Sun and Moon at the Cosmic Crossroads in an Inscription from Palenque Temple XIX

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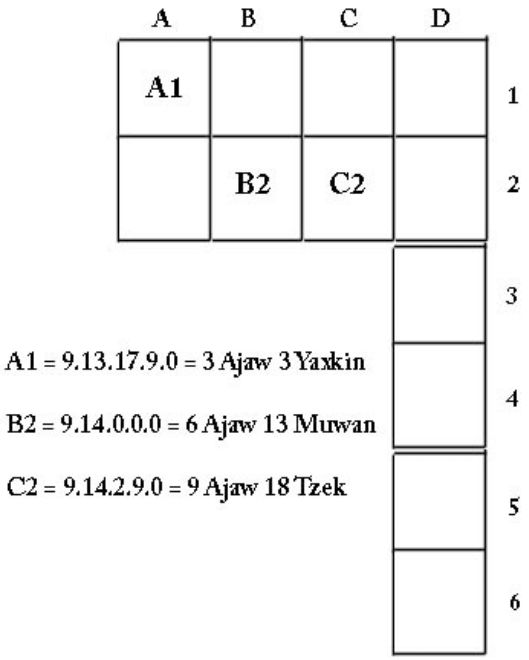
The central pier of Palenque's Temple XIX is decorated with a stucco panel (in addition to a sculpted panel, see Stuart 2005: 14). The brief stucco inscription consists of twelve glyphs with three dates, sequentially associated with a bird-man glyph, a glyph depicting a fish in the beak of a heron (or osprey), and a glyph expressing a "rope taking" ritual. A schematic of the inscription shows the positions of the three dates:



Position B2 contains the "stone binding" reference to the 9.14.0.0.0 K'atun ending (November 29, 711 AD J).[1] On this date, Venus made its first appearance as evening star and the sun was positioned at the Crossroads of the Milky Way and the ecliptic (the one in Sagittarius). Also on this date, a full moon was positioned at the opposite Crossroads.

In his reconstruction and analysis of the stucco pier, David Stuart noted that a 5-Tun (a half-Hotun) interval is evident in this sequence of three dates (Stuart 2005). The interval between the date at A1 and C2 is 5 Tun (1,800 days), which is half of a Hotun period of 10 Tun. He doesn't offer a reason for this, but I propose that lunar sidereal intervals were intentionally utilized by the Maya. The astronomy associated with these three particular dates underscores my proposal and my interpretation of *intent*.

The middle date (9.14.0.0.0) can be treated as the fulcrum of the other two dates. As mentioned, the sun was at the Sagittarius Crossroads while the full moon was at the Gemini Crossroads. The earlier and later dates are separated from the 9.14.0.0.0 date by 32.5 lunar sidereal cycles (using the approximate constant of 27.6923 days). While using an approximate value for the lunar sidereal cycle, the actual effect in terms of viewing the

moon on the different dates is striking. On the A1 date (9.13.17.9.0 = June 12, 709 AD J), the moon was precisely "new" (at "moon dark" near the sun). But in terms of viewing, on the day before (June 11) it was *almost* new and positioned near the Gemini Crossroads. Being almost new, it could be viewed as a sliver in the pre-dawn sky, around 6 a.m.:

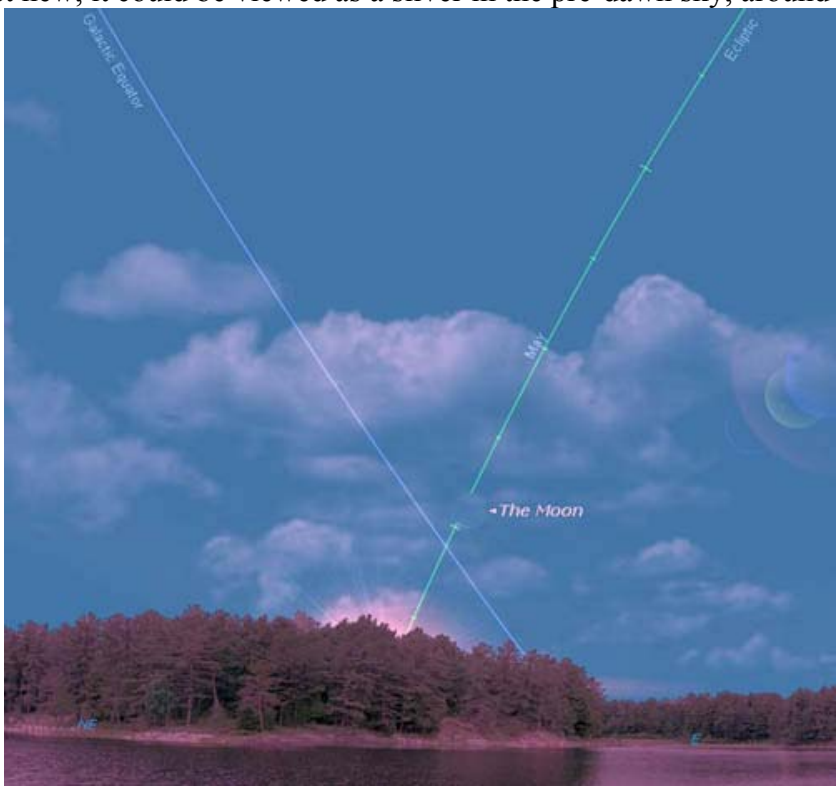
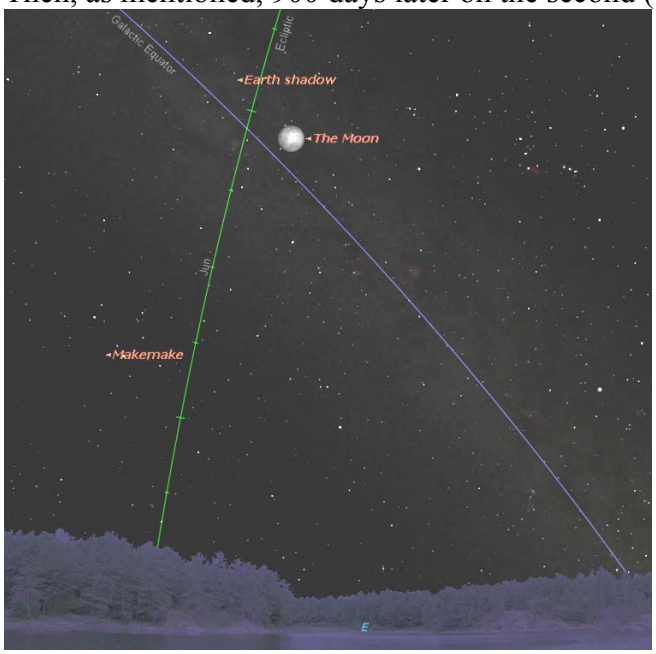


Figure 1. The sliver of the new moon near the Gemini Milky Way / ecliptic Crossroads on the day before 9.13.17.9.0, the first date on the stucco pier in Palenque Temple XIX.

Then, as mentioned, 900 days later on the second (central) date of 9.14.0.0.0, the moon was full at the Gemini Crossroads, opposite the sun at the Sagittarius Crossroads (while Venus made its first appearance as evening star).



← Figure 2. The full moon is near the Gemini Crossroads on 9.14.0.0.0, the second date from the stucco inscription on the pier in Palenque Temple XIX.

Clearly, the first two dates, separated by 900 days (2.9.0), provide a lunar sidereal half-cycle interval. If we think the lunar views are simply a coincidence, it is also noteworthy that the sun shifts nearly from one Crossroads to the other during this

time period. The third date in the series continues this pattern. Separated again from the 9.14.0.0.0 date by 900 days, we should expect that the moon will once again be near the Gemini Crossroads, as it was on the first date, because 1,800 days equal 65 lunar sidereal periods (approximated to 27.6923 days each). Again, a precise interval seems less important than the actual viewing of the lunar positions. Let's take a look:

Figure 3. The viewable new moon at sunset on the day after 9.14.2.9.0 (May 17, 714 J), the third date in the stucco inscription from the pier in Palenque Temple XIX. Here the moon is, like the other two dates, near the Gemini Crossroads.

Precisely on this third date (9.14.2.9.0) the moon was at moon dark, meaning it was not visible. So we need to look at the next day (May 18, 714 J) to see the new moon in western sky just after sundown. Notice that it is again close to the Gemini Crossroads, as it was on the two previous dates. The difference is that the second date was a full moon, while the first and third dates were new moons. In terms of precision, if we took the third date one *more* day forward, we would reach the exact sidereal position of the moon as on the first date. Since the first date was best viewed one day prior to the precise interval, this indicates a three-day accumulated error in the equation of "1800 days = 65 lunar sidereal cycles").

As mentioned, the first date is referenced with a bird-man glyph, the second date with the stone-binding glyph, and the third date with the fish-heron glyph. Curiously, the first and third symbols are found on the Birth-Sacrifice Monument that I documented

near Izapa in June 2009 (Jenkins 2011). This is intriguing, because that monument also depicts a caiman with two or three cuts, recalling an important Creation passage on the platform inscription from Palenque Temple XIX. Parallels between texts on Palenque Temple XIX and the iconography of an obscure carved boulder far to the south is curious.

Half-Hotun Dates at Tonina

David Stuart (2005) notes that additional half-Hotun intervals are found at Tonina. Although he doesn't explore the astronomy in any of these date relationships, the moon positions on each of the Tonina dates are intriguing. Tonina Monument 1 has the date 9.18.7.9.0 (Feb. 25, 798 J). A 5-day old moon *begins occulting the Pleiades* just prior to its setting (four hours after sunset). Viewable occultations of this nature are rare:

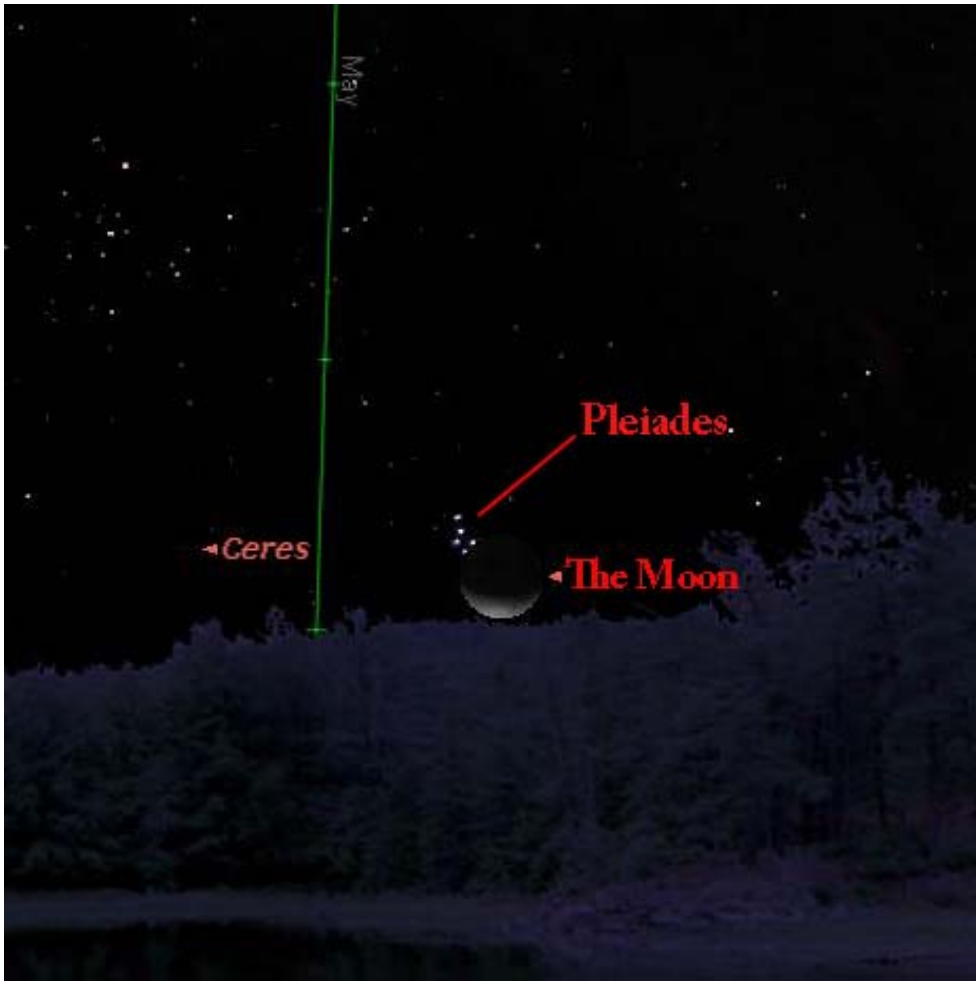


Figure 4. Four hours after sunset on Date 1 from Tonina (9.18.7.9.0 = Feb. 25, 798 J). The crescent moon is starting to occult the Pleiades just prior to setting in the west.

As I've suggested in private correspondence with Maya scholars, such an occultation logically defines the positions of the lunar nodes, and therefore when and where eclipses

are likely to occur. A second date from Tonina, noted by David Stuart, occurs a half-Hotun later on 9.18.12.9.0 (January 30, 803 J). Two days after this date places the moon in approximately the same sidereal location near the Pleiades, but it is slightly further to the left (south) and *will not* occult the Pleiades. This is not surprising, because in the almost five years between the two dates the lunar nodes have shifted some 80° around the ecliptic and the declination of the moon as it sweeps by the Pleiades will be different.

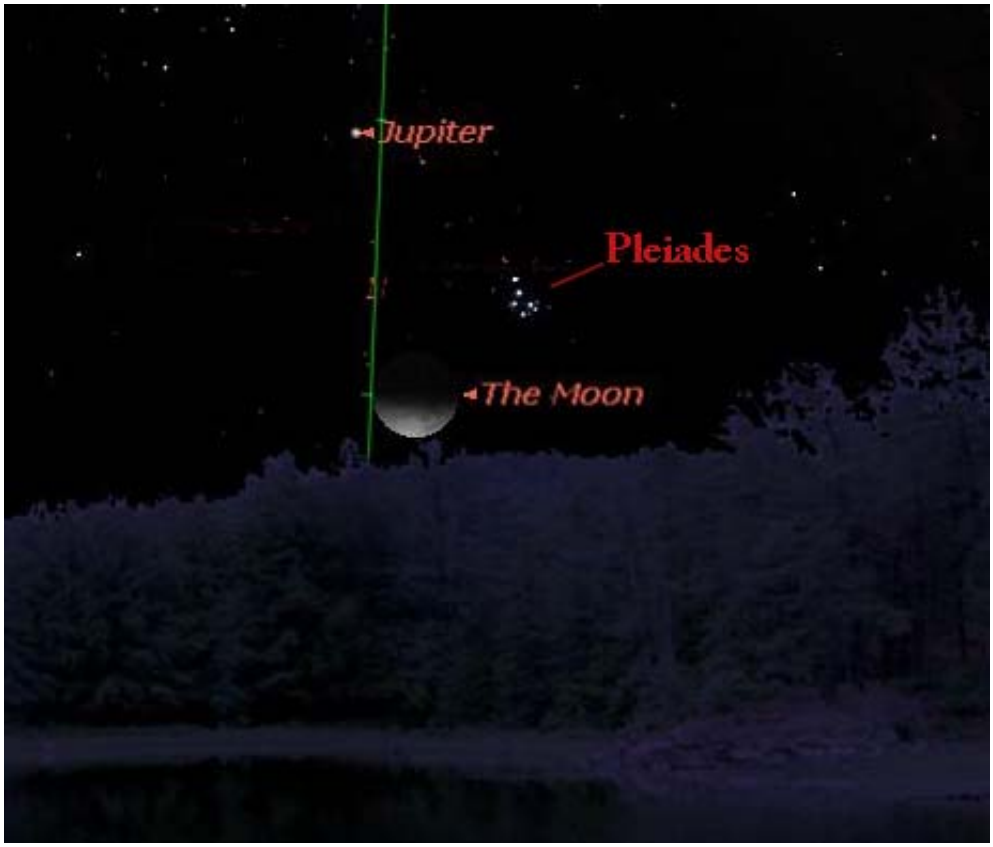


Figure 5. Date 2 from Tonina, from an "undesignated stela base" (9.18.12.9.0 = January 30, 803 J). This sky-map shows the sky two days later, six hours after sunset. The moon will sweep well south of the Pleiades.

The *difference* between the moon's trajectory on the two dates suggests a way that the Maya may have tracked, or checked for, eclipses by using the variations in the moon's passage by the Pleiades. According to Stuart (2005) the two dates were conceptually linked by both utilizing "bird-man" glyphs.

Conclusion

In these examples, an intentional patterning with sidereal positions of the moon seems to be taking place with ½-Hotun (1,800-day) and ¼-Hotun (900-day) intervals. The sidereal positions of the moon that are clearly indicated are quite curious as celestial markers: *the Pleiades and the Gemini Crossroads of the Milky Way and the ecliptic*. Because of the important centrality of the fulcrum date (9.14.0.0.0), we can also include the sun's

position at the Sagittarian Crossroads, which factors into current discussions about the astronomy of the Tortuguero king Lord Jaguar's birthday and GI's "earth-touching" on Palenque's Temple of the Cross inscription (November 8, 2360 J). GI's "earth touching" date is, in fact, reiterated in a text-passage from the very same Palenque Temple XIX where the first three dates examined here were found.

GI symbolism may be present in the "bird man" glyphs or in the "fish-in-heron-mouth" complex, as those are symbolically diagnostic of GI, although this speculation requires further investigation.

End Notes:

1. I do not provide images of the specific glyphs as they are unnecessary to my exposition. They can be viewed in David Stuart's online essay "Ritual and History in the Stucco Inscription from Temple XIX at Palenque": http://www.mesoweb.com/pari/publications/journal/01/media/Stucco_Inscriptions.pdf

Sources Referenced:

Jenkins, John Major. 2011. "The Birth Sacrifice Monument." *The Center for 2012 Studies*. http://www.thecenterfor2012studies.com/birth-sacrifice-boulder.pdf.

Starry Night Pro 6.2, astronomy software.

Stuart, David. 2005. *The Inscriptions From Temple XIX at Palenque: A Commentary*. San Francisco: The Pre-Columbian Art Research Institute.