

Response to Aveni's Comments on my Essay on the Astronomy of Tortuguero Monument 6

John Major Jenkins, for [The Center for 2012 Studies](#). November 23, 2013

We are getting a good glimpse here of why archaeoastronomer and Maya scholar Anthony Aveni has difficulties with the unfolding discoveries in Maya astronomy. He reviewed and commented on my essay, which I had prepared for publication in an anthology edited by Dr Robert Benfer and Dr. Larry Adkins, titled "Bahlam Ajaw and the Astronomy of Tortuguero Monument 6" (completed April of 2012).

One of the big issues is that Aveni seems to require that an astronomical alignment that is by definition not directly observable was observed by the Maya (a critique of "observational detectability" then follows.) Aveni overlooks that it is not a question of observation, but of *calculation*, and evidence for this is what I spent much time in my essay presenting and discussing. After reading my essay, Aveni wrote:

John--

These are the points with which I have problems:

On p. 2, while it is possible to assign astronomical event dates to the 13 entries--events such as eclipses, stations of Jupiter, sun at solstice and the so-called crossroads--- the analysis should also include ones own critical assessment of the likely of pure coincidence of the posited matchups. Specifically, there is a lot of latitude associated with the empirical determination of such phenomena; cf. my paper with Hotaling on limits of detectability in JHA no. 19 , xxx, 1994. I do find it interesting that in this collection all dates Fall between 28 Nov and 29 Jan. While they may bracket winter solstice I am not convinced one can conclude much more.

We differ on the level of appreciation of Grofe's arguments about the Maya recognition and measurement of precession. I have spent a lot of time, at his insistence, studying this work and I am simply not convinced of the conclusions.

Diagrams such as that in Fig 2 can be very misleading. Why include it? I continue to fail to appreciate the use of the Milky Way as a reference point as it is difficult to establish empirically.

As to public debates, nothing I have ever written is so important to the world that it ought to be worthy of such attention.

Tony [email of November 11, 2013]

My Response. It was great to get a considered response from this veteran scholar and trailblazer in Maya Studies. His critique may be concurred with and/or repeated by other scholars, so this is good opportunity to clarify what appears to be a conceptual confusion. First, as an aside, Aveni's language is curious. He states that "while it's possible to assign astronomical events..." Assign? One actually just documents, or notes, the *de facto* astronomy that is occurring on or close to the dates. Saying "assign" seems to imply that it's a perceptual decision that the investigator is making, which may or may not be true.

But it is simply documenting a fact, such as the sun rising or the sun being at or near the Dark Rift. The question of intention can then follow. In any case, we can give that a pass.

Other problems are more serious. He also states that “the analysis should also include one’s own critical assessment of the likelihood of pure coincidence of the posited matchups.” This is stated as if I did not consider coincidence, but I actually do in several places throughout my essay. For example, on page 6 I note Grofe’s observation of one of the date’s match-ups with the lunar eclipse happening at the Dark Rift / Crossroads in 644 AD and state “This is either a coincidence or it belongs to the already growing astronomical pattern.” Then, on page 8 I summarize the repeated alignment theme of the dates, as sequentially presented in my essay, and again address the possibility of coincidence:

“...fully six out of the thirteen total dates participate in the Crossroads alignment theme. The most striking parallel which encapsulates the overall arc of the entire date sequence, and suggests why this astronomical theme had meaning for Bahlam Ajaw, is the astronomical and structural parallel between Date 1 (Bahlam Ajaw’s birth) and Date 13 (the 2012 period ending at O3-P3). These many parallels are extremely unlikely to be coincidence.”

As the data mounts, the option of coincidence becomes statistically less and less likely. I then address the implications of the astronomical parallel that frames the entire date-sequence, while *still* holding the coincidence option in mind:

“In regard to Bahlam Ajaw, the future alignment on 13.0.0.0 and its parallel to his birth date astronomy was either an extraordinary, albeit useful, coincidence or the 2012 alignment was an already ancient knowledge.” [emphasis added]

I then examine the implications of this factual astronomical and structural parallel (after having discussed why Lord Jaguar would opt to exploit such a parallel and finding it to be consistent with what many kings liked to do) and clearly spell out the option of coincidence (actually, multiple-coincidence) compared to the other option, which is intention:

Was the fact of the alignment of the solstice sun and the Milky Way in era-2012 *intentionally* embedded into the structure of the Long Count at its inception? How is it that the 2012 alignment factors so nicely into so many Maya concepts, dates, and traditions? We may want to entertain coincidence, but then we have a striking convergence of four unrelated lines of coincidence: 1) The date of the 13-*Bak’tun* period ending in 2012, which 2) coincidentally falls on a solstice which also 3) coincidentally happens within a narrow “alignment zone” of precession and 4) occurs at sidereal features (the Crossroads and the dark rift) that are central to the Maya Creation Mythology. The congruence of the solstice sun’s alignment with the Crossroads on 13.0.0.0 in the Long Count **suggests either an incredibly unlikely quadruple coincidence that was accidentally noticed by the Tortuguero astronomers, or that the alignment’s association with the 2012 period ending was**

embedded into the structure of the Long Count when that calendar was devised in the pre-Classic period (Jenkins 1995, 1998, 2010). [emphasis and highlighting added]

So, these treatments of the coincidence option occur throughout my essay. It is even addressed as an option (an unlikely option) in the preface co-written with the anthology's editors (Benfer and Adkins): "Nonetheless, the congruence between the period ending in 2012 and the solstice-galaxy alignment must either be a statistically unlikely coincidence or the result of an impressive astronomical knowledge at the time of the Long Count's formulation. It simply requires that the ancient Maya were able to accurately calculate the date of a future sidereal position of the sun."

It is healthy to have a null-set of expectation or bias when approaching the data. However, it is very easy to have ones null-set chocked full of coincidence, as became quite apparent with Stan Guenter's circular reinforcement of irrational talking points in the debate that happened in late 2010 (see link below). Coincidence can be over-ruled in the astronomical date patterns of Tortuguero Monument 6 as being *statistically less likely* than intention because of the multiple cases of reinforcing pieces of data, especially when considering the biographical purpose of the monument and how it was being used in a narrative of royal power-rhetoric.

Another part of Aveni's critique is his assertion that there is observational ambiguity with astronomical phenomena. However, the long-range calculations of placements of the sun at the Crossroads do not at all involve *observational parameters*, they are concerned with *calculational precision*.¹ It then becomes a question of an accurate knowledge of the Sidereal Year. Evidence for this is what Maya scholar and epigrapher Michael Grofe has been finding, which I cited in my piece. If we find two dates, separated by a great distance and by an accurate Sidereal Year calculation (perhaps even stated as a DN or at least ideologically associated as a date-pair in a narrative), we can make a case for intentionality. Observational ambiguity isn't a factor, but calculational accuracy is, which is demonstrated by the Distance Number between two dates. A very important statement follows: On Tortuguero Monument 6, there are TWO sets of date-pairs that I address, both of which support an accurate Sidereal Year calculation of almost the exact same value. (This was noticed and discussed by Barbara MacLeod and Michael Grofe during the MEC-FACEBOOK Discussion of late 2010, online here: <http://www.thecenterfor2012studies.com/MEC-Facebook-Discussion-2010-ON-Jenkins-SAA-TRT-Astronomy.pdf>.)

The coincidence option is severely mitigated because both sets of dates are ideologically, putatively, and structurally associated. And there are, again, TWO separate sets of dates having the same mathematical and astronomical relationship (that is, the interval being an accurate Sidereal Year value and placing the sun at a conceptually significant location known from Maya Creation Mythology). Such a circumstance challenges the coincidence option by powers of magnitude. Coincidence becomes an extremely unlikely option, as unlikely as a chicken turning into a dog — which is still theoretically possible, according to quantum mechanics, but extremely unlikely.

I presented and discussed several examples of these types of Sidereal Year date-pairs in my essay, including the birth of GI on Palenque's Temple of the Cross (again cited to Grofe's work) and the king's period-ending investiture anchor date — an interval of over 3,000 years. In this example, the iconography depicted on the tablet depicts the

sun's position at the Crossroads on GI's birthday, which is stated in the inscription. Also, GI's "birth" or "re-birth" / "earth-touching" date is ideologically associated with the period-ending anchor date for Kan Bahlam's investiture completion on December 1, 642 (this was my contribution) — which is *another date of the sun's alignment with the Dark Rift Crossroads*. Some 3,000 years separate the two dates, with an accurate Sidereal Year interval. This is very much like the Sidereal Year interval between Bahlam Ajaw's birth-date in 612 AD and the 2012 AD period-ending date (separated by 1,400 years).

Aveni's penultimate comment is really the crux of the problem, as he takes to task my inclusion of an astronomical diagram that depicts the above-stated parallel, showing the sun's position at the Crossroads on Bahlam Ajaw's birthday next to the sun's position at the same Crossroads on December 21, 2012 (13.0.0.0.0). He states: "Diagrams such as that in Fig 2 can be very misleading. Why include it? I continue to fail to appreciate the use of the Milky Way as a reference point as it is difficult to establish empirically." (My Fig 2 actually shows the galactic equator, not the Milky Way.)

Aveni's critique here is merely a reiteration of his confusion of the observational and calculational basis of the phenomenon. The point of intersection of the Milky Way's equator and the ecliptic is reducible to the same parameter of precision that Grofe has been finding in his work on the Sidereal Year projections of solar positions against sidereal points on the ecliptic. In addition, the Maya would not have documented the sun's alignment with the Crossroads (the crossing *point* of the Milky Way and the ecliptic) on those dates *because they observed them* (an absurd assumption) but because *they computed them*. The computation for the alignment in Bahlam Ajaw's era was easier, but the projection to 2012 required an accurate calculation of the Sidereal Year (effectively accounting for the precession of the equinoxes). To require that the Maya were *observing* the phenomenon is not necessary, as it is similarly not necessary for Venus or other planets at inferior conjunction with the sun to have been directly observed for the precise dates to have been calculated by the Maya. And despite the visually wide appearance of the Milky Way, the Maya were clearly capable of choosing and targeting sidereal points, within a degree or so.

In addition, date pairs that are separated by thousands of years require that at least one of the dates was *not observed*, but was calculated. As I discussed above, this is a major flaw in Aveni's critique. He requires *establishing* the astronomical alignments on the dates *empirically*. This requirement was, in fact, provided, and from a computational parameter more rigorous than visual observation. The projected positioning of the sun is established empirically by way of *calculation*, not observation. And this is why I discussed and cited the work of Michael Grofe and the Sidereal Year date pairs at Tortuguero and elsewhere (such as Palenque). Grofe's work is important because he presents evidence for accurate Sidereal Year *calculations* being made by the Classic Period Maya.

Aveni's final comment is "nothing I have ever written is so important to the world that it ought to be worthy of such attention." However, his comments have in fact been picked up and repeated as gospel in various places. Such as the Restall & Solari 2012 book (where Aveni's mistaken summary and critique of some specific precessional research is repeated and called "brilliant"), and in the Whitesides & Hoopes piece in *Zeitschrift für*

Anomalistik (2012), regarding Aveni's assertion that I am a "Gnostic." It is important that mistaken, inaccurate, and especially defamatory things written that are repeated by others do get addressed and corrected. That is, after all the process of science and scholarly debate and discussion.

End Note:

1. The "observational" critique might, with a stretch, apply to the observation of Jupiter near the Crossroads (on the date in 667 AD). It is some 5° from the precise crossing point of the Milky Way and the ecliptic. However, the "detectability" part of the critique is invalidated because Jupiter *can be seen* in that position. The question would be whether or not the Maya sky-watchers would have considered Jupiter's position relevant in terms of it being within the visually perceivable nuclear bulge of the Milky Way. The conceptual appearance would trump exact scientific precision; we have to keep our own reflexes toward exactitude in check and ask: would the Maya have NOT considered Jupiter's position on the Milky Way as being important? Jupiter's position would have been both observationally detectable and conceptually relevant in confirmation of the pattern of alignments in the 13 dates (mostly involving the sun's position at or near the Dark Rift / Crossroads), which is the subject of my essay.

See essays at *The Center for 2012 Studies*:

<http://www.thecenterfor2012studies.com>

<http://www.johnmajorjenkins.com>

<http://Alignment2012.com>

<http://Update2012.com>

