

*Itzam Cab Ain:*  
Caimans, Cosmology, and Calendrics  
in Postclassic Yucatán

KARL A. TAUBE  
*University of California at Riverside*

FOR THE PEOPLES OF ANCIENT MESOAMERICA, cosmology and calendrics were by no means separate fields of concern. Both subjects were part of a integrated whole, a complex system of world view that encompassed both space and the dynamic passage of time. In the prehispanic codices, this integration is frequently expressed with day signs oriented to particular gods, trees, and houses of the world directions. Such a series may run in a page-by-page sequence, such as on pages 25 to 28 of the Dresden Codex or pages 49 to 53 of the Borgia (Seler 1904; Thompson 1934). However, the integration of time and space may be also be represented in a single mandala-like plan. Famous examples of this type appear on page 1 of the Fejervary Mayer Codex, and pages 75 and 76 of the Madrid Codex (Seler 1901).

The placement of calendric periods of time in space is by no means limited to the codices. However, it is obvious that in such instances, no page-by-page sequencing is possible. Instead, the depictions are generally of the “cosmogram” type, in which the temporal periods are represented simultaneously in a single scene. Perhaps the most famous example of this type is the great Aztec “Calendar Stone.” In a recent study, I identify a calendric sculpture of the cosmogram type at the Late Postclassic Maya site of Mayapan (Taube 1988). In that example, the cycle of 13 *katuns* forms a ring on the back of the turtle; in other words, the sculpture is a prehispanic “katun wheel.” In that study, I provide evidence that to the ancient Maya the turtle was an important symbol of the circular earth. However, I also stress that the Maya and other inhabitants of ancient Mesoamerica had a number of different models for perceiving the world. Among the Maya, the turtle was but one zoöomorphic metaphor for the earth; another was the caiman. In this study, I will focus on the caiman metaphor, known in Yucatec as *Itzam Cab Ain*. Along with identifying depictions of this beast, I will also cite three instances in which calendrical periods are placed in relation to the earth caiman body as a form of calendrical cosmogram.

ITZAM CAB AIN

Among the inhabitants of Late Postclassic Central Mexico, the caiman was a widespread symbol or metaphor for the earth (Seler 1902-1923,4:646-653). In the Borgia Group of codices, the rough and spiny back of the caiman is frequently used to denote the surface of the earth (eg. Borgia 7, 27, 39-40, 42, & 53; Vaticanus B 69; Fejervary-Mayer 28). Moreover, in the Early Colonial Period *Historia de los Mexicanos por sus pinturas* account of creation, the caiman is explicitly identified as the earth (Garibay 1979:26). For the Late Postclassic Maya of Yucatan, the evidence

is similarly direct. The 1579 *Relación de la Ciudad de Mérida* describes a fire-walking ceremony which began with the preparation of a caiman (*lagarto*) to represent the flood and the earth:

*También tuvieron noticia de la caída de Lucifer del Diluvio, y que el mundo se había de acabar por fuego, y en significación de esto, hacien una ceremonia y pintaban un lagarto que significaba el diluvio y la tierra* (de la Garza 1983,1:72).

This ceremony was evidently a reenactment of the cosmogonic flood episode described in the Colonial Yucatec “Chilam Balam” books of Chumayel (Roys 1933:98-101), Maní (Craine and Reindorp 1979:118) and Tizimin (Edmonson 1982:40-41). In these accounts, there is mention of a creature known as *Itzam Cab Ain*, or “*Itzam earth caiman*” (Note 1). Noting that the term *itzam* signifies “whale” in contemporary Yucatec, Martínez Hernández (1913: 165-66), compares this caiman creature to the great *Cipactli* earth caiman mentioned in the *Historia de los Mexicanos por sus pinturas*. Thus in the Central Mexican account, *Cipactli* is described as *un peje grande*, or “a large fish” (Garibay 1979:26). Seler (1902-1923,4:649) notes that in the prehispanic Central Mexican codices, the caiman is often depicted with a fish tail. This is by no means an exclusively Central Mexican trait. The famous caiman on Copan Altar T is also provided with a fish tail, and there are other examples in Classic Maya iconography (see Hellmuth 1987: Figs. 230-240).

There are indications that among the Classic Maya the caiman also represented the earth. On the Early Classic Yaxha Stelae 6 and 10, an open-mouthed caiman serves as the basal register, or earth, of the standing lord. A caiman also occupies the lower register of Step 3 of Yaxchilan Hieroglyphic Stairway 3 (Graham 1982: 3:169). The Maya and Central Mexican concept of caiman world trees probably also relates to the earth caiman. In representations of caiman trees, the saurian head and body occupy the lower trunk of the tree, as if the earth caiman were pulled up by the tail to support the heavens. Frequently with the Classic Maya examples, the head and upper limbs of the caiman are horizontal, with only the lower portion of the body rising to form the tree. On Izapa Stela 22, the earliest known depiction of the caiman tree, a human figure actually stands on the horizontal snout of the caiman (see Norman 1973: Plate 41).

We have seen that for the Protohistoric period in Yucatan, there is firm evidence that the caiman was a symbol of the earth, and this appears to be true for the Classic Maya as well. However, the term “*Itzam*” of *Itzam Cab Ain*, remains to be discussed. It has been noted that according to Martínez Hernández, the term means “whale.” In fact, the entire phrase *itzam cab ain* is glossed *ballena*, or “whale” in colonial Yucatec dictionaries (Barrera Vásquez 1980:272). On the other hand, Thompson (1970:212) notes that the Vienna Dictionary glosses *itzam* as “*largartos como iguanas de tierra y agua*,” and for this reason translates *itzam* as “iguana.” However, Barrera Vásquez (1980:272) disagrees, noting that *itzam* is not a Mayan word for lizard. According to him, the Vienna Dictionary entry actually alludes to *Itzam Cab Ain*, a terrestrial aspect of the great god *Itzamna*. For the same reason, I believe that the whale significance of *Itzam Cab Ain* is secondary to the primary meaning—*Itzamna* as the caiman earth.

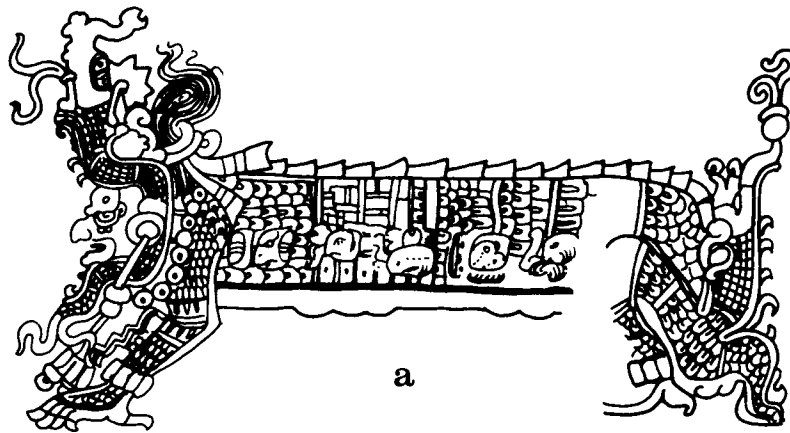
In an influential study, Thompson (1970: 209-233) argued that *Itzamna*, or “*Iguana House*,” was the paramount god of the Classic and Postclassic Maya. However, it is now clear that many of the Classic saurian examples of *Itzamna* cited by Thompson are, instead, distinct entities and have no direct relation to this god. Nonetheless, for the Postclassic Maya of Yucatan, it is clear that *Itzamna* was a major god. In the early colonial accounts, *Itzamna* is repeatedly described as the paramount deity (eg. de la Garza 1983,2:323; Saville 1921:211; Tozzer 1941:145-146). Recent work by Hellmuth (1987) has shown that *Itzamna* was also a major god of the Classic Maya pantheon. Many vessel scenes of the period represent God D seated on a throne and facing subsidiary deities, such as God N or God D (see Coggins 1975: Fig. 127b). In these scenes, God D is portrayed as a lord receiving lesser divinities. However, although the Classic Maya imagery supports the contention that *Itzamna* was a major Classic god, there is no Classic example of God D in the form of a caiman or iguana. Rather, Hellmuth (1987:364-367)

notes that that Classic God D merges with the Principal Bird Deity (Note 2).

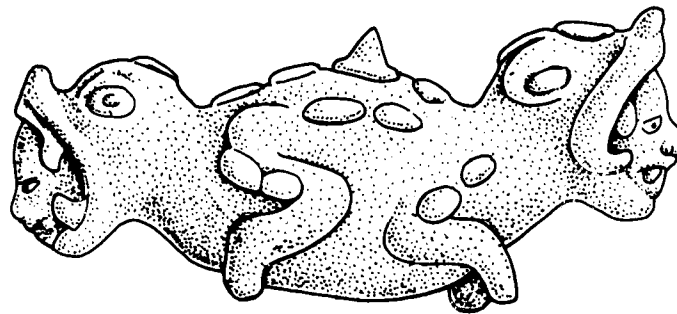
In his initial identification of the codical God D as Itzamna, Seler (1887; 1902-1923,1:379-381) stated that this deity was an aged creator god of sustenance equivalent to Tonacatecuhtli of Central Mexico:

For as the Mexican Tonacatecuhtli, the lord of generation, is supposed to be in the topmost thirteenth heaven, and at the same time also he (or his feminine companion) appears as lord of the earth, so also the ideas of heaven and earth, below and above, seem to me present also in this Yucatec god (translation from Bowditch 1939, I: 69).

In Central Mexico, Tonacatecuhtli is closely identified with the caiman (Note 3). Thus Tonacatecuhtli is not only the regent of Cipactli, meaning caiman, the first of the twenty day names, but also presides over the *trecena* 1-Cipactli (Caso 1971:337-338). Seler (1963,2:28, 41) cites a number of instances in the Borgia Codex in which Tonacatecuhtli wears the spiny skin of the caiman. For the Postclassic Maya, there are similar representations of Itzamna in the guise of a caiman. Seler (1902-1923,4:650) notes that on pages 4b and 5b of the Dresden Codex, Itzamna appears in the jaws of a caiman (Fig. 1a). Seler also identifies this scene as a represen-



a



b

- a: DRESDEN 4b-5b (Drawing by the author).  
 b: SRC ceramic figurine, Late Postclassic (drawing by the author [after Gann 1900: Plate 33])

FIGURE 1. POSTCLASSIC REPRESENTATIONS OF ITZAM CAB AIN

tation of the earth caiman Itzam Cab Ain, and compares it to Cipactli of Central Mexico. Along with noting the Dresden scene, Thompson (1970:215) suggests that a number of the cached figurines excavated by Thomas Gann at Santa Rita also represent the earth caiman aspect of Itzamna. Two of the Santa Rita figures illustrated by Gann (1900: plate 34) are bicephalic caimans with human faces emerging from their open mouths (Fig. 1b). In at least one case, the figure is clearly aged, and quite likely these figurines constitute three dimensional versions of the Dresden scene.

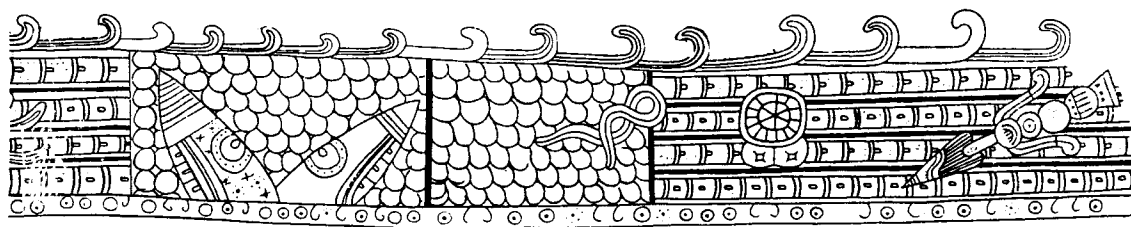
Although not mentioned by Thompson, there is another excellent caiman representation at Santa Rita. In the famous Mound 1 murals, a series of anthropomorphic gods are positioned above a horizontal band which in turn lies over an area containing fish and marine shells. On close inspection, it can be seen that the band itself is a caiman body, with the same back crest, vertical bands, and scales found with the aforementioned Dresden example of Itzam Cab Ain (Fig. 2a). In other words, the human figures are positioned over the caiman earth floating on the sea. The head of the creature appears on both sides of the central doorway, with the widely open jaws flanking the door (Note 4). Although incompletely drawn by Gann, the caiman was provided with forelimbs and long claws (Fig. 2b). The headdress of this creature provides an especially interesting detail. It contains a vertical paper or cloth element pierced with a stingray or bone perforator. A virtually identical headdress element, again with the same perforator, is worn by an explicit depiction of God D in the same mural scene at Santa Rita (Fig. 2c). Clearly, this is no ordinary caiman. Instead, as Itzam Cab Ain, the caiman wears priestly accoutrements of Itzamna (Note 5).

#### CAIMANS AND CALENDRIAL CYCLES

The central theme of the Mound 1 murals at Santa Rita concerns the passage of time. The anthropomorphic figures above the prone caiman are accompanied by dates, represented by Ahau signs with numerical coefficients. Ahau is the particular sign of the 20-day sequence in which the *uinal*, *tun*, *katun*, and larger Long Count periods end. In Postclassic and colonial Yucatán, the 360-day *tun* and the *katun* of 20 *tuns* were named for the particular numbered Ahau on which they ended. For the sequence of *tuns*, the Ahau coefficients (1 to 13) decrease by four with the passage of each *tun*. For example, in an "11 Ahau" *katun*, the *tuns* run as follows: 7 Ahau, 3 Ahau, 12 Ahau, 8 Ahau, and so on, until 11 Ahau, the 20th *tun*, is reached. Since the coefficients accompanying the Ahau signs at Santa Rita are each separated by a difference of four, it is likely that the Ahau dates refer to a succession of *tuns* (Thompson 1950:198). Thus in the Santa Rita murals, the particular god accompanying an Ahau date appears to be the patron or augury of the particular *tun*.

The placement of a succession of *tuns* and their accompanying gods on a cosmological model of the earth recalls a small turtle sculpture from Mayapan. In this instance, a "wheel" of thirteen *katuns* is placed on the back of a turtle, a model for the circular concept of the world (Taube 1988). There is another Late Postclassic Mayapan stone sculpture that depicts the caiman model of the earth (Fig. 3). Although Proskouriakoff (1962:334) states that the sculpture represents "a reptilian grotesque of uncertain genus," it is clearly the caiman. Thus it displays the same scale markings and narrow vertical bands appearing in the Dresden scene and in the murals at Santa Rita. Unfortunately, the object is badly damaged, and it is difficult to determine whether a human head may originally have appeared in the open jaws. However, it is clear that a human figure lies upon the back of the creature. This individual is marked with a prominent day sign, 1 Ahau, and the back of the caiman is supplied with two other dates, 4 Ahau, and 13 Ahau. Although the significance of these three dates is unknown, the Mayapan sculpture appears to be another example of period ending dates distributed upon the earth caiman (Note 6).

FIGURE 2. THE REPRESENTATION OF ITZAM CAB AIN IN THE SANTA RITA MURALS

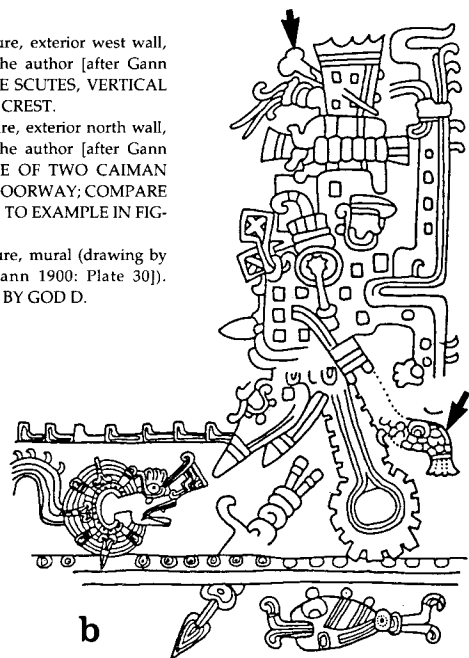


a

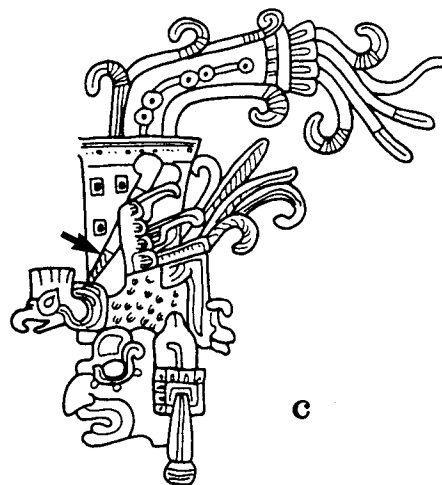
a: SRC Mound 1 structure, exterior west wall, mural (drawing by the author [after Gann 1900: Plate 31]). NOTE SCUTES, VERTICAL BANDS, AND BACK CREST.

b: SRC Mound 1 structure, exterior north wall, mural (drawing by the author [after Gann 1900: Plate 29]). ONE OF TWO CAIMAN FACES FLANKING DOORWAY; COMPARE CLAWED FORELIMB TO EXAMPLE IN FIGURES 1a and 4b.

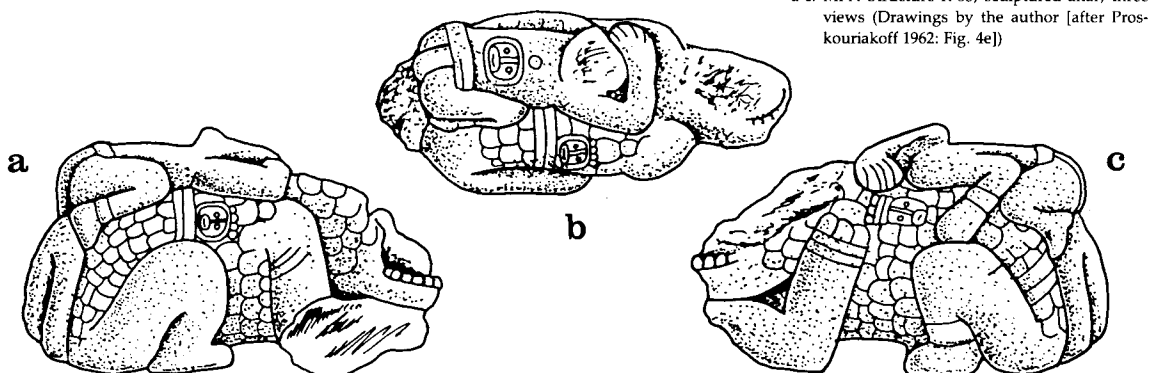
c: SRC Mound 1 structure, mural (drawing by the author [after Gann 1900: Plate 30]). HEADRESS WORN BY GOD D.



b



c

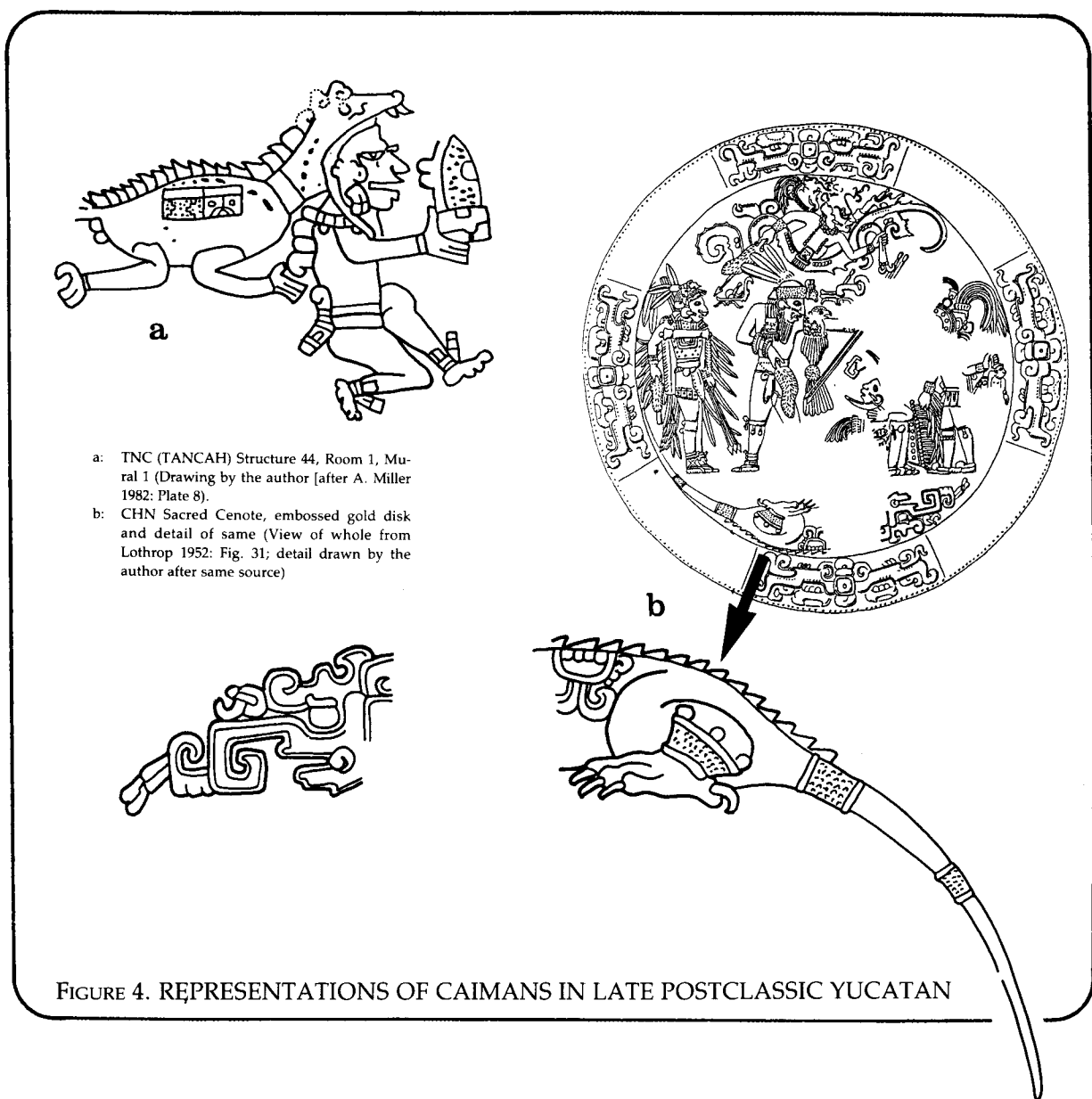


a-c: MPN Structure R-88, sculptured altar, three views (Drawings by the author [after Proskouriakoff 1962: Fig. 4e])

FIGURE 3. CALENDRIAL PERIODS ON A CAIMAN BODY FROM MAYAPAN

A mural in Tancah Structure 44 depicts another caiman figure marked with calendrical signs (Fig. 4a). In the midsection of the caiman torso, there are day signs for Edznab and Ahau, the 18th and 20th days of the series of 20. The caiman appears as a headdress and back element worn by a striding human. As in many Postclassic caiman representations, the creature displays a prominent crested ridge upon the back. Another example of the back crest can be seen on one of the Early Postclassic gold disks from the Sacred Cenote at Chichén Itzá (Fig. 4c). Lying on its back, the caiman occupies the basal register of a battle scene. Although the creature possesses a strange scroll-like snout, Lothrop (1952:46) notes that it is a representation of the caiman earth monster.

Yet another example of the earth caiman appears within Structure 2 of the Pinturas Group at Cobá (Fig. 5). Although quite damaged, the Late Postclassic mural clearly once showed human figures standing upon the crested and scaly body of a caiman, as if it were the earth (see Lombardo de Ruíz et al. 1982: Plate 52). With its scales and back scutes, the caiman body is similar to the Itzamna caiman in the Dresden Codex. A series of day signs run along the caiman body. In the published fragments, it is possible to see the signs Men, Cib, and Caban. George Stuart, who was present when the Cobá murals were being excavated, notes that the day signs



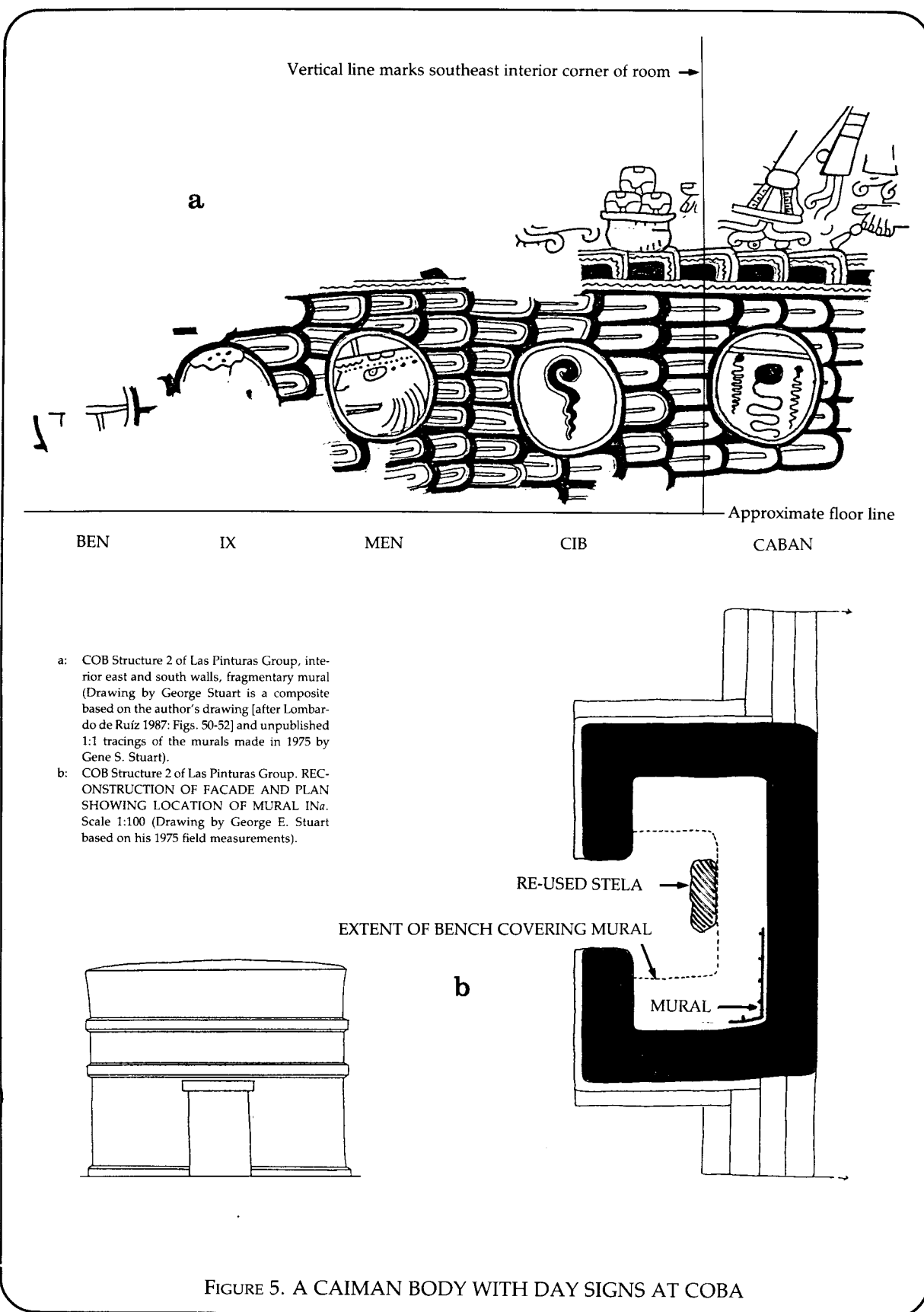
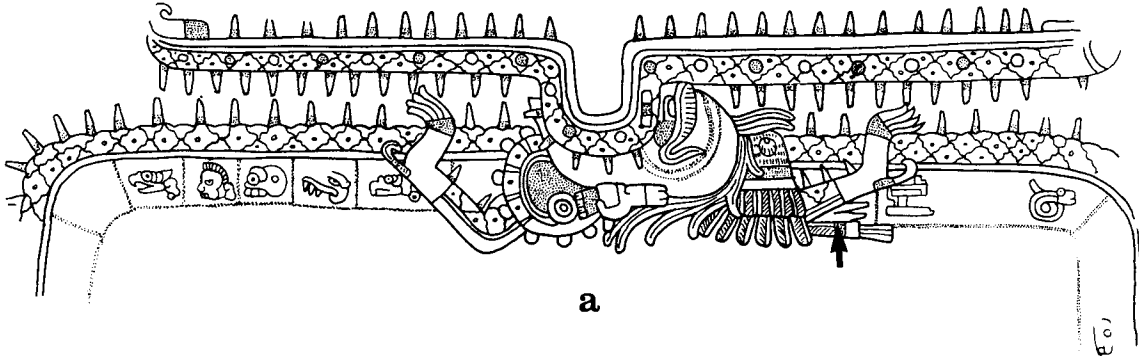
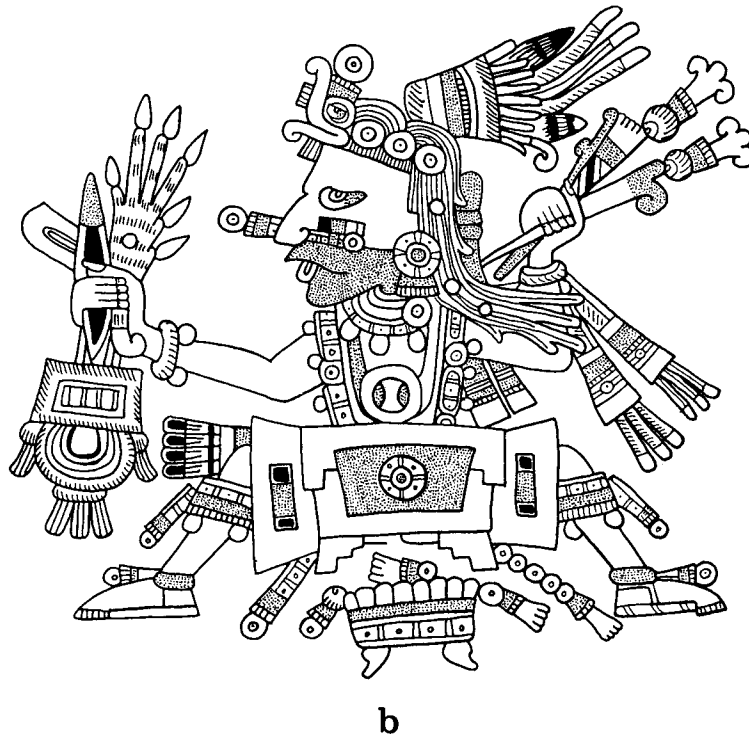


FIGURE 5. A CAIMAN BODY WITH DAY SIGNS AT COBA

FIGURE 6. LATE POSTCLASSIC REPRESENTATIONS OF TONACATECUHTLI



- a: BORGIA 39, detail (Drawing by the author [after Seler 1963]). TONACATECUHTLI AS THE CAIMAN EARTH; NOTE DAY SIGNS ON CAIMAN BODY.
- b: BORGIA 61, detail (Drawing by the author [after Seler 1963]). TONACATECUHTLI IN BIRTH-GIVING POSITION.





Ben and Ix were once present, and that all ran in order from north to south at the base of the east wall (personal communication, 1987; also see Lombardo de Ruíz 1987: Figs. 49-52). It thus appears that the Structure 2 caiman contained many if not all of the 20 day signs along its body.

The Cobá mural is notably similar to Borgia pages 39 and 40 (Fig. 6a). Here the aged god Tonacatecuhtli appears as a great open-mouthed caiman. Whereas the head and forelimbs appear on page 39, the remains of the diminutive lower limbs can be discerned at the base of the scene on page 40. Seler (1963,2:41) notes that page 40 depicts an underworld event enclosed by the caiman earth. But although the earth creature is supplied with a caiman mouth, the head is that of Tonacatecuhtli, with a sharply pointed chin, white hair, and a feathered headdress found with other representations of the creator god (Fig. 6b). Moreover, the colored bar on the cheek of the caiman mouth—an emblem of Xochipilli—is a characteristic also found with Tonacatecuhtli. A series of day signs pass along the body of the Tonacatecuhtli caiman. Seler (1963,2:42) points out that to the right side of the caiman head, the mouth of the second day sign, Ehecatl, is visible. The day signs then pass in consecutive order to the third day, Calli, the fourth, Cuetzpalin, the fifth, Coatl, and so on, all the way down the right side of the caiman body to end with Malinalli at the rear of the creature. Another distinct pattern of day signs continues from the rear up the left side of the creature to end near the head. Although not noted by Seler, it is probable that the great Tonacatecuhtli caiman head serves as the first day sign, Cipactli, with the partially obscured Ehecatl head constituting the second day of the count. In concept, the placement of a consecutive series of day signs along the body of the earth caiman is identical to the Pinturas Group mural at Cobá.

#### CONCLUSIONS

In view of the Cobá painting and other Maya scenes, it is clear that the Postclassic Yucatec perception of the earth caiman was very similar to that of highland Mexico. In both regions, the caiman was closely identified with an aged god of creation and sustenance. Although the caiman earth metaphor cannot be traced to before the Postclassic in Central Mexico, there are strong indications that it was present among the Classic Maya. However, the identification of Itzamna with the caiman in the form of Itzam Cab Ain is primarily a Postclassic Maya trait. Quite likely, the Yucatec use of *itzam* to designate a whale or caiman derives from the late identification of Itzamna with the cosmological caiman.

In the three cited examples from the Late Postclassic—Santa Rita, Mayapán, and Cobá—particular day signs are placed on the body of the earth caiman. In the Santa Rita and Mayapán examples, the days are period ending dates, while at Cobá they form a series of the twenty day names. The placement of day signs on zoöomorphic or anthropomorphic figures is common in the Borgia Group of Late Postclassic codices as, for example, on Borgia 17, 39-40, 53, and 73; Vaticanus B 75, 85, 86, and 96; and Laud 2. The three Late Postclassic Maya examples can be considered as part of the same tradition. However, in the case of the three Maya representations cited, the caiman seems to have had a particular calendrical as well as cosmological significance. According to the Chilam Balam books of Tizimin and Maní, the cosmogonic Itzam Cab Ain flood event occurred in Katun 13 Ahau, the last katun of the 13-katun series. It is surely no coincidence that the world trees subsequently placed in commemoration of the flood were termed *imix che*. The trees are named after Imix, the day immediately following Ahau, and thus the first day of the next katun cycle. As the primordial beast from which the earth is both destroyed and fashioned, Itzam Cab Ain embodies the concept of completion and renewal appearing in both Maya cosmology and calendrics.

## NOTES

1. In the Chumayel manuscript, the creature is actually referred to as *itzam kab ain*, which Roys (1933: 101, n. 4) translates as "the whale with the feet of a crocodile."

2. The association of God D and the Principal Bird Deity continued into the Late Postclassic. On page 11 of the Paris Codex, a rare Postclassic form of the Principal Bird Deity appears in the scene corresponding to Katun 10 Ahau, a katun concerning God D (Taube 1987).

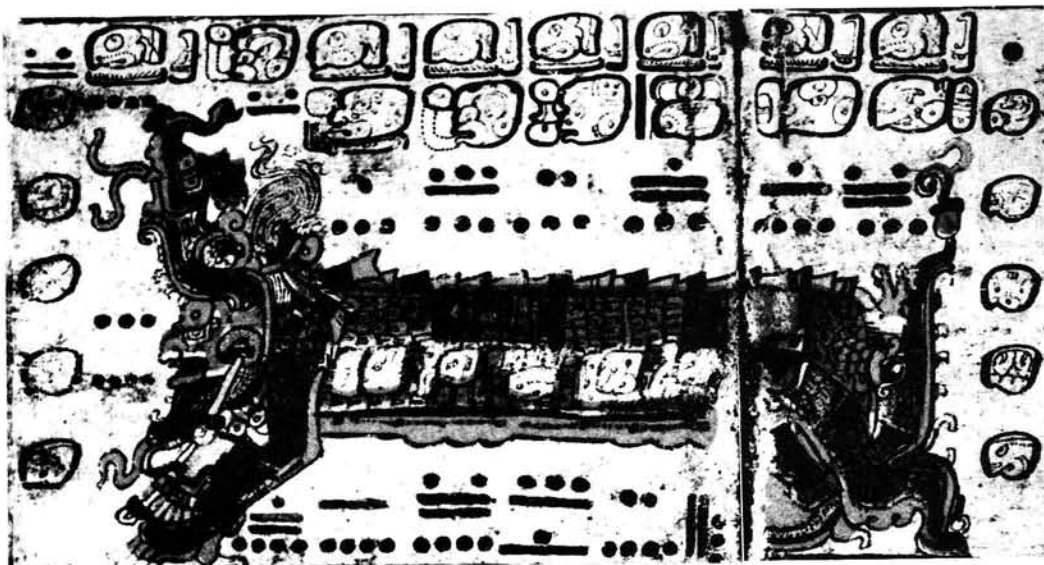
3. Both Tonacatecutli and Itzamna are also identified with sacred trees, at times even appearing as personified trees. In the Borgia and Vaticanus B Codices, Tonacatecutli can appear with a flowering tree sprouting out of the top of the head (Seler 1963,1:64). Itzamna is similarly identified with trees. At Tayasal, Avendaño describes a stone column called the *Yax Cheel Cab*, or "first tree of the world" (Means 1917: 135-136). The column is said to bear the image of Yax Cocay Mut (*ibid.*), recognized to be an aspect of Itzamna (Tozzer 1941:145, n. 695). The head of God D appears as the base of a stone tree on Madrid 96a and, possibly, 11c. On Dresden 41b, a God D head serves as the lower trunk of a tree. In the Classic Period, God D commonly appears with sacred world trees (see Coe 1967:100; Coe

1973: No. 20; 1978: No. 8; 1982:10; Robicsek and Hales 1982: Vessel 108).

4. George Stuart (personal communication 1987) notes that with the flanking open jaws, the Santa Rita doorway is very similar to the saurian-mouthed doorways of the Late Classic Chenes region. The identification of forelegs upon the Santa Rita caiman doorway lends support to Stuart's comparison, since a number of Chenes style examples are also supplied with forelimbs (eg. Gendrop 1983: 125-127).

5. The tall cylindrical headdress worn by God D at Santa Rita is also frequently found with God D in the Madrid Codex. There, God D appears at least 14 times with the cloth or paper element. This device is probably the priestly "miter" mentioned in the *Relación de Valladolid* (de la Garza 1983,2:39). During the Late Postclassic Period, God D is frequently represented as an Ah Kin, or paramount priest (see Taube 1988b:73-74).

6. It is intriguing that the episode of Itzam Cab Ain in the Tizimin and Maní accounts was said to occur in 13 Ahau, with 1 Ahau also mentioned in the Tizimin (Craine and Reindorp 1979:117-119). However, the third date upon the caiman, 4 Ahau, is not mentioned in the Chilam Balam episode.



## LIST OF REFERENCES

- BARRERA VÁSQUEZ, ALFREDO, ET AL.  
1980 *Diccionario Maya Cordemex, Maya-Español, Español-Maya*. Mérida, Yucatán, México: Ediciones Cordemex.
- BORGIA CODEX  
See Selser 1963
- BOWDITCH, CHARLES PICKERING (SUPERVISOR)  
1939 English translation of *Gesammelte Abhandlungen zur Amerikanischen Sprach- und Alterthumskunde, volumes 1-5, by Eduard Selser*. edited by J. Eric S. Thompson and Francis B. Richardson. Carnegie Institution of Washington. Cambridge, Massachusetts.
- CASO, ALFONSO  
1971 Calendrical Systems of Central Mexico. In *Handbook of Middle American Indians*, edited by Robert Wauchope, vol. 10, part 1, pp. 333-348. Austin: University of Texas Press.
- CHILAM BALAM OF CHUMAYEL  
See Roys 1933.
- CODEX BORGIA  
See Selser 1962
- COE, MICHAEL D.  
1973 *The Maya Scribe and His World*. New York: The Grolier Club.  
1978 *Lords of the Underworld: Masterpieces of Classic Maya Ceramics*. Princeton, N.J.: Princeton University Press.  
1982 *Old Gods and Young Heroes: The Perlman Collection of Maya Ceramics*. Jerusalem: The Israel Museum.
- COE, WILLIAM R.  
1967 *Tikal: A Handbook of the Ancient Maya Ruins*. Philadelphia: The University Museum, University of Pennsylvania.
- COGGINS, CLEMENCY  
1975 *Painting and Drawing Styles at Tikal: An Historic and Iconographic Reconstruction*. Doctoral Dissertation, Harvard University. Ann Arbor, Michigan: University Microfilms International.
- CRAINE, EUGENE R., AND REGINALD C. REINDORP  
1979 *The Codex Perez and the Book of Chilam Balam of Mani*. Norman: The University of Oklahoma Press.
- EDMONSON, MUNRO S.  
1982 *The Ancient Future of the Itza: the Book of Chilam Balam of Tizimin*. Austin: University of Texas Press.
- GANN, THOMAS  
1900 *Mounds in Northern Honduras*. Smithsonian Institution, Bureau of American Ethnology, Nineteenth Annual Report, [for] 1897-1898, part 2: 655-692. Washington: Government Printing Office.
- GARIBAY, ANGEL MARIA  
1979 *Teogonía e Historia de los Mexicanos: Tres Opúsculos del Siglo XVI*. México: Editorial Porrúa, S. A.
- GARZA, MERCEDES DE LA  
1983 *Relaciones Histórico-geográficas de la Gobernación de Yucatán*. Two volumes. México: Universidad Nacional Autónoma de México.
- GENDROP, PAUL  
1983 *Los estilos Río Bec, Chenes y Puuc en la arquitectura Maya*. México: Universidad Nacional Autónoma de México.
- GRAHAM, IAN  
1982 *Corpus of Maya Hieroglyphic Inscriptions, Volume 3, Part 3: Yaxchilan*. Cambridge, Massachusetts: Peabody Museum of Archaeology and Ethnology, Harvard University.
- HELLMUTH, NICHOLAS M.  
1987 *Monster und Menschen in der Maya-Kunst*. Graz, Austria: Akademische Druck-u. Verlagsanstalt.
- LOMBARDO DE RUÍZ, SONIA (COORDINATOR)  
1987 *La pintura mural Maya en Quintana Roo*. Chetumal, Q.R.: Instituto Nacional de Antropología e Historia.
- LOTHROP, SAMUEL KIRKLAND  
1952 *Metals from the Cenote of Sacrifice, Chichén Itzá, Yucatán*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, vol. 10, no. 2. Cambridge, Massachusetts.
- MARTÍNEZ HERNÁNDEZ, JUAN  
1913 *La creación del mundo según los Mayas: Páginas inéditas del manuscrito Chumayel*. In *Proceedings of the XVIII International Congress of Americanists*, pp. 164-171. London.
- MEANS, PHILIP AINSWORTH  
1917 *History of the Spanish Conquest of Yucatan and of the Itzas*. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, vol. 7. Cambridge, Massachusetts.
- MILLER, ARTHUR G.  
1982 *On the Edge of the Sea: Mural Painting at Tancah-Tulum, Quintana Roo, Mexico*. Washington, D.C.: Dumbarton Oaks.
- NORMAN, V. GARTH  
1973 *Izapa Sculpture*. Papers of the New World Archaeological Foundation, no. 30. Provo, Utah: Brigham Young University.
- PROSKOURIAKOFF, TATIANA  
1962 *The Artifacts of Mayapan*. In *Mayapan, Yucatan, Mexico*, by H. E. D. Pollock, Ralph L. Roys, Tatiana Proskouriakoff, and A. Ledyard Smith, pp. 321-442. Carnegie Institution of Washington, Publication 619. Washington.
- ROBICSEK, FRANCIS, AND DONALD M. HALES  
1981 *The Maya Book of the Dead: The Ceramic Codex*. Charlottesville, Virginia: The University of Virginia Art Museum. (distributed by the University of Oklahoma Press)

## ROYS, RALPH L.

- 1933 *The Book of Chilam Balam of Chumayel*. Carnegie Institution of Washington, Publication No. 438. Washington.  
 1965 *Ritual of the Bacabs*. Norman: University of Oklahoma Press.

## SAVILLE, MARSHALL H.

- 1921 Reports on the Maya Indians of Yucatan by Santiago Mendez, Antonio Garcia y Cubas, Pedro Sanchez de Aguilar, and Francisco Hernandez. Museum of the American Indian, *Notes and Monographs*, no. 9: 133-226. New York: The Heye Foundation.

## SELER, EDUARD

- 1887 Über die Namen der in der Dresdener Handschrift abgebildeten Maya-Götter (Vortrag). *Zeitschrift für Ethnologie*, 19: 224-231. Berlin. [in Selser 1902-23, 1: 367-389]  
 1901 *Codex Fejervary-Mayer: Eine Altmexicanische Bilderhandschrift der Free Public Museum in Liverpool*. Berlin.  
 1902- *Gesammelte Abhandlungen zur Amerikanischen Sprach- und Alterthumskunde*. Five volumes. Berlin: A. Asher & Co. [vols. 1-2] and Behrend & Co. [vols. 3-5]. (Facsimile edition of 1961, plus index [volume 6] by Anders, 1967, published by the Akademische Druck- u. Verlagsanstalt, Graz, Austria)  
 1904 The Mexican Chronology, with Special Reference to the Zapotec Calendar. In *Mexican and Central American Antiquities, Calendar Systems, and History*, edited by Charles P. Bowditch, pp. 11-55. Smithsonian Institution, Bureau of American Ethnology, Bulletin 28. Washington, D.C.

- 1963 *Comentarios al Códice Borgia*. Three volumes. Translated by M. Fenk. México: Fondo de Cultura Económico.

## TAUBE, KARL A.

- 1987 *A Representation of the Principal Bird Deity in the Paris Codex*. Research Reports on Ancient Maya Writing, No. 6. Washington, D.C.  
 1988a A Prehispanic Maya Katun Wheel. *Journal of Anthropological Research*, 44 (2): 183-203.  
 1988b The Ancient Yucatec New Year Festival: The Liminal Period in Maya Ritual and Cosmology. Doctoral Dissertation, Department of Anthropology, Yale University.

## THOMPSON, J. ERIC S.

- 1934 Sky Bearers, Colors, and Directions in Maya and Mexican Religion. *Carnegie Institution of Washington, Contributions to American Archaeology*, vol. 2 [Publication 436]: 209-242 [Contribution No. 10]. Washington.  
 1937 *A New Method of Deciphering Yucatecan Dates with Special Reference to Chichen Itza*. Carnegie Institution of Washington, Publication no. 483, pp. 177-197. (Contributions to American Archaeology, no. 22.) Washington, D.C.  
 1950 *Maya Hieroglyphic Writing: An Introduction*. Carnegie Institution of Washington, Publication no. 589. Washington, D.C.  
 1970 *Maya History and Religion*. Norman: University of Oklahoma Press.

## TOZZER, ALFRED M.

- 1941 *Landa's Relación de las Cosas de Yucatán*. Papers of the Peabody Museum of Archaeology and Ethnology, vol. 18. Cambridge, Massachusetts.

