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Cacao Use in Yucatán Among the Pre-Hispanic Maya

Gabrielle Vail

Introduction

Much of the discussion of cacao in ancient Mesoamerica centers on Classic Maya culture, especially the period between 500 and 800 CE, because of the abundance of ceramics that reference cacao (*kakaw*) in their texts, and painted scenes that depict its use. Chemical analyses of residues from the bottoms of Classic period vessels reveal that cacao was an ingredient of several different drinks and gruels and that it was served in a wide variety of vessel types. The best known of these is the lidded vessel from Río Azul (Fig. 1.1), where the chemical signature of cacao was first identified by scientists from Hershey Corporation in 1990 [1, 2].¹

Cacao played an important role in the economic, ritual, and political life of the pre-Hispanic Maya, and it continues to be significant to many contemporary Maya communities [3–5]. The different drinks and foods containing cacao that were served are described in hieroglyphic texts [6–9], the most common being a frothy drink that is depicted in scenes showing life in royal courts and as a beverage consumed by couples being married (Fig. 1.2).² Field work among contemporary Maya groups suggests that it continues to be used as part of marriage rituals in some areas, where it is most commonly given as a gift—in either seed or beverage form—from the family of the prospective bridegroom to the bride's family [11–13].³ Cacao also represents an important offering in other ritual contexts, including those of an agricultural nature [15–17].

During the pre-Hispanic period, cacao seeds (also called “beans”) served as a unit of currency, and they were an important item of tribute [18, 19]. Because the tree can only be grown in certain regions (those that are especially humid), the seeds had to be imported to various parts of the Maya area that were not productive for growing cacao. It was considered one of the most important trade items, along with items like jade beads and feathers from the quetzal bird, which were worn by rulers to adorn their head-dresses and capes.⁴

Cacao consumption was not important in and of itself but rather as part of elite feasting rituals that cemented social and political alliances. In addition to being one of the chief components of the feasts, cacao was one of the items gifted to those participating in the ritual, as were the delicate vases with their finely painted scenes of court life from which the beverage was consumed [20]. The scientific name of cacao, *Theobroma cacao*, meaning “food of the gods,” is an apt



FIGURE 1.1. Vessel from Tomb 19, Río Azul, Guatemala. Hieroglyphic caption includes the glyph for cacao (at left on vessel lid). Source: Museo Nacional de Arqueología y Etnología in Guatemala City. (Used with permission.) (See color insert.)



FIGURE 1.2. Cacao exchange during wedding ceremony. Source: *The Codex Nuttall. A Picture Manuscript from Ancient Mexico*, edited by Zelia Nuttall. Courtesy of Dover Publications, New York. (Used with permission.)

description of the role it played within ancient Maya culture.

Cacao use in the Maya area can be traced back to somewhere between 600 and 400 BCE, based on

chemical remains recovered from spouted vessels from Belize [21, 22].⁵ But it has a much longer history that extends back, according to Maya beliefs, to the time before humans were created. In the creation story recorded in the text known as the *Popol Vuh*,⁶ cacao is one of the precious substances that is released from “Sustenance Mountain” (called Paxil in the *Popol Vuh*, meaning “broken, split, cleft”), along with maize (corn), from which humans are made, at the time just prior to the fourth or present creation of the world [29].⁷ Before this, it belonged to the realm of the Underworld lords, where it grew from the body of the sacrificed god of maize, who was defeated by the lords of the Underworld in an earlier era [31].

At a later time, the maize god was resurrected by his sons the Hero Twins, who were able to overcome the Underworld gods [32, 33]. Thereafter, human life became possible, once the location where the grains and maize were hidden was located and its bounty released by the rain god Chaak and the deity K’awil, who represents both the lightning bolt and the embodiment of sustenance and abundance [34, 35].⁸

The deities of importance to this story include the maize god Nal, Chaak, K’awil, and various Underworld lords, including the paramount death god (named Kimil in some sources) and a deity known by the designation God L. God L played various roles in Maya mythology, representing a merchant deity, an Underworld lord, and a Venus god.

The Role of Cacao in the Northern Maya Area

Previous discussions of cacao in Maya culture emphasize its use and depiction in Classic period contexts (ca. 250–900 CE) from the southern Maya lowlands. The focus of this chapter is on cacao from the northern Maya lowlands, the area known today as the Yucatán Peninsula. In this region, cacao becomes visible in the archaeological record during the Late Classic period, where it is mentioned in glyphic texts inscribed on pottery in the style known as Chocholá [37, 38]. Additionally, recent investigations suggest that it was grown in damp areas such as collapsed caves and cenotes (sinkholes) [39, 40].

Following the conquest of the Yucatán Peninsula by the Spanish in the early 16th century, we learn from European chronicles that cacao was important in various rituals, and that it was grown both locally on plantations and imported from Tabasco and Honduras [41–43]. Additionally, Bishop Diego de Landa, writing in ca. 1566, noted that cacao beans formed a unit of currency for exchange and were given in tribute. The owners of cacao plantations celebrated a ritual in the month of Muwan (corresponding to late April and early May) to several deities, including Ek’ Chuwah, who was the god of merchants [44]. Cacao was also

mixed with sacred water and crushed flowers and used to anoint children and adolescents participating in an initiation ceremony, or what Landa termed a “baptism” ritual [45]. Landa further noted that:

They make of ground maize and cacao a kind of foaming drink which is very savory, and with which they celebrate their feasts. And they get from the cacao a grease which resembles butter, and from this and maize they make another beverage which is very savory and highly thought of. [46]

Archaeological data from sites in Yucatán, in combination with images and hieroglyphic texts painted in screenfold books (codices) and on the stones used to bridge the vaults of buildings (called capstones), are useful in reconstructing the ritual and other uses of cacao in ancient Maya society.

CACAO OFFERINGS TO THE DEITIES

We learn, for instance, of its use as an offering to the gods in several scenes from the pre-Hispanic Maya codices, which are believed to have been painted in Yucatán during the Postclassic period.⁹ A scene on Dresden Codex p. 12a (Fig. 1.3), showing the god of sustenance K’awil seated with a bowl of cacao beans in his outstretched hand, recalls an offering found at the site of Ek’ Balam dating to the Late Classic period, of



FIGURE 1.3. K’awil, god of sustenance with cacao on Dresden Codex p. 120. Source: *Die Maya Handschrift der Königlich öffentlichen Bibliothek zu Dresden* (Dresden Codex), by Ernst Förstemann. Mit 74 Tafeln in Chromo-Lichtdruck. Verlag der A. Naumannschen Lichtdruckeret, Leipzig, 1880. (Used with permission.)

a pottery bowl filled with carved shells replicating cacao beans. Several other almanacs from the Dresden Codex picture the plant or its beans being held by various Maya deities, including the rain god Chaak, K’awil, the death god Kimil, and the Underworld god Kisin.¹⁰ The texts associated with these almanacs describe cacao (spelled hieroglyphically as *kakaw*) as the god’s sustenance, or *o’och* [49]. We have already seen the importance of these deities in relation to cacao, and we will see further examples of the role played by K’awil below.

Another scene, this one from the Madrid Codex p. 95a (Fig. 1.4), pictures four deities piercing their ears with obsidian blades in order to draw blood. Bloodletting rituals such as these are described by Landa, who noted that piercings were made in the ear, tongue, lips, cheek, and penis [50].¹¹ As a devout 16th century Catholic cleric, he was repulsed by these rituals, but they were an essential part of Maya religion and focused on the reciprocity between the gods (who created people out of maize and water) and people (who, in turn, were required to feed the gods with their blood) [51, 52]. It is interesting to note that Landa described women as being specifically excluded from bloodletting rituals, although one of the figures in the Madrid almanac is a female deity, as is another figure pictured letting blood from her tongue on Madrid Codex p. 40c [53]. This mirrors scenes from the Classic Maya area, where an important wife of the Yaxchilán ruler Shield Jaguar is shown drawing a thorny rope through her tongue to conjure ancestral spirits [54].

Cacao is mentioned as one of the offerings in the text on Madrid Codex p. 95a, in conjunction with incense (both *pom* from the copal tree and *k’ik’* made from the sap of the rubber tree). Bar-and-dot numbers associated with these offerings in the text indicate the number of offerings that were given. The deities pictured in the almanac’s four frames include the creator Itzamna, a female deity associated with the earth, the wind and flower god, and a second depiction of Itzamna. Unfortunately, the glyph beginning each text caption is largely eroded, making it difficult to determine the action being referenced.¹²

Sophie and Michael Coe have suggested that the blood in the almanac is pictured falling from the deities’ ears onto cacao pods in the four frames illustrated [55]. It is difficult to tell what this object is, since its appearance is fairly nondescript. It is possible that, rather than depicting cacao, the elliptical objects represent some sort of paper-like material, since blood was usually collected on such strips and then burned in order to reach the gods in the Upperworld [56]. The Lacandón Maya of Chiapas still practice rituals similar to those depicted in the codices; a red dye called *annatto* (also known as *achiote*) is used in place of human blood, but it has the same general significance [57].

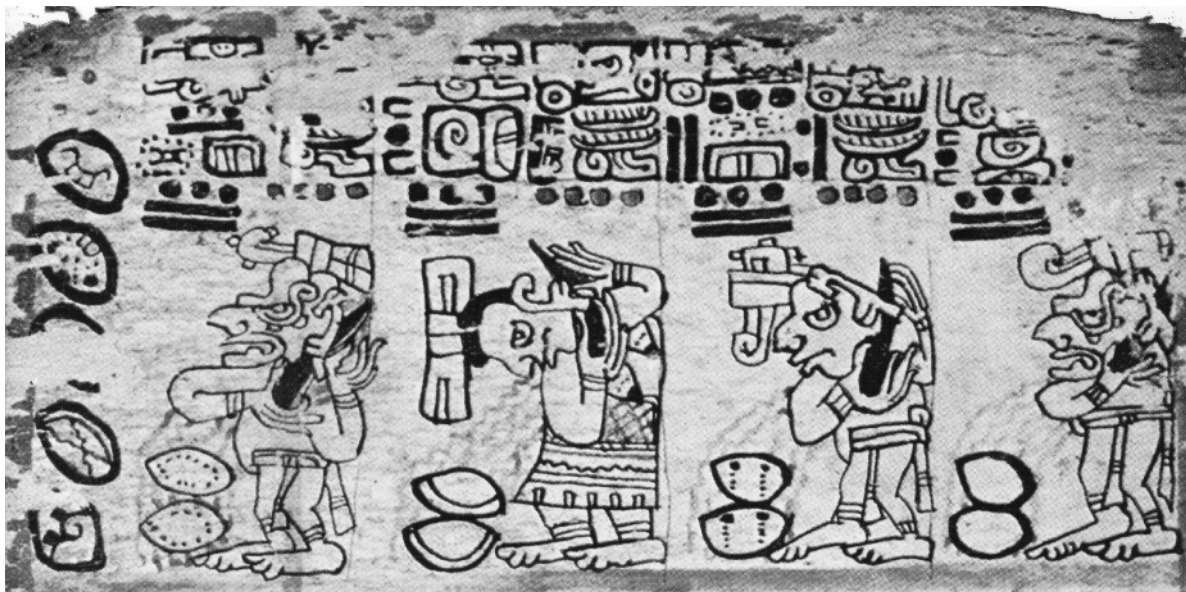


FIGURE 1.4. Cacao and incense as offerings during blood letting ritual. Source: Codex Tro-Cortesianus (Madrid Codex). Akademische Druck-und Verlagsanstalt, Graz, 1967. Courtesy of the Museo de América, Madrid, Spain. (Used with permission.)

CACAO IN ASSOCIATION WITH OTHER PRECIOUS OBJECTS

Another interesting correspondence in both the codices and other painted scenes is the association between cacao and the birds known as quetzals (*Pharomachrus mocino*). In the Madrid Codex, for instance, the deity Nik, whose associations include wind, life, and flowers, leans with his back against a cacao tree, grasping a second cacao plant with his hand (Fig. 1.5). A quetzal bird appears above the scene, with a leaf in its beak. The text above the frame includes a reference to the god Nik, who is described as a day-keeper or priest; this is followed by the glyphic collocation for cacao.

This scene recalls one of the mural paintings in the Red Temple at the Late Classic site of Cacaxtla in Tlaxcala (Fig. 1.6). Although located in the Mexican highlands, the murals reflect the Maya style and were probably painted by a Maya artist [58]. The scene in question pictures the Classic Maya merchant god, God L, standing in front of a blue-painted cacao tree; a quetzal is perched on (or about to land on) the tree. Simon Martin suggests that this scene corresponds to the Underworld realm [59]. Although they come from very different environments, it is not difficult to imagine what served to link cacao and quetzals in the minds of the Maya who painted these images—both were exotic trade items and had sacred associations.

In later times, as discussed previously, the merchant deity Ek' Chuwah—a Maya god with clear links to Yacatecuhtli, the Aztec deity of merchants and travelers—was also one of the patrons of cacao. During the month Muwan (corresponding to late April and

early May), the owners of cacao plantations in Yucatán celebrated a festival in honor of this deity. Additionally, travelers and merchants prayed to Ek' Chuwah and burned incense in his honor when they stopped to camp for the night. Landa noted that:

Wherever they came they erected three little stones, and placed on each several grains of the incense; and in front they placed three other flat stones, on which they threw incense, as they offered prayers to God whom they called Ek Chuah [Ek' Chuwah] that he would bring them back home again in safety. [60]

Three stones were also used to build one's hearth, in replication of the original three stones set in the sky by the gods at the time of creation. This is illustrated in a scene from the Madrid Codex p. 71a (Fig. 1.7), which shows the turtle (corresponding to the constellation Orion) as the celestial location where the stones were set [61].¹³

CACAO IN MARRIAGE RITUALS

One of the most interesting of the almanacs featuring cacao in the Maya codices occurs on p. 52c of the Madrid Codex (Fig. 1.8). Its text reads: *tz'á'ab' u kakaw cháak ix kàab'* “Chaak [the rain god] and Ixik Kaab' [the earth goddess] were given their cacao.”¹⁴ Recently, Martha Macri pointed out that the verb *ts'ab'a* is defined as “payment of the marriage debt [from the wife to the husband or between marriage partners]” in the Corde-mex dictionary [65, 66]. This calls to mind rituals pictured in the codices from the Mixtec area of highland Mexico, where a frothy cacao beverage is exchanged by those being married (see Fig. 1.2) [67]. Contemporary Mayan speakers in the Guatemalan highlands still



FIGURE 1.5. Flower god Nik with cacao tree. Source: Codex Tro-Cortesianus (Madrid Codex). Akademische Druck-und Verlagsanstalt, Graz, 1967. Courtesy of the Museo de América, Madrid, Spain. (Used with permission.)

follow this tradition. In a folktale from the Alta Verapaz region of Guatemala, the marriage vows are sealed with a vessel full of “foamy chocolate” [68].

In the Madrid Codex scene, the deity pair stands across from each other, holding what may be honeycomb in their hands, as suggested by the scene on Madrid Codex p. 104c [69].¹⁵ The cacao mentioned in the text is shown hieroglyphically on the side of the vessel (an abbreviated spelling of /ka-ka/). Two elements that remain to be identified (with another two above the deities’ outstretched hands) appear on top of the vessel. Scholars have suggested that similar elements found in a different context (see later discussion) represent jade earspools or jeweled flowers, a symbol of preciousness [70]. Another possibility may be suggested, as pointed out by Simon Martin [71], based on similarities between the elements depicted



FIGURE 1.6. God L and cacao tree. From the Red Temple at Cacaxtla, Tlaxcala, Mexico. Source: Photograph by David R. Hixson. (Used with permission.) (See color insert.)

and their use in the glyph that has been read as *inah*, or “seed” by Floyd Lounsbury [72]. Among both the contemporary and pre-Hispanic Maya, cacao beverages were often flavored with honey and crushed seeds [73, 74].

An element of the composition that remains unexplained is the rattlesnake that forms a U-shape around the vessel. Rattlesnakes commonly appear in Maya art in association with the rain god Chaak, who is mentioned in the almanac’s text. Additionally, the U-shape it assumes is reminiscent of the shape formed by cenotes (and glyphs representing cenotes) in Maya art.¹⁶ In this regard, it is of interest to note that recent research in the Yucatán Peninsula indicates that cacao trees grow wild in cenotes, which provide the humid microenvironment necessary for their survival [75].¹⁷ Scholars have proposed that groves of cacao trees were planted in dry sinkholes (*rejolladas*) by the Maya of Yucatán in pre-Hispanic times to supplement cacao obtained from cacao-rich areas in Belize, Tabasco, and Honduras, a possibility first suggested by native chroniclers [78]. Recent archaeological research in the vicinity of Ek’ Balam and several other sites in the northern Maya lowlands is suggestive of cacao production in those regions during pre-Hispanic times [79–81]. The rattlesnake in the picture, therefore, may symbolize a cenote where cacao and other precious substances (including virgin water for making the cacao beverage) were gathered. It may also indicate that the ceremony in question took place in a location below ground, such as a cave or dry cenote. Recent studies suggest that caves were the loci of many different types of rituals of importance to the pre-Hispanic Maya, and they continue to function in this manner [82].

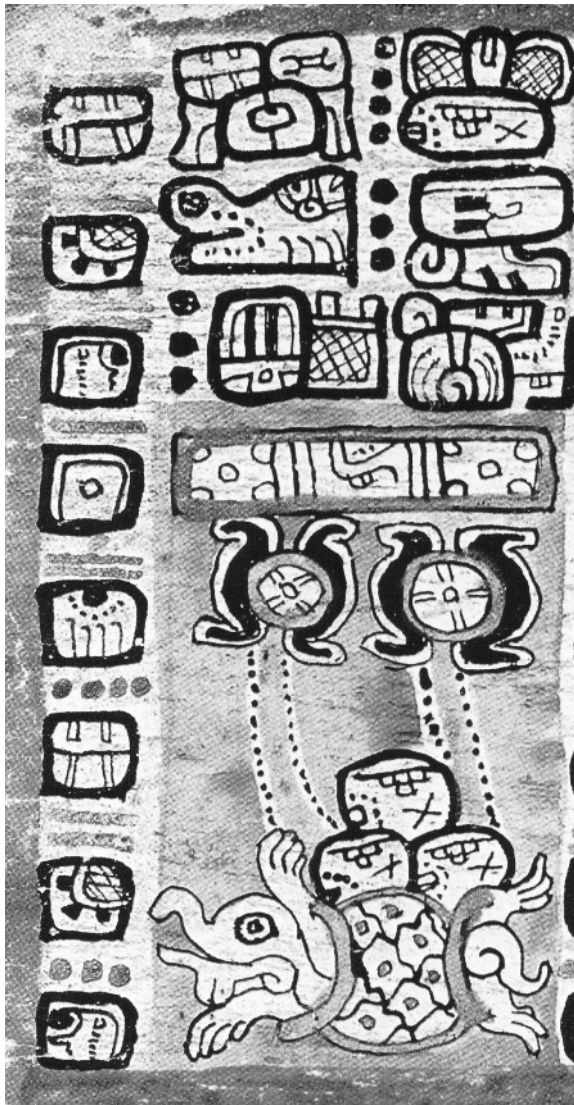


FIGURE 1.7. Turtle constellation with three hearthstones from the Madrid Codex. *Source:* Codex Tro-Cortesianus (Madrid Codex). Akademische Druck-und Verlagsanstalt, Graz, 1967. Courtesy of the Museo de América, Madrid, Spain. (Used with permission.)

RESCUE OF CACAO FROM THE UNDERWORLD

A capstone recovered from a structure called the Temple of the Owls at Chichén Itzá (Fig. 1.9) has a painted image that is similar in certain ways to that on Madrid Codex p. 52c. The similarities include a serpent, depicted here in a curled position with an open mouth, from which the god of sustenance K'awil emerges; an emphasis on cacao, here represented by the hanging pods; and globular elements like those occurring in the Madrid scene. The lower part of the picture is enclosed within a U-shaped element symbolizing a cenote, whereas the upper part includes a glyphic text along the top and glyphs indicating celestial elements along the two sides. The outer edges of the upper

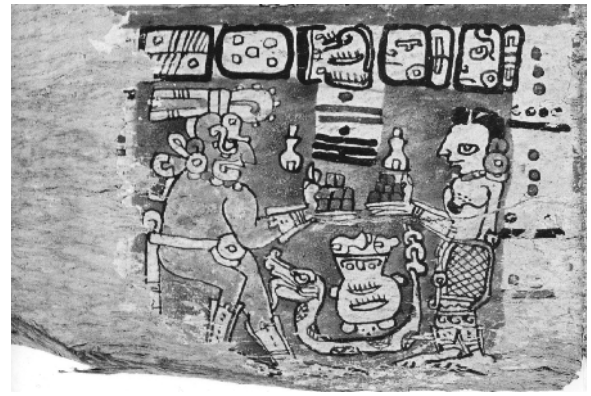


FIGURE 1.8. Wedding ceremony with cacao and honeycomb from Madrid Codex p. 500. *Source:* Codex Tro-Cortesianus (Madrid Codex). Akademische Druck-und Verlagsanstalt, Graz, 1967. Courtesy of the Museo de América, Madrid, Spain. (Used with permission.)

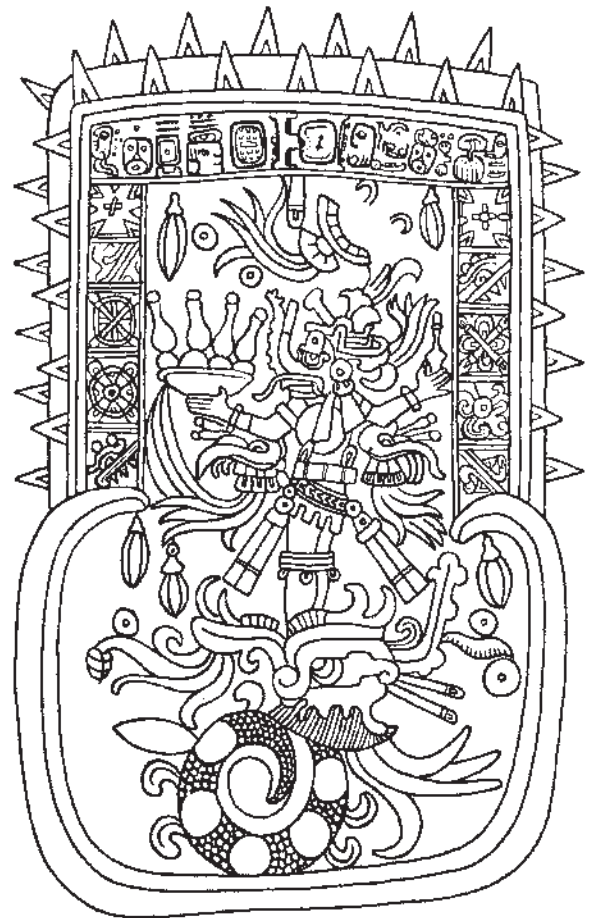


FIGURE 1.9. God K'awil with cacao and precious foods. From the Temple of the Owls, Chichén Itzá, Yucatán, Mexico. Courtesy of the Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA. (Used with permission.)

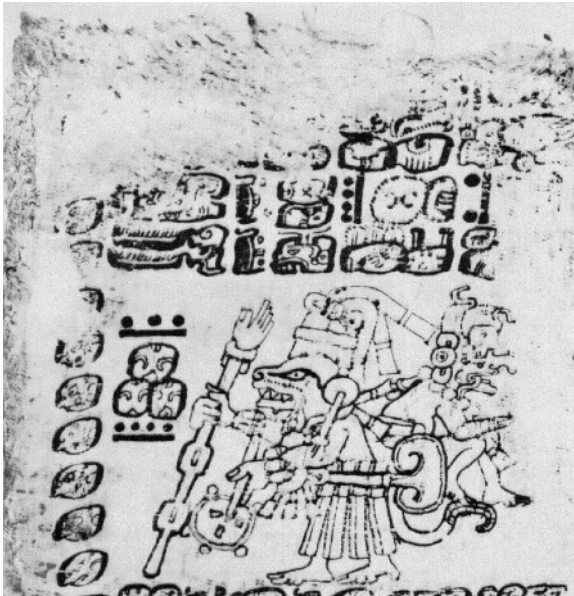


FIGURE 1.10. God K'awil as “burden” of year, Source: *Die Maya Handschrift der Königlichen öffentlichen Bibliothek zu Dresden* (Dresden Codex), by Ernst Förstemann. Mit 74 Tafeln in Chromo-Lightdruck. Verlag der A. Naumannschen Lichtdruckeret, Leipzig, 1880. (Used with permission.)

area are marked by bands and rays, perhaps representing the sun or the scales of a caiman [83, 84].

As we have seen, K'awil is associated with cacao on several occasions in the codices, including Dresden Codex pp. 12a and 25a (Figs. 1.3 and 1.10). In the latter scene, he corresponds to the patron of the year (he is depicted as the deity being carried on the back of the richly attired figure), and cacao is mentioned as one of the offerings he receives. These images differ significantly from the capstone from Chichén Itzá, which scholars interpret as showing the emergence of K'awil from the Underworld [85, 86]. He is shown with grains and plants important to the survival of humans, which were originally stored within the earth (mentioned earlier), until they were revealed and brought to the earth's surface. Among these, according to Maya mythology, were maize (corn), cacao, honey, and various tropical fruits [87]. In light of this, it is possible that the elements resembling jade earspools might instead represent gourds or one of the tropical fruits mentioned in the creation story.¹⁸ If this were the case, then the scene on Madrid Codex p. 52c, like the Chichén capstone, might refer not only to a wedding ceremony, but perhaps also to one of the paramount moments in the story of creation—that taking place just prior to the formation of the first human couple out of maize and water. The substitution of Itzamna in the picture for Chaak in the text, therefore, takes on greater meaning, as the rain god was associated with releasing maize and the other foods from their home within the earth, whereas Itzamna is



FIGURE 1.11. God Chaak emerging from serpent representing a cenote. Source: *Die Maya Handschrift der Königlichen öffentlichen Bibliothek zu Dresden* (Dresden Codex), by Ernst Förstemann. Mit 74 Tafeln in Chromo-Lightdruck. Verlag der A. Naumannschen Lichtdruckeret, Leipzig, 1880. (Used with permission.)

the primordial creator to whom humans owe their existence [89, 90].¹⁹ The earth goddess may here be signifying the forces of fertility and creation that are one of her primary attributes in the Maya codices [91].²⁰

An almanac in the Dresden Codex, running across the middle (b) register of p. 31 through 35 (Fig. 1.11), pictures a scene very similar to that on the capstone—a deity emerging from the gaping mouth of a serpent. In this instance, however, it is Chaak, rather than K'awil, who is pictured, and he holds his lightning axe aloft (rather than a vessel with precious substances).

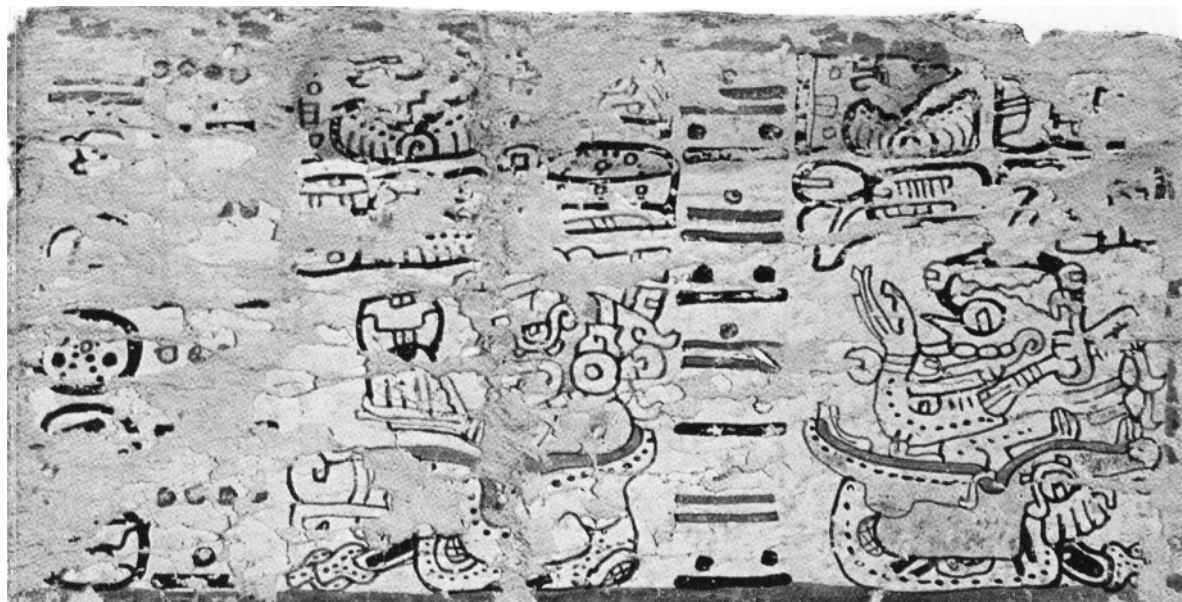


FIGURE 1.12. Emergence of creation and death deities. Source: *Codex Tro-Cortesianus* (Madrid Codex). Akademische Druck- und Verlagsanstalt, Graz, 1967. Courtesy of the Museo de América, Madrid, Spain. (Used with permission.)

This almanac likely pictures the role played by Chaak in bringing water from cenotes to the sky, where it falls to the earth as rain. A textual reference to rain (or *chaak*) as the sustenance of the year provides support for this identification [92]. The scenes in question may also, however, be referencing myths concerning the role of the rain deity in providing maize, cacao, and other plants to humans. Imagery picturing the rain god with an upraised axe has been suggested to symbolize the moment before he struck the mountain of sustenance to make its bounty available [93]. In that case, the images on Dresden Codex pp. 31b–35b would also be a reference to the origin of life on earth.

A further scene, from an almanac on Madrid Codex p. 19a (Fig. 1.12), also is relevant to this discussion. It contains two frames, the first picturing the creator Itzamna emerging from the open jaws of a rattlesnake, and the second the death god Kimil in a similar position. If these scenes are interpreted in the same way as those previously discussed, they appear to show the creator and the death god emerging from the Underworld. The former brings *ha' waah* “food and drink,” while the latter has his hand raised to his face in a gesture signifying death. This almanac clearly shows that, with the emergence of Itzamna and Kimil onto the earthly plane, humans were given both the means to survive and the reality of death at the end of their life’s journey.

Conclusion

The rich mythology surrounding the production and use of cacao by Mayan speakers in different eras and

regions points to its enduring quality as a gift from the gods. Although cacao no longer is used as frequently in Maya rituals today, it continues to function as a marker of important life events such as birth and marriage, and in agricultural ceremonies such as those documented among the Ch’orti’ Maya of Honduras [94, 95]. It is also an important component of the ceremonies involving offerings to the Lacandón Maya “god pots,” where it is characterized as a melding of the female (represented by cacao, because it is prepared by women) and the male (represented by a fermented drink called *balché*, made by the men) [96]. This mirrors its use in feasts 1500 years ago, when it was also prepared and frothed by women, as illustrated by Classic period artists portraying life at royal Maya courts on ceramic vessels [97].

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Endnotes

1. For a discussion of the methodology of analyzing residues, see Jeffrey Hurst [2].
2. A fermented drink made from the pulp of the plant may also have been consumed [10], although it assumes little importance in Mayan art and writing.
3. But see Elin Danien for an example of chocolate (in beverage form) being given by the bride to her husband to consummate their wedding [14].
4. The quetzal makes its home in the highland Maya area. Its brilliant blue and green tail feathers were prized by peoples throughout Mesoamerica during the pre-Hispanic period and represented an important trade item. Today, the quetzal is the national bird of Guatemala.
5. The history of its cultivation and the linguistic etymology of the term *kakaw* are considered in a recent book edited by Cameron McNeil, and previously by Lyle Campbell and Terrence Kaufman, and Karen Dakin and Søren Wichmann [23–25].
6. The *Popol Vuh* is an alphabetic text that dates to the 16th century from the highland kingdom of the K'iche' Maya. Its anonymous authors note that it had pre-Hispanic antecedents; it was probably recorded hieroglyphically in a screenfold book, or codex [26, 27]. The stories it contains—and others that were not written down—may be seen as early as the second century BCE from various parts of the Maya area and beyond [28]. Clearly, the mythology represents a tradition that spanned the region called Mesoamerica.
7. The concept of Sustenance Mountain is still found among highland Maya cultures, where it represents the realm of the honored dead and the place where rain clouds are created. Its surface overflows with life, including game and fruit trees [30].
8. His name consists of two parts: *k'aa* “surplus, abundance” and *wi'il* “sustenance” [36].
9. Although the almanacs and tables in the codices refer to events in the ninth through 15th centuries, they are thought to be 14th or 15th century copies of much earlier manuscripts [47, 48].
10. In the Maya codices, deities are pictured engaged in the activities that should be performed in their honor by those worshipping them. Deities had generally positive or negative associations. Of those named above, Chaak and K'awil were associated with positive auguries (abundance of food being the most common), and the death and underworld gods were associated with auguries such as “evil thing” and “dead person.”
11. Scenes from the Madrid Codex show deities drawing blood from their ears, tongue, and genitals, whereas other almanacs depict the implements used (including obsidian blades and stingray spines).
12. Maya texts are usually in the form verb–object (optional)–subject–title or augury, a feature shared with the Mayan languages today.
13. There is disagreement among scholars as to the Western correlate to the Maya turtle constellation. I follow Harvey and Victoria Bricker in their identification [62], although Gemini has been suggested as an alternative [63].
14. The passive form of the verb was first recognized by Alfonso Lacadena [64].
15. Although the male deity is named as the rain god Chaak in the text (see Figure 1.8), the creator deity Itzamna is pictured, painted a brilliant blue color used to signify rainfall and fertility.
16. A cenote is a sinkhole filled with water. Sinkholes, caverns, and cenotes are common features of the topography of the Yucatán Peninsula, which is composed of limestone crisscrossed by underground rivers.
17. The soils of Yucatán are dry and rocky and not suited to trees such as cacao, nor does the climate provide enough water in the form of rain. For many years, scholars were therefore confused by statements by Spanish chroniclers who commented on cacao plantations in Yucatán [76, 77].
18. In his analysis of the capstone image, Karl Taube provides evidence suggesting that these motifs are flowers, specifically flowers from the cacao tree [88].
19. In the Maya codices, as in the *Popol Vuh*, creation is the work of a paired male and female couple. According to Maya beliefs, men and women play complementary roles in all aspects of daily life.
20. An older female deity, pictured with wrinkles, is more commonly shown as Itzamna's counterpart in scenes relating to creation.

References

- Hall, G. D., Tarka, S. M. Jr., Hurst, W. J., Stuart, D., and Adams, R. E. W. Cacao residues in ancient maya vessels from Río Azul, Guatemala. *American Antiquity* 1990;55(1):138–143.
- Hurst, W. J. The determination of cacao in samples of archaeological interest. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 105–113.
- McNeil, C. L. Introduction: the biology, antiquity, and modern uses of the chocolate tree (*Theobroma cacao* L.). In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 1–28.
- McNeil, C. L. Traditional cacao use in modern Mesoamerica. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 341–366.
- Thompson, J. E. S. Notes on the use of cacao in Middle America. *Notes on Middle American Archaeology and Ethnology*, Publication No. 128. Washington, DC: Carnegie Institution of Washington, 1956.
- Coe, S. D., and Coe, M. D. *The True History of Chocolate*. London, England: Thames and Hudson, 1996.
- Macri, M. Nahua loan words from the Early Classic period: words for cacao preparation on a Río Azul ceramic vessel. *Ancient Mesoamerica* 2006;16(2):321–326.
- Reents-Budet, D. *Painting the Maya Universe: Royal Ceramics of the Classic Period*. Durham, NC: Duke University Press, 1994.
- Stuart, D. The language of chocolate: references to cacao on Classic Maya drinking vessels. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 184–201.
- Henderson, J. S., and Joyce, R. A. Brewing distinction: the development of cacao beverages in formative Mesoamerica. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 140–153.
- Bunzel, R. L. *Chichicastenango: A Guatemalan Village*. *Ethnological Society Publications*, Volume 22. Locust Valley, NY: J. J. Augustin, 1952.
- Tedlock, D. *Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*, revised edition. New York: Simon and Schuster, 1996; p. 322, note 184.
- Redfield, R., and Villa Rojas, A. *Chan Kom, A Maya Village*. Washington, DC: Carnegie Institution of Washington, Publication 448, 1934; p. 40.
- Danien, E., editor. *Maya Folktales from the Alta Verapaz*. Philadelphia: University of Pennsylvania Museum, 2005; pp. 57–59.
- McNeil, C. L. Introduction: the biology, antiquity, and modern uses of the chocolate tree (*Theobroma cacao* L.). In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 1–28.
- McNeil, C. L. Traditional cacao use in modern Mesoamerica. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 341–366.
- Kufer, J., and Heinrich, M. Food for the rain gods: cacao in Ch'orti' ritual. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 384–407.
- Millon, R. F. *When Money Grew On Trees: A Study of Cacao in Ancient Mesoamerica*. Unpublished Ph.D. dissertation. New York: Department of Political Science, Columbia University, 1955.
- Thompson, J. E. S. Notes on the use of cacao in Middle America. *Notes on Middle American Archaeology and Ethnology*, Publication No. 128. Washington, DC: Carnegie Institution of Washington, 1956.
- Reents-Budet, D. The social context of kakaw drinking among the ancient Maya. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 202–223.
- Hurst, W. J., Tarka, S. M. Jr., Powis, T. G., Valdez, F., and Hester, T. R. Cacao usage by the earliest Maya civilization. *Nature* 2002;418:289–290.
- Powis, T. G., Valdez, F. Jr., Hester, T. R., Hurst, W. J., and Tarka, S. M. Jr., Spouted vessels and cacao use among the Preclassic Maya. *Latin American Antiquity* 2002;13(1):85–106.
- McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006.
- Campbell, L., and Kaufman, T. A linguistic look at the Olmecs. *American Antiquity* 1976;41(1):80–89.
- Dakin, K., and Wichmann, S. Cacao and chocolate: a Uto-Aztecan perspective. *Ancient Mesoamerica* 2000;11(1):55–75.
- Christenson, A. J. *Popol Vuh: The Sacred Book of the Maya*. New York: O Books, 2003.
- Tedlock, D. *Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*, revised edition. New York: Simon and Schuster, 1996.
- Saturno, W. A., Taube, K. A., and Stuart, D. *The Murals of San Bartolo, El Petén, Guatemala. Part 1: The North Wall*. Ancient America 7. Barnardsville, NC: Center for Ancient American Studies, 2005.
- Christenson, A. J. *Popol Vuh: The Sacred Book of the Maya*. New York: O Books, 2003; pp. 193–194.

30. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 158).
31. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183.
32. Christenson, A. J. *Popol Vuh: The Sacred Book of the Maya*. New York: O Books, 2003.
33. Tedlock, D. *Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*, revised edition. New York: Simon and Schuster, 1996.
34. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 172).
35. Taube, K. A. The temple of Quetzalcoatl and the cult of sacred war at Teotihuacan. *RES* 1992;21:53–87 (information cited from pp. 55–58).
36. Stuart, D. *Ten Phonetic Syllables*. Research reports on ancient Maya writing 14. Washington, DC: Center for Maya Research, 1987; pp. 15–16.
37. Grube, N. The primary standard sequence on Chocholá style ceramics. In: Kerr, J., editor. *The Maya Vase Book*, Volume 2, New York: Kerr Associates, 1990; pp. 320–330.
38. Stuart, D. The language of chocolate: references to cacao on Classic Maya drinking vessels. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 184–201 (information cited from p. 190).
39. Kepecs, S., and Boucher, S. The pre-Hispanic cultivation of *rejolladas* and stone-lands: new evidence from northeast Yucatán. In: Fedick, S. L., editor. *The Managed Mosaic: Ancient Maya Agriculture and Resource Use*. Salt Lake City: University of Utah Press, 1996; pp. 69–91.
40. Houck, C. W. *The Rural Survey of Ek Balam, Yucatan, Mexico*. Ph.D. dissertation. New Orleans, LA: Department of Anthropology, Tulane University, 2004.
41. Landa, D. de. *Yucatan Before and After the Conquest*. Translated and with notes by William Gates. New York: Dover, 1978 (original ca. 1566).
42. Tozzer, A. M. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); pp. 94–95, 96, note 429.
43. Tozzer, A. M. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); p. 230.
44. Tozzer, A. M. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); p. 164.
45. Tozzer, A. M. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); p. 105.
46. Tozzer, A. M. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); p. 90.
47. Bricker, V. R., and Bricker, H. M. A method for cross-dating almanacs with tables in the Dresden codex. In: Aveni, A. F., editor. *The Sky in Mayan Literature*. New York: Oxford University Press, 1992; pp. 43–86.
48. Bricker, V. R., and Vail, G., editors. *Papers on the Madrid Codex*, Publication No. 64. New Orleans, LA: Middle American Research Institute, Tulane University, 1997.
49. Vail, G., and Hernández, C. The Maya hieroglyphic codices, version 2.0; 2005. A website and database available online at: www.mayacodices.org.
50. Landa, D. de. *Yucatan Before and After the Conquest*. Translated and with notes by William Gates. New York: Dover, 1978 (original ca. 1566); pp. 47–48.
51. Christenson, A. J. *Popol Vuh: The Sacred Book of the Maya*. New York: O Books, 2003.
52. Tedlock, D. *Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*, revised edition. New York: Simon and Schuster, 1996.
53. Vail, G., and Hernández, C. The Maya hieroglyphic codices, version 2.0; 2005. Available at <http://mayacodices.org/codex2/frameDetail.asp?almNum=72&frameNum=2>. (Accessed February 14, 2007.)
54. Miller, M. E., and Martin, S. *Courtly Art of the Ancient Maya*. New York: Thames and Hudson, 2004; p. 106, Pl. 49.
55. Coe, S. D., and Coe, M. D. *The True History of Chocolate*. London, England: Thames and Hudson, 1996; p. 45.
56. Miller, M. E., and Martin, S. *Courtly Art of the Ancient Maya*. New York: Thames and Hudson, 2004; p. 106.
57. McGee, R. J. *Life, ritual, and religion among the Lacandon Maya*. Belmont, CA: Wadsworth, 1990; p. 85.
58. Miller, M. E. *Maya Art and Architecture*. New York: Thames and Hudson, 1999; p. 179.

59. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 170).
60. Tozzer, A. M. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); p. 107.
61. Schele, L. *Notebook for the XVIth Maya Hieroglyphic Workshop*. Austin: Department of Art and Art History, University of Texas at Austin, 1992; p. 140.
62. Bricker, H. M., and Bricker, V. R. Zodiacal references in the Maya codices. In: Aveni, A. F., editor. *The Sky in Mayan Literature*. New York: Oxford University Press, 1992; pp. 148–183 (information cited from p. 171, Table 6.5).
63. Paxton, M. *The Cosmos of the Yucatec Maya: Cycles and Steps from the Madrid Codex*. Albuquerque: University of New Mexico Press, 2001; pp. 153–181, Appendix D.
64. Lacadena, A. Bilingüismo en el Códice de Madrid. In: *Los investigadores de la cultura maya*, No. 5. Campeche, Mexico: Publicaciones de la Universidad Autónoma de Campeche, 1997; pp. 184–204.
65. Macri, M. Department of Native American Studies, University of California, Davis. Personal communication. July 20, 2005.
66. Barrera Vásquez, A., Bastarrachea Manzano, J. R., Brito Sansores, W., Vermont Salas, R., Dzúl Góngora, D., and Dzúl Poot, D., editors. *Diccionario maya cordemex: maya-español, español-maya*. Merida: Ediciones Cordemex, 1980; p. 871.
67. Coe, S. D., and Coe, M. D. *The True History of Chocolate*. London, England: Thames and Hudson, 1996; p. 95.
68. Danien, E., editor. *Maya Folktales from the Alta Verapaz*. Philadelphia: University of Pennsylvania Museum, 2005; p. 59.
69. Vail, G., and Hernandez, C. The Maya hieroglyphic codices, version 2.0; 2005. Available at: <http://mayacodices.org/codex2/frameDetail.asp?almNum=229&frameNum=1>. (Accessed February 14, 2007.)
70. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 175).
71. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 183, note 32).
72. Lounsbury, F. G. Glyphic substitutions: homophonic and synonymic. In: Justeson, J. S., and Campbell, L., editors. *Phoneticism in Mayan Hieroglyphic Writing*. Albany, NY: Institute for Mesoamerican Studies, State University of New York, 1984; pp. 167–184 (information cited from p. 177).
73. Reents-Budet, D. *Painting the Maya Universe: Royal Ceramics of the Classic Period*. Durham, NC: Duke University Press, 1994.
74. Stuart, D. The language of chocolate: references to cacao on Classic Maya drinking vessels. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 184–201.
75. Gómez-Pompa, A., Salvador Flores, J., and Aliphath Fernández, M. The sacred cacao groves of the Maya. *Latin American Antiquity* 1990;1(3):247–257.
76. Tozzer, A. M., editor. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original ca. 1566, Landa, D. de); p. 164.
77. Chi, G. A. Relación. In: Tozzer, A. M., editor. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original 1582); pp. 230–232, Appendix C.
78. Chi, G. A. Relación. In: Tozzer, A. M., editor. *Landa's relación de las cosas de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology, Volume 18. Cambridge, MA: Harvard University, 1941 (original 1582); pp. 230–232, Appendix C.
79. Houck, C. W. *The Rural Survey of Ek Balam, Yucatan, Mexico*. Ph.D. dissertation. New Orleans, LA: Department of Anthropology, Tulane University, 2004.
80. Kepecs, S., and Boucher, S. The pre-Hispanic cultivation of *rejolladas* and stone-lands: new evidence from northeast Yucatán. In: Fedick, S. L., editor. *The Managed Mosaic: Ancient Maya Agriculture and Resource Use*. Salt Lake City: University of Utah Press, 1996; pp. 69–91.
81. Ardren, T., Burgos Villanueva, R., Manahan, T. K., Dzúl Góngora, S., and Estrada Faisal, J. Recent investigations at Xuenkal, Yucatán. *Mexicon* 2005; 27:92–97.
82. Prufer, K., and Brady, J. E., editors. *Stone Houses and Earth Lords: Maya Religion in the Cave Context*. Boulder: University Press of Colorado, 2005.
83. Hernández, C. Middle American Research Institute, Tulane University, New Orleans. Personal communication. February 3, 2007.
84. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville:

- University Press of Florida, 2006; pp. 154–183 (information cited from p. 174).
85. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 175).
 86. Miller, M. E., and Martin, S. *Courtly Art of the Ancient Maya*. New York: Thames and Hudson, 2004; p. 63.
 87. Christenson, A. J. *Popol Vuh: The Sacred Book of the Maya*. New York: O Books, 2003; pp. 193–194.
 88. Taube, K. A. The iconography of Toltec period Chichen Itza. In: Prem, H. J., editor. *Hidden Among the Hills: Maya Archaeology of the Northwestern Yucatan Peninsula. Acta Mesoamericana*, Volume 7. Markt Schwaben, Germany: Verlag Anton Saurwein, 1999; pp. 212–246 (information cited from p. 227).
 89. Martin, S. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 154–183 (information cited from p. 172).
 90. Taube, K. A. Itzamná. In: Carrasco, D., editor. *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central America*, Volume 2. New York: Oxford University Press, 2001; pp. 56–57.
 91. Vail, G., and Stone, A. Representations of women in Postclassic and Colonial Maya literature and art. In: Ardren, T., editor. *Ancient Maya Women*. Walnut Creek, CA: Alta Mira Press, 2002; pp. 203–228.
 92. Vail, G., and Hernandez, C. The Maya hieroglyphic codices, version 2.0; 2005. Available at <http://mayacodices.org/codex2/text.asp?almNum=365&frameNum=4&clause=1&dispOrd=1>. (Accessed February 14, 2007.)
 93. Urcid, J. Department of Anthropology, Brandeis University, Waltham, MA. Personal communication. February 1, 2007.
 94. McNeil, C. L. Introduction: the biology, antiquity, and modern uses of the chocolate tree (*Theobroma cacao* L.). In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 1–28.
 95. Kufer, J., and Heinrich, M. Food for the rain gods: cacao in Ch'orti' ritual. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 384–407.
 96. Pugh, T. W. Cacao, gender, and the northern Lacandon god house. In: McNeil, C. L., editor. *Chocolate in Mesoamerica: A Cultural History of Cacao*. Gainesville: University Press of Florida, 2006; pp. 367–383.
 97. Coe, S. D., and Coe, M. D. *The True History of Chocolate*. London, England: Thames and Hudson, 1996; p. 50.

