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General Editor Merle Greene Robertson
Volume Editor Virginia M. Fields

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The *Xoc*, the *Sharke*, and the Sea Dogs: An Historical Encounter

TOM JONES

HUMBOLDT STATE UNIVERSITY

Ah xixteel ul Chac Uayab Xoc
T u kin u ti tzay kak
U tzai ne xoc.
Chilam Balam of Tizimin¹

Scale of Dragon, Toothe of Wolfe,
Witches Mummey, Maw, and Gulfe
of the ravin'd salt sea *Sharke*.
Macbeth, Act IV, Scene 1

In a now classic paper published in 1944, J. Eric S. Thompson attempted to demonstrate the presence of rebus writing among the ancient Maya through the latter's use of a glyph representing an object (a fish) to convey the semantic value of a verb ('to count'). The heart of Thompson's argument was the observation that two Yucatec words, one for 'count' and the other for 'shark,' possessed the same phonetic value: *shoke* (rhyming with *smoke*), expressed orthographically as *xooc* or *xoc*.² Since Thompson's suggestion, discussions of the subject have been enlivened, from time to time, by impulses (inspired by the Maya model) to play upon the similarity in sound between the Yucatec *xoc* and the English *shark*, the improbable idea of an etymological relationship between the two words perhaps springing briefly to mind to produce faint smiles. While not wishing to deny those smiles, nevertheless, what follows is an attempt to pursue the possibility that *xoc* is indeed the source of the English word *shark*.

The first question that such an inquiry must address is whether present understanding of the etymology of *shark* leaves room for so unlikely an hypothesis. Is there any need for exploration of the origin of *shark*? And if so, is there cause for carrying that exploration to the New World?

The English *shark* has a number of semantic values that suggest a variety of etymological interrelationships proceeding by degrees from obvious to obscure. As a noun, *shark* has three meanings. One is the subject of this study and refers to certain voracious, cartilaginous fishes. A second applies figuratively to persons who behave like those fishes. A third describes a person who sponges on others, or cheats or swindles in a petty way. As a verb, *shark* has two meanings that obviously derive from the fish. *To shark* can mean 'to fish for sharks' or 'to prey upon like a shark'. But it can also mean 'to victimize', 'sponge upon', 'swindle', 'extort', 'practice fraud', 'pilfer', 'obtain by cheating', 'live by shifts and stratagems', or 'collect hastily'. Finally, it can mean 'to cut or tear' (Bradley 1914:633-634). One of the earliest attempts to account for the word appeared in 1689 in the

anonymous *Gazophylacium Anglicanum* which, with no allusion to the fish, defined *shark*, or *sherk*, as a 'shifting knave', and derived it from the English *search*, or the French *chercher* 'to seek' (Anonymous 1689). This explanation was repeated in N. Bailey's great *Universal Etymological English Dictionary* of 1721 to account for *shark* as a verb, meaning 'to go shifting and shuffling about'. But Bailey also included in his definition of *shark*, 'the most ravenous of Fishes, which will chop a Man in two at a Bite', and suggested the Saxon *scearan*, 'to cut in pieces', as the source of the fish's name, which was then applied figuratively to persons (Bailey 1724). Both of these etymological accounts have been repeated by various authorities well into the current century, with the role of *chercher* being expanded to explain the fish's name as well. Yet another explanation was pursued in George William Lemon's *English Etymology* of 1783, which argued that *shark*, in its ichthyological sense, came from the Greek *carcharias*, as applied to *canis marinus* 'the sea-dog', so-called from its rough teeth or voracious appetite (Lemon 1783).³ This Greek root theory proved particularly popular. It was accepted by Noah Webster in 1828, though with the observation that in New England, while the fish was pronounced 'shärk', the verb, meaning 'to live by shifts and petty stratagems', was pronounced "shurk". David Booth's *Analytical Dictionary* of 1836 was less certain of the Greek theory. Wishing to restrict the word *shark* to a single species (as had a number of his predecessors), Booth noted that the species name, *carcharias*, was from the Greek word for 'sharp', and that the early naturalists had called the shark *Canis carcharias*, probably alluding to Homer's 'sharp-toothed dogs'. He then concluded:

Adverting, therefore, to the usual transformation of letters, the word *Shark* may be derived from *carcharias*; but this origin will hardly account for the use of the nearly obsolete verb, *TO SHARK* (or *SHIRK*), which, in common language, signifies to live by tricks, or petty frauds. (Booth 1836:285)

In 1890, A.S. Palmer's *Folk-etymology* tried to resolve this difficulty by observing that, whereas *shark*, as a

'sharper, rogue or cheat', is generally regarded as a figurative use of the word for the fish, it is really a form of the German *Schurke* 'a cheat or knave', and the fish's name is distinct, coming from the Latin *carcharus* (Palmer 1890:351-352). But the 1903 *Century Dictionary and Cyclopedia*, noting that *shark* was usually derived from the Greek *carcharias* through the Latin *carcharus*, pointed out that the necessary Old French forms between *carcharus* and *shark* were not to be found, and suggested that perhaps the English word did *not* initially refer to the fish (Whitney 1903:5552). These observations have led a number of etymological works of recent time to adopt the position that *shark*, the fish, was named after *shark*, the man, which came from the German *Schurke* ('rogue'), which was, in turn, from the Old Middle German *scurgo* (also 'rogue') (Shipley 1945:320; Partridge 1983:614).

Varied though they be, these several etymological explanations have some common features. They are all abstract constructions, reflecting neither a systematic ordering of evidence nor an historical sense of time and place. For analytical purposes, they can be separated into two categories.⁴ On the one hand, there is the idea the *shark* as applied to the fish, is derived from a source that had nothing to do with fish. Thus *chercher*, *scearan*, and *Schurke* are argued to have produced the word *shark* to describe some quality or habit which English seamen then recognized in a particular fish and for that reason promptly christened it *shark*. On the other hand, there is the idea that *shark*, from the very beginning, meant the fish, for the simple reason that it was descended from Greek and Latin words that had already been applied to the same fish: *carcharias* and *carcharus*. The weaknesses of the first of these two alternatives are threefold. First, no sources have been produced to link *chercher*, *scearan*, or *Schurke* to *shark*. Second, the earliest surviving uses of *shark* are clear references to the fish. Finally, the earliest subsequent application of the word to predatory humans betrays its roots by invoking the metaphor of the fish. This occurs when the protagonist of the anonymous 1596 play, "Sir Thomas More," declaims, "For other ruffians, as their fancies wrought, . . . Woold shark on you, and men like ravenous fishes Woold feed on one another" (Clayton 1969:80). Thus, the second alternative, that *shark* was first of all a fish, appears to be the only position that evidence will support. But it has already been mentioned that no intermediate forms between *carcharus* and *shark* have been found. How, then, did the etymological connection between the two words come to be made?

The answer to that question lies in a work published in 1668 by John Wilkins, entitled *An Essay towards a Real Character, and a Philosophical Language*. The essay contained a dictionary that was preceded by a "Table of Fishes" that had been drawn up in 1666 by Francis Willoughby and John Ray, naming twelve distinct species under the category of viviparous, oblong cartilaginous fishes. Its dictionary was the earliest to define

shark as a fish. It did so, however, not by applying the word to all twelve of the cartilaginous species mentioned, but by limiting it to *Canis carcharias*, whose binomial happened to be the only of the twelve to contain the Greek word (Wilkins 1668:132-133). This binomial had been assigned in 1553 by Petri Belloni to the species renamed *Squalus carcharias* by Linnaeus in 1758, and notorious today as *Carcharodon carcharias*, the Great White Shark (Belloni 1553:58-60; Linnaeus 1894:235). For the present inquiry, the significance of Wilkins' *Essay* is twofold. First, in tying *shark* specifically to *C. carcharias*, the work unwittingly laid the grounds for the later theory that the former was derived from the latter. Second, the association of *shark* and *carcharias* occurred in print for the first time in this *Essay* of 1668. The date is important, for it comes almost a full century after the initial appearance of *shark* in English, at which time it had been used to describe not *C. carcharias*, but a fish of a different genus, and even a different family, the *Alopiidae*. Thus, no better case can be made for the classical origin of *shark* than could be made for the French, Saxon, or German origins.

It appears that present understanding of the etymology of *shark* is about what it was in 1914 when the *New English Dictionary* stated (and the *Oxford English Dictionary* later repeated) simply: "Of obscure origin." Clearly, new light on the subject is needed, and that the light might better be sought outside of Europe is suggested by a comment contained in these same two dictionaries:⁵

The word seems to have been introduced by the sailors of Captain (afterwards Sir John) Hawkins' expedition, who brought home a specimen which was exhibited in London in 1569. The source from which they obtained the word has not been ascertained.

The expedition referred to was the last of four ambitious trading ventures organized by William and John Hawkins, and launched from Plymouth during the 1560's. Carrying English goods south, the expeditions had obtained slaves from the African coast, crossed the Atlantic, and entered the Caribbean to sell their cargoes to the colonists of the islands and the Spanish Main. It is therefore at least conceivable that at some point the men of this fourth voyage picked up the word *xoc* in the fall of 1568 and imported it to England upon their return in January 1569, as *shark*. But questions arise. Had these veteran English sea dogs never seen sharks before? In fact, had Englishmen at home never seen sharks? If they had, what did they call them? And if they already had a name for them, why would they adopt a new one?

To address these concerns it is necessary to look briefly at the distribution and behavior of sharks themselves. Lack of familiarity with sharks on the part of Englishmen or Europeans of the late Middle Ages seems likely from the fact that sharks seldom, if ever, entered the rivers of Northern Europe. They are sea creatures, and as such, they have had to develop a means of preventing their dessication by osmotic loss of water through the permeable membranes of their gills into the salt-concentrated sea. In contrast to the bony fishès, which meet the prob-

lem of dessication by drinking copious quantities of sea water and excreting a urine more osmotically concentrated than the sea, the sharks and other cartilaginous fishes maintain a diffusion pressure of the water in their system at a lower level than that of sea water, through the retention of a high concentration of urea in their blood and tissue. Thus water passes by osmotic absorption through the gills *into* the body and, instead of losing water, the sharks gain water and have no need to drink it. This means, of course, that were sharks to enter fresh water, they would be confronted by another problem. The fresh water's high diffusion pressure, relative to the urea-concentrated blood of the shark, would threaten to overhydrate the latter and kill it (Smith 1936:68-71). The sharks are, then, generally creatures of the sea (e.g., Shakespeare's "ravin'd salt sea Sharke") and have not (to my knowledge) been recorded as ever having entered the rivers of Europe.

But they are also, generally, warm water creatures, which, though widely distributed in all of the oceans (including the Arctic), are found in substantially greater concentrations in tropical waters and in the warmer currents that bathe the Eastern shores of Australia, Africa and the Americas. And though fairly common in the Eastern Mediterranean, their occurrence in the Atlantic waters of Europe's Western seaboard nations is irregular, the larger pelagic species occasionally appearing in the warmer waters of the summer months. Sporadic encounters that fishermen are sure to have had from time to time must have contributed to Medieval Europe's impression of great monsters that populated the waters to the West. But in the Mediterranean, among the Greeks and Romans of antiquity, closer contact with sharks had left an impression of vicious dogs of the sea. Thus, Pliny's *canis marinus*. The metaphor of the dog spread to the North to dominate the European image of the shark, from the Italian *pescecane* and French *chien de mer* to the German *Meerhund* and *Hundfisch* and English *sea dog* and *dogfish*.

In the meantime, Portuguese and Spanish ships sailed south and west into the tropical waters of the African coast and the New World, encountering sharks in such numbers and of such size and ferocity as they had never before seen. The seafarers returned with striking stories of the terrible fish, and with a name for it as well. Whether the Spanish picked up a Carib word and made of it *tiburón*, or the Portuguese seized upon an Arawak word and fashioned it into *tuburão*, the word quickly established its claim to the Iberian Peninsula, becoming *tauró* in Catalan.⁶ As tidings of the New World reached to the North, so did *tiburón*. Fernández de Oviedo included a description of the Caribbean *tiburón* in his *Natural historia de las Indias* of 1526. Translated by Richard Eden and published in London in 1555 in a collection entitled *The Decades of the Newe Worlde or West India*, it introduced to English readers the untranslated word *tiburón*, described as "a very greate fishe and very quicke and swifte in the water, and a cruell deuourer" (Arber

1885:231). *Tiburón* appeared in French in Joubert's *L'histoire poissons* in 1558 (Murray 1926:2), and in German in a 1580 Fugger Newsletter regarding an incident that occurred in the Atlantic during the passage of a Portuguese ship to India the previous year:

What called forth still greater surprise on my part were other big fishes that are in the ocean and that eat men alive, whereof I have been myself a witness. For when a man fell from our ship into the sea . . . there appeared from below the surface of the sea a large monster, called *Tiburón*; it rushed on the man and tore him to pieces before our very eyes. (Matthews 1959:66)

That same year, an Englishman who had taken passage aboard a Portuguese ship to Goa wrote home, remarking on the tropical sharks, and using the Portuguese word for them:

And to speake somewhat of fishes in all places of calme, especially in the burning Zone, neere the line (for without we never saw any) there waited on our ship fishes as long as a man, which they call *Tuburones*, they come to eat such things as from the shippe fall into the sea, not refusing men themselves if they light upon them. (Hakluyt 1927:236)

A 1588 translation of Mendoza's travels in the West Indies is typical of the image of the *tiburón* presented to sixteenth century English readers:

But aboue all other, there is an infinite number of great fishes called *tiburones*, and are in great skuls [schools]: they are marueilously affected unto humaine flesh, and wil folow a shippe fiue hundred leagues, without leauing of it one day. Many times they [the sailors] haue taken of the fishes, and do finde in their bellies all such filth as hath beene throwne out of their shippe in many dayes sailing, and whole sheepes heads with hornes and all. If they [the *tiburones*] chance to finde a man in the waters side he [the *tiburón*] wil eat him all; if not, all that he doth fasten on he doth sheare it cleane away, be it a legge or an arme, or half his body, as many times it hath beene seene, and they doo it very quickly, for that they haue many rowes of teeth in their heads, which be as sharpe as rasers. (Mendoza 1970:219)

A 1604 translation of José de Acosta's 1590 account of sharks at the port of Santo Domingo, referred to "the incredible ravening of the *Tiburons*, or *sharkes* (Acosta 1970:147). In a similar style, in the narrative of his 1593 voyage to the South Seas, Richard Hawkins (Sir John's son) wrote of "the most ravenous fishe knowne in the sea," after explaining that "the *shark*, or *tiberune*, is a fish like unto those which wee call *dogge-fishes*, but that he is farre greater" (Markham 1970:150).

It would appear that whatever prior perception Englishmen might have had of sharks, their voyages into the tropical waters of the New World (whether actual or vicarious) brought them into contacts of such intensity that they perceived the fish as something new, requiring a new name. They were more than sea dogs or dogfish. But why *sharks*? Why did the English not adopt the Iberian word? They were familiar with both the Portuguese and Spanish versions of it. So why *shark*? And if *shark* is in fact from the Yucatec *xoc*, why is there no trace of it in Spanish? How could it possibly have journeyed from Yucatec to English without having passed through Spanish? But to pursue these questions it is necessary to turn to the word *xoc* itself, and ask yet two more. How widely distributed was the word *xoc* among the Maya in

1568, at the time of Hawkins' voyage? And what, exactly, did the word mean?

In support of his 1944 reading of *xoc*, Thompson cited four sources that had been brought to his attention by Ralph Roys. The Vienna dictionary defined *xooc* as *tiburón*, remarking that its teeth were used by the Indians for arrows; the Pío Perez dictionary listed *hkan xoc* as a species of *tiburón*; George Gaumer had identified the Yucatec *ah kan xoc* as the Pilot or Caaing Whale (*Globicephalus melas*) and Short-finned Blackfish (*G. brachypterus*); and the *Chilam Balam* of Tizimin included a *chac uayab xooc* which Roys had translated "great (or red) demon shark or whale," having concluded that *xooc* or *xoc* referred to "an ill-defined group of large fish or whales." In addition to these, Thompson found *xoc* defined as *tiburón* in the only non-Yucatec source cited, a fragmented seventeenth-century Pokomchi dictionary. While favoring an interpretation of *xoc* as 'shark', Thompson nevertheless concluded that the fish portrayed in the glyphs "was probably a large mythological creature with no immutable characteristics, and with a tendency to become anthropomorphized." Holding to essentially the same interpretation, in 1950 Thompson added the *Ah Xoc* of the *Chilam Balam* of Kaua to his Yucatec evidence (Thompson 1971:78). To these sources of Thompson's may be added the Alcalá dictionary's definition of *tiburón* as *ah kan xoc*, a similar definition in Beltran's *Arte del idioma Maya* of 1746 (Barerra Vásquez 1980:379), and a neglected entry in the Vienna dictionary that defines "arrows that have *tiburón* teeth for arrowheads" as *xoc yee halal* (*xoc* arrowhead), all seeming to support the interpretation 'shark'.⁷

Thompson contended that the glyph of the mythological fish, which appeared as the variable element in the initial series introductory glyph when functioning semantically as *Xoc*, the patron of *Zotz* (Figure 1a), could also function as a rebus for a verb of identical phonetic value meaning 'to count'. His argument rested upon the observation that the widely distributed count glyphs, or anterior and posterior date indicators, frequently substituted the fish's head (Figure 1b) for the *Muluc* sign (Figure 1c) without any change of meaning, but which when considered with the *ti* suffix prescribed a reading of *xoc ti* 'count to'. It was apparent that the visual symbol of the fish, *xoc*, was used to carry the sound of a verb that, in itself, had nothing to do with sharks, whales, or fish in general. Thompson was not maintaining that every fish presented in the inscriptions or in Maya art was intended to represent this sea creature. He was specific in excluding a large number of them from such a reading: "Most naturalistic fish in Maya art are fresh water varieties, since they are usually shown feeding on water lilies."

While there has not been agreement regarding some specific creature intended by the *xoc*-fish, nevertheless, it has been consistently associated with the sea. Roys had translated the Tizimin's *chac uayab xooc* as a "great (or red) demon shark or whale," and later, in the *Ritual of the Bacabs*, he rendered the same phrase "red ominous shark" (Roys 1965:39, 147). In *El libro de los libros de Chilam Balam*, Alfredo Barrera Vásquez consistently translated *chac uayab zooc* as "el maligno Xoc, Tiburón," wording the first reference to the creature thus: "A las orillas del mar tendrá abiertas sus fauces el terrible Ayin, Cocodrilo; tendrá abiertas sus fauces el maligno

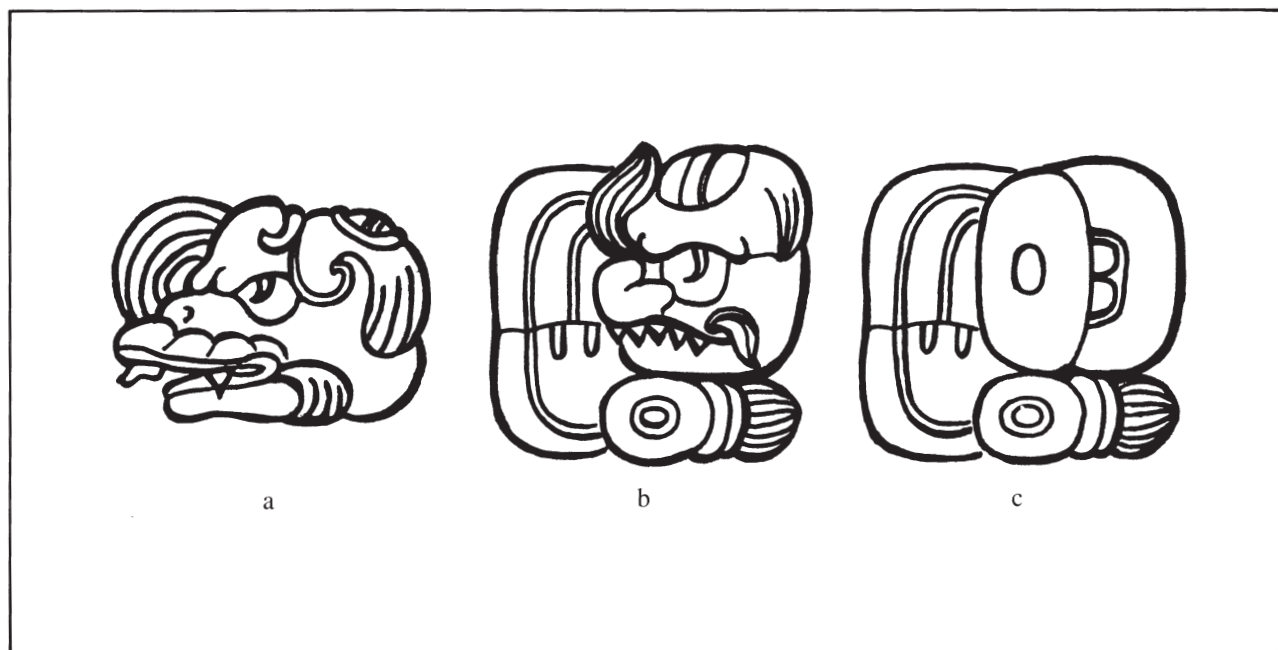


Fig. 1 Xoc, the patron of Zotz (a); posterior date indicators with *ti* suffix and main signs Xoc (b) and Muluc (c).

Xooc, Tiburón” (‘At the edge of the sea the terrible Crocodile will have opened its jaws; the malignant Shark will have opened its jaws’ [Barerra Vásquez and Rendon 1948:169-170, 180-181]). This same passage is translated by Munro Edmonson as “At the edge of the sea – Otherwise the port of the East priest *Mumul Ain*; Otherwise the port of the East priest *Uayab Xoc*,” with the latter clarified in a note as ‘were-shark’ (Edmonson 1982:74). But whether interpreted as the great (or red) demon shark (or whale), the ominous shark, the malignant shark, or the East priest were-shark, the *chac uayab xooc* of the *Chilam Balam* of Tizimin remained a fearsome and threatening creature of the sea. That this is the monster that shares the count glyph with the *Muluc* sign seems certain from Barrera Vásquez’s compilation of the day auguries from the *Chilam Balam* of Kaua, wherein the entry for the day *Muluc* reads: “*Ah-Xoc*, the *tiburón*, and *Ah-Balam*, the jaguar, are its [*Muluc*’s] omen. Devourer of one’s children. Devourer of one’s wives. Deathly children. Deathly wives . . . Killer of opossums, too.”⁸

This identification of the *xoc* as a creature of the sea, and more particularly a shark, perhaps helps to account for the difficulty of finding evidence for the existence of cognates in Maya languages other than Yucatec, a difficulty which Thompson acknowledged and lamented in his original paper in which Pokomchi alone was cited to support an argument otherwise based exclusively upon Yucatec sources. But if the Yucatec people’s greater exposure to the shark-infested shores of its peninsula can be summoned to account for the *xoc*-fish of its dictionaries and *Chilam Balams*, Thompson’s problem is not thereby attended to. Indeed, the insistence upon identifying the *xoc* as a sea creature raises some interesting questions. Inasmuch as the apparent substitution of the *xoc*-fish for the *Muluc* sign can be found at Maya sites located some 200 kilometers from the sea, then must not the glyph have lacked meaning for the majority of land-based peoples to whom it was supposedly addressed? Moreover, if the key to the interchangeability of the two forms of the count glyph is to be found in the relationship between the day *Muluc* and its omen *Ah-Xoc*, then would it not seem that it was not the fish that replaced the day sign to provide the phonetic value of an alternate verb, but rather that the *Muluc* was substituted for the rebus fish, and *both* were to be read as puns? In extending the pun to a second stage beyond the always invisible verb, the *Muluc* version of the glyph would have been predicated upon its reader’s awareness of the missing visual rebus, the phonetic value of which it perpetuated. Thus the two glyphs would *not* have represented two different verbs meaning ‘to count’, but would have been semantically and phonetically identical, to be read *xoc*.⁹ If this conclusion is valid, then the ubiquity of the concept of the *xoc*-fish among the Classic Maya would seem very firmly established, and failure to locate cognates must be seen as just that – a failure to locate them, not a denial of their existence. But a further consequence of the apparent ubiquity of the *xoc*-fish is that it becomes tempting to

seek a fresh water source for the concept.

Among the stories and drawings collected by Roberto Bruce from the Lacandon of Najá is a tale told (and illustrated) by Chan Kin and his sons concerning a water-being of the lakes and rivers of the Lacandon Selva. The story was variously titled *Xak Xok*, *Ah Chak Xok*, and *Ah Chak Xok yetel Ley* (the *Chak xok* and the Boy). Long ago, a male *Chak Xok* approached a man who was fishing in a lake and asked for his daughter in marriage, promising that the man would henceforth always catch large fish if he agreed to the arrangement. When the latter did so, the *Chak Xok* said, “Tomorrow I will come for your daughter, then, when you send her to the lake. You may think you see an alligator carry her away, but do not fear. It will not be an alligator, but I.” Thus it happened. Later, a female *Chak Xok* asked the man for his son in marriage. But the boy overheard and fled to the jungle where he appealed to the *Chembal K’uh* who enabled him to become a seagull. The boy flew over the lake and dived into the water in search of his sister. He found her living with the *Chak Xok*. As his brother-in-law, the *Chak Xok* was obliged to receive the boy. One day, while the *Chak Xok* was visiting his grandmother (a great turtle), the boy tried to persuade his sister to flee with him. But she was pregnant and chose to remain to have her child. Then one day the boy went swimming in the Río Usumacinta with the *Chak Xok*. When the latter put its head beneath the water, the boy quickly thrust a hot pepper into its anus, killing it instantly. But the girl still wished to stay to have her child. However, it was no child that she bore, but many small alligators. The girl remained with her children and the boy returned alone.¹⁰

The first point to be made about this story told by the landlocked Lacandon is that the *Chak Xok* are presented as fresh water denizens, at home in both an anonymous lake (though probably Lago Najá) and the named Río Usumacinta. The second point is that the story’s narrators made no attempt to portray the *Chak Xok* as sharks. Indeed, the shark is conspicuously absent. Even Bruce’s commentaries upon the story make no allusion to a fish. *Chak*, he tells us, is ‘red’, though it also means ‘dwarf’. And *xok* may be associated with ‘count’, possibly implying “‘calculators’, mathematicians’ or ‘wizards’.” The story leaves us to guess at the *Chak Xok*’s form. The male *Chak Xok* himself denies being an alligator, though conceding that he might easily be mistaken for one. Later, in apparent contradiction to this denial, he appears to have fathered a brood of alligators. But lest too much be made of this, we should remind ourselves that the *Chak Xok*’s grandmother was a turtle (albeit a large one), and not insist that the grandson breed any truer than had his ancestors. The drawings, however, which accompanied the narration, support Bruce’s editorial comment that the *Chak Xok* are said to look like Occidentals.

There is yet another feature of the Lacandon story that merits attention. The river in which the boy so rudely dispatched the *Chak Xok* was the Usumacinta. But the narrators do not give it that name. They call it *Xokla*,

which prompts Bruce to interject, “*Xokla*’ appears to be a contraction of *Xok-ol-ha*’, ‘water of the *Xok*’.” But this Lacandon word is surely a cognate of the Acalan-Chontal *xocel haa*, recorded in the Maldonado-Paxbolon papers of 1610-12 to describe the water over which Hernán Cortés constructed his famous bridge in 1525, and which Ortwin Smailus has translated as simply ‘río’ (Smailus 1975:65). Similarly, the Vienna dictionary offers ‘río’ as its translation of the Yucatec *x-ocol ha*’ and *x-ocola*’ (Barerra Vásquez 1980:949).

With these definitions in mind, it is interesting to return to the Maldonado-Paxbolon papers in which Don Pablo Paxbolon, as cacique and governor of Acalan-Tixchel, recorded in his native Chontal through the pen of his son-in-law, Francisco Maldonado of Campeche, his relocation of a number of Indians to the drainage of the Río Mamantel, which empties into the Laguna de Términos some eight kilometers east of the mouth of the Río Candelaria. Between 1571 and 1588, Don Pablo established four pueblos, of which two spoke Chontal, one spoke Yucatec, and the fourth Chontal and Yucatec. The last of these, settled between 1571 and 1573, and located directly on the Río Mamantel, is recorded in the Paxbolon narrative as *Xoquelha*, *Xocola*, *Cocolha*, and *Jocola*, orthographic variations on the Chontal and Yucatec words for ‘river’. It is of some interest that after 1610 these names no longer appear in the records and the town assumes the name of the river itself, Mamantel (Scholes and Roys 1948:218-219, 236, 300, 400). It appears, then, that the Chontal *xocel haa*, the Yucatec *x-ocol ha*’ and *x-ocola*’, and the Lacandon *Xokla*’ are clearly cognates meaning ‘river’, even if a particular river in the Lacandon case. But may not Bruce also be correct in his literal reading of *Xokla*’ as ‘Water of the *Xok*’? And if so, then the consequent presence of the concept of the *xoc* as a river-being in three Maya dialects strongly suggests a fresh water source for the *xoc*. It remains, of course, to try to identify that source.

In view of the body of evidence and opinion that places the shark at the center of the concept, it seems desirable to begin the search for a fresh water *xoc* with the shark in mind. An early indication of the potential of such an approach lies in a passage from Oviedo’s previously mentioned *Natural historia* of 1526, in which, following upon a description of the appearance and behavior of the *tiburón*, the author observed (as Englished by Eden):

These *Tiburons* coome furth of the sea and enter into the ryuers, where they are no less perelous, then the greate lisartes or Crocodiles For they deuoure men, kine, and horses, euen as doo the Crocodiles. They are very daungerous in certeyne wasshing places or pooles by the ryuers sydes, and where they haue deuoured at other tymes. (Arber 1885:231)

While he named no rivers, it appears from the context that Oviedo was referring to the mainland around Panamá. However, in Book XLII of his comprehensive *Historia general y natural de las Indias*, Oviedo, in 1535, specifically named Lago Nicaragua as containing both the *tiburón* and the *pexe vigüela* (the sawfish, *Pistris*)

which he believed entered the lake from the Caribbean Sea (Villa 1976:102). Taking issue with Oviedo’s belief in 1852, Ephraim George Squier, nevertheless, admitted:

It is, however, a fact that sharks abound in the lake. They are called “tigrones” from their rapacity. Instances are known of their having attacked and killed bathers within a stone’s throw of the beach at Granada; and I have myself repeatedly seen them from the walls of the old castle, dashing about, with their fins projecting above the water. (Squier 1852:196)

From the latter part of the nineteenth-century and into the twentieth, Oviedo’s theory of the free passage of the shark (and sawfish) from the Caribbean to the lake was neglected in favor of the idea that what were once marine sharks were now landlocked descendants, unique in being wholly adapted to fresh water, and thus constituting a distinct species. In 1877 the shark received the binomial *Eulamia nicaraguensis* and was declared to be closely allied to *E. milberti*. In 1887 it was designated *Carcharhinus nicaraguensis*, a name repeated in 1948 by H.B. Bieglow and W.C. Schroeder, who contended that the lake shark was directly descended from *C. leucas*. While there was no agreement concerning how the sharks had come to be established in the lake (some thought the lake uplifted, sharks and all, from the Pacific Ocean), there was near unanimity regarding the impassibility of the rapids of the Río San Juan that carried the waters of Lago Nicaragua to the Caribbean (Thorson, Watson, and Cowan 1966:385-386, 395-397).

In the meantime, what appeared to be different species of fresh water sharks came to be known from other parts of the world. In India, the Ganges Shark (*C. gangeticus*), reported as early as 1822 at Calcutta (again with the sawfish), was later found 230 kilometers up the Hooghly River, and in 1880 was said to have been responsible for twenty river attacks upon humans, most of which were fatal. In the summer of 1959 it was presumably responsible for thirty-five such attacks. In Africa, the type specimen of the Zambezi Shark (*C. zambezensis*) was taken at Tete, 185 kilometers up the Zambezi River. The same shark was subsequently found in a number of other African rivers, including the Gambia, where in 1933, three specimens were taken at McCarthy Island, some 300 kilometers from the sea. Like the other two fresh water *Carcharhinidae*, *C. zambezensis* had a reputation for ferocity and was charged with numerous unprovoked attacks upon humans. But the three sharks had something else in common: they were all regarded as closely allied to (or, from time to time, even confused with) a warm water, maritime shark of wide distribution and with an equally ferocious reputation, the Bull Shark (*C. leucas*). Indeed, in 1961 Bigelow and Schroeder abandoned their descent theory and argued that *C. nicaraguensis* and *C. leucas* were synonymous, one and the same species (Hamilton 1822:3-4; Budker 1971:138-142). In 1966 Thomas Thorson led a team that collected nineteen sharks from Lago Nicaragua and various points along the Río San Juan, all of which proved indistinguishable from the

marine shark. That the sharks were not landlocked seemed apparent from the fact that "sharks were observed both below and above the three major rapids as well as actually in the rapids, most of them headed upstream" (Thorson, Watson, and Cowan 1966:385). These observations prompted a two-way tagging program which established beyond any doubt that a single species, *C. leucas*, freely ascends and descends the Río San Juan to become at turns the Nicaragua Lake Shark and the Caribbean Bull Shark.

A similar fate has befallen the other two fresh water sharks. In 1963 *C. zambezensis* was declared synonymous with *C. leucas*, and today the majority of collected specimens of *C. gangeticus* are regarded as the same species (Castro 1983:136). Thus, three sharks from three different continents thought to be separate, permanently adapted fresh water species, appear to represent a single, marine species that moves at will from salt water to fresh and back. Apparently unique among the sharks, but in common with the sawfish, *C. leucas* has managed to meet the cartilaginous fish's problem of over hydration upon entering fresh water by means of an osmoregulatory mechanism involving a drop in the urea content of the body fluids by as much as fifty per cent (Thorson 1976:565-566). Thus, while the high concentration of urea in the tissue establishes an osmotic pressure that restricts the typical shark's penetration of fresh or brackish waters to brief probes, there appears to be no limit to the ability of *C. leucas* to enter and remain in fresh water.

Nor are the fresh water excursions of the latter limited to the haunts of the Lake Nicaragua, Ganges, and Zambezi sharks. In the Western Atlantic, *C. leucas* is common in shallow marine environments from New York to Brazil and is notorious for entering brackish or fresh water lagoons and river estuaries. To the north of the Maya area it has been identified some 180 kilometers above the mouth of Chesapeake Bay, 440 kilometers up the Atchafalaya-Black River near Jonesport, Louisiana, and in the Río Pánuco and Río Papaloapan. The deepest known penetration of the northern rivers was recorded on September 8, 1937, when the "Alton Evening Telegraph" featured a story and photographs of an eighty-four pound, five-foot specimen of *C. leucas* that had been caught in a net located 2,800 kilometers up the Mississippi River near Alton, Illinois. To the South, it has been recorded in the Río Patuca in Honduras, the Miraflores Locks of the Panamá Canal, and, of course, in Lago Nicaragua and its effluent, the Río San Juan (from which, in 1953, a single fisherman was reported to have taken 7,000 specimens in an eight month period). But perhaps the most striking identification of *C. leucas* occurred when in October 1943, one was taken and photographed at Iquitos, Perú, at a distance of 3,500 kilometers upriver from the estuary of the Amazon!¹¹

Within the Maya region itself the presence of *C. leucas* in the Río Dulce and its source, Lago Izabal, has established a reputation for the latter second only to that of

Lago Nicaragua as a home of fresh water lake sharks. In Belize, an exceptionally large, three and one-half meter specimen of *C. leucas* is reported to have been taken from the Río Hondo in 1979, some 100 kilometers from its mouth. Unidentified sharks, in all probability *C. leucas*, have been reported by a variety of sources from the Río Motagua, the Belize and Sibun Rivers, the Río Grijalva and Río Champoton. Of particular interest to this study are numerous reports of sharks in the Río Usumacinta and its distributary, the Río San Pedro, some of which have been identified as *C. leucas* (Thorson 1976:567).¹² Whether these sharks have been sighted above the canyon rapids below Piedras Negras, I do not know,¹³ but it should be remembered that the conviction that sharks could not possibly ascend the rapids of the Río San Juan prevented the acceptance of Oviedo's theory of the Caribbean origin of the Lake Nicaragua shark for over one hundred years following Squier's doubts of 1852. In this regard, it is worth noting that the river that enters the Usumacinta from the Mexican side between Piedras Negras and the rapids is called the Río *Chocolja*, yet another version, I suggest, of 'water of the *xoc*'. Similarly, to the west of Lago Izabal, on the Río Polochic, which empties into the lake (and like it, is notorious for its sharks), there flourished until 1631, a Manche Chol town by the name of *Xocolo* (Thompson 1970a:64). That this town, too, should be read 'water of the *xoc*' receives support from the observation that the immediate upstream neighbors of the Manche Chol were the Pokomchi, the only language group other than Yucatec in which Thompson was able to find the word *xoc* meaning 'shark'.

Thus the Bull Shark, *Carcharhinus leucas*, emerges as a prime candidate for a fresh water *xoc*, and prompts consideration of a scenario perhaps something like the following. The movement and settlement of the ancient Maya around and along the great rivers was accompanied by an awareness of a dreaded creature that dwelt in their depths. Though far from common, nevertheless, the rare occasions and frightful circumstances in which the creature was encountered were sufficient to create and sustain a powerful impression of malignancy and savagery. Lurking unseen in the muddy waters for twenty or fifty years or more, the *xoc* would suddenly strike to tear at the leg or arm of a woman at her wash, or seize and devour a child at play. The rivers came to be spoken of with reference to their notorious inhabitant, and in time, *xocolha*, 'water of the shark' or 'sharky water',¹⁴ came to mean 'river'. So familiar did the Maya world become with the reputation of the *xoc* that its image, or even that of the day with which it was associated, could be incorporated as a rebus into public inscriptions with full confidence that it would be readily understood. The *xoc* itself became mythologized into *Ah Xoc*, *Ah Kan Xoc*, or *Chac Uayab Xoc*, an ominous demon that killed and devoured women, children and animals, a were-shark whose anthropomorphic tendencies finally, among the Lacandon, lost all connection with the rarely seen shark that had been its source and inspiration, and survived in the

almost unrecognizable form of the *Chak Xok*, the water-being who carries children into the watery depths and who looks like an Occidental. Apart from its mythological career, however, the word *xoc* became generalized in the coastal regions of Mayadom (probably during the Classic Period or earlier, but certainly by the Conquest), to include not simply the river shark, but to apply to all sharks.

Whether the preceding scenario is found acceptable, the evidence respecting the distribution and meaning of the word *xoc* in the sixteenth-century seems clear. The concept of the *xoc* as either a fresh water or marine creature, or both, appears to have existed in Yucatec, Chontal, Lacandon, Chol and Pokomchi, and it further appears that the creature in question was a shark. Had the ships of John Hawkins touched the Maya coast at any point between the Río Dulce and the Río Grijalva in 1568, their crews would quite likely have encountered persons whose vocabulary included the word *xoc*. And from Diego de Landa's observations of about 1566 that "there are many *tiburones* on the entire coast,"¹⁵ it seems equally likely that those same men would have encountered sharks, and that the conditions sought by this study might have been met: the convergence of *xoc*, sharks, and English sea dogs. However, the earliest documented English contact with the area was not until William Parker's attack upon Campeche in 1597, almost thirty years after *sharke* appeared in English. How, then, might Hawkins's sailors have acquired the word *xoc*?

Embarking from Plymouth Harbor on his flagship, the *Jesus of Lubeck*, on October 2, 1567, with a fleet of six ships laden with English merchandise and some four hundred men, Captain John Hawkins had sailed south to reach the familiar African slave coast. For three months the fleet had scoured the coast for its black cargo. Pressing Portuguese into service as pilots from time to time, and pushing the length of the coast farther than he had ever before done, Hawkins had gathered an unprecedented supply of slaves for the venture ahead. In early February of 1568, for the third time in his career and the first without a Spanish pilot, he had pointed his fleet toward the West Indies. Reaching Isla Dominica at the end of March, his vessels had turned south to the Spanish Main where for the next four months they moved slowly westward from port to port, displaying their wares ashore in makeshift shops, to trade for provisions, monkeys, parrots, and other souvenirs, and, of course, gold, silver, and pearls. At Borburata, Hawkins had been fortunate in finding a pilot who, in exchange for a few slaves, was pleased to guide the fleet to Río de la Hacha and assist in obtaining a license to trade from the town treasurer.¹⁶ But for the most part, the Englishmen had made their own way, learning what customs and language of the colonists they could and foraging inland on occasion to encounter and, at times, collect fruit, plants, or animals with names that did not sound Spanish.

By the end of July, with most of his cargo sold, his ships well provisioned, and the season of the *huracanes* almost upon him, Hawkins was ready for home. Setting

a northwesterly course from Cartagena, he aimed at running the Yucatan Channel, turning the western tip of Cuba, and bearing northeastward through the Florida Straits to catch the prevailing Westerlies that could have his fleet in Plymouth Harbor by November. Reaching Isla de Piños, the fleet followed the southern shore of Cuba, doubled Cabo San Antonio, and headed eastward into weather that was to turn the highly successful merchant venture into the greatest English maritime tragedy of the century. For days on end, the ships and men fought the storm that impeded their passage through the Florida Straits, until at last Hawkins signaled his fleet to turn and run before the wind. Blown northward along the western coast of Florida for yet more days on end, Hawkins found himself in unfamiliar waters, without a pilot, a ship missing, and a badly battered fleet, the flagship of which was in desperate need of repairs. Following a brief respite, the wind shifted to the North and again forced the English ships to run before it, driving them deep into the Gulf of Mexico toward the Bay of Campeche.

When the wind finally relented, the wearied seamen found themselves in sight of three low reefs, unknown to them, but familiar to the Spanish as the Triángulos, located forty leagues west of the Yucatan Peninsula at the latitude of Celestun. On the following day, Sunday, September 12, 1568, with the reefs still in sight, the Englishmen espied two small vessels approaching from the East. Giving chase, one of Hawkins's pinnaces intercepted the slower and brought its captain aboard the *Jesus*. Captain Francisco Maldonado of Cadiz had been bound for the port of San Juan de Ulua with a cargo of wines from Santo Domingo destined for Mexico City, when the same storm that had driven the English ships to the Triángulos, forced him to take refuge in the nearby port of Campeche. In response to Hawkins's queries, Maldonado informed the Englishmen that the harbor of San Juan de Ulua was far better than that of Campeche to effect the needed repairs of their two largest ships, the *Jesus* and the *Minion*. But he also warned them that the annual fleet from Spain was due at any time at the same harbor. Hawkins ordered the Spanish wine ship to sail with his fleet to San Juan de Ulua, and keeping Maldonado aboard the *Jesus*, he required his pilot to join them as well. Unlike Maldonado, the pilot, Bartolomé Gonzales, had not been forced into Campeche by the storm. It was his home. He was a resident of the Yucatan port (Wright 1929:158-159). He was, furthermore, a man whose business was to know his coast – the names and locations of its reefs, islands, harbors, river estuaries, currents and tides, and of course, the names and behaviors of its more prominent life forms. Among the latter, the most prominent would surely have been one known to the Yucatec people from Campeche northward, and to the Chontal to the South, as *xoc*. For four days this Campeche pilot guided the English fleet on its fateful way toward San Juan de Ulua. And on September 16, from the deck of the *Jesus of Lubeck*, Bartolomé Gonzales

piloted the fleet into the harbor through a channel between two reefs to bring its vessels to their moorings in the lee of an island upon which the Spanish had established a small garrison.

A peaceful arrangement was made, Hawkins requesting a license to purchase materials needed to provision and refit his ships. But the Spanish fleet arrived the next morning and changed everything. After an awkward truce which left the two fleets moored side-by-side to the island with the English in control of the latter until the *Jesus* and *Minion* would be fit to resume their voyage, the Spanish were discovered preparing a surprise assault on September 23. A day-long battle ensued. Ships grappled with each other, broke free, lost their masts, went up in flames, exploded or sank. Scores of men were thrown into the water. Of the fifty Englishmen stationed on the island and overwhelmed by the Spanish, only three managed the swim to the drifting *Jesus*. The *Jesus* itself was abandoned, many of its crew (Hawkins among them) leaping to the *Minion* as it pulled away from the crippled flagship. The Spanish lost both of their warships. Hawkins lost all but the *Minion* and the *Judith*. By morning, the *Judith* had fled and the *Minion*, short of water and provisions, and with two hundred men crowded onto her decks, was alone. Storms and hunger followed. Seeking relief, but finding none, the *Minion* sailed north, its desperate crew eating the ship's monkeys, parrots, dogs, and rats. Finally, on October 8, half of the crew elected to be put ashore to take their chances with the Indians or Spanish, rather than continue in the overcrowded, underprovisioned ship. Ten days later, from some point north of the Río Pánuco, the *Minion* again set her sails for England with one hundred survivors of the Battle of San Juan de Ulua aboard. Little is known of the terrible journey home, but it is estimated that when the *Minion* finally slipped into Mount's Bay in Cornwall on January 25, 1569, of those one hundred survivors, perhaps fifteen remained alive (Williamson 1949:156).

Again, it seems appropriate to consider a possible scenario, but this time one that might have left those fifteen men with an indelible impression of the *xoc*. Mingling with the English strangers on the decks of the *Jesus of Lubeck* as he piloted their fleet through waters so familiar to him, Bartolomé Gonzales of Campeche might have taken considerable pleasure (perhaps even pride) in informing them of the names and nature of whatever caught their attention during those four days from the Triángulos to San Juan de Ulua. As happens so often among men plunged into intimate and prolonged contact with each other, the crew of the *Jesus* might have expressed its camaraderie through the cultivation of a distinctive speaking style and jargon that fostered identification with the group. It might quickly have adopted *xoc* as its name for those remorseless *tiburones* that so relentlessly followed the ship through those tropical waters. Then came the battle. With the water teeming with mangled and bleeding men, dying and dead, and others living and sound, but clinging to floating debris, or desperately

swimming to nearby ships, the harbor offered prime conditions for that occasional attendant of tropical naval battles, a shark 'feeding-frenzy'. The new word fresh in their minds, the men of the *Jesus* were suddenly face-to-face with the full ferocity of the *xoc* itself, and as they leaped to the deck of the *Minion*, or clambered its bulwarks from the bloodied water, the name and the brute were joined in their minds forever. The weeks that followed underscored their terrible trauma as, day after day, one by one, the men on the *Minion* dropped their dead mates into the trailing wake of the ship and the ravening jaws of the *xoc*.

To be sure, no such incident has been found in the records. But it is a poor history that fails to reach beyond the scattered documents that chanced to withstand the stinginess of time. Historical witnesses do not put everything to pen. Nor does all that they write survive. Indeed, it is precisely the historian's act of transforming the fragmented impressions of extant documents into vivid and compelling episodes of human endeavor that comprises the substance of history. That there is room for such imagination in the current inquiry is emphasized by the saddened words with which Hawkins closed his brief *True Declaration of the Troublesome Voyage* shortly after the return of the *Minion*:

If all the miseries and troublesome affaires of this sorrowfull voyage should be perfectly and thoroughly written, there should neede a paynfull man with his penne, and as great a time as hee had that wrote the liues and deathes of the martirs. (Hawkins 1569:15)

Those untold "miseries and troublesome affaires" may well have included a scenario similar to that suggested above. But whether they did or not, as will be seen, the handful of haggard sea dogs that stepped from the decks of the *Minion* and onto English soil in late January of 1569 carried with them a vivid impression of a monster of the tropical sea, whose name they were prepared to communicate to their countrymen. But how?

By the middle of the sixteenth-century the printing press had provided England with its first effective instrument of mass communication. Early essays in modern journalism, ballads and broadsides issued from printing shops in mounting numbers, celebrating public personages, exhorting religious renewal, or announcing the birth of some monstrous two-headed child or calf, or the appearance of an extraordinary creature from the sea. The year prior to the departure of Hawkins upon his tragic expedition, for example, the London public was treated to a broadside that circulated under the heading *The Description of a Rare or Rather Most Monstrous Fishe taken on the East Coast of Holland*. The accompanying woodcut reveals that the subject was an impressively proportioned cuttlefish (Anon. 1566). Again, on October 11, 1568, as the *Minion* rode at anchor in the Gulf of Mexico, its crew nursing the wounds of San Juan de Ulua and preparing for the long journey home, seventeen enormous "fishes" swam some ten miles up the Orwell River in Suffolk and cast themselves upon its banks not far below

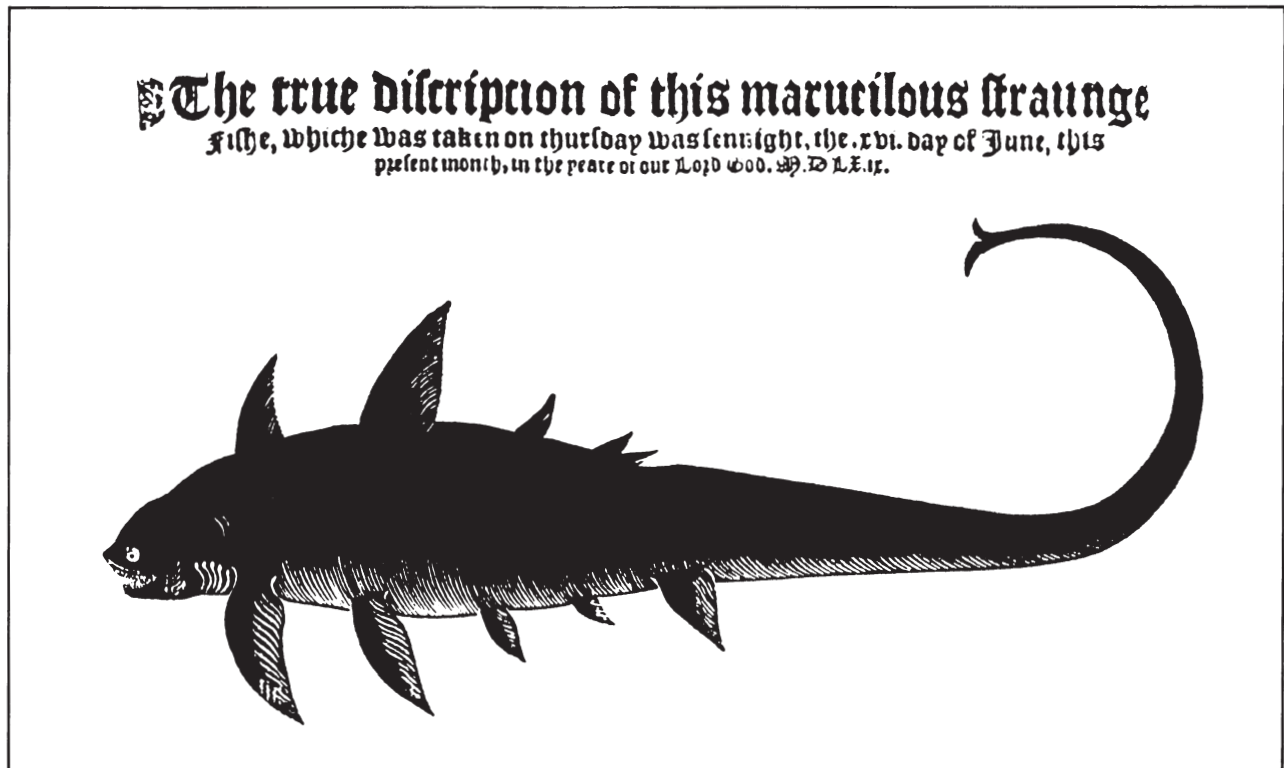


Fig. 2

Ipswich. London was immediately apprised of the event as hundreds of double-columned, single-sheet broadsides spilled from the press of Thomas Colwell, located beneath the conduit on Fleet Street amongst the many taverns frequented by the city's actors, poets, and authors. The broadside boasted a large woodcut which, though highly stylized and not very convincing in itself, nevertheless, confirms the impression of a Killer Whale (*Orcinus orca*) that emerges from the detailed description beneath it (Granger 1568). However, neither this whale nor the cuttlefish were identified by name, both being left at "monstrous fishes."

Six months after the return of the *Minion* on January 25, 1569, yet another broadside occasioned by the appearance of a great sea creature was dispatched from the Fleet Street shop of Thomas Colwell. On Thursday, June 16, some English fishermen working the Straits of Dover had taken and killed a large and unfamiliar fish that had followed a school of mackerel into their nets. The following day, Friday, they brought it up the Thames to Billingsgate Market in London, where it attracted immediate attention. On Saturday, the fish was flayed and gutted, its meat cut and sold for food, and its skin stuffed and mounted at one of the Fleet Street taverns, the Red Lion. Within the week the broadside announcing the fish's capture and display swept the streets of the city. Authored by an otherwise anonymous "C.R." and headlined *The true discription of this marueilous straunge fishe, which was taken on Thursday wasseennight, the .xvi. day of*

June, this present month, in the yeare of our Lord God .M.DLX.IX., its format followed that of the previous year's Killer Whales. With a bit more realistic illustration than its predecessor and an equally detailed description, the broadside, proclaiming that "here hath neuer the lyke of it ben seene," introduced a new fish to the English public (Figure 2):¹⁷

This strange Fish is in length seventeen foot, and three foot broad, and in compass about the body, six foot, and proportioned as you see here by this picture, and is round snouted, short headed as you see, having three ranks of teeth on either jaw, marvelous sharp and very short, two eyes growing near his snout, and as big as a horse's eyes, and his heart as big as an Ox's heart, and likewise his liver and lights big as an Ox's, but all the garbage that was in his belly besides, would have gone into a felt hat. Also nine fins, and two of the foremost be three-quarters of a yard long from the body, and a very big one on the forepart of his back, as you see here by this picture, blackish on the back and a little whitish on the belly, a slender tail, and had but one bone and that was a great ridge bone running along his back, from the head to the tail, and had great force in his tail when he was in the water. Also it hath five gills on each side of the head, showing white as you see. (R., C. 1569)

So carefully recorded is this description that, when combined with the accompanying picture and the circumstances of its capture, it is possible to assign the fish a species identification. But the broadside performed another service. It also introduced a new word to the English language. Its next sentence reads: "Ther is no

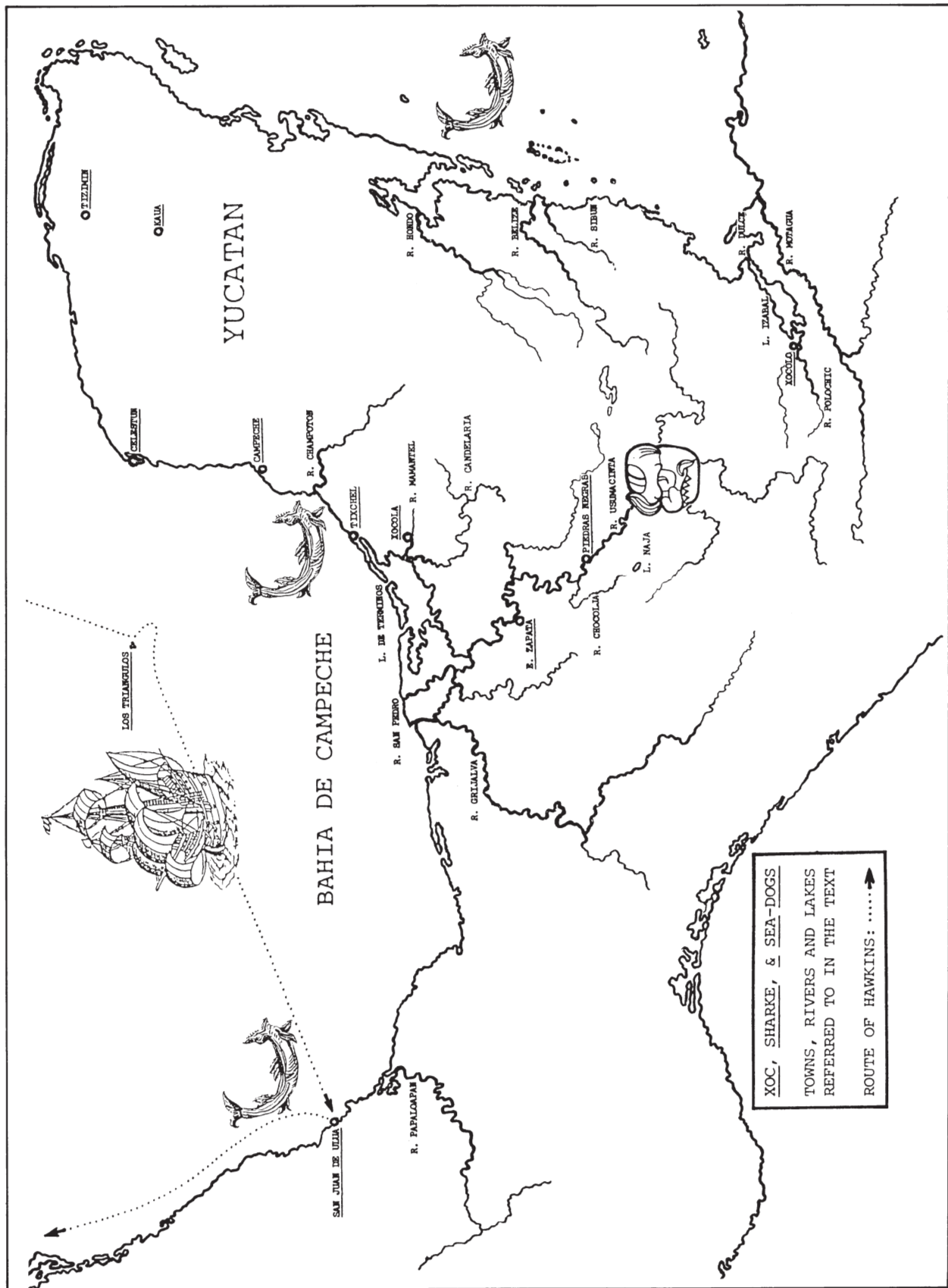


Fig. 3

proper name for it that I knowe, but that sertayne men of Captain Haukinses, doth call it a *Sharke*.” And the species? *Alopias vulpinus*, the Thresher Shark.

It seems appropriate that this 1569 broadside should not only contain the earliest record of what is perhaps the sole Maya loan-word in English, but also use it to label the earliest English description of a species known today by that same word. Thompson would have liked that. And I suspect that if he had considered further the possibility that the earliest documented phonetic evidence to support his theory of rebus writing among the ancient Maya was to be found in his own English language, there would have crept over Thompson’s face, a faint smile.

Acknowledgments

This paper owes its inspiration to an impromptu dinner discussion following the March 25, 1983, session of Linda Schele’s VII Workshop on Maya Hieroglyphic Writing, during which Sheila Billingsley raised the question of a relationship between *xoc* and *shark*. I am grateful to Sheila for the tenacity with which she pressed the question and for the encouragement given me to pursue the matter, after bringing to my attention the following passage from the *Oxford Dictionary of English Etymology*:¹⁸

Said to have been so named by sailors of Capt. John Hawkins’s expedition who brought home a specimen which was exhibited in London in 1569; of unkn. origin. (Onions 1966:817)

I am also indebted to Linda Schele, Barbara MacLeod, Nicholas Hopkins, Kathryn Josserand and S. Jeffrey K. Wilkerson for their generous assistance, criticism and support. I am similarly indebted to Jon McGee for bringing the Lacandon material of Roberto Bruce to my attention, and to Richard C. Day, Morris Herman, and Robert C. Burroughs for reading and commenting upon the text. Fig. 2 is a photostatic copy from the University of Michigan Microfilms; the original is in the Huth collection of the British Library. The drawings of fig. 1 and the map are my own.

Footnotes

¹ “The fighters arrive with the East priest Uayab Xoc / At the time of seeking fire, / Of seeking shark tails” (Edmonson 1982:96).

² Throughout, I have retained the orthographic forms of my sources; thus *xooc*, *xoc*, and *xok* all appear. Unless otherwise indicated, references to Thompson are to Thompson 1944.

³ Samuel Johnson (1756) had already linked *shark* to *Canis carcharias*, but without explanation.

⁴ Because it is focused upon the origin of *shark* as applied to the fish, this discussion ignores the distinct possibility of a separate, but later, origin for the meanings associated with the spellings and sounds of *sherk*, *shirk*, and *shurk*, alluded to above by Webster, Booth, and Palmer.

⁵ This comment is, however, followed by: “Cf. Ger. dial. (Austrian) *schirk* sturgeon: see SHIRK ab^{2m}” (Bradley 1914:633).

⁶ Spanish authorities tend to support the first of these explanations while Portuguese tend to support the latter (cf. Corominas 1954:441-2; Silveira Bueno 1967:4107).

⁷ “*flechas que tienen por casquillos dientes de tiburón*.” Andrews and Zapata 1978:600.

⁸ “*Ah Xoc, El-tiburón, Ah Balam, El-jaguar, son su anuncio. Devorador de sus hijos. Devorador de sus esposas. Mortecinos niños. Mortecinas esposas. Rico. Matador de zarigüeyas también*” (Barerra Vásquez and Rendon 1948:193).

⁹ This reading seems closer to the shaving habits of William of Ockham than that proposed by John S. Justeson and William M. Norman at the Quinta Mesa Redonda de Palenque in June 1983: “Preclassic and very early Classic compounds may have made use of *-*ta* or *-*tay* as a derivational suffix on more verbs than did proto-Cholan. One possible instance which we cannot elaborate on now would be a hypothetical **mul-ta*, meaning ‘accumulation’ or ‘to accumulate’, based on **mul* ‘to heap up’; this could be the original of the constant part of the anterior and posterior date indicators” (Justeson and Norman 1983). However, in support of the latter, it should be remembered that Ockham was a Westerner and would probably have found the Maya penchant for redundancy beyond the help of his razor.

¹⁰ All references to this story are to Bruce 1976:48-49, 142-144.

¹¹ For reports on these identifications and others see Schwartz 1960:68-69; Gunter 1938:69-70; Jordan and Dickerson 1899:11; Miller 1966:794; Thomerson, Thorson, and Hempel 1977:166-168; Myers 1952:268-269; and Thorson 1972:601-604.

¹² S. Jeffrey K. Wilkerson is my source (personal communication) for the *C. leucas* taken from the Río Hondo as well as a probable one about 23 kilometers up the Sibún. Fishermen are my source (August 1983) for the Río Champotón.

¹³ Fishermen have informed me (August 1983) of the presence of sharks in the Usumacinta at Emiliano Zapato.

¹⁴ The latter rendering was suggested to me by Barbara MacLeod.

¹⁵ “*Hay muy gentiles ostiones en el río de Champotón y hay muchos-tiburones en toda la costa*” (Landa 1982:123).

¹⁶ For excellent treatments of this third of Hawkins’s ventures to the New World see Williamson 1949:119-156 and Unwin 1960:112-219.

¹⁷ I have modernized the spelling.

¹⁸ The exhibited specimen was undoubtedly that described in the 1569 broadside and mistakenly imagined to have been brought to England on the *Minion*.

Bibliography

- ACOSTA, JOSEPH DE
 1880 *The Natural and Moral History of the Indies*. (Reprinted from the English translated edition of Edward Grimston, 1604.) The Hakluyt Society. London.
 1970 *The Natural and Moral History of the Indies*. (Reprinted from the English translated edition of Edward Grimston, 1604, and edited by Clements R. Markham.) Vol. I. B. Franklin, New York
- ADAMS, R. E. W.
 1971 *The Ceramics of Altar de Sacrificios, Guatemala*. Papers of the Peabody Museum of American Archaeology and Ethnology 63(1). Harvard University, Cambridge.
 1973 Maya Collapse: Transformation and Termination in the Ceramic Sequence at Altar de Sacrificios. In *The Classic Maya Collapse*, edited by T. P. Culbert, pp. 133-163. University of New Mexico Press, Albuquerque.
 1977 *Prehistoric Mesoamerica*. Little, Brown and Company, Boston.
- ADAMS, R. E. W., and ROBERT C. ALDRICH
 1980 A Reevaluation of the Bonampak Murals: A Preliminary Statement on the Paintings and Texts. In *Third Palenque Round Table, 1978, Part 2*, edited by Merle Greene Robertson, pp. 45-59. University of Texas Press, Austin.
- ADAMS, R. E. W., and WOODRUFF D. SMITH
 1981 Feudal Models for Classic Maya Civilization. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp. 335-349. University of New Mexico Press, Albuquerque.
- AMRAM, D. W.
 1942 The Lacandon, Last of the Maya. *El Mexico Antiguo* 6:15-26.
- ANAWALT, PATRICIA RIEFF
 1981 *Indian Clothing Before Cortes. Mesoamerican Costumes from the Codices*. University of Oklahoma Press, Norman.
- ANDREWS, DOROTHY, and HEATH DE ZAPATA
 1978 *Vocabulario de Mayathan*. Merida.
- ANONYMOUS
 1566 *The Discription of a Rare or Rather Most Monstrous Fische Taken on the East Cost of Holland the XVII of Nouember, Anno 1566*. London.
- ANONYMOUS
 1689 *Gazophylacium Anglicanum: Containing the Derivation of English Words, Proper and Common; Each in an Alphabet Distinct: Proving the Dutch and Saxon to Be the Prime Fountains*. London.
- ARBER, EDWARD (editor)
 1885 *The First Three English Books on America*. Scribner & Welford, New York.
- THE ARTS CLUB OF CHICAGO
 1982 *High Culture in the Americas Before 1500*. The Arts Club of Chicago, Chicago.
- AULIE, H. WILBUR, and E. W. AULIE
 1978 *Diccionario Ch'ol-Español, Español-Ch'ol*. Vocabularios Indígenas 21. Instituto Lingüístico de Verano, Mexico.
- AVENI, ANTHONY F. (editor)
 1977 *Native American Astronomy*. University of Texas Press, Austin.
- BAILEY, NATHANIAL
 1724 *An Universal Etymological English Dictionary: Comprehending the Derivations of the Generality of Words in the English Tongue, Either Ancient or Modern, from the Ancient British, Saxon, Danish, Norman and Modern French, Teutonic, Dutch, Spanish, Italian, as also from the Latin, Greek, and Hebrew Languages, Each in Their Proper Characters*. Second edition. London.
- BARDAWIL, LAWRENCE W.
 1976 The Principal Bird Deity in Maya Art – An Iconographic Study of Form and Meaning. In *The Art, Iconography & Dynastic History of Palenque, Part III* (Proceedings of the Segunda Mesa Redonda de Palenque), edited by Merle Greene Robertson, pp. 195-209. Robert Louis Stevenson School, Pebble Beach.
- BARRERA VÁSQUEZ, ALFREDO
 1980 *Diccionario Maya Cordemex: Maya-Español, Español-Maya*. Ediciones Cordemex, Merida.
- BARRERA VÁSQUEZ, ALFREDO, and SYLVANUS G. MORLEY
 1949 The Maya Chronicles. *Contributions to American Anthropology and History* 10:1-85. Carnegie Institution, Washington.
- BARRERA VÁSQUEZ, ALFREDO, and SYLVIA RENDON

- 1948 *El Libro de los Libros de Chilam Balam*. Fondo de Cultura Económica, Mexico City.
- BARTHEL, THOMAS S.
1951 Maya-Astronomie. Lunare Inschriften aus dem Südreich. *Zeitschrift für Ethnologie* 76:216-238. Braunschweig.
- 1968a El Complejo Emblema. *Estudios de Cultura Maya* 7:159-193. Mexico City.
- 1968b Götter – Sterne – Pyramiden. *Paideuma* 14:45-92. Bamberg.
- 1977 Untersuchungen zur Großen Göttin der Maya. *Zeitschrift für Ethnologie* 102:44-102. Braunschweig.
- 1979 Enigmatisches im Codex Vaticanus 3773: Kosmogramm und Eschatologie. *Tribus* 38:83-122. Linden-Museum, Stuttgart.
- BAUDEZ, CLAUDE F.
n.d. a Iconography and History at Copan. In *The Southeast Mesoamerican Periphery: Problems and Prospects*, edited by Patricia Urban and Edward Schortman. University of Texas Press, Austin, in press.
- 1985 The Knife and the Lancet: the Iconography of Sacrifice at Copan. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.
- BAUDEZ, CLAUDE, and BERTHOLD RIESE
1982 Bacabs and Bicephalic Monsters in Copan Architecture. Paper presented at the 44th International Congress of Americanists, Manchester, England.
- BEETZ, CARL P., and LINTON SATTERTHWAITE
1981 *The Monuments and Inscriptions of Caracol, Belize*. University Museum Monograph 45. The University Museum, University of Pennsylvania, Philadelphia.
- BELLONI, PETRI
1551 *De Aquatilibus*. Paris.
- BENSON, ELIZABETH
1976 Ritual Cloth and Palenque Kings. In *The Art, Iconography & Dynastic History of Palenque, Part III* (Proceedings of the Segunda Mesa Redonda de Palenque), edited by Merle Greene Robertson, pp. 45-58. Robert Louis Stevenson School, Pebble Beach.
- 1982 The House as an Image in Mesoamerica. Paper presented at the 44th International Congress of Americanists, Manchester, England.
- BERLIN, HEINRICH
1944 Un Templo Olvidado en Palenque. *Revista Mexicana de Estudios Antropológicos* 6(1-2):62-90. Sociedad Mexicana de Antropología, Mexico.
- 1958 El Glifo 'Emblema' en las Inscripciones Mayas. *Journal de la Société des Américanistes* 47:111-119. Paris.
- 1959 Glifos Nominales en el Sarcófago de Palenque. *Humanidades* 2(10):1-8. Universidad de San Carlos, Guatemala.
- 1960 Mas casos del glifo lunar en numeros de distancia. *Antropología e Historia de Guatemala* 12(2):25-33. Instituto de Antropología e Historia, Guatemala.
- 1963 The Palenque Triad. *Journal de la Société des Américanistes* 52:91-99.
- 1965 The Inscription of the Temple of the Cross at Palenque. *American Antiquity* 30:330-342.
- 1968a Estudios Epigraficos 11. *Antropología e Historia de Guatemala* 20(1):13-24.
- 1968b The Tablet of the 96 Glyphs at Palenque, Chiapas, Mexico. *Middle American Research Institute Publication* 26:135-149. Tulane University, New Orleans.
- 1970 Miscelanea Palencana. *Journal de la Société des Américanistes* 59:107-128.
- 1973 Beiträge zum Verständnis de Inschriften von Naranjo. *Bulletin de la Société Suisse des Américanistes* 37:7-14.
- 1977 *Signos y Significados en las Inscripciones Mayas*. Instituto Nacional del Patrimonio Cultural de Guatemala. Guatemala.
- BINFORD, LEWIS R.
1968 Some Comments on Historical versus Processual Archaeology. *Southwestern Journal of Anthropology* 24(3):267-275.
- BISHOP, RONALD L., GARMAN HARBOTTLE, and EDWARD V. SAYRE
1982 Chemical and Mathematical Procedures Employed in the Maya Fine Paste Ceramics Project. In *Analyses of Fine Paste Ceramics [Excavations at Seibal, Guatemala]*, edited by Jeremy A. Sabloff, pp. 272-282. Memoirs of the Peabody Museum of Archaeology and Ethnology 15(2). Harvard University, Cambridge.
- BLOM, FRANS, and OLIVER LA FARGE
1926-27 *Tribes and Temples: A Record of the Expedition to Middle America Conducted by the Tulane University of Louisiana in 1925*. 2 vols. Middle American Research Institute Publication 1. Tulane University, New Orleans.
- BODLEIAN CODEX
see Caso, Alfonso.
- BOLZ, INGEBORG
1975 Sammlung Ludwig Altamerika. *Ethnologica* 7. West Germany.
- BOOS, FRANK H.
1968 Two Zapotec Urns with Identical Unclassified Figures Display a Unique Maize Fertility Concept. *Baessler Archiv* 16:1-8. Berlin.
- BOOTH, DAVID
1836 *An Analytical Dictionary of the English Language, in Which the Words Are Explained in the Order of Their Natural Affinity, Independent of Alphabetical Arrangement; and the Signification of Each Is Traced from Its Etymology*. Simkin, Marshall, London.
- BOVE, FREDERICK J.
1981 Trend Surface Analysis and the Lowland Classic Maya Collapse. *American Antiquity* 46:93-112.
- BRADLEY, HENRY (editor)
1914 *A New English Dictionary on Historical Principles*, Vol. 8, Part II. Clarendon Press, Oxford.
- BRAINERD, GEORGE W.
1958 *The Archaeological Ceramics of Yucatan*. University of California Anthropological Records 19. Berkeley.
- BRASSEUR DE BOURBORG, CHARLES ETIENNE
1864 *Relation des choses de Yucatan de Diego de Landa*. Auguste Durand, Paris.
- BRICKER, VICTORIA R.
1981 Las Ceremonias de Año Nuevo en las Monumentos Clasicos Mayas. Paper presented at the XVII Mesa Redonda of the Sociedad Mexicana de Antropología, San Cristóbal de Las Casas, Mexico.
- 1985 A Morphosyntactic Interpretation of Some Accession Compounds and Other Verbs in the Maya Hieroglyphs. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.

- BRINTON, DANIEL GARRISON
1882 The Maya Chronicles, *Library of Aboriginal American Literature* 1. Philadelphia.
- BROTHERSTON, GORDON
1979 *Image of the New World*. Thames and Hudson, London.
- BRUCE S., ROBERTO D.
1976 *Textos y Dibujos Lacandonese de Naja*. Colección Científica Lingüística 45. Instituto Nacional de Antropología e Historia, Mexico City.
- BRUNDAGE, BURR CARTWRIGHT
1979 *The Fifth Sun*. University of Texas Press, Austin.
- BUDKER, PAUL
1971 *The Life of Sharks*. Weidenfeld and Nicholson, London.
- BULLARD, WILLIAM R., JR.
1960 Maya Settlement Patterns in Northeastern Peten, Guatemala. *American Antiquity* 25:355-372.
- 1970 Topoxte, a Postclassic Maya Site in Peten, Guatemala. In *Monographs and Papers in Maya Archaeology*, edited by William R. Bullard, pp. 245-307. Papers of the Peabody Museum of Archaeology and Ethnology 61. Harvard University, Cambridge.
- 1973 Postclassic Culture in Central Peten and Adjacent British Honduras. In *The Classic Maya Collapse*, edited by T.P. Culbert, pp. 221-241. University of New Mexico Press, Albuquerque.
- BUSHNELL, G. H. S., and ADRIAN DIGBY
1955 *Ancient American Pottery*. Faber and Faber, London.
- BUTLER, MARY
1931 Dress and Decoration of the Old Maya Empire. *The Museum Journal* 12(2):155-183. The University Museum, University of Pennsylvania, Philadelphia.
- CARMACK, ROBERT
1966 El Ajpop Quiche, K'uk'cumatz: Un Problema de la Sociología Histórica. *Antropología e Historia de Guatemala* 18(1):43-50.
- CASO, ALFONSO
1928 *Las Estelas Zapotecas*. Mexico.
- 1960 *Codice Bodley* 2858, ed. facsimilar. Sociedad Mexicana de Antropología.
- CASO, ALFONSO, and IGNACIO BERNAL
1952 Urnas de Oaxaca. *Memorias del Instituto Nacional de Antropología e Historia* 2. Mexico City.
- CASTRO, JOSE I.
1983 *The Sharks of North American Waters*. Texas A & M University Press, College Station.
- CHARENCEY, CHARLES FÉLIX HYACINTHE GOUTIER, COMTE DE
1874 Essai d'analyse grammaticale d'un texte en langue maya. *Académie Nationale des Sciences, Arts et Belles Lettres de Caen, Mémoires* 141-161. Caen.
- 1875 *Essai d'analyse grammaticale d'un texte en langue maya*. Second edition. Le Havre.
- CHASE, ARLEN F.
1985 Postclassic Peten Interaction Spheres: The View from Tayasal. In *The Lowland Maya Postclassic: Questions and Answers*, edited by Arlen Chase and Prudence Rice. University of Texas Press, Austin, in press.
- n.d. Time Depth or Vacuum: The 11.3.0.0.0 Correlation and the Lowland Maya Postclassic. In *Late Lowland Maya Civilization: Classic to Postclassic*, edited by Jeremy Sabloff and E. W. Andrews V. University of New Mexico Press, Albuquerque, in press.
- CHASE, DIANE Z.
1981 The Maya Postclassic at Santa Rita Corozal. *Archaeology* 34(1):25-33.
- 1982 *Spatial and Temporal Variability in Postclassic Northern Belize*. Ph.D. dissertation, Department of Anthropology, University of Pennsylvania.
- 1985 Ganned But Not Forgotten: Late Postclassic Archaeology and Ritual at Santa Rita Corozal. In *The Lowland Maya Postclassic: Questions and Answers*, edited by Arlen Chase and Prudence Rice. University of Texas Press, Austin, in press.
- CHASE, DIANE Z., and ARLEN F. CHASE
1982 Yucatec Influence in Terminal Classic Northern Belize. *American Antiquity* 47:596-614.
- CHRISTALLER, W.
1933 *Die zentralen Orte in Suddeutschland*. Karl Zeiss, Jena. (Translated by Carlisle W. Baskin, 1966: *Central Places in Southern Germany*. Prentice Hall. Englewood Cliffs, New Jersey.)
- CLARKSON, PERSIS B.
1979 *Classic Maya Attire as Indicators of Status, Role, and Function*. Masters' thesis, Department of Archaeology, University of Calgary, Alberta.
- CLAYTON, THOMAS
1969 *The "Shakespearean" Addition in the Booke of Sir Thomas Moore: Some Aids to Scholarly and Critical Shakespearean Studies*. W. C. Brown, Dubuque.
- CLOSS, MICHAEL P.
1981 Venus Dates Revisited. *Archaeoastronomy* 4(4):38-41.
- 1982 On a Classic Maya Accession Phrase and a Glyph for "Rulership." *Mexicon* 4:47-50.
- 1985 A New Reading of Glyphs T12 and T229. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.
- n.d. a The Dynastic History of Naranjo: The Early Period. *Estudios de Cultura Maya*, in press.
- COE, MICHAEL D.
1965 *The Jaguar's Children: Pre-Classic Central Mexico*. Museum of Primitive Art, New York.
- 1973 *The Maya Scribe and His World*. The Grolier Club, New York.
- 1975a *Classic Maya Pottery at Dumbarton Oaks*. Dumbarton Oaks, Washington, D.C.
- 1975b Death and the Ancient Maya. In *Death and the Afterlife in Pre-Columbian America*, edited by Elizabeth P. Benson, pp. 87-104. Dumbarton Oaks, Washington, D.C.
- 1977 Supernatural Patrons of Maya Scribes and Artists. In *Social Process in Maya Prehistory*, edited by Norman Hammond, pp. 327-347. Academic Press, New York.
- 1978 *Lords of the Underworld: Masterpieces of Classic Maya Ceramics*. Princeton University Press, Princeton.
- 1981a The Maya God N in the Memorial Art Gallery. *Porticus* 4:9-13. University of Rochester, New York.
- 1981b Religion and the Rise of Mesoamerican States. In *The Transition to Statehood in the New World*, edited by Grant D. Jones and Robert R. Kautz, pp. 157-171. Cambridge University Press, Cambridge.
- 1982 *Old Gods and Young Heroes: The Pearlman Collection of Maya Ceramics*. The Israel Museum, Jerusalem.

- COE, WILLIAM R.
1965 Tikal: Ten Years of Study of a Maya Ruin in the Lowlands of Guatemala. *Expedition* 8:5-56.
1967 *Tikal: A Handbook of the Ancient Maya Ruins*. The University Museum, University of Pennsylvania, Philadelphia.
- COE, WILLIAM R., and ROBERT J. SHARER
1979 The Quirigua Project: 1975 Season. In *Quirigua Reports* 1, edited by Wendy Ashmore, pp. 13-36. University Museum Monograph 37. University of Pennsylvania, Philadelphia.
- COE, WILLIAM R., EDWIN M. SHOOK, and LINTON SAT-
TERTHWAITE
1961 *The Carved Wooden Lintels of Tikal*. Tikal Report Number 6. Museum Monographs, The University Museum. University of Pennsylvania, Philadelphia.
- COFFMAN, ROBERT
1979 A Commentary on the Hieroglyphic Inscriptions of Naranjo, El Peten, Guatemala. Unpublished manuscript, University of Texas at Austin.
- COGGINS, CLEMENCY C.
1975 *Painting and Drawing Styles at Tikal: An Historical and Iconographic Reconstruction*. Ph.D. dissertation, Harvard University. University Microfilms, Ann Arbor.
1980 The Shape of Time: Some Political Implications of a Four-Part Figure. *American Antiquity* 45:727-739.
1983 *The Stucco Decoration and Architectural Assemblage of Structure 1-Sub, Dzibilchaltun, Yucatan, Mexico*. Middle American Research Institute Publication 49. Tulane University, New Orleans.
- COLBY, BENJAMIN N., and LORE M. COLBY
1981 *The Daykeeper: The Life and Discourse of an Ixil Diviner*. Harvard University Press, Cambridge.
- COLLIER, GEORGE A.
1975 *Fields of the Zotzil: The Ecological Bases of Tradition in Highland Chiapas*. University of Texas Press, Austin.
- CORDRY, DONALD, and DOROTHY CORDRY
1968 *Mexican Indian Costumes*. University of Texas Press, Austin.
- COROMINAS, JUAN (editor)
1954 *Diccionario Crítico Etimológico de la Lengua Castellana*, Vol. 4. Madrid.
- CORONEL, FRAY JUAN
1930 *Diccionario de Motul*, atribuido a fray Antonio de Ciudad Real. Talleres de la Compania Tipografica Yucateca. Merida.
- COWGILL, GEORGE
1963 *Postclassic Period Culture in the Vicinity of Flores, Peten, Guatemala*. Ph.D. dissertation, Department of Anthropology, Harvard University.
- CRAINE, EUGENE R., and REGINALD C. REINDORP (translators and editors)
1979 *The Codex Pérez and the Book of Chilam Balam of Maní*. University of Oklahoma Press, Norman.
- CRÓNICA DE MANÍ
1596 Latin American Library, Tulane University, New Orleans.
- DAVOUST, MICHEL
1982 Los primeros soberanos de Palenque. *Boletín de la Escuela de Ciencias Antropológicas de la Universidad de Yucatan* 52:25-46. Merida.
- DELGADO, HILDEGARD SCHMIDT
1963 *Aboriginal Guatemala Handweaving and Costume*. Ph.D. dissertation, Department of Anthropology, Indiana University.
- DE VOS, JAN
1980a *Fray Pedro Lorenzo de la Nada; Misionero de Chiapas y Tabasco; en el Cuarto Centenario de su Muerte*. (No publisher or place of publication listed.)
1980b *La Paz de Dios y del Rey; La Conquista de la Selva Lacandona; 1525-1821*. Colección Ceiba, Ensayo, 10. Gobierno del Estado de Chiapas, Tuxtla Gutierrez.
- DIESELDORFF, ERWIN P.
1893a Ausgrabungen in Coban. *Zeitschrift für Ethnologie* 25:374-382. Berlin.
1893b Bericht über alte bemalte Tongefasse von Guatemala. *Zeitschrift für Ethnologie* 25:547-550. Berlin.
1922 Welchen Gott Stellen die Steindollen der Mayavölker dar? In *Festschrift Eduard Seler*, edited by Walter Lehmann, pp. 47-58. Strecker und Schroder, Stuttgart.
1926-31 *Kunst und Religion der Mayavölker*. 2 volumes. Berlin.
1939 *Los Secretos Contenidos en el Tablero del Templo de la Cruz de Palenque...* El Sobre Azul, Mexico.
- DURAN, FRAY DIEGO
1971 *Book of the Gods and Rites and the Ancient Calendar*. University of Oklahoma Press, Norman.
- DÜTTING, DIETER
1976 The Great Goddess in Classic Maya Religious Belief. *Zeitschrift für Ethnologie* 101:41-146. Braunschweig.
1978 "Bats" in the Usumacinta-Valley. Remarks on the Inscriptions of Bonampak and Neighboring Sites in Chiapas, Mexico. *Zeitschrift für Ethnologie* 103:1-56. Braunschweig.
1979a Sustina Gracia. An Inquiry into the Farmer's Almanacs of the Codex Dresden. *Indiana* 5:145-170. Berlin.
1979b On the Hieroglyphic Inscriptions of Three Monuments from Piedras Negras, Guatemala. *Zeitschrift für Ethnologie* 104:17-63. Braunschweig.
1980 Aspects of Classic Maya Religion and World View. *Tribus* 29:106-167. Linden-Museum, Stuttgart.
1981 Life and Death in Mayan Hieroglyphic Inscriptions. *Zeitschrift für Ethnologie* 106:185-228. Berlin.
1982 The 2 Cib 14 Mol Event in the Inscriptions of Palenque, Chiapas, Mexico. *Zeitschrift für Ethnologie* 107:233-258. Berlin.
1984 Venus, the Moon, and the Gods of the Palenque Triad. *Zeitschrift für Ethnologie* 109, in press. Berlin.
n.d. On the Context-dependent Use of Bi- and Polyvalent Graphemes in Mayan Hieroglyphic Writing. Paper presented at the Fourth Palenque Round Table, June, 1980, Palenque, Chiapas, Mexico.
- EARLE, DUNCAN M.
1983 The Metaphor of the Day in Quiche: Notes on the Nature of Everyday Life. In *Symbol and Meaning Beyond the Closed Community: Essays in Mesoamerican Ideas*, edited by Gary H. Gossen. Institute for Mesoamerican Studies, State University of New York at Albany.
- EASBY, ELIZABETH K., and JOHN F. SCOTT
1970 *Before Cortes: Sculpture of Middle America*. The Metropolitan Museum of Art, New York.

EDMONSON, MUNRO STERLING

- 1965 *Quiche-English Dictionary*. Middle American Research Institute Publication 30. Tulane University, New Orleans.
- 1971 *The Book of Counsel: The Popul Vuh of the Quiche Maya of Guatemala*. Middle American Research Institute Publication 35. Tulane University, New Orleans.
- 1976 The Mayan Calendar Reform of 11.16.0.0.0. *Current Anthropology* 17:713-717.
- 1981 Some Postclassic Questions About the Classic Maya. In *Ancient Mesoamerica, Selected Readings*, second edition, edited by John A. Graham, pp. 221-228. Peek Publications, Palo Alto, California.
- 1982 *The Ancient Future of the Itza: The Book of Chilam Balam of Tizimin*. University of Texas Press, Austin.
- n.d. a *Heaven Born Merida and Its Destiny*. University of Texas Press, Austin, in press.
- n.d. b The First Chronicle from the Book of Chilam Balam of Mani. Transcription from a photographic facsimile of text in Craine and Reindorp 1979:134-137. Manuscript.

EKHOLM, GORDON F.

- 1970 *Ancient Mexico and Central America*. American Museum of Natural History, New York.

EKHOLM, SUSANNA M.

- 1979a The Lagertero Figurines. In *Maya Archaeology and Ethnohistory*, edited by Norman Hammond and Gordon R. Willey, pp. 172-186. University of Texas Press, Austin.
- 1979b The Significance of an Extraordinary Maya Ceremonial Refuse Deposit at Lagertero, Chiapas. In *Actes du XLII^e Congrès International des Américanistes* 8:147-159. Société des Américanistes, Musée de l'Homme, Paris.
- 1981 The Lagertero Regional Style of Maya Moldmade Figurines. Paper presented at Mesoamerican Figurines: Their Archaeological Contexts and Iconographic Meanings, a University Seminar, Columbia University, New York.
- 1982 Una Ceremonia Maya de Fin de Ciclo. Paper presented at Cuarenta Años de Investigaciones Antropológicas en Chiapas: Conmemoración, San Cristobal de Las Casas, Chiapas. State Government of Chiapas, in press.
- 1983 End of Haab Ceremonies: Possible Ancient Muluc-year Rites at Lagertero. Paper presented at the Fifth Palenque Round Table, Palenque, Chiapas, Mexico.
- 1985 The Lagertero Ceramic 'Pendants'. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.

ESCALONA RAMOS, ALBERTO

- 1933 *Historia de los Mayas por sus Crónicas*. Universidad Nacional del Sureste, Merida.

EUW, ERIC VON

- 1977 *Itzimte, Pixoy, Tzum*. Corpus of Maya Hieroglyphic Inscriptions, 4(1). Peabody Museum, Harvard University, Cambridge.
- 1978 *Xultun*. Corpus of Maya Hieroglyphic Inscriptions, 5(1). Peabody Museum, Harvard University, Cambridge.

FAULHABER, JOHANNA

- 1970 Anthropometry of Living Indians. In *Handbook of*

Middle American Indians, Vol. 9, edited by T. Dale Stewart, pp. 82-104. General editor, Robert Wauchope. University of Texas Press, Austin.

FITCHETT, ARTHUR G.

- 1974 Origin of the 260-day Cycle in Mesoamerica. *Science* 185:542-543.

FITZPATRICK, ELISE, and NICHOLSON J. EASTMAN

- 1960 *Obstetrics for Nurses*. Lippincott, Philadelphia.

FLANNERY, KENT V.

- 1972 The Cultural Evolution of Civilizations. *Annual Review of Ecology and Systematics* 3:399-426.

FONCERRADA DE MOLINA, MARTA

- 1965 *La Escultura Arquitectonica de Uxmal*. Imprenta Universitaria, Mexico.

- 1980 Mural Painting in Cacaxtla and Teotihuacan Cosmopolitism. In *Third Palenque Round Table, 1978, Part 2*, edited by Merle Greene Robertson, pp. 183-198. University of Texas Press, Austin.

FORSTEMANN, ERNST

- 1906 *Commentary on the Maya Manuscript in the Royal Public Library of Dresden*. Papers of the Peabody Museum of American Archaeology and Ethnology 4(2). Harvard University, Cambridge.

FOUGHT, JOHN G.

- 1972 *Chorti (Mayan) Texts (I)*. Edited by Sarah S. Fought. University of Pennsylvania Press, Philadelphia.

FOX, JAMES A., and JOHN S. JUSTESON

- 1980 Mayan Hieroglyphs as Linguistic Evidence. In *Third Palenque Round Table, 1978, Part 2*, edited by Merle Greene Robertson, pp. 204-216. University of Texas Press, Austin.
- 1983 Hieroglyphic Evidence for the Languages of the Classic Maya. Manuscript.
- n.d. Polyvalence in Mayan Hieroglyphic Writing. In *Phonetic Studies in Mayan Hieroglyphic Writing*, edited by Lyle Campbell and John S. Justeson, Institute for Mesoamerican Studies, State University of New York, Albany, in press.

FREIDEL, DAVID A.

- 1981 Civilization as a State of Mind: The Cultural Evolution of the Lowland Maya. In *The Transition to Statehood in the New World*, edited by Grant D. Jones and Robert R. Kautz, pp. 188-227. Cambridge University Press, Cambridge.
- 1985 New Light on the Dark Age: A Summary of Major Themes. In *The Lowland Maya Postclassic: Questions and Answers*, edited by Arlen Chase and Prudence Rice. University of Texas Press, Austin, in press.

FREIDEL, DAVID A., and LINDA SCHELE

- 1982 Symbol and Power: A History of the Lowland Maya Cosmogram. Paper presented at the Princeton Conference on the Origins of Maya Iconography, Princeton.

GANN, THOMAS

- 1900 *Mounds in Northern Honduras*. Nineteenth Annual Report 1897-1898, Part 2:655-692. Bureau of American Ethnology, Washington, D.C.
- 1918 *The Maya Indians of Southern Yucatan and Northern British Honduras*. Bureau of American Ethnology Bulletin 64. Washington, D.C.

GATES, WILLIAM E.

- 1932 Eras of the Thirteen Gods and the Nine Gods: Book of Chumayel, Pages 42-48. *Maya Society Quarterly* 1(2):78-92.

- GELB, IGNACE J.
1963 *A Study of Writing*. Second edition. University of Chicago Press, Chicago.
- GENDROP, PAUL
1980 Dragon-Mouth Entrances: Zoomorphic Portals in the Architecture of Central Yucatan. In *Third Palenque Round Table, 1978, Part 2*, edited by Merle Greene Robertson, pp. 138-150. University of Texas Press, Austin.
- GIRARD, RAFAEL
1962 *Los Mayas Eternos*. Libro Mex, Mexico.
- GOLDSTINE, HERMAN H.
1973 *New and Full Moons 1001 B.C. to A.D. 1651*. Memoirs of the American Philosophical Society 94. Philadelphia.
- GOODMAN, J. T.
1897 The Archaic Maya Inscriptions. Appendix to A. P. Maudslay, *Biologia-Centrali Americana; Archaeology*. R. H. Porter and Dulau and Company, London.
- GORDON, G. B.
1896 *Prehistoric Ruins of Copan, Honduras*. Memoirs of the Peabody Museum of American Archaeology and Ethnology 1(1). Harvard University, Cambridge.
- GOSSEN, GARY H.
1974 *Chamulas in the World of the Sun: Time and Space in a Maya Oral Tradition*. Harvard University Press, Cambridge.
- GRAHAM, IAN
1967 *Archaeological Explorations in El Peten, Guatemala*. Middle American Research Institute Publication 33. Tulane University. New Orleans.
1978 *Naranjo, Chunhuitz, Xunantunich*. Corpus of Maya Hieroglyphic Inscriptions 2(2). Peabody Museum, Harvard University, Cambridge.
1979 *Yaxchilan*. Corpus of Maya Hieroglyphic Inscriptions 3(2). Peabody Museum, Harvard University, Cambridge.
1980 *Ixkun, Ucanal, Ixtutz, Naranjo*. Corpus of Maya Hieroglyphic Inscriptions 2(3). Peabody Museum, Harvard University, Cambridge.
1982 *Yaxchilan*. Corpus of Maya Hieroglyphic Inscriptions 3(3). Peabody Museum, Harvard University, Cambridge.
- GRAHAM, IAN, and ERIC VON EUW
1975 *Naranjo*. Corpus of Maya Hieroglyphic Inscriptions 2(1). Peabody Museum, Harvard University, Cambridge.
1977 *Yaxchilan*. Corpus of Maya Hieroglyphic Inscriptions 3(1). Peabody Museum, Harvard University, Cambridge.
- GRAHAM, JOHN A.
1973 Aspects of Non-Classic Presences in the Inscriptions and Sculptural Art of Seibal. In *The Classic Maya Collapse*, edited by T. P. Culbert, pp. 207-217. University of New Mexico Press, Albuquerque.
- GRANGER, TIMOTHIE
1568 *A Moste True and Marueilous Straunge Wonder, the Lyke Hath Seldom Ben Seene, of XVII Monstrous Fishes, Taken in Suffolke, at Downam Brydye, Within a Myle of Ipswicke*. London.
- GREENE, MERLE
1967 *Ancient Maya Relief Sculpture*. The Museum of Primitive Art, New York.
- GREENE, MERLE, ROBERT L. RANDS, and JOHN A. GRAHAM
1972 *Maya Sculpture from the Southern Lowlands, the Highlands and Pacific Piedmont: Guatemala, Mexico, Honduras*. Lederer, Street and Zeus, Berkeley.
- GREENE ROBERTSON, MERLE
1974 The Quadripartite Badge – A Badge of Rulership. In *Primera Mesa Redonda de Palenque, Part I*, edited by Merle Greene Robertson, pp. 77-93. Robert Louis Stevenson School, Pebble Beach.
1979 A Sequence for Palenque Painting Techniques. In *Maya Archaeology and Ethnohistory*, edited by Norman Hammond and Gordon R. Willey, pp. 149-171. University of Texas Press, Austin.
- GREENE ROBERTSON, MERLE, MARJORIE S. ROSENBLUM SCANDIZZO, and JOHN R. SCANDIZZO
1976 Physical Deformities in the Ruling Lineage of Palenque, and the Dynastic Implications. In *The Art, Iconography & Dynastic History of Palenque, Part III*, Proceedings of the Segunda Mesa Redonda de Palenque, edited by Merle Greene Robertson, pp. 59-86. Robert Louis Stevenson School, Pebble Beach.
- GRIEDER, TERENCE
1960 Manifestaciones de Arte Maya en la Region de Petexbatun. *Antropología e Historia de Guatemala* 12(2):10-17. Instituto de Antropología e Historia, Guatemala.
1982 *Origins of Pre-Columbian Art*. University of Texas Press, Austin.
- GROVE, DAVID C.
1981 Olmec Monuments: Mutilation as a Clue to Meaning. In *The Olmec and Their Neighbors: Essays in Memory of Matthew W. Stirling*, edited by Elizabeth P. Benson, pp. 48-68. Dumbarton Oaks, Washington, D.C.
- GUITERAS HOLMES, CALIXTA
1960 La Familia Tzotzil en la Salud y en la Enfermedad. *Tlatoani* 2(13):4-6. Mexico.
- GUNTER, GORDON
1938 Notes on invasion of fresh water by fishes of the Gulf of Mexico, with special reference to the Mississippi-Atchafalaya River System. *Copeia* 2:69-72.
- HAKLUYT, RICHARD
1927 *The Principal Navigations, Voyages, Traffiques & Discoveries of the English Nation*, Vol. 4. Dutton, New York.
- HAMBLIN, ROBERT L., and BRIAN L. PITCHER
1980 The Classic Maya Collapse: Testing Class Conflict Hypotheses. *American Antiquity* 45:246-267.
- HAMILTON, FRANCIS
1822 *An Account of the Fishes Found in the River Ganges and Its Branches*. Edinburgh.
- HAMMOND, NORMAN
1973 *British Museum-Cambridge University Corozal Project, 1973 Interim Report* (editor). Centre of Latin American Studies, Cambridge University, Cambridge.
1974 The Distribution of Late Classic Maya Major Ceremonial Centres in the Central Area. In *Mesoamerican Archaeology: New Approaches*, edited by Norman Hammond, pp. 313-334. University of Texas Press, Austin.
1975 *Lubaantun, a Classic Maya Realm*. Monograph of the Peabody Museum of Archaeology and Ethnology,

- Vol. 2. Harvard University, Cambridge.
- 1977 Ex Oriente Lux: A View from Belize. In *The Origins of Maya Civilization*, edited by R. E. W. Adams, pp. 45-76. University of New Mexico Press, Albuquerque.
- HARRISON, PETER D.
1981 Some Aspects of Preconquest Settlement in Southern Quintana Roo, Mexico. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp. 259-286. University of New Mexico Press, Albuquerque.
- HAURY, EMIL W.
1933 Maya Textile Weaves. Unpublished manuscript, Tozzer Library, Harvard University, Cambridge.
- HAWKINS, JOHN
1569 *A True Declaration of the Troublesome Voyage of M. John Hawkins to the Parts of Guinea and the West Indies, in the Years of Our Lord 1567 and 1568*. London.
- HELLMUTH, NICHOLAS M.
1970 *Preliminary Bibliography of the Chol Lacandon, Yucatec Lacandon, Chol, Itza, Mopan and Quehache of the Southern Maya Lowlands; 1524-1969*. Third edition, revised. Katunob, Occasional Publications in Mesoamerican Anthropology 4. Museum of Anthropology, University of Northern Colorado, Greeley.
- 1971 *Progress Report and Notes on Research on Ethnohistory of the 16th-19th Century Southern Lowland Maya. Part I: The Cholti-Lacandon of Dolores (Sac Balam), Chiapas, 1695-1712. Part II: The Yucatec-Lacandon of San Jose de Gracia Real, 1786-1807*, revised (original 1970). Mimeographed, Guatemala City.
- 1978 *Tikal Copan Travel Guide: A General Introduction to Maya Art, Architecture, and Archaeology*. Foundation for Latin American Anthropological Research, Guatemala City and St. Louis.
- 1982 Cosmology, Zoology, and Iconography of Early Peten Maya Cache Vessels and Incensarios. Paper presented at the Princeton Conference on the Origins of Maya Iconography, Princeton University.
- HELMS, MARY W.
1977 Iguanas and Crocodilians in Tropical American Mythology and Iconography with Special Reference to Panama. *Journal of Latin American Lore* 3:51-133.
- HENDERSON, JOHN S.
1974 Origin of the 260-day Cycle in Mesoamerica. *Science* 185:542.
- HEYDEN, DORIS
1981 Caves, Gods, and Myths: World-View and Planning in Teotihuacan. In *Mesoamerican Sites and World-Views*, edited by Elizabeth P. Benson, pp. 1-39. Dumbarton Oaks, Washington, D.C.
- HOPKINS, NICHOLAS A.
1981 La Influencia del Yucatecano Sobre el Cholano y su Contexto Histórico. Paper presented at the XVII Mesa Redonda, Sociedad Mexicana de Antropología, San Cristobal de Las Casa, Chiapas.
- 1982 Cholan as Western Mayan With a Yucatecan Substratum. Paper presented at the Annual Meeting of the American Anthropological Association, Washington, D.C.
- HOUSTON, STEPHEN, and PETER MATHEWS
1983 The Dynastic Sequence of Dos Pilas, Peten, Guatemala. Paper presented at the Fifth Palenque Round Table, Palenque, Chiapas, Mexico.
- HUGH-JONES, STEPHEN
1982 The Pleiades and Scorpius in Barasana Cosmology. In *Ethnoastronomy and Archaeoastronomy in the American Tropics*, edited by Anthony F. Aveni and Gary Urton, pp. 183-201. Annals of the New York Academy of Sciences, Vol. 385. New York.
- JAKEMAN, M. WELLS
1948 *The Origins and History of the Mayas*. Research Publishing Company, Los Angeles.
- JOHNSON, IRMGARD WEITLANER
1954 Chiptic Cave Textiles from Chiapas, Mexico. *Journal de la Société des Américanistes* 43:137-147.
- 1971 Basketry and Textiles. In *Handbook of Middle American Indians*, Vol. 10, edited by Gordon F. Ekholm and Ignacio Bernal, pp. 297-321. General editor, Robert Wauchope. University of Texas Press, Austin.
- JOHNSON, SAMUEL
1756 *A Dictionary of the English Language; in Which Words Are Deduced from Their Originals; and Illustrated in Their Different Significations, by Examples from the Best Writers*, Vol. 2. London.
- JOHNSTON, KEVIN
1981 A Commentary on the Hieroglyphic Inscriptions of Dos Pilas, Petexbatun, Guatemala. Unpublished manuscript, University of Texas, Austin.
- JONES, CHRISTOPHER
1977 Inauguration Dates of Three Late Classic Rulers of Tikal, Guatemala. *American Antiquity* 42:28-60.
- JONES, CHRISTOPHER, and LINTON SATTERTHWAITE
1982 *The Monuments and Inscriptions of Tikal: The Carved Monuments*. Tikal Report No. 33A. University Museum Monograph 44. The University Museum, University of Pennsylvania, Philadelphia.
- JONES, CHRISTOPHER, and ROBERT J. SHARER
1980 Archaeological Investigations in the Site Core of Quirigua. *Expedition* 23(1):11-19.
- JORALEMON, PETER DAVID
1971 *A Study of Olmec Iconography*. Studies in Pre-Columbian Art and Archaeology 7. Dumbarton Oaks, Washington, D.C.
- 1974 Ritual Blood-Sacrifice Among the Ancient Maya: Part I. In *Primera Mesa Redonda de Palenque, Part II*, edited by Merle Greene Robertson, pp. 59-75. Robert Louis Stevenson School, Pebble Beach, California.
- JORDAN, DAVID STARR, and MARY CYNTHIA DICKERSON
1899 Notes on a Collection of Fishes from The Gulf of Mexico at Vera Cruz and Tampico. *Proceedings of the U.S. National Museum* 34:11-22.
- JOSSERAND, J. KATHRYN
1975 Archaeological and Linguistic Correlations for Mayan Prehistory. *Actas del XLI Congreso Internacional de Americanistas, México* 1:501-510.
- JOSSERAND, KATHRYN, LINDA SCHELE, and NICHOLAS HOPKINS
1985 Linguistic Data on Maya Inscriptions: The *Ti* Constructions. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.
- JUSTESON, JOHN S.
1982 The Chronological Portion of a Late Preclassic Maya Stela and the Early Development of the Maya Eclipse

- Calendar. Unpublished manuscript.
- JUSTESON, JOHN S., and WILLIAM M. NORMAN
1983 A Reinterpretation of Some 'Auxiliary Verb' Constructions in Mayan Hieroglyphic Writing. Paper presented at the Fifth Palenque Round Table, Chiapas, Mexico.
- KAUFMAN, TERRENCE S.
1971 Materiales Lingüísticos para el Estudio de las Relaciones Internas y Externas de la Familia de Idiomas Mayas. In *Desarrollo Cultural de los Mayas*, edited by Evon Z. Vogt and Alberto Ruz L., pp. 81-136. Centro de Estudios Mayas, Universidad Nacional Autónoma de México, México.
- 1972 *El Proto-Tzeltal-Tzotzil: Fonología Comprada y Diccionario Reconstruido*. Centro de Estudios Mayas, Cuaderno 5. Universidad Nacional Autónoma de México, México.
- 1978 Meso-American Indian Languages. *Encyclopaedia Britannica* 11:956-963. Fifteenth edition.
- KAUFMAN, TERRENCE S., and WILLIAM NORMAN
n.d. An Outline of Proto-Cholan Phonology, Morphology, and Vocabulary. In *Phonetic Studies in Mayan Hieroglyphic Writing*, edited by Lyle Campbell and John S. Justeson, Institute for Mesoamerican Studies, State University of New York, Albany, in press.
- KELLEY, DAVID H.
1962 Glyphic Evidence for a Dynastic Sequence at Quirigua, Guatemala. *American Antiquity* 27:323-335.
- 1965 The Birth of the Gods at Palenque. *Estudios de Cultura Maya* 5:93-134.
- 1968 Kakupacal and the Itzas. *Estudios de Cultura Maya* 7:255-268.
- 1976 *Deciphering the Maya Script*. University of Texas Press, Austin.
- 1977 Maya Astronomical Tables and Inscriptions. In *Native American Astronomy*, edited by Anthony Aveni, pp. 57-73.
- 1980 Astronomical Identities of Mesoamerican Gods. In *Archaeoastronomy Supplement to the Journal for the History of Astronomy* 2:51-554.
- 1983 The Maya Calendar Correlation Problem. In *Civilization in the Ancient Americas: Essays in Honor of Gordon R. Willey*, edited by Richard M. Leventhal and Alan L. Kolata, pp. 157-208. University of New Mexico Press, Albuquerque, and Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- KIDDER, ALFRED V.
1947 *The Artifacts of Uaxactun, Guatemala*. Carnegie Institution of Washington Publication 576. Washington, D.C.
- 1949 Certain Archaeological Specimens from Guatemala, I. *Notes on Middle American Archaeology and Ethnology* 4(92). Carnegie Institution of Washington, Division of Historical Research. Washington, D.C.
- KIDDER, ALFRED V., and CARLOS SAMAYOA CHINCHILLA
1959 *The Art of the Ancient Maya*. T. W. Crowell, New York.
- KIDDER, ALFRED V., JESSE D. JENNINGS, and EDWIN M. SHOOK
1946 *Excavations at Kaminaljuyu, Guatemala*. Carnegie Institution of Washington Publication 561. Washington, D.C.
- KING, ARDEN R.
1955 Archaeological Remains from the Cintalapa Region, Chiapas, Mexico. *Middle American Research Records* 2(4):70-99. Tulane University, New Orleans.
- KLEIN, CECELIA F.
1975 Post-Classic Mexican Death Imagery as a Sign of Cyclic Completion. In *Death and the Afterlife in Pre-Columbian America*, edited by Elizabeth P. Benson, pp. 69-85. Dumbarton Oaks, Washington, D.C.
- KNOROV, YURI V.
1952 Drevniaia Pis'mennost' Tsentral'noi Ameriki. *Sovetskaia Etnografiia* 3:100-118.
- 1955 Pis'mennost' Drevnikh Maia (Opyt Rasshifrovki). *Sovetskaia Etnografiia* 1:94-125.
- 1967 Selected Chapters from *The Writing of the Maya Indians*, translated by Sophie Coe. *Russian Translation Series of the Peabody Museum of Archaeology and Ethnology* 4. Harvard University, Cambridge.
- KÖHLER, U.
1977 Čonbilal Č'ulelal. Grundformen Mesoamerikanischer Kosmologie und Religion in einem Gebetstext auf Maya-Tzotzil. *Acta Humboldtiana, Series Geographico et Ethnographica* 5, Wiesbaden.
- KUBLER, GEORGE
1962 *The Art and Architecture of Ancient America; The Mexican, Maya, and Andean Peoples*. Penguin Books, Baltimore.
- 1967 *The Iconography of the Art of Teotihuacan*. Studies in Pre-Columbian Art and Archaeology 4. Dumbarton Oaks, Washington, D.C.
- 1969 *Studies in Classic Maya Iconography*. Memoirs of the Connecticut Academy of Arts and Sciences 18. New Haven.
- KURBUHN, KORNELIA
1980 *Die Sitze der Maya: Eine Ikonographische Untersuchung*. Tübingen.
- LABBÉ, ARMAND J.
1982 *Religion, Art and Iconography: Man and Cosmos in Prehispanic Mesoamerica*. Bowers Museum Foundation, Santa Ana, California.
- LA FARGE, OLIVER, II, and DOUGLAS BYERS
1931 *The Year Bearer's People*. Middle American Research Series Publication 3. Tulane University, New Orleans.
- LANDA, DIEGO DE
1982 *Relación de las Cosas de Yucatán*. Twelfth edition. Editorial Porrúa, Mexico City.
- LATHRAP, DONALD W.
1973 Gifts of the Cayman: Some Thoughts on the Subsistence Basis of Chavin. In *Variation in Anthropology, Essays in Honor of John C. McGregor*, edited by Donald W. Lathrap and Jody Douglas, pp. 91-105. Illinois Archaeological Survey, Urbana.
- LAUGHLIN, ROBERT M.
1975 *The Great Tzotzil Dictionary of San Lorenzo Zinacantan*. Smithsonian Institution Contributions to Anthropology 19. Washington, D.C.
- LECHUGA, RUTH D.
1982 *El Traje Indígena de México*. Panorama Editorial, Mexico.
- LEHMANN, WALTER (editor)
1922 *Festschrift Eduard Seler*. Strecker und Shroder, Stuttgart.

- LEIGH, HOWARD
1966 The Evolution of the Zapotec Glyph C. In *Ancient Oaxaca*, edited by J. Paddock, pp. 256-269. Stanford University Press, Palo Alto.
- LEMON, GEORGE
1783 *English Etymology; or, a Derivative Dictionary of the English Language: in Two Alphabets*. London.
- LEVENTHAL, RICHARD, and ALAN KOLATA (editors)
1983 *Civilization in the Ancient Americas: Essays in Honor of Gordon R. Willey*. University of New Mexico Press, Albuquerque, and Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- LEYENDA DE LOS SOLES
1945 in Velasquez, Primo F.
- LINNAEUS, CAROLUS
1894 *Systema Naturae: Regnum Animale*. Tenth edition. Wilhelm Engelmann, Lipsius.
- LOTHROP, SAMUEL K.
1936 *Zacualpa: A Study of Ancient Quiche Artifacts*. Carnegie Institution of Washington Publication 472. Washington, D.C.
1952 *Metals from the Cenote of Sacrifice, Chichen Itza, Yucatan*. Memoirs of the Peabody Museum of Archaeology and Ethnology 10(2). Harvard University, Cambridge.
- LOUNSBURY, FLOYD G.
1973 On the Derivation and Reading of the 'Ben-Ich' Prefix. In *Mesoamerican Writing Systems*, edited by Elizabeth P. Benson, pp. 99-143. Dumbarton Oaks, Washington, D.C.
1974a Pacal. In *Primera Mesa Redonda de Palenque, Part I*, edited by Merle Greene Robertson, p. ii. Robert Louis Stevenson School, Pebble Beach.
1974b The Inscription of the Sarcophagus Lid at Palenque. In *Primera Mesa Redonda de Palenque, Part II*, edited by Merle Greene Robertson, pp. 5-19. Robert Louis Stevenson School, Pebble Beach, California.
1976 A Rationale for the Initial Date of the Temple of the Cross at Palenque. In *The Art, Iconography & Dynastic History of Palenque, Part III*, edited by Merle Greene Robertson, pp. 211-224. Robert Louis Stevenson School, Pebble Beach, California.
1978 Maya Numeration, Computation, and Calendrical Astronomy. *Dictionary of Scientific Biography* 15:759-818.
1982 Astronomical Knowledge and Its Uses at Bonampak, Mexico. In *Archaeoastronomy in the New World: American Primitive Astronomy*, edited by Anthony F. Aveni, pp. 143-168. Cambridge University Press, Cambridge.
1985 The Identities of the Mythological Figures in the 'Cross Group' Inscriptions of Palenque. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.
- LOWE, JOHN W. G.
1982 On Mathematical Models of the Classic Maya Collapse: The Class Conflict Hypothesis Reexamined. *American Antiquity* 47:643-652.
- LUCKERT, KARL W.
1976 *Olmec Religion: A Key to Middle America and Beyond*. University of Oklahoma Press, Norman.
- MACLEOD, BARBARA
1979 Cholan and Yucatecan Verb Morphology and Glyphic Verbal Affixes in the Inscriptions. Paper presented in part to the Fourth Taller Maya at Palenque, Chiapas, Mexico.
- MAHLER, JOY
1962 Textiles and Textile Impressions. In *Mayapan, Yucatan, Mexico*, by H. E. D. Pollock, Ralph L. Roys, Tatiana Proskouriakoff, and A. Ledyard Smith, pp. 403-405. Carnegie Institution of Washington Publication 619. Washington, D.C.
1965 Garments and Textiles of the Maya Lowlands. In *Handbook of Middle American Indians*, Vol. 3, edited by Gordon R. Willey, pp. 581-593. General editor, Robert Wauchop. University of Texas Press, Austin.
- MAKEMSON, MAUDE WORCESTER
1951 *The Book of the Jaguar Priest*. Henry Schuman, New York.
- MALER, TEOBERT
1901-03 *Researches in the Central Portion of the Usumatsintla Valley*. Memoirs of the Peabody Museum of American Archaeology and Ethnology 2. Harvard University, Cambridge.
- MALMSTROM, VINCENT H.
1973 Origin of the Mesoamerican 260-day Calendar. *Science* 181:939-941.
1978 A Reconstruction of the Chronology of Mesoamerican Calendrical Systems. *Journal for the History of Astronomy* 9:105-116. Science History Publications, Chalfont, Bucks, England.
- MARCUS, JOYCE
1973 Territorial Organization of the Lowland Classic Maya. *Science* 180:911-916.
1976a *Emblem and State in the Classic Maya Lowlands: An Epigraphic Approach to Territorial Organization*. Dumbarton Oaks, Washington, D.C.
1976b The Origins of Mesoamerican Writing. *Annual Review of Anthropology* 5:35-67.
- MARKHAM, CLEMENTS R. (editor)
1970 *The Hawkins's Voyages During the Reigns of Henry VIII, Queen Elizabeth, and James I.* B. Franklin, New York.
- MARTÍNEZ HERNÁNDEZ, JUAN
1926 Crónica de Maní. *Boletín de la Universidad Nacional del Sureste, Julio a Diciembre*: 160-169. Merida.
1927 *Crónicas Mayas*. Carlos R. Menéndez. Merida.
1929 *Diccionario de Motul*. Atribuido a Fray Antonio de Ciudad Real. Merida.
1940 *Crónicas Mayas*. Second edition. Carlos R. Menéndez. Merida.
- MASON, ALDEN, and G. B. GORDON
1925-28, 1943 *Examples of Maya Pottery in the Museum and Other Collections*. The University Museum, University of Pennsylvania, Philadelphia.
- MASTACHE DE ESCOBAR, ALBA GUADALUPE
1971 *Técnicas Prehispánicas del Tejido*. Serie Investigaciones 20. Instituto Nacional de Antropología e Historia, Mexico.
1974 Textiles from the Cueva de la Media Luna, Chiapas, Mexico. Preliminary Report, pp. 142-147. *Archaeological Textiles; Irene Emory Round Table on Museum Textiles, 1974 Proceedings*. The Textile Museum, Washington, D.C.
- MATHENY, RAY
1978 Northern Maya Lowland Water-Control Systems. In *Prehispanic Maya Agriculture*, edited by Peter D.

- Harrison and B. L. Turner, pp. 185-210. University of New Mexico Press, Albuquerque.
- MATHEWS, PETER
- 1977 The Inscription on the Back of Stela 8, Dos Pilas. Paper presented at Yale University.
- 1980 Notes on the Dynastic Sequence of Bonampak, Part I. In *Third Palenque Round Table, 1978, Part 2*, edited by Merle Greene Robertson, pp. 60-73. University of Texas Press, Austin.
- MATHEWS, PETER, and LINDA SCHELE
- 1974 Lords of Palenque – The Glyphic Evidence. In *Primera Mesa Redonda de Palenque, Part I*, edited by Merle Greene Robertson, pp. 63-75. Robert Louis Stevenson School, Pebble Beach, California.
- MATOS MOCTEZUMA, EDUARDO
- 1982 Symbolism of the Templo Mayor. In *Aztec Mexico: Discovery of Templo Mayor*, edited by Emily Umberger. Direccion General de Asuntos Culturales, S.R.E., Mexico.
- MATTHEWS, GEORGE TENNYSON
- 1959 *News and Rumor in Renaissance Europe: the Fugger Newsletters*. Capricorn Books, New York.
- MAUDSLAY, ALFRED P.
- 1889- *Biologia Centrali-Americana; Archaeology*. 5 vols.
- 1902 Edited by F. Ducane Godman and O. Salvin. R. H. Porter and Dulau and Company. London.
- 1896- *Biologia Centrali-Americana; Archaeology*, Vol. 4,
- 1902 Text. R. H. Porter and Dulau and Company, London.
- MAYER, KARL H.
- 1978 *Maya Monuments: Sculptures of Unknown Provenance in Europe*. Acoma Books, Ramona, California.
- 1980 *Maya Monuments: Sculptures of Unknown Provenance in the United States*. Acoma Books, Ramona, California.
- McARTHUR, H.
- 1979 The Role of the Ancestors in the Daily Life of the Aguacatec (Maya). Paper presented at the 18th International Congress of Americanists, Vancouver.
- MEDIZ BOLIO, ANTONIO
- 1930 *Libro de Chilam Balam de Chumayel*. San Jose, Costa Rica.
- 1952 *Libro de Chilam Balam de Chumayel*. Second edition. Universidad Nacional Autónoma de Mexico, México.
- MENDOZA, JUAN GONZALES DE
- 1970 *The History of the Great and Mighty Kingdom of China and the Situation Thereof*, Vol. 2, edited by George T. Staunton. B. Franklin, New York.
- MERRILL, ROBERT H.
- 1945 Maya Sun Calendar Dictum Disproved. *American Antiquity* 10:307-311.
- MICHELON, OSCAR (editor)
- 1976 *Diccionario de San Francisco*. Akademische Druck-u. Verlagsanstalt. Graz.
- MILBRATH, SUSAN
- 1981 Astronomical Imagery in the Serpent Sequence of the Madrid Codex. In *Archaeoastronomy in the Americas*, edited by Ray A. Williamson, pp. 263-284. Ballena Press Anthropological Papers 22, Los Altos, California.
- MILES, S. W.
- 1957 The Sixteenth-Century Pokom Maya. *Transactions of the American Philosophical Society* 47(4):735-781.
- MILLER, ARTHUR G.
- 1973 *The Mural Painting of Teotihuacan*. Dumbarton Oaks, Washington, D.C.
- 1974 The Iconography of the Painting in the Temple of the Diving God, Tulum, Quintana Roo: The Twisted Cords. In *Mesoamerican Archaeology: New Approaches*, edited by Norman Hammond, pp. 167-186. University of Texas Press, Austin.
- 1981 The Quintana Roo Mural Project. *National Geographic Society Research Reports* 13:443-457.
- 1982 *On the Edge of the Sea, Mural Painting at Tancah-Tulum, Quintana Roo, Mexico*. Dumbarton Oaks, Washington, D.C., Harvard University, Cambridge.
- MILLER JEFFREY
- 1974 Notes on a Stelae Pair Probably from Calakmul, Campeche, Mexico. In *Primera Mesa Redonda de Palenque, Part I*, edited by Merle Greene Robertson, pp. 149-161. Robert Louis Stevenson School, Pebble Beach, California.
- MILLER, MARY
- 1981 *The Murals of Bonampak*. Ph.D. dissertation, Department of Anthropology, Yale University, New Haven.
- MILLER, ROBERT RUSH
- 1966 Geographical Distribution of Central American Fresh Water Fishes. *Copeia* 4:773-802.
- MOLLOY, JOHN P., and WILLIAM L. RATHJE
- 1974 Sexploitation Among the Late Classic Maya. In *Mesoamerican Archaeology: New Approaches*, edited by Norman Hammond, pp. 431-444. University of Texas Press, Austin.
- MORAN, FRAY FRANCISCO
- 1935 *Arte y Diccionario en Lengua Choltil Quiere Decir Lengua de Milperos. Vocabulario en Lengua Choltil*. Facsimile of 1695 manuscript. The Maya Society, Publication 9, Baltimore.
- MORLEY, SYLVANUS G.
- 1935 *Guide Book to the Ruins of Quirigua*. Carnegie Institution of Washington, Supplemental Publication No. 16. Washington, D.C.
- 1937- *The Inscriptions of Peten*. 5 Vols. Carnegie Institution of Washington Publication 437. Washington, D.C.
- 38
- 1970 The Stela Platform at Uxmal, Yucatan, Mexico. *Middle American Research Institute Publication* 26:151-180. Tulane University, New Orleans.
- MORRIS, WALTER F., JR.
- 1979 *A Catalog of Textiles and Folkart of Chiapas, Mexico*. 2 Vols. San Cristobal de Las Casas, Chiapas.
- n.d. a Lagertero Textile Impressions. In *The Figurines of Lagertero*, by Susanna Ekholm and Walter F. Morris, Jr. *Papers of the New World Archaeological Foundation*. Brigham Young University, Provo, in preparation.
- n.d. b The Textile Impressions of the Soconusco Coast Project. A Report to Barbara Voorhies, Project Director, Department of Anthropology, University of California, Santa Barbara.
- n.d. c The Textiles of Pinuela Cave. In Report by John Clark and Walter F. Morris, Jr. *Papers of the New World Archaeological Foundation*. Brigham Young University, Provo, in preparation.
- 1985 Warped Glyphs: A Reading of Maya Textiles. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.
- MOTOLINÍA, TORIBIO DE
- 1951 *Motolinía's History of the Indians of New Spain*.

- Francis Borgia Steck, translator and annotator. Academy of American Franciscan History, Washington, D.C.
- MUNDKUR, BALAJI
1976 The Cult of the Serpent in the Americas: Its Asian Background. *Current Anthropology* 17:429-455.
- MURRAY, JAMES A. H. (editor)
1926 *A New English Dictionary on Historical Principles*, Vol. 10, Part I. Clarendon Press, Oxford.
- MYERS, GEORGE S.
1952 Sharks and Sawfishes in the Amazon. *Copeia* 4:268-269.
- NAVARETTE, CARLOS, y LUIS LUJAN MUÑOZ
1963 Reconocimiento Arqueológico del Sitio de 'Dos Pilas', Petexbatun, Guatemala. *Cuadernos de Antropología* 2. Instituto de Investigaciones Historicas, Universidad de San Carlos, Guatemala.
- NEUENSWANDER, HELEN
1981 Vestiges of Early Maya Time Concepts in a Contemporary Maya (Cubulco Achi) Community. *Estudios de Cultura Maya* 13:125-163.
- NEUGEBAUER, PAUL VICTOR
1938 Tafeln zur Berechnung der jährlichen Auf-und Untergänge der Planeten. *Astronomische Nachrichten*, Bd. 264, Nr. 6331. Kiel.
- NICHOLSON, HENRY B.
1971 Religion in Pre-Hispanic Central Mexico. In *Handbook of Middle American Indians*, Vol. 10, edited by Gordon F. Ekholm and Ignacio Bernal, pp. 395-446. General editor, Robert Wauchope. University of Texas Press, Austin.
- NICHOLSON, IRENE
1959 *Firefly in the Night, A Study of Ancient Mexican Poetry and Symbolism*. Faber and Faber, London.
1967 *Mexicanische Mythologie*. Wiesbaden. Also published as *Mexican and Central American Mythology*, Hamlyn, London.
- NUTTALL, ZELIA
1928 Nouvelles Lumières sur les Civilisations Américaines et le Système du Calendrier. Proceedings of the 22nd International Congress of Americanists I:119-148. Rome.
- OAKES, MAUD
1951 *The Two Crosses of Todos Santos: Survivals of Mayan Religious Ritual*. Princeton University Press, Princeton.
- O'NEALE, LILA
1942 *Early Textiles from Chiapas, Mexico*. Middle American Research Records 1(1). Tulane University, New Orleans.
- ONIONS, C. T. (editor)
1966 *The Oxford Dictionary of English Etymology*. Clarendon Press, Oxford.
- OPPOLZER, THEODOR RITTER VON
1962 *Canon of Eclipses*. Translated by Owen Gingerich. Dover Publications, New York. Originally published in 1887 (*Canon der Finsternisse*) as Vol. 52 of the Memoirs of the Imperial Academy of Science, Vienna.
- PALMA y PALMA, EULOGIO
1901 *Los Mayas*, Justo Sierra. Motul.
- PALMER, A. SMYTHE
1890 *Folk-etymology*. Henry Holt, New York.
- PANG, HILDA DELGADO
1976 Similarities Between Certain Early Spanish, Contemporary Spanish Folk and Mesoamerican Textile Design Motifs. In *Ethnographic Textiles of the Western Hemisphere: Irene Emory Round Table on Museum Textiles, 1976 Proceedings*, pp. 388-404. The Textile Museum, Washington, D.C.
- PARSONS, LEE
1980 *Pre-Columbian Art: The Morton D. May and The St. Louis Art Museum Collections*. Harper and Row, New York.
- PARTRIDGE, ERIC
1983 *Origins: a Short Etymological Dictionary of Modern English*. Greenwich House, New York.
- PASZTORY, ESTHER
1974 *The Iconography of the Teotihuacan Tlaloc*. Studies in Pre-Columbian Art and Archaeology 15. Dumbarton Oaks, Washington, D.C.
- PENDERGAST, DAVID M.
1981 Lamanai, Belize: Summary of Excavation Results, 1974-80. *Journal of Field Archaeology* 8(1):29-53.
1982 *Excavations at Altun Ha, Belize, 1964-70, Vol. 2*. Royal Ontario Museum, Toronto.
- PETERSON, KATHERINE K.
1979 Observations on the Ik Windows at Palenque. Unpublished manuscript. Department of Anthropology, University of California, Berkeley.
- PIÑA CHAN, ROMÁN
1970 The Archaeological Section. In *The Mexican National Museum of Anthropology*, by Ignacio Bernal, Román Piña Chan, and Fernando Cámara Barbachano, pp. 14-173 (revised edition). Thames and Hudson, London.
- PLOG, STEVEN
1980 *Stylistic Variation in Prehistoric Ceramics: Design Analysis in the American Southwest*. Cambridge University Press, New York.
- POHL, MARY
1981 Ritual Continuity and Transformation in Mesoamerica; Reconstructing the Ancient Cuch Ritual. *American Antiquity* 46:513-529.
- POHL, MARY, and JOHN POHL
1983 Ancient Maya Cave Rituals. *Archaeology* 36(3):28-32.
- PO'OT YAH, ELEUTERIO, and VICTORIA BRICKER
1981 Yucatec Maya Verbs (Hocaba Dialect). Grammatical Introduction by Victoria Bricker. *Latin American Studies Curriculum Aids*. Tulane University, New Orleans.
- PROSKOURIAKOFF, TATIANA
1950 *A Study of Classic Maya Sculpture*. Carnegie Institution of Washington Publication 593. Washington, D.C.
1960 Historical Implications of a Pattern of Dates at Piedras Negras, Guatemala. *American Antiquity* 25:454-475.
1961a Portraits of Women in Maya Art. In *Essays in Pre-Columbian Art and Archaeology*, by Samuel K. Lothrop, and others, pp. 81-99. Harvard University Press, Cambridge.
1961b The Lords of the Maya Realm. *Expedition* 4(1):14-21.
1962 Civic and Religious Structures of Mayapan. In *Mayapan, Yucatan, Mexico*, edited by H. E. D. Pollock, Ralph L. Roys, Tatiana Proskouriakoff, and A.

- Ledyard Smith, pp. 86-140. Carnegie Institution of Washington Publication 619. Washington, D.C.
- 1963 Historical Data in the Inscriptions of Yaxchilan, Part I. *Estudios de Cultura Maya* 3:149-167.
- 1964 Historical Data in the Inscriptions of Yaxchilan, Part II. *Estudios de Cultura Maya* 4:177-201.
- 1974 *Jades from the Cenote of Sacrifice*. Memoirs of the Peabody Museum of Archaeology and Ethnology 10(1). Harvard University Press, Cambridge.
- PULESTON, DENNIS E.
- 1974 Intersite Areas in the Vicinity of Tikal and Uaxactun. In *Mesoamerican Archaeology: New Approaches*, edited by Norman Hammond, pp. 303-311. University of Texas Press, Austin.
- 1976 The People of the Cayman/Crocodile: Riparian Agriculture and the Origins of Aquatic Motifs in Ancient Maya Iconography. In *Aspects of Ancient Maya Civilization*, edited by Francois de Montequin, pp. 1-26. Hamline University, St. Paul.
- 1977 The Art and Archaeology of Hydraulic Agriculture in the Maya Lowlands. In *Social Process in Maya Prehistory*, edited by Norman Hammond, pp. 449-467. Academic Press, London.
- QUIRARTE, JACINTO
- 1976 The Relationship of Izapan-Style Art to Olmec and Maya Art: A Review. In *Origins of Religious Art and Iconography in Preclassic Mesoamerica*, edited by Henry B. Nicholson, pp. 73-86. UCLA Latin American Center Publications, Los Angeles.
- 1979 The Representation of Underworld Processions in Maya Vase Painting: An Iconographic Study. In *Maya Archaeology and Ethnohistory*, edited by Norman Hammond and Gordon R. Willey, pp. 116-148. University of Texas Press, Austin.
- R., C.
- 1569 *The True Discription of This Marueilous Straunge Fishe, Whiche Was Taken on Thursday Wassennight, the XVI Day of June, This Present Month, in the Yeare of Our Lord God MDLXIX*. London.
- RANDS, ROBERT L.
- 1953 The Water Lily in Maya Art: A Complex of Alleged Asiatic Origin. *Bureau of American Ethnology Bulletin* 151:75-153. Washington, D.C.
- 1955 Some Manifestations of Water in Mesoamerican Art. *Bureau of American Ethnology Bulletin* 157:265-393. Washington, D.C.
- RECINOS, ADRIÁN, DELIA GOETZ, and SYLVANUS G. MORLEY
- 1950 *Popul Vuh: The Sacred Book of the Ancient Quiché Maya*. University of Oklahoma Press, Norman.
- REDFIELD, ROBERT, and ALFONSO VILLA R.
- 1934 *Chan Kom, A Maya Village*. Carnegie Institution of Washington Publication 448. Washington, D.C.
- REENTS, DORIE J., and JOHN R. SOSA
- 1980 Glyphic Evidence for Classic Maya Militarism. *Belizean Studies* 8(3):2-11.
- REIFLER, ERWIN
- n.d. A Comparative History of Metrology. Compiled by H. J. Griffin. Unpublished manuscript.
- RICE, DON S.
- 1982 The Peten Postclassic: A Settlement Perspective. Paper prepared for the School of American Research Advanced Seminar publication, *Late Lowland Maya Civilization: Classic to Postclassic*, edited by Jeremy A. Sabloff and E. W. Andrews V. University of New Mexico Press, Albuquerque, in press.
- RICE, PRUDENCE M.
- 1979 The Ceramic and Non-ceramic Artifacts of Yaxha-Sacnab, El Peten, Guatemala. Part I – The Ceramics: Section B, Postclassic Pottery from Topoxte. *Ceramica de Cultura Maya* 11:1-85.
- 1982 The Peten Postclassic: Perspectives from the Central Peten Lakes. Paper prepared for the School of American Research Advanced Seminar publication, *Late Lowland Maya Civilization: Classic to Postclassic*, edited by Jeremy A. Sabloff and E. W. Andrews V. University of New Mexico Press, Albuquerque, in press.
- 1983a Serpents and Styles in Peten Postclassic Pottery. *American Anthropologist* 85:866-880.
- 1983b Reptiles and Rulership in the Peten Postclassic. Paper presented at the Annual Meeting of the American Anthropological Association, Chicago.
- 1984 The Ceramics of Negroman-Tipu: A Preliminary Overview. Paper presented at the Annual Meeting of the Northwestern Anthropological Association, Hartford, Connecticut.
- RIESE, FRAUKE JOHANNA
- 1981 Indianische Landrechte in Yukatan um die Mitte des 16. Jahrhunderts. *Beiträge zur Mittelamerikanischen Völkerkunde* 16. Hamburgisches Museum für Völkerkunde, Hamburg.
- RINGLE, WILLIAM, and THOMAS SMITH-STARK
- n.d. a A Computer Concordance to the Inscriptions of Palenque. Manuscript, in preparation. Tulane University, New Orleans.
- n.d. b Computational Approaches to Decipherment. Manuscript, in preparation. Tulane University, New Orleans.
- ROBERTSON, DONALD
- 1970 The Tulum Murals: The International Style of the Late Postclassic. *Verhandlungen des 38th Internationalen Amerikanistenkongresses* 2:77-88.
- ROBERTSON, MERLE GREENE
- see Greene Robertson, Merle.
- ROBICSEK, FRANCIS
- 1975 *A Study in Maya Art and History: The Mat Symbol*. The Museum of the American Indian, Heye Foundation, New York.
- 1978 *The Smoking Gods: Tobacco in Maya Art, History, and Religion*. University of Oklahoma Press, Norman.
- ROBICSEK, FRANCIS, and DONALD M. HALES
- 1981 *The Maya Book of the Dead. The Ceramic Codex*. University of Virginia Art Museum, Charlottesville.
- 1982 *Maya Ceramic Vases from the Late Classic Period: The November Collection of Maya Ceramics*. University of Virginia Art Museum, Charlottesville.
- ROYS, LAWRENCE
- 1934 The Engineering Knowledge of the Maya. *Contributions to American Archaeology* 6. Carnegie Institution of Washington Publication 436. Washington, D.C.
- ROYS, RALPH L.
- 1931 *The Ethno-Botany of the Maya*. Middle American Research Series Publication 2. Tulane University, New Orleans.
- 1933 *The Book of Chilam Balam of Chumayel*. Carnegie Institution of Washington Publication 438.

- Washington, D.C.
- 1949 The Prophecies for the Maya Tuns or Years in the Books of Chilam Balam of Tizimin and Mani. In *Carnegie Institution of Washington Publication* 585:157-186. Washington, D.C.
- 1965 *Ritual of the Bacabs*. University of Oklahoma Press, Norman.
- 1967 *The Book of Chilam Balam of Chumayel*. Second edition. University of Oklahoma Press, Norman.
- RUPPERT, KARL, and JOHN H. DENISON
- 1943 *Archaeological Reconnaissance in Campeche, Quintana Roo, and Peten*. Carnegie Institution of Washington Publication 543. Washington, D.C.
- RUZ LHUILLER, ALBERTO
- 1958 Exploraciones Arqueologicas en Palenque 1955. *Anales del Instituto Nacional de Antropologia e Historia* 10(39):185-240. Mexico City. Mexico.
- SABLOFF, JEREMY A.
- 1973 Continuity and Disruption During Terminal Late Classic Times at Seibal: Ceramic and Other Evidence. In *The Classic Maya Collapse*, edited by T.P. Culbert, pp. 107-131. University of New Mexico Press, Albuquerque.
- 1975 Ceramics. *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs of the Peabody Museum of Archaeology and Ethnology 13(2). Harvard University, Cambridge.
- SABLOFF, JEREMY A., and GORDON R. WILLEY
- 1967 The Collapse of Maya Civilization in the Southern Lowlands: A Consideration of History and Process. *Southwestern Journal of Anthropology* 23(4):311-336.
- SABLOFF, JEREMY A., RONALD L. BISHOP, GARMAN HARBOTTLE, ROBERT L. RANDS, and EDWARD V. SAYRE
- 1982 Analysis of Fine Paste Ceramics. *Excavations at Seibal, Guatemala*, edited by Jeremy A. Sabloff. Memoirs of the Peabody Museum of Archaeology and Ethnology 15(2). Harvard University, Cambridge.
- SAHAGÚN, FRAY BERNARDINO DE
- 1950-69 *Florentine Codex. General History of the Things of New Spain*. Edited by Arthur J. O. Anderson and Charles E. Dibble. Twelve volumes. The School of American Research and the University of Utah. Santa Fe.
- SAHLINS, MARSHALL
- 1976 Colors and Cultures. *Semiotica* 16:1-22.
- SANDERS, WILLIAM
- 1960 Prehistoric Ceramics and Settlement Pattern in Quintana Roo, Mexico. In *Carnegie Institution of Washington Publication* 606:155-264.
- SARTOR, MARIO
- 1981 La città e la conquista: Mappe e documenti sulla trasformazione urbana e territoriale nell' America centrale del 500. Casa del Libro Editrice, Rome.
- SATTERTHWAITE, LINTON
- 1964 Dates in a New Maya Hieroglyphic Text as Katun-Baktun Anniversaries. *Estudios de Cultura Maya* 4:203-222.
- 1965 Calendrics of the Maya Lowlands. In *Handbook of Middle American Indians*, vol. 3, edited by Gordon R. Willey, pp. 603-631. General editor, Robert Wauchope. University of Texas Press, Austin.
- SCHÁVELZON, DANIEL
- 1980 Temples, Caves, or Monsters? Notes on Zoomorphic Façades in Pre-Hispanic Architecture. In *Third Palenque Round Table, 1978, Part 2*, edited by Merle Greene Robertson, pp. 151-162. University of Texas Press, Austin.
- SCHELE, LINDA
- 1974 The Attribution of Monumental Architecture to Specific Rulers at Palenque. Paper presented at the 41st International Congress of Americanists, Mexico City.
- 1976 Accession Iconography of Chan-Bahlum in the Group of the Cross at Palenque. In *The Art, Iconography & Dynastic History of Palenque, Part III* (Segunda Mesa Redonda de Palenque), edited by Merle Greene Robertson, pp. 9-34. Robert Louis Stevenson School, Pebble Beach.
- 1978 *Notebook for the Maya Hieroglyphic Writing Workshop at Texas*. Institute of Latin American Studies, The University of Texas, Austin.
- 1979a Genealogical Documentation on the Tri-figure Panels at Palenque. In *Tercera Mesa Redonda de Palenque, 1978, Part 1*, edited by Merle Greene Robertson and Donnan Call Jeffers, pp. 41-70. Pre-Columbian Art Research, Monterey, California.
- 1979b The Puleston Hypothesis: The Water Lily Complex in Classic Maya Art and Writing. Paper presented at Princeton University.
- 1982 *Maya Glyphs: The Verbs*. University of Texas Press, Austin.
- 1984 Human Sacrifice Among the Classic Maya. In *Ritual Human Sacrifice in Mesoamerica*, edited by Elizabeth H. Boone, pp. 7-48. Dumbarton Oaks, Washington, D.C.
- SCHELE, LINDA, and JEFFREY H. MILLER
- 1983 *The Mirror, the Rabbit, and the Bundle: "Accession" Expressions from the Classic Maya Inscriptions*. Studies in Pre-Columbian Art and Archaeology 25. Dumbarton Oaks, Washington, D.C.
- SCHELE, LINDA, and PETER MATHEWS
- 1979 *The Bodega of Palenque, Chiapas, Mexico*. Dumbarton Oaks, Washington, D.C.
- SCHELE, LINDA, PETER MATHEWS, and FLOYD G. LOUNSBURY
- 1977 Parentage Statements in Classic Maya Inscriptions. Paper presented at the International Conference on Maya Iconography and Hieroglyphic Writing, Guatemala City.
- SCHELLHAS, PAUL
- 1897 *Die Göttergestalten der Mayahandschriften: Ein mythologisches Kulturbild aus dem alten Amerika*. Verlag von Richard Bertling, Dresden.
- 1904a Comparative Studies in the Field of Maya Antiquities. *Bureau of American Ethnology Bulletin* 28:591-622. Washington, D.C.
- 1904b *Representation of Deities of the Maya Manuscripts*. Papers of the Peabody Museum of American Archaeology and Ethnology 4(1). Harvard University, Cambridge.
- SCHOLES, FRANCE V., and RALPH L. ROYS
- 1968 *The Maya Chontal Indians of Acalan-Tixchel: a Contribution to the History and Ethnography of the Yucatan Peninsula*. University of Oklahoma Press, Norman.
- SCHRAM, ROBERT

- 1908 *Kalendariographische und Chronologische Tafeln*. J. C. Hinrichs, Leipzig.
- SCHULTZE JENA, LEONARD
- 1954 La vida y las creencias de los indigenas Quiches de Guatemala. *Biblioteca Cultura Popular* 49. Ministerio de Educacion Publica, Guatemala.
- SCHWARTZ, FRANK J.
- 1960 Additional Comments on Adult Bull Sharks *Carcharhinus leucas* (Müller and Henle), from Chesapeake Bay, Maryland. *Chesapeake Science* 1:68-71.
- SEJOURNE, LAURETTE
- 1970 *Arqueología del Valle de Mexico, I. Culhuacan*. Instituto Nacional de Antropología e Historia, Mexico.
- SELER, EDUARD
- 1887 Ueber die Namen der in der Dresdener Handschrift abgebildeten Maya Gotter. *Zeitschrift für Ethnologie* 19:224-231; 1:367-389.
- 1902-23 *Gesammelte Abhandlungen zur Amerikanischen Sprach- und Alterthumskunde*. 5 vols. (1908: *Die Ruinen von Chichen Itza in Yucatan*, Vol. 5.) A. Asher and Co., Berlin.
- 1963 *Commentarios al Codice Borgia*. Fondo de Cultura Economica, Mexico.
- 1976 *Observations and Studies in the Ruins of Palenque, 1915*, translated by Gisela Morgner and edited by Thomas Bartman and George Kubler. Robert Louis Stevenson School, Pebble Beach.
- SEVERIN, GREGORY M.
- 1981 *The Paris Codex: Decoding an Astronomical Ephemeris*. Transactions of the American Philosophical Society 71(5). Philadelphia.
- SHARER, ROBERT J.
- 1985 Terminal Classic Events in the Southeastern Lowlands: A View from Quirigua. In *The Lowland Maya Postclassic: Questions and Answers*, edited by Arlen F. Chase and Prudence M. Rice. University of Texas Press, Austin.
- SHIPLEY, JOSEPH T.
- 1945 *Dictionary of Word Origins*. Philosophical Library, New York.
- SHOOK, EDWIN M.
- 1965 Archaeological Survey of the Pacific Coast of Guatemala. In *Handbook of Middle American Indians*, Vol. 2, edited by Gordon R. Willey, pp. 180-194. General editor, Robert Wauchope. University of Texas Press, Austin.
- SIDRYS, RAYMOND
- 1976 *Mesoamerica: An Archaeological Analysis of Low-Energy Civilization*. Ph.D. dissertation, University of California, Los Angeles. University Microfilms International, Ann Arbor.
- SILVEIRA BUENO, FRANCISCO DA (editor)
- 1967 *Grande Dicionario Etimológico-Prosódico de Lingua Portuguesa*, Vol. 8. Sao Paulo.
- SMAILUS, ORTWIN
- 1975 *El Maya-Chontal de Acalán: Analisis Lingüístico de un Documento de los Años 1610-12*. Centro de Estudios Mayas Cuaderno 9. Universidad Nacional Autónoma de Mexico, Mexico.
- SMITH, AUGUSTUS LEDYARD
- 1950 *Uaxactun, Guatemala; Excavations of 1931-37*. Carnegie Institution of Washington Publication 588. Washington, D.C.
- 1982 Major Architecture and Caches. *Excavations at Seibal*. Memoirs of the Peabody Museum of Archaeology and Ethnology 15(1). Harvard University, Cambridge.
- SMITH, AUGUSTUS LEDYARD, and A. V. KIDDER
- 1951 *Excavations at Nebaj, Guatemala*. Carnegie Institution of Washington Publication 594. Washington D.C.
- SMITH, AUGUSTUS LEDYARD, and KARL RUPPERT
- 1956 Excavations in Housemounds at Mayapan: IV. *Carnegie Institution of Washington, Department of Archaeology, Current Reports* 36:471-527. Washington, D.C.
- SMITH, HOMES W.
- 1936 The Retention and Physiological Role of Urea in the Elasmobranchii. *Biological Reviews* 11:49-82.
- SMITH, ROBERT E.
- 1952 *Pottery from Chipoc, Alta Verapaz, Guatemala*. Carnegie Institution of Washington Publication 596. Washington, D.C.
- 1955 *Ceramic Sequence at Uaxactun, Guatemala*. 2 vols. Middle American Research Institute Publication 20. Tulane University, New Orleans.
- 1957 Tohil Plumbate and Classic Maya Polychrome Vessels in the Marquez Collection. *Notes on Middle American Archaeology and Ethnology* 124. Carnegie Institution of Washington, Washington, D.C.
- 1971 *The Pottery of Mayapan*. Papers of the Peabody Museum of Archaeology and Ethnology 66. Harvard University, Cambridge.
- SMITH, ROBERT E., and JAMES GIFFORD
- 1965 Pottery of the Maya Lowlands. In *Handbook of Middle American Indians*, Vol. 2, Part 1, edited by Gordon R. Willey, pp. 498-534. General editor, Robert Wauchope. University of Texas Press, Austin.
- SOLÍS ALCALÁ, ERMILO
- 1949 *Códice Pérez*. Oriente, Merida.
- SOTHEBY PARK BERNET, INC.
- 1982 *Catalogue, Sale 4889Y, Fine Pre-Columbian Art*. New York.
- SPINDEN, HERBERT JOSEPH
- 1913 *A Study of Maya Art: Its Subject Matter and Historical Development*. Memoirs of the Peabody Museum of American Archaeology and Ethnology 6. Harvard University, Cambridge. Reprinted in 1975 by Dover Publications, New York.
- 1930 Maya Dates and What They Reveal. *Science Bulletin* 4(1). Museum of the Brooklyn Institute of Arts and Sciences, Brooklyn.
- SPORES, RONALD
- 1974 Marital Alliance in the Political Integration of Mixtec Kingdoms. *American Anthropologist* 76:279-311.
- SQUIER, EPHRAIM G.
- 1852 *Nicaragua: Its People, Scenery, Monuments, and the Proposed Interoceanic Canal*, Vol. 1. Appleton, New York.
- STAHLMAN, WILLIAM D., and OWEN GINGERICH
- 1963 *Solar and Planetary Longitudes for Years - 2500 to + 2000 by Ten-Day Intervals*. University of Wisconsin Press, Madison.
- STEGGERDA, MORRIS
- 1941 *Maya Indians of Yucatan*. Carnegie Institution of Washington Publication 531. Washington, D.C.
- STEPHENS, JOHN LLOYD

- 1841 *Incidents of Travel in Central America, Chiapas and Yucatan*. 2 vols. Harper and Brothers, New York. Reprinted in 1969 by Dover Publications, New York.
- 1843 *Incidents of Travel in Yucatan*. 2 vols. Harper and Brothers, New York. Reprinted in 1961 by Dover Publications, New York.
- STIRLING, MATTHEW W.
1943 *Stone Monuments of Southern Mexico*. Bureau of American Ethnology Bulletin 138. Smithsonian Institution, Washington, D.C.
- STONE, ANDREA
1983 *The Zoomorphs of Quirigua, Guatemala* Ph.D. dissertation, Department of Art History, The University of Texas, Austin.
- STONE, ANDREA, DORIE REENTS, and ROBERT COFFMAN
1985 Genealogical Documentation of the Middle Classic Dynasty of Caracol, El Cayo, Belize. In *Fourth Palenque Round Table, 1980*, edited by Elizabeth P. Benson. Pre-Columbian Art Research Institute, San Francisco.
- STUART, DAVID
1982 The Iconography of Blood in the Symbolism of Maya Rulership. Paper presented at the Princeton Conference on the Beginnings of Maya Iconography.
- TATE, CAROLYN
1980 *The Maya Cauac Monster: Visual Evidence for Ancestor Veneration Among the Ancient Maya*. Masters' thesis, Department of Art History, The University of Texas, Austin.
- 1982 The Maya Cauac Monster's Formal Development and Dynastic Contexts. In *Pre-Columbian Art History: Selected Readings*, edited by Alana Cordy-Collins, pp. 33-54. Peek Publications, Palo Alto.
- TAUBE, KARL
1981 Classic Maya Scaffold Sacrifice: A Ceremony of Field and State. Manuscript.
- TEDLOCK, BARBARA
1982 *Time and the Highland Maya*. University of New Mexico Press, Albuquerque.
- n.d. Earth Rites and Moon Cycles: Mayan Synodic and Sidereal Lunar Reckoning. In *Ethnoastronomy: Indigenous Astronomical and Cosmological Traditions in the World*, edited by John B. Carlson and Von Del Chamberlain. Smithsonian Institution Press, in preparation.
- TESOROS MAYAS DE GUATEMALA
1974 Exposición Museo Nacional de Arqueología y Etnología de Guatemala. Guatemala City.
- THOMAS, CYRUS
1882 A Study of the Manuscript Troano. *U.S. Department of the Interior: Contributions to North American Ethnology* 5:1-237. Washington, D.C.
- 1888 Aids to the Study of the Maya Codices. *Sixth Annual Report of the Bureau of American Ethnology (1884-85)*, pp. 253-371. Washington, D.C.
- THOMERSON, JAMIE E., THOMAS B. THORSON, and RONALD L. HEMPEL
1977 The Bull Shark, *Carcharhinus leucas*, from the Upper Mississippi River Near Alton, Illinois. *Copeia* 1:166-168.
- THOMPSON, J. ERIC S.
1934 *Sky Bearers, Colors and Directions in Maya and Mexican Religion*. Carnegie Institution of Washington Publication 436, Contribution 10. Washington, D.C.
- 1935 *Maya Chronology: The Correlation Question*. Carnegie Institution of Washington Publication 456, Contribution 14. Washington, D.C.
- 1937 *A New Method of Deciphering Yucatecan Dates With Special Reference to Chichen Itza*. Carnegie Institution of Washington Publication 483, Contribution 22. Washington, D.C.
- 1938 Sixteenth and Seventeenth Century Reports on the Chol Mayas. *American Anthropologist* 40(4):584-604.
- 1944 The Fish as a Maya Symbol for Counting and Further Discussion of Directional Glyphs. *Theoretical Approaches to Problems* 2. Carnegie Institution of Washington, Washington, D.C.
- 1950 *Maya Hieroglyphic Writing: An Introduction*. Carnegie Institution of Washington Publication 589. Washington, D.C. Second and third editions published in 1960 and 1971 by the University of Oklahoma Press, Norman.
- 1954 A Presumed Residence of the Nobility of Mayapan. *Carnegie Institution of Washington, Department of Archaeology, Current Reports* 19:71-87. Washington, D.C.
- 1957 Deities Portrayed on Censers at Mayapan. *Carnegie Institution of Washington, Department of Archaeology, Current Reports* 40.
- 1962 *A Catalog of Maya Hieroglyphs*. University of Oklahoma Press, Norman.
- 1965 Maya Hieroglyphic Writing. In *Handbook of Middle American Indians*, Vol. 3, edited by Gordon R. Willey, pp. 632-658. General editor, Robert Wauchope. University of Texas Press, Austin.
- 1970a *Maya History and Religion*. University of Oklahoma Press, Norman.
- 1970b The Bacabs: Their Portraits and Glyphs. In *Monographs and Papers in Maya Archaeology*, edited by William R. Bullard, Jr., pp. 469-485. Papers of the Peabody Museum of Archaeology and Ethnology 61. Harvard University Press, Cambridge.
- 1972 *A Commentary on the Dresden Codex*. Memoirs of the American Philosophical Society 93. Philadelphia.
- THOMPSON, STITH
1955- *Motif Index of Folk Literature*. Indiana University 58, 1966 Press, Bloomington.
- THORSON, THOMAS B.
1972 The Status of the Bull Shark, *Carcharhinus leucas*, in the Amazon River. *Copeia* 3:601-605.
- 1976 The Status of the Nicaragua Shark: an Updated Appraisal. In *Investigations of the Ichthyofauna of Nicaraguan Lakes*, edited by Thomas B. Thorson, pp. 561-574. School of Life Sciences, University of Nebraska, Lincoln.
- THORSON, THOMAS B., DONALD E. WATSON, and C. MICHAEL COWAN
1966 The Status of the Fresh Water Shark of Lake Nicaragua. *Copeia* 3:385-402.
- TOWNSEND, RICHARD F.
1982 Malinalco and the Lords of Tenochtitlan. In *The Art and Iconography of Late Post-Classic Central Mexico*, edited by Elizabeth H. Boone, pp. 111-140. Dumbarton Oaks, Washington, D.C.
- TOZZER, ALFRED M.

- 1907 *A Comparative Study of the Mayas and Lacandones*. New York.
- 1941 *Landa's Relación de las Cosa de Yucatan*. Papers of the Peabody Museum of American Archaeology and Ethnology 18. Harvard University Press, Cambridge.
- 1957 *Chichen Itza and Its Cenote of Sacrifice: A Comparative Study of Contemporaneous Maya and Toltec*. Memoirs of the Peabody Museum of Archaeology and Ethnology 11, 12. Harvard University, Cambridge.
- TREATY OF MANI
See *Crónica de Maní*
- TRIK, AUBREY S.
1939 *Temple XXII at Copan*. Carnegie Institution of Washington Publication 509, Contribution 27. Washington, D.C.
- 1963 The Splendid Tomb of Temple I at Tikal, Guatemala. *Expedition* 6(1):2-18.
- TUCKERMAN, BRYANT
1964 *Planetary, Lunar, and Solar Positions, A.D. 2 to A.D. 1649 at Five-Day and Ten-Day Intervals*. Memoirs of the American Philosophical Society 59. Philadelphia.
- TURNER, B. L., II
1974 Prehistoric Intensive Agriculture in the Maya Lowlands. *Science* 185:118-124.
- 1979 Prehispanic Terracing in the Central Maya Lowlands: Problems of Agricultural Intensification. In *Maya Archaeology and Ethnohistory*, edited by Norman Hammond and Gordon R. Willey, pp. 103-115. University of Texas Press, Austin.
- UNWIN, RAYNER
1960 *The Defeat of John Hawkins: a Biography of His Third Slaving Voyage*. Macmillan, New York.
- VALENTINI, PHILIPP J. J.
1879 The Katunes of Maya history. *Proceedings of the American Antiquarian Society* 74:69-117. Worcester.
- VALLADARES, LEON A.
1957 *El Hombre y el Maize: Etnografía y Etnopsicología de Colotenango, Guatemala*. Guatemala City.
- VAN SWIETEN, G.
1976 *Art de Mesoamerique/Meso-Amerikaanse Kunst*. Société Générale de Banque, Bruxelles.
- VELASQUEZ, PRIMO F. (editor and translator)
1945 *Códice Chimalpopoca* (including *Anales de Cuauhtitlan* and *Leyenda de los Soles*). Universidad Nacional Autónoma de México, México.
- VILLA, JAIME
1976 Ichthyology of the Lakes of Nicaragua: Historical Perspective. In *Investigations of the Ichthyofauna of Nicaraguan Lakes*, edited by Thomas B. Thorson, pp. 101-113. School of Life Sciences, University of Nebraska, Lincoln.
- VILLA ROJAS, ALFONSO
1969 Maya Lowlands: The Chontal, Chol, and Kekchi. In *Handbook of Middle American Indians*, Vol. 7, edited by Evon Z. Vogt, pp. 230-243. General editor, Robert Wauchope. University of Texas Press, Austin.
- VILLACORTA C., J. ANTONIO, and CARLOS A. VILLACORTA R.
1930 *Códices Mayas: Dresdensis, Pereseianus, Tro-Cortesianus*. Tipografía Nacional, Guatemala City. (Second edition: 1977).
- VINSON, G. L.
1960 Las Ruinas de Petexbatun. *Antropología e Historia de Guatemala* 12(2):3-9. Instituto de Antropología e Historia de Guatemala.
- VOGT, EVON Z.
1969 *Zinacantan: A Maya Community in the Highlands of Chiapas*. Belknap Press of Harvard University Press, Cambridge.
- 1976 *Tortillas for the Gods: A Symbolic Analysis of Zinacanco Rituals*. Harvard University Press, Cambridge.
- VON EUW, ERIC
see Euw, Eric von
- WAUCHOPE, ROBERT
1970 Protohistoric Pottery of the Guatemalan Highlands. In *Monographs and Papers in Maya Archaeology*, edited by William R. Bullard, Jr., pp. 89-244. Papers of the Peabody Museum of Archaeology and Ethnology 61, Harvard University, Cambridge.
- WEAVER, MURIEL PORTER
1972 *The Aztecs, Maya and Their Predecessors: Archaeology of Mesoamerica*. Seminar Press, New York.
- WEBSTER NOAH
1828 *An American Dictionary of the English Language: Exhibiting the Origin, Orthography, Pronunciation and Definitions of Words*, Vol. 2. Lippincott, Philadelphia.
- WHITNEY, WILLIAM DWIGHT (editor)
1903 *The Century Dictionary and Cyclopedia*, Vol. 8. Century Company, New York.
- WILKINS, JOHN
1668 *An Essay Towards a Real Character, and a Philosophical Language*. London.
- WILLEY, GORDON R., A. LEDYARD SMITH, GAIR TOURELLOT III, and IAN GRAHAM
1975 *Excavations at Seibal*. Memoirs of the Peabody Museum of Archaeology and Ethnology 13(1). Harvard University, Cambridge.
- WILLIAMSON, JAMES A.
1949 *Hawkins of Plymouth*. Adam and Charles Black, London.
- WILLSON, ROBERT W.
1924 *Astronomical Notes on the Maya Codices*. Papers of the Peabody Museum of Archaeology and Ethnology 6(3). Harvard University, Cambridge.
- WINNING, HASSO VON
1961 Teotihuacan Symbols: The Reptile's Eye Glyph. *Ethnos* 26(3):121-166.
- 1963 A Maya 'God N' Effigy Bowl. *Masterkey* 37(2).
- WISDOM, CHARLES
1940 *The Chorti Indians of Guatemala*. University of Chicago Press, Chicago.
- WOBST, H. M.
1977 Stylistic Behavior and Information Exchange. In *For the Director: Research Essays in Honor of James B. Griffin*, edited by Charles E. Cleland, pp. 317-342. Anthropological Papers 61, Museum of Anthropology, University of Michigan, Ann Arbor.
- WONDERLEY, ANTHONY W.
1981 *Late Postclassic Excavations at Naco, Honduras*. Latin American Studies Program Dissertation Series 86. Cornell University, Ithaca, New York.
- WOODBURY, RICHARD, and AUBREY S. TRIK
1953 *The Ruins of Zaculeu, Guatemala*. 2 vols. United Fruit Company, New York.
- WRIGHT, I. A. (editor)
1929 *Spanish Documents Concerning English Voyages to the Caribbean 1527-1568*. Hakluyt Society, London.