

Just as we do, the Maya had *several calendars to record time.*

The Maya had very complex and interlocking calendar systems, which were as precise as modern day calendars. In the same way our Gregorian count ties to an important event, -the birth of Christ- the Maya calendar also counts forward from an important 'Creation' date, 11 August 3114 BCE.

The Maya recorded time mainly using 3 interconnected calendars - the *Tzolk'in*, the *Haab*, and the *Long Count*. Like us, they kept track of other cycles, but these only appeared in special circumstances (*particularly in the Initial Series, in the next slide*), and we can practically ignore them in this presentation.



Yaxchilan *Lintel 21*, carved in limestone around the year 756 AD/CE, provides a typical Maya ceremonial-historical text, and indicates to us the ancient Maya passion for precise keeping of time. The opening date occupies more than three-quarters of the first column. About a third of the rest of the text is taken up by additional calendric information.

In other words, over half of this inscription is devoted just to stating precisely **when** the events occurred. As I said, this is typical of Maya stone inscriptions employing several aspects of Maya calendars.

Our Gregorian calendar also include multiple counts.

For example, the Gregorian date Monday, December 29th 2008 records:

Monday = One day in a *named* cycle of 7 *days* (week)

29th = One in a *numbered* cycle of 28, 29, 30 or 31 days

December = One in a cycle of 12 *named months*

363 = One in a cycle of 365 days

2.0.0.8 AD/CE = A count of *years* since the birth of a Christian cycle

Two days before the end of the current year (New Year's Eve) = *Interval* or *Distance Number* between this day and the next significant event (2.0.0.9)

To compare, this same date as written by the Maya records:

7 Manik' 10 K'ank'in 12.19.15.17.7

Manik' = One day in a *named* cycle of 20 *days* (tzolk'in)

7 = One in a *numbered* cycle of 13 days

K'ank'in = One in a cycle of 18 *named months* (haab)

10 = One in a *numbered* cycle of 20 days

12.19.15.17.7 = A count of *years* since the birth of a Maya Cycle

13 days before the end of the 15th tun = *Interval* or *Distance Number* between this day and the next significant event (12.19.16.0.0)

Several other calendars can also be used:

Capricorn = Another cycle of 12 *named months*

Year of the Rat = A cycle of 12 *named years*

1430 AH = *Anno Hegirae*, a linear count of *years* since the *hegira* of prophet Muhammad. 29 December 2008 is the first day of the Muslim New Year.

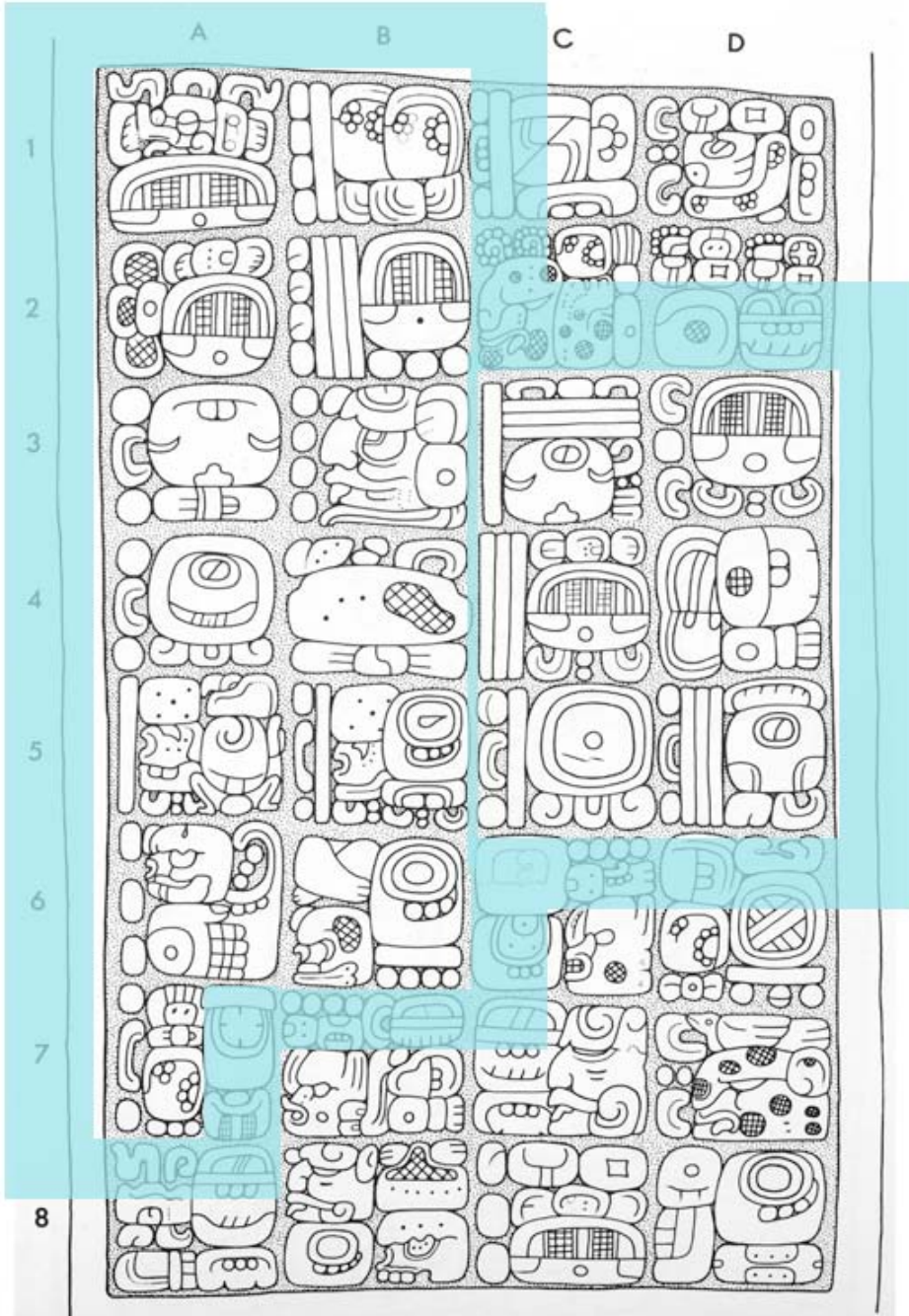
4706, 5769 = Linear counts of *years* since diverse “creation” events (these are the Chinese and Jewish years)

Let's look again at Yaxchilan Lintel 21

Yaxchilan Lintel 21

Calendric information

Drawings and photos of Yaxchilan monuments by Ian Graham et al.,
Corpus of Maya Hieroglyphic Inscriptions.

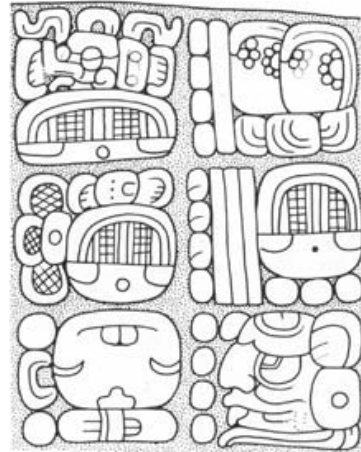


Maya Initial Series Calendars

ISIG
(“Count of years”?)

0 *Winikhaab*
(20 Tun)

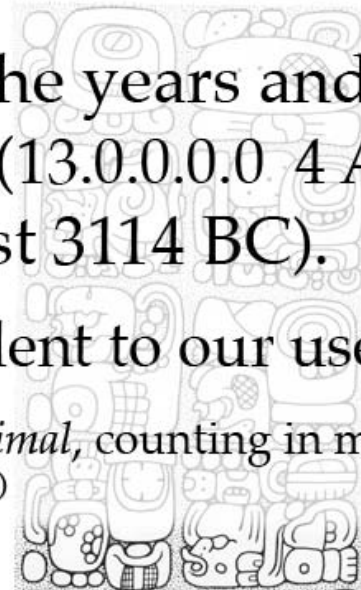
2 *Winik*
(a “man” of 20 days)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

19 Tun (or *Haab*)
(“year” of 360 days)

4 *K'in* (days)
(here, head of Sun God)



Long Count: The years and days elapsed since Creation (13.0.0.0.0 4 Ajaw 8 Kumk'u = 11 / 13 August 3114 BC).

Roughly equivalent to our use of **2008 AD**.

The numbers are *vigesimal*, counting in multiples of 20.
(Except for the Winal / *Winik*...)

The first six glyphs state the *Long Count* (the calendar which reaches a critical number in 2012). This is a number, used similarly to our numerical “year 2008,” counting “years” and days since the last Creation in 3114 BC. (The “years” here counted, called *Haabs*, are only 360 days long.) Each ‘digit’ of the Long Count is twenty times the next one, just as each digit of 2 0 0 8 is ten times the value of the following. We call our system, based ultimately on our fingers, *decimal* notation; the Maya system is *vigesimal*, based on 20’s. They counted by twenties because in the tropics people go barefoot, and counted on their fingers *and* toes.

Maya Initial Series Calendars

ISIG
(“Count of years”?)

0 *Winikhaab*
(20 Tun)

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(a “man” of 20 days)

2 K'an
(in 260-day *Tzolk'in*)



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(1 *pik* = 394 years)

19 Tun (or *Haab*)
(‘year’ of 360 days)

4 *K'in* (days)
(here, head of Sun God)

Tzolk'in: a divinatory calendar cycle
of 260 days (13 numbers x 20 days)

The oldest and most widespread calendar
in ancient Mesoamerica

Immediately after the Long Count is the *Tzolk'in* date. This is a divinatory calendar of 260 days stated as a numerical coefficient (from 1 to 13) attached to a *daysign* (a cycle of 20 named days, rather like a long “week”). The cycle passes through every possible combination of daysign and coefficient before repeating; this day (2 K'an) only occurs once every 260 days. The *daysign* is easy to spot, because it is enclosed in a distinctive frame called a *cartouche* (Fr. “cartridge”), which is a round-cornered square set on three ‘feet,’ looking rather like an old-fashioned television picture tube.

Tzolk'in – 20 Day Names

Imix		Chuwen	
Ik'		Eb'	
Ak'bal		Ben	
K'an		Ix	
Chikchan		Men	
Kimi'		Kib'	
Manik'		Kab'an	
Lamat		Etz'nab'	
Muluk		Kawak	
Ok		Ajaw	

* Daysigns from *Reading the Maya Glyphs* by Michael Coe & Mark Van Stone, 2001.

Three other cycles important enough to include in an Initial Series date are the

- **Nine Lords of the Night** (a nine-day cycle like our weekdays);
- a **7-day cycle** (here the days are numbered rather than named);
- and the **Phase of the Moon** (here given precisely in days of Moon-age since New Moon).

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(‘year’ of 360 days)

4 *K'in* (days)
(here, head of Sun God)

G8 + F
(in 9-Day Lord of Night)

G & F glyphs: a 9-day cycle,
rather like our days of the week

Maya Initial Series Calendars

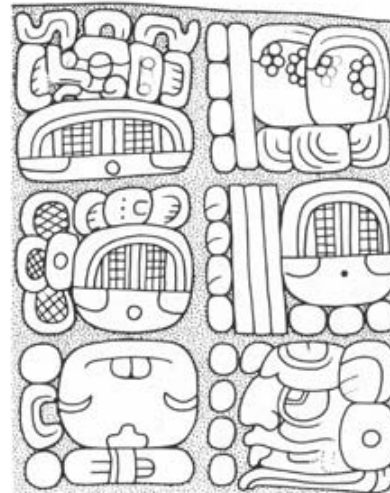
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5 *Bi-xi-ya- ??*
(in a 7-day cycle)

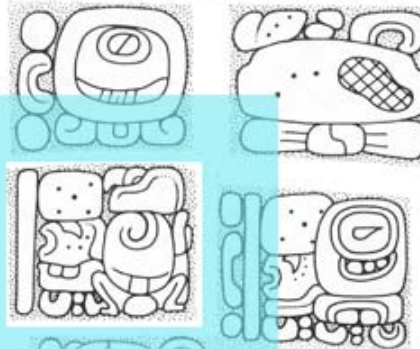


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(‘year’ of 360 days)

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(here, head of Sun God)

G8 + F
(in 9-Day Lord of Night)



A rarely used 7-day cycle,
like our week, but numbered
rather than named

Maya Initial Series Calendars

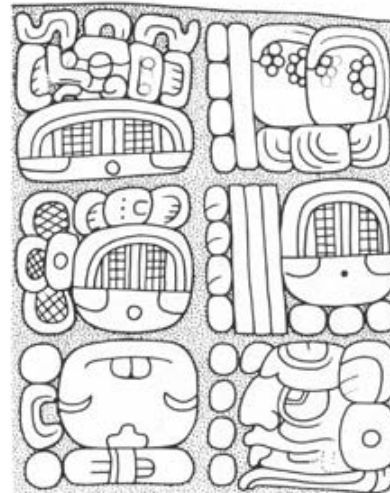
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5 *Bi-xi-ya- ??*
(in a 7-day cycle)
(‘Glyph Z’)



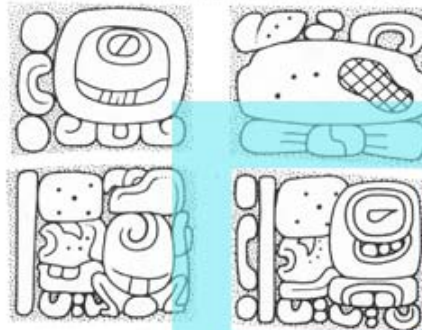
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(here, head of Sun God)

G8 + F
(in 9-Day Lord of Night)

7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)



The Phase of the Moon, expressed as
the number of days since the New Moon.

(Literally, “7 arrived”)

The **Moons are named** in a 6-moon cycle. This is called the “C Glyph,” and it is often followed by the “X Glyph,” which qualifies the C Glyph, and may actually expand the cycle to 18 moons. The fine details of this and many other abstruse Maya practices are still being worked out.

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2 K'an
(in 260-day *Tzolk'in*)

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(in a 7-day cycle)
('Glyph Z')

'3-Skull Moon'
(in a 6-moon cycle)
('Glyph C')



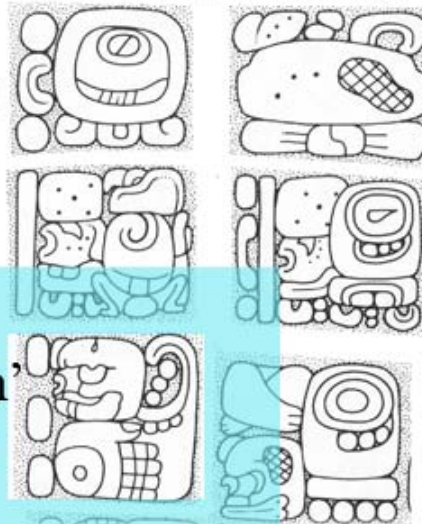
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(here, head of Sun God)

'G8' + 'F'
(in 9-Day Lord of Night)

7 *Bixiy Hul-li-ya*
("7th day of the Moon")
('Glyph D')



The Maya named moons in a 6-moon cycle,
(Native Americans farther north did likewise,
but in longer cycles.)

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‘3-Skull Moon’
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(here, head of Sun God)

‘G8’ + ‘F’
(in 9-Day Lord of Night)

7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)

‘Glyph X4’
(a god presiding over
the 3-Skull Moon)



The ‘X Glyph’ modifies the 6-moon cycle and complicates it in some cases.

Maya Initial Series Calendars

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("Count of years"?)

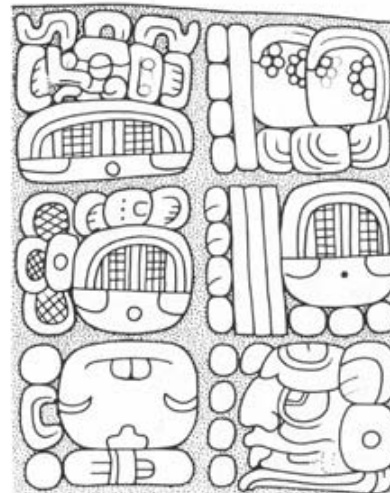
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(in a 7-day cycle)
('Glyph Z')

'3-Skull Moon'
(in a 6-moon cycle)
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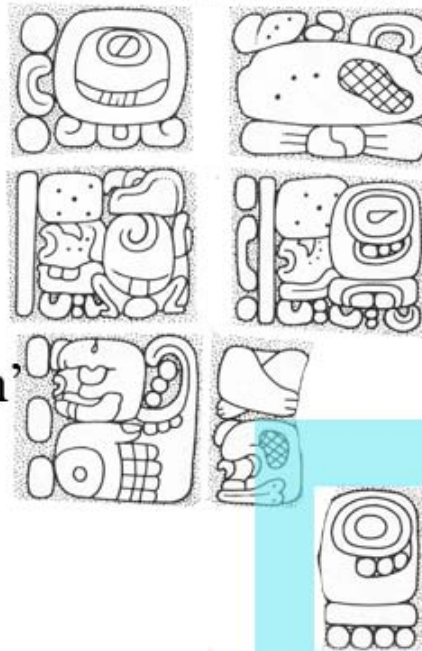
4 *K'in* (days)
(here, head of Sun God)

'G8' + 'F'
(in 9-Day Lord of Night)

7 *Bixiy Hul-li-ya*
("7th day of the Moon")
('Glyph D')

'Glyph X4'
(a god presiding over
the 3-Skull Moon)

"29 (days)"
'Glyph A'



This specifies whether the month has 29 or 30 days.
(For calculation purposes)

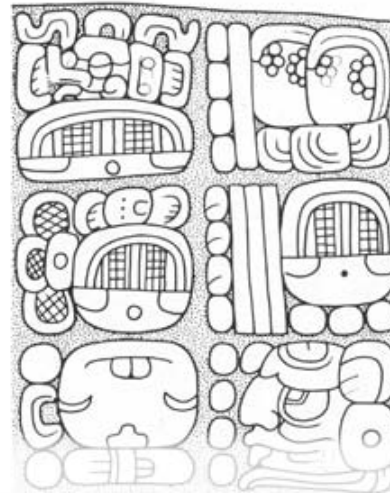
Penultimately, a number tells us whether the Maya observed this particular month as 29 days or 30 days. The Maya did not use fractions of days, so the lunar cycle of 29.53 days came out to just about 29 days one month, 30 days the next. This number (here “29”), called the “A Glyph,” was empirical; the astronomers of one city might deem this a 29-day “month,” while another bunch would call it a 30-days. Differences would average out, but again, we are warned not to read too much precision into some Maya calendrical calculations. John E. Teeple noted that inscriptions in five Maya cities (Piedras Negras, Yaxchilán, Copán, Naranjo and Quiriguá) all synchronize their ‘A Glyphs’ during an 80 year “Period of Uniformity” from 9.12.15.0.0 — 9.16.5.0.0 (687 - 765 AD/CE) (Teeple 1930, p. 54).

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(‘year’ of 360 days)

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(here, head of Sun God)

The *Haab* is equivalent to our **365-day year**,
with named months and numbered days.
The *Haab*, however, has 18 “months” of 20 days,
with a special “month” of five “dangerous” days
at the end of the year

2nd day of Yax
(in 365-day *Haab*)



“29 days”
‘Glyph A’

Haab – Month Signs

Pop		Yax	
Wo		Sak	
Sip		Kej	
Sotz'		Mak	
Sek		K'ank'in	
Xul		Muwan	
Yaxk'in		Pax	
Mol		K'ayab'	
Ch'en		K'umk'u	
		Wayeb'	

* Daysigns from *Reading the Maya Glyphs* by Michael Coe & Mark Van Stone, 2001.

Finally, the **Initial Series** (the complex statement including all these cycles) ends with the *Haab*, a date in a 365-day Solar year. It works precisely as our “9th of June” or “First of May” do. (Instead of a 12-month cycle of 30-day months, the Maya had an 18-month cycle of 20-day “months,” with an extra “monthlet” of five days (called *Wayeb*) to round out the solar year.)

The Maya sometimes included in the Initial Series the position in other cycles, too, particularly the *819-Day Count*. The origin of this “calendar” is probably numerological: 819 is the product of $7 \times 9 \times 13$.

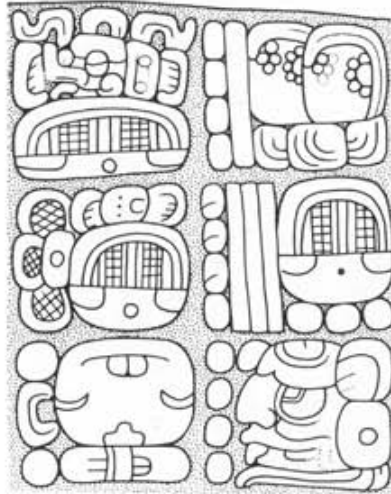
The *Haab* was the second-most important of Classic Maya calendars; most Maya dates were expressed as a combination of the *Tzolk'in* and *Haab* (as you shall see soon). Because of the arithmetic of 365-day and 260-day cycles, **2 K'an, 2nd of Yax**, will only recur once every 52 years, and for most dates, no Long Count is necessary. This combination is called a **Calendar Round**.

Almost all the Maya Calendars You Need to Bother About: Initial Series & Calendar Rounds

ISIG
(“Count of years”?)

0 *Winikhaab*
(20 Tun)

2 *Winik*
(a “man” of 20 days)

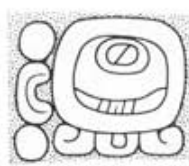


(Initial Series)

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19 *Haab* (or Tun)
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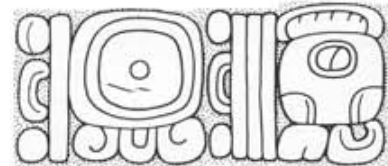
4 *K’in* (days)
(here, head of Sun God)



2 K'an
(260-day *Tzolk'in*)



2nd of Yaxk'in
(365-day *Haab*)



7 *Muluk*, 17th of *Sek*
(*Tzolk'in*) (*Haab*)

(Calendar Rounds)

As Mentioned above, Just as we do, the Maya had several calendars.

Long Count: A count of years, Like our “2008 AD/CE.”

Tzolk'in: A sacred 260-day divinatory cycle, 13 x 20 named days

Lords of the Night: A “week” of nine named days, like “Friday.”

Haab: A 365-day cycle, like our “30th of May.”

But the ancient Maya were *fanatical* about situating their events in time.

Often the date on a monument will occupy more space than the event that it features.

Example: the *Leiden Plaque*, a jade celt recording a lord's accession in 320 AD/CE. (21.7 cm high, 8.6 cm wide, Museum voor Volkenkunde, Leiden, Netherlands)



Initial Series



ISIG

8 Pik
= 8 "Bak'tun"

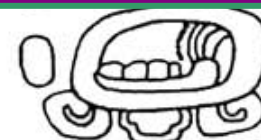
14 Winikhaab
= 14 "K'atun"

3 Haab / Tun

1 Winal / Winik

12 K'in

Calendar Round



1 Eb (Tzolk'in)

5th Lord of Night



"Seating" = Zeroth

of Yaxk'in



"He sat" (on throne)

'Zero-Bird' (name)



Way-ko-??

Sky



Title / Rank

Event

Leiden Plaque, 320 AD/CE, back., Drawing by Linda Schele

Photo by Justin Kerr

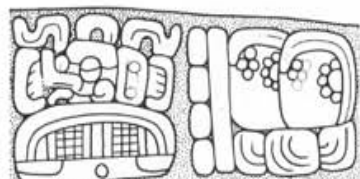
The Yaxchilan text continues, and soon states a *Distance Number*, the interval of days and years that elapsed between the two historical events recorded on the Lintel. The glyphs for *Winal* (20-day “month”) and “*Tun*” (360-day “year,” which the Maya confusingly also called *Haab*) are the same as in the Long Count, as we see.

Maya Initial Series Calendars,

Distance Numbers

ISIG

("Count of years"?)



9 *Pik* (400 Tun)

(1 *pik* = 394 years)

0 *Winikhaab*

(20 Tun)



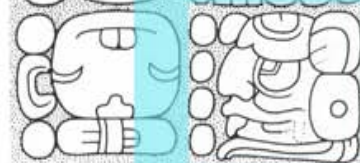
19 *Haab* (or Tun)

('year' of 360 days)

(*Distance Number*)

2 *Winik*

(a "man" of 20 days)



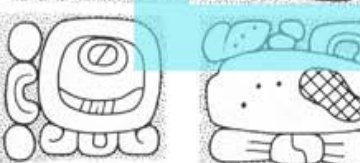
4 *K'in* (days)

(here, head of Sun God)

5 *K'in*,

2 *K'an*

(in 260-day *Tzolk'in*)



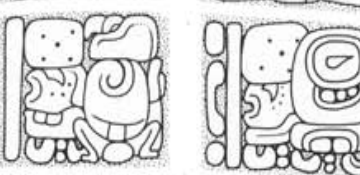
'G8' + 'F'

(in 9-Day Lord of Night)

5 *Bi-xi-ya-??*

(in a 7-day cycle)

('Glyph Z')



7 *Bixiy Hul-li-ya*

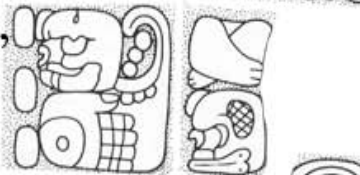
("7th day of the Moon")

('Glyph D')

'3-Skull Moon'

(in a 6-moon cycle)

('Glyph C')



'Glyph X4'

(a god presiding over the 3-Skull Moon)

"29 days"

'Glyph A'

2nd of Yaxk'in

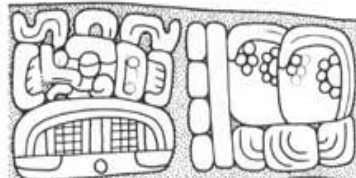
(365-day *Haab*)



Maya Initial Series Calendars,

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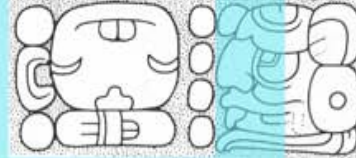
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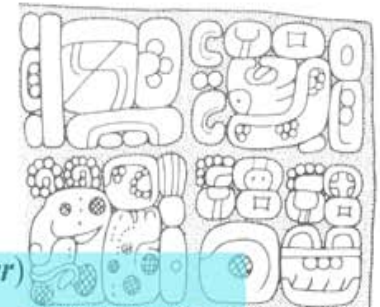
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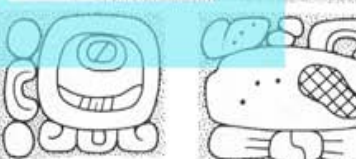


4 *K'in* (days)
(here, head of Sun God)

5 *K'in*,
16 *Winik*,

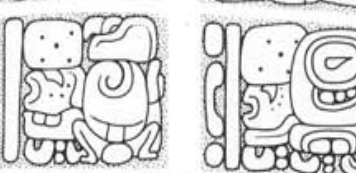


2 *K'an*
(in 260-day *Tzolk'in*)



‘G8’ + ‘F’
(in 9-Day Lord of Night)

5 *Bi-xi-ya- ??*
(in a 7-day cycle)
(‘Glyph Z’)



7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)

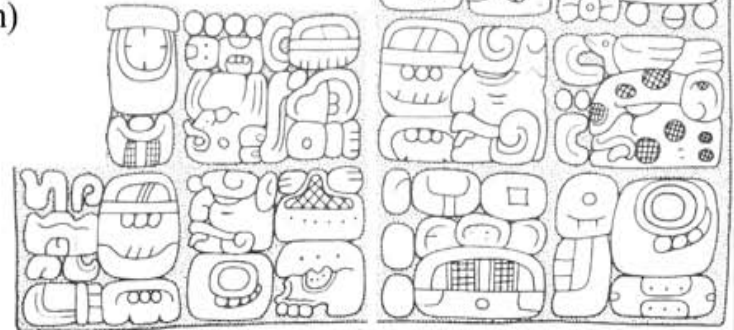
‘3-Skull Moon’
(in a 6-moon cycle)
(‘Glyph C’)



‘Glyph X4’
(a god presiding over
the 3-Skull Moon)

“29 days”
(‘Glyph A’)

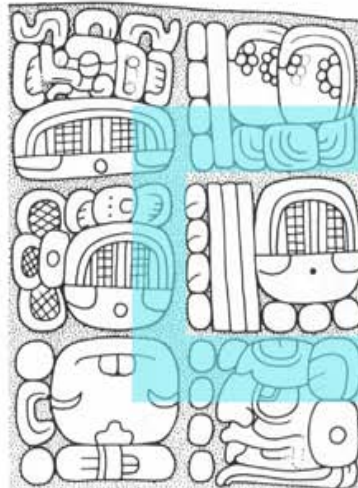
2nd of Yaxk'in
(365-day *Haab*)



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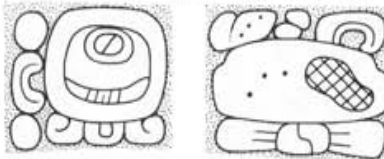
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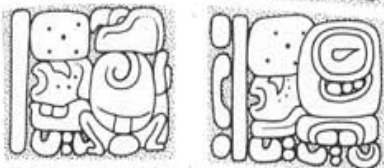
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16 *Winik*,
1 *Haab*,

2 *K'an*
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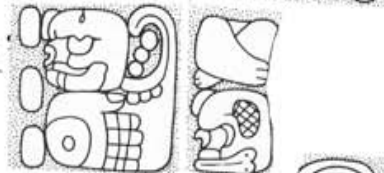
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(“7th day of the Moon”)
(‘Glyph D’)

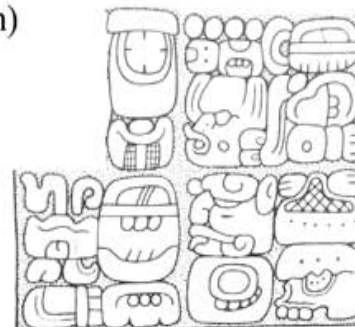
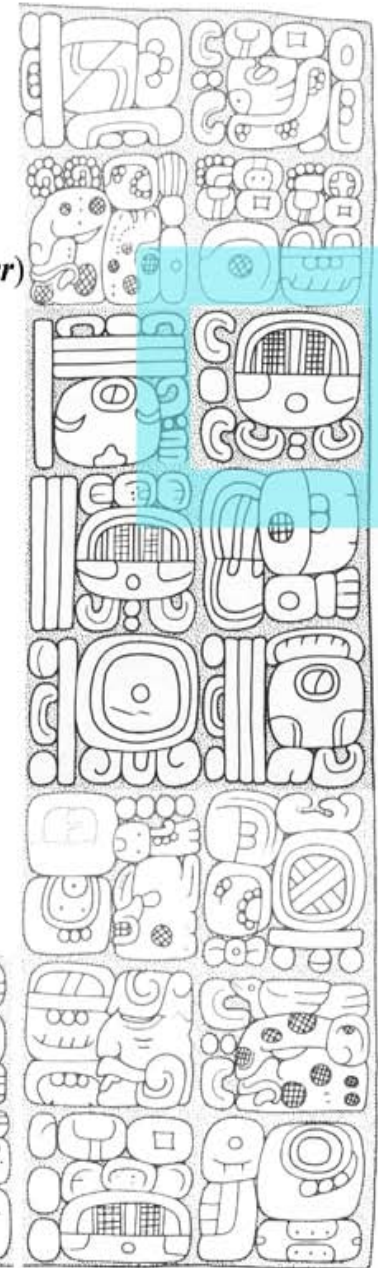
‘3-Skull Moon’
(in a 6-moon cycle)
(‘Glyph C’)



‘Glyph X4’
(a god presiding over
the 3-Skull Moon)

“29 days”
(‘Glyph A’)

2nd of Yaxk'in
(365-day *Haab*)



The Distance Number starts with the smallest units (days and months) first, then counts Tuns or *Haabs*, then *Winikhaabs* (groups of 20 years, often called *K'atuns*, i.e., “20-tuns”), then higher orders if necessary.

This sum is followed by a glyph reading *i-u-ti*, “And then it was...” followed by a *Calendar Round* (or CR), giving the precise date on which the next event occurred. Note the cartouche on the *tzolk'in* date, the first glyph of this CR pair.

Maya Initial Series Calendars,

Distance Numbers

ISIG
(“Count of years”?)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

0 *Winikhaab*
(20 Tun)



19 *Haab* (or Tun)
(‘year’ of 360 days)

(*Distance Number*)

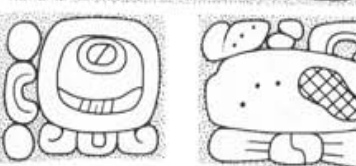
2 *Winik*
(a “man” of 20 days)



4 *K’in* (days)
(here, head of Sun God)

5 *K’in*,
16 *Winik*,
1 *Haab*,

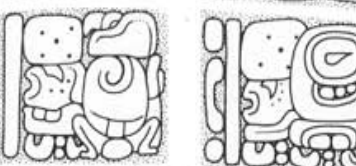
2 *K’an*
(in 260-day *Tzolk’in*)



‘G8’ + ‘F’
(in 9-Day Lord of Night)

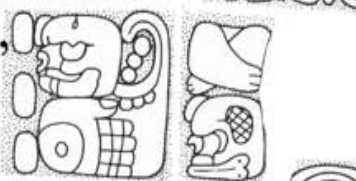
15 *Winikhaab*
= 302 years

5 *Bi-xi-ya- ??*
(in a 7-day cycle)
(‘Glyph Z’)



7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)

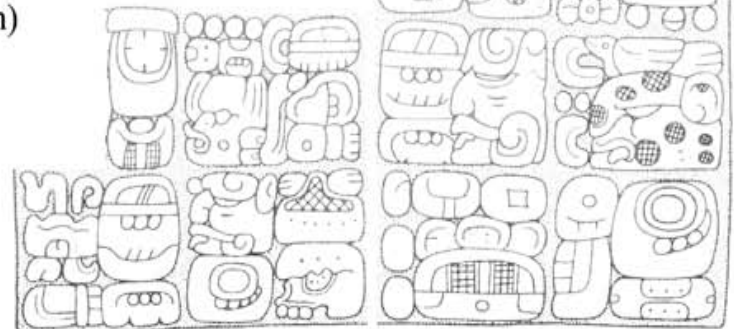
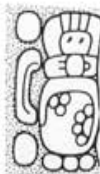
‘3-Skull Moon’
(in a 6-moon cycle)
(‘Glyph C’)



‘Glyph X4’
(a god presiding over
the 3-Skull Moon)

“29 days”
(‘Glyph A’)

2nd of Yaxk’in
(365-day *Haab*)

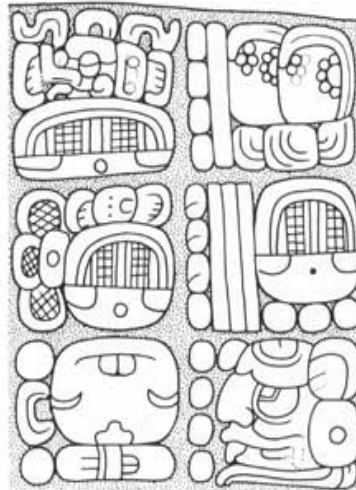


Maya Initial Series Calendars,

Distance Numbers

& Calendar Rounds

ISIG
(“Count of years”?)



0 *Winikhaab*
(20 Tun)

2 *Winik*
(a “man” of 20 days)

2 K'an
(in 260-day *Tzolk'in*)

5 *Bi-xi-ya-??*
(in a 7-day cycle)
(‘Glyph Z’)

‘3-Skull Moon’
(in a 6-moon cycle)
(‘Glyph C’)

2nd of Yaxk'in
(365-day *Haab*)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

19 *Haab* (or Tun)
(‘year’ of 360 days)

4 *K'in* (days)
(here, head of Sun God)

‘G8’ + ‘F’
(in 9-Day Lord of Night)

7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)

‘Glyph X4’
(a god presiding over
the 3-Skull Moon)

“29 days”
(‘Glyph A’)

(*Distance Number*)

5 *K'in*,
16 *Winik*,
1 *Haab*,
15 *Winikhaab*
(= 302 years).
Then it was



Maya Initial Series Calendars,

Distance Numbers

& Calendar Rounds

ISIG
(“Count of years”?)

0 *Winikhaab*
(20 Tun)

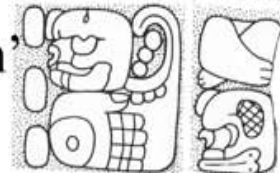
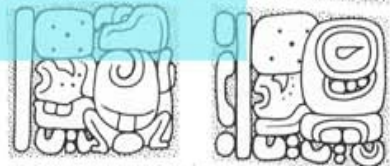
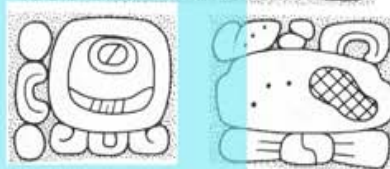
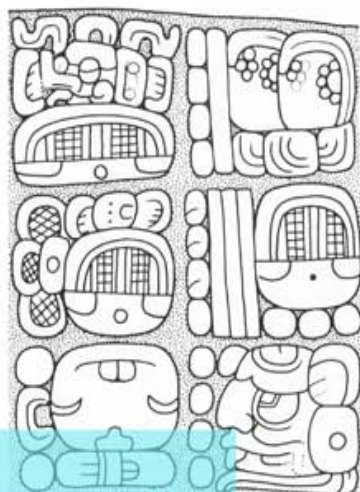
2 *Winik*
(a “man” of 20 days)

2 K'an
(in 260-day *Tzolk'in*)

5 *Bi-xi-ya-??*
(in a 7-day cycle)
(‘Glyph Z’)

‘3-Skull Moon’
(in a 6-moon cycle)
(‘Glyph C’)

2nd of Yaxk'in
(365-day *Haab*)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

19 *Haab* (or Tun)
(‘year’ of 360 days)

4 *K'in* (days)
(here, head of Sun God)

‘G8’ + ‘F’
(in 9-Day Lord of Night)

7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)

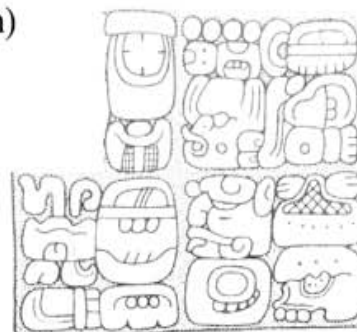
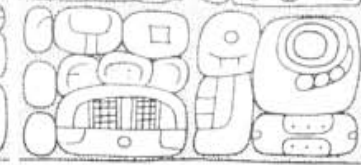
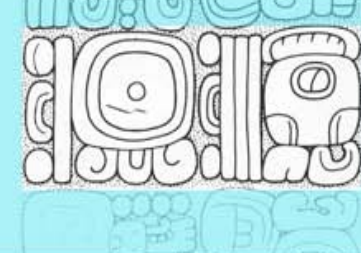
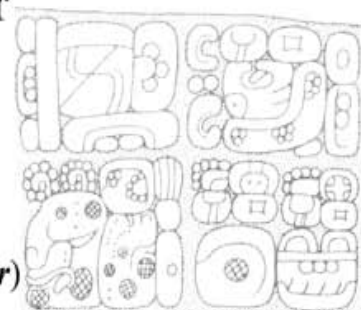
‘Glyph X4’
(a god presiding over
the 3-Skull Moon)

“29 days”
(‘Glyph A’)

(Distance Number)

5 *K'in*,
16 *Winik*,
1 *Haab*,
15 *Winikhaab*
(= 302 years).

Then it was
7 *Muluk*,
17th of *Sek*
(Calendar
Round)



The gist of the inscription is to connect an early ruler, *Yo'Pat Balam Ajaw* ("Lord Penis-Jaguar") with a descendent, *Yaxuun Balam Ajaw* ("Lord 'Bird'-Jaguar"), 300 years later.

Both performed a ceremony at the "4-Zotz' House," and the inscription simply states that the earlier Lord Jaguar did so on a certain date, that 302 years and some days passed, and the later Lord Jaguar did so too.

The "4-Zotz' House" is almost certainly the temple in which the lintel was installed.

Maya Initial Series Calendars,

Ajaws/Lords

ISIG

("Count of years"?)

0 *Winikhaab*
(20 Tun)

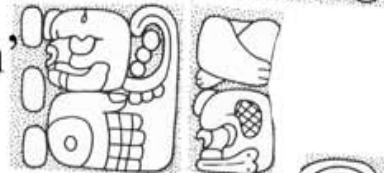
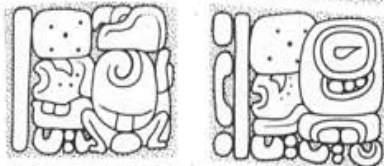
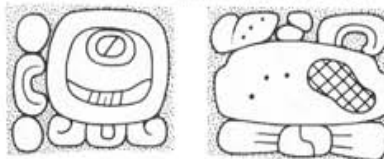
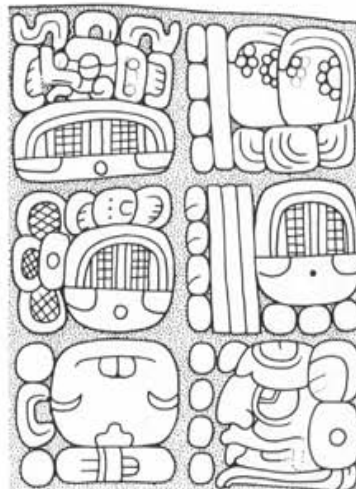
2 *Winik*
(a "man" of 20 days)

2 K'an
(in 260-day *Tzolk'in*)

5 *Bi-xi-ya- ??*
(in a 7-day cycle)
('Glyph Z')

'3-Skull Moon'
(in a 6-moon cycle)
('Glyph C')

2nd of Yaxk'in
(365-day *Haab*)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

19 *Haab* (or Tun)
('year' of 360 days)

4 *K'in* (days)
(here, head of Sun God)

'G8' + 'F'
(in 9-Day Lord of Night)

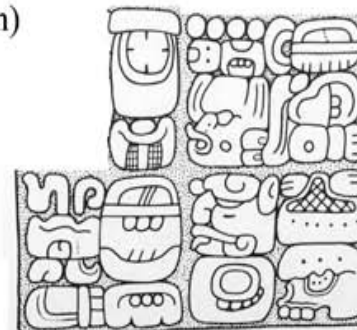
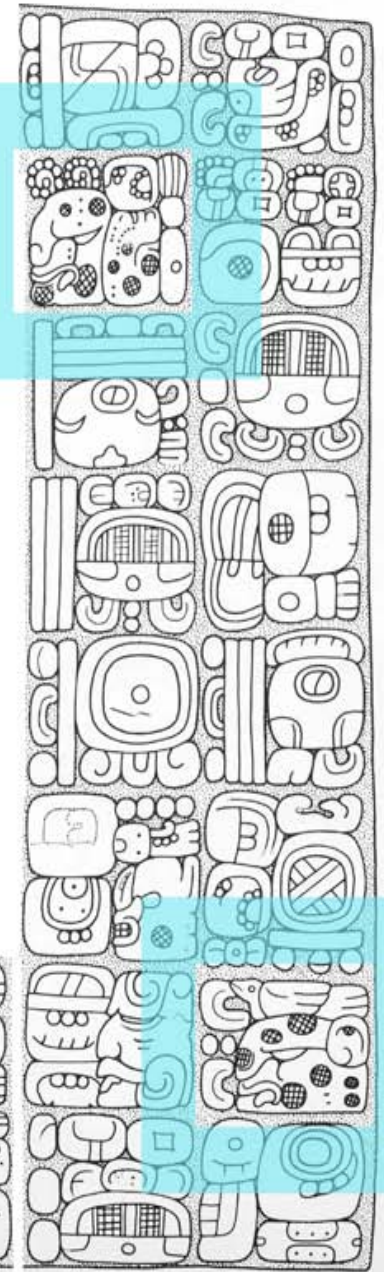
7 *Bixiy Hul-li-ya*
("7th day of the Moon")
('Glyph D')

'Glyph X4'
(a god presiding over
the 3-Skull Moon)

"29 days"
'Glyph A'

Lord
Yo'pat
Balam,
454 AD

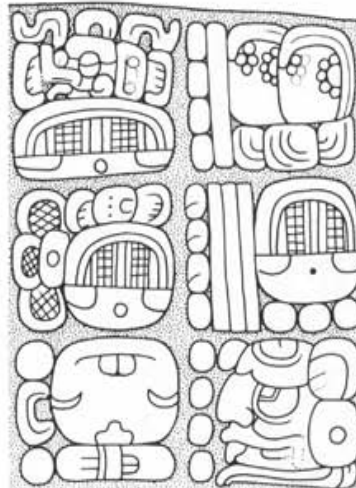
Lord
Yaxun
Balam,
756 AD



Maya Initial Series Calendars,

Ajaws/Lords & Places

ISIG
(“Count of years”?)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

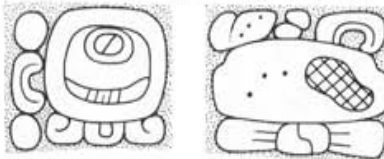
0 *Winikhaab*
(20 Tun)

19 *Haab* (or Tun)
(‘year’ of 360 days)

2 *Winik*
(a “man” of 20 days)

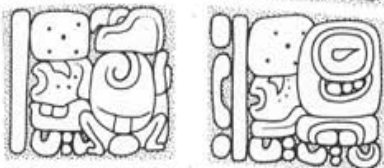
4 *K'in* (days)
(here, head of Sun God)

2 *K'an*
(in 260-day *Tzolk'in*)



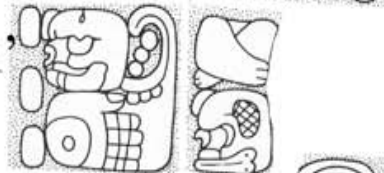
‘G8’ + ‘F’
(in 9-Day Lord of Night)

5 *Bi-xi-ya-??*
(in a 7-day cycle)
(‘Glyph Z’)



7 *Bixiy Hul-li-ya*
(“7th day of the Moon”)
(‘Glyph D’)

‘3-Skull Moon’
(in a 6-moon cycle)
(‘Glyph C’)



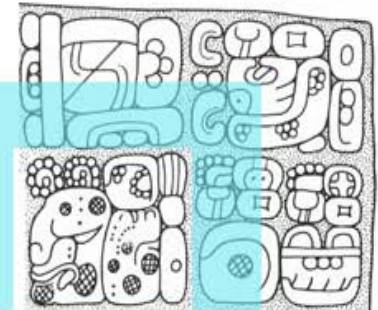
‘Glyph X4’
(a god presiding over
the 3-Skull Moon)

“29 days”
(‘Glyph A’)

2nd of Yaxk'in
(365-day *Haab*)

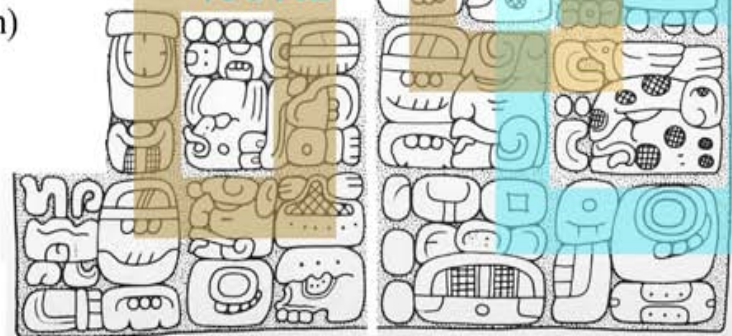


Lord
Yo'pat
Balam,
454 AD



at the
4-Zotz'
House

Lord
Yaxun
Balam,
756 AD



This text is typical of the kind of record that the Maya deemed worthy of inscribing in stone, indicating how different their priorities were from ours.

Abraham Lincoln's *Gettysburg Address* begins with a distance number: "Four score and seven years ago..." His invoking the American Revolution forms the same kind of connection with the Battle of Gettysburg which the Maya celebrated so frequently in hieroglyphic texts like this. Remarkably, Lincoln's distance number counts larger units of years in twenties, just like the Maya.

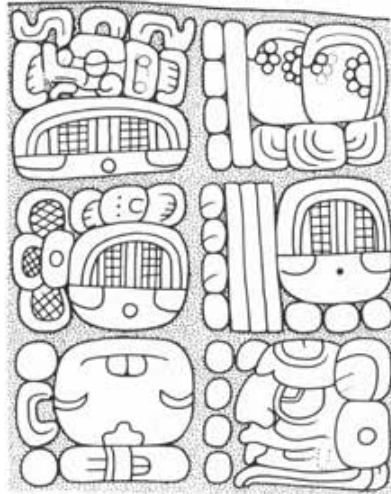
All the Maya Calendars You Need to Bother About:

Long Counts, Distance Numbers, & Calendar Rounds

ISIG
("Count of years"?)

0 *Winikhaab*
(20 Tun)

2 *Winik*
(a "man" of 20 days)



9 *Pik* (400 Tun)
(1 *pik* = 394 years)

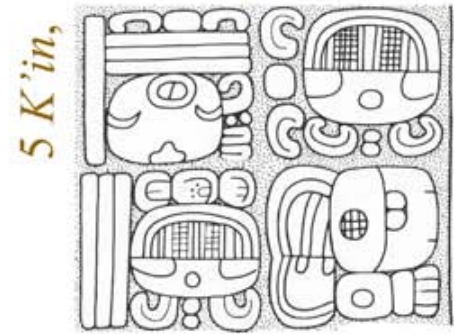
19 *Haab* (or Tun)
(“year” of 360 days)

4 *K’in* (days)
(here, head of Sun God)

(Long Count)

(a special kind of Distance Number)
Like “1776 AD”

16 *Winik*, 1 *Haab*,

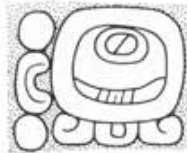


15 *Winikhaab* *i-u-ti*
(302 years). “Then it was...”

(Distance Number)

A bit like “Four score and seven years ago”

(Remember that the ‘digits’ here are multiples of 20)



2 *K’an*
(260-day *Tzolk’in*)



2nd of *Yaxk’in*
(365-day *Haab*)



7 *Muluk*
(*Tzolk’in*)



17th of *Sek*
(*Haab*)

(Calendar Rounds)

13.0.0.0.0 – Maya Long Count “Start Date”

13.0.0.0.0 is the Maya starting date, analogous to the birth of Christ in our Western calendar, from which we count *our* years and centuries.

Dated Maya Creation stories *always* have a Long Count starting date of **13.0.0.0.0**, which the Maya referred to by its Calendar Round, **4 Ajaw 8 Kumk’u**.

This corresponds to **11 or 13 August 3114 BC/BCE**.

The Maya Classic period began about 8.10.0.0.0, and their cultural apogee was between 9.0.0.0.0 and 10.0.0.0.0. The Collapse occurred ca. 900 AD, in the first decades of the “10th Baktun,” as it is commonly called.

Like a clock after midnight, this (5-digit) date reset just after the beginning. One “bak’tun” (400 “years”) after 13.0.0.0.0 “should” have been 14.0.0.0.0, but the Maya called it **1.0.0.0.0**.

(The motivation for setting it at 13 instead of zero is unknown.)

The Maya date for 30 May 2008: 12.19.15.6.12 13 Eb 15 Sip.
(‘285 correlation. By the ‘283 correlation it’s 12.19.15.6.14 2 Ix 17 Sip)

Soon it will reach **13.0.0.0.0 again**. (The end is near!)

It corresponds to **21 or 23 December 2012**.

This time, the Calendar Round will be **4 Ajaw 3 K’ank’in**.

Correlating the Maya Calendar and Ours

Scholars propose several *correlations* between the Maya and modern calendars; the two most-accepted differ by two days.

The older, called *GMT* (Goodman-Martinez-Thompson), also called the **584283** (or '**283**) **Correlation**, was worked out by 1930. (584,283 is the *Julian Day Number* of 4 Ajaw 8 Kumk'u.)

Some decades later, Floyd Lounsbury and others, using evidence in the *Dresden Codex Venus Tables*, convinced Thompson to add a two-day correction. This is the **GMT+2**, or **584285 Correlation** (also called the '**285 Correlation**).

By the GMT+2 correlation, the date of the 4 Ajaw 8 Kumk'u Creation (the one in which we live), was 13 August 3114 BC, and the next 13.0.0.0.0 falls on **23 December 2012**. This is the correlation used by many top scholars, including Linda Schele, Michael Coe, and Marc Zender. By the original GMT, these dates fall on 11 August 3114 and **21 December 2012**.

Their correlation evidence comes from a couple Conquest-era documents.

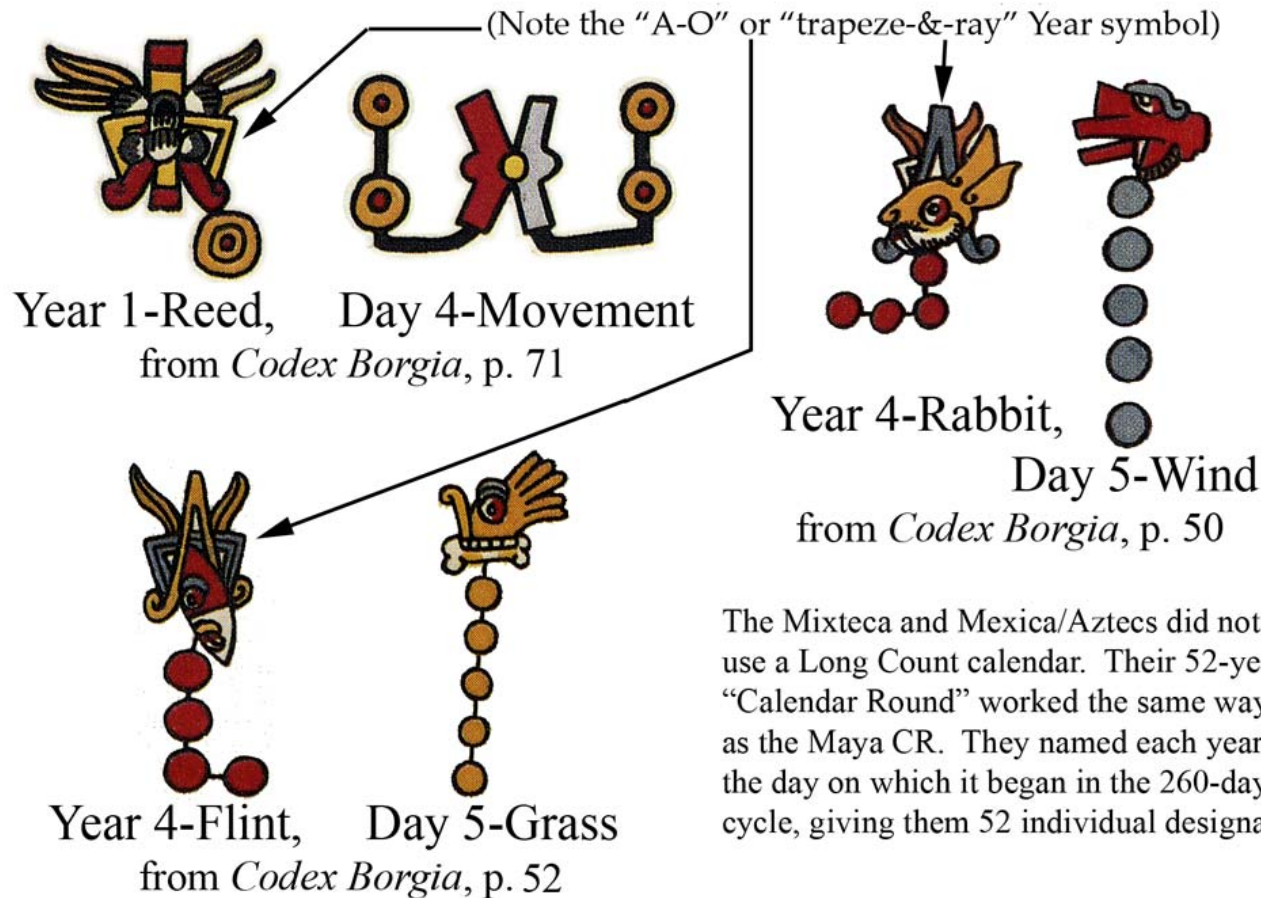
I happen to lean toward the original GMT, based on evidence and arguments presented by Dennis Tedlock and Bob Wald, who know a lot more about Maya anthropology, the *Dresden Venus Pages*, and Maya decipherment than I do. Naturally, those who see significance in the Maya Calendar's ending on a winter solstice prefer the original GMT as well.

There have been other correlations proposed, usually multiples of 52 years away from the GMT. Bowditch offered 394,483; Spinden used 489,383; and Vaillant 774,083. According to Vaillant, 13.0.0.0.0 would fall in 2532 AD. Using Spinden's correlation, 13.0.0.0.0 would have already passed; it fell in 1752.

Bowditch's correlation is the most interesting of all: his "end-of-the-calendar" fell on **17 August 1492**, about two weeks after Columbus set sail, and two months before sighting the Bahamas. It is too bad that Bowditch's calculations are highly unlikely to be correct; I cannot think of a more appropriate year for a Mesoamerican End of the World than 1492.

All the Aztec and Mixtec Calendrics You Need to Know:

They only used the 260-day and (rarely) the 365-day cycles.

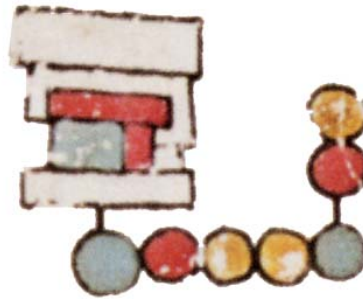


The Mixteca and Mexica/Aztecs did not use a Long Count calendar. Their 52-year "Calendar Round" worked the same way as the Maya CR. They named each year for the day on which it began in the 260-day cycle, giving them 52 individual designations.

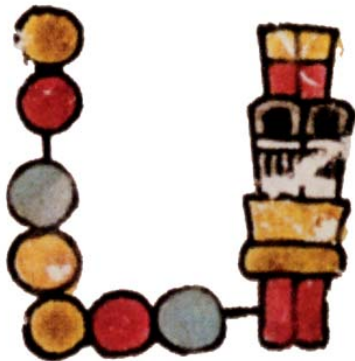
The *Tonalpohualli*, the Aztec name for the 260-day sacred calendar, is derived from the Maya *tzolk'in*, and works precisely the same way, with a numerical coefficient from 1 to 13 attached to 20 cycling day-names. Their day-names are refreshingly simple: "Rabbit," "Wind," "Grass;" for the most part they reflect the meanings of the (often obscure) Maya day names.



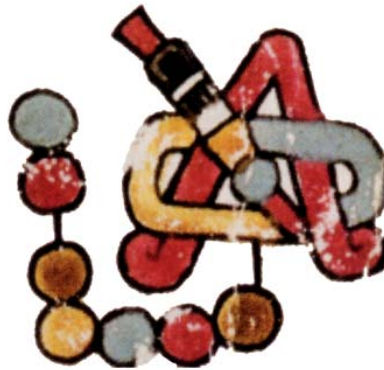
Year 6 Flint,



Day 7 House



Day 7 Reed, (*first day of*) Year 7 Reed
from *Vienna Codex*, p. 39



Though the Aztecs also used a 365-day cycle, also derived from that of the Maya (or perhaps they both derive from a common *source*), they used it much less often in their writings.

Instead of pairing a 260-day date with its 365-day date, the Aztec and Mixtec simply mentioned the 365-day year in which the date fell. Each year was named for the *tonalpohualli* date on which it began, and indicated the *Year-Bearer* or “name of the year” with a sign we call the “A-O Sign,” the “Mexican Year Sign,” or the “Trapeze and Ray.”

One example of a Maya Calendar chart survives in the *Madrid Codex*.

This Maya diagram (next slide), from the *Madrid Codex* (ca. 1530, around the time of the Conquest) contains a central image of two celebrants under a peculiar kind of tree or platform. The daysigns in the ring around the center have been rearranged.

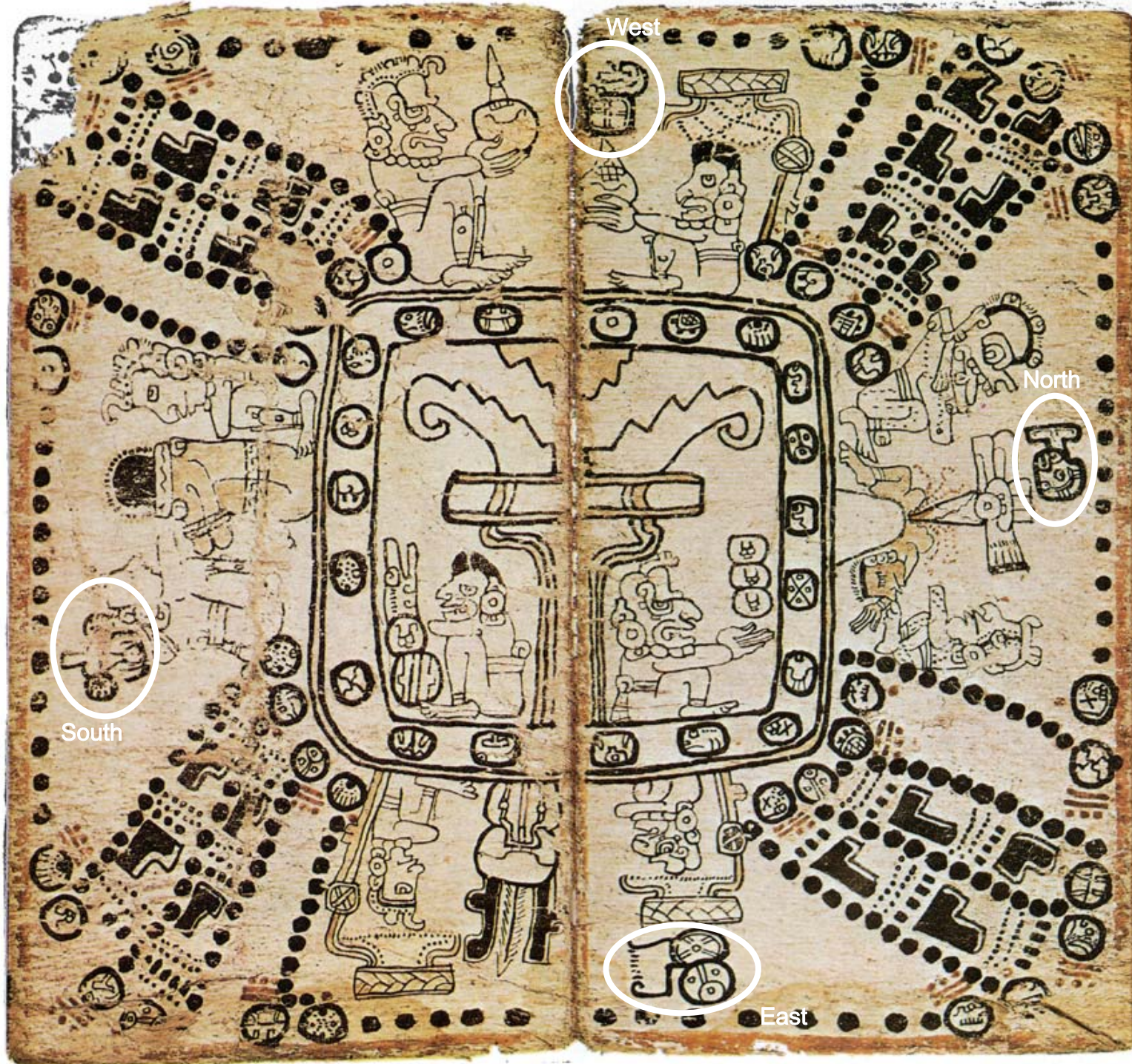
Madrid Codex,
pp. 75 - 76.
The 260-day
Divinatory
Calendar,
the *Tzolk'in*.

Each dot is a day;
footprints represent
travel.

West is at Top,
East at bottom,
South at left,
North at right.

Each of the five
cardinal directions
has a pair of gods
making an appropriate offering.

The inner ring of
daysigns is *not*
in calendric order.



They daysigns have been rearranged according to a mathematical algorithm, except that they seem to have mixed up at least one pair of days. This kind of error is common, and stands as a warning that we should not put too much faith in Maya mathematical calculations — or predictions. On the one hand, they were astonishing mathematicians, but on the other their conception of Truth, error, accuracy, political expediency, and Divine Will were quite different from ours, and demand that we try to discern when to apply our own standards and when to attempt to understand theirs. (More on this later.)

Around this ring, connecting the calendar with the cardinal directions, are four pairs of worshippers, each labeled with the glyphs for North (right), South (left), East (bottom) and West (top). There are 260 dots, carefully labeled to correspond with the 260 days of the Maya *Tzolk'in*, the most important of the Maya calendars. Beside the dots are footprints, indicating our travel through the 260-day cycle.

The next slide shows a very similar diagram, from a Nahua-Puebla book, the *Codex Fejervary-Mayer*, also from about the time of the Conquest.

The authors of this book were a distinct culture from both Aztec and Maya, but their 260-day calendar obviously worked in the same way as the Maya.

Here the diagram is rotated 180°, with North at left, and a somewhat more tidy and complex diagram than the *Madrid* one.

Here the central image is of a warrior, the Fire God Xiuhtecuhtli, there is no ring of daysigns, and pairs of gods here are adoring four directional Trees. But the 260 day-dots march in strict order round the diagram in an 8-petaled flower, exactly as in the *Madrid* diagram.

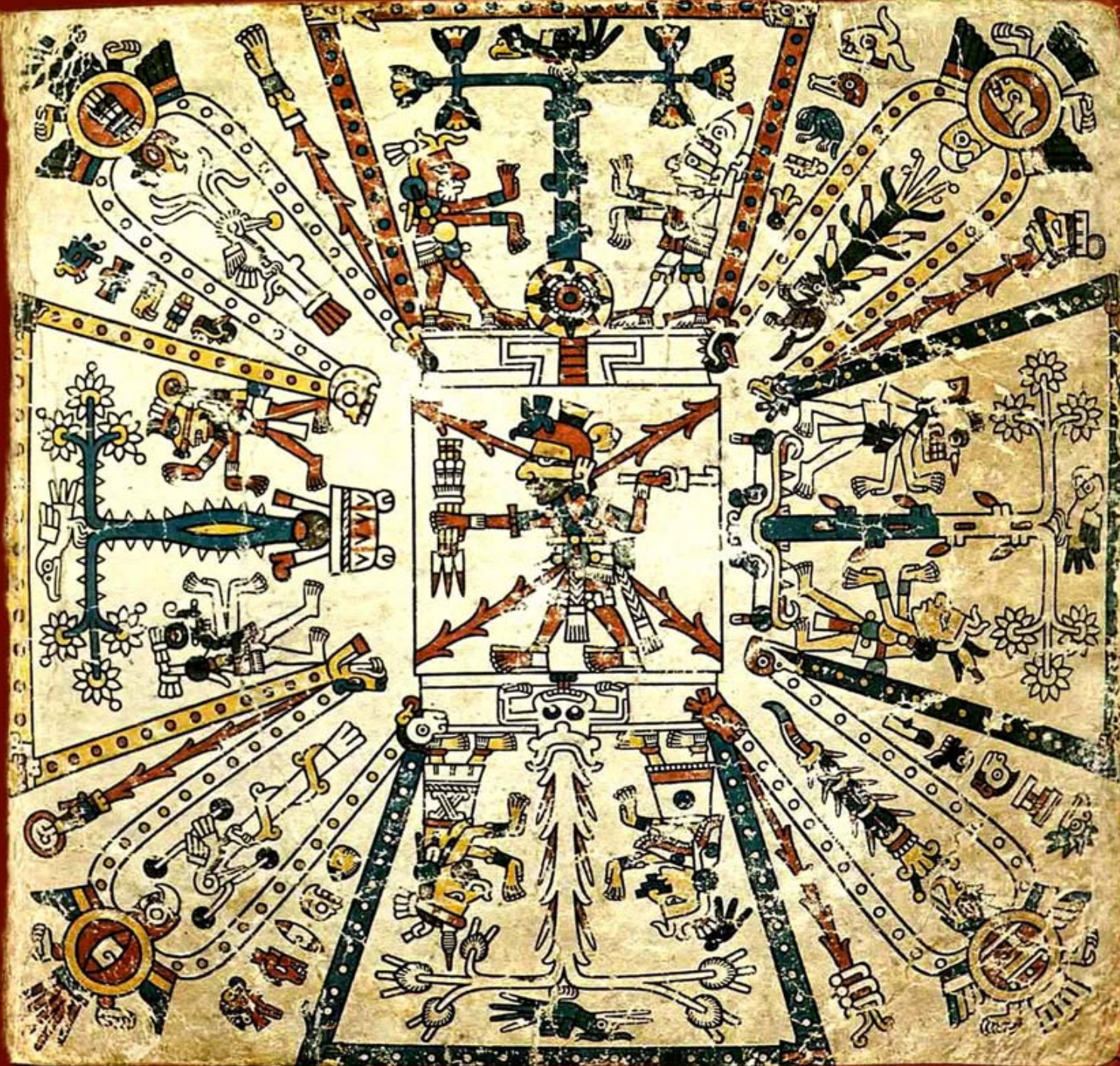
Mixteca-Puebla
Fejervary-Mayer
Codex, p. 1.
The 260-day
Divinatory
Calendar,
the *Tonalpohualli*.

Each dot is a day.

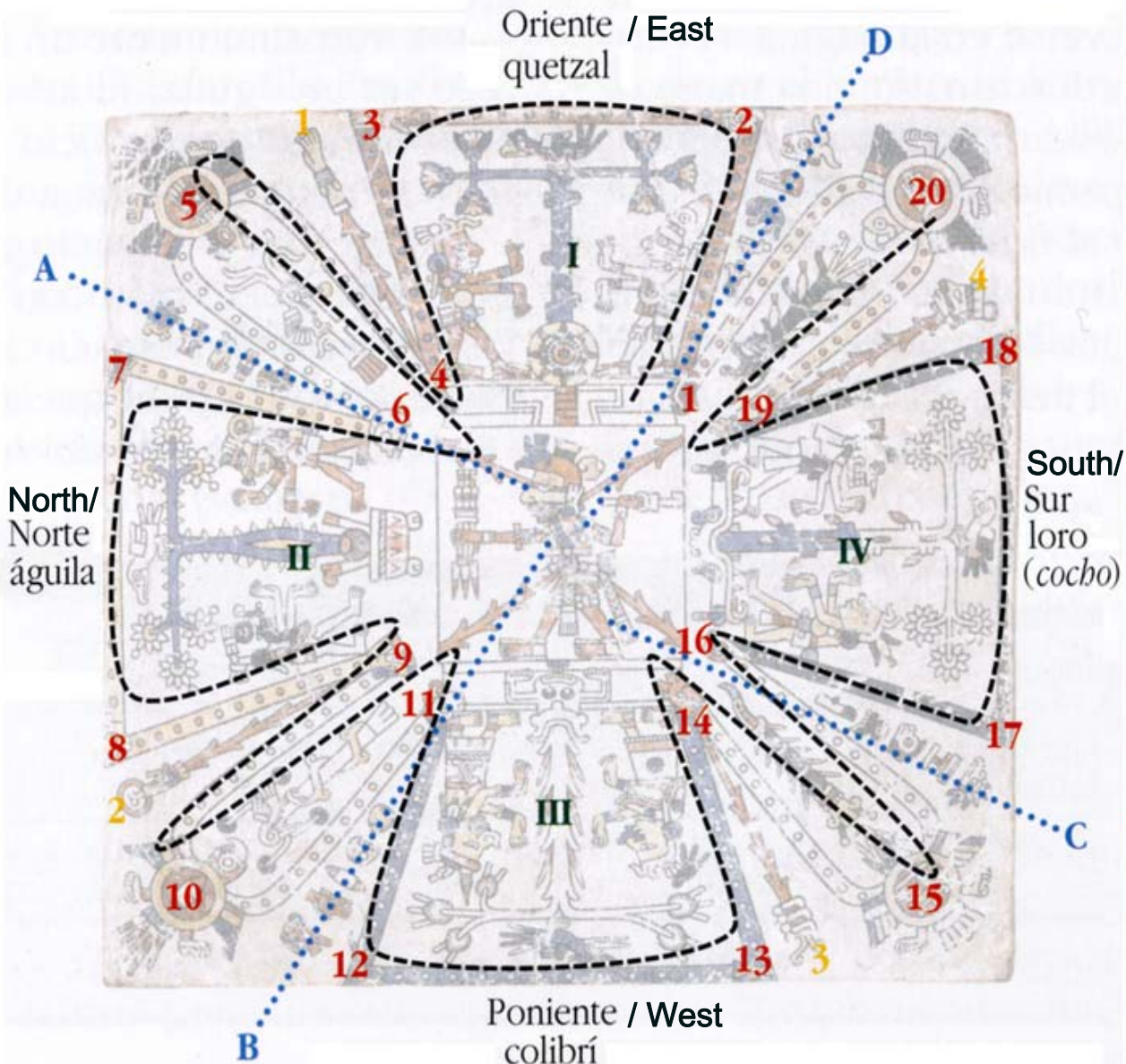
West is at bottom,
East at top,
South at right,
North at left.

(upside-down
from the *Madrid*)

Each of the four
cardinal directions
has a pair of gods
adoring an appro-
priate tree, while
the center has
Xiuhtecuhtli as
warrior. In each
corner are five day-
signs (*not* in order)
and a bloody body-
part of Tezcatlipoca.



LECTURAS DE DOS TONALPOHUALLI



Días de un segundo tonalpohualli ordenados por rumbos cósmicos

(Days associated with cardinal directions)

- A.** Oriente: *cipactli, ácatl, cóatl, ollin, atl.*
- B.** Norte: *itzcuintli, miquiztli, técpatl, océlotl, ehécatl.*
- C.** Poniente: *mázatl, quiáhuatl, ozomatli, calli, cuaubtli.*
- D.** Sur: *xóchitl, malinalli, cuetzpallin, cozcacuauhtli, tochtli.*

Árboles cósmicos

(Cosmic Trees)

- I.** *quetzalquáhuatl*, oriente
- II.** *mezquite*, norte
- III.** *quetzalpóchotl*, poniente
- IV.** *cacao*, sur

Atributos de Tezcatlipoca

(Attributes of Tezcatlipoca)

- 1.** Mano. **2.** Hueso descarnado del pie. **3.** Torso descarnado.
- 4.** Cabeza con pintura facial del dios. (1. Hand. 2. Emaciated bone of the foot. 3. Emaciated torso. 4. Head with face painting of the God.)

Explanation by the brilliant Mexican scholar Miguel León-Portilla, from *Arqueología Mexicana*. You can see that each direction has an assigned species of **tree**, in which perches an assigned **bird**, honored by specific **gods**.

Nested into the petals of the 260-day cycle (shaped like the Maya glyph for “completion”) are specific gods worshipping the Trees-with-birds of each Direction.

North at left: Eagle in Ceiba growing from a Sacrifice Vessel containing bloody bones and perforators. The Rain god Tlaloc and Tepeyollotli, “Heart of the Mountain,” worship it. (I respectfully disagree with León-Portilla, who calls this tree a *Mezquite*).

South at right: Macaw (Loro) in a **Cacao** tree growing from the maw of the Earth Monster, worshipped by Death and Cintéotl, god of Maize.

East at top: Quetzal in a *quetzalquáhuitl* tree springing from a Sun Altar, worshipped by Tonatiuh-Piltzintecuhtli (Young Sun god) and Itztli, the personified sacrificial “Flint knife”.

West at bottom: Hummingbird (on the left of the Sun) in a spiny (cactus?) *quetzalpochotl* growing out of the body of a white creature, worshipped by two goddesses: Tlazoltéotl, “filth-eater,” forgiver of sinners, and Chalchiutlicue, “She of the jade skirt.”

Center: Xiuteecuhtli, god of Fire, as a warrior, clutching darts and *atlatl*, a spear-thrower.

The four intercardinal directions are crowned by species of birds emblazoned with the four year-bearer daysigns (Reed, Flint, House, Rabbit): two members of the parrot family and two raptorial birds. They descend in turn to four *more* species of plants... for example, the "Rabbit"-marked parrot in the upper right dives toward a maize plant growing from the head of a large rodent (a gopher? rat? paca?). Flanking his descent, we see on one side the glyphs of five days associated with this direction, on the other the decapitated head of Tezcatlipoca, connected by a stream of blood to Xiuhtecuhtli in the Center. The other three corners contain similar iconography whose details really do not concern us here further.

The counter-clockwise progression of the 260 days reflects the direction followed by priests, dancers, and other celebrants in the ritual circuits that feature in every Precolumbian ceremony. As Wendy Ashmore points out, "All static images of space have to do with movement through them." They are counter-clockwise, reflecting the perceived direction of the sun's movement.