Toward Reconstructing the Ixil/Quiché Venus Calendar

Or: How the Dresden Codex Venus Calendar placement
(November 18th, 934 A.D. = 1 Ahau 18 Kayab)
evolved into one possibly used by the
Highland Maya of Guatemala.

John Major Jenkins. © May 1992.
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Introduction

I have presented, in my book *Tzolkin*, a hypothetical reconstruction of the Mayan Venus Calendar, for modern and future use. It is based upon the Venus Calendar evident in the Dresden Codex, but I have taken the liberty to choose a new starting date for the table. This is because a slight lag in the ancient Venus Calendar causes it to go out of synchronization after several centuries. Instead of attempting to track all the corrections that the Maya may or may not have employed to arrive at a modern Sacred Day of Venus placement, I decided to simply locate the next time Venus rises on a day 1 Ahau, and theorize from there. The resulting proposition, that 1 Ahau, April 3rd, 2001 A.D. represents a modern Sacred Day of Venus, is not directly related (chronologically) to whenever the Venus Calendar may have been celebrated in ancient times. But there is evidence for an ancient placement of the Venus Calendar — we find it explored in Lounsbury's paper.

So the one fact we do know about the Classic Maya Venus Round placement is Mayanist Floyd Lounsbury's 1 Ahau 18 Kayab November 18th, 934 (GMT) date. In the interest of exploring ethnohistorical feasibility, I have explored the documented facts of the Sacred Calendar and Venus Round tradition, and believe I have an important discovery to offer. What follows is a possible reconstruction of the evolution of the Venus Round system of the Dresden, showing how it became a superior system used by the Ixil (and Quiché) Maya of Highland Guatemala. Modern Sacred Days of Venus would follow from this, though they would be unadjusted and inaccurate. (For instance, March 3rd, 1974 is the most recent Sacred Day of Venus implied by the Dresden placement, yet this is some 31 days out of sync with a Venus emergence.) The following paper was submitted to *Ancient Mesoamerica*, an academic journal, in May of '92.

Terms: A Venus Round equals the period of 104 haab. A Calendar Round equals the period of 52 haab. Venus *cycle* equals its synodical cycle of some 584 days (583.92 days to be exact). A Haab equals the "vague solar year" of 365 days. Ixil and Quiché Calendar Round beginnings are now believed to be identical, so this paper applies to Quiché calendar tradition as well as the Ixil system.

Abstract

This paper will make a case for a Venus Round placement of the Ixil/Quiché Maya calendar. The hypothesis is rooted in two facts: the Sacred Day of Venus indicated in the Dresden Codex which corresponds to 11/18/934 A.D. (GMT), and the Ixil Calendar Round placement of 1558. The Ixil Calendar Round beginning of 1558 appears to be a vestigial Venus Round beginning, in direct relation to the 934 date. While the Venus Round system in the Dresden Codex is not synchronized with Calendar Round beginnings, the Ixil Venus calendar would have been. My primary thesis, therefore, is that the Ixil calendar stemmed from the older Tikal system circa 1246, when the Sacred Day of Venus was changed from 1 Ahau to 1 Manik (a 13-day correction to account for the accumulated discrepancy in the Venus cycle), the beginning of the haab was changed from 0 Pop (Tikal) to 1 Kayab (Ixil), and the opportunity was taken to synchronize three large cycles of Mayan time: the Calendar Round, the Venus Round, and the Venus/Mars Round.

Basics

This article will demonstrate a connection between the Ixil Calendar system and that of the Dresden Codex which is not immediately obvious. Specifically, the Sacred Day of Venus system implied in the Dresden may be the predecessor to a superior Ixil Venus calendar that we can reconstruct from a few documented fragments and the work of Mayan scholar Floyd Lounsbury.

Some basics will clarify what will follow. We need to consider several different interlocking cycles to fully understand the scope of what is referred to as the Mayan Venus Calendar. These cycles are: The 260-day sacred almanac (the tzolkin), the 365-day vague solar year (the haab), and the 584-day synodical period of Venus. The first two synchronize once every 52 haab, and this is called a Calendar Round. All three cycles synchronize every 104 haab.

The 260-day cycle consists of 20 day-signs combined with a number from 1 to 13. Each day is named by its number and day-sign, thus giving a total of 260 unique days. The day-signs are glyphs, and on one level are used in divination. They also have linguistic, astronomical, and mythical references.

The vague solar year of 365 days was conceived to be a partner-system to the tzolkin. It is called the haab (cycle of rains) and consists of 18 months of 20 days each, with a short month of 5 days at the end. The quality of a year is determined by the day-sign which falls on New Years Day. This day-sign is called the year-bearer. Since the 20 day-signs divide into the 365-day haab 18 times with 5 left over, the year-bearer advances by 5 day-signs every year. Furthermore, 5 goes into 20 four times; thus there are four possible year-bearers. Together, the tzolkin and the haab weave a framework of days which repeats every 52 haab (1 Calendar Round) and provide a means of tracking the astronomical phenomena of Venus and other planets.

Venus has a 584 day cycle. The beginning point is considered to be the day on which it emerges as morningstar after inferior conjunction. Since the 20 day-signs divide into 584 with 4 left over, and four goes into 20 five times, the Venus cycle can begin on one of 5 possible day-signs. These 5 day-signs are what I will refer to as the Ahau sequence, because, according to the Dresden Codex, these predictive emergence day-signs are: Ahau, Kan, Lamat, Eb, and Cib. The big cycle of tzolkin, haab, and Venus is completed when they synchronize on the senior emergence day-sign: The Sacred Day of Venus, 1 Ahau. This synchronization occurs every 2 Calendar Rounds. This is just to say that if Venus emerges as morningstar on the winter solstice on the almanac day 1 Ahau, it will take 104 haab for this to occur again. (By that time, the system will have fallen 26 days behind the winter solstice.)

Our understanding of the Mayan Venus Calendar comes primarily from the Dresden Codex, which contains tables predicting Venus emergence phenomena in terms of tzolkin/haab designations. Correlating these emergence dates with the Gregorian Calendar has always been a problem. However, Mayan scholar Floyd Lounsbury seems to have done this. I hope to take the work of Lounsbury a step further and show how the Venus Calendar of the Dresden evolved into a Venus Calendar used by the Ixil (and Quiché) Maya of Highland Guatemala.

In the Post Classic period (900-1500 A.D.), a great differentiation of calendar systems occurred. The transformations affected such things as year-bearers, haab beginnings, Calendar Round beginnings, and whether the haab months began with 0 or 1. The Sacred Count of 260 days, however, always remained unbroken. The Dresden Codex is thought to have been written in the mid-1200s, though astronomical tables are from earlier periods, probably hundreds of years earlier. It contains day-sign sequences which predict the coordination of the three primary cycles of Mayan time: the haab, the tzolkin, and the Venus cycle. This was to occur on a heliacal rising of Venus on the Sacred Day 1 Ahau. This cycle equals 104 haab (or vague solar years), 146 sacred rounds of 260 days, and 65 Venus cycles:

104 x 365 = 146 x 260 = 65 x 584 = 37,960 days = 1 Venus Round

In his article "The Base of the Venus Table in the Dresden Codex", Floyd Lounsbury pinpoints the Western calendar correlation of a Sacred Day of Venus that is indicated in the Venus tables of the Dresden Codex. It occurred on 1 Ahau 18 Kayab, November 20th, 934 A.D. (J). This date is reckoned by the 584285 correlation. By the GMT:584283 correlation, which we will be using, the date was 1 Ahau 18 Kayab, November 18th, 934 A.D. (J).**[1]** In either case, Venus did actually emerge as morning star on November 20th. A 2-day deviation between predicted and actual emergence is within range of the variation in the cycle of Venus (it can vary between 580-588 days from cycle to cycle). There is good reason to believe that this was considered a Sacred Day of Venus by the skywatchers of the Yucatan.

The Venus Round was designed to synchronize 3 cycles, as previously mentioned. The Venus Round (104 haab) also equals two Calendar Rounds (52 haab). However, the 18

Kayab haab date indicated in the Dresden does not allow for the sacred event to occur at the traditional beginning point of the haab, which was 0 Pop in the Tikal system. Ideally, we would hope that a Sacred Day of Venus would occur on 1 Ahau 0 Pop. In fact, this tzolkin/haab combination is not possible in any known system.[2] Regardless of this dilemma, November 18th, 934 A.D. (J) is the only probable Sacred Day of Venus known. By the time of the conquest it seems that the Sacred Day of Venus tradition had fragmented amidst attempts to adjust for the slight difference between the mean synodical period of Venus (583.92 days) and the approximation employed by the Maya (584 days). This inaccuracy amounted to about 5 days every Venus Round. There is no documentation of a Venus Round celebration from the time of the conquest or thereafter. Calendar Round observances, however, have been documented. Although it does not seem to be the case in the Dresden Codex Venus calendar, if we assume that some indigenous groups had coordinated Venus and Calendar Rounds in such a way that every other Calendar Round beginning was also a Venus Round beginning, we have a means to explore the correlated position of possible pre-conquest Venus Rounds.

Edmonson reports Calendar Round beginning dates for 17 indigenous calendars, documented from the early 1500's (1988:147). Five of these will concern us:

Ixil: 1 Che (Manik) 1506

Jacaltec: 1 Kanil (Lamat) 1518

Quiché: 1 Nooj (Caban) 1532
*Note: According to Barbara Tedlock's ethnographic work, the Quiché senior year-bearer is Manik rather than Caban, making the Quiché Calendar Round equivalent to the Ixil.

Mayapan: 1 Kan 1529

Tikal: 1 Caban 1544

These can be correlated by the GMT as follows:

Table 1

Calendar Rounds of Maya Groups

Beginning:	Western Date:	Venus Emergence:
Ixil:		
1 Manik 5 Kayab (T) =	6/15/1506 (J)	No
	6/2/1558 (J)	5/18/1558 (J)
Jacaltec:		
1 Lamat 6 Kayab (T) =	6/13/1518 (J)	5/30/1518 (J)
Quiché:		
1 Caban 5 Kayab (T) =	6/8/1532 (J)	No
	5/24/1584 (J)	No
Mayapan:		
1 Kan 2 Pop (T) =	7/21/1529 (J)	8/5/1529 (J)
Tikal:		
1 Caban 0 Pop (T) =	7/15/1544 (J)	No
	7/2/1596 (J)	No

Haab dates are reported in the Tikal (T) system for comparative uniformity.
Day-signs have been converted to their Yucatec Maya equivalence.
(J) indicates dates reckoned by the Julian Calendar.

The Tikal Calendar Round position reported in 1544 may have been in use around the time of the 934 A.D. Sacred Day of Venus. If we project backward 12 Calendar Rounds from the documented date 7/15/1544 (J), we arrive at the year 924 A.D. This, again, suggests that the Calendar and Venus Rounds were not synchronized in the Dresden. As to be expected, neither the 1544 date nor the one exactly 1 Calendar Round later correspond with a Venus rising.[3]

The Quiché Calendar Round began on 1 Caban 1 Kayab (Quiché) on 6/8/1532 (J). Because this date may merely be half-way through the Venus Round, we are also checking for a Venus emergence 1 Calendar Round later; in this case 6/8/1532 + 1 Calendar Round (52 haab) = 5/24/1584 (J). Neither date corresponds with a Venus emergence. However, notice in Table 1 that the Ixil and Quiché Calendar Round positions are related. The Quiché Calendar Round begins exactly one-half of a Calendar Round after the Ixil. Likewise, the Jacaltec Calendar Round beginning date is exactly 12 haab plus one day after the Ixil. [Note: It would appear that the Quiché Calendar Round placement may be identical to the Ixil; the senior day-sign given by Edmonson differs

from the one given by B. Tedlock. If Tedlock's modern ethnographic data is correct, then the Quiché and Ixil systems may be spoken of as one. I will hereafter take this position.] And the Jacaltec date is exactly one-half of a Calendar Round minus 61 days before the Tikal date of 1544. This all suggests that Calendar Round positions branched off from one another in clear multiples of haab and uinal. The additional one day deviations arise when zero counting is dropped, or year-bearers change. The root system from which the altered systems derived was very probably the Tikal of the Dresden Codex.

The Mayapan Calendar Round date is close to a Venus emergence, 4 days after inferior conjunction. The date indicated is 1 Kan 2 Pop (T), July 21st, 1529 (J). Venus emerged as morningstar on August 5th. Historically, the Mayapan calendar was derived from an older system right around the time of the conquest. Edmonson considers that "the Mayapan was clearly the successor to the Tikal calendar" (203). But why the 15-day deviation between then Calendar Round beginning and the Venus emergence? Perhaps this was as close as they could come to approximating the Venus emergence of 1529. Interestingly, the deviation is such that, in terms of decades and centuries, the Calendar Round beginning would more closely correspond to the Venus emergence. Since Venus would be emerging approximately 5 days behind schedule at the end of 104 haab, we would expect perfect synchronization of Venus and Calendar Round sometime around 1529 + 312 = 1841. But can we honestly think that the new Calendar Round placement of Mayapan was planned to resonate with a Venus emergence some 312 years in the future?**[4]** In such a scenario the Sacred Day of Venus would not be 1 Ahau, but 1 Kan (Lizard). Zero counting was dropped in the Mayapan calendar, so 1 Pop would be the first day of the haab. Furthermore, Kan was one of the 5 day-signs in the predictive Ahau sequence indicated in the Dresden Codex (Ahau, Kan, Lamat, Eb, Cib). Regardless of the fact that traditionally, centuries before the Mayapan calendar's inauguration, Ahau was the Sacred Day of Venus (the senior day-sign of the sequence of five), now it would be Kan. A 1 Kan 1 Pop Sacred Day of Venus would have potent mythological significance.

There are two other calendars reported by Edmonson that begin their Calendar Rounds approximately in resonance with a Venus emergence: The Ixil and the Jacaltec. Unlike the Mayapan, the Ixil and Jacaltec systems become more accurate as we calculate back in time. In other words, by the time of their documentation in the early 1500's, these Calendar Round beginnings were already some 15 days out of synchrony with Venus emergences. Might we try to validate Lounsbury's hypothesis of the 1 Ahau 18 Kayab Sacred Day of Venus on 11/18/934 (J) (in the 584283 GMT)?

The Jacaltec Calendar Round began on 1 Lamat 6 Kayab (T) in 1518 (June 13th (J)), which is 14 days after a Venus emergence. It was most accurate 6 Calendar Rounds prior to this, on August 30th, 1206 (J); Venus emerged as morning star on the 29th. Another 6 Calendar Rounds prior to this brings us to the year 894, indicating that there is no direct relationship between the Jacaltec Calendar Round placement of 1518 and the Sacred Day of Venus in 934. But the Ixil/Quiché calendar is where we strike gold.

The Ixil/Quiché Calendar Round

One clue that connects the Ixil calendar with the system of the Dresden Codex is reported by Edmonson (147). Here we find that an Ixil Calendar Round began on 1 Che in 1506.[5] Che is the day-sign Manik (Yucatec) which means deer. It also means deer in the Quiché and Ixil languages. 1 Manik occurs only once in 1506, on the haab date 1 Kayab (Ixil), which is 5 Kayab (Tikal). It is important to point out here the two characteristics of the Ixil calendar that distinguish it from the older Tikal system: 1) the Ixil considered Kayab to be the first month of the haab, and 2) they had abandoned zero counting so that the first day of the haab was 1. Thus, appropriately, 1 Manik 1 Kayab begins the Calendar Round. This tzolkin/haab date fell on June 15th, 1506 (J). We find a close Venus-rising on the date one Calendar Round after this, on 1 Manik 1 Kayab, June 2nd, 1558 (J); Venus emerged as morningstar on May 18th (J). Empirical Venus emergences had fallen 15 days behind the prediction schedule. Now, let's work backward to the Lounsbury date. Since the accumulated discrepancy for each Venus Round is about 5 days, we should look for perfect synchronization 3 Venus Rounds before 1558. The hypothetical Sacred Day of Venus we find is 1 Manik 1 Kayab (Ixil) August 19th, 1246 (J); Venus actually emerges on the 17th. Three Venus Rounds further back we gain another 15-day discrepancy: 1 Manik 1 Kayab (Ixil) = November 5th, 934 (J). The Tikal tzolkin/haab for this same date would be 1 Manik 5 Kayab. In all respects it is 13 days before the Sacred Day of Venus date determined by Lounsbury: Nov. 18th, 934 (J) (GMT). Venus actually emerges on the 20th.

Now let's try to put this into a possible historical context. It is the early 10th century. The Tikal calendar is being used by certain skywatchers of the Yucatan. The mythologically potent Ahau sequence has been formulated for predicting Venus emergences. The Venus tables that found their way into the Dresden Codex are being gathered. They are expecting Venus to emerge from the morning sun on 1 Ahau 18 Kayab, Nov. 18th, 934, and it does on the 20th. But as the decades pass, inaccuracies in their predictions are building up. Dare they implement a Sacred Day of Venus other than 1 Ahau? Possible methods of correction are calculated; they are beginning to understand the rate of deviation. On the next Sacred Day of Venus, in 1038, Venus rises 3 days earlier than expected. By 1142 the deviations are even greater. Meanwhile, cultural diffusion is taking place. The Quiché are making their pilgrimage into the Highlands of Guatemala. The people that become the Ixil and Jacaltec are arriving in the Cuchumatanes Mountains of Guatemala from the northeast. Perhaps one of these groups, the predecessors of the Ixil Maya, will soon make an experiment. Instead of 1 Ahau, the new Sacred Day of Venus is declared to be 1 Manik; the expected emergence sequence is shifted back 13 days. On 1 Manik 5 Kayab (T), August 19th, 1246 (J), the new prediction holds true (Venus emerges on the 17th).

Since Manik is a year-bearer in the Type II system used by the Quiché and Ixil, perhaps the opportunity was taken to synchronize the Calendar and Venus Rounds. A 40-day shift in the haab New Years Day was implemented and zero counting was dropped, changing the first day of the haab from 0 Pop (Tikal) to 1 Kayab in the Ixil and Quiché calendars (Edmonson 1988: 7). Thus, for the Ixil at least, Calendar Rounds began starting on 1

Manik 1 Kayab, synchronized with a Venus emergence. In terms of synchronizing the CR and the VR, this ideal combination is analogous to 1 Ahau 0 Pop in the Tikal system, which was not possible in the Dresden Codex. Even to this day, Manik (Quej) is the senior day-sign for the Quiché Maya of Guatemala (Tedlock 1982: 99),[6] and Edmonson reports that Manik (Che) is the senior day-sign for the Ixil (1988: 185). What this hypothesis amounts to is that the Sacred Day of Venus date implied in the Dresden Codex, characterized by unsynchronized Calendar Rounds and Venus Rounds, was the predecessor to an Ixil Sacred Day of Venus characterized by perfect synchronization of Calendar Round and Venus Round. 1 Manik 1 Kayab; 1 Deer 1 Lord. The powerful coefficient 1 was joined with the new Sacred Day as it had previously been with Ahau.

This date gains added mythological importance when we consider Lounsbury's additional observation—the discovery of a 6 Calendar Round period in the Dresden (3 Venus Rounds). Since Mars has a period of 780 days, this is none other than a conjunction cycle of the Sun (haab), Mars, and Venus:

1 Calendar Round (CR) = 18,980 days
584 x 195 = 780 x 146 = 365 x 312 = 18,980 x 6

The date 6 CR's before Nov 18th, 934 was Long Count 9.9.9.16.0, which was established in the Dresden as a calculational base. From that point, the 6 CR conjunction cycle of Venus and Mars was extended back to a date before the beginning of the present Great Cycle. If the joined heliacal rising of Mars and Venus on the Sacred Day of Venus in 934 was seen by the Maya as a significant mytho-historic event, we would think that a calculation forward would predict the next time this would occur. By 1246 they would be anxiously waiting for the sacred event to recur. The 1246 event may explain the origin of the Ixil/Quiché calendar (changing New Years Day from 0 Pop to 1 Kayab); such an adjustment would bring several different Maya time cycles into resonance. While Lounsbury suggests that 18 Kayab may have gained unalterable mythological potency due to the 934 event, 1 Kayab would be even more significant due to the powerful coefficient 1. The haab month name Kayab means Lord in the Quiché and Cakchiquel languages (Edmonson 1988: 216). The previous Sacred Day, Ahau, also means Lord. 1 Manik 1 Kayab, August 19th, 1246 (J) would represent the beginning of 3 cycles: The Calendar Round, the Venus Round (2 CRs), and the newly discovered Mars/Venus Round (6 CRs). Furthermore, some other interesting things were happening in the sky around this time. All of the inner planets (except Venus, which had already emerged as morningstar) were within 18 degrees of each other on October 8th of that year. Saturn and Jupiter both conjuncted the sun on that day, and within two weeks all of the visible planets had appeared in the east as morning stars, with Venus leading the pack.[7]

A New Adjustment Mechanism?

This hypothesis challenges some of J. Eric Thompson's ideas in *A Commentary on the Dresden Codex*. He cites Teeple (1926) as the scholar who deciphered the 4- and 8-day adjustment mechanism of the Dresden, employed after 57 or 61 Venus cycles, and says, "No correction which failed to recover 1 Ahau [as the Sacred Day of Venus] was

acceptable to the Maya" (63). And, "There can be no serious doubt that the Maya used those 4 and 8 day subtractions..." (63). Nevertheless, in light of the Ixil and Jacaltec Calendar Round beginnings observed just prior to the conquest (which are also possible vestigial Venus Round beginnings), the Highland Maya may have implemented Sacred Days of Venus other than 1 Ahau, namely, 1 Manik (Ixil) and, possibly, 1 Lamat (Jacaltec). There is no documentation that I know of suggesting that the adjustment mechanism described by Teeple and Thompson was ever in practical use. In fact, Lounsbury's article indicates that the length of the Venus period was being reckoned as a whole number, 584, circa 934 and for well over a century thereafter (13).

We should remember that the Dresden Codex was only one of thousands of books written by the Maya. Despite their amazing qualities, the adjustments suggested by Thompson may only be an experimental hypothesis. One disturbing effect of these corrections would be the cutting short of each Venus Round by either 4 or 8 Venus cycles, throwing the mythologically important 104-haab cycle out the window. Due to gaps in Mayan ethnohistory, we cannot be sure whether they were used or not.

Summary of Paper

An adjustment mechanism, different than the one in the Dresden Codex, is implied by the Ixil Calendar Round placement of 1558. It can be tracked back to Lounsbury's 1 Ahau Sacred Day of Venus in 934. Due to the shared heliacal rising of Mars & Venus on this date, the Maya apparently became aware of a 6 CR conjunction cycle of Mars and Venus. I propose that an opportunity to synchronize this new cycle of 6 CR's with Calendar Round and Venus Round beginnings was seized in 1246, and was responsible for the birth of the Ixil haab system and Calendar Round position. In addition to these calendrical changes, a correction of 13 days (in the prediction sequence) was implemented at this time, changing the Sacred Day of Venus from 1 Ahau 18 Kayab (T) to 1 Manik 1 Kayab (Ixil). While this is not an exceedingly accurate corrective mechanism, it was simple, and served the profound purpose of unifying the astronomical cycles of Sun, Venus and Mars within the sacred framework of the tzolkin/haab.

Notes:

1. The astronomical basis of Lounsbury's argument in support of the 584285 correlation over the 584283 correlation is not sufficient evidence to abandon the 584283. In fact, his primary thesis is actually something else. The Nov. 20th, 934 event also involved a rare heliacal rising of Mars along with Venus, which explains some of the heretofore unexplained numbers in the Dresden, namely, a six Calendar Round compound cycle of Mars and Venus. Lounsbury's argument for the original Thompson correlation of 1930 implies that there must have been a 2-day shift in the day-count sometime prior to the conquest. Edmonson refutes this possibility in his exhaustive study, *The Book of the Year*:

> "...this confirms the "modified Thompson 2" correlation, placing 4 Ahau 8 Cumku on Julian day number 584283. No other solution is ethnohistorically possible

> without postulating a break in the continuity and uniformity of the universal Middle American day count, an assumption falsified by every correlation date in the present volume" (249).

While the correlation Lounsbury assumes does make his argument 2 days more accurate, 2 days is not a lot considering the varying nature of the Venus cycle, and does not justify an unprecedented and simultaneous 2-day shift in the day-count throughout Mesoamerica. Nevertheless, his more significant argument that November 18th, 934 A.D. (date adjusted to the 283) was the Sacred Day of Venus, 1 Ahau 18 Kayab, still stands.

2. The tzolkin/haab date 1 Ahau 1 Pop, however, occurs in a system with zero counting and Type IV year-bearers (Kan, Muluc, Ix, Cauac), possibly used in the Yucatan. There is still some debate over the year-bearer system used in the Dresden Codex. Thompson indicates, by glyphic context, that the year-bearer ceremonies surround the day-signs of the Type III system (Akbal, Lamat, Ben, Etznab) (1972: 89). Other scholars claim that this supposition primarily comes from thinking that the 0 day was really the 20th day of the previous month, thus making 1 Pop "the first of Pop" (*Dolphin Software Manual* 1990:18). If the first day is considered to be 0, then a Type II year-bearer system is implied (Ik, Manik, Eb, Caban). In this article I will use the latter (Type II) system, since the Quiché and Ixil ultimately used (and still use) this system and because the dilemma does not substantially challenge my hypothesis. In other words, a ruled-out Type V year-bearer system is required to suggest that the Venus Rounds and Calendar Rounds may have been synchronized in the Dresden Codex.

3. The Dresden Codex indicates that Venus was invisible in inferior conjunction for 8 days. In other words, it would emerge in the east 8 days after disappearing in the west. It follows that the midpoint of this 8-day period equals perfect inferior conjunction. Thus, to arrive at Venus emergence dates, 4 days are added to the Sun/Venus inferior conjunction dates found in Jean Meeus's *Astronomical Tables of the Sun, Moon, and Planets*. This reckoning is discussed and supported by Lounsbury (13).

4. There are two possibilities here. The 15-day deviation between a Venus emergence and the newly devised Calendar Round placement of the Mayapan calendar was an accident. Or, it was purposefully done. If done on purpose (to the ignorance of the invaders), we would think that the Maya would have had sufficient astronomical knowledge to inaugurate an accurate placement of the Calendar/Venus Round. But since the Venus emergence does not perfectly coincide with the Calendar Round beginning until 1841, this placement may, in fact, have been devised for future generations.

5. Edmonson may get this information from J. Steward Lincoln's study entitled "The Maya Calendar of the Ixil of Guatemala." The Ixil apparently still follow 13-haab periods and know of the 52-haab Calendar Round. Lincoln even goes as far as to specifically hypothesize a 1 Manik Calendar Round beginning in 1506:

> "Tche [Manik] was at all times considered the most important year-bearer and the highest in rank. It is not unreasonable to suppose that as Tche is the highest

ranking Dominical, the 52-year cycle may have started with 1 Tche. Since 1 Tche started a 13 year period March 16, 1922, it is a simple calculation to reach 1506 as the start of a possible 52-haab cycle" (115).

Note that Lincoln does not claim the Ixil Calendar Round to have been inaugurated circa 1506. Elsewhere Lincoln says that "the 13-year period of the Ixil finds a parallel in that of the Aztecs, as can be seen for instance in pages 21-22 of the Codex Borbonicus" (125). I am unsure whether this means a direct date correlation of 13-year period beginnings or merely the shared use thereof.

6. An indication that the Quiché senior day-sign may have some vestigial association with Sun/Venus is that, as a *mam*, or year-bearer, Manik (Quej) corresponds to Quijala, the sacred *eastern* mountain (Tedlock 1982: 100).

7. Due to the conjunction of Saturn and Jupiter (within 4 degrees) that was occurring in the western sky on August 19th, 1246 (J), the Maya may have believed that a synchronization with this larger conjunction cycle of some 20 years (approximately 1 katun) was also involved. A katun began in 1243.

Sources:

Edmonson, Munro S. 1988. *The Book of the Year: The Calendrical Systems of Ancient Middle America.* University of Utah Press, Salt Lake City.

Dolphin Software. 1990. *Mayan Calendrics Program*. Dolphin Software, Berkeley.

Lincoln, J. Steward. 1942. "The Maya Calendar of the Ixil of Guatemala" in *The Carnegie Institution of Washington Publication 528*, Contribution 38, Washington.

Lounsbury, Floyd G. 1983. "The Base of the Venus Table in the Dresden Codex, and Its Significance for the Calendar-Correlation Problem" in *Calendars of Mesoamerica and Peru: Native American Computations of Time*, edited by Anthony Aveni and Gordon Brotherston, 1-26. BAR International Series 174. Oxford: British Archeological Reports.

Meeus, Jean. 1983. *Astronomical Tables of the Sun, Moon, and Planets.* Willmann-Bell Publishers, Richmond, Va.

Meyer, Peter. 1990 *Mayan Calendrics Manual*. Dolphin Software. Berkeley.

Tedlock, Barbara. 1982. *Time and the Highland Maya.* University of New Mexico Press, Albuquerque.

Stahlman, William D. and Gingerich, Owen. 1963. *Solar and Planetary Longitudes for Years -2500 to +2000.* The University of Wisconsin Press, Madison.

Thompson, J. Eric S. 1972. *A Commentary on the Dresden Codex*. The American Philosophical Society, Independence Square, Philadelphia.

Additional Considerations, January 1995

The 3 Venus Round period theoretically commemorated in 1558 would be the logical extension of a VR/CR placement much older than even the 934 A.D. date isolated by Lounsbury. "New Fire" ceremonies held at Teotihuacan have been dated to 310 or 311 A.D. (624 years, or 6 Venus Rounds, prior to 934 A.D.). This would seem to be not just a 52-haab Calendar Round observance, but possibly a Sacred Day of Venus heliacal rise observance as well.

The 1550's produced the Books of Chilam Balam as well as the recording of the *Popol Vuh*. Was an impending calendric juncture still recognized by the Maya in the Yucatan and in Guatemala? And did this result in an impulse to record their history? Dennis Tedlock notes in his translation of the *Popol Vuh* (1985), that the civil unrest in Guatemala in 1818-1820 (which, of course, was part of the successful move toward independence from Spain in 1821) occurred exactly 5 Calendar Rounds after the 1558 Calendar Round date.
