
Ironically, this volume serves more to commemorate our ignorance of “Native American Astronomy” than it does to provide any substantive additions to our knowledge of it. Each time the reader comes to the end of one of the fifteen essays contained within it, he is struck by how little we actually know of the pre-Columbian past and how vast is the realm of conjecture. Attempting to lead us through this clouded landscape of speculation are more than a dozen specialists representing at least a half-dozen disparate disciplines. But, although we cannot fault their individual credentials an guides, the wary reader will soon discover that the very landmarks by which they chart our collective course are so dimly perceived or are so fraught with ambiguities, errors, or omissions that, on occasion, it seems as though we are engaged in the proverbial exercise of the blind leading the blind. Even to review a book such as this in a bit presumptuous because there is at least the implied suggestion that the reviewer must know his way around sufficiently well that he can point out to the reader some of the pitfalls to be avoided. To be sure, where he himself my have trod some of the paths before, perhaps he can help to make a positive contribution; but, on other of the by-ways where his own research has not taken him, he can only bid our guide "Godspeed” and otherwise hold his tongue.

The lead-off chapter by Professor Aveni is essentially a restatement of Chapter 8 in his earlier volume (i.e., Archaeoastronomy in Pre-Columbian America), here augmented by a lengthy discussion of the so-called Stela 12-Stela 10 baseline at Copán. The latter he finds “surprisingly consonant” with the key dates of the tropical year as hypothesized by Merrill. Although this theory uses the second zenithal passage of the sun as its starting point rather than the first (Aveni does not tell us why), neither does he tell us the date on which it occurs (August 13). This is a particularly curious -- and serious -- omission, because it beclouds his own recognition of the importance of this date throughout the Mesoamerican realm (a date which, by the way, is “surprisingly consonant” with the ‘beginning of time’ as defined by the Mayas, according to the Goodman-Martínez-Thompson correlation). As a result, Aveni persists in arguing that the Pyramid of the Sun at Teotihuacán was oriented to the setting position of the Pleiades. But, because the latter shifts so rapidly, he is obliged to explain all subsequent sites on the Mexican plateau having a similar orientation as being simply "non-functional imitations” of the great pre-Columbian metropolis. His failure to appreciate the significance of the August 13 date likewise leads him to overlook this alignment at other sites, as for example, the mid-line of Window 1 in the Caracol at Chichén Itzá. Similarly, although much is made of the Stela 12-Stela 10 baseline at Copán, neither he nor any other researcher to my knowledge has explored the likelihood of a Stela 19-Stela 23 baseline at Copán (marking the sunrise on August 13) or the possibility of a Stela 6-Stela 13 baseline (fixing the summer solstice sunrise) at the same site, though both of these alignments are suggested by the sketch map appearing in Hartung’s chapter near the middle of the book. Furthermore, his contention that the Zapotecs skewed the orientation of Mound J at Monte Albán "to direct attention to the zenith tube in Building P" might prompt us to ask. "For whose benefit?" Certainly, they didn’t have to remind themselves,
and it is doubtful that they did it for any subsequent archaeoastronomers. Even his argument, that it was aligned to the rising of Capella is undercut by his admission that there is nothing in the ethno-historic record to support the importance of this star among Mesoamerican peoples.

In Chapter 2, Gibbs recapitulates the ways in which Mesoamerican calendrics have been considered as evidence of astronomic activity by various researchers, whereas in Chapter 3, Hartung cites Caso’s argument that the crossed-stick glyph that appears in two Zapotec codices may refer to a place called "Observatory" and finds Smith’s suggestion that this place may be Tlaxiaco in the Mixteca Alta appealing. However, the contention that the crossed-leg glyph functioned as an astronomical symbol in the same way as the crossed-stick glyph seems a bit forced, especially when the former shows up as a conventional motif in all ages of Zapotec art. In Chapter 4, Schele presents an imaginative case for regarding the Temple of Inscriptions at Palenque not only as a funerary monument for the Lord Shield-Pacal but also because of its orientation to the sunset at the winter solstice, as the western portal to the underworld. In Chapter 5, Kelley hypothesizes that the movements of Venus were somehow used by the Maya in predicting eclipses, and in Chapter 6, Remington describes current astronomical lore among the highland Maya. Closs argues in Chapter 7 that data provided on page 24 of the Dresden Codex constitute a "date-reaching mechanism" rather than a "base-shifting mechanism" which was intended to enable Maya priests to determine the approximate time of heliacal risings of Venus, while in Chapter 8, Carlson suggests that Altar Q at Copán more likely commemorates the inauguration of an important ruler in the year 763 than it does an astronomical congress as first hypothesized by Spinden.

In his second and longer contribution to this volume, Hartung writes in Chapter 9 about the possibilities and limitations for astronomical studies provided by Maya architecture and planning. He convincingly refutes Thompson’s contention that the Maya were incapable of making a true right angle by demonstrating several examples from Tikal. Interestingly enough, he also cites Aveni’s measurement of the alignment between Temples I and IV -- a line that runs “about 14º” north of west -- but states that "no extraordinary astronomical reference can be attributed’ to it. Is it not possible that we are again looking at the elusive sunset position for August 13?

The following chapter takes us northward into the American Great Plains where Wedel examines the ethnographic and archaeological evidence for astronomic associations among the Pawnees and related tribes. Unfortunately, little of either is available, so the survey that emerges is highly conjectural at best. Chapter 11 shifts our locale yet farther northward as Eddy explores the so-called medicine wheels centered chiefly in the Prairie Provinces of Canada. Again the evidence is not conclusive, but the northern Plains Indian appear to have been most interested in the summer rising positions of such stars as Aldebaran, Rigel, and Sirius, possibly as harbingers of the summer solstice position of the sun. Next there are two papers that discuss possible representations of the supernova of A.D. 1054 in the art of the American Southwest, the first by Brandt and Williamson, the second by Mayer. Both essays conclude that the crescent moon-and-bright star motif first described by Miller in 1955 is considerably
more common in indigenous rock art than previously supposed. In Chapter 14, Williamson, Fisher, and O’Flynn report on a couple of sites in the Chaco Canyon area that might have served as Anasazi solar observatories and make a cautious assessment of the Hovenweep and Mesa Verde sites as well.

The longest, most confused, and least convincing essay in the entire collection is the last one by Prof. Zuidema on the Inca calendar. The author strains both the credulity and the patience of the reader as he fumbles for the correct number of ceques and huacas (sight-lines and shrines, respectively) that supposedly comprised the astronomical ‘network’ or ‘grid’ superimposed on the landscape of Cuzco. For example, we are never quite certain whether there were 40, 41, or 42 ceques, or how they represent a “reduction from 45”, but he presents ‘evidence’ for each of these values. By way of illustration, because there were 42 female priests (priestesses?) in a village that he studied in central Peru, he concludes that there were 42 ceques in Cuzco -- and then proceeds to map 40 of them! In the latter connection, he claims to have been ”more successful in locating ceques than in locating observation post(s)” in the Cuzco area and that “it is of great importance that the ceques going straight N, W, and E could still be determined because the huacas on these ceques are still precisely known”. He concedes that his map of ceques (reproduced in the text) is a first draft, but he is “confident that it is correct”. Although it is centered on the Coricancha, or Temple of the Sun, only later did he “realize that this was not to be taken as a center of observation". What he apparently failed to realize, however, was that his base map is oriented to magnetic north rather than true north, so each of the ceques that supposedly point “straight N, W, and E”, much less those which he claims were aligned to the solstices, are inaccurate by as much as 7.5°. Moreover, 23 of the 40 ceques which he assumes “were used as sight lines for the observation of solar, lunar, and stellar risings and settings” could not have had any solar or lunar significance whatsoever, for they point to areas of the horizon which the sun and moon never reach.

Despite this reviewer’s general sense of disappointment with the volume, he is reluctant to end on a negative note. If the need for more and careful research, especially of an inter-disciplinary nature, into the knowledge of pre-Columbian peoples of the New World was not apparent to the reader at the outset, surely it will become so as he threads his way through this series of essays. There must always be room for speculation, and there must always be a forum for the free exchange of ideas. Professor Aveni and his colleagues have given us much to think about, to question, and to dispute. And, for that reason alone, they just may have pushed us a little nearer to the understanding that is our ultimate objective.

Vincent H. Malmström

(Dr. Malmström is Professor of Geography at Dartmouth College in Hanover, N. H. Much of his recent research has been devoted to the spatial perceptions of early civilizations and his most recent article appeared in the June, 1978 issue of the Journal for the History of Astronomy.)