka" or warrior and wear warrior symbols on her cheeks. (Courtesy of Toby Herbst).

Figure 3b. Contemporary Star Kachina carving. Hopi. (Courtesy of Jenny French).

Figure 3c. Sotuqnangu, Heart-of-the-Sky deity, ca. Fifteenth century. Galisteo Basin, New Mexico. Note the feather crowning headdress, projectiles, as well as serpentine projectile in his left hand.

Venus and Morning Star in the Eastern United States. Even though literary references to a morning star were common in the aboriginal Eastern United States, verifiable identification of that body with a particular planet or star are scant to non-existent (Lankford 2007:53-57). Only among the Skidi band of Pawnees on the Central Plains did aboriginal astronomical knowledge and traditional narrative survive together in a manner to allow speculation on Venus's role in Native belief. Only within the iconography of the Mississippian archaeological cultures of the Southeast is Venus as morning star conjectured to have had some systematized presence, but this conjecture is not supported by recorded Native belief.

Within the Southeastern Ceremonial Complex engraved shell and repousse copper images of falcon warriors and dancers have been accepted by many as probable expressions of a war-associated morning star complex (Figure 4a), a position most eloquently argued by Brown (2007a). While logical and well received, the association has a low level of verifiability because Mississippian societies did not survive into the Historic period with their cosmological support intact. As observed by Keyes (1994:114, cited by Brown 2007a:72), "legitimizing ideologies of the elite vanish when the elite vanish."

A Venus as morning star association was once imputed to the so-called Long Nosed God of the Early Mississippian period. The Long Nosed God image appears as earrings of marine shell or copper and as earrings on engraved and painted images of persons wearing the same (Figure 4b; Brown 2007b:fig. 9.4; Diaz-Granados 2004; Hall 1991: fig.1.7; Hall 1997: 147-151). The

Venus connection comes exclusively from the inferred association of these earrings with the mythical Iowa and Winnebago (Ho-Chunk) character Human-Head-Earrings or He-Who-Wears-Human-Heads-as-Earrings plus Paul Radin's belief that this character was Venus as morning star, or evening star, or both. The association of the archaeological earrings with the mythical character is as sound as such inferences ever can be, but there is nothing in Iowa or Winnebago literature to bolster Radin's inferred association of He-Who-Wears-Human-Heads-as-Earrings with a morning star, Venus or otherwise, and Radin himself vacillated on the association (Lankford 2007:72-125).

The Skidi (Skiri) Pawnee Captive Girl Sacrifice (Weltfish 1977) or Sacrifice to the Morning Star (Linton 1922; Linton 1926; Wissler and Spinden 1916) was a variant of a Mesoamerican ritual commonly referred to as the scaffold or arrow sacrifice (Figure 4c). This ritual takes its name from the securing of the victim to a rectangular pole frame before being killed with arrows during the climax of the event. The sacrifice's northern presence among the Skidi band of Pawnees of the Central Plains is clearly an intrusion, even within the Pawnee tribe as a whole, because it was practiced only by the Skidi band. The route by which the sacrifice came to the Skidis and the timing of its arrival is not evident from ethnographic sources.

Despite its suggestive name, the morning star of the Morning Star Sacrifice does not necessarily involve Venus as morning star. The victim of the sacrifice does have an accepted astronomical identity with Venus, but as an evening star. Who the morning star impersonator represents, on the other hand, is less clear with Jupiter and Mars clearly in the running and Mars heavily favored (Chamberlain 1982). The story behind the Pawnee ritual involves the mating of the evening star and morning star, which suggests the conjunction of two planets. In such a conjunction only one could logically be Venus. Another thing not known is the form in which the sacrifice may have arrived among the Skidis originally and what kind of cultural accommodations were needed to fit a Mesoamerican ritual into Skidi cosmology. For that matter, it is not known in what form the sacrifice may have left Mesoamerica. The sacrifice is well illustrated in Late Postclassic Central Mexican codices, but next to nothing is known about the form the sacrifice may have taken in Early Postclassic — pre-Aztec — times. Human sacrifice on a grand scale is found north of Mexico only at the Cahokia site and was firmly institutionalized within Cahokia Mississippian by 1100 CE (Fowler et al. 1999; Hall 2000). A depiction of the sacrifice conforming to its Skidi form is shown engraved on a marine shell bowl from the Spiro site in Oklahoma (Figure 4d; Hall 1997:fig. 11.1; Phillips and Brown 1984:pl. 165). The scene illustrates an event not on earth but in the night sky, so it likely refers to an activity in the origin myth of the Morning Star sacrifice. This bowl is of a type believed to date to the thirteenth century.

Du Pratz (1972 [1774]:354-355) describes and illustrates torture by the Natchez in Mississippi of a male prisoner tied and splayed spread-eagle on a rectangular pole frame in the manner of the scaffold sacrifice (Figure 4e). The torture was performed using burning canes applied to his body. If this torture was the survival of an earlier practice of scaffold sacrifice in the manner of the Skidis, the use of burning canes would correspond to the gestures made to the evening star personator with firebrands from a sacred hearth. It would be surprising if some elements of the Mesoamerican scaffold sacrifice had not survived along its route to the Skidis without the sacrifice's cosmological significance to betray their origin.

The man personating the morning star represented the qualities of a warrior. Though only

dubiously identifiable with Venus in the historic Skidi rite, this may not have been the case in a more distant past. In the origin myth of the sacrifice the arrows shot at Evening Star by Morning Star served to kill certain corn plants that were protecting Evening Star's vulva and preventing sexual intercourse (Hall 1997:91; Murie 1902: Murie 1989:123). This suggests the frost arrows shot by Tlahuizcalpantecuhtli, the Central Mexican Lord of the Dawn and avatar of Venus. Frost kills corn plants.

The Skidi morning star's identity is further confused by his manner of face painting. Two lines of red paint were drawn down each side of his face (Murie 1989:116). This is a pattern that in Central Mexico was associated with the god Xipe Totec and his priests or personators — single lines or double, to the side of the eye or vertically through it (Figure 4f; Hall 1997:fig. 11.2). The so-called Flayed God Xipe Totec was associated with renewal of the earth's fertility and with both scaffold or arrow sacrifice and a gladiatorial sacrifice. Xipe Totec does not have any explicitly astronomical identity, so this manner of face painting reinforces the Skidi morning star's Mesoamerican credentials but does not bring him any closer to a Venus association.

The Skidi evening star personator's broader cosmological identity was made more explicit when her body was painted black on her left side and red on the right, which would be, respectively, on her north side and south side when she was tied on the pole frame and facing the morning star. Among the Omaha and Osage in North America and in Mesoamerica more generally, north was associated with sky and up, south with down and earth. The Pawnees conformed to the more usual pattern of tribes living north of the Tropic of Capricorn with north associated with earth and south with sky (Hall 2005).

When tied to the sacrificial frame with arms and legs extended, Evening Star's posture would have conformed to the so-called windmill or butterfly shape of the Aztec day sign Ollin that constitutes the central glyph of the Aztec Sun Stone (Figure 4g). This glyph, too, was divided into northern and southern halves. Within the northern half were the glyphs of the suns 4 Wind and 4 Rain (sky associated); within the southern half, the glyphs of the suns 4 Jaguar and 4 Water (earth associated). Ollin itself translates as Movement or Earthquake. During Song 10 of the Skidi sacrifice earth and movement are equated (Murie 1989:129). In other Pawnee songs Evening Star was equated with both movement and earth (Hall 1997:96; Murie 1989:81). This equation was accomplished through the rhetorical devices of 'parallelism' and 'epanaphora' (Hall 1997:95-96). The total of these and other associations give the Skidi scaffold sacrifice the character of a tableau symbolizing the cosmology represented in the Aztec Stone of the Suns.

Though popularly known as a calendar stone, the Stone of the Suns is actually more of a cosmogram. Among other things it contains glyphs representing the five suns or epochs of creation that appear in the Legend of the Suns — four previously destroyed suns or worlds and the sun or world current at the time of the Spanish entrada. Within the Skidi sacrifice this pattern of appearances and destructions corresponds to the morning star personator's ritual destruction of four circles representing Morning star's conquest of the earth's four quarters followed by his final and fifth conquest of Evening Star, an act that enabled the appearance of the present world. In North America this five-world cosmology is more explicitly dramatized within the Sun Dance of the Poncas, a tribe whose ancestors are believed by some to have once lived at Cahokia (Hall 1997:92-93; Hall 2004).

During the course of a Venus-sun cycle Venus emerges as a morning star five times within an eight year period, rising within each of the seasons (read world quarters) and then a fifth time close to the day of the year with which it began its course. Five canonical Venus synodical periods equal eight vague solar years ($5 \times 584 = 8 \times 365$).

In Pawnee thought there was a mental equation between the concept of season and world quarter, so that an activity that was said in ritual parlance to have taken place in each of the world quarters might have been understood to have taken place in each of the four seasons of the year. If we were to conclude an eight-year Venus cycle with the heliacal or first visible rising of Venus ahead of the sun in mid-August of A.D. 1505 Julian, for example, then it would be preceded by heliacal risings in spring of 1499, fall of 1500, summer of 1502, and winter of 1504, which would put a heliacal rising in four different seasons of the year and therefore, symbolically, in four different world quarters. [Hall 1997:93]

Evidence internal to the Legend of the Suns itself suggests that the Aztec five-world cosmology was originally based upon one of four worlds and only later contrived to accommodate a fifth sun and world. Two of the four worlds previous to the present lasted 52 calendar rounds each ($52 \times 52 \times 365$ days), while the remaining two lasted six and seven calendar rounds ($6 \times 52 \times 365$ years and $7 \times 52 \times 365$ years) (León-Portilla 1963:38-39). This suggests that one world of 52 calendar rounds duration was split into two to provide an additional world.

Aztec sacrifices sometimes consisted of four men representing the four world quarters plus one woman representing the world center and by implication, the world as a whole. In Skidi cosmology the woman was the Evening Star Venus who gave birth to the first Pawnee and represented the present world. In like manner the central and dominating glyph 4 Movement on the Sun Stone incorporates within itself the glyphs for the four earlier suns (Figure 7).

The idea of a present world not identified as a fourth, as it was in the Southwest, among the Hopi and Zuni, for instance, but with a fifth, was possibly one influenced by the growing importance of Venus in Mesoamerican cosmology. One could argue that the four-sun cosmology was based upon the model of the solar year and the five-sun model upon the Venus-sun cycle. This would strengthen the idea that the Skidi Morning Star sacrifice came to the Skidis fairly directly from Mesoamerica and did not first pass through the Southwestern United States.

Captions

Figure 4a. Dancing “hawk man” rendered as a copper repousse plate, from Mound C of the Etowah site, Georgia. From Howard (1968:fig. 9b).

Figure 4b. Long Nosed God earrings, from Hall (1997:fig.18.1): a, of shell from Pike County, Illinois, after Bareis and Gardner (1968:fig. 2a); b, short nosed variant of shell from Pike County, Illinois, after Perino (1971:fig. 73c); c, from the Gahagan Mound, Arkansas, after Williams and Goggin (1956:fig. 12a).

Figure 4c. Mixtec scaffold or arrow sacrifice as depicted in the Codex Zouche-Nuttall. From Nuttall (1975).

Figure 4d. Arrow sacrifice in the night sky depicted on an engraved marine shell bowl from the Craig Mound, Spiro, Oklahoma. From Phillips and Brown (1984:pl. 165).

Figure 4e. Prisoner of the Natchez tribe of Mississippi tied to a rectangular pole frame in the manner of the scaffold sacrifice. From De Pratz (1972 [1774]:355).

Figure 4f. Modes of face painting related in Mesoamerica to the god Xipe Totec and found in the North American Plains in the Skidi Pawnee Morning Star sacrifice and in the Lakota Hunka ceremony. From Hall (1997:fig. 11.2): a, hunka stripes on face of a spirit post representing someone mourned in a Lakota Soul Keeping ritual, after Densmore (1918:pl. 8); b, as described for the Morning Star personator in the Skidi Pawnee Morning Star sacrifice, after Murie (1989:116, cf. 64); c, on a Xipe officiant in the Codex Laud, after Saville (1929, fig. 48); d, on Xipe figures in the Codex Borgia, after Díaz and Rodgers (1993:pls. 25, 61), and on a Xipe sculpture from Texcoco, after Saville (1929:fig. 44); e, on a ceramic vessel from Monte Albán, after Nicholson (1976:fig. 9); f, on a glyph from Monte Albán, after Nicholson (1976:fig. 7); g, on a ceramic Xipe head from El Salvador, after Nicholson (1976:fig. 13); h, on a head incised on an Olmec jade plaque, after Joralemon (1971:fig 233); i, bisected circle motif representing an atlatl grip, from examples of Preclassic age in Mexico and Middle Woodland age in the Mississippi valley, see Hall (1997:chapt. 14).

Figure 4g. A rendition of the central glyph of the Aztec Stone of the Suns showing the names of the first four suns or creations of Aztec cosmology contained within quadrants of the glyph 4 Ollin or 4 Earthquake. From Hall (1998:58).

Figure 4a.

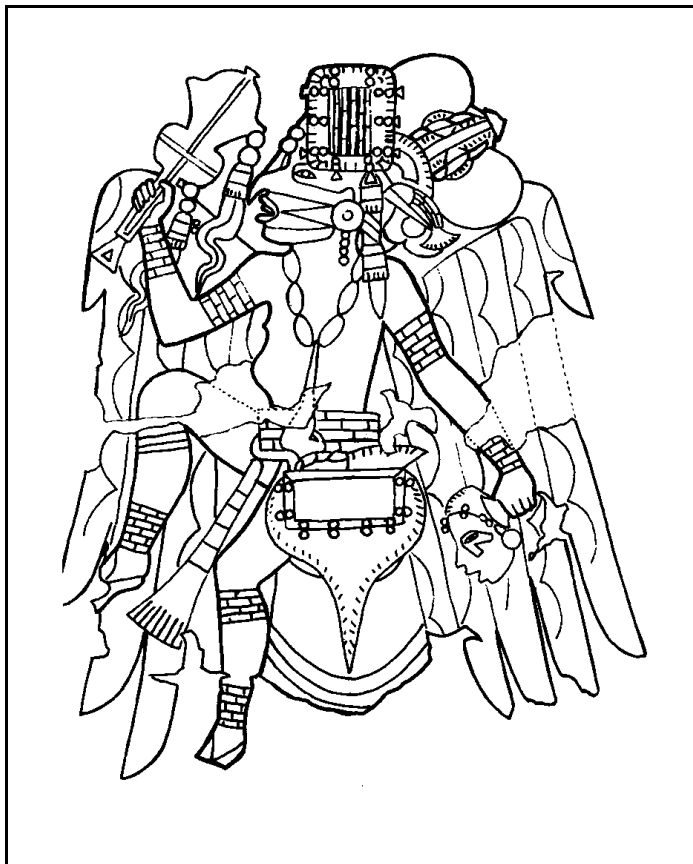


Figure 4b.

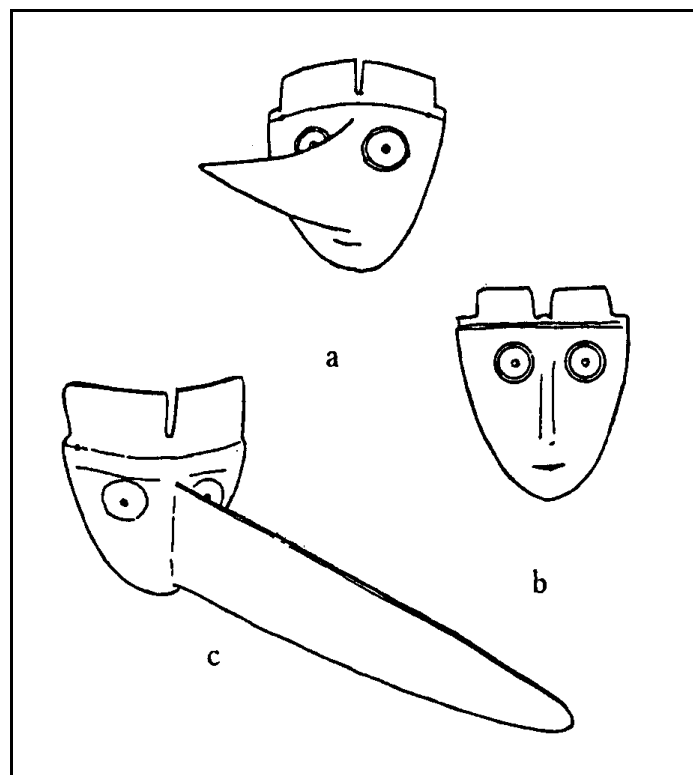


Figure 4c.

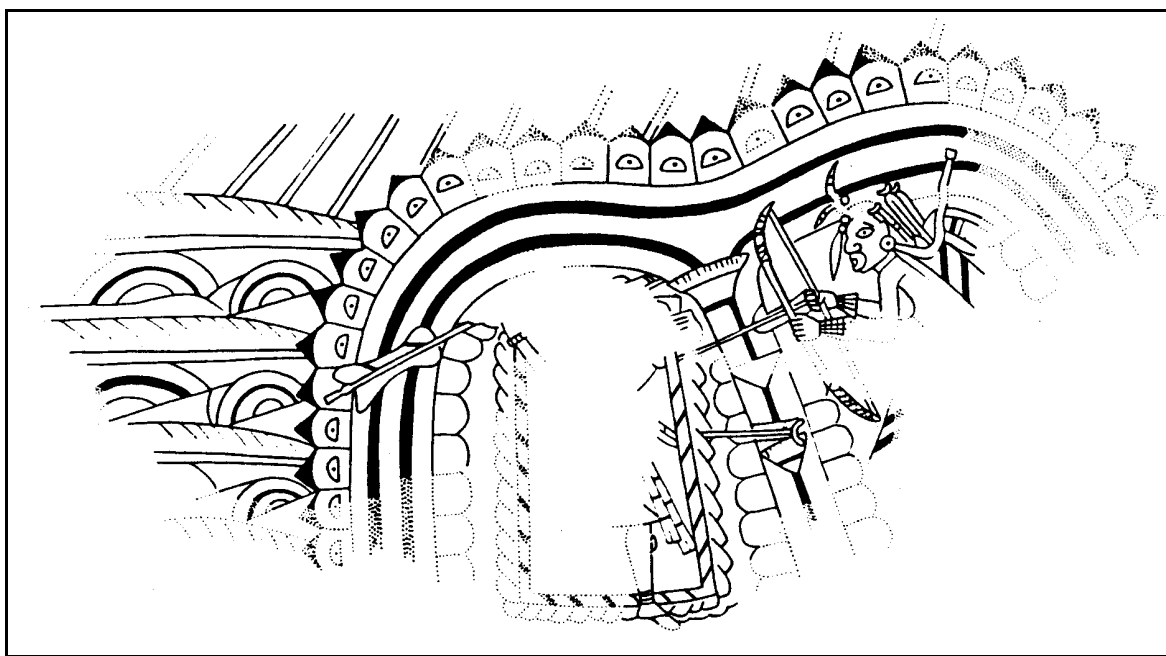
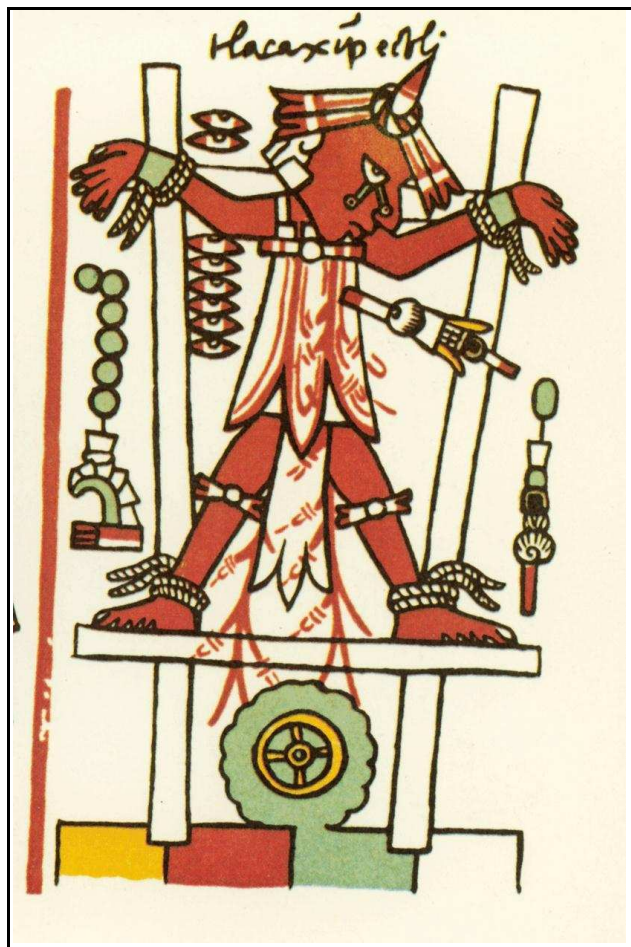


Figure 4d.

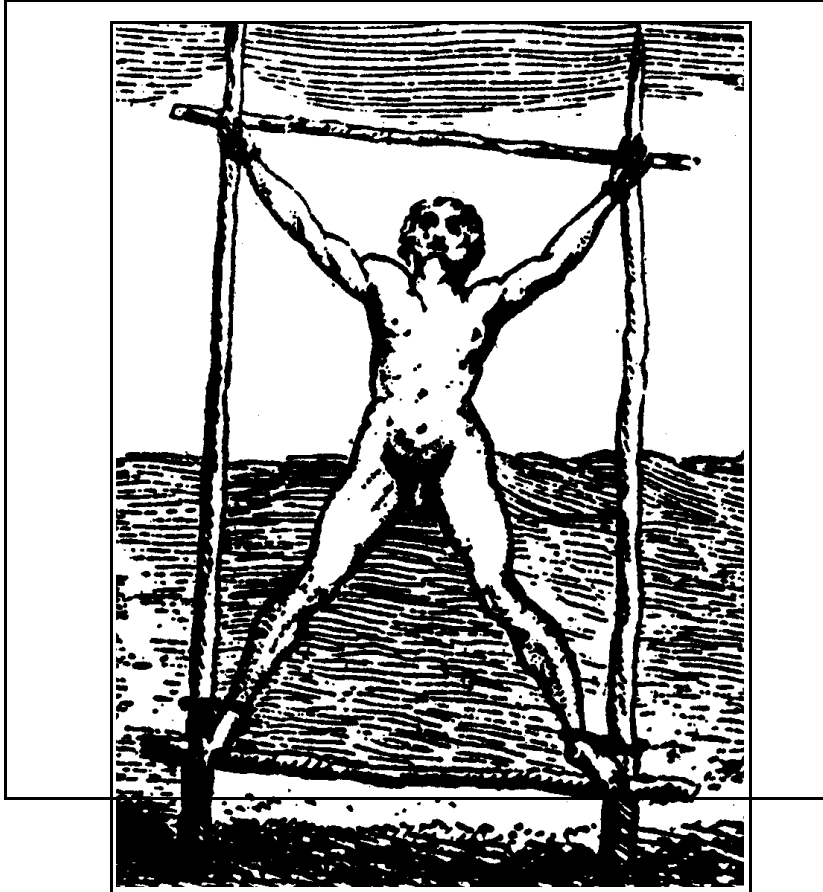


Figure 4e.

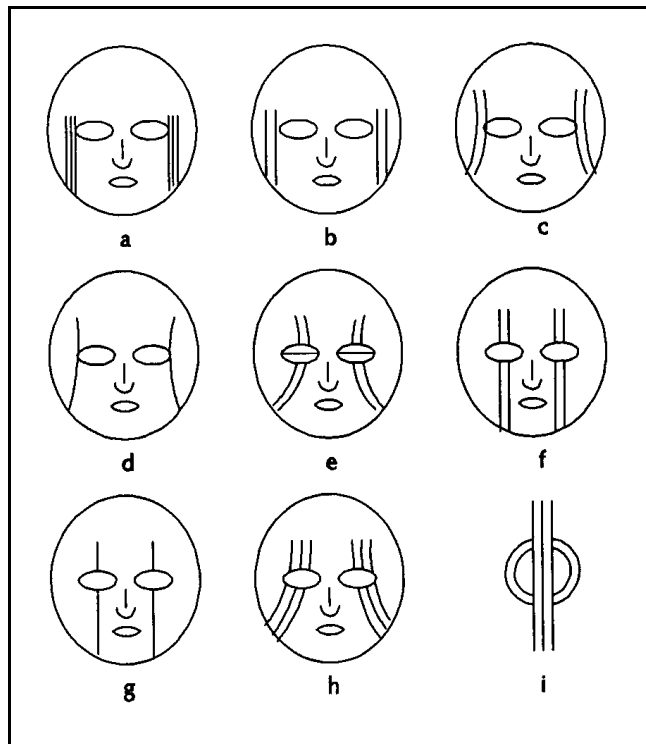


Figure 4f.

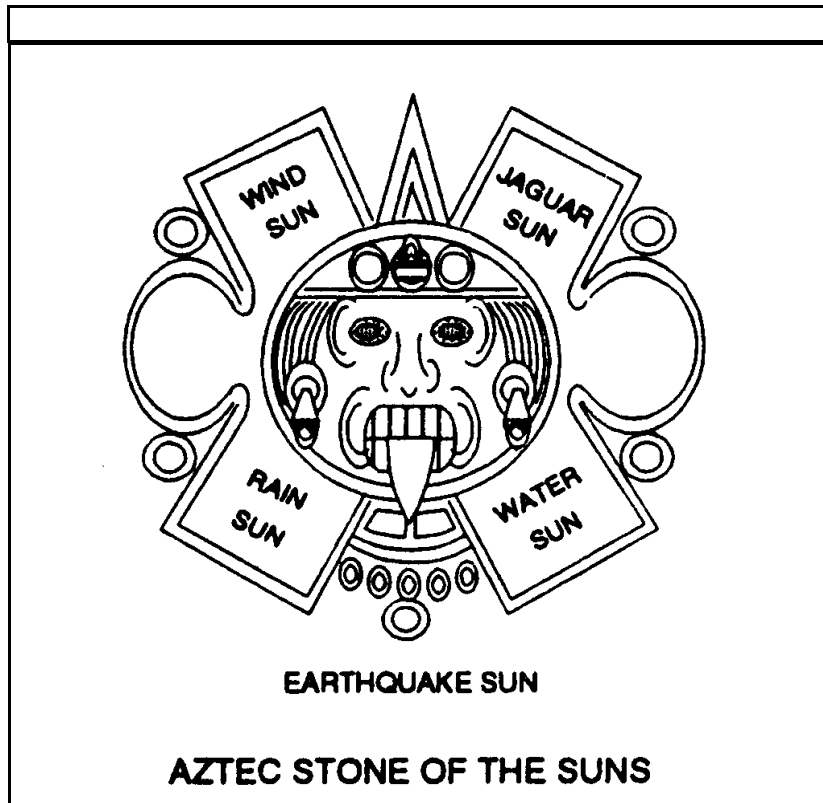


Figure 4g.

Conclusions. Components of the sky including Venus, the Sun, Moon and other phenomena are not limited to the celestial realm in a cultural sense, but in fact dynamically engage the entire cosmos (Zeilik 1986). They govern human events in the “Middle” world, and move in and out of the Underworld realm, involving and uniting the entire layered universe in a single drama, as they impact mythologies, rituals, and seasonal rounds of human participants. At least some shared patterns of interaction with Venus and the values ascribed to this planet cross-culturally have been identified as they manifest themselves according to the various needs of societies of differing levels of cultural complexity in North (including Meso) America. Conceptually Venus is associated with bellicosity, warfare, and death, and the complementary notion of renewal, as life overcomes death. Its timed appearances and disappearances are a metaphor for life cycles of both maize and humans. Among the Maya its cycles are correlated with the rainy season. This bundle of associations pervades all three areas under consideration but in different ways and to varying degrees

Cosmological knowledge—in this case of the celestial realm—is acquired, utilized, and disseminated by astrologers, shamans, priests, and astronomers, each of which deals with it according to the prescribed practices and cultural predilections of his/her society. How are knowledge and beliefs concerning Venus as Morning Star/Evening Star controlled, and how is this information put to political use and ritual practice by societies that differ in their levels of social complexity? In terms of the Venus packet considered here, some suggestions have been made, but these issues bear further exploration.

How is the “packet” similar and how is it different in each area? What are the possible historical, political, or economic reasons for similarities and differences? Both predictive and commemorative events are included in the Borgia pages in an extraordinary synthesis testimony to the highly complex observations and use of the Venus calendar and the orchestration of festivals in Mesoamerica. In Mesoamerica, the Venus calendar was the purview of the Mesoamerican elite, who could use this knowledge as a tool for prognostications, social control, as well as seeking/seeming to influence cosmic events. Calendrical knowledge was a source of power. Lack of a calendar and its social ramifications, however, did not prevent the complex from being adopted by the Pueblos in the American Southwest after 1300 CE where obviously its symbolism was considered useful.

In the American Southwest, as we have seen, the Venus bundle was linked to the war fertility complex among the Pueblos, for whom rain was an over-arching concern and a major focus of all ritual behavior. Thus this aspect of Venus, or Morning Star, ideology was appropriated for its power in rainmaking, specifically the aspect linked to conflict and obtaining scalps. Morning Star symbolism is associated with warriors and war societies, that like the kachina complex drew their memberships from across the social spectrum of Pueblo villages, a means of socially integrating them. Fueled by a Venus cosmology in both Mesoamerica and the Southwest, warfare could have been used as a rationalization for ritual/economic purposes.

Expanding our knowledge of culture history and cultural dynamics as they were played out between West Mexico and the American Southwest after ca. 900 or 1000 CE could further our understanding of how ideologies from Mexico impacted the Southwest. It remains to be pointed out that the Morningstar/Venus complex explored here is only one part of a more broadly shared cosmology between the Southwest and Mesoamerica (see Mathiowetz et al 2008; Schaafsma 1999; Schaafsma and Taube 2006). The role of Mimbres and Casas Grandes needs to be examined in regard to impacts from Postclassic events in West Mexico. Further research could address the question of not only the historical contexts and social environments in which Mesoamerican ideas were transmitted to the Pueblo Southwest, but the nature of the conditions

in the Pueblo Southwest during the fourteenth century that opened the door to their acceptance. A crisis cult situation following the migrations and drought on the Colorado Plateau has been considered elsewhere in this regard (Schaafsma 2000:163-64, 178).

Similar considerations in regard to the Southeast remain obscure. As noted previously, in the Southeast debate continues in regard to the antiquity of a Morning Star complex and its postulated symbolic associations, and the involvement of Venus as opposed to another planet. In the total milieu, the Skidi Pawnee Morning Star sacrifice, manifested the clearest parallels with similar rituals in Mesoamerica, incorporating the same symbols and metaphors.

This exercise into the roles of Venus within New World cosmovisions highlights the complexities and ramifications inherent in a single element of the cosmological spectrum as it structures beliefs and social practices. A Venus ideology results in diverse expression and cultural forms as it is played out among hierarchically complex urban and simpler agrarian societies,. It is, nevertheless, their shared core values that denote a historical link between these maize-based societies of Mesoamerica and adjoining regions.

Acknowledgments.

This paper is the result of a cooperative effort sponsored by the workshop “Cosmology and Society in the Ancient Amerindian World” hosted by the Santa Fe Institute in Santa Fe, New Mexico. We express our gratitude to all of those involved for facilitating this research. We also wish to thank Toby Herbst and Jenny B. French for their generosity in regard to the Pueblo artifact illustrations.

References

- Anders, Ferdinand, Maarten Jansen, and Luis Reyes García
 1993 *Los Templos del Cielo y de la Oscuridad: Oráculos y liturgia: Libro explicativo del llamado Códice Borgia*. Fondo de Cultural Económica, México, and Akademische Druck- und Verlagsanstalt, Graz, Austria and Fondo de Cultura Económica, Mexico City.
- Aveni, Anthony F.
 1999 Astronomy in the Mexican Codex Borgia. *Archaeoastronomy* 24. Supplement to the *Journal of the History of Astronomy* 30:S1-S20.
 2001 *Skywatchers: A Revised and Updated Version of Skywatchers of Ancient Mexico*. University of Texas Press, Austin.
- Aveni, Anthony F., Edward E. Calnek, and Horst Hartung
 1988 Myth, Environment and the Orientation of the Templo Mayor of Tenochtitlan. *American Antiquity* 53(2):287-309.
- Baird, Ellen T.
 1989 Star and War at Cacaxtla. *Mesoamerica after the Decline of Teotihuacan, A.D. 700-900, A.D.*, edited by Richard A. Diehl and Janet Catherine Berlo, pp. 105-122. *Dumbarton Oaks Research Library and Collection*, Washington, D.C.
- Bareis, Charles J., and William M. Gardner
 1968. Three long-nosed god masks from western Illinois. *American Antiquity* 33 (4):495-498.
- Bell, Betty
 1960 *Analysis of Ceramic Style: A West Mexican Collection*. Ph.D. Dissertation, UCLA.
- Bierhorst, John
 1992 *History and Mythology of the Aztecs: The Codex Chimalpopoca*. University of Arizona Press, Tucson and London.
- Boone, Elizabeth Hill
 2007 *Cycles of Time and Meaning in the Mexican Divinatory Codices*. University of Texas Press, Austin.
- Bricker, Victoria R.
 2001 A Method for Dating Venus Almanacs in the Borgia Codex. *Archaeoastronomy*, 26. Supplement to the *Journal of the History of Astronomy* 32:S21-S43
- Brown, James
 2004 The Cahokian Expression: Creating Court and Cult, in *Hero, Hawk, and Open Hand: American Indian Art of the Ancient Midwest and South*, Richard F. Townsend and Robert V. Sharp, eds. Pp. 104-23. Chicago: Art Institute of Chicago/Yale University Press.
- 2007a . On the identity of the Birdman within Mississippian period art and iconography. In *Ancient Objects and Sacred Realms: Interpretations of Mississippian Iconography*, edited by F. Kent Reilly III and James F. Garber, 56-106. University of Texas Press, Austin.
- 2007b Sequencing the Braden Style within Mississippian Period Art and Iconography. In *Ancient Objects and Sacred Realms: Interpretations of Mississippian Iconography*, edited by F. Kent Reilly III and James F. Garber, 213-245. University of Texas Press, Austin.
- Bunzel, Ruth
 1932 Zuni Ritual Poetry, Zuni Katcinas: An Analytical Study. 47th Annual Report of the Bureau of American Ethnology, 1929-1930.. pp. 612-1086. Washington, D.C.

- 1933 Zuni Texts. American Ethnological Society Publications 15, G.E. Stechert and Co. New York.
- Byland, Bruce E.
1992 Introduction and Commentary. The Codex Borgia: A Full-Color Restoration of the Ancient Mexican Manuscript, Gisele Díaz and Alan Rodgers, artists. Dover Publications, New York.
- Carlson, John
1990 Venus-Regulated Warfare and Ritual Sacrifice in Mesoamerica: Teotihuacan and the Cacaxtla "Star Wars" Connection. Center for Archaeoastronomy Technical Publications no. 7. College Park, Maryland.
- Carrasco, David
2000 Quetzalcoatl and the Irony of Empire: Myths and Prophecies in the Aztec Tradition. Revised Edition. University Press of Colorado, Boulder.
- Chamberlain, Von Del
1982 When Stars Came Down to Earth: Cosmology of the Skidi Pawnee Indians of North America. Los Altos, CA: Ballena Press./Center for Archaeoastronomy Cooperative Publication. Los Altos, CA, and College Park, MD.
- Demarest, Arthur A., and Geoffrey W. Conrad, eds.
1992 Ideology and Pre-Columbian Civilizations. School of American Research, Santa Fe.
- Densmore, Frances
1918. Teton Sioux Music. Bureau of American Ethnology Bulletin 61. Smithsonian Institution, Washington, D.C.
- Díaz, Gisele, and Alan Rodgers
1993. The Codex Borgia: A Full-Color Restoration of the Ancient Mexican Manuscript. Dover, New York.
- Díaz-Granados, Carol
2004. Marking stone, land, body, and spirit. In Hero, Hawk, and Open Hand: American Indian Art of the Ancient Midwest and South, edited by Richard f. Townsend and Robert V. Sharp, 138-149. Art Institute of Chicago in cooperation with Yale University Press, New Haven.
- Díaz-Granados, Carol, and James R. Duncan
2000 The Petroglyphs and Pictographs of Missouri. University of Alabama Press.
- Dorsey, George A.
1904 Traditions of the Skidi Pawnee. Memoirs of the American Folklore Society, No. 8. Boston: Houghton, Mifflin.
- Duncan, James R., and Carol Díaz-Granados
2000 Of Masks and Myths. Midcontinental Journal of Archaeology 25: 1-26.
- Du Pratz, Le Page
1972 [1774]. The History of Louisiana or of the Western Parts of Virginia and Carolina. Claiborne's Publishing Division, Baton Rouge, La. Reprinted from the London edition of T. Becket.
- Ekholm, Gordon F.
1942 Excavations at Guasave, Sinaloa, Mexico. Anthropological Papers of the American Museum of Natural History, vol. 38, part II: 23-139. New York.
- Fowler, Melvin L., Jerome Rose, Barbara Vander Leest, and Steven R. Ahler
1999. The Mound 72 Area: Dedicated and Sacred Space in Early Cahokia. Reports of Investigation 54. Illinois State Museum, Springfield.

Hall, Robert L.

- 1991 The Cultural Background of Mississippian Symbolism, in *The Southeastern Ceremonial Complex: Artifacts and Analysis*, Patricia Galloway, ed. Pp. 239-78. University of Nebraska Press.
1991. Cahokia identity and interaction models of Cahokia Mississippian. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest*, edited by Thomas E. Emerson and R. Barry Lewis, 3–34. University of Illinois Press, Urbana and Chicago.
- 1997 *An Archaeology of the Soul: North American Indian Belief and Ritual*. University of Illinois Press. Urbana.
- 1998 A Comparison of Some North American and Mesoamerican Cosmologies and Their Ritual Expressions, in Mark G. Plew, ed., *Explorations in American Archaeology. Essays in Honor of Wesley R. Hurt*, 55-88. New York: University Press of America., Lanham, MD.
- 2000 Sacrificed foursomes and Green Corn ceremonialism. In *Mounds, Modoc, and Mesoamerica: Papers in Honor of Melvin L. Fowler*, edited by Stephen R. Ahler, 245–253. *Scientific Papers* 48. Illinois State Museum, Springfield.
2004. The Cahokia site and its people. In *Hero, Hawk, and Open Hand: American Indian Art of the Ancient Midwest and South*, edited by Richard f. Townsend and Robert V. Sharp, 92-103. Art Institute of Chicago in cooperation with Yale University Press, New Haven.
- 2005 Contradictions as a source of historical perspective: examples from the symbolism of camp circles and sacred poles. *Ontario Archaeology: Journal of the Ontario Archaeological Society*, Number 79/80 [dated 2005, appeared in 2007]:115-126.

Hernandez, Christine

- 2004 “Yearbearer Pages” and Their Connection to Planting Almanacs in the Borgia Codex In *The Madrid Codex: New Approaches to Understanding an Ancient Maya Manuscript*. Gabrielle Vail and Anthony Aveni, editors, pp. 321-366. University Press of Colorado, Boulder.

Howard, James H.

1968. *The Southeastern Ceremonial Complex and its Interpretation*. Missouri Archaeological Society Memoir 6. Columbia, Mo.

Joralemon, P. D.

1971. *A Study of Olmec Iconography*. *Studies in Pre-Columbian Art and Archaeology* 7. Dumbarton Oaks, Washington, D.C.

Keyes, Gregory

- 1994 Myth and social history in the early Southeast. In *Perspectives on the Southeast*, edited by P. B. Kwachka, 106-115. University of Georgia Press, Athens.

Krupp, E.C.

- 1991 *Beyond the Blue Horizon—Myths and Legends of the Sun, Moon, Stars, and Planets*. HarperCollins, New York.
- 1997 *Skywatchers, Shamans, & Kings—Astronomy and the Archaeology of Power*. John Wiley & Sons, Inc., New York
- 1998 Celestial Analogy and Cyclical Renewal. 3rd Stone, no. 31, pp. 23-27 (paper presented at American Anthropological Association meeting in November, 1993).
- 2000 *Sky Tales and Why We Tell Them*. In *Astronomy Across Cultures: The History of Non-Western Astronomy*, edited by Helaine Selin, pp. 1-30. Kluwer Academic Publishers, Dordrecht, The Netherlands.

- Lange, Rainer and Noel M. Swerdlow
 2006 Planetary, Lunar, and Stellar Visibility 3.1.0. Alcyone software.
<http://www.alcyone.de>.
- Lankford, George E.
 2006 Some Southwestern Influences in the Southeastern Ceremonial Complex. *Arkansas Archeologist* 45: 1-25.
- 2007 Reachable Stars. Patterns in the Ethnoastronomy of Eastern North America. University of Alabama Press.
- León-Portilla, Miguel
 1963. *Aztec Thought and Culture: A Study of the Ancient Nahuatl Mind*. University of Oklahoma Press, Norman.
- Linton, Ralph
 1922. The Sacrifice to the Morning Star by the Skidi Pawnee. Department of Anthropology Leaflet 6. Field Museum of Natural History, Chicago.
 1926. The origin of the Skidi Pawnee sacrifice to the morning star. *American Anthropologist*, n.s., 28 (3):457-466.
- Lounsbury, Floyd G.
 1982 Astronomical Knowledge and its Uses at Bonampak, Mexico. In *Archaeoastronomy in the New World*, edited by A. F. Aveni, pp. 143-169. Cambridge University press, Cambridge.
- Mason, John Alden
 1918 Tepecano Prayers. *International Journal of American Linguistics* 1(2) 91-153.
- Mason, J. Alden and George Agogino
 1972 The Ceremonialism of the Tepecan. Eastern New Mexico University Paleo-Indian Institute, Portales.
- Mathiowetz, Michael
 2008a The Sun Youth of Mesoamerica and the Greater Southwest: Mesoamerican Religion and Cosmology at Paquimé, Chihuahua. Manuscript in possession of author.
 2008b *"The Son of God who is in the Sun": Political Authority and the Personified Sun God in Ancient West and Northwest Mexico*. Manuscript in possession of author.
- Mathiowetz, M., P. Schaafsma, J. Coltman and K. Taube
 2008 The Darts of Dawn: The Tlahuizcalpantecuhtli Venus Complex in the Iconography of Mesoamerica and the American Southwest. Paper presented at the 73rd Annual Meeting of the Society for American Archaeology, Vancouver, B.C.
- McCluskey, Stephen C.
 1982 Historical Archaeoastronomy: The Hopi Example. In *Archaeoastronomy in the New World*, edited by A. F. Aveni, pp. 31-57. Cambridge University press, Cambridge.
- McGuire, Randall H.
 2009 Pueblo Religion and the Mesoamerican Connection. Paper presented at the 74th Annual
- Meighan, Clement
 1976 The Archaeology of Amapa, Nayarit. *Monumenta Archaeologica*, vol. 2. The Institute of Archaeology, UCLA.

Milbrath, Susan

1989 A Seasonal Calendar with Venus Periods in Codex Borgia 29-46. In *Imagination of Matter: Religion and Ecology in Mesoamerican Traditions*, edited by David Carrasco, pp. 103-127. BAR International Series No. 515.

1997 Decapitated Lunar Goddesses in Aztec Art, Myth, and Ritual. *Ancient Mesoamerica* 8:185-206.

1999 *Star Gods of the Maya: Astronomy in Art, Folklore, and Calendars*. University of Texas Press, Austin.

2007 Astronomical Cycles in the Imagery of the Codex Borgia 29-46. In *Skywatching in the Ancient World: New Perspectives in Cultural Astronomy*, edited by Clive Ruggles and Gary Urton, pp.157-208. Boulder: University Press of Colorado.

In press *Heavenly History: Ancient Mexican Astronomy in the Codex Borgia*. University of Texas Press, Austin.

Monaghan, John

1992 Sacrifice, Death, and the Origins of Agriculture in the Codex Vienna. *American Antiquity* 55(3):559-569.

Murie, James R.

1902. Ethnographic and linguistic notes, Morning Star folder. Archives of the Field Museum Department of Anthropology. Chicago.

1989. *Ceremonies of the Pawnee*, edited by Douglas R. Parks. University of Nebraska Press, Lincoln. Originally published as *Smithsonian Contributions to Knowledge* 27 (1981).

Nicholson, Henry B.

1971 Religion in Pre-Hispanic Central Mexico. *Archaeology of Northern Mesoamerica*, edited by Gordon F. Ekholm and Ignacio Bernal, pp. 395-445. *Handbook of Middle American Indians*, vol. 10. Robert Wauchope, general editor. University of Texas Press, Austin.

Lincoln. Originally published as *Smithsonian Contributions to Knowledge* 27 (1981).

Nicholson, Henry B.

1976. Preclassic Mesoamerican iconography from the perspective of the Postclassic: problems in interpretational analysis. In *Origins of Religious Art and Iconography in Preclassic Mesoamerica*, edited by Henry B. Nicholson, 158-175. UCLA Latin American Center and Ethnic Arts Council of Los Angeles, Los Angeles.

Nowotny, Karl A.

1961 *Tlacuilolli*. Verlag Gebr. Mann., Berlin.

1976 *Codex Borgia, Kommentar*. Akademische Druck-u. Verlagsanstalt, Graz, Austria.

Nuttall, Zelia, ed.

1975 *The Codex Nuttall: A Picture Manuscript from Ancient Mexico*. Dover, New York. Based on the Harvard Peabody Museum facsimile copy.

Parsons, Elsie Clews

1926 *Tewa Tales*. *Memoirs of the American Folk-Lore Society* 19, New York

1929 *The Social Life of the Tewa of New Mexico*. *Memoirs of the American Anthropological Association*. 36.

Perino, Gregory

1971. The Yokem site, Pike County, Illinois. In *Mississippian Site Archaeology in Illinois I*:

- Site Reports from the St. Louis and Chicago Areas, 149-186. Illinois Archaeological Survey Bulletin 8. Urbana.
- Phillips, Philip, and James A. Brown
 1984. Pre-Columbian Shell Engravings from the Craig Mound at Spiro, Oklahoma, part 2. Peabody Museum Press of Harvard University, Cambridge.
- Preuss, Konrad T.
 1996 On the Huichols (translated by Peter T. Furst). In *People of the Peyote: Huichol Indian History, Religion, & Survival*, edited by Stacy B. Schaefer and Peter T. Furst. University of New Mexico Press, Albuquerque.
- Radin, Paul
 1950 The Basic Myth of the North American Indians. *Eranos-Jahrbuch* 17: 359-419.
- Reilly, F. Kent III
 2004 People of Earth, People of Sky: Visualizing the Sacred in Native American Art of the Mississippian Period, in *Hero, Hawk, and Open Hand: American Indian Art of the Ancient Midwest and South*, Richard F. Townsend and Robert V. Sharp, eds., pp. 124-37. Chicago: Art Institute of Chicago/Yale University Press.
- Sahagún, fray Bernardino de
 1950-82 Florentine Codex: General History of the Things of New Spain. 12 vols and introduction. Translated by Arthur J. O. Anderson and Charles E. Dibble. School for American Research, Santa Fe, New Mexico..
- Saville, Marshall
 1929 The Aztecán god Xipe Totec. In *Museum of the American Indian Notes* 6, 151-174. Heye Foundation, N.Y.
- Schaafsma, Polly
 1999 Tlalocs, Kachinas, Sacred Bundles, and Related Symbolism in the Southwest. In *The Casas Grande World*, edited by Curtis F. Schaafsma and Carroll L. Riley, pp.164-192. University of Utah Press, Salt Lake City.
 2000 Warrior, Shield, and Star: Imagery and Ideology of Pueblo Warfare. Western Edge Press, Santa Fe.
 2005 Feathered Stars and Scalps in Pueblo IV. In *Current Studies in Archaeoastronomy: Conversations across Time and Space*, edited by John W. Fountain and Rolfe M. Sinclair, pp. 191-204. Selected Papers from the Fifth Oxford International Conference at Santa Fe, 1996. Carolina Academic Press, Durham, NC.
- Schaafsma, Polly and Karl A. Taube
 2006 Bringing the Rain: An Ideology of Rain-making in the Pueblo Southwest and Mesoamerica. In *A Pre-Columbian World*, edited by Jeffrey Quilter and Mary Miller, pp. 2231-286. Dumbarton Oaks, Washington, D.C.
- Schele, Linda, and David Freidel
 1990 A Forest of Kings. William Morrow and Co., Inc. New York.
- Seler, Eduard
 1963 *Commentarios al Codice Borgia*, 3 vols. Fondo de Cultural Economica, Mexico.
 1990-1998 *Collected Works in Mesoamerican Linguistics and Archaeology*, vols. 1-8, Labyrinthos, Culver City.

Sprajc, Ivan

1993a The Venus-Rain-Maize Complex in the Mesoamerican World View: Part I. *Journal for the History of Astronomy* 24, 2(75):17-70. Science History Publications, Ltd. Cambridge.

1993b The Venus-Rain-Maize Complex in the Mesoamerican World View: Part II. *Archaeoastronomy*, no. 18 (JHA vol. 24), pp. S27-S5?. Science History Publications, Cambridge.

Stephen, Alexander M.

1936 *Hopi Journal*, edited by Elsie Clews Parsons, Parts I and II. Columbia University, New York.

Stevenson, Matilda Coxe

1904 *The Zuni Indians*. 23rd Annual Report, 1901-1902, Bureau of American Ethnology, Washington, D.C.

Taube, Karl A.

2009 *At Dawn's Edge: Tulum, Santa Rita, and Floral Symbolism in the International Style of Late Postclassic Mesoamerica*. In *Astronomers, Scribes, and Priests: Intellectual Interchange between the Northern Maya Lowlands and Highland Mexico in the Late Postclassic Period*, edited by Gabrielle Vail and Christine Hernandez, pp. 145-91. *Dumbarton Oaks*, Washington, D.C.

Tedlock, Dennis

1972 *Finding the Center*. The Dial Press, New York.

1996 *Popul Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*. Touchstone Press, New York.

Velazquéz, Primo Feliciano

1945 *Codice Chimalpopoca*. *Anales de Cuauhtitlan y Leyenda de los Soles*. Universidad Nacional Autónoma de México, Mexico.

Weltfish, Gene

1977. *The Lost Universe: Pawnee Life and Culture*. University of Nebraska Press, Lincoln.

Williams, Stephen, and John M. Goggin

1956. The long nosed god mask in eastern United States. *Missouri Archaeologist* 18 (3) : 4-72 .

Wissler, Clark, and Herbert J. Spinden

1916. The Pawnee human sacrifice to the morning star. *American Museum Journal* 16 (1):48-55. American Museum of Natural History, New York.

Young, M. Jane

1991 *Morning Star, Evening Star: Zuni Traditional Stories*. In *Earth and Sky: Visions of the Cosmos in Native American Folklore*, edited by Ray A. Williamson and Claire R. Farrer. University of New Mexico Press, Albuquerque.

Zeilik, Michael

1986 *The Ethnoastronomy of the Historic Pueblos, II: Moon Watching*. *Journal for the History of Astronomy* (10:JJHA xvii):SS1-S22,, edited by M. A. Hoskin. Science History Publications, Ltd, Cambridge.

