Creation, Cosmos, and the Imagery of Palenque and Copan Linda Schele and Khristaan D. Villela University of Texas, Austin

At the 1992 Texas Meetings, Schele (1992) presented a new interpretation of the creation myth and the imagery associated with it, as they are recorded in Classic Period inscriptions. There is continuing debate about some of the details in this reconstruction, but various researchers (Schele, Grube, Nahm, R. Johnson, and Quenon) have tested some of its patterns and found them to be productive. This new reconstruction resulted from the decipherment of texts at Quirigua, Palengue, and elsewhere, relating the events of creation and associating them with various constellations, the Milky Way, and their movement through the sky. Since a detailed discussion of the creation story is published in Schele (1992) and Freidel, Schele, and Parker (1993), we discuss here only the main features of the story and its association to astronomical phenomena.

The story of creation on Quirigua Stela C (fig. 1) gives us the most detailed information about the first moment. The text describes the first event as the "appearance or manifestation of an image" (*halhi k'ohba*). Here the image that appeared was of three stone-settings (*u tz'apwa tun*), described as a jaguar throne stone placed by the Paddler Gods at a place called *Na-Ho-Chan*, 'House (or First or Female) Five-Sky'; a snake throne stone set up by an unknown god at *Kab-Kah*,¹ 'Earth-town';

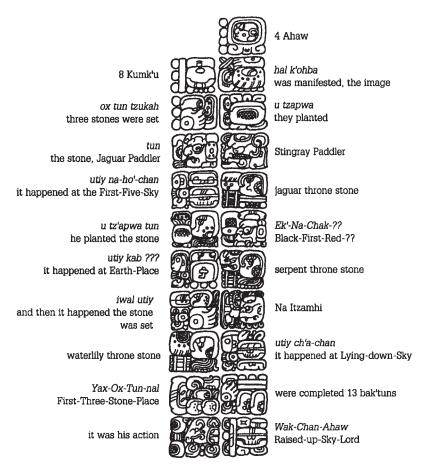
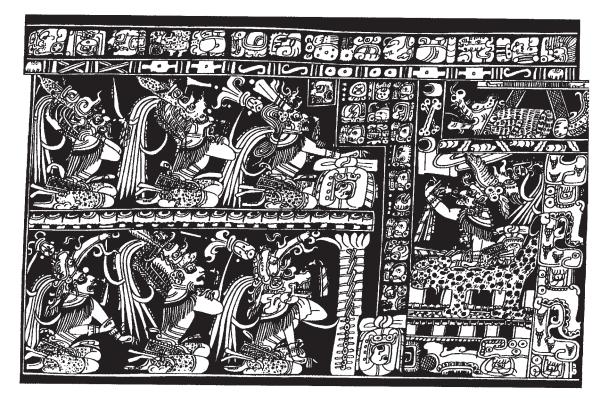
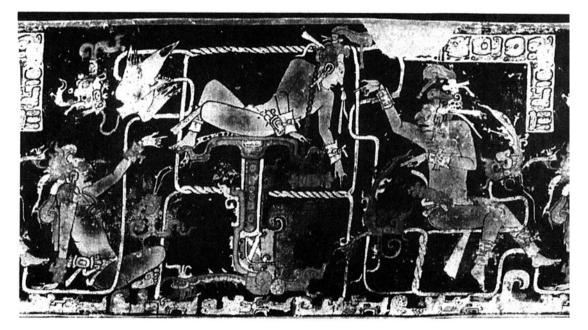


Fig. 1. The Creation Passage from Quirigua Stela C.



a. A council of gods aiding in the setting of the jaguar throne. Here the main actor is God L, while the Jaguar Paddler, who is named in the Quirigua text, sits at the head of the upper row of gods.



b. A god being born at *Na-Ho-Chan-Witz-Xaman*, "First-Five-Sky-Mountain-North." The twisted cords with the snake heads are the Classic-Period version of the *kuxan-sum*, the living cords," that form the sky umbilicus.

and a water or ocean throne stone set up by Itzamna.

One of these throne placings appears on the pot of the Seven Gods (fig. 2a), where God L sits on a jaguar throne facing six other gods. The text narrates that "on 4 Ahaw 8 Kumk'u it was set in order, Black-is-its-Center," (Chan Ahaw Waxak Kumk'u tzakhi *Ek'-u-Tan*). The name of the location, *Ek'-u-*Tan, refers to the state of the pre-creation universe as black because the sky had not yet been lifted away from the Primordial Sea. Another creation pot (fig. 2b) shows the location Na-Ho-Chan-Witz-Xaman, "Female Five-Sky-Mountain-North," the location named in the Quirigua scene for the jaguarthrone setting. Here the background is also dark, but we have in addition, snake-headed cords that are the Classic-period version of the kuxan sum, the "living cord" or umbilicus famous in the legends of Yukatan.

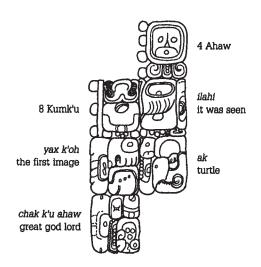
At Quirigua, Palenque, and other sites, the scribes specified further that the place where these stones were set was "Lying-down Sky First Three-Stone-Place," (*Ch'a-Chan-Yax-Ox-Tunal*). Barbara MacLeod and Schele recognized several years ago that this First-Three-Stone-Place had to refer to the three thrones, and she (MacLeod 1991) further associated these stones with the descriptions of the creation in the Book of the Chilam Balam of Chumayel. David Freidel and Schele, who were working on these concepts, immediately presumed that the three stones referred to the stones of a Maya hearth. Not only does a hearth always have three stones in it, but they are arranged in the same triangular pattern as the glyph for Yax-Ox-Tunal. Furthermore, as Matt Looper pointed out, Dennis Tedlock (1985) had identified the lower triangle of stars in Orion-Alnitak, Saiph, and Rigelas the three stones of the hearth. At the 1992 Workshop on Maya Hieroglyphic Writing, Barbara Tedlock further added that the K'iche' call Orion Je Chi Q'aq', 'dispersed fire'. The three hearth stars are called the

Oxib' Xk'ub', 'three hearthstones' and Nebula M42 is Q'aq', 'fire'. Schele (1992, Freidel et al. 1993) believes this association to be a very ancient one that identifies the First-Three-Stone-Place as these three stars in Orion (fig. 3c).

The cosmic hearth was not the only image generated by creation according to the ancient texts. Another inscription (fig. 3a) published in Mayer (1991) says that "on 4 Ahaw 8 Kumk'u, was seen the first image of the turtle, the great divine lord" (Chan Ahaw Waxak Kumk'u ilahi yax k'oh Ak Chak Ch'u Ahaw). This turtle is the double-headed turtle that cracks open for the rebirth of the Maize God (fig. 3b), and like the cosmic hearth can be found in the sky. Lounsbury (in Miller 1986) identified the turtle in Room 2 of the Bonampak murals as Gemini or Orion (fig. 3d). Because the three stars on the turtle's back match the belt of Orion, Schele (1992) believes the turtle to be located there.² She also associates the copulating peccaries in the opposite cartouche with Gemini, because, as Lounsbury pointed out, ak is the word for turtle, peccary, and dwarf. An ak ek' can be a 'turtle star', a 'peccary star', or a 'dwarf star', and we have good evidence that images of peccaries and turtles substituted for each other in several contexts, including images of these constellations.

The story of creation continued past the initial centering events on 4 Ahaw 8 Kumk'u. The text from the Temple of the Cross relates that 1.9.2 or 542 days after 4 Ahaw 8 Kumk'u, *Hun-Ye-Nal* (GI the father) entered the sky (*och ta chan*) (fig. 4a). This event also appears on the Blowgunner Pot (fig. 4c) where the great bird named Itzam-Ye lands in the World Tree. David Freidel first suggested that the scorpion at the base of this tree can be identified as a constellation based on the appearance of a scorpion in the zodiac of the Paris Codex. Schele (1992) followed up on his suggestion and identified the tree as the Milky Way.

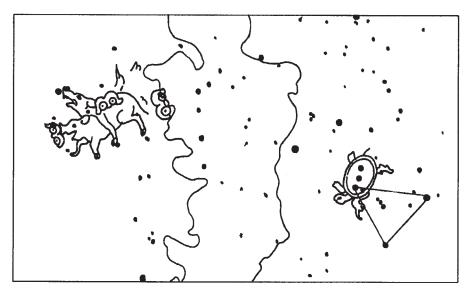
Sinaan, the word for 'scorpion' in



a. "On 4 Ahaw 8 Kumk'u, was seen the first image of the turtle, the great god lord" from a looted panel.



b. The Maize God is reborn from a turtle carapace by his sons, the Hero Twins



c. The Gemini-Orion nexus in the sky



d. The constellation band from Room 1, north wall, Bonampak murals

Fig. 3. The Appearance of the First Image of the Turtle and the Hearth.

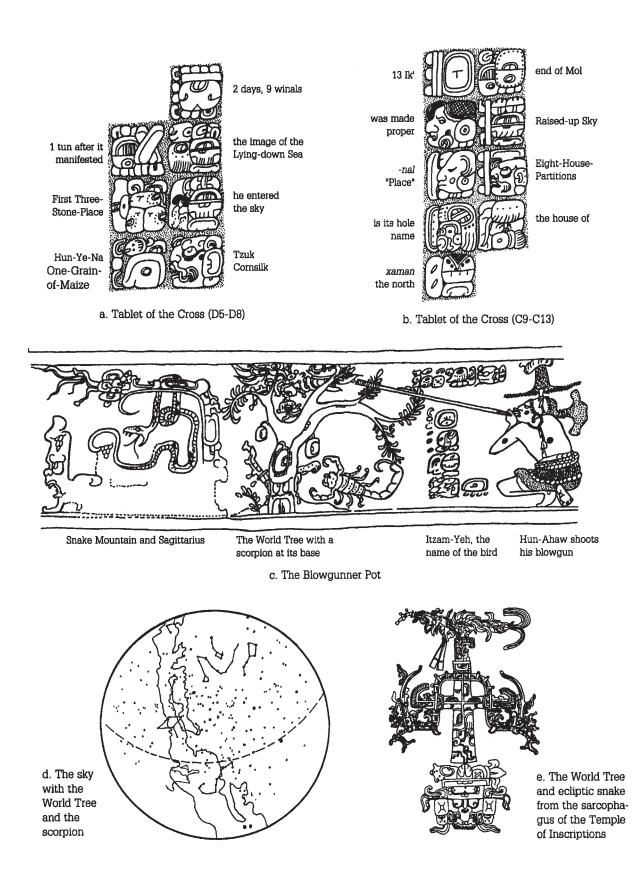


Fig. 4. The World Tree and the Milky Way.

Yukatek and many other Mayan languages, is identified as a constellation in the Motul dictionary without specifying where it was seen in the sky. We accept David Kelley's (1976) zodiacal identifications that associate our constellation Scorpius with the scorpion of the Paris codex and with the name sinaan.³ In 1992, Grube and Schele gathered significant evidence from Mayan speakers that supports this identification. At San Juan Chamula, upon seeing the drawing of Scorpius in Schele's field book, a Chamula identified the constellation, which was visible in the sky at the time, as *tz'ek*, the Tzotzil term for 'scorpion'. This information was volunteered and unsolicited. In Tix Kakal Guardia, the Cruzob ceremonial center in Quintana Roo, Agapito Ek' Pat, the son of Juan Ek', told Nikolai Grube that sinaan was a constellation high in the sky, and at those latitudes, 18° north, it does rise high into the southern sky. He also said that *sinaan* and *ak*, the constellation of the turtle, are nach'ti 'far away' from each other. Scorpius and the Orion-Gemini nexus are opposite to each other, so that when one sinks the other rises. Finally, he said that *sinaan* is visible until early November when it disappears for a time. Scorpio disappears from the evening sky at the end of October, and cannot be seen until about fifteen days later when it appears above the eastern horizon just before dawn.

We believe the scorpion on the Blowgunner pot is Scorpius. Moreover, the Milky Way rises out of the south horizon when Scorpius is high in the sky and arches north to form the World Tree in the scene. Maya names for the Milky Way were the 'White Road' *Sak Be* and the 'Xibalba Road', *U be Xibalba*. Tedlock (1992) further specified that the *U be Xibalba* corresponded to the Milky Way when the large cleft is visible. This is the form we associate with the World Tree with a scorpion at its base to the right and a snake to its left (fig. 4c-d). In Kelley's scheme, Sagittarius is a rattlesnake.

This raising of the World Tree is

reiterated in the text of the Tablet of the Cross with a repetition that gives different information about the action (fig. 4b). The text reads "On 13 Ik' end of Mol, it was made proper, the Six (Raised-up) Sky, the Eight-House-Partitions, its holy name, the house of the north," (Oxlahun Ik' ch'a Mol, hoy Wakah-Chanal, Waxak-Na-Tzuk, u ch'ul *k'aba, Yotot xaman*). Thus, we learn that the 'entering into the sky' formed a house named Wakah-Chan and that it had eight partitions. These correspond to the four world directions and the corners between them. The Popol Vuh calls them the 'four sides (or partitions); four corners', kan tzuq kan xuk. Moreover, since each of the sanctuaries in the Group of the Cross was named for the central image on its inner panel, we know that the tree on the Tablet of the Cross was called the Wakah Chan. And since wakah is 'raised up' as well as 'six', this event was the raising of the sky and the establishment of the tree at its center. This great central axis is the Milky Way as it arches through the sky from south to north.

The Classic-period names for north and south make sense in light of this cosmology. Based on phonetic evidence, Schele (1992) has proposed the Classic-period terms for north were *na* or *nal*, 'house', and *xaman*, a term that still resists analysis. Villela has suggested that *nohol*, 'south' is not 'right hand' as it is often explained, but rather is *noh hol*, 'great hole'. This idea is particularly appropriate since the crown of the tree is to the north, and its trunk and roots are to the south.

Furthermore, based on ideas first voiced by John Sosa (1986), Schele (1992) also determined that the double-headed serpent bar that is wrapped around the branches of the World Tree represents the ecliptic (fig. 4e). This identification includes not only the serpent-bar scepter, but doubleheaded serpent frames that occur in Maya art from the Late Preclassic period onward. The beings who are hanging from these serpent

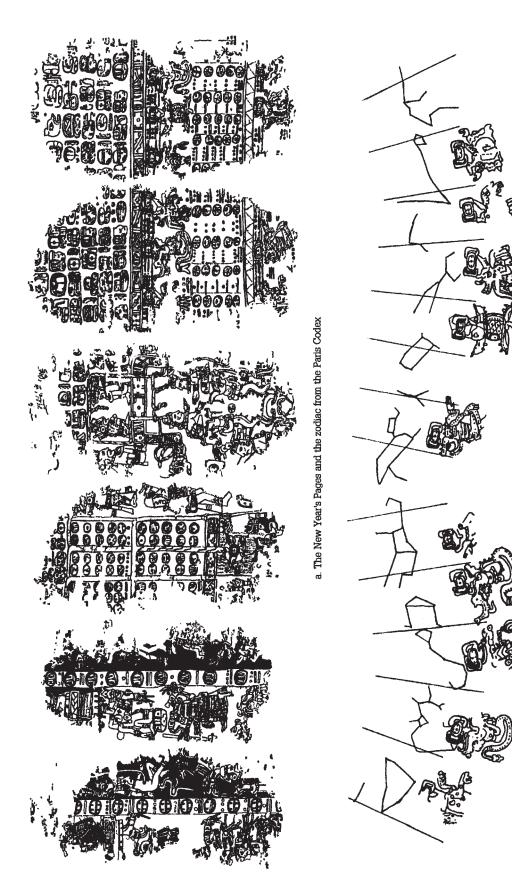


Fig. 5. The Zodiac of the Paris Codex.

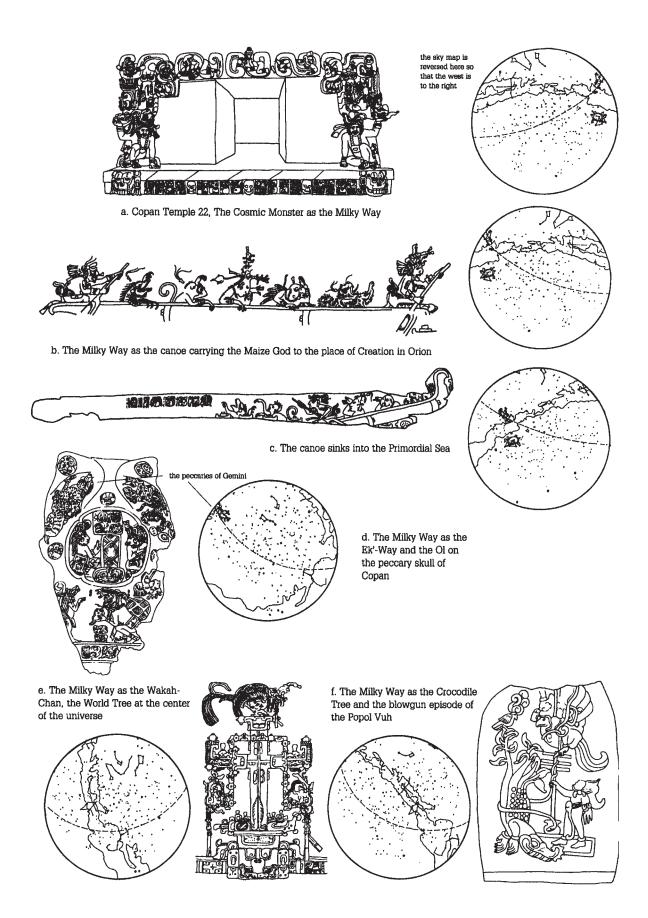
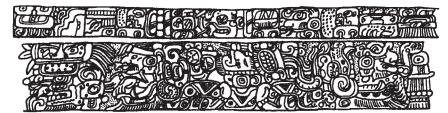


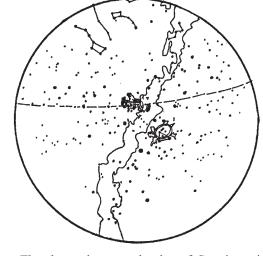
Fig. 6. The Milky Way in Maya Iconography.



a. MT 140 from Tikal. The Maize God holds the ecliptic snake with the day and night Paddlers emerging from the mouths.



b. Plate showing the Maize God reborn through the crack in the back of the turtle floating in the Primoridal Sea. The crack was called the *ol*, "heart or center," and the *hom*, "cleft."



c. The sky at dawn on the day of Creation with the hearth and the turtle of Creation at the zenith. The Maize God is reborn at this point in the sky.

Fig. 7. The Maize God at the Place of Creation.

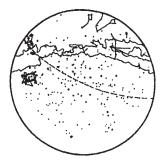
frames, emerging from their mouths, or sitting inside their arches, should represent objects, such as planets, the sun, and the moon, that all travel along the ecliptic path.

As we discussed above, the Paris Codex illustrates the set of constellations the Maya of Yukatan saw along this second path in the sky (fig. 5a). David Kelley (1976) first recognized that the pictures do not represent adjacent constellations, but rather ones that appear on opposite sides of the sky 168 days apart. In testing Kelley's hypothesis, Richard Johnson and Michel Ouenon (1993) established the limits of the thirteen constellations of the Maya zodiac. Like Schele, they accepted Scorpius as the pivotal identification. This section of the codex is not just a zodiac or an eclipse table, but a description of the laying out of the constellations along the ecliptic at creation and at each yearly repetition of the destruction-creation cycle.⁴

Other important images from the Maya symbolic inventory can also be associated with various positions of the Milky Way Based on independently derived evidence, Schele (1992) and Stuart (1992) have associated the Cosmic Monster over the door of Temple 22 at Copan with the Milky Way (fig. 6a). Stuart associates it with Mixcoatl, an Aztec symbol for the Milky Way, while Schele links it to the east-west configuration of the Milky Way when it stretches from east to west with the cleft area representing the mouth of the crocodile. In addition she also associates this configuration with the crocodile-headed canoe on Tikal MT from Burial 116 and with MT 38a-d. The latter (fig. 6b) shows a canoe carrying the Maize God along with four animals. The Paddler Gods who propel the canoe are personifications of



sunset at 6:38 P.M.

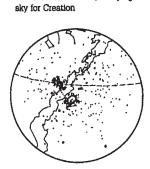


2:38 A.M.: the Paddlers convey First Father in the sky canoe



the horizon

4:38 A.M.: the cance sinks, taking



10:38 P.M.: Itzam-Yeh knocked out

of the Crocodile Tree, readying the

5:38 A.M. at dawn, the Place of First Father to the place of Creation Creation and First Father are just east of zenith

The movement of the Milky Way on August 13

The movement of the Milky Way on February 5



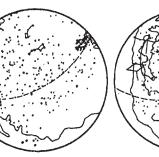
6:15 A.M.: The Three Stones of Creation begin just east of the zenith

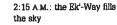


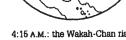
8:15 P.M.: First Father and the Place of Creation is a zenith



10:15 P.M.: the Pleiades, called a "handful of corn seeds," fall toward the horizon









12:38 A.M.: the Crocodile Tree transforms into the Cosmic Monster

On the night of August 13, A.D. 690, the year in which the Group of the Cross was dedicated, the Milky Way moved from the Crocodile Tree in the hours after dusk, until the three stones of the hearth arrived high in the sky at dawn. At 1000 B.C., at the sequence of positions started vears between Olmec times and the late seventh century,

the hearth stones and the turtle begin on their dawn position on August 13. They cross the sky and disappear into the western horizon by 2 A.M. After passing through the Ek'-Way, the tree appears out of the entire eastern horizon so that by dawn it is erect across the sky.



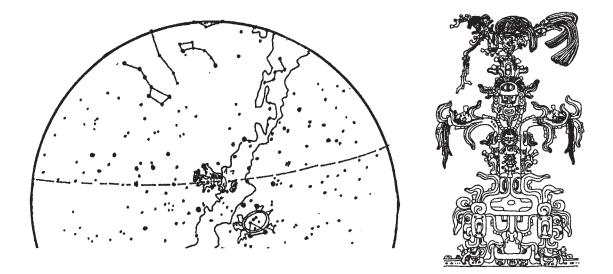
6:15 A.M.: at dawn, the Wakah-Chan arches overhead

4:15 A.M.: the Wakah-Chan rises from the entire eastern horizon

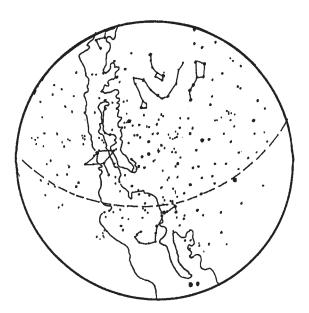


latitude of La Venta, this with the Wakah-Chan at zenith and ended with the place of Creation at zenith. In the seventeen hundred precession had moved the constellation about two hours to the east.

On Feburary 5, 691 A.D.,

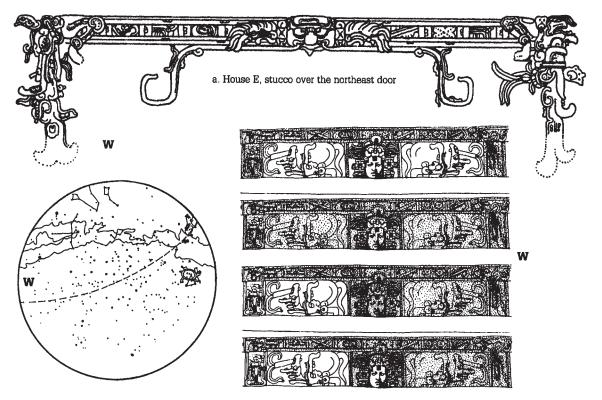


The Foliated Cross as it rises from the Creation place between Gemini and the Orion Turtle. The K'an-Cross at the base may mark le crossing of the ecliptic and Milky Way at this position. The Foliated Cross is the reborn Maize God.



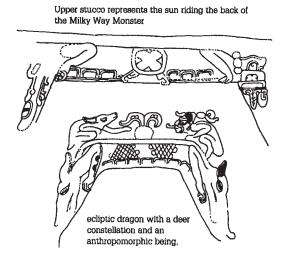
. The terms for dying used on the sarcophagus is och bih, "he entered te road." The road is the *u bih Xibalba*, the "Road to Xibalba," which is the Milky Way when the dark cleft is visible. Pakal falls down the Milky lay into the Noh-ol, the "Great Hole," in the south. He falls in the guise if the Maize God and will lose his confrontation with the lords of death. is son will have to retrieve his body through the ballgame to insure his surrection and the continuation of the line.



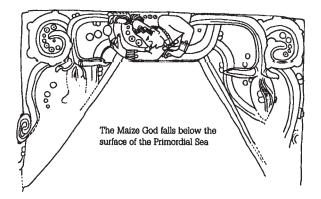


b. Milky Way as the Cosmic Monster (the sky map is reversed to put west on the left)

c. Reconstructions of the panels on the north facade of the Palace



d. The stuccos from the east subterranean corridor



e. The stucco from the western subterranean corridor

Night and Day as they sit at the east and west extremities of the Milky Way. They were also the gods who set up the Jaguar throne on 4 Ahaw 8 Kumk'u. The sinking of the canoe shown on other bones in the set is reproduced in the turning motion of the Milky Way (fig. 6c).

The crocodile tree (fig. 6f) also occurs in the sky when the World Tree (fig. 6f) begins rotating toward its canoe form. Cortés (1986) identified the crocodile tree on Izapa St. 25 as a representation of the Seven-Macaw story of the Popol Vuh. Dennis Tedlock (personal communication, 1992) believes that this episode, which destroyed the false sun of the third creation, was the last act before the creation of the fourth world could begin. He identified the Big Dipper as the falling Twelve-Macaw. Finally, the carved peccary skull from Copan Tomb 1 (fig. 6d) shows the quatrefoil portal to the Otherworld from the supernatural side, as the ceremonies ending 8.17.0.0.0 unfold on the human side of the portal. This configuration occurs in the Milky Way at sunset in May when the hazy brightness of its path rims the horizon, leaving it dark above. The name of this configuration was Ek' Way, 'Black-Dreaming Place'.

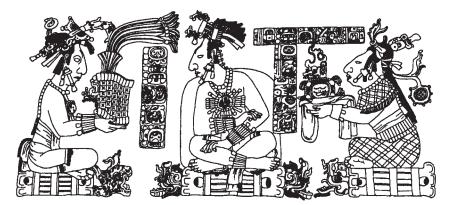
The passenger in the canoe scene is also the main actor in the creation texts. At Quiriguá, he was called the Wak-Chan-Ahaw, while at Palenque he is named Hun-Ye-Nal-Tzuk, 'One Kernel-of-Maize-Cornsilk'. These names are firmly associated with the Maize God on two pots. MT 140 from Tikal (fig. 7a) shows the Maize God holding the ecliptic snake as the Paddler Gods emerge from its mouths. The glyph immediately under his mouth names him the Wak-Chan-Winik, 'Raised-up Sky Person'. Another pot shows the Maize God emerging from the cracked turtle shell in Orion as he is attended by his two sons (fig. 7b). The glyphs by his head name him Hun-Nal-E, 'One-Maize-Kernel'.

These various images were not just

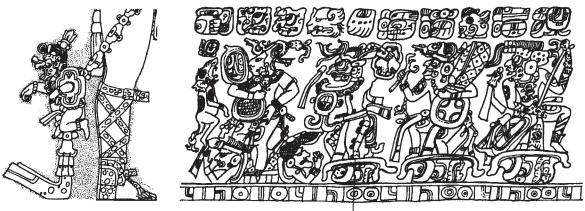
isolated configurations, but rather joined together in sequences of celestial movement that played out the story of creation in the sky. The two critical days were 4 Ahaw 8 Kumk'u or August 13 in the Gregorian calendar, and 13 Ik' 20 Mol or February 5. Although the sets of movements we describe on these two days occur every year, the best correlation of the pattern to creation happened in 1000 B.C. at about 18° north latitude where La Venta, San Lorenzo, Chalcatzingo and other Preclassic sites were built. Precession changed the timing somewhat by the Classic-period, but the relationship still held then as it does now. We have chosen the sky in the year AD. 690, which was the dedication year for the Group of the Cross.

On August 13 (fig. 8) at sunset, the World Tree arched overhead, but by the time the sky became dark enough to see the Milky Way, it had turned into the crocodile tree, and by 10 P.M., the Big Dipper, known as the bird Itzam-Ye or Twelve-Macaw in the Popol Vuh, had fallen almost entirely into the earth. By midnight he was gone entirely and the tree had begun to change into the canoe. By 2 A.M. the canoe stretched across the sky from east to west and with it came the turtle and hearth in Orion and the Peccaries in Gemini. By 4 P.M., the hearth and the turtle were half way up toward the zenith, and by dawn they were high in the sky just east of the zenith point. In 1000 B.C. they were exactly at zenith. As the text says, the gods painted the images of creation on the sky. As dawn broke, a stone-wielding Chak (fig. 11b), like those worn hanging from the belt of Chan-Bahlam on the outer panel of the Temple of the Cross, cracked open the turtle shell with his lightning stone, so that the Hero Twins could water their father the Maize God into life again.

In Yukatek, *ahal*, the word for 'wake up' and 'dawning' also means to create the world. In the K'iche' of the Popol Vuh, *saqarih*, the term for the creation of the



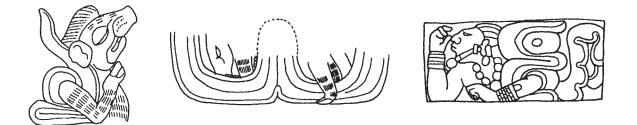
a. Palace Tablet, K'am-Hok'-Chitam, Pakal, and Lady Tz'ak-Ahaw sitting on the three thrones of Creation



Sky-craking Chak from Chan-Bahlam's belt

Chak who cracks open the turtle shell with his lightning stone

b. The sky-cracking Chak and the accession clothes of Chan-Bahlam



c. The sourthernmost and northernmost extensions of Venus in Gemini and Scorpius

world, also means 'to whiten' and 'to dawn'. According to Dennis Tedlock (1985), the concept of dawning is fundamental to Maya ideas of creation and beginnings. So just as the inscriptions say, the image of the First Three Stones and the turtle come to the zenith at dawn so that the creator of humankind and the universe can be reborn after his defeat by the Lords of Xibalba.

Sunset on the reciprocal day of February 5 (fig. 8) finds the cosmic hearth and the turtle once again in the same place just east of the zenith. In the next hours, they pass zenith and begin falling toward the western horizon. At midnight, the Pleiades, which were known as Snakerattle (Tz'ab) to the Yukateks, the 400 boys killed by Sipakna in the Popol Vuh, and as a handful of seeds to the modern K'iche', fall into the western horizon as Orion hovers above them. At 2 A.M., the Milky Way rims the horizon in the Ek' Way, and by 4 A.M., the Wakah-Chan begins to raise up all around the eastern horizon. By dawn, it is fully raised up in the sky with the scorpion Sinaan riding on the broad width of its trunk. As on August 13, the story of creation was materialized in observable form-the Wakah-Chan was and is raised up in the sky by the reborn Maize God.

This set of imagery also played a tremendously important role in the imagery commissioned by Palenque kings. The central icon of the Tablet of the Cross is the Wakah-Chan (fig. 6e), while the foliated cross in the Tablet of the Foliated Cross (fig. 9a) is the reborn Maize God in the form of the tree called Na-Te'-K'an. Each of these points corresponds to the places of creation, where the ecliptic happens to cross the Milky Way. Pakal's sarcophagus (fig. 9b) is a picture of the sky on the night he died, August 31, 683 A.D. The Wakah-Chan was erected in the sky so that he falls down the Xibalba Be through the portal called White-Bone-Snake into the Otherworld. This is the *Noh-ol*, the 'Great Hole', that was the name

for 'south'. The text describes his action as *och be*, 'he entered the road'. This is figuratively the road taken at death, and literally the Milky Way arching into the southern horizon.

The Palenque Palace also has many references to creation imagery. The Cosmic Monster modelled above the northeast door of House E (fig. 10a) was seen in the sky at dawn on summer solstice and at sunset on winter solstice (fig. 10b). The square-nosed serpent in the bird's mouth is probably the kuxan sum, or sky umbilicus. The same Cosmic Monster reappears on the panels of the north end of the Palace where it enframes the image of K'an-Hok'-Chitam holding a Double-headed Serpent (fig. 10c). The king is the sun holding the ecliptic in his hand, for the ecliptic runs roughly parallel to the Cosmic Monster while it is perpendicular to the Wakah-Chan and at the Gemini-Orion nexus.

The images in the Subterraneos at Palenque (fig. 10d) also reflect this imagery. Above the eastern stairs, the outer lintel has the Cosmic Monster, while the inner one had a double-headed crocodile with a sun cartouche on its side. A deer and a crouching human perch on its back. This crocodile may be the ecliptic (as we think it is in the upper registers of the stelae at Yaxchilan) with the sun riding its middle, while the crouching figures represent constellations. Unfortunately we are not sure which constellations they are meant to represent. In the southern passageway, a thin-bodied snake with a square-snouted head at either end arches over the stairs. We suspect this snake is the one that represents the kuxan sum on the pot representing Na-Ho-Chan. In the western passageway there is an elegant Maize God diving out of the ceiling and into the waters of the Primordial Sea. This image has evaded interpretation until the canoe scenes on the Tikal bones were connected to the myth of creation. There and in the sky the canoe sinks into the Primordial Sea to take

the Maize God to the place of creation where the three stones will be set. Here we see the Maize God plunging under the surface of that sea after his sinking canoe has dumped him in the water.

When Pakal's second son, K'an-Hok'-Chitam ascended to the throne, he commissioned the Palace Tablet to record his own accession. In the upper zone, he depicted himself (fig. 11a) seated in front of the Oval Palace Tablet, with the apparitions of his dead mother and father on either side of him. They hold up the drum major headdress and the flint-shield which are the primary signs of royal office at Palenque (Schele 1979; Schele and Villela 1992). The father sits on a throne made of bound mats identical to the sign for throne in the Quirigua text. It has a jaguar head attached to it. The son sits on a xok throne, and the mother on a snake throne. In his creation myth, the jaguar throne goes with the Na-Ho-Chan place; the snake throne with the earth place, and we can deduce that the xok throne goes with the ocean place. These are the three thrones of creation. In his accession imagery in the Temple of the Cross, Chan-Bahlam portrayed himself with the stone-wielding Chak, who cracked open the creation turtle, dangling behind his knees (fig. 11b). This costume, with the hanging Chak, is one of the most widespread and sacred of all royal costumes. When the king wears the turtlecracking Chak he usually also embodies the World Tree so that he has become the sky itself.

Finally, there are a series of images from Palenque, Tonina, and Copan that combine the sign for Venus with an animal. The east substructure of House D in the Palace of Palenque (fig. 11c) shows Venus entangled with a peccary. The same combination of peccary and Venus occurs on a throne at Tonina which has other war symbols associated with it. At Copan, a bench discovered several years ago displays a version of Venus combined with a scorpion tail (fig. 11c), which is an image that has also been found at Cacaxtla. The Copan version occurs in a paired opposition with k'in-ak'bal as east and west, and the moon and Venus as north and south. In this schema, as at a Rio Azul tomb, Venus is associated with the south.

We think we know why Venus was combined with the scorpion in one context and peccaries in the other. It happens that the southern-most extension of Venus occurs when it is in Scorpius, and its northern-most extension happens when it is in the constellation of Gemini. Gemini, according to our reconstruction of the Maya zodiac, was represented as peccaries. Thus the combination of peccary-Venus and scorpion-Venus may have marked the limits of the northern and southern movement of the planets. Aveni (Closs, Aveni, and Crowley 1984) has shown that the western window in Temple 22 at Copan aligns on this southernmost extension limit. We know that the Maya paid attention to them.

Conclusion

The Classic-period myth of creation was more than a set of quaint stories at the heart of an exotic religion. They were writ large upon the sky in ways that timed the daily lives, the sequence of public ritual, pageant, and feasting, and the unfolding of political life. Maya art was often a map of the sky rendered with the imagery that represented it. Rituals were timed according to this pattern of imagery, and the symbols kings wore for those ceremonies were based on it. The greatest compositions known from Maya art reflect the ways in which kings and commoners alike engaged this imagery throughout their lives. It provided an overarching structure of meaning that all Mayaprobably all Mesoamericans-could understand and interpret. Even more importantly, they could walk out their doors at night and affirm for themselves that it was true.

Bricker, Harvey M., and Victoria R.

1992 Zodiacal References in the Maya Codices. In *The Sky in Mayan Literature*, edited by Anthony F. Aveni, pp. 148-183. New York: Oxford University Press.

Cortés, Constance

- 1986 The Principal Bird Deity in Late Preclassic and Early Classic Maya Art. Masters Thesis, Department of Art, University of Texas at Austin.
- Freidel, David, Linda Schele, and Joy Parker
 - 1993 Maya Cosmos: Three Thousand Years of Shamanism. New York: William Morrow and Co.

Johnson, Richard, and Michel Quenon

- 1992 Comments on the Paris Codex Pages 23 & 24: A Maya Zodiac. A report circulated by the authors.
- Kelley, David H.
 - 1976 *Deciphering the Maya Script.* Austin: University of Texas Press.
- MacLeod, Barbara
 - 1991 *Maya Genesis*. North Austin Hieroglyphic Hunches #5. A note circulated by the author.

Mayer, Karl Herbert

- 1991 Maya Monuments: Sculptures of Unknown Provenance Supplement 3. Austria: Verlag von Flemming.
- Miller, Mary Ellen
 - 1986 *The Murals of Bonampak.* Princeton: Princeton University Press.

Schele, Linda

1992 Workbook for the XVIth Maya Hieroglyphic Workshop at Texas, with commentaries on the Group of the Cross at Palenque. Austin: Art Department, University of Texas. Sosa, John R.

- 1986 Maya Concepts of Astronomical Order. In Symbol and Meaning Beyond the Closed Community: Essays in Mesoamerican Ideas, edited by Gary Gossen, 185-196. Albany: Institute for Mesoamerican Studies, The University of Albany, State University of New York.
- 1988 The Maya Sky, the Maya World: A Symbolic Analysis of Yucatec Maya Cosmology. Ph.D. dissertation, State University of New York at Albany.

Stuart, David

1992 The Inner Door of Temple 22, Mixcoatl, and the Milky Way. A public lecture given at the 1992 Pennsylvania Meetings, University Museum, University of Pennsylvania, April, 1992.

Taube, Karl

- 1988 The Ancient Yucatec New Year Festival: The Liminal Period in Maya Ritual and Cosmology. A Ph.D. dissertation, Yale University.
- Tedlock, Dennis
 - 1985 Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of God and Kings. New York: Simon and Schuster.
 - 1992 Myths, Maths, and the Problem of Correlation in Mayan Books. In *The Sky in Mayan Literature*, edited by Anthony F. Aveni, pp. 247-273. New York: Oxford University Press.

NOTES

1 The reading of the earflare sign and its substitutes as *kah* is based on a new argument about the second Yaxchilan emblem glyph proposed by Nikolai Grube and Simon Martin.

2 Bricker and Bricker (1992) arrived at this identification based on independent evidence from Schele.

3 Bricker and Bricker (1992) accept the Scorpio-Sinaan equation, although their zodiacal arrangement is different in other aspects than Kelley's and ours. Several scholars, including Love (personal communication, 1992) and Sosa (1988), have identified *sinaan* as an area near Gemini based on information supplied by a *h'men* who worked with Sosa.

4 Taube (1988) interpreted New Year's rites as replays of the destructioncreation cycles in Maya and Mesoamerican religion.