MESOAMERICAN WRITING AT THE CROSSROADS: THE LATE FORMATIVE

Brian Stross

ABSTRACT

A general overview of the form and substance of Late Formative writing in Mesoamerica is undertaken here. Recent significant additions to the corpus of Mesoamerican Late Formative script have contributed new information warranting a review of our knowledge of this pivotal time period. Focusing on two of these additions for more detailed observations, analysis of the iconographic context of the script reveals considerable interdependence between text and context and provides a glimpse of the importance of cosmological considerations in the display of power. Maize and stages of maize growth are shown to be of crucial importance to power display as well as to the system of divinatory day names integral to the 260-day ritual cycle. Isthmian script is seen as likely to represent a Mixe-Zoquean language, and a maize-bearing shark is identified on a recently discovered Late Formative stela from Veracruz.

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INTRODUCTION

The Formative Period (1500 B.C.–A.D. 200) witnessed the beginnings of writing in Mesoamerica,[1] and by the end of the Late Formative, (300 B.C.–A.D. 200), writing was represented by at least four related scripts.[2] What remains of these scripts for us to see is inscribed on large stone monuments, and more rarely, scratched out on small portable carved stone figures. The first and westernmost has been called Oaxacan, and focuses on the Oaxaca Valley in the Monte Alban sphere of influence *(figure 1)*. A second script, referred to as Izapan, includes examples from the Soconusco region, such as Abaj Takalik, as well as from the highland Guatemalan site of Kaminaljuyu. A third script, called Isthmian, occurs in the Isthmus of Tehuantepec area, encompassing Chiapa de Corzo to the east and represented by a spectacular stela from La Mojarra to the northwest. The Maya lowlands reference a fourth script found in Late Formative times, one that can be called Mayan and is exemplified by the Hauberg Stela, the provenance of which is unknown but likely to be somewhere in the environs of the lowland Guatemalan site of Tikal or northeast of it near Kohunlich.[3]

OVERVIEW

These four scripts are easily distinguishable both in formal terms and by provenance, but they share significant elements to such a degree that they cannot have developed in isolation from one another; they must have a common ancestor. The shared elements include calendrical information based on essentially the same calendars of 260 and of 365 days; bar-and-dot numerical notation; single-column format, becoming doubled in the Maya region; profile heads facing left when columns are read from left to right (the usual direction); and even specific glyph forms, e.g., quincunx, cross, jaguar, sky bands, earth panel, seated profile figure, comb shape, human digit, human hand, various profile human heads, frontal face, moon-like crescent, pitcher, mountain, tripartite maize element, trident introductory sign, circled dot and several others.

Oaxaca script *(figure 2)*: like the others, this Late Formative script descends from a Middle Formative prototype. The language of the script is unknown, but the fact that bar and dot numerals are postposed to day names instead of preposed suggests a Zapotecan language. The glyphic passages are short (up to half a dozen glyphs) and highly depictive; signs reference dates, place names and a few verbal "event" glyphs.[4]

Izapan script, on Kaminaljuyu Stela 10 *(figure 3)*: this example cannot be dated securely, nor can the language of its script be specified, although Justeson proposes that the language might be Mixean.[5] The large bar-and-dot number "8" associated with an animal head and a large trident shape on this stela might be interpreted as an introductory glyph and a *haab* (365-day year) date or as an introductory glyph and a cycle-8 glyph (representing a count of eight completed cycles of four hundred years each having elapsed since 3114 B.C., when the era began). Several of the glyphs on this stela resemble Maya glyphs while others are more like the Isthmian. The fact that four columns are represented makes it difficult to determine whether the format is single or double column. The placement of numerical bars within the the text, however, suggests a single-column format.

Late Formative Isthmian script, on a recently discovered stela from the site of La Mojarra in Southern Veracruz *(figure 4)*: the text has more than 400 glyphs in all, more than 150 of them different,[6] and when day names and month names are considered, this implies a script with no fewer than 200 glyphs. These glyphs have fewer affixes than do the later Classic Maya glyphs, suggesting primarily logographic signs with less elaboration of phonetic complementation than is found later in Classic Maya writing. While the language of the Isthmian script remains uncertain, language distribution evidence suggests that it may be Zoquean,[7] and a study of iconographic homophony appears to favor Mixean.[8]

This stela has two dates in the upper center that, when referenced to the Maya long count and converted to the Gregorian calendar, according to the 584285 correlation formula, yield May 21, A.D. 143 and July 13, A.D. 156.[9] Time periods elapsed since the era beginning are marked by numbers in a type of place notation, but the periods themselves are not overtly represented. The trident-shaped introductory glyph precedes both long counts, and unlike the Classic Maya format, the *haab* (365-day solar year) date here precedes the *tzolkin* (260-day ritual cycle) date. On the right side of the stela, the

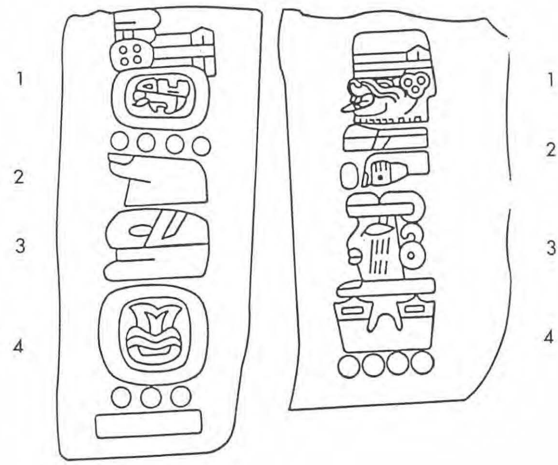


FIGURE 2

Oaxaca script from Stelae 12-13, Monte Alban, Valley of Oaxaca, Mexico. Single-column script here shows bar-and-dot numbers postposed to day names as they would be in a Zapotecan language. Signs reference dates, place names and a few verbal "event" glyphs.
(After Marcus. "The Origins of Mesoamerican Writing," 46.)

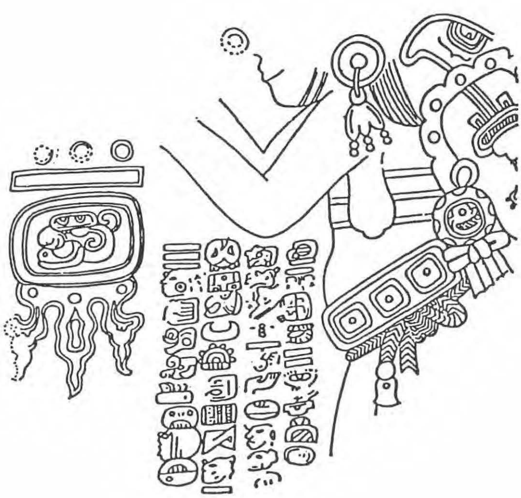


FIGURE 3

Izapan script from Kaminaljuyu Stela 10, Guatemala. This may represent a Cycle 8 date, specifying events relating to that date. Glyphs resembling both Mayan and Isthmian signs are nonetheless not quite identifiable. The placement of bar-and-dot numbers suggests a single-column format, and the image accompanying the glyphic text may represent a ruler.
(After Ayala. "El Origen de la Escritura," 219.)

glyph columns are to be read from left to right, whereas on the left it is precisely the opposite. Of great interest is the fact that the standing figure, which occupies the left half of the stela, has both glyphic and iconographic elements, illustrating that the figure has been reversed, as if one could open out the left side of the stela like the page of a book. This, as much as anything else, suggests that writing was also by this time put on perishable materials such as the deerskin and fig-bark paper later used by Mesoamericans.

The Hauberg Stela *(figure 5)*: more likely than the other three scripts of the Late Formative to reflect a Mayan language, this stela is tentatively dated A.D. 199.[10] Here, the trident-shaped introductory glyph even more closely resembles sprouting maize, and it contains the month patron infix. This is not followed by a long count, as in the Isthmian example, but rather by the month (*haab* date) and information on the presiding Night Lord as well as the lunar cycle. Exactly the opposite of Classic Maya practice, the month (*haab* date, 13 Xul) here precedes the day name (*tzolkin* date, 3 Ahau).

Several of the glyphs on this stela have clear counterparts in Classic Maya script, and at least one attempt has been made to interpret the text, with partial success. Schele concludes that following the date, this Hauberg text records a bloodletting ritual that occurred fifty-two days before an office-taking rite.[11] A single-column text on the left side adopts a two-column format at the bottom of the stela.

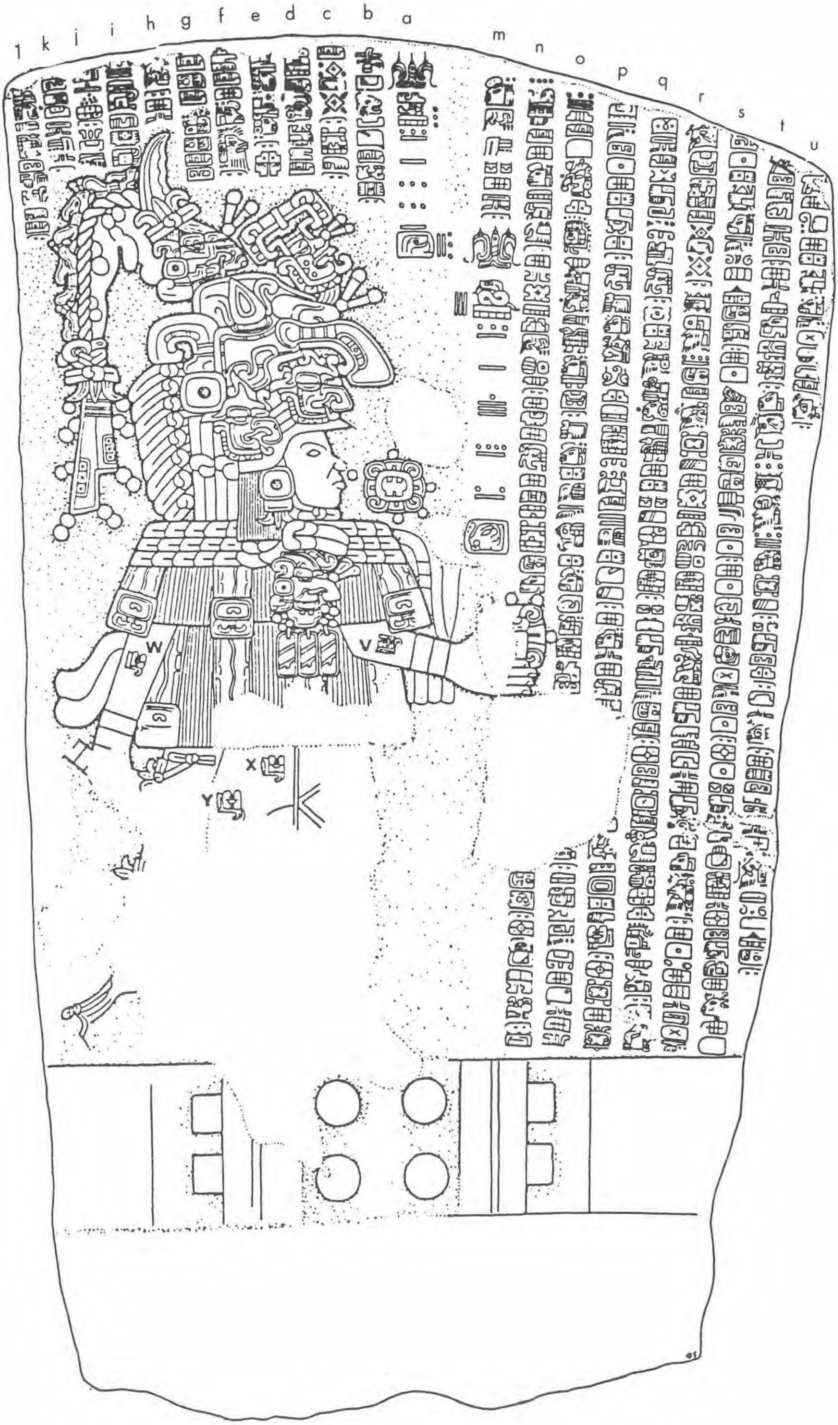
DISCUSSION

Although none of the four Late Formative scripts has yet been successfully deciphered apart from the dates, linguistic studies in Mesoamerica provide some insights concerning their interpretation, just as such studies have aided recent, much more successful efforts towards the continuing decipherment and understanding of the Maya script. In addition to having some ideas about which languages are represented by the scripts, we also know some things, and suspect others, about form and content of the scripts and attendant iconography.

Among other things, we can reflect on the general content of what remains to us of Late Formative script samples in iconographic contexts. It is cosmological information, presented, we infer, as a means of illustrating and justifying the power base of the ruler,[12] employing and augmenting a symbol system native to Mesoamerica that goes back to Early Formative times

FIGURE 4

Isthmian script from La Mojarra Stela 1. More than four hundred glyphs are shown, and two dates occur in the central colum[n]. Both text and image of lef[t] and right sides of the stel[a] are mirror images of one another, as if the left side could open out like the pa[ge] of a book. The ruler depic[ts] himself here as the center [of] the cosmos.
(After Winfield Capitaine. "La Estela 1 de La Mojarra," 7, drawing by George Stuart.)


l k j i h g f e d c b a
m n o p q r s t u
W
V
X
Y

and forward in time to the Classic Maya and beyond.[13]

We can also infer, assisted by our understanding of the Classic Maya script, some of the different discourse genres represented in Late Formative script. Among others, we should expect to encounter examples of: (1) invocation of patron deities and their powers;[14] (2) narrative political history, such as is implied for the La Mojarra Stela 1;[15] (3) commemoration of temporal events, such as the completion of time cycles,[16] the conjunction of planets,[17] important positions in the Venus cycle (such as elongations, heliacal risings, etc.), and so on, although such commemoration may well function also in the context of narrative political history; (4) formulaic (re)creation of the world through script for animating human constructions, with the assistance of caching and sacrificial offerings, and (5) name tagging, a term that refers to the documented Classic Maya practice of attaching a possessive prefix to an object's name (e.g. an earflare) on the object itself, followed by other identifiers such as the names and titles of an individual presumed to be the owner.[18]

FIGURE 5

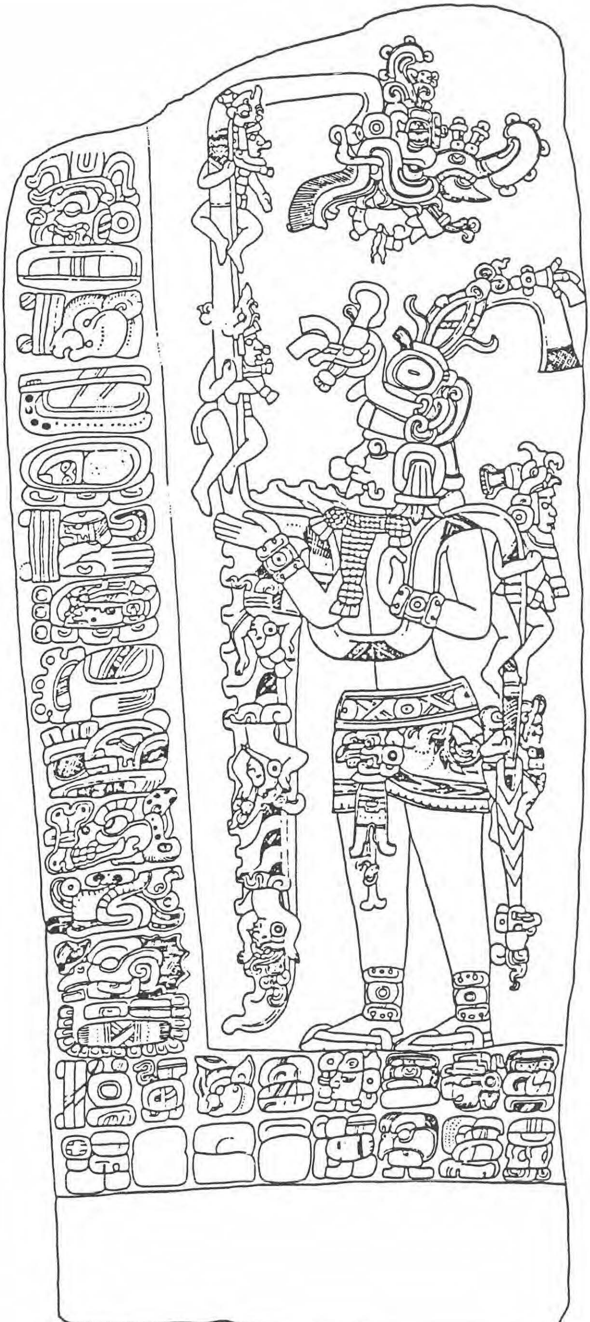
Maya script from the Hauberg Stela. The single-column text referring to a bloodletting ritual gives way to double-column format at the bottom. The ruler depicted is at the center of a cosmos in which maize figures prominently. Maize sprites representing stages in the maize life cycle descend from a sky-serpent/ digging stick and culminate in the ear of maize on the ruler's headdress. (After Schele. "The Hauberg Stela.")

ORIGINS

Justeson has compellingly argued the importance of numeration in the origin of Mesoamerican writing, maintaining that elements from distinct graphic systems are brought together in a meaningful way that results in emergent writing "via juxtaposition of numerals with icons or depictions. This is inconsistent with the interpretive principles of art, where number is depicted by replication, while identification of enumerated items is foreign to a tally system. Language structure does correspond to such juxtaposition, in that numerals and the enumerated are represented by distinct roots or words."[19] He suggests that the association of numerals with independent non-numerical visual symbols occurred in Mesoamerica by way of the names of the 260 days of the ritual calendar.[20] He has identified here an essential mechanism in the origin of writing, activated during the Middle Formative in Mesoamerica.

But we need to consider also the continuing process of systemic change, including refinement, that occurred in both the developing script and in the iconographic symbol system which accompanied it and that both influenced and was influenced by it.

Focusing first on the massive Isthmian Stela 1 from La Mojarra *(figure 4)* and then on the miniature Mayan Hauberg Stela *(figure 5)*, one can see quite clearly the close relationship between the writing and iconography in Late Formative times. Both script and



pictorial context amplify for each other the intertwined themes of maize and human cyclicity, of transformation and power.[21] Underlying the development of writing in Mesoamerica is an enduring effort to control or influence nature as well as humans by ritually recreating the world, its parts and processes, in miniature by the production of icons metaphorically referencing its parts and spatially relating them to one another in what may be called cosmograms. Simply put, writing emerged in Mesoamerica not as a by-product of economic activities but rather as a result of attempts to control nature and to obtain, legitimize and maintain power by means of reproducing the world, first in cosmograms and then later in more specific written form.

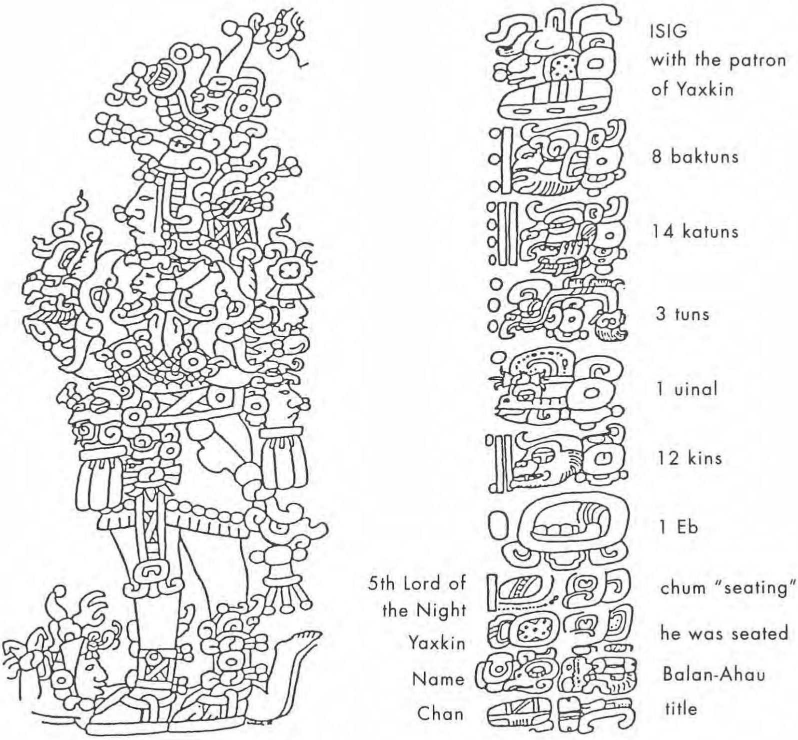
These motives are clearly shown and relatively well understood in the case of the very Early Classic Maya Leiden Plaque, a jade pendant from the Tikal region, with text on one side and picture on the other *(figure 6)*. The text shows the two-column Maya format, following the single-column long count and day glyph (*tzolkin* date), and includes the long count period glyphs. Here, the day name precedes the month name in typical Classic Maya fashion. The Leiden Plaque records the accession of a ruler on September 17, A.D. 320, almost certainly in a Mayan language, probably Cholan Mayan. The ruler is depicted on the other face of the plaque, standing in regal pose and in full regalia. Text and image complement each other in communicating essentially the same message: asserting the ruler's authority, power and right to rule.

FIGURE 6

Leiden Plaque, obverse and reverse. The two-column glyphic format of Early Classic is represented here. The ruler, with the same belt as on Hauberg, is posed in the same "crab-claw" position but stands on a captive and holds a double-headed serpent bar from the mouths of which emerge sprites with headdresses identifiable as maize growth stages.
(After Schele. *Notebook for the XIIIth Maya Hieroglyphic Workshop,* 44.)

LA MOJARRA STELA 1 AND THE HAUBERG STELA

One hundred and seventy years earlier than the Leiden Plaque, found in the Mixe-Zoquean rather than the Maya region and employing a different script, La Mojarra Stela 1 depicts a standing ruler, displaying his power and authority by means of a cosmologically significant costume in which he is the center of the universe and, by means of the "portal/mouth," representing access to the other world that is held in his hand and floating in front of his own mouth *(figure 4)*. It is likely that the accompanying text refers to this ruler's accession to power and possibly also to his heir apparency ritual as well as to his descent through specific individuals, validating his right to rule.


ISIG
with the patron
of Yaxkin
8 baktuns
14 katuns
3 tuns
1 uinal
12 kins
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5th Lord of
the Night
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Yaxkin
he was seated
Name
Balan-Ahau
Chan
title

The relation between iconography and text is illustrated also by the birdlike head at O5, which resembles the bird-mask headdress of the ruler depicted on the stela *(figure 7a)*; by the probable glyphic depictions of the ruler himself in columns A, O and Q *(figure 7b)*, recognizable from his circular nose ornament; and by the glyph at Q38 that is replicated in reverse on the arms and costume of the ruler depicted *(figure 8a)*.

Another approach to understanding the script on La Mojarra Stela 1 is by tracing the form of a glyph both backwards and forwards in time. For example, a glyph at position S15 *(figure 8b)* can be traced forward in time to the Classic Maya "sun at horizon" glyph collocation, consisting of a sky glyph above and an earth glyph below, opening like jaws with a sun glyph between them.[22] This collocation is exemplified in figure 8c, the earth portion of which is very like the terrestrial panel of the roughly contemporaneous Kaminaljuyu Stela 11 *(figure 9a)* and the half-millennium-earlier rendition of a terrestrial panel on the bottom of the Middle Formative cosmogram of figure 9b. The Middle Formative terrestrial panel has, in fact, two recognizable descendants a thousand years later in Classic Maya script: the *caban* (earth) glyph of figure 10a and the *na* glyph that so frequently subfixes the sky glyph[23] and that has a widely recognized phonetic value of *na*, seen here in an early variant from Tikal *(figure 10b)*. This phonetic value is so

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b.

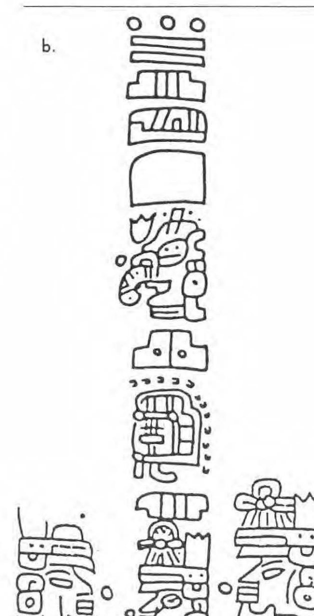
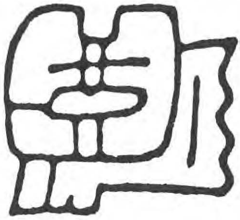


FIGURE 7

a. *Glyph at O5 on La Mojarra Stela 1.* The long-lipped "birdlike" glyph with a trident forehead ornament resembles the image of a ruler's long-lipped "birdlike" mask (cf. figure 4).
(After Winfield Capitaine. "La Estela 1 de La Mojarra," 18.)

b. *Glyphs depicting ruler, columns A, O and Q on La Mojarra Stela 1.* Glyphs of a ruler represent the same ruler depicted in the image (cf. figure 4).
(After Winfield Capitaine. "La Estela 1 de La Mojarra," 18.)

a.



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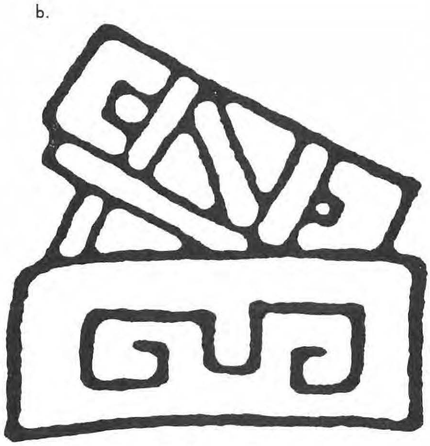


c.

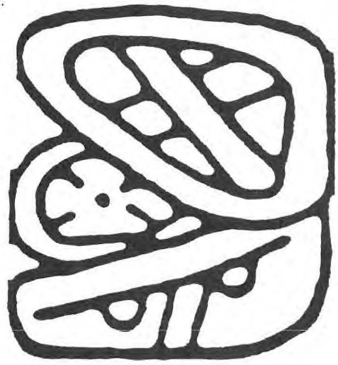


FIGURE 8

a. *Glyph at Q38 on La Mojarra Stela 1.* The glyph from this column is the same as that depicted on the ruler's costume (cf. figure 4).
(After Winfield Capitaine. "La Estela 1 de La Mojarra," 19.)

b. *Glyph at S15 on La Mojarra Stela 1.*The glyphic representation of sky being separated from earth by a near-vertical bar resembles the later Mayan glyphic depiction of "dawn" shown in figure 8c.
(After Winfield Capitaine. "La Estela 1 de La Mojarra," 18.)

c. *Sun at horizon glyph collocation, with sky, earth, and sun glyphs labeled—from Chichen Itza, Temple of Four Lintels, Lintel 2a (A-1).* This glyph is a later modification of the precurser shown in figure 8b.
(After Krochock. "The Hieroglyphic Inscriptions and Iconography of Temple of the Four Lintels," 234.)

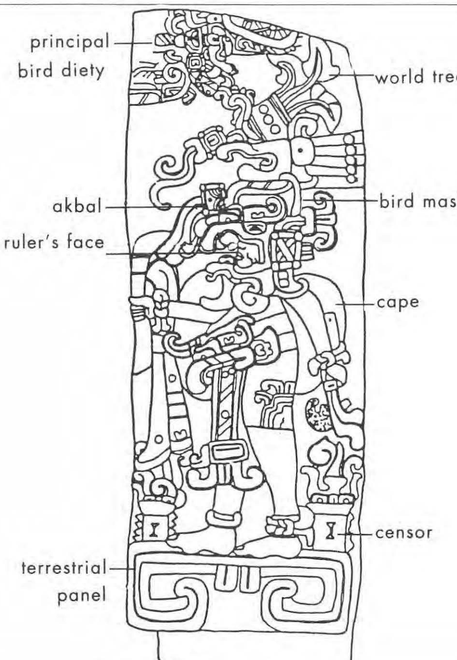
close to the Mixe and Zoque words for "earth," *nax* and *nas* respectively, that one is tempted to see the Maya phonetic value as derived from a Mixe-Zoquean language. Thus, not only is the "earth" part of the glyph collocation at S15 on La Mojarra Stela 1—also to be found separately on this stela—likely to have a value of *nax* or *nas*, Mixe-Zoquean words for "earth," but when combined with the evidence of language distribution and of iconographic homophony, this inference lends credence to the conclusion that Isthmian script represents a Mixe-Zoquean language.

FIGURE 9

a. *Kaminaljuyu Stela 11.* The ruler stands on a "terrestrial panel" symbol of earth that is equivalent to the earth signs constituting the bottom halves of the glyphs shown in figures 8b and 8c. (After Cortez. "The Principal Bird Deity," 190.)

b. *Chalcatzingo Urn.* This Middle Formative period image shows a terrestrial symbol on which rests a disembodied head. It is semantically equivalent and visually similar to the terrestrial panel of figure 9a.

a.



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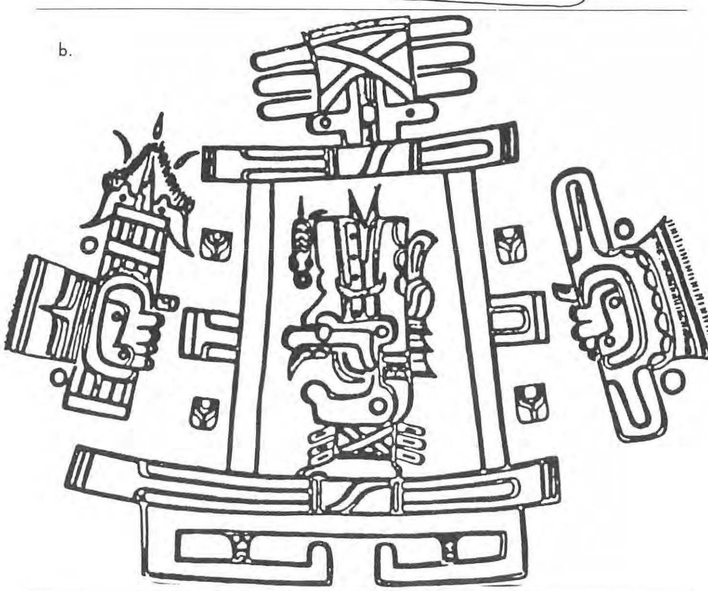

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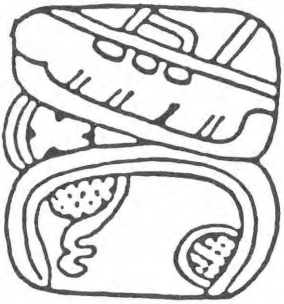

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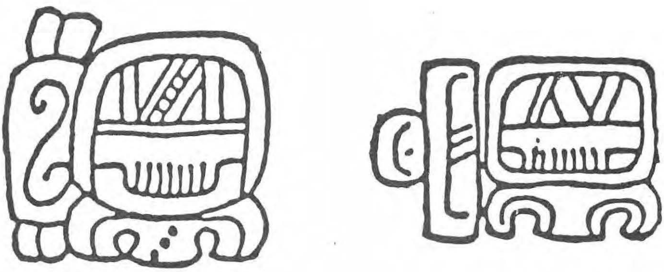

FIGURE 10

a. *Maya "sun at horizon" glyph*. Note that the terrestrial panel of figure 9b is the progenitor of the Classic Maya *caban* (earth) glyph shown here, constituting the bottom half of this "sun at horizon" glyph.
(After Thompson. *Maya Hieroglyphic Writing*, figure 31, no. 42.)

b. Two variants of Early Classic "sky" with "na" subfix, from Tikal. Note that the Classic Maya *na* glyph subfixing these examples of "sky" descend from the Middle Formative terrestrial panel of figure 9b and are cousins of the *caban* (earth) glyph shown in figure 10a.
(After Schele. *Notebook for the XIth Maya Hieroglyphic Workshop*, 71.)

The evidence of iconographic homophony can be summarized simply if we examine the rear part of the ruler's headdress on La Mojarra Stela 1 *(figure 4)*. It is a shark—oddly depicted, to be sure, but unequivocally a shark—with four baby sharks swimming up the notochord. It is a shark whose bifurcated tail doubles as a twin ear of maize *(figures 11a and b)* and whose fin doubles as a serrated-edge knife like those used to extract hearts in Teotihuacan murals *(figure 12)*. The shark/maize

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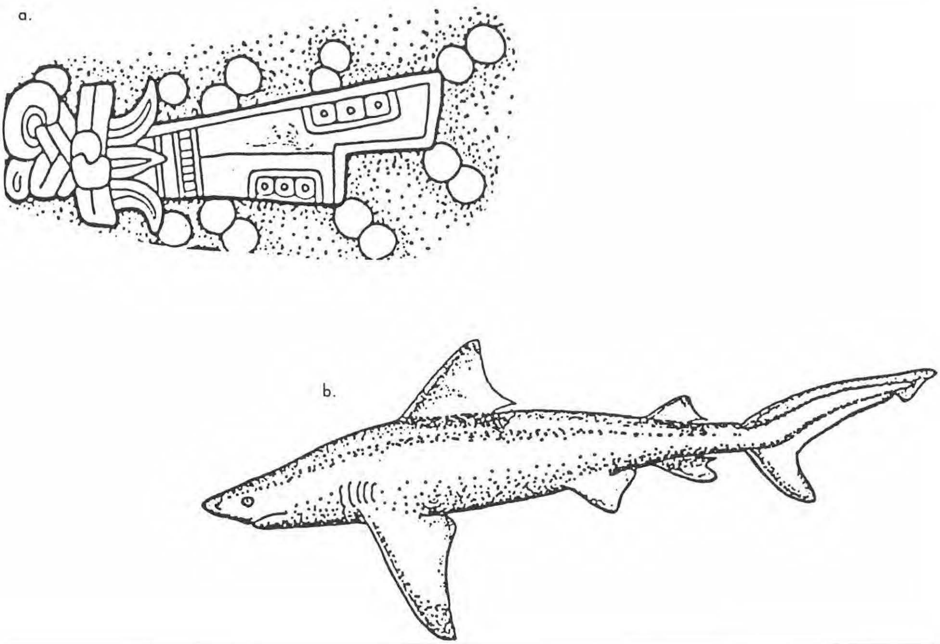


FIGURE 11

a. Maize ear/shark tail, from La Mojarra Stela 1. This depiction of an ear of maize comes from the tail of the shark identified in the ruler's headress depicted on the stela shown in figure 4.

b. Shark tail. The maize ear/shark tail of figure 11a can be compared to the tail of a bull shark.
(Drawing by Tom Jones.)

a.

FIGURE 12

a. Shark fin on La Mojarra Stela 1.The "fin" sprouting from the shoulder of the shark shown in figure 4 is backwards and is also comparable to the wavy-edged knife blade shown in figure 10b.

b. Knife blade on ceramic from Teotihuacan. This is a sacrificial knife, depicted with a stylized heart dripping blood at its tip.

b.

and fin/knife blade equations constitute very tentative evidence that the language of the La Mojarra Stela is Mixean because symbolism inherent in the iconography on this monument suggests, through visual punning, verbal analogues allowable in a Mixean language. Of major interest is the fact that non-Mayan Mixe-Zoquean languages support by near-homophony a symbolic equivalence between fish and maize. For example, Mixean *mook* (maize) sounds much like *maak* (to fish). In Oluta Popoluca (Mixean), *akxi* is "maize grains" and *akxa* is "fish species." Less persuasive, perhaps, is the sound similarity between Mixe *kEE?pxUn* (knife blade) and *kEEkUn* ([fish] fin). La Mojarra, it may be noted, is located on the gulf coast, where tender young shark *cazon* is considered a real delicacy today, as is fresh corn; but there is still more evidence of Mesoamerican symbolic equivalence of fish and maize. For example, the shark on the ruler's head is very like that found atop the head of another Late Formative ruler (of unknown provenence) that has even clearer vegetation iconography on the tail-end *(figure 13)*. In both cases, the world tree is being represented in the ruler's headdress.

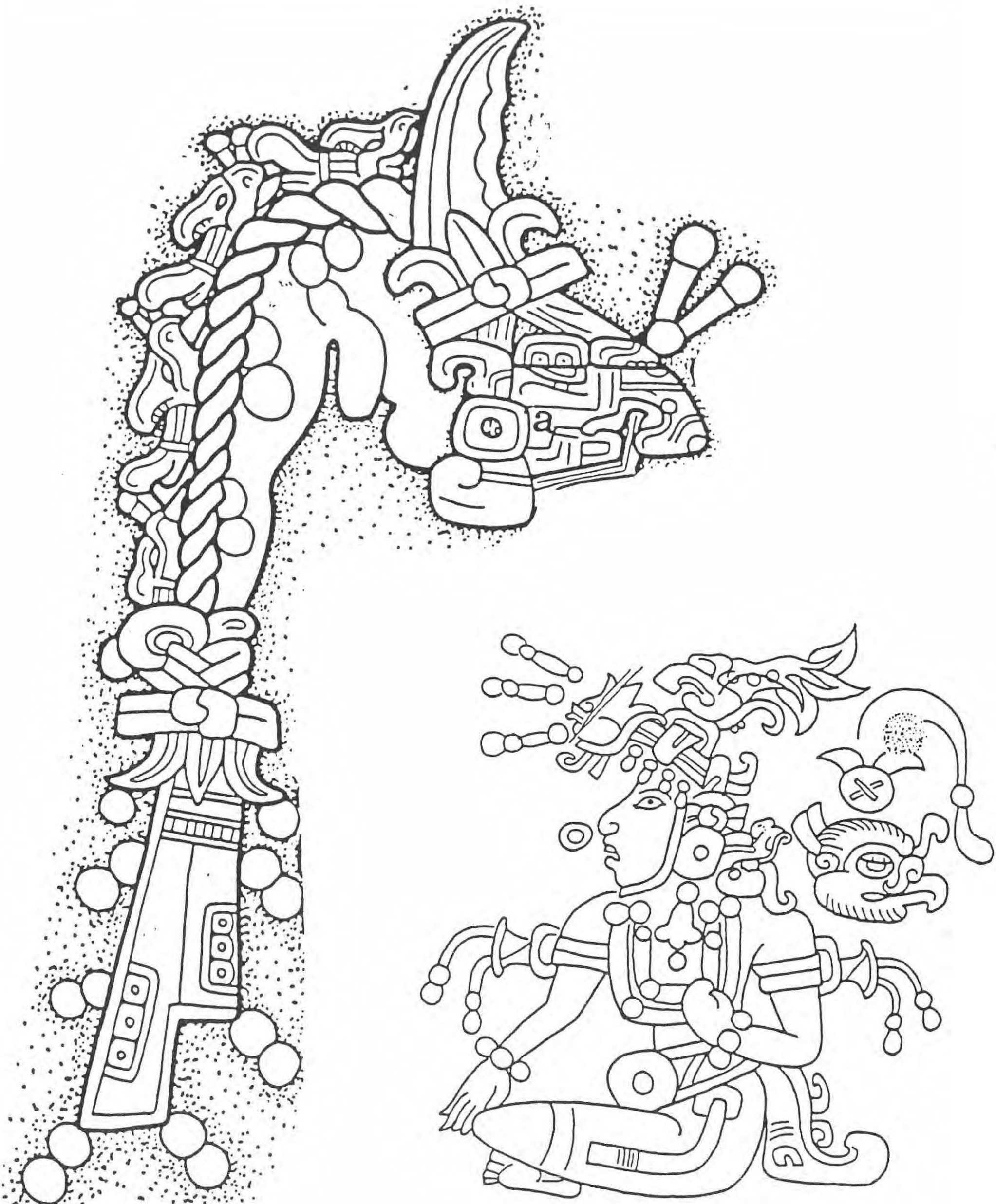
FIGURE 13

Dumbarton Oaks jade rear and shark from La Mojarra Stela 1. The fishlike monster, with vegetation for a tail, atop the ruler's headdress can be compared in form and iconographic context with the shark from La Mojarra. (Jade after Schele and Miller, *The Blood of Kings.*)

The La Mojarra shark, it will be recalled, has four baby sharks swimming up, or falling down, its rope-like notochord. These four babies and the larger mother constitute a sort of quincunx—not spatially, but in terms of four smaller and one larger. The quincunx is atop the ruler's head at La Mojarra, identifying him, one assumes, as the central point in the universe, with the four directions around him.

Mesoamericans also see a special relationship between a quincunx pattern and maize. The Tzeltal Mayans, a typical example, relate the planting of maize to the quincunx. For them, the normal method of planting corn is to make four holes radiating out in four directions from a central hole, measured with the five-foot length of the planting stick, precisely forming a quincunx.[24] And it is clear that a quincunx cosmogram has persisted until today since at least Late Formative times, when cached diadem deity heads representing stages of maize growth were being set in place in a quincunx pattern.[25]

The Hauberg Stela also contains a quincunx *(figure 5)*. Instead of sharks with maize tails, as at La Mojarra, four sprites with maize headdresses are climbing (probably down) along the body of a "vision" serpent held scepter-like in the arms of the ruler, who has a serrated-edged, recurved knife springing from his shoulders and a shark's tooth in his mouth. Atop his head is the fifth maize headdress, the fully mature ear of maize.



Dumbarton Oaks Jade, rear

FIGURE 14

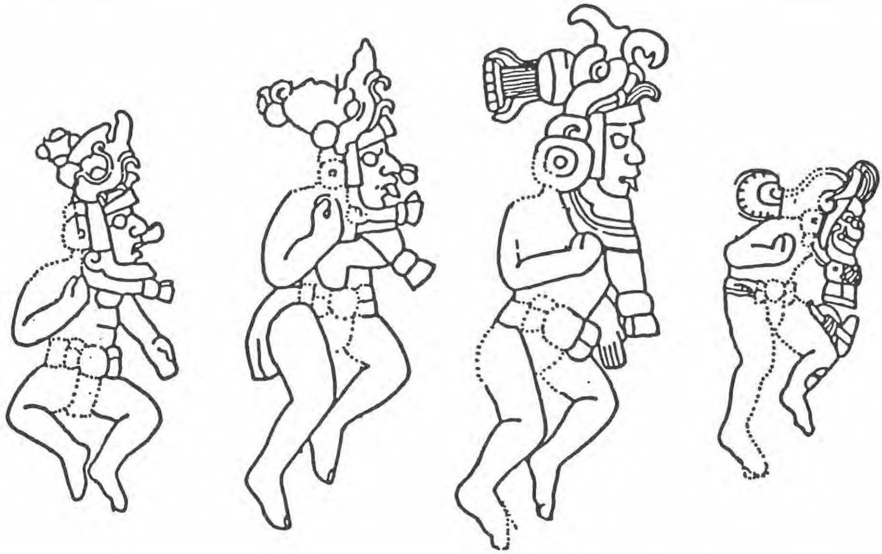
The maize sprites on the Hauberg Stela. Headdresses of these maize sprites represent, from left to right, maize seed, sprouting maize seed, flowering maize *(flor de milpa)* and the edible immature maize ear *(jilote)*.
(From Schele, "The Hauberg Stela."

The other four maize headdresses on the sprites *(figure 14)* clearly represent, from left to right, the maize seed, then the sprouted seed, then the flowering ear, then the young edible maize ear (called a *jilote*) that is plucked prematurely from the stalk for eating so that its brother on the same stalk will grow all the larger. This plucking, symbolized by decapitation, is clearly indicated by the skull form of the fourth sprite and by the axe in his hand.

Whereas the Hauberg Stela's iconography makes use of a maize ear in the ruler's headdress and a maize stalk (serpent) in his hands as a representation of his power, La Mojarra Stela 1 uses two maize ears on a maize stalk (shark) in the ruler's headdress and a weapon—perhaps figuratively both a serpent and a maize stalk—to symbolize his power. Maize is clearly a power symbol. Fields, in a cogent discussion of maize and power, cites the suggestion that most politically significant symbols are overtly non-political, as maize would be, and that these are the most efficacious symbols because their potency derives from their ambiguity.[26]

This helps to explain the Late Formative maize symbolism with which the ruler is costumed. Mesoamerican archaeological and iconographic evidence suggests that the ruler practiced cranial deformation, elongating his skull, I would guess, to more closely approximate the beautiful *elote,* the young maize ear—tender, delicious, the stuff of which humans were originally made. To be like the maize ear, he wore his hair as if it were cornsilk. His headdress reflected maize (and blood) innumerous ways and in various stages of growth. The ruler as the young maize ear, then, symbolically nourished his subjects, showing both how powerful and how nurturing he was. By his letting of blood, so closely related to maize in the cosmological scheme of things, he called forth the deities, gave birth to them, communicated with them and became their incarnate state of grace, available for ensuring a good maize harvest for his subjects. And with a shark avatar, the La Mojarra ruler was protector of his people, a terror to his enemies. He was a symbol of swift and deadly destruction. Through it all—from nurturing, through sacrificial blood, to the incarnate warrior—runs the thread of the powerful maize symbol.

Divination can be connected with this power of maize as well, not only in the use of maize kernels for divination but also in that thirteen of the twenty divinatory day names of the Maya reflect, and perhaps even derive from, stages in the life cycle of maize.[27] Since, in the Mesoamerican worldview, humans stem from maize, it is only appropriate that the Maya ruler should reflect on his person the various stages of the life cycle of



maize.

Returning to the beginning, the shared calendrical information in Late Formative scripts indicates an ancestral calendar system. Its relationship to writing is underscored by Justeson's conclusion that "if linguistic processing enters visual symbol systems by associating numerals with independent visual symbols, in Mesoamerica it did so via the names of the 260 days of the ritual calendar."[28]

Each of the twenty Maya day names that are part of the 260-day ritual calendar recurs at twenty-day intervals. To pass through thirteen of the day names requires, then, 260 days, the length of the ritual calendar. There is a correspondence here with the fact that even to this day Tzeltal Mayans name thirteen stages in the life cycle of maize, many of them occurring in twenty-day increments, reflecting, it is likely, an earlier 260-day ritual and divinatory mnemonic for the life cycle of maize. The 260-day *tzolkin*, or Maya ritual calendar, not only approximates the length of human gestation, as some have suggested when discussing its origin; it also accounts "month" by twenty-day "month" for named stages of maize development, from planting to harvest of the dried ears.

The Maya ritual calendar of 260 days both reflects an ancestral one shared by all the Mesoamericans and is understood better than the ancestral one; thus, it is convenient to use it as illustration of the thesis that the first thirteen of its days are relatable to stages in the life cycle of maize. Thompson noticed that "a sequence of thirteen of the Maya day names running from *Caban* to *Muluc* represent in the same order the identical series of gods ruling the numbers 1-13,"[29] so we shall begin with the day *Caban.*

Caban—ruled by the moon goddess of fertility, whose name *na* means "first"—refers to the earth, *kab.* Preparation of the earth is the first stage in the life cycle of maize.

The next day, *Etz'nab,* refers to a "spear,"[30] and the planting stick (metaphorically a spear) spears the ground, making holes for planting the maize during the next stage.

Cauac, the day of rain, surely refers to the rain coming and watering the planted maize crop.

The fourth day, *Ahaw,* names the sun deity, implying the sun as a crucial ingredient here, coming up towards the summer solstice and warming the earth so the watered maize can germinate.

Imix depicts the leaf of a water lily, and the corresponding Mixe day means "root." The germinated maize kernel now has roots and/or the first leaf.

The sixth day, *Ik* (*ik* meaning "breath, life, spirit"), must be the point where life is breathed into the developing maize.

Suffice it to say that the rest of the thirteen day names, in order, can be related to stages in the life cycle of maize,[31] so clearly in the succession of *veintena* day names there is some semantic reflection of twenty day-named stages through which the maize cycle passes. Thus, thirteen of the day names must have served as a shorthand mnemonic for stages in the maize cycle and may have been involved in the origins of the ritual calendar—and are, therefore, related to the origins of writing in Mesoamerica.

CONCLUSION

By Late Formative times, at least four different scripts had evolved in Mesoamerica, occurring up to five hundred miles on either side of the Isthmus of Tehuantepec. The earliest to develop was east of the Isthmus, and evidence of Oaxacan script is limited to that side. The few artifacts on which the inscribed script has been retained are portable stone figurines and large stone monuments. The state of development of the scripts and the few exemplars known suggest that writing must also have been practiced on wood, bark paper and/or skins during the Formative Period. It is almost certain that script literacy was limited to the nobility, although iconographic understanding must have had a much broader base. Any one of the scripts with a large number of depictive signs must have developed out of, and continued hand in hand with, a visual symbol system of relatively representational depictions, itself evolving in response to both social conditions and the developing scripts.

To judge by the number of signs, the scripts must have been largely logographic, and they must have referred to a relatively small number of activities basically relating to kingship and descent, and to activities associated with creation and destruction of the world. Maya script, which developed out of one of these Formative scripts, has relatively few verbal forms, with a larger number of titles, names, relationship glyphs, numbers and calendric signs. There is no reason to imagine a vastly different writing system for Formative Period societies with iconography that is itself strikingly similar in purpose. The pervasive themes of power and of maize stretch from the earliest Formative times through the latest Postclassic times.

I take writing to imply a system of visually-perceived graphic symbols, the full interpretation of which requires knowledge of a particular language. As the graphic counterpart of speech, writing can be recognized in Mesoamerica by correspondence of its elements to elements of speech, by its linear format (in rows and/or columns) and by its limited number of signs with rule-governed combinatorial capabilities.[32]

Linguistic research in Mesoamerica, in addition to its potential for identifying the language underlying any given script by direct comparison of individual glyphs of known sonic values with words in specific languages, can, through structural analysis, also correlate syntactic and semantic structures in the glyphs—for example, introducers, dates, verbs, nouns (subjects, objects, titles, names, kinship terminology, etc.)—with those structures as realized in local linguistic constructions of candidate languages. If larger corpora of Late Formative scripts come to light, it should one day be possible to know which languages they represent. At this point, the Isthmian and Mayan scripts of Late Formative times are the most likely to be identified with particular languages and to be deciphered. We know the format; we think we know the approximate content, and we would very much like to know everything possible about the scripts.

NOTES

[1] Michael Coe, 1976. "Early Steps in the Evolution of Maya Writing." In *Origins of Religious Art and Iconography in Preclassic Mesoamerica*, ed. H.B. Nicholson, 107-122. Los Angeles: UCLA Latin American Center; John Justeson. 1986. "The Origins of Writing: Preclassic Mesoamerica." *World Archaeology* 17:437-458; Joyce Marcus. 1976. "The Origins of Mesoamerican Writing." In *Annual Review of Anthropology*, ed. B.J. Siegel, A.R. Beals and S.A. Tyler, 35-67. Palo Alto, California: Annual Reviews, Inc.

[2] Justeson. "The Origins of Writing."

[3] Linda Schele. 1985. "The Hauberg Stela: Bloodletting and the Mythos of Maya Rulership." In *Fifth Palenque Round Table, 1983*, vol. 7, ed. M.G. Robertson and V. Fields, 135, 138. San Francisco: Pre-Columbian Art Research Institute.

[4] Justeson. "The Origins of Writing," 449-50.

[5] Justeson. "The Origins of Writing," 451.

[6] Fernando Winfield Capitaine. 1988. "La Estela 1 de La Mojarra, Veracruz, Mexico." *Research Reports on Ancient Maya Writing* 16:1-36.

[7] Justeson. "The Origins of Writing."

[8] Brian Stross. 1989. "The Language of La Mojarra Stela 1." Unpublished manuscript, Department of Anthropology, The University of Texas.

[9] 8.5.3.3.5 Thirteen Chicchan 3 Kayab and 8.5.16.9.7 Five Manik 15 Pop respectively: cf. Winfield Capitaine. "La Estela 1 de La Mojarra, Veracruz, Mexico"; John Justeson 1988. "The Non-Maya Calendars of Southern Veracruz-Tabasco and the Antiquity of the Civil and Agricultural Years." *Journal of Mayan Linguistics* 6:1-21.

[10] Schele. "The Hauberg Stela," 137.

[11] Schele. "The Hauberg Stela."

[12] Justeson says that writing originated in Formative times "as one aspect of a visual system used ceremonially to legitimate and reinforce elite power and prestige; this would remain the principal function of Mesoamerican writing." Justeson. "The Origins of Writing," 445; cf. Virginia Fields. 1989. "The Origins of Divine Kingship Among the Lowland Classic Maya." Ph.D. diss. The University of Texas at Austin.

[13] cf. Fields. "The Origins of Divine Kingship Among the Lowland Classic Maya; Kent Reilly III 1987. "The Ecological Origins of Olmec Symbols of Rulership." Masters Thesis, The University of Texas at Austin; Brian Stross 1986. "Iconographic Homology on an Olmec Urn and a Maya Plate." Lecture, University of Texas, Texas Maya Glyph Society.

[14] I have elsewhere proposed that these can be found in the introductory part of glyph sequences around the rims of certain Classic Maya funerary vessels. cf. Brian Stross. 1990. "The Introductory Formula of the Primary Standard Sequence: Glyphs on Classic Maya Vessels." *Palenque Round Table.*

[15] And even here we find that the introductory glyph for the initial series date contains the glyphic name of a patron deity, that of the month of the *haab* referred to in the date.

[16] The Classic Maya erected monuments at twenty-tun intervals and sometimes more frequently.

[17] For example, a Saturn-Jupiter conjunction, on 2 Cib 14 Mol, used as a time marker at Palenque by the Classic Maya.

[18] Peter Mathews. 1979. "The Glyphs from the Ear Ornaments from Tomb A- 1/1." In *Excavations at Altun Ha, Belize, 1964-1970*, vol. 1, ed. David M. Pendergast, 79-80. Toronto: Royal Ontario Museum.

[19] Justeson. "The Origins of Writing," 439.

[20] Justeson. "The Origins of Writing," 445.

[21] Stross. "The Language of La Mojarra Stela 1."

[22] Crossed bands alternate with a single diagonal in the Maya sky glyph. cf. Brian

Stross and Kent Reilly III. 1990. "Sky and Earth: From Icon to Glyph." *Mesoamerica.*

[23] The "na" glyph refers here to catalog numbers 22 and 23.

[24] Brent Berlin, Dennis Breedlove and Peter Raven. 1974. *Principles of Tzeltal Plant Classification.* New York: Academic Press, 126.

[25] Norman Hammond. 1987. "The Sun Also Rises: Iconographic Syntax of the Pomona Flare." *Research Report on Ancient Maya Writing, 7.* Washington D.C.: Center for Maya Research; Stross. "The Language of La Mojarra Stela 1."

[26] Fields. "The Origins of Divine Kingship Among the Lowland Classic Maya, 37.

[27] Stross. "The Language of La Mojarra Stela 1."

[28] Justeson. "The Origins of Writing," 445.

[29] J. Eric S. Thompson. 1971. *Maya Hieroglyphic Writing.* Norman: University of Oklahoma Press, 103.

[30] John Justeson, William M. Norman, Lyle Campbell and Terrence Kaufman. 1985. *The Foreign Impact on Lowland Mayan Language and Script.* M.A.R.I. Pub. 53, Tulane University, New Orleans, 43.

[31] Stross. "The Language of La Mojarra Stela 1."

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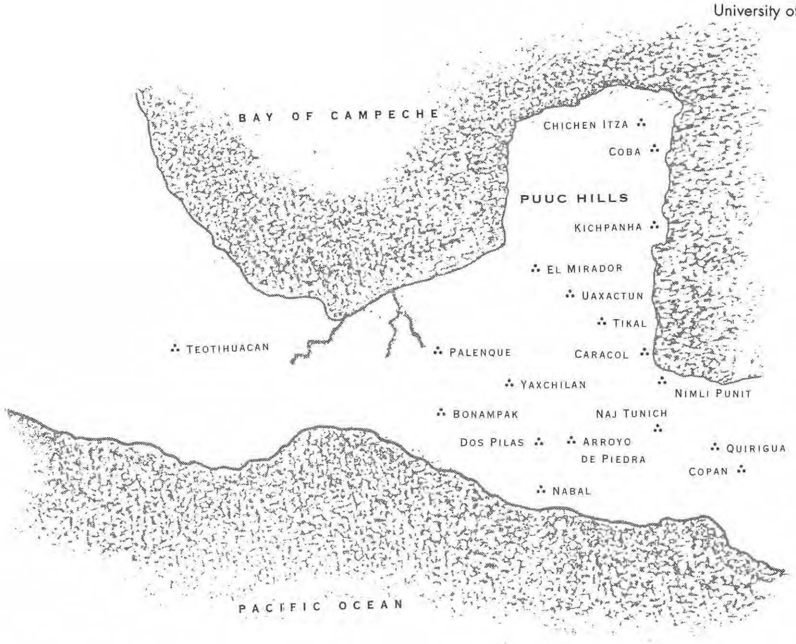

FIGURE 1
Map of the Maya area.
(after Houston1989: figure 11.)