

## Where are we today in the Dresden Codex Venus Table?

Uguku Usdi

*The In Lak'ech Study Group*

*California Substance Abuse Treatment Facility/State Prison, Corcoran, California*

As this short note is published on October 16, 2017, we see Venus getting lower and lower in the eastern sky each morning before sunrise. Modern ephemerides, such as found in *Sky & Telescope* magazine, tell us that Venus will disappear into superior conjunction on a certain date in December, passing behind the Sun (from Earth's perspective). That date is based on computer calculations, but the actual visibility of Venus's last appearance as Morning Star by ground-based observers depends on a lot of factors—not least of which is the skill and experience of the watcher—and realistically a plus-or-minus two-day margin of error regarding visibility is the norm.

Can we locate where we are today in the Dresden Codex Venus Table? The answer is yes! Venus's current Morning Star phase, according to the Dresden Table, started on the day 4 Ajaw that appears on page 50 (Figure 1), which corresponds to the Gregorian date March 30, 2017,<sup>[1]</sup> and which followed a brief 8-day disappearance, also on page 50, when it passed between the Earth and the Sun moving from Evening Star to Morning Star. The morning star phase we are currently in will end on the day 6 Kib that appears in the far-left column on page 46, corresponding to the Gregorian date November 21, 2017.



Figure 1. Pages 46-50, Dresden Codex (Forstemann 1880 or 1892). 4 Ajaw in far-right column on p. 50 is March 30, 2017 (using the 584283 correlation). At the bottom of the far-left column on p. 46, in red (damaged), are 236 days (11.16) marking the duration of Venus's Morning Star phase that ends on 6 Kib, three from the top in far-left column, which corresponds to November 21, 2017, Venus's last appearance as Morning Star before disappearing into superior conjunction.

Today's Gregorian date, October 16, 2017, (date of this publication), corresponds to the day 9 Ajaw, which falls exactly 200 days after 4 Ajaw and 36 days prior to 6 Kib. In other words, by the Dresden Codex Venus Table we are 36 days away from Venus's last appearance as Morning Star. As ground-based observers ourselves, if we have a clear eastern horizon, we can watch Venus getting lower and lower and eventually disappearing around this date.

At the very bottom of the far-left column on page 46, one would see, if it were not so badly damaged, the red number 11.16 (11 in the twenties place, 16 in the ones place), which is the 236-day duration of Venus's Morning Star phase, the period we are currently in that ends on 6 Kib, November 21, 2017 (Figures 1 and 2). Directly to the right, at the bottom of the second column on the same page, one would see, again if not for the damage, the red number 4.10 or 90 days (Figure 2) representing the duration of Venus's upcoming period of invisibility that leads eventually to its reappearance as Morning Star. After this, the reader moves on across the page, reading from left to right, to future Venus events.

| SCHEME OF THE VENUS CYCLE ON DRESDEN 46-50 (restored and corrected) |         |        |        |        |         |       |       |       |         |        |        |        |         |         |        |        |         |        |        |        |  |  |  |
|---|---------|--------|--------|--------|---------|-------|-------|-------|---------|--------|--------|--------|---------|---------|--------|--------|---------|--------|--------|--------|--|--|--|
| Line  | Page 46 |        |        |        | Page 47 |       |       |       | Page 48 |        |        |        | Page 49 |         |        |        | Page 50 |        |        |        |  |  |  |
|   | Cib     | Cimi   | Cib    | Kan    | Ahau    | Oc    | Ahau  | Lamat | Kan     | Ix     | Kan    | Eb     | Lamat   | Etz'nab | Lamat  | Cib    | Eb      | Ik     | Eb     | Ahau   |  |  |  |
| 1   | 3       | 2      | 5      | 13     | 2       | 1     | 4     | 12    | 1       | 13     | 3      | 11     | 13      | 12      | 2      | 10     | 12      | 11     | 1      | 9      |  |  |  |
| 2   | 11      | 10     | 13     | 8      | 10      | 9     | 12    | 7     | 9       | 8      | 11     | 6      | 8       | 7       | 10     | 5      | 7       | 6      | 9      | 4      |  |  |  |
| 3   | 6       | 5      | 8      | 3      | 5       | 4     | 7     | 2     | 4       | 3      | 6      | 1      | 3       | 2       | 5      | 13     | 2       | 1      | 4      | 12     |  |  |  |
| 4   | 1       | 13     | 3      | 11     | 13      | 12    | 2     | 10    | 12      | 11     | 1      | 9      | 11      | 10      | 13     | 8      | 10      | 9      | 12     | 7      |  |  |  |
| 5   | 9       | 8      | 11     | 6      | 8       | 7     | 10    | 5     | 7       | 6      | 9      | 4      | 6       | 5       | 8      | 3      | 5       | 4      | 7      | 2      |  |  |  |
| 6   | 4       | 3      | 6      | 1      | 3       | 2     | 5     | 13    | 2       | 1      | 4      | 12     | 1       | 13      | 3      | 11     | 13      | 12     | 2      | 10     |  |  |  |
| 7   | 12      | 11     | 1      | 9      | 11      | 10    | 13    | 8     | 10      | 9      | 12     | 7      | 9       | 8       | 11     | 6      | 8       | 7      | 10     | 5      |  |  |  |
| 8   | 7       | 6      | 9      | 4      | 6       | 5     | 8     | 3     | 5       | 4      | 7      | 2      | 4       | 3       | 6      | 1      | 3       | 2      | 5      | 13     |  |  |  |
| 9   | 2       | 1      | 4      | 12     | 1       | 13    | 3     | 11    | 13      | 12     | 2      | 10     | 12      | 11      | 1      | 9      | 11      | 10     | 13     | 8      |  |  |  |
| 10  | 10      | 9      | 12     | 7      | 9       | 8     | 11    | 6     | 8       | 7      | 10     | 5      | 7       | 6       | 9      | 4      | 6       | 5      | 8      | 3      |  |  |  |
| 11  | 5       | 4      | 7      | 2      | 4       | 3     | 6     | 1     | 3       | 2      | 5      | 13     | 2       | 1       | 4      | 12     | 1       | 13     | 3      | 11     |  |  |  |
| 12  | 13      | 12     | 2      | 10     | 12      | 11    | 1     | 9     | 11      | 10     | 13     | 8      | 10      | 9       | 12     | 7      | 9       | 8      | 11     | 6      |  |  |  |
| 13  | 8       | 7      | 10     | 5      | 7       | 6     | 9     | 4     | 6       | 5      | 8      | 3      | 5       | 4       | 7      | 2      | 4       | 3      | 6      | 1      |  |  |  |
| 14  | 4       | 14     | 19     | 7      | 3       | 8     | 18    | 6     | 17      | 7      | 12     | 0      | 11      | 1       | 6      | 14     | 10      | 0      | 5      | 13     |  |  |  |
| 15  | Yaxkin  | Zac    | Zec    | Xul    | Cumku   | Zotz' | Pax   | Kayab | Yax     | Muan   | Ch'en  | Yax    | Zip     | Mol     | Uo     | Uo     | Kankin  | Uayeb  | Mac    | Mac    |  |  |  |
| 16  | N.      | W.     | S.     | E.     | N.      | W.    | S.    | E.    | N.      | W.     | S.     | E.     | N.      | W.      | S.     | E.     | N.      | W.     | S.     | E.     |  |  |  |
| 17  | A       | B      | C      | D      | E       | F     | G     | H     | I       | J      | K      | L      | M       | N       | O      | P      | Q       | R      | S      | T      |  |  |  |
| 18  | Red ½   | Red ½  | Red ½  | Red ½  | Red     | Red   | Red   | ½     | Red     | Red    | Red    | Red    | Red     | Red     | Red    | Red    | Red     | Red    | Red    | Red    |  |  |  |
| 19  | Venus   | Venus  | Venus  | Venus  | Venus   | Venus | Venus | Venus | Venus   | Venus  | Venus  | Venus  | Venus   | Venus   | Venus  | Venus  | Venus   | Venus  | Venus  | Venus  |  |  |  |
|   | 236     | 326    | 576    | 584    | 820     | 910   | 1160  | 1168  | 1404    | 1494   | 1744   | 1752   | 1988    | 2078    | 2328   | 2336   | 2572    | 2662   | 2912   | 2920   |  |  |  |
| 20  | 9       | 19     | 4      | 12     | 3       | 13    | 18    | 6     | 2       | 7      | 17     | 5      | 16      | 6       | 11     | 19     | 15      | 0      | 10     | 18     |  |  |  |
| 21  | Zac     | Muan   | Yax    | Yax    | Zotz'   | Mol   | Uo    | Zip   | Muan    | Pop    | Mac    | Kankin | Yaxkin  | Ceh     | Xul    | Xul    | Cumku   | Zec    | Kayab  | Kayab  |  |  |  |
|   | T       | A      | B      | C      | D       | E     | F     | G     | Winged  | Winged | Winged | Winged | Winged  | Winged  | Winged | Winged | Winged  | Winged | Winged | Winged |  |  |  |
|   |         |        |        |        |         |       |       |       | Chuen   | Chuen  | Chuen  | Chuen  | Chuen   | Chuen   | Chuen  | Chuen  | Chuen   | Chuen  | Chuen  | Chuen  |  |  |  |
| 22  | Winged  | Winged | Winged | Winged | ..      | ..    | ..    | ..    | H       | I      | J      | K      | L       | M       | N      | O      | P       | Q      | R      | S      |  |  |  |
| 23  | Red     | Red    | Red    | Red    | Red     | Red   | Red   | Red   | ..      | ..     | ..     | ..     | Red     | Red     | Red    | Red    | Red     | Red    | Red    | Red    |  |  |  |
|   | Venus   | Venus  | Venus  | Venus  | Venus   | Venus | Venus | Venus | Venus   | Venus  | Venus  | Venus  | Venus   | Venus   | Venus  | Venus  | Venus   | Venus  | Venus  | Venus  |  |  |  |
| 24  | E.      | N.     | W.     | S.     | E.      | N.    | W.    | S.    | E.      | N.     | W.     | S.     | E.      | N.      | W.     | S.     | E.      | N.     | W.     | S.     |  |  |  |
| 25  | 19      | 4      | 14     | 2      | 13      | 3     | 8     | 16    | 7       | 17     | 2      | 10     | 6       | 16      | 1      | 9      | 0       | 10     | 15     | 3      |  |  |  |
|   | Kayab   | Zotz'  | Pax    | Kayab  | Yax     | Muan  | Ch'en | Ch'en | Zip     | Yaxkin | Uo     | Uo     | Kankin  | Cumku   | Mac    | Mac    | Yaxkin  | Zac    | Zec    | Xul    |  |  |  |
| 26  | 236     | 90     | 250    | 8      | 236     | 90    | 250   | 8     | 236     | 90     | 250    | 8      | 236     | 90      | 250    | 8      | 236     | 90     | 250    | 8      |  |  |  |

Figure 2. Scheme of Venus Cycle on Dresden 46-50 (Thompson 1972:66)

There is a difference between the December date for Venus's disappearance given by modern ephemerides and the November 21, 2017 date derived from the Dresden Table, a difference that exceeds the plus-or-minus two-day margin of observational uncertainty previously mentioned. This is a result of the fact that Maya astronomers, for reasons not altogether clear to present-day researchers, truncated the duration of the Morning Star and Evening Star phases of the table and augmented the duration of disappearance at superior conjunction.

The 90-day period of disappearance in the codex is much longer than the real disappearance that is approximately 50 days, which seems to show that calendar priests were concerned with ritualistic and astrological significance of the planet as much as observational accuracy.<sup>[ii]</sup> In our opinion, while the Maya knew perfectly well the actual days of appearance and disappearance,

they likely manipulated these periods to line up with auspicious days in the 260-day divinatory *tzolk'in*.

In spite of the discrepancies between observational dates and codex canonical dates, it is important to point out that when extending the cycles over time, the codex remains remarkably precise, in fact “remarkable” would be an understatement. Using the built-in corrective scheme of subtracting four and eight days after specified numbers of cycles, Maya astronomers kept the table in sync with the real movements of Venus to within one day in six thousand years!<sup>[iii]</sup>

According to our group’s hypothesis, the last time the table was completely reset the Maya astronomers established a new base date at 1 Ajaw 18 Woh on 10.15.4.2.0,<sup>[iv]</sup> corresponding to the Gregorian date of December 11, AD 1129. Here we are today, almost nine centuries later, watching the disappearance and reappearance of Venus in the awesome night sky and matching its movements to the ever-effective still-operational Dresden Codex Venus Table.

<sup>[i]</sup> All Gregorian dates are derived using the 584283 correlation.

<sup>[ii]</sup> Aveni 1980:187

<sup>[iii]</sup> One complete Venus cycle in the real sky, e.g., from one first appearance of Morning Star to the next first appearance of Morning Star, can range from 581 to 587 days producing an average over centuries of 583.92. The codex canonical value is 584, thus the need for periodic corrections to make up for the ever-accumulating discrepancy between 583.92 and 584 (Thompson 1972:62-63).

<sup>[iv]</sup> Uguku Usdi et al. 2013. This date is in agreement with that stated by Thompson (1972:63) and Lounsbury (1978:787) but not that of Harvey and Victoria Bricker (Bricker and Bricker 2007:105; 2011:164-166).

## References

Aveni, Anthony F.

1980 *Skywatchers of Ancient Mexico*. University of Texas Press, Austin.

Bricker, Harvey M. and Victoria R. Bricker

2007 When was the Dresden Codex Venus Table Efficacious? In *Skywatching in the Ancient World: New Perspectives in Cultural Astronomy – Studies in Honor of Anthony F. Aveni*, edited by Clive Ruggles and Gary Urton, pp. 95-119. University of Colorado Press, Boulder.

2011 *Astronomy in the Maya Codices*. American Philosophical Society, Philadelphia.

Forstemann, Ernst

1880 or 1892 The Dresden Codex. Forstemann’s photochromolithographic edition of the Dresden Codex in PDF format. Electronic document,

<http://www.famsi.org/mayawriting/codices/dresden.html>

Lounsbury, Floyd G.

1978 Maya Numeration, Computation, and Calendrical Astronomy. In *Dictionary of Scientific Biography*, Vol. 15, Suppl. 1, edited by C. C. Gillispie, pp. 759-818. Scribner's, New York.

Thompson, J. Eric S.

1972 *A Commentary on the Dresden Codex: A Maya Hieroglyphic Book*. American Philosophical Society, Philadelphia.

Uguku Usdi, Alberto Saa, and Christopher Wehunt

2013 The Rise of Chak Ek'. *Research Reports on Ancient Maya Writing* 60, edited by George Stuart, Boundary End Archaeology Research Center, Barnardsville, North Carolina.

**Suggested citation:** Uguku Usdi. "Where are we today in the Dresden Codex Venus Table?" *Contributions to Mesoamerican Studies*, October 16, 2017. [https://brucelove.com/research/contribution\\_001/](https://brucelove.com/research/contribution_001/)