



## The Origins of Mesoamerican Writing

Joyce Marcus

*Annual Review of Anthropology*, Volume 5 (1976), 35-67.

Stable URL:

<http://links.jstor.org/sici?sici=0084-6570%281976%292%3A5%3C35%3ATOOMW%3E2.0.CO%3B2-F>

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

*Annual Review of Anthropology* is published by Annual Reviews. Please contact the publisher for further permissions regarding the use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/annrevs.html>.

---

*Annual Review of Anthropology*

©1976 Annual Reviews

JSTOR and the JSTOR logo are trademarks of JSTOR, and are Registered in the U.S. Patent and Trademark Office. For more information on JSTOR contact [jstor-info@umich.edu](mailto:jstor-info@umich.edu).

©2002 JSTOR

# THE ORIGINS OF MESOAMERICAN WRITING

◆ 9569

*Joyce Marcus*<sup>1</sup>

Department and Museum of Anthropology,  
University of Michigan, Ann Arbor, Michigan 48109

The demarcation line between iconographic symbolism and writing is faint at times, faint enough at least for Olmec enthusiasts to leap over it and proclaim as writing what in other cultures would pass as depiction of attributes on body or clothing, a claim which would embrace everything from painted teepees to mediaeval heraldry.

J. Eric S. Thompson (59, p. 205)

Ancient writing systems which remain undeciphered have had an unusual capacity to arouse excitement in both professionals and amateurs. In the New World, the scholarly study of Mesoamerican writing systems has been undertaken for only 100 years. This short period of investigation, conducted by a relatively small number of investigators, has nevertheless led to some major breakthroughs; but most scholars would agree that we are still unable to transcribe, interpret, or "read" entire texts. We are frequently able to obtain the gist of various passages, but we cannot read them in the spoken language as the Indian speakers might have.

In 1865 a German scholar, Dr. Ernst Förstemann, accepted the position of head librarian at the Royal Public Library in Dresden. This move resulted in a great advance for the field of Maya writing. The Royal Library in Dresden had long contained a fiber-cloth manuscript labeled "an invaluable Mexican book with hieroglyphic figures" (60, p. 153). To Förstemann we owe a considerable debt for his initial elucidation and publication of the entire Dresden Codex in 1880. This Postclassic Maya book probably dates to A.D. 1200-1250, though some scholars feel it is a copy of a much earlier book. Förstemann then began a study of the two other extant codices currently found in the cities which provide their names, the Codex Madrid and Codex Paris. Later Förstemann turned his

<sup>1</sup>Part of the research for this paper was facilitated by Grant RO-21433-75-460 from the National Endowment for the Humanities, whose generous support is gratefully acknowledged. In addition, Jeremy A. Sabloff provided me with hard-to-get publications without which I could not have completed the paper. Figures 1, 3-11, and 14 were drawn by Jane Mariouw, while Mark Orsen drew Figures 2 and 12. Very special thanks to Mary Hodge, who typed the entire manuscript and prepared Figure 13.

attention to the inscriptions in stone from Classic Maya archaeological sites (A.D. 250–910). By 1894 it was possible to read the dates on these Maya monuments—to identify the period glyphs and their relationship to one another. In only 14 years, by studying both codices and stelae, Förstemann had discovered how the Maya calendar operated.

In 1905 J. Thompson Goodman, owner and editor of the *Territorial Enterprise* of Virginia City, Nevada (the newspaperman who gave Mark Twain his start) also made important contributions to Maya studies. Goodman published a paper in which he offered the first correlation of the Maya and European calendars (26). In 1926 Juan Martínez Hernández reaffirmed the correlation (36), while J. Eric S. Thompson tested it in 1927 with lunar and Venus-cycle data (54). Their combined efforts are called the Goodman-Martínez-Thompson correlation, which is now widely accepted.

The atmosphere of the field changed dramatically in 1949, for it was in that year that the Mexican scholar Alfonso Caso was able to establish a correlation between Mixtec dates and Christian dates and link the ancient Indian dynasties of Teozacoalco and Tilantongo, Oaxaca (6). For the Mixtec manuscripts, various scholars had previously suggested that the content was largely historical. In 1902, Zelia Nuttall had suggested that the codex which now bears her name contained historical data (39). James Cooper Clark in 1912 had reported the story of a famous Mixtec ruler named 8 Deer “Tiger Claw” (8). In 1935 Herbert Spinden discussed a group of Mixtec manuscripts and declared that the content was primarily devoted to genealogies and sequences of political events (51). Thus, studies had already shifted from an astronomical to an historical perspective within the field of Mixtec writing; the “door to history” opened in 1949.

In the field of Maya hieroglyphic writing, it was not until 1958 that the attention of scholars turned to the noncalendric information. Heinrich Berlin (1) opened up a new frontier by discovering that each major Maya center had a particular glyph used many times in its texts, but infrequently employed outside of that site. Berlin termed these “emblem glyphs,” and suggested they were site names, dynastic names, or perhaps the names of tutelary deities. We now feel that these glyphs do indeed represent geographical referents. Following this breakthrough, Tatiana Proskouriakoff (43) was able to demonstrate that many Maya monuments recorded local history—births, accessions to the throne, and other feats involving local rulers. By combining the work of Berlin and Proskouriakoff we are now able to establish territorial units, personal names of rulers, their births, accessions, conquests, royal marriages, and deaths. Just as Caso opened the door to the Mixtec dynasties and their history, Proskouriakoff opened the historical door for the Maya field.

At least four major systems of writing arose in Mesoamerica: the Zapotec and Maya systems, which began with hieroglyphic texts on stone; and the Mixtec and Aztec systems, which featured pictorial manuscripts on hide or paper. All other regional systems seem to be variants of one of these four major types. In this paper I will address myself only to the origin and early evolution of Mesoamerican writing, from roughly 600 B.C. to A.D. 900—a period dominated by

hieroglyphic systems of the Zapotec and Maya types. The later pictographic systems of the Mixtec and Aztec (A.D. 900–1600), which really deserve an article of equivalent length, will not be discussed here.

## THE EVOLUTIONARY CONTEXT OF EARLY WRITING

It is now clear that Mesoamerican hieroglyphic writing began in a pre-State evolutionary context, among societies with intensive agriculture and hereditary social ranking, but prior to true social stratification or political centralization. Let us briefly discuss early Mesoamerican writing in the light of ancient writing systems in general.

Although many Old World scholars and epigraphers have claimed that the writing of the New World Indians cannot be compared with achievements in the Near East, they frequently reveal either personal prejudice or lack of information:

Would it not be surprising, somebody may ask, if the pre-Columbian Indians, who produced a culture frequently compared with the fully developed cultures of the ancient Near East, did not have a writing of the same stature as the systems found in the Orient? The answer I could give is that the Amerindian cultures cannot properly be compared with the cultures of the Near East (Gelb 25, pp. 57–58).

First of all, the functions and the origins of writing in the Old and New Worlds appear to be quite different. The earliest writing of the “Protoliterate” period in the Near East occurs on clay tablets and apparently deals with economic transactions. Much of this early writing had as its content the number of foodstuffs, goods, or animals to be transferred, as well as the personal names of the principals. One function was to keep accurate economic records.

For the New World, the earliest writing is closely associated with the calendar: historical events are set within a chronological framework. The content of Classic Mesoamerican writing is primarily genealogical, dynastic, and militaristic. We are provided with personal names of rulers, their births, marriages, and conquests. One of the functions seems to be to legitimize each ruler’s right to accede to the throne. Some of the differences between early writing in the New and Old Worlds are therefore functional, and have nothing to do with levels of “cultural achievement” in the two areas.

The evolution of writing has been delineated by Gelb as proceeding from

- (a) *pictography* (pictures as signs; pictograms) to
- (b) *logography* (a sign stands for a word; logograms) to
- (c) *syllabary* (a sign stands for one or more syllables) to
- (d) *alphabet* (a sign stands for one or more phonemes)

Although many writing systems have a pictorial character in their earliest stages, there are almost always some signs that evolved out of arbitrary conventions. Thus one could reasonably argue that none of Gelb’s four proposed stages are “pure.” Each stage preserves some of the signs from earlier stages; hence,

we see heterogeneous systems employing pictograms, ideograms, and some phonograms at the same time. Therefore, it is somewhat difficult to classify writing systems except perhaps by the relative percentages of pictograms, ideograms, logograms, phonograms, and so forth.

Various definitions of writing have been suggested by scholars. For Gelb (25, p. 12), writing is "a system of human intercommunication by means of conventional visible marks." For our purposes this definition is far too broad, for it would include petroglyphs, some Mesoamerican mural painting, and the heraldry referred to by Thompson at the start of this paper. Diringier (20, p. 13) has defined writing as the "graphic counterpart of speech, the 'fixing' of spoken language in a permanent or semi-permanent form." For Diringier there are four stages of *true* writing:

1. *Pictography*.
2. *Ideographic writing*: This is the first step in rendering a script capable of conveying abstractions and multiple associations. Thus, whereas in pictography a circle may stand for the sun, in an ideographic writing system, it might also mean heat, light, a god associated with the sun, the words "day" or "time." Also, animals may be ideographically depicted, using the head alone, or a paw (i.e., a part stands for the whole).
- 2a. *Analytic transitional scripts*: The basic units are words. This form of writing is intermediate between ideographic and pure phonetic writing.
3. *Phonetic scripts*: A sign stands for a sound. The convention of using symbols to represent syllables arose in many parts of the world at different times, but few scripts ever shed completely the ideograms of earlier stages.
4. *Alphabetic writing*: Individual letters represent single sounds, both vowels and consonants.

The four major Mesoamerican writing systems (Zapotec, Maya, Mixtec, and Aztec) were all heterogeneous systems—partly pictographic, ideographic, and phonetic. The only type of writing not represented was the alphabetic system, which seems to be a rare development and is frequently considered by many Old World scholars to be the "highest" form of writing.

## A DEFINITION OF WRITING

Because I do not feel that petroglyphs, iconographic motifs, and heraldic symbols qualify as writing, I will begin with a definition of early writing in general and proceed to a discussion of early Mesoamerican texts in particular.

1. Writing is recognizable by its format; even when we are unable to read or interpret certain examples of writing, we are able to infer that a certain text is writing by its organization.
2. More than 90 percent of all early writing has a linear format, either in *rows* (as in the case of Mesopotamia and Egypt) or *columns* (as in the case of China and the Maya region).

3. This linear format implies the order of reading, either:
  - (a) left to right, or right to left;
  - (b) top to bottom, or bottom to top.
4. There is some degree of relationship to the spoken language.
5. There is a limited set of conventionalized signs that combine according to specific rules, i.e. "grammar."

As for early Mesoamerican texts, they typically have three or more signs or hieroglyphs in a column (in this paper, isolated hieroglyphs are not considered to be examples of "texts"). The column seems to be the essential organizing principle for Mesoamerican writing. In the beginning come single-column texts; later, paired columns are common; and finally, there are paired columns that are to be read together from left to right and from top to bottom.

## MESOAMERICAN CALENDRIC SYSTEMS

Because the earliest examples of Mesoamerican writing are inextricably linked to the pre-Columbian calendar, a brief description of the workings of this calendar is necessary before proceeding to the earliest texts. All Mesoamerican peoples made use of a vigesimal system for most of their counting functions. The vigesimal system is based on multiples of 20, rather than the decimal system we use. Most Mesoamerican Indians had two principal elements to express their numerals: the dot, which had the numerical value of 1, and the bar, which had the numerical value of 5. By various combinations of these two elements, all the numerals from 1 to 19 could be expressed. After the number 19, the zero was reached, which was then followed by 1, 2, and so on. Numbers were also recorded positionally in a manner similar to our 10s, 100s, and 1,000s—1, 20, 400, 8,000, and 160,000 were the vigesimal equivalents. In other words, 20 units of the first order made one unit of the second order, and so forth.

One of the most important elements of the Mesoamerican calendar was the cycle of 260 days. A series of 20 differently named days were combined with the numbers from 1 through 13. Thus the combination of a number (or numerical coefficient) and a day name formed a unit. The same combination of name and numerical coefficient cannot recur until 260 days have elapsed; the 261st day will then have the same designation as the first day of the cycle. This 260-day cycle has been called the Sacred Round.

The various combinations of day names and numbers exerted tremendous influence over the lives of Mesoamerican Indians, both noble and commoner. The benevolence and the malevolence of each day name and number determined when maize should be planted or harvested, and so forth. This system of augury affected every individual, because the influences of the day of one's birth were felt to mold and shape one's whole life. Among the Zapotec, Mixtec, and other peoples, it was common for individuals to be named after the day of their birth. Thus individuals had names like 8 Deer, 5 Flower, and 13 Crocodile. According to Antonio de Herrera, Mixtec men and women could not marry if their calen-

dric names included the same numerical coefficient, such as 1 Reed and 1 Wind; the numerical coefficient of the man's name was ideally supposed to be higher than that of the woman's name (Herrera 29, p. 320; Smith 50, p. 29).

For the yearly round of mundane events, however, this cycle of 260 days would not suffice; for other purposes, the Indians also had a year of 365 days. This year was divided into 18 "months" of 20 days each, and there was an extra period of 5 "unlucky" days at the end of the year. This 365-day unit is often called the Vague Year, because the true year is 365 days and 6 hours long. Each of the "months" of the Vague Year also had a series of positions numbered from 0 to 19.

When we combine the 260-day Sacred Round and the 365-day Vague Year we have a Calendar Round cycle. This permutation of 2 cycles resulted in a 52-year calendar of 18,980 differently designated numbers-plus-days, and numbers-plus-months. If, for instance, we take the first day of the Maya year 2 Ik 0 Pop ("2 Ik" is a day in the 260-day cycle; "0 Pop" is a position in the month Pop within the Vague Year), the question arises: How many revolutions will each cycle have to make before the day 2 Ik again returns to the position 0 in the month Pop? Since the day 2 Ik cannot return to its position until 260 days have elapsed, and since the position 0 Pop cannot return to its position until 365 days have passed, it should be clear that 2 Ik 0 Pop cannot recur until a number of days have passed which is equal to the multiple of these cycles:

$$\frac{260}{5} \times \frac{365}{5} \times \frac{5}{1} = 52 \times 73 \times 5 = 18,980 \text{ days}$$

In other words, the day 2 Ik 0 Pop will recur after 52 Vague Years of 365 days, or 73 Sacred Rounds of 260 days each.

## THE MAYA INITIAL SERIES OR "LONG COUNT"

Some time during the first century before Christ, the Indians of southern Mesoamerica devised a system of numeration by position, involving the establishment of the mathematical concept of zero. By position-value notation, they were able to record five different orders of time.

The lowest unit of this calendar was the day or *kin*. The second order of units, consisting of 20 *kins*, was called the *uinal* or "month." In a pure vigesimal system of numeration, the third order should have been 400, but at this point a variation was introduced for the calendar calculations. The third order, the *tun*, was composed of 18 *uinals* (not 20) or 360 *kins*, because this unit was a closer approximation to the length of the solar year. Above the third order was the *katun* or period of 20 *tuns*. The fifth order, the cycle or *baktun*, was composed of 20 *katuns* or 144,000 days.

Thus, in any inscription which contains an Initial Series date, we would expect to see the following five orders presented in descending order:

$$\begin{aligned} 1 \text{ cycle or } baktun &= 20 \text{ katuns} &= 144,000 \text{ days} \\ 1 \text{ katun} &= 20 \text{ tuns} &= 7,200 \text{ days} \end{aligned}$$

1 <i>tun</i>	= 18 <i>uinals</i>	= 360 days
1 <i>uinal</i>	= 20 <i>kins</i>	= 20 days
1 <i>kin</i>		= 1 day

The *tun* or approximate year of 360 days appears to be the basis for most of these calculations (Thompson 57, p. 141). Were the day to have been the basis for the calendar, it would have been more logical to expect a normal vigesimal progression with a year of 400 days instead of 360. Also, as we shall see, the Introducing Glyph contains the *tun* or year sign as well.

The Initial Series Introducing Glyph is so called because it usually stands at the beginning of the inscription and serves as an indicator that an Initial Series date follows. This ISIG is frequently several times as large as the other glyphs in the inscription. The only part of the ISIG which varies is the central element, which is the glyph of the patron deity who rules the month in which the Initial Series date falls. The four constant elements are a trinary superfix (sometimes two scrolls flanking a central crescent), a pair of comblike elements, the *tun* sign, and a trinary subfix (three nubbin feet).

The starting point from which almost all Maya dates were reckoned was 13.0.0.0.0 4 Ahau 8 Cumku, a designation which means that exactly 13 *baktuns* have been completed, and the seating of *Baktun* 1 has just taken place. *Baktuns* then occur in groups or cycles of 13, with the next *baktun* carrying the numerical coefficient of 1, 2, 3, etc. The Maya were calculating units of *elapsed* time: that is, the number of days that had passed since the zero point of 13.0.0.0.0. The oldest Long Count dates known were recorded in *Baktun* (or Cycle) 7, approximately 3,000 years after the Maya zero point or base date (see below). Since they were speaking of elapsed time, a date such as 7.0.0.0.0 actually falls in *Baktun* 8, and is really the seating date of *Baktun* 8.

Since no month positions are given on Cycle 7 monuments, we cannot be sure that they were counted from the same 4 Ahau as the dates of the Classic Maya. However, there is evidence on Stela C at Tres Zapotes (see below) to suggest the base date was the same.

Had the Maya continued to record events by this Initial Series method up to the time of the Spanish Conquest in Yucatán, there would be little problem of correlation with our calendar today. According to the most widely accepted correlations (the Goodman-Martínez-Thompson and the Modified Thompson 2), the base date of the Maya calendar (13.0.0.0.0 4 Ahau 8 Cumku) fell on August 10, 3113 B.C. This date was selected as the base or zero point for the start of the calendar, perhaps at a much later time. We have Long Count dates for *Baktuns* or Cycles 7, 8, 9, and 10, spanning the years from 36 B.C. to A.D. 909.

## FORMATIVE PERIOD TEXTS AND CALENDRICS

We may now proceed to a discussion of the earliest hieroglyphic inscriptions in Mesoamerica (see Figure 1). These early texts appeared on stone monuments in southern Mexico and Guatemala during the period 600 B.C. to A.D. 50. They



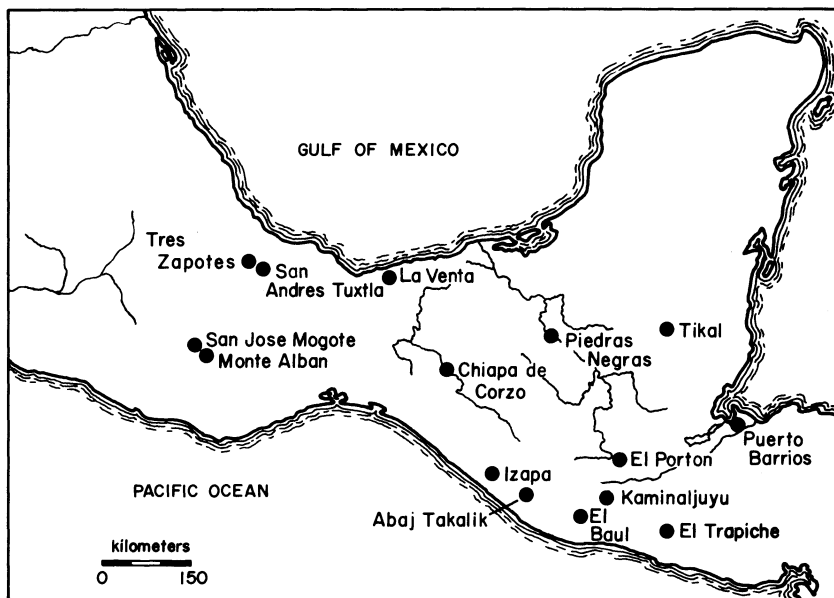


Figure 1 Map of Mesoamerica showing localities mentioned in the text.

include our oldest evidence for single-column texts and the 260-day calendar, followed soon after by double-column texts and the 365-day calendar. Not until the last century B.C. is there evidence for the “Long Count” dating of monuments, and Long Count dates do not appear in the lowland Maya region until after A.D. 200.

### *The Early Formative Period (1500–900 B.C.)*

The Early Formative was a period of village societies with evidence for rapidly emerging differences in social rank. It was also a period of complex and elaborate iconography, with a variety of abstract symbols artistically expressed in stone sculpture, ceramics, and roller-stamps which may have been used for decorating textiles or human bodies. Many of the iconographic symbols of this period are so widespread as to be pan-Mesoamerican, although the style which has received the most attention is that of the Olmec people of Mexico’s Gulf Coast (Coe 12, Joralemon 30). As the quotation from Thompson at the start of the paper indicates, Olmec iconography is so rich that many of its enthusiasts have “leapt over the demarcation line” and attributed the origins of Mesoamerican writing to the Olmec. A more restrained view has been taken by at least one leading Olmec scholar, Michael Coe (12, p. 756), who says, “Although it is often stated that the Olmec had hieroglyphic writing, the evidence for this is admittedly slim.”

One of the most serious problems facing proponents of an Olmec origin for writing is chronological: the Olmec actually came along too soon. As Coe's recent work at San Lorenzo, Veracruz shows (14), the Olmec monumental carving style goes back to 1200 B.C. and had virtually run its course by 400 B.C. A decade ago, Coe (12, p. 769) had already argued that "With the destruction of La Venta [another important Olmec site, in Tabasco] around 400 B.C., the style ends at that site, and presumably throughout the climax region, since truly Olmec monuments elsewhere are almost indistinguishable in style from those at La Venta." The only Olmec monument of the period 1200–400 B.C. which can even remotely be construed as having a column of hieroglyphs is Monument 13 at La Venta; and (as discussed below) this monument appears to be no earlier than 500–400 B.C., by which time there are several hieroglyphic texts outside the Olmec region. Moreover, the most frequently cited Gulf Coast monument—Stela C at Tres Zapotes (also discussed below)—has a Long Count date of 31 B.C., and hence falls 400 years after the decline of the Olmec. The irony is that it is the Olmec enthusiasts themselves who have weakened the case for the Olmec; in their efforts to attribute to the Olmec "America's first great art style," they have pushed back the dates until the Olmec are now too early to be credited with inventing the Long Count.

A second objection to any theory of Olmec origins is the lack of congruity between Olmec iconographic symbols and early Mesoamerican hieroglyphs. None of the most common Olmec symbols—the St. Andrew's cross, the flame eyebrow, the U motif, and so on—were used as hieroglyphs in Middle or Late Formative texts; nor are any of Mesoamerica's earliest indisputable hieroglyphs common in Olmec art. What the Early Formative peoples did do in the way of "setting the stage" for what was to follow was (a) establish the use of stylized, nonrepresentational symbols which were of widespread intelligibility and meaning, and (b) work out sophisticated techniques of stone monument carving, which would later become the preferred medium for writing. However, they had not yet taken the next step to writing and calendrics. Their iconography was complex, but complex iconography—whether produced by the Olmec, the Kwakiutl, or the Maori—does not qualify as a writing system.

Perhaps the best way to summarize it is to say that Early Formative Mesoamerica was communicating a richness of cosmological, ritual, and perhaps even social information, but not political information. When writing began in the Middle Formative it was in the form of *political information set in a calendric framework*. This may in fact be our strongest clue to the original impetus for the earliest Mesoamerican writing.

#### *The Middle Formative Period (900–400 B.C.)*

It is during the second half of the Middle Formative period (perhaps as early as 600 B.C.) that our earliest demonstrable examples of hieroglyphic writing occur. As of 1976, hieroglyphic and calendric inscriptions of this period are limited to stone monuments in the Valley of Oaxaca (in the Zapotec region) and the site of La Venta (in the Olmec region).

1. MONUMENT 3, SAN JOSÉ MOGOTE, VALLEY OF OAXACA    Monument 3 (Figure 2) was discovered at San José Mogote (15 km north of the city of Oaxaca) in 1975 and is published here for the first time. It was discovered in situ serving as the threshold stone for a corridor between two large public buildings of the Rosario phase (600–500 B.C.) atop Mound 1 (Flannery & Marcus 24). Monument 3 was laid flat on a bed of stone slabs, so that anyone entering the corridor would tread on the body of the slain or sacrificed captive depicted in the carving. It is our oldest example of a type of carved stone traditionally (and erroneously)

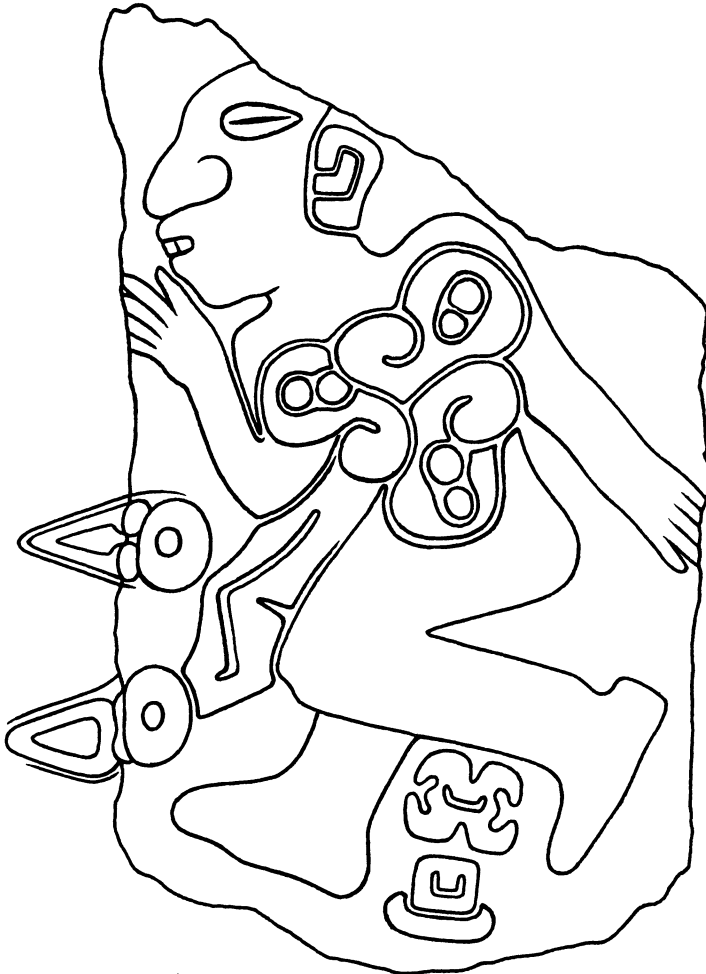


Figure 2    Monument 3, San José Mogote, Valley of Oaxaca.

referred to as a *danzante*, of which more than 300 examples were previously known from the nearby site of Monte Albán (Caso 4,5). Elsewhere Coe (10) and I (34) have argued that the 300 *danzantes* at Monte Albán—all of which were evidently originally set in a single wall—represent a “gallery” of slain prisoners, as evidenced by their closed eyes, open mouths, and awkward position; their nudity; and the “flowery” scrolls which probably represent blood flowing from various parts of the body. The building in which the *danzantes* were originally set was believed by Caso to date to the Monte Albán IA period (500–400 B.C.).

Monument 3 at San José Mogote is significant because the figure has between his feet a short notation of two glyphs which can be read as “1 Earthquake” (the seventeenth day in the Zapotec list of 20 day names). This inscription is a date in the 260-day Sacred Round, our first documented use of that calendar. It may represent the day on which the victim was sacrificed or, in accord with Zapotec custom, his personal name (= day of birth).

As for the 300 *danzantes* at Monte Albán, a possible link between Zapotec monuments and the Zapotec spoken language may be concealed in the flowery “blood scrolls” which issue from the groin or genital area of some figures. According to Paddock (40, p. 118), the Zapotec word for flower is *gui*, the word for sexual organ *gui* plus the possessive prefix *x* or *sh*. Still another meaning for *gui* is given by Córdova (19) in his dictionary of sixteenth-century Zapotec: “that which is offered in sacrifice.” The groin scrolls of the *danzantes* may therefore represent a triple pun, for “flower”-“sexual organ”-“sacrificial victim.” Such scrolls do not constitute writing, but they serve to remind us that Mesoamerican writing systems featured a great deal of punning and rebus-writing which cannot be understood without reference to the spoken language.

2. STELAE 12–13, MONTE ALBÁN, VALLEY OF OAXACA Stelae 12 and 13 (Figure 3) were discovered at the southern end of the so-called *danzante* gallery, which runs between System M and Mound L (the Building of the *danzantes*) in the southwestern sector of the main plaza at Monte Albán (Caso 3). The in situ position of Stelae 12 and 13 at the end of the *danzante* wall almost certainly places them in the phase Monte Albán IA (500–400 B.C.).

Stelae 12 and 13 constitute a pure text of approximately 8 separate hieroglyphs. The text includes hieroglyphs both with and without numerical coefficients; therefore, at least some of the hieroglyphs would seem to deal with calendric information. In fact, these stelae are often cited (Caso 3, 5, 7; Prem 41) as evidence for the antiquity of the 260-day calendar [*pije* or *piye* in the Zapotec language (Córdova 18)]. The day signs seem to be set apart by their inclusion within roughly circular cartouches. In Column A, Row 1 the year sign with the day “4 M” as the year bearer appears [in the Caso system (3), individual hieroglyphs are given a letter designation]. The next two hieroglyphs on Stela 12 are unknown in meaning, but they do not appear to include numerical coefficients. In Column A, Row 4 another apparent day sign appears with the numerical coefficient of 8 beneath the cartouche. Moving over to Stela 13, in Column B, Row 1 appears a jaguar glyph which is not surrounded by a car-

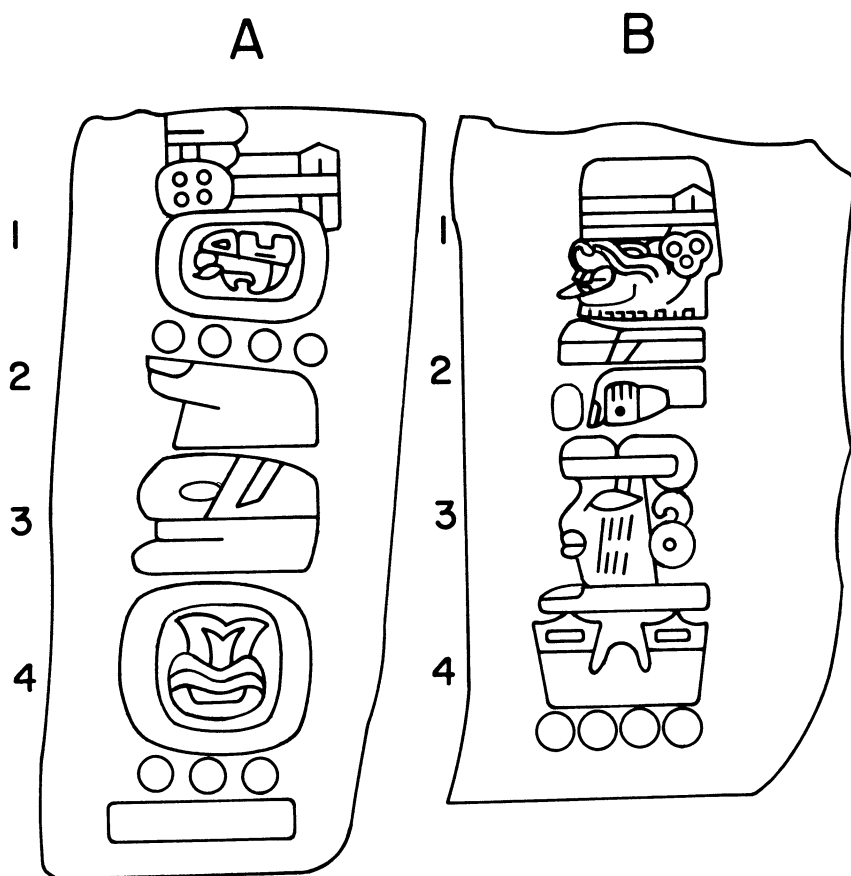


Figure 3 Stelae 12–13, Monte Albán, Valley of Oaxaca (redrawn from Caso 7, Figures 2, 3).

touche; this jaguar glyph is apparently subfixed by two bars, signifying 10. In Column B, Row 3 appears a profile head glyph with a digit or finger, which has in the past been variously interpreted as signifying “five,” “first” (the ordinal number one), or perhaps having no numerical significance. Finally, in Column B, Row 4 there is a 4 subfixing an apparent month glyph.

I feel we should consider the possibility that these two stelae comprise a single continuous inscription which may have been read in pairs of hieroglyphs as were later inscriptions: e.g. A1-B1 from left to right, then A2-B2, and so on from top to bottom. Thus we might read this text as beginning with a year sign, with the year bearer as the day 4 M in the month 10 Jaguar; again at A4-B4, one sees the day 8 Z in the month 4 W. One reason for this suggestion is that the hieroglyph at B4 occurs with numerical coefficients larger than 13. In the 260-day calendar,

day signs can *only* occur with numbers from 1 to 13; however, *months* can occur with numbers from 1 to 19. If both days and months are given, there is the possibility that even at this early date we have some evidence for the Calendar Round.

Thus these two stelae may constitute our most ancient evidence for the 260-day calendar, the year bearer, the year sign, and (possibly) the division of the 365-day year into “months” of 20 days each. The double-column format and the lack of a pictorial scene qualify these stelae as perhaps our oldest unambiguous evidence for writing. Since no example of a glyph with a numerical coefficient over 18 is known, one might also assume that we have some evidence for the typical Mesoamerican vigesimal system.

Additionally, during Monte Albán I at least 20 *danzantes* have short texts of from two to eight hieroglyphs. There are, however, no *danzantes* that show the association of a numerical coefficient and day sign. The usual interpretation for these short captions is that they represent personal names. There are some hieroglyphs that occur with more than one *danzante*, but no two combinations of hieroglyphs are identical. For Monte Albán I, I would estimate that we have some 30 monuments with an early form of writing. Most importantly, we have Stelae 12 and 13, which taken together constitute a text arranged in the typical Mesoamerican format of vertical columns.

3. MONUMENT 13, LA VENTA, TABASCO Monument 13 at La Venta (Figure 4), discovered in 1943 by Drucker and Wedel (Drucker, Heizer & Squier 23), is a carved columnar basalt slab which depicts a standing figure carrying a pennant-like object; this has given the stone its nickname, “the Ambassador Monument” (Coe 15, p. 148; Drucker, Heizer & Squier 23, p. 40). It was found upright in the drift sand layer (Level a), which was the uppermost stratum of Mound A-2 in Complex A at La Venta.

The placing of Monument 13 here clearly occurred after the (b-1) red clay was deposited. . . . Monument 13, therefore, in its present position dates from the very end of the La Venta site (23, p. 43).

This places Monument 13 in stratigraphic Phase IV at La Venta. Based on the following discussion of radiocarbon samples at the site, I would tentatively assign the monument to the period 500–400 B.C., making it roughly equivalent in time to Monte Albán IA.

We are, however, in a position to provide an estimated date for Phase IV. . . . The arithmetic average of samples M-528 and M-533 is 2,265 years ago (309 B.C.). Using the method of determining the weighted average (Wauchope 62), we derive the figure  $2,289 \pm 195$  years (B.C.  $333 \pm 195$ ). . . . We therefore place the end of Phase IV as falling within the period 450 to 325 B.C., probably near the early part of that span. In round numbers, we have selected the date 400 B.C. as marking the termination of the use of the Ceremonial Court by its builders (23, p. 267).

Although no calendric glyphs (days, months, year bearers, etc) or numerical coefficients appear on Monument 13, there are three possible hieroglyphs in a



Figure 4 Monument 13, La Venta, Tabasco (redrawn from Drucker 22, Figure 61).

vertical column which appear to the right of the standing figure. The last hieroglyph seems to be the head of a bird, perhaps constituting part of the name of the individual depicted. To the left a footprint appears in isolation; this sign later became a common convention in Mesoamerica for “travel” or “journey.”

This monument is crucial for those who maintain that the Olmec people invented writing. Three hieroglyphs is admittedly slim evidence, but they do constitute a column, which is the format for later Mesoamerican writing. Significantly, however, there are no corresponding calendric hieroglyphs or numerical coefficients on any Olmec stone monument of this period.

*The Late Formative Period (400 B.C.–A.D. 50)*

The Late Formative period saw major advances in both writing and calendrics, with double-column texts becoming common for the first time. Toward the end of the period appeared our first Long Count dates, including the concept of the

base date as well as position-value notation (units of 1, 20, 360, 7,200, and 144,000 days). In conjunction with these calendric advancements, we can note greater complexity in the formation of glyphs—an increase in the number of noncalendric hieroglyphs and in the number of compound glyphs (main signs + affixes).

The geographic distribution of Late Formative monuments is also more extensive than was the Middle Formative distribution. Oaxaca and the Gulf Coast continued to be important areas, now joined by Chiapas and by the highlands and Pacific coast of Guatemala. Within a period of 50–70 years, at least four sites erected Long Count monuments in calendar Cycle 7—Chiapa de Corzo, Tres Zapotes, El Baúl, and Abaj Takalik. As of this writing, there are still no Cycle 7 monuments known from the lowland Maya region, which is so closely associated with the Long Count in most archaeologists' minds.

1. BUILDING J, MONTE ALBÁN, VALLEY OF OAXACA During Period II at Monte Albán (perhaps as early as 200–100 B.C.), a curious public building with an arrowhead-shaped ground plan was erected in the Main Plaza. While this structure, Building J, has frequently been referred to in the literature as an “observatory,” there is no solid evidence for such a functional interpretation. Rather, its most outstanding feature is a series of at least 40 carved stone slabs set in its façade, interpreted here as a record of places conquered or subjugated by Monte Albán (Marcus 35). These so-called “conquest slabs” were originally defined by Caso (5, p. 21) as including the following elements: (a) a “hill” sign, signifying “place”; (b) a human head, upside down, beneath and attached to the “hill” sign; (c) a compound glyph that represents the name of the place, appearing above the “hill” glyph; (d) a hieroglyphic text that in its most complete form includes the year sign, year-bearer, month, day, and an assortment of glyphs in columns (35). Some of these Mound J texts are arranged in the double-column format (Figure 5). There is an increase in the number of noncalendric signs, but we are still unable to derive much meaning from these inscriptions beyond the name of the place itself. However, given the large number of monuments with writing at Monte Albán during both Middle and Late Formative times, I have confidence that some progress will be made soon.

2. STELA 2, CHIAPA DE CORZO, CHIAPAS Stela 2 (Figure 6) was one of eight broken stela fragments discovered in 1961 inside the fill on the surface of Mound 5b at Chiapa de Corzo. Lowe (33, p. 194) suggests that the fragments had been removed, already broken, from a place nearby, primarily because after a careful search he was unable to locate more fragments.

The carved stone is a single rectangular fragment of finely laminated white limestone with a prepared face (Lee 31, p. 105). The importance of this fragment is that it bears a series of bars and dots arranged horizontally, which indicate position-value notation. What can be read immediately from the stone are the following: part of a bar (5); another bar (5); three dots (3); two dots (2); two bars and three dots (13); a vertical bar and a dot (6).



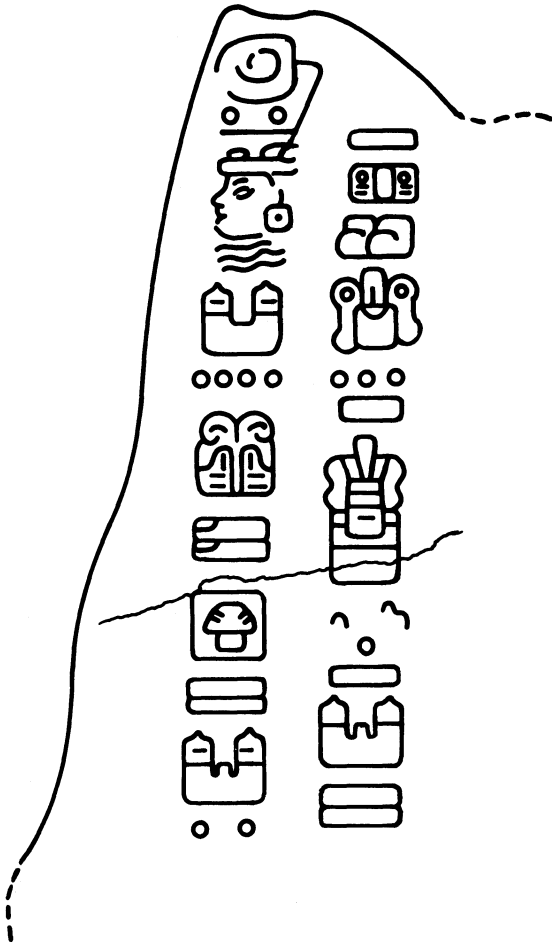


Figure 5 Part of a text from Lápidas 14 set into Structure J, Monte Albán, Valley of Oaxaca (redrawn from Caso 7, Figure 12).

If we assume that this series of numbers represents a fragment of an Initial Series date, we then would be missing the Initial Series Introducing Glyph, the number of *baktuns*, and quite possibly part of the number referring to the *katuns*, since this is the place where the subsequent weathering begins on the stone. Since the number of *k'ins* is 13, we know that the day sign must be the thirteenth day of the 20 days in the 260-day calendar. This would be *Ben* (Maya name) or *Acatl* (Nahuatl or Aztec name). If we look at the day sign carefully we note that it most closely resembles the later Aztec day sign, *Acatl* or "reed," rather than the corresponding Maya sign. Thus, if our Initial Series reaches a day 6 *Acatl*,

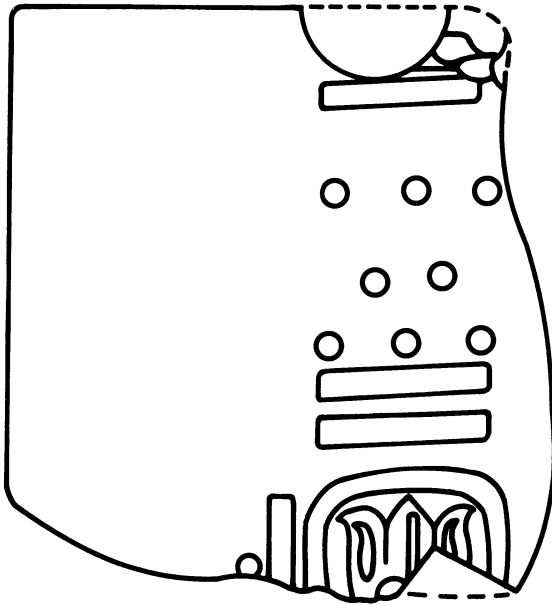


Figure 6 Stela 2, Chiapa de Corzo, Chiapas (redrawn from Lee 31, Figure 60).

and we assume that we are counting the number of days that have elapsed since 4 Ahau 8 Cumku (the base date used by the Maya), we would reconstruct the Stela 2 date as (7.16) 3.2.13 6 Acatl (16 Toxcatl) or 6 Ben (16 Xul). This Long Count date, the oldest presently known, would correspond to December 9, 36 B.C. (Coe 13, p. 59).

3. STELA C, TRES ZAPOTES, VERACRUZ The site of Tres Zapotes includes approximately 50 mounds, stretching along the Arroyo Hueyapan for 3 km. The mounds are separated into 4 groups, each of which has a plaza; the easternmost has been designated Group C. The principal mound of this group is located on the highest point of the site terrace. Immediately in front of the south base of this high mound, Matthew Stirling in 1939 discovered the lower half of a broken monument, Stela C, with a flat stone altar set in front of it. On the front of Stela C was a "jaguar mask" panel, while on the back appeared a column of bars and dots (Stirling 52, p. 1; Figure 7).

This apparent Long Count date consists of a vertical column of bars and dots placed horizontally. The numbers are not accompanied by period glyphs (e.g. days, months, years, and so forth). However, on the basis of position-value notation, Stirling reconstructed the Long Count date as (7) .16.6.16.18. Having recovered only the lower half of Stela C in 1939, he inferred that if the top half should ever be found it would include the Initial Series Introducing Glyph and the number 7, for *Baktun* 7. His reconstruction has been confirmed by the recent

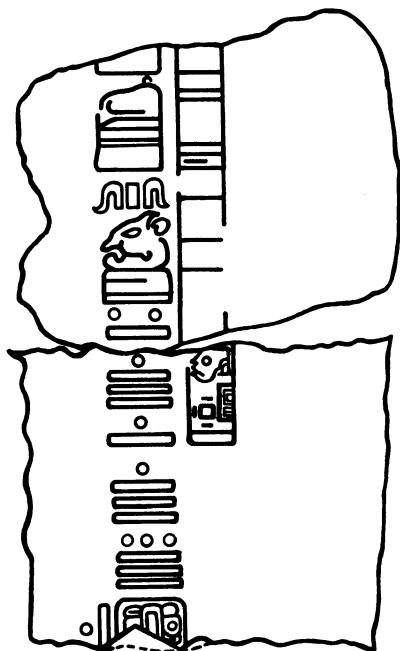


Figure 7 Back side of Stela C, Tres Zapotes, Veracruz (redrawn from Cohn 17, A8).

discovery of the top half of Stela C, which indeed includes both the Introducing Glyph and a (*Baktun*) 7 (Cohn 17; Figure 7).

The variable element in the Initial Series Introducing Glyph resembles a jaguar head, which is the patron of the month Pop. In the Petén or "Classic Maya" system, the month position would be 1 Uo; however, in the Campeche or "Puuc" system, it would be "completion of Pop." The ISIG variable element is either a jaguar (patron of Pop) or the jaguar sun (patron of Uo); thus, either the Campeche or Classic Maya system could have been employed. In either case, the patron god in the ISIG appears to strengthen the case that the same base date (3113 B.C.) was employed for both Cycle 7 and later Classic Maya texts.

Stirling, by analogy with later Maya monuments, assumed that the number 6 (which appears to the left of the last hieroglyph) represented the coefficient of the day. His complete reading was (7) .16.6.16.18 6 Etznab (1 Uo). From the Maya base date in the year 3113 B.C., one computes the number of days elapsed or  $7 \times 144,000$ ;  $16 \times 7,200$ ;  $6 \times 360$ ;  $16 \times 20$ ;  $18 \times 1$ , which then reaches a day 6 Etznab in the month 1 Uo. With a Gregorian calendar correlation, this date would fall in 31 B.C.

In summary, the important characteristics of Stela C, Tres Zapotes are the following:

1. Two columns of hieroglyphs.
2. An Initial Series Introducing Glyph.
3. A column of horizontally placed bars and dots.
4. A vertical coefficient and a day glyph.
5. No month coefficient or month glyph.

4. MONUMENT E, TRES ZAPOTES, VERACRUZ Monument E at Tres Zapotes is carved into the bedrock floor of the Arroyo Hueyapan, just east of the "Burnt Mounds" group; the carving was found more than a meter below the surface of the stream at low water mark (53, p. 21). The monument bears a dot, a bar, and a third element which is either a second bar or an unknown glyph (Figure 8).

There has always been some question as to the chronological position of Monument E. On the basis of associated ceramics, Drucker (21, p. 118) felt that Monument E was associated with the Lower Horizon of Trench 26, or Tres Zapotes I. Coe (11, Table I) would assign Tres Zapotes I to the Late Formative period (300 B.C.–A.D. 1), making Monument E broadly contemporary with Stela C.

5. STELA 1, EL BAÚL, GUATEMALA Stela 1, also known as the Herrera Stela, was discovered at the site of El Baúl in the Department of Escuintla on the Pacific piedmont of Guatemala (Waterman 64). Waterman (63, p. 351) photographed Stela 1 in 1923, and in 1924 reported that its location was on the flank of a "great structure."

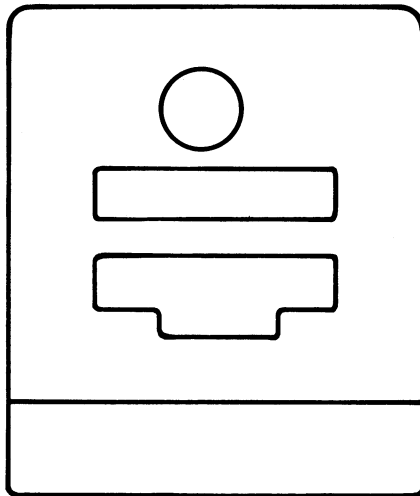


Figure 8 Monument E, Tres Zapotes, Veracruz (redrawn from Stirling 53, Figure 5).

Walter Lehmann (32, p. 175) was the first individual to suggest a reading of the inscription: 7.19.7.8.12 12 Eb (20 Kankin or 0 Muan). Since that time another reading has been offered by Michael Coe (9, p. 603) as 7.19.15.7.12 12 Eb (0 Ceh). Still another has been tentatively put forth by Tatiana Proskouriakoff as 7.18.14.8.12 12 Eb (5 Cumku). These readings would correspond to A.D. 29, 36, and 16, respectively.

We may look at the inscription (9, Figure 4) to see the merits of each reconstruction. The text (which appears on the left side of the monument) opens with an apparent day sign with a superfix of 12. The two dots and two bars appear above a fleshless jawbone, which is recognizable as the day Eb in the Maya calendar; but the presentation of the day sign before the Initial Series or Long Count date is most unusual. Four small hieroglyphs immediately follow the day 12 Eb, and they appear to be paired. Below these tiny hieroglyphs, we have a Long Count date without the Initial Series Introducing Glyph. Then there is a clear bar with two dots above it—Cycle (or *Baktun*) 7, according to all the proposed reconstructions. Because of the subsequent weathering of the stone, the next number is less clear; as Coe (9, p. 603) has indicated, it is either 18 or 19 (*katuns*). In photographs published by Burkitt (2, Figure 4), Proskouriakoff (42, Figure 110a), and Thompson (56, Figure 8d), the number of *katuns* appears to be 18. The next number should take up three lines, e.g. 14 or 15. The number of “months” or *uinals* could be either 8 or 7; it is very difficult to tell because of the weathering on the left side of the number. Finally, we have 12 *kins*—which would have to be there in order to connect back to the day sign Eb at the top of the inscription, since Eb is the 12th day of the 20 possible day names.

The two best reconstructions appear to be Coe’s and the alternative suggested to me by Proskouriakoff: 7.19.15.7.12 12 Eb (0 Ceh) or 7.18.14.8.12 12 Eb (5 Cumku), respectively. The difference between the two dates is approximately 20 years, Coe’s date corresponding to A.D. 36, while Proskouriakoff’s corresponds to A.D. 16. Since there is no month coefficient or month sign, we are unable to determine which reconstruction is correct.

6. STELA 2, ABAJ TAKALIK, GUATEMALA Numerous monuments have been discovered in the southeastern portion of the Department of Quezaltenango on the Pacific piedmont of Guatemala (Miles 37, Thompson 55). Spanning two adjacent *fincas* or ranches—Santa Margarita and San Isidro Piedra Parada—there lies a single extensive site. On the boundary line between the two *fincas*, and near one of the pre-Columbian mounds, stood Stelae 1 and 2 (9, p. 604).

In 1925, Lehmann excavated and recorded Stela 2, designating it the “Piedra Schlubach” (32, p. 176). Stela 1 at that time was referred to locally as the “Piedra Fuentes,” and reported to be from San Isidro Piedra Parada; Stela 2 later came to be referred to as the monument from Santa Margarita (42, Figures 109a, b). Because of the confusion caused by the two *finsa* names, Miles (37, p. 246) suggested that for convenience all of the local designations should be subsumed under the name Abaj Takalik (“Standing Stones”), which will hereafter be used to designate the site.

Stela 2 bears a hieroglyphic text arranged in a column. The first hieroglyph closely resembles the Initial Series Introducing Glyph of the later Maya. The trinary affix (three elements) appear above an effaced *tun* or year sign; below this glyph, there appear to be two dots above a bar. This horizontal 7 should therefore be considered to indicate a Cycle or *Baktun 7*, since it immediately follows the Initial Series Introducing Glyph. Unfortunately, the rest of the Initial Series date cannot be reconstructed, but given the evidence at present, I see no reason to question the fact that this monument records a contemporaneous *Baktun 7* date.

7. KAMINALJUYÚ, GUATEMALA The site of Kaminaljuyú in the highlands just west of Guatemala City has produced at least two Late Formative monuments with texts. Both Stela 10 (Miles 37, p. 255; see also Heath-Jones 28) and Altar 1 have been dated to the Miraflores phase (300 B.C.–A.D. 1). Stela 10 is a black basalt sculpture which includes day signs in cartouches accompanied by bar-and-dot numerals. Incised on this important monument are 4 columns of text, including at least 30 hieroglyphs which cannot as yet be read. Additionally, Altar 1 (37) includes a text in the double-column format. Typologically, the Kaminaljuyú texts still represent our most likely precursors for the later Maya hieroglyphic system.

8. OTHER MONUMENTS One other monument with a text which could be assigned stylistically to the Late Formative is Monument 1 at El Portón in the Salamá Valley, northern Guatemalan highlands (Sharer & Sedat 48, p. 185). Unfortunately, its exact chronological placement is uncertain.

A Late Formative site whose monuments have received a great deal of attention is Izapa, on the Pacific Coast of Chiapas not far from the Guatemalan border (Quirarte 44). Izapa has frequently been described as a site whose stone monuments bridge the gap between the Formative Olmec and the Classic Maya (Coe 12, p. 773). This cannot be the case with regard to writing or calendrics, however, since not a single Izapa monument contains a hieroglyphic text or date.

## TEXTS OF THE PROTO-CLASSIC PERIOD (A.D. 50–200)

The double-column format is even more developed and geographically widespread during this period, as evidenced by the El Trapiche monument from El Salvador. However, the most securely dated example of Proto-Classic writing is the Tuxtla Statuette from Mexico's Gulf Coast.

1. EL TRAPICHE, EL SALVADOR The El Trapiche Mound Group is located 1 km northeast of Chalchuapa in western El Salvador. Buried at the base of 23 meter-high Mound 1 were battered fragments of three stone monuments, one of which shows an extensive hieroglyphic inscription with 8 columns, or 4 "paired" columns of text. Sharer (47) suggests that this stela dates somewhere

between 200 B.C. and A.D. 200, and on stylistic grounds a Proto-Classic assignment is reasonable. Unfortunately, only a few glyphs are uneroded, but they are already recognizable as Maya glyphs.

2. THE TUXTLA STATUETTE, VERACRUZ, MEXICO The jadeite Tuxtla Statuette was discovered in 1902 by a farmer plowing his fields in the district of San Andres Tuxtla, Veracruz, some 25 km from the site of Tres Zapotes (Washington 61, p. 1). Although there are approximately 50 hieroglyphs on the sides and back of the statuette, what will concern us here is the apparent Initial Series date on the front of the figure (Figure 9).

In most respects, the Initial Series on the Tuxtla Statuette is quite similar to that recorded on Stela C at Tres Zapotes. The Introducing Glyph carries a trinary superfix, in this case three scrolls. The Introducing Glyph is followed by a column of horizontally placed bar and dot numerals. If we again assume position-value notation, we would reconstruct this date as follows:

$$\begin{array}{r r r r}
 8 \text{ (baktuns)} & \times & 144,000 \text{ days} & = & 1,152,000 \text{ days} \\
 6 \text{ (katuns)} & \times & 7,200 \text{ days} & = & 43,200 \text{ days} \\
 2 \text{ (tuns)} & \times & 360 \text{ days} & = & 720 \text{ days} \\
 4 \text{ (uinals)} & \times & 20 \text{ days} & = & 80 \text{ days} \\
 17 \text{ (kins)} & \times & 1 \text{ day} & = & 17 \text{ days} \\
 & & & & \hline
 & & & & 1,196,017 \text{ days} \\
 & & & & \text{elapsed}
 \end{array}$$

If we assume that the above number of days elapsed is counted from the base 4 Ahau 8 Cumku, the Calendar Round to be reached is 8 Caban (0 Kankin). Looking at the last number in the column, we notice that there is indeed a vertical 8 as a coefficient to a day sign. Although the day does not look like Caban as written by the Maya, it should logically be Caban because that is the 17th day of the possible 20 day names; the month position and month are not given. The Initial Series date 8.6.2.4.17 8 Caban (0 Kankin) would correspond to A.D. 162 in our calendar.

## THE ORIGINS OF CLASSIC MAYA WRITING

During the period A.D. 292–909, the Maya of northern Guatemala, eastern Mexico, and western Honduras achieved the maximum elaboration of Meso-american writing. Among the hundreds of Maya glyphs of this period are many which can be identified as verbs, nouns, adjectives, prepositions, and other parts of speech. The complexity of the system has been clearly underestimated by at least one noted Old World epigrapher, who tells us that “even a superficial knowledge of the inscriptions of the Aztecs and Mayas is enough to convince oneself that they could never have developed into real writing without foreign influence” (Gelb 25, p. 58).

The spoken language of the Maya is primarily monosyllabic, and the individual elements of Maya hieroglyphs also seem to be monosyllables. Compound

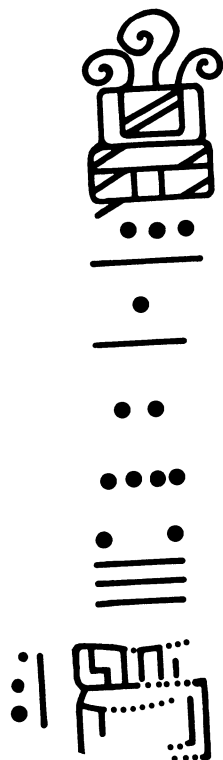


Figure 9 Text from the front side of the Tuxtla Statuette (redrawn from Satterthwaite 46, Figure 3).

glyphs (main signs plus affixes) are usually composed of nouns + adjectives, or verbal roots + tense. In this respect most scholars (Graham 27, Thompson 58) agree that, of all Mesoamerican writing systems, the Maya most closely reflects or corresponds to a spoken language. Maya writing does seem to exhibit greater complexity, flexibility, and capacity to record the nuances of the spoken words. Additionally, various written elements represent sounds, others represent objects, and others represent ideas. There are also determinatives, which serve to reduce ambiguity by specifying a particular meaning for the glyphs to which they are attached. The Maya system is partly phonetic, partly pictographic, and partly ideographic. Most of the recent epigraphic controversy has centered around the question: How phonetic or syllabic is it?—a question which cannot as yet be answered (Thompson 58, 59).

Classic Maya writing has plausible Late Formative antecedents, though knowledge of those antecedents would never have allowed one to predict the subsequent complexity of the period A.D. 292–909. In this section, I will confine



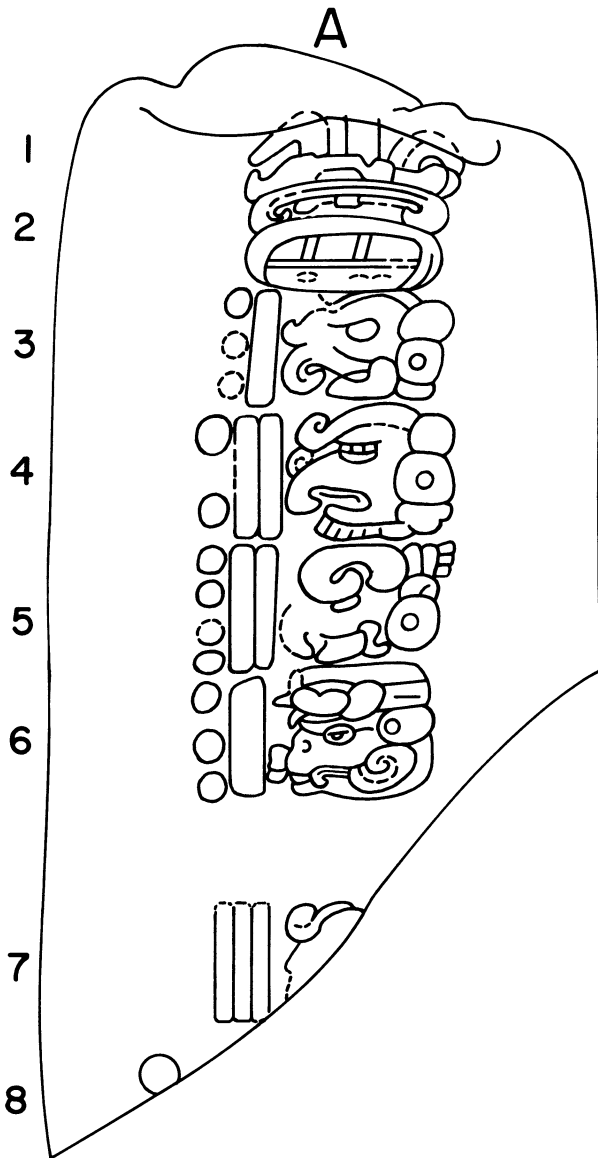


Figure 10 Back side of Stela 29, Tikal, Guatemala (redrawn from Shook 49, 33).

myself to a discussion of the two earliest known Classic Maya texts, and then give an example of how one of the better-known Late Classic monuments might be translated.

1. STELA 29, TIKAL, GUATEMALA Tikal lies about 320 km north of Guatemala City, in the tropical rain forest of the Department of Petén. In 1959, one of the University of Pennsylvania's Tikal Project workmen, Marcos López, discovered a fragment of a stela some 200 meters west of the Great Plaza. This stela fragment lay face up, with the left edge of the front side partially exposed (Shook 49, p. 30). The fragment proved to be the upper half of a stela then designated Stela 29; it was located on the rear slope of a mound near a fragment of Altar 13. William R. Coe has characterized this location as "an ancient dump" (16, p. 92).

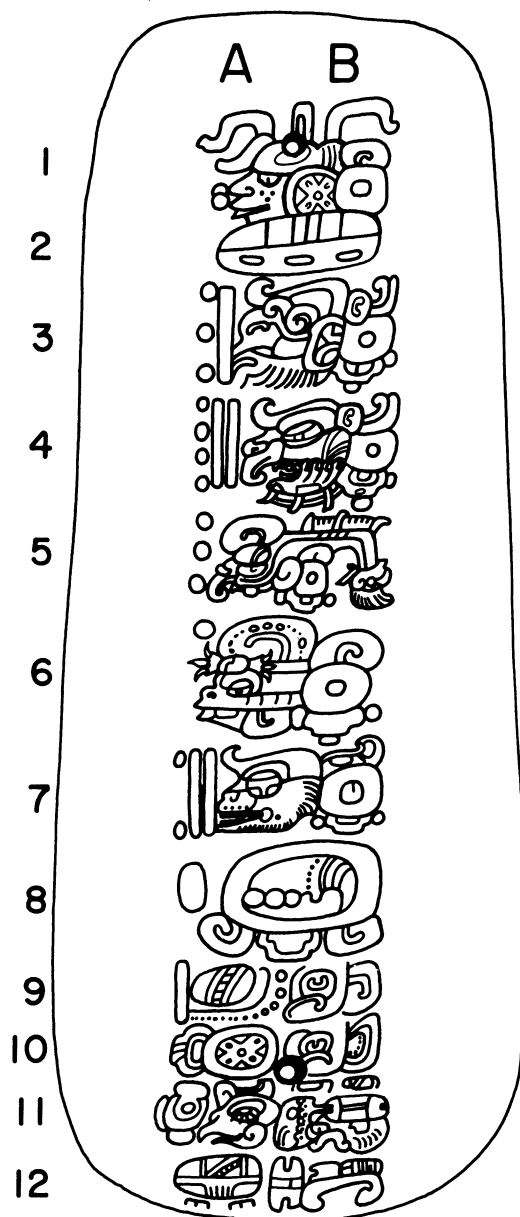
Although the front of Stela 29 portrays a Maya ruler in Early Classic style, what concerns us here is the appearance of the bar-and-dot glyphs (numerical coefficients) on the back of the monument (Figure 10). The text can be transcribed as follows:

A1-2	Initial Series Introducing Glyph
A3	8 <i>baktuns</i>
A4	12 <i>katuns</i>
A5	14 <i>tuns</i>
A6	8 <i>uinals</i>
A7	15 <i>kins</i>
A8	One dot ( a fragment of the numerical coefficient of the day)

If we calculate the total number of days in the Long Count date 8.12.14.8.15, we can reconstruct the Calendar Round date as 13 Men 3 Zip. In the inscription we have one of the three dots of the numerical coefficient 13, but we are lacking the other two bars and the day sign Men. Additionally, we are missing the month position and month glyph.

For the first time, we have the bar and dot system of numeration set up vertically in order to serve as prefixes to the period glyphs. Satterthwaite (45, p. 37) has noted that the period glyphs for the *baktun*, *katun*, and *tun* are bird glyphs; the *uinal* glyph is the head of a frog, and the period glyph for the *kin* is largely missing, but by analogy with later monuments it should be the head of the "sun god." Thus, for the first time, the bars and dots appear vertically and act as coefficients for specified period glyphs which are of the "head-variant" type. According to the Goodman-Martínez-Thompson correlation, we can date this monument to July 6, A.D. 292.

2. THE LEYDEN PLAQUE, PUERTO BARRIOS, GUATEMALA In 1864, canal excavators discovered the Leyden Plaque near the Río Graciosa, a few kilometers from Puerto Barrios on the north coast of Guatemala. The Dutch civil engineer, S. A. van Braam, later presented the pale green jadeite plaque to the Rijksmuseum voor Volkerkunde in Leyden, Netherlands, where it remains today (Morley & Morley 38, p. 5; Shook 49, p. 29).



*Figure 11* Back side of the Leyden Plaque, Puerto Barrios, Guatemala (redrawn from Shook 49, 34).

While the front of the plaque shows a high-status individual standing in front of a captive, what will concern us here is the inscription on the back of the plaque (Figure 11). This inscription can be transcribed as follows:

- A1-B2 Initial Series Introducing Glyph with a variable central element, a *kin* or “sun god’s” head, which is the patron for the month Yaxkin; see A10.
- A3-B3 8 *baktuns*
- A4-B4 14 *katuns*
- A5-B5 3 *tuns*
- A6-B6 1 *uinal*
- A7-B7 12 *kins*
- A8-B8 1 *Eb*
- A9 Glyph G of the Supplementary Series (lunar series); this is the form for the fifth day.
- B9 Meaning unknown; perhaps indicating seating (0 position) of the month.
- A10 Yaxkin.
- B10-B12 Perhaps the seating or accession of a lord.

The inscription on the Leyden Plaque is similar in most respects to the earlier Stela 29 from Tikal; both include “head-variant” period glyphs which are prefixed by vertical bar-and-dot coefficients. However, there are some very important differences:

1. The Leyden Plaque gives us our oldest complete example of an Initial Series Introducing Glyph which includes the patron god for the month to be reached by the Long Count date.
2. The Leyden Plaque includes (for the first time) some information about the lunar cycle.
3. The Leyden Plaque is the first text to include the month position and glyph.

According to the Goodman-Martínez-Thompson correlation, the date on the plaque (8.14.3.1.12) corresponds to September 15, A.D. 320—apparently carved some 28 years after the Tikal monument, Stela 29. Interestingly, Morley & Morley in 1938 (38) presented a strong argument that Tikal was the original place of manufacture for the Leyden Plaque.

3. STELA 3, PIEDRAS NEGRAS, GUATEMALA Piedras Negras is a major Classic Maya ruin on the east bank of the Usumacinta River in the western Petén of Guatemala. Stela 3 from that site provides us with a good example of how a Late Classic Maya inscription might be read, since it has been more fully deciphered than most monuments of its time (Proskouriakoff 43, Thompson 58).

The front of the monument, although somewhat eroded now, portrays the male ruler of the site in A.D. 711. The back of the monument portrays his wife and daughter, who appear in the open space below the inscription in Figures 12 and 13. The inscription is read in paired columns, A1-B1, A2-B2, and so forth.

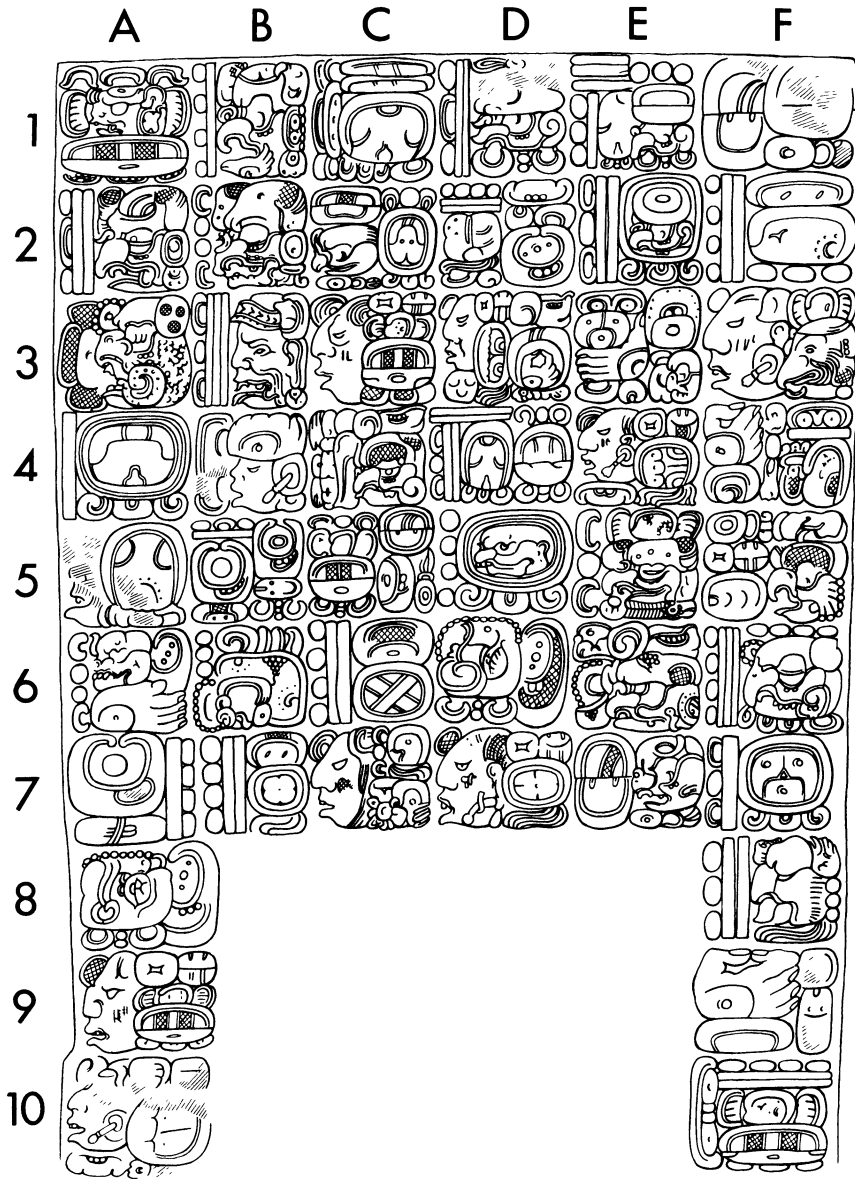


Figure 12    Back side of Stela 3, Piedras Negras, Guatemala (redrawn from Thompson 58, Figure 2).

	A	B	C	D	E	F
1	ISIG variable is sun god; patron of Yaxkin	9 baktuns	0 kins 10 uinals	12 tuns	15 kins 8 uinals (reversed positions) 3 katuns	Forward count to
2	12 katuns	2 tuns	Forward 1 count Cib to	14 Kankin	11 Imix	14 Yax
3	0 uinals	16 kins	Lady Ben-Ich "Katun"	Lady Akbal	Event	Lady "Katun" (vulture substitute)
4	5 Cib	7th lord of the night	Ruler's name	10 kins 11 uinals (reversed positions) 1 tun	Lady Akbal (Darkness)	Completion 5th haab
5	?	Moon age is 27 days	1 katun forward count to	4 Cimi	1 katun	Anniversary of accession to the throne
6	2 lunations	Glyph X	14 Uo	Was born	Ruler's name	19 kins 4 uinals
7	29-day moon	14 Yaxkin	Lady ?	Lady "Kin" (sunlight)	Forward count to	6 Ahau
8	Was born					13 Muan
9	Lady Ben-Ich "Katun"					Completion
10	Lady Akbal (Darkness)					14th katun

Figure 13 Glyph-by-glyph transcription of the back side of Stela 3, Piedras Negras, Guatemala.

When this stela was erected in A.D. 711, the ruler was 46 years old; his wife (“Lady Darkness”) was 37; and their daughter (“Lady Sunlight”) was 3. The text on the back of the stela begins with the date A.D. 674 (the birth date of the ruler’s wife) and proceeds to A.D. 686, when the wife was involved in an event as yet untranslated. From there it proceeds to A.D. 707 (the birth date of their daughter); to A.D. 711 (the 25th anniversary of the ruler’s accession to the throne, at which time the monument was erected); and finally to the completion of the 14th *katun*, 9.14.0.0.0. Figure 12 shows the original text on the back of Stela 3, while Figure 13 gives a plausible glyph-by-glyph translation.

## SUMMARY AND CONCLUSIONS

On the basis of present evidence, hieroglyphic writing in Mesoamerica began during the second half of the Middle Formative period, some 600 to 400 years B.C. A major theme of early Mesoamerican writing seems to have been the presentation of political information in a calendrical framework. This suggests that political evolution and early writing were functionally linked in some way that remains to be worked out.

The format of early Mesoamerican writing was a vertical column of hieroglyphs; by Late Formative times, a double-column format had evolved. At the present state of our knowledge, it would be unwise to attribute the origins of this writing to any single ethnic group, for it may have emerged over a wide area. Our earliest columns of text come from Oaxaca and Tabasco, but they are soon followed by texts from Chiapas, Veracruz, and southern Guatemala (Figure 14).

Our oldest evidence for the 260-day ritual calendar comes from Middle Formative Oaxaca. By Late Formative times, this 260-day Sacred Round had been combined with the 365-day Vague Year to produce the 52-year Calendar Round. Ironically, although the Long Count (which made use of all the above) is popularly associated with the lowland Maya, our earliest examples of Cycle 7 Long Count monuments come from the Zoque region (Chiapa de Corzo), Veracruz, and the Guatemalan Pacific piedmont. Not until the third century A.D. was the earliest known dated stela erected in the Maya lowlands. However, it was in that region that Mesoamerican hieroglyphic writing was to achieve its maximum versatility, greatest complexity, and closest proximity to the spoken language.

Despite the breakthroughs described in the introduction to this paper, the study of Mesoamerican writing is still in its infancy. Tremendous strides have been made in calendrics and in the recovery of political information, but hundreds of glyphs dealing with other topics remain to be translated—for example, those apparently dealing with ritual activity and kinship. Beyond this frontier lies the equally intriguing question of why the early urban centers of the Zapotec and Maya were so concerned with writing and calendrics, while the great metropolis of Teotihuacán in the Valley of Mexico seems to have afforded it so little importance.

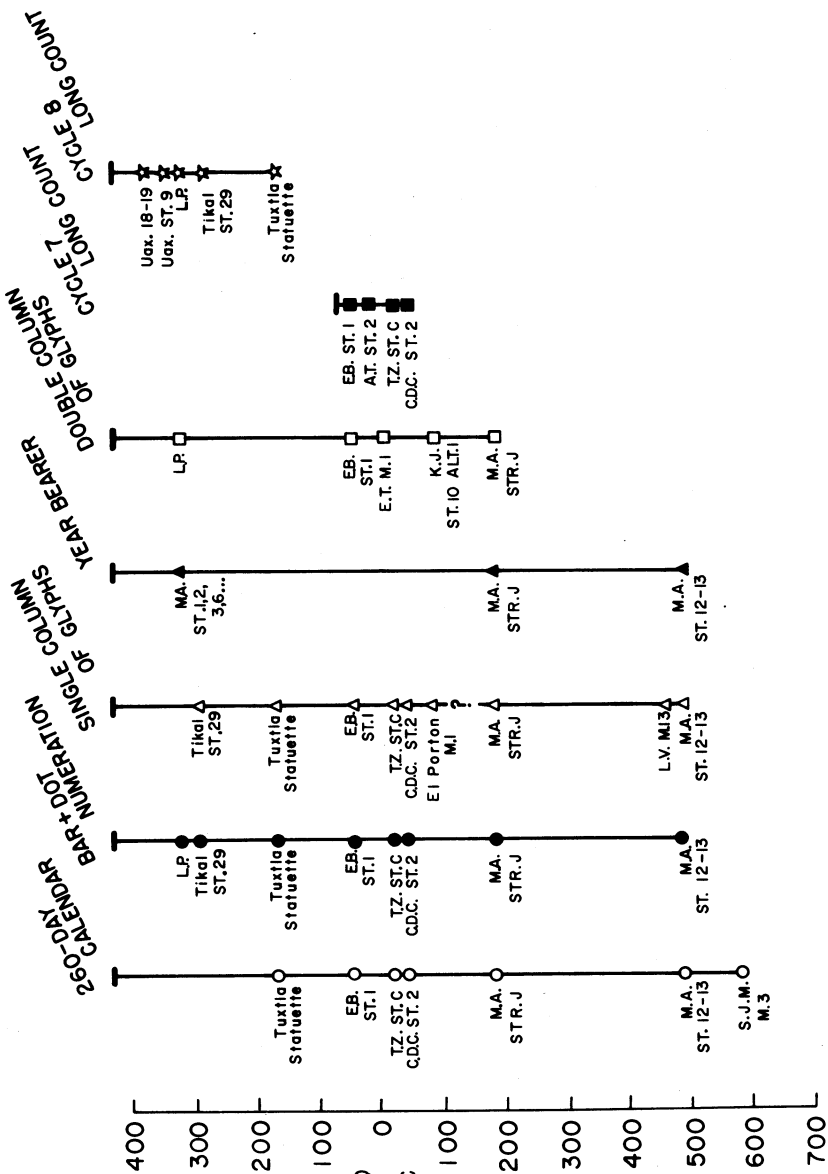


Figure 14 Chart indicating the initial and subsequent appearances of the 260-day calendar, bar + dot numeration, single column of glyphs, year bearer, double column of glyphs, Cycle 7 Long Count, and Cycle 8 Long Count in Mesoamerica. The abbreviations used in the chart are as follows: S.J.M. = San José Mogote; M.A. = Monte Albán; L.V. = La Venta; K.J. = Kaminaljuyú; C.D.C. = Chiapa de Corzo; T.Z. = Tres Zapotes; A.T. = Abaj Takalik; E.T. = El Trapiche; E.B. = El Batú; Uax. = Uaxactún; L.P. = Leyden Plaque; M. = Monument; ST. = Stela(e); STR. = Structure; and Alt. = Altar.



## Literature Cited

1. Berlin, H. 1958. El glifo "emblema" en las inscripciones mayas. *J. Soc. Am.* n.s. 47:111-19
2. Burkitt, R. 1933. Two stones in Guatemala. *Anthropos* 28:9-26, 781-82
3. Caso, A. 1928. *Las Estelas Zapotecas*. Publicaciones de la Secretaria de Educación Pública. Monografías del Museo Nacional de Arqueología, Historia y Etnografía. Mexico: Talleres Gráficas de la Nación
4. Caso, A. 1938. Exploraciones en Oaxaca, quinta y sexta temporadas 1936-37. *Inst. Panam. Geogr. His.* Publ. 34
5. Caso, A. 1947. Calendario y escritura de las antiguas culturas de Monte Albán. *Obras completas de Miguel Othón de Mendizábal* 1:5-102
6. Caso, A. 1949. El mapa de Teozacoalco. *Cuad. Am.* 8(5):145-81
7. Caso, A. 1965. Zapotec writing and calendar. In *Handbook of Middle American Indians*, ed. R. Wauchope, G. R. Willey, 3:931-47. Austin: Univ. Texas Press
8. Clark, J. C. 1912. *The Story of "Eight Deer" in Codex Colombino*. London: Taylor & Francis
9. Coe, M. D. 1957. Cycle 7 monuments in Middle America: a reconsideration. *Am. Anthropol.* 59(4):597-611
10. Coe, M. D. 1962. *Mexico*. New York: Praeger
11. Coe, M. D. 1965. Archaeological synthesis of southern Veracruz and Tabasco. See Ref. 7, 3:679-715
12. Ibid. The Olmec style and its distributions, 739-75
13. Coe, M. D. 1966. *The Maya*. New York: Praeger
14. Coe, M. D. 1968. San Lorenzo and the Olmec civilization. In *Dumbarton Oaks Conference on the Olmec*, ed. E. P. Benson, 41-78. Washington: Dumbarton Oaks
15. Coe, M. D. 1968. *America's First Civilization*. New York: Am. Heritage Publ.
16. Coe, W. R. 1967. *Tikal, A Handbook of the Ancient Maya Ruins*. Philadelphia: Univ. Museum, Univ. Pennsylvania
17. Cohn, V. 1972. Missing part of mystery tribe's calendar is found. *Washington Post*, Feb. 16, 1972
18. Córdova, J. de 1578. *Arte en lengua zapoteca*. Mexico: Balli
19. Córdova, J. de 1578. *Vocabulario en lengua zapoteca*. Mexico: Pedro Charre y Antonio Ricardo
20. Diringer, D. 1962. *Writing*. New York: Praeger
21. Drucker, P. 1943. Ceramic sequences from Tres Zapotes, Veracruz, Mexico. *Bur. Am. Ethnol. Bull.* 140
22. Ibid 1952. La Venta, Tabasco: a study of Olmec ceramics and art. *Bull.* 153
23. Drucker, P., Heizer, R. F., Squier, R. J. 1959. Excavations at La Venta, Tabasco, 1955. *Bur. Am. Ethnol. Bull.* 170
24. Flannery, K. V., Marcus, J. 1976. The evolution of the public building in formative Oaxaca. In *Continuity and Change in Prehistoric Cultures*, ed. C. Cleland, 205-21. New York: Academic
25. Gelb, I. J., Ed. 1974. *A Study of Writing*. Univ. Chicago Press
26. Goodman, J. T. 1905. Maya dates. *Am. Anthropol.* 7:642-47
27. Graham, J. 1971. Sobre la escritura Maya. *Desarrollo Cultural de Los Mayas*, ed. E. Z. Vogt, A. Ruz Lhuillier, 257-72. Mexico: Univ. Nac. Autón. Mex.
28. Heath-Jones 1959. Definition of an ancestral Maya civilization in Miraflores phase: Kaminaljuyú. *Abstracts of papers*, 24th ann. Soc. Am. Archaeol., ed. D. A. Suhm, 37
29. Herrera, A. de 1947. *Historia general de los hechos de los castellanos en las islas y tierra firme del Mar Océano VI*, Madrid
30. Joralemon, P. D. 1971. A study of Olmec iconography. *Studies in Pre-Columbian Art and Archaeology* 7. Washington: Dumbarton Oaks
31. Lee, T. A. 1969. The artifacts of Chiapa de Corzo, Chiapas, Mexico. *Pap. New World Archaeol. Found.* 26
32. Lehmann, W. 1926. Reisebrief aus Puerto Mexiko. *Z. Ethnol. Jahrg.* 58:171-77
33. Lowe, G. W. 1962. Algunos Resultados de la Temporada 1961 en Chiapa de Corzo, Chiapas. *Estud. Cult. Maya* 2:185-196
34. Marcus, J. 1974. The iconography of power among the Classic Maya. *World Archaeol.* 6(1):83-94
35. Marcus, J. 1976. The iconography of militarism at Monte Albán and neighboring sites in the Valley of

- Oaxaca. In *The Origins of Religious Art and Iconography in Pre-Classical Mesoamerica*, ed. H. B. Nicholson, 123-39. Los Angeles: Univ. California, Latin American Center
36. Martínez Hernández, J. 1926. *Paralelismo entre los calendarios Maya y Azteca. Su correlación con el calendario Juliano*. Merida: Compañía Tipográfica Yucateca
  37. Miles, S. W. 1965. Sculpture of the Guatemala-Chiapas highlands and Pacific slopes, and associated hieroglyphs. See Ref. 7, 2(10):237-75
  38. Morley, F. R., Morley, S. G. 1938. The age and provenance of the Leyden Plate. *Carnegie Inst. Washington, Contrib. Am. Anthropol. Hist.* Publ. 509, Contrib. 24
  39. Nuttall, Z. 1902. *Codex Nuttall, Facsimile of an Ancient Mexican Codex Belonging to Lord Zouche of Harynworth, England*. Cambridge: Peabody Museum, Harvard Univ.
  40. Paddock, J. 1966. Monte Albán: ¿sede de imperio? *Rev. Mex. Estud. Antropol.* 20:117-46
  41. Prem, H. J. 1971. Early calendrics and writing. Some aspects of the emergence of civilization in Mesoamerica, ed. R. F. Heizer, J. Graham. *Contrib. Univ. Calif. Archaeol. Res. Facil.* 11:112-32
  42. Proskouriakoff, T. 1950. A study of Classic Maya sculpture. *Carnegie Inst. Washington, Publ.* 593
  43. Proskouriakoff, T. 1960. Historical implications of a pattern of dates at Piedras Negras, Guatemala. *Am. Antiq.* 25:454-75
  44. Quirarte, J. 1973. Izapan-style art: A study of its form and meaning. *Studies in Pre-Columbian Art and Archaeology* 10. Washington: Dumbarton Oaks
  45. Satterthwaite, L. 1960. Maya "Long Count" numbers. *Expedition* 2(2):36-37
  46. Satterthwaite, L. 1965. Calendrics of the Maya lowlands. See Ref. 7, 3:603-31
  47. Sharer, R. J. 1969. Chalchuapa: Investigations at a Highland Maya ceremonial center. *Expedition* 11(2):36-38
  48. Sharer, R. J., Sedat, D. W. 1973. Monument 1, El Portón, Guatemala and the development of Maya calendrical and writing systems. *Contrib. Univ. Calif. Archaeol. Res. Facil.* 18:177-94
  49. Shook, E. M. 1960. Tikal Stela 29. *Expedition* 2(2):29-35
  50. Smith, M. E. 1973. *Picture Writing from Ancient Southern Mexico: Mixtec Place Signs and Maps*. Norman: Univ. Oklahoma Press
  51. Spinden, H. J. 1935. Indian manuscripts of southern Mexico. *Ann. Rep. Smithsonian Inst.* 1933: 429-51
  52. Stirling, M. W. 1940. An initial series from Tres Zapotes, Vera Cruz, Mexico. *National Geographic Soc. Contrib. Tech. Pap. Mex. Archeol. Ser.* 1(1):1-15
  53. Stirling, M. W. 1943. Stone monuments of southern Mexico. *Bur. Am. Ethnol. Bull.* 138
  54. Thompson, J. E. S. 1927. A correlation of the Mayan and European calendars. *Field Mus. Nat. Hist., Anthropol. Ser.* 17(1)
  55. Thompson, J. E. S. 1943. Some sculptures from southeastern Quezaltenango, Guatemala. *Carnegie Inst. Washington, Notes on Middle Am. Archaeol. Ethnol.* 17:100-12
  56. Thompson, J. E. S. 1948. An archaeological reconnaissance in the Cotzumalhuapa region, Escuintla, Guatemala. *Carnegie Inst. Washington Publ.* 574, Contrib. 44
  57. Thompson, J. E. S. 1950. *Maya Hieroglyphic Writing: Introduction*. *Carnegie Inst. Washington Publ.* 589
  58. Thompson, J. E. S. 1972. *Maya Hieroglyphs Without Tears*. London: Trustees of the British Museum
  59. Thompson, J. E. S. 1973. The Maya glyph for capture or conquest and an iconographic representation of Itzam Na on Yucatecan Façades. *Contrib. Univ. Calif. Archaeol. Res. Facil.* 18:203-7
  60. Tozzer, A. M. 1907. Ernst Förstemann. *Am. Anthropol. n.s.* 9:153-59
  61. Washington, H. S. 1922. The jade of the Tuxtla statuette. *Proc. US Nat. Mus.* 60(14):1-14
  62. Wauchope, R. 1954. Implications of radiocarbon dates from Middle and South America. *Middle Am. Res. Rec. Tulane Univ.* 2(2):17-40
  63. Waterman, T. T. 1924. On certain antiquities in western Guatemala. *Bull. Pan Am. Union* 58:341-61
  64. Waterman, T. T. 1929. Is the Baúl Stela an Aztec imitation? *Art Archaeol.* 28(5):182-87