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## CHAPTER THREE

### **Allurement via Astronomically-Aligned Architecture: Sky Phenomena, Calendars, Prediction and the Enhancement of Nature (Priority I-C)**

“The sky, of its very nature, as a starry vault and atmospheric region has a wealth of mythological and religious significance. “Height,” “being on high,” infinite space—all these are hierophanies of what is transcendent, what is supremely sacred.”

Mircea Eliade, 1958<sup>1</sup>

“Since cosmos and society were conceived as a unity in ancient Mesoamerica, the purpose [of observing astronomical phenomena] was to learn about the laws of nature, not only to discover them, but to regulate social life as well. This conception was fundamentally different from that of the modern scientific mentality.”

Johanna Broda, 1982<sup>2</sup>

“The results of the present work [in Oaxacan archaeoastronomy] show that the Zapotecs, while participating in pan-Mesoamerican orientation principles, used their own orientation, also based on calendar properties. For example, they erected buildings that simultaneously synthesized several of these orientations. This [synthesis of pan-Mesoamerican and Oaxaca-specific astro-calendrical principles] was a remarkable innovation that demonstrates the subtle genius of the Zapotecs, who, as insightful observers of nature, chose this peculiar form of cult to the continuity of time, with which they ingratiated themselves with the gods who had granted a benefit as precious as the calendar.”

Jesús Galindo Trejo, 2008<sup>3</sup>

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\* Note that I have managed the footnotes in ways that respect “the first citation” (which is thus a full bibliographical citation) *in this chapter*, irrespective of whether that work was cited in a previous chapter. Also, to avoid confusion in this typescript, I have retained the quotation marks on all quotes, including those that are formatted as block quotations.

<sup>1</sup> Mircea Eliade, *Patterns in Comparative Religion*, trans. Rosemary Sheed (London: Sheed and Ward, 1958), 109.

<sup>2</sup> Johanna Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” in *Ethnoastronomy and Archaeoastronomy in the American Tropics*, eds. Anthony F. Aveni and Gary Urton (New York: New York Academy of Sciences, 1982), 100.

<sup>3</sup> Jesús Galindo Trejo, “Calendario y orientación astronómica: una práctica ancestral en la Oaxaca prehispánica,” en *La pintura mural prehispánica en México*, Beatriz de la Fuente, coord., vol. III, Oaxaca, tomo III (México, D.F.: Universidad Nacional Autónoma de México, Instituto de Investigaciones Estéticas, 2008), 345; my translation.

This chapter is devoted to asking and answering the question: How and to what extent is the so-termed astronomy priority (I-C) relevant to the orientation and religion of Monte Albán? Recall that, as outlined in *The Hermeneutics of Sacred Architecture*, I use “astronomy” to refer in the broadest strokes to ritual-architectural configurations that are aligned or referenced with respect to celestial bodies—the sun, moon, planets or stars.<sup>4</sup> Of the eleven main priorities in my morphology, the cross-culturally comparative relevance of this one is the most uneven insofar as alignments with respect to sky phenomena play no role whatever in many religious architectures while, in others, purposeful astronomic references are a matter of intense importance. Pre-Columbian Mesoamerican architecture, as we’ll quickly see, is among the latter. This is an ambience in which the abundance of open-air ceremonial precincts is, perhaps without exception, configured in ways that afford natural celestial phenomena a prominent place in the choreography of periodic ritual-architectural events.

**I. ASTRONOMICAL ORIENTATION AS A COMPLEMENTARY  
STRATEGY OF ALLUREMENT: INTEGRATING CELESTIAL PHENOMENA  
INTO THE RITUAL-ARCHITECTURAL CONTEXT**

From the earliest systematic study of indigenous Mesoamerican peoples, investigators have been impressed by their level of interest and prowess in celestial observations. Fray Bernardino de Sahagún’s *Florentine Codex: General History of the Things of New Spain* (1545-1590)<sup>5</sup> and Fray Diego Durán’s *Book of the Gods and Rites* (1574–1576) and *the Ancient*

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<sup>4</sup> Regarding the broader category of astronomically aligned architecture on which the chapter is based, see Lindsay Jones, *The Hermeneutics of Sacred Architecture: Experience, Interpretation, Comparison* (Cambridge: Harvard University Press, 2000), vol. II, chap. 16, “Astronomy: Predictions and Enhancements of Nature (Priority I-C).”

<sup>5</sup> Regarding abundant allusions to Aztec astronomy and calendars in Bernardino de Sahagún, *Florentine Codex: General History of the Things of New Spain*, trans. and eds. Arthur J.O. Anderson and Charles E. Dibble, 13 vols. (Santa Fe: School of American Research and the University of Utah, 1950-1982), see Anthony F. Aveni, *Skywatchers: A Revised and Updated Version of Skywatchers of Ancient Mexico* (Austin: University of Texas Press, 2001), 25, 26, 28, 33 (fig. 10), and 35-40, among numerous references.

*Calendar* (c. 1579),<sup>6</sup> for instance, have extensive comments about Aztec abilities and enthusiasm for both observational astronomy as well as “astrology” and precise calendrics.<sup>7</sup> And Bishop Diego de Landa’s protracted remarks on Maya calendars in *Relación de las cosas de Yucatán* (1566), complemented by astronomical allusions in four surviving pre-Columbian codices,<sup>8</sup> pave a way for the oft-repeated opinion of Sylvanus Morley that, “In astronomy the Maya were easily head and shoulders above every other people in ancient America.”<sup>9</sup> According to that mid-twentieth-century view, the Classic Mayas were, as J. Eric Thompson opined, astronomer-astrologers for whom nothing mattered more than meticulous observations of the sky and “the philosophy of time with its interlocking cycles of divine influence,” a romanticized assessment that, by the 1980s, was largely displaced by emphases on the more worldly, violent and political priorities of the ancient Mayas.<sup>10</sup>

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<sup>6</sup> Regarding allusions to Aztec astronomy and fulsome discussion of calendars in Diego Durán, *Book of the Gods and Rites and the Ancient Calendar*, trans. and eds. Fernando Horcasitas and Doris Heyden, 2nd ed. (Norman: University of Oklahoma Press, 1977), see Aveni, *Skywatchers*, 39-40, among numerous references.

<sup>7</sup> Regarding the utility of colonial-era sources like Bernardino de Sahagún and Diego Durán for astronomical research, Clive Ruggles in C.L.N. Ruggles et al, *Megalithic Astronomy: A New Archaeological and Statistical Study of 300 Western Scottish Sites*, B.A.R. British Series 123 (Oxford: B.A.R., 1984), 14, comments on the fortuitous ethnohistorical and ethnographic evidences that are available for Mesoamerican archaeoastronomical research but absent in British work. Aveni, in his Introduction to *World Archaeoastronomy: Selected Papers from the 2<sup>nd</sup> Oxford International Conference on Archaeoastronomy Held at Merida, Yucatan, Mexico 13-17 January 1986* (Cambridge: Cambridge University Press, 1989), 3-12, likewise comments on the basic differences between the studies of Old and New World archaeoastronomy.

<sup>8</sup> See Aveni, *Skywatchers*, 15ff.

<sup>9</sup> Sylvanus Griswald Morley, *The Ancient Maya*, 2<sup>nd</sup> edition (Stanford: Stanford University Press, 1947), 454. For a section on Maya “Astronomical Knowledge,” see *ibid.*, 304-11.

<sup>10</sup> J. Eric S. Thompson, *The Rise and Fall of the Maya Empire* (Norman: University of Oklahoma Press, 1956), 256. Regarding the backlash against Morley’s and Thompson’s romanticized depiction of the Classic Maya as astronomer-astrologer worshippers of time, see the Introduction to Linda Schele and Mary Ellen Miller, *The Blood of Kings: Dynasty and Ritual in Maya Art* (Fort Worth: Kimbell Art Museum, 1986), 18-33. Note, however, somewhat ironically, at the same time that more critically suspicious Mayanists were working to dispel those romanticized images of astronomer-astrologer Mayas, the systematic study and documentation of Maya astro-architectural alignments accelerated in very impressive ways.

Frequently, then, especially but not only in Maya studies, advanced skills in astronomy have been presented as a polemical counterpoint to the presumed irrationality or barbarity of indigenous peoples; and the overcorrective hyperbole of some cosmologists has given many serious Mesoamericanists pause to celebrate too soon the adeptness of pre-Columbian peoples in organizing their lives according to the regular movements of the heavens.<sup>11</sup> Nonetheless, synthesizing years of research by the leading practitioner of the field, Anthony Aveni’s *Skywatchers of Ancient Mexico*, first published in 1980, marks a watershed in the emergence of Mesoamerican archaeoastronomy—the investigation of the astronomical knowledge among ancient cultures—as a serious and bona fide sub-field, which, irrespective of stalwart detractors,<sup>12</sup> has continued to gain momentum since then.<sup>13</sup> Beginning in the 1970s, older interpretations of ritual, architecture and pre-Columbian city-planning—particularly in Central Mexican and Maya contexts—were reconsidered anew with an eye especially to previously overlooked astronomical associations.<sup>14</sup> And thus especially with respect to those regions, the literature on Mesoamerican archaeoastronomy has blossomed in quite spectacular ways.<sup>15</sup>

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<sup>11</sup> Clive Ruggles, for instance, described archaeoastronomy as “[a] field with academic work of high quality at one end but uncontrolled speculation bordering on lunacy at the other.” Quoted by John Carlson, “Editorial: A Professor of Our Own,” *Archaeoastronomy & Ethnoastronomy News*, 33 (1999).

<sup>12</sup> Regarding Aveni’s detractors, David A. Peterson, “Monte Albán Building J: An Hypothesis of Function,” *Cuadernos de arquitectura mesoamericana*, núm. 18 (Marzo 1992), 33, enumerates several important surveys of Mesoamerican prehistory in the 1970s and 1980s that seem to have deliberately excluded Aveni’s pathbreaking claims concerning pre-Columbian astronomical prowess.

<sup>13</sup> Anthony F. Aveni’s original *Skywatchers of Ancient Mexico* (Austin: University of Texas Press, 1980) reappeared as Anthony F. Aveni, *Skywatchers: A Revised and Updated Version of Skywatchers of Ancient Mexico* (Austin: University of Texas Press, 2001). All of my citations to this singularly important work are to the 2001 version. Two other collections are especially important in establishing Mesoamerican archaeoastronomy as bona fide field: *Archaeoastronomy in Pre-Columbian America*, ed. Anthony F. Aveni (Austin: University of Texas Press, 1975); and *Native American Astronomy*, ed. Anthony F. Aveni (Austin: University of Texas Press, 1977). Note, by the way, that, though Oaxaca is not strongly represented in either, Ignacio Bernal wrote the Foreword to the former volume.

<sup>14</sup> Regarding the archaeoastronomical reassessment of Central Mexican sites, see, for instance, of many relevant works by this author, Johanna Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 81-110; and Johanna Broda, “Arqueoastronomía y de desarrollo de las ciencias en el México prehispánico,” en *Historia de la astronomía en México*, Marco Arturo

## A. MOUNTING BUT MODEST APPRECIATION OF ANCIENT OAXACA ASTRONOMY: FROM AMATEUR TO ACADEMIC ASSESSMENTS OF ASTRONOMICAL PROWESS

As in other respects, the study of indigenous astronomy in Oaxaca has lagged behind that focused on Central Mexico and the Maya zone. Nonetheless, Fray Juan de Córdova’s sixteenth-century dictionary and grammar, along with the colonial-era *Relaciones Geográficas* focused on the Oaxaca region, contain abundant information on Oaxacan calendars, which speak, albeit usually in indirect ways, to the astronomical accomplishments of the area’s peoples.<sup>16</sup> Military captain and explorer Guillermo Dupaix, who, in 1806, during the second of his three Spain-sponsored expeditions, made the first systematic investigation of Monte Albán, acknowledged

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Moreno Corral, comp. (México, D.F.: Fondo de Cultura Económica, S.A. de C.V., 1986), 64-101. For an overview of Maya archaeoastronomy, see Susan Milbrath, *Star Gods of the Maya: Astronomy in Art, Folklore, and Calendars* (Austin: University of Texas Press, 1999).

<sup>15</sup> See, for instance, the current and thorough bibliography in Ivan Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” *Journal of Archaeological Research*, vol. 26, no. 2 (2018): 197-251. Regarding the exceedingly long, rich and continuing tradition of astro-archaeological study in Mesoamerica, see, for instance, Lindsay Jones, *Twin City Tales: A Hermeneutical Reassessment of the Similitude between Tula, Hidalgo and Chichén Itzá, Yucatan* (Niwot, Colorado: University Press of Colorado, 1995), 226-28.

<sup>16</sup> Joyce Marcus, *Mesoamerican Writing Systems: Propaganda, Myth, and History in Four Ancient Civilizations* (Princeton: Princeton University Press, 1992), cites as the three most important sixteenth-century sources on Zapotec calendars: Fray Juan de Córdova, *Vocabulario en lengua zapoteca*, edición facsimilar, Ediciones Toledo (México: Instituto Nacional de Antropología e Historia, 1987 [originally 1578]); Fray Juan de Córdova, *Arte en lengua zapoteca* (Morelia, México: Pedro Balli, 1886 [originally 1578]); and *Relaciones Geográficas: Papeles de Nueva España, segunda serie, Geográfica y Estadística*, vol. IV, ed. Francisco del Paso y Troncoso (Madrid: Est. Tipográfico “Sucesores de Rivadeneyra,” 1905-06 [originally 1579-1581]). Numerous of the contemporary archaeoastronomic studies of Oaxaca that I will be citing in this chapter appeal to these sources, especially Córdova. Judith Francis Zeitlin, “Interrogando el pasado a través de perspectivas históricas y arqueológicas,” en *Monte Albán en la encrucijada regional y disciplinaria: Memoria de la Quinta Mesa Redonda de Monte Albán*, eds. Nelly M. Robles García y Ángel I. Rivera Guzmán (México, D.F.: Instituto Nacional de Antropología e Historia, 2011), 646, makes the fascinating point that Córdova and seventeenth-century Dominican monk Fray Francisco Burgoa were more impressed than appalled by the Zapotecs’ calendrical and astrological beliefs because these Catholic friars too believed in the efficacy of astrology.

the astronomical significance of various pre-Columbian constructions.<sup>17</sup> German ethnohistorian, linguist, epigrapher and a committed “Astralist,” Eduard Seler, at the turn of the twentieth century, undertook far more intensive iconographic studies in which he, for instance, identified numerous figures in the lintels of Mitla as personifications of astronomical phenomena; in his work, which continues to inform contemporary archaeoastronomers, Venus and the sun are major protagonists in these paintings.<sup>18</sup> With specific reference to Monte Albán, in 1932, Zelia

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<sup>17</sup> See Guillermo Dupaix, *Antiquités Mexicaines: Relation des trois expéditions du Capitaine Dupaix ordonnées en 1805, 1806 and 1807, for the recherche des antiquités du pays notamment celles de Mitla et de Palenque* (Paris: Bureau des Antiquités Mexicaines, 1834). Dupaix’s comments about the astronomical significance of pre-Columbian structures are somewhat complicated and unreliable. For instance, John Denison Baldwin, *Ancient America, In Notes on American Archaeology* (New York, Harper & Brothers, Publishers, 1871; reissued by Middlesex: Wildren Press, The Echo Library, 2008), 63, inserts Dupaix’s surmise that “[it is] almost demonstrable that this very ancient monument was exclusively devoted to astronomical observations, for on the south side of the rock are sculptured several hieroglyphic figures having relation to astronomy” immediately following Dupaix’s account of Mitla, thus giving the erroneous impression that this structure is in Oaxaca when, in fact, it is, Dupaix writes, “near the road from the village of Tlalmanalco to that called Mecamecan, about three miles east of the latter,” which is near Mexico City. And Garrick Mallery, *Picture-Writing of the American Indians* (New York: Dover Publications, Inc., 1972), vol. I, 133, records the complaints of Daniel G. Brinton that the figure of this monument presented by Dupaix is “so erroneous that it yields but a faint idea of the real character and meaning of the drawing.” Regarding Dupaix’s more general assessment that pre-Hispanic peoples, including but not limited to those in Oaxaca, were highly accomplished in mathematics, geometry, hydraulics and astronomy, also see Robert L. Brunhouse, *In Search of the Maya: The First Archaeologists* (Albuquerque: University of New Mexico Press, 1973), 19-20. And regarding the intriguing possibility that Dupaix actually discerned the astronomical significance of a mound on Monte Albán’s South Platform that was later neglected, see Daniel Schávelzon, “Un observatorio no observado? Un edificio de Monte Albán según los primeros arqueólogos,” *Estudios Mesoamericanos*, nueva época 9 (julio-diciembre, 2010): 75-79.

<sup>18</sup> Eduard Seler, “The Wall Paintings of Mitla: A Mexican Picture Writing in Fresco,” in Eduard Seler et al., *Mexican and Central America Antiquities, Calendar Systems, and History*; translated under the supervision of Charles P. Bodwitch; Bureau of American Ethnology, Bulletin 28 (Washington, D.C.: Government Printing Office, 1904): 243-324. Peter van der Loo, “Thematic Units in Mesoamerican Religion: Why Deerhunting and Adultery Are a Dangerous Combination,” in *The Imagination of Matter: Religion and Ecology in Mesoamerican Traditions*, ed. David Carrasco, B.A.R. International Series 515 (Oxford, England: B.A.R., 1989), 31-50, takes Seler to task for his overbearing “Astralism,” a style of interpretation that tries to explain all gods in any religion as ultimately representing, or deriving from, celestial phenomena. In van der Loo’s view, Seler’s commentary on the Codex Borgia is particularly replete with astronomical (or astralist) interpretations.

Nuttall argued that the mound southeast of Structure III on the South Platform, which is perforated by four tunnels and a wide vertical hole in its center, had been designed to observe the sun’s passage through its zenith, which, as I’ll discuss later, happens twice annually at Mesoamerican sites.<sup>19</sup> And Alfonso Caso, though far more interested in indigenous writing systems and calendars than astronomy per se, was, from the outset of his work in Oaxaca, affirming of the astronomical talents of ancient Oaxacans.<sup>20</sup> At least by the mid-1930s, and probably earlier, Caso was asserting, as would all nearly subsequent researchers, that Monte

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<sup>19</sup> Zelia Nuttall, “Sobre un monumento en Monte Albán de gran importancia,” *Boletín de la Sociedad Mexicana de Geografía y Estadística*, vol. 44 (1932): 15-26. Zelia Nuttall, “Ancient American Civilizations and Calendars,” *Science*, vol. 66 (1927): 194-95, had discussed without direct reference to Monte Albán, the “shadowless day” associated with the sun’s twice-annual zenith passage. Horst Hartung, “Monte Albán in the Valley of Oaxaca,” in *Mesoamerican Sites and World-Views*, ed. Elizabeth P. Benson (Washington: Dumbarton Oaks, 1981), 60, cites both these Nuttall references; but there is no systematic follow-up of Nuttall’s suggestion of an astronomical significance for what comes to be designated as Building III or the Southeast Mound of the South Platform (M-SE). Devoting an entire article to the intriguing investigatory history of this structure, Schávelzon, “Un observatorio no observado? Un edificio de Monte Albán según los primeros arqueólogos,” 75-83, holds open the possibility that Building III may indeed have been, like the far more famous Building J, an observatory; but Schávelzon argues that possibility was never adequately explored because of Alfonso Caso’s paired preoccupation with the structures in the Main Plaza (especially Building J) and his unwillingness to entertain seriously the ideas of earlier investigators like Nuttall.

<sup>20</sup> Alfonso Caso, *Culturas mixteca y zapoteca*, El Libro de la Cultura (Barcelona: Editorial González Porto, 1936), though not devoting great attention to ancient Oaxacan astronomy in this influential textbook-like work, does acknowledge that Building J “was probably used as an astronomical observatory” (ibid., 22; my translation); and, in the context of a section on the Zapotec calendar, that he writes, “Perhaps the period of 260 days [evident in the *Tonalpohualli* or *Pije* sacred calendar] was initially astronomical and referred to a solar computation, but in the sixteenth century it was a magical calendar whose main purpose was to predict the fate of individuals and make it favorable by employing adequate spells.” Ibid., 30; my translation. His seminal statement on the ancient Oaxacan writing and calendrics, Alfonso Caso, “Zapotec Writing and Calendar,” *Handbook of Middle American Indians*, vol. 3, “Archaeology of Southern Mesoamerica,” vol. ed. Gordon R. Willey, gen. ed. Robert Wauchope (London: University of Texas Press, 1965), 931-47, likewise has extended comments on the calendar but only passing remarks on astronomy and “what we have called the ‘Observatory’ or Mound J.” Ibid., 936.

Albán’s Building J, “given its peculiar orientation, was probably used as an astronomical observatory.”<sup>21</sup>

Additionally, non-expert travelers, especially those inclined to heap praise on the artistic and intellectual accomplishments of ancient Oaxacans—as opposed, for instance, to their military or political dispositions—accentuated their supposed dexterity in astronomy. Aldous Huxley, for instance, after berating everything about 1930s Mexico and Mexicans, attributed the “incomparable magnificence” of Monte Albán’s architecture largely to its builders’ preoccupation with the sky:

“The pre-Columbian architects were fortunate, no doubt, in the religion they served. Astronomical observation was a sacred rite in ancient America, and immense importance was attached to the four cardinal points. This necessitated an unimpeded view of the sky and a clearly defined lay-out. A pious Toltec would have found it impossible to worship in the holy slums of ancient Greece. He needed space for the practice of his religion, and geometrical order. At Delos and Delphi he would have had overcrowding and confusion.”<sup>22</sup>

And, in the 1950s, journalist Helen Augur was typical in amplifying her enthusiastic praise for the Zapotecs by foregrounding their astronomical, and thus cerebral rather than militaristic, interests:

“The men of Monte Albán worshiped the physical forces of heaven—sun, rain, thunder and lightning, winds, clouds and mists, and, more faithful than any of these, the stars which gave mankind its true north and its cardinal points. It is significant that the Great Plaza contains as central structures an altar of sacrifice, a lofty sundial [i.e., Stele 18], and the observatory [i.e., Building J], which is the most extraordinary building in Middle America.”<sup>23</sup>

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<sup>21</sup> Caso, *Culturas mixteca y zapoteca*, 22; my translation. It is noteworthy that Caso’s most prominent antecedent in Oaxaca archaeology, Leopoldo Batres, *Explorations of Mount Albán* [sic], *Oaxaca, Mexico* (Mexico: Gante St. Press, 1902), while devoting abundant attention to the ancient Zapotec writing that he found in the ruins (see *ibid.*, plates following page 37), makes no mention whatever of astronomy.

<sup>22</sup> Aldous Huxley, *Beyond the Mexique Bay* (New York and London: Harper & Brothers Publishers, 1934), 262. Huxley, by the way, erroneously refers to the inhabitants of Monte Albán as “Toltecs.”

<sup>23</sup> Helen Augur, *Zapotec* (Garden City, New York: Dolphin Books, Doubleday & Company, 1954), 105.

Repeating the stock assessments of the day, Augur wrote that Building J, “shaped exactly like an arrowhead [that] points due southwest at the winter solstice,” has been “revealed as the birthplace, or at least the nursery, of the ‘magic calendar,’ [which] became the basis of Middle American religion.”<sup>24</sup>

Likewise, mid-twentieth-century art historians also, though with limited technical knowledge of astronomy, willingly assumed that ancient Oaxacans had both considerable interest and expertise in observing sky phenomena. Henri Stierlin, for instance, concurred that while the precise rationale for Building J’s skew remained uncertain, “it must have had some astronomical function, as was so often the case in the orientation of pre-Columbian buildings;”<sup>25</sup> and he was confident, as noted earlier, that the seeming irregularities and asymmetries in the Main Plaza were actually deliberate and probably astronomical. In that regard, Stierlin suggests that, unlike the positioning of the buildings on the east side of the esplanade along a quite straight north-south line, the “slight deflection (it does not exceed 6°)” of those on west side, “may have been based on a definite astronomical occurrence...”<sup>26</sup> Persuaded that the 17° slant of Teotihuacan’s Avenue of the Dead (to which I will return later) is related to the sunset on a particular date, Stierlin hypothesized that the west-side Building M and System IV (or Building K) were positioned to function respectively as a “back sight” and a “sight” for marking sunrise on the equinoxes. In his surmise (the specifics of which are difficult to follow and generate little support), the “ritualistic function” of this configuration can be clarified as follows:

“Due to the low quadrilateral enclosure in front of the eastern face of the pyramid, a priest standing on the staircase leading to the upper sanctuary could observe the sun as it

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<sup>24</sup> Augur, *Zapotec*, 105-6. Pointing to the Zapotec expertise in astronomy as her main clue, Augur, *ibid.*, 134-139, whose non-professional observations are in many respects astute, proposes an eccentric diffusionist theory wherein the builders of Monte Albán are descendants of the expert astronomer-navigators from Polynesia.

<sup>25</sup> Henri Stierlin, *Ancient Mexico* (Cologne, Germany: Benedikt Taschen Verlag, 1968), 133. Another art historian who provides a generalized affirmation of Building J’s astronomical alignment is Ignacio Marquina, *Arquitectura prehispánica* (México, D.F.: Instituto Nacional de Antropología e Historia, 1950, 1964), 327-28.

<sup>26</sup> Stierlin, *Ancient Mexico*, 133.

appeared from behind the eastern wing of the courtyard. A guiding mark on the symmetrical axis would then be enough to provide an 'aim' for accurate sighting."<sup>27</sup>

In short, while the particulars were none too persuasive, the search after astronomically significant alignments at Monte Albán was well underway by the 1960s.

A sign of the mounting, if still modest, interest in the pre-Hispanic Oaxacan astronomy comes in the selection of "Processes of Change and the Conceptualization of Time" as the topic for the first Monte Albán Round Table in 1998. Only a handful of the articles directly engage astronomy; and, as in Maya studies, there were abundant Oaxacanists who regarded the emergent claims for ancient astronomy as variously overblown or irrelevant.<sup>28</sup> But the Round Table contributions by co-authors Marcus Winter and Miguel Bartolomé, ethnographer John Monaghan and, most germane to our present concerns, archaeoastronomer Jesús Galindo Trejo, all provide signal contributions to the study of indigenous astronomic and calendric pursuits in the region.<sup>29</sup> Winter's attention to astro-calendrical ratios and proportions at Monte Albán, which proceeds in collaboration with Damon Peeler, will again prove very important in the subsequent discussion.<sup>30</sup> And Galindo Trejo's article on "astronomical-calendrical alignments at

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<sup>27</sup> Stierlin, *Ancient Mexico*, 133.

<sup>28</sup> Peterson, "Monte Albán Building J: An Hypothesis of Function," 33, observes, in relation to the most prominent of all Oaxacan exemplars, that, well into the 1980s, "In short, the hypothesis that Building J was an observatory seems to have been overlooked or misunderstood by archaeologists."

<sup>29</sup> See, in *Procesos de cambio y conceptualización del tiempo: Memoria de la Primera Mesa Redonda de Monte Albán*, ed. Nelly M. Robles García (México, D.F.: Instituto Nacional de Antropología e Historia, 2001): Marcus Winter y Miguel Bartolomé, "Tiempo y espacio en Monte Albán: la construcción de una identidad compartida" (pp. 59-72); John Monaghan, "Los calendarios mesoamericanos como constituciones" (pp. 247-54); and Jesús Galindo Trejo, "Alineamientos calendario-astronómicos en Monte Albán" (pp. 269-84).

<sup>30</sup> Among co-authored works, see, for instance: Damon E. Peeler and Marcus Winter, "Mesoamerican Site Orientations and their Relationship to the 260-Day Ritual Period," in *Notas Mesoamericanas*, núm. 14 (Cholula, Puebla: Universidad de las Américas, 1992-1993), 37-62; Damon E. Peeler and Marcus Winter, "Monte Albán, plano topográfico 1993 A," en *Monte Albán: Estudios Recientes*, Marcus Winter, coord., contribución no. 2 del Proyecto Especial Monte Albán 1992-1994 (Oaxaca de Juárez: Centro INAH-Oaxaca, 1994), 113-16; Damon E. Peeler and Marcus Winter, "Building J at Monte Albán: A Correction and Reassessment of the Astronomical Hypothesis," *Latin American Antiquity*, vol. 6, no. 4 (1995): 362-69; Damon E.

Monte Albán,” which focuses on the astronomic significance of the Geodesic Vertex Group and the pair composed of Buildings P and H, especially when supplemented with his later article on archaeoastronomical reassessments of murals at Mitla and in the tombs of Monte Albán,<sup>31</sup> provides even more leads into the role of astronomy in the religion of Monte Albán.

Additionally, Anthony Aveni, as we’ll see, does considerable work in Oaxaca. And the team of Slovenian archaeoastronomer Ivan Šprajc and Mexican archaeologist Pedro Francisco Sánchez Nava, between 2010 and 2013 assemble fresh measurements and alignment data for dozens of sites within the various subareas of Mesoamerica—including 15 in Oaxaca, Monte Albán foremost among them.<sup>32</sup> Moreover, Šprajc and Sánchez Nava remind us that, in addition to on-site studies of archaeological remains, “the data on Mesoamerican astronomy can be found in written sources, both prehispanic and colonial, in the iconography of the codices, murals, reliefs, even in ethnographically documented survivals;”<sup>33</sup> and Oaxacanists provide important ancillary contributions in all of these respects.<sup>34</sup> Nevertheless, as the extensive bibliography on

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Peeler y Marcus Winter, *Tiempo sagrado, espacio sagrado: astronomía, calendario y arquitectura en Monte Albán y Teotihuacan* (Oaxaca, México: Instituto Oaxaqueño de Culturas, 1993); and, most importantly, Damon E. Peeler and Marcus Winter, *Sun Above, Sun Below: Astronomy, Calendar, and Architecture at Monte Albán and Teotihuacan* (Oaxaca: Instituto Oaxaqueño de Culturas e Instituto Nacional de Antropología e Historia, 2010). Most notable among Peeler’s single authored works is Damon E. Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” en *Monte Albán: Estudios Recientes*, Marcus Winter, coord., contribución núm. 2 del Proyecto Especial Monte Albán 1992-1994 (Oaxaca de Juárez: Centro INAH-Oaxaca, 1994), 55-61.

<sup>31</sup> Galindo Trejo, “Calendario y orientación astronómica,” 295-345.

<sup>32</sup> Among a whole series of of intensely detailed works dealing with various subareas of Mesoamerica, most relevant for present purposes is Ivan Sprajc y Pedro Francisco Sánchez Nava, *Orientaciones astronómicas en la arquitectura de Mesoamérica: Oaxaca y el Golfo de México* (Ljubljana, Solvenia: Založba ZRC, 2015); [http://iaps.zrc-sazu.si/sites/default/files/pkc08\\_sprajc.pdf](http://iaps.zrc-sazu.si/sites/default/files/pkc08_sprajc.pdf); accessed 8-9-2018. Less directly relevant is Ivan Šprajc and Pedro Francisco Sánchez Nava, *Orientaciones astronómicas en la arquitectura maya de las tierras bajas* (México, D.F.: Instituto Nacional de Antropología e Historia, 2015).

<sup>33</sup> Sprajc y Sánchez, *Orientaciones astronómicas en la arquitectura de Mesoamérica: Oaxaca y el Golfo de México*, 1; my translation.

<sup>34</sup> For instance, though, as we’ll see, Joyce Marcus is a skeptic with respect to astronomical alignments even at Monte Albán’s Building J, her abundant works on ancient writing systems

the now-vast literature concerning Mesoamerican archaeoastronomy recently provided by Šprajc demonstrates, attention to Oaxaca remains thin by comparison to Central Mexico and the Maya area.<sup>35</sup> Even now, students of Monte Albán must rely on just a handful of technically trained astronomical researchers whose calculations and conclusions are frequently at odds with one another.

### **B. The Order and Agenda of the Chapter: Astronomy in Conjunction with Homology, Conventionality and the Enhancement of Nature**

While nearly all of the main structures at Monte Albán reflect deliberative alignments, at least with respect to cardinality, and thus many are referenced in explicit or very general ways to sky phenomena, two architectural configurations have generated the most interest. By far most prominent, Building J, since Caso's era routinely labeled "the observatory," owing to its distinctive arrow-shape, prominent location and unmistakable skew with respect to all of the other constructions in the Main Plaza, is the paramount exemplar of Zapotec astronomical interests.<sup>36</sup> And second, Building P is frequently presented as the among the premier

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and calendrics are highly relevant. In that respect, see, among numerous pertinent works, Joyce Marcus, "The Origins of Mesoamerica Writing," in *Annual Review of Anthropology*, 5 (1976): 35-67; Joyce Marcus, "Zapotec Writing," *Scientific American*, vol. 242, no. 2 (1980): 50-64; Joyce Marcus, "The First Appearance of Zapotec Writing and Calendrics," Topic 23 in *The Cloud People: Divergent Evolution of the Zapotec and Mixtec Civilizations*, eds. Kent V. Flannery and Joyce Marcus (New York: Academic Press, 1983), 91-96; and Marcus, *Mesoamerican Writing Systems*, 99, 123-31. Also see, for instance, Maarten Jansen and Gabina Aurora Pérez Jiménez, "The Ancient Mexican Astronomical Apparatus: An Iconographic Criticism," *Archaeoastronomy* 6 (1983): 89-95.

<sup>35</sup> Šprajc, "Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica," 197-251. Also telling of the comparative lack of attention to ancient Oaxacan astronomy is the near absence of mention of Oaxaca, Monte Albán included, in the 800-page *Foundations of New World Cultural Astronomy: A Reader with Commentary*, ed. Anthony F. Aveni (Boulder: University Press of Colorado, 2008).

<sup>36</sup> Among references on Building J, which I will address most directly near the end of this chapter, see two places in Caso's work: (1) Alfonso Caso, *Exploraciones en Oaxaca; quinta y sexta temporadas 1936-1937*, publicación núm. 34, Instituto Panamericano de Geografía e Historia (Tacubaya, D.F., México: Impreso en la Editorial "Cvltvra," 1938), 10-11; reprinted in Alfonso Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 3 (México: El Colegio Nacional, 2002), section on "Montículo J," 12-20; and (2) Alfonso Caso, "Resumen del informe

Mesoamerican examples of an “underground observatory” or “astronomical chamber” that is, purportedly, on the day of the summer solstice, penetrated by the sun’s rays through a chimney or “zenith sighting tube.”<sup>37</sup> Additionally, Stela 18 on the east side of the Main Plaza just north of System IV (or Building K) has long been described as a sundial;<sup>38</sup> and, in the wake of Monte

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de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939,” *Vigesimoséptimo Congreso Internacional de Americanistas*, Instituto Nacional de Antropología e Historia, SEP, tomo II (México, 1939), 175-77; reprinted in Alfonso Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1 (México: El Colegio Nacional, 2002), 170, figs. 13, 14, and 171. Also see Marquina, *Arquitectura prehispánica*, 327-30; Anthony F. Aveni and Robert M. Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” *American Antiquity* vol. 37, no. 4 (Oct., 1972): 528-31; Aveni, “Building J at Monte Albán,” in *Skywatchers*, 262-272; Joyce Marcus, “Zapotec Writing,” *Scientific American*, vol. 242, no. 2 (1980): 50-64; Joyce Marcus, “The Conquest Slabs of Building J, Monte Albán,” in *The Cloud People*, Flannery and Marcus, eds., 106-108; Bernd Fahmel Bever, *La arquitectura de Monte Albán* (México: Universidad Nacional Autónoma de México, 1991), 94-101; Peterson, “Monte Albán Building J: An Hypothesis of Function,” 29-36; Peeler and Winter, “Building J at Monte Albán: A Correction and Reassessment of the Astronomical Hypothesis,” 362-69; Peeler and Winter, *Sun Above, Sun Below*, 12-14, 24-27; and Maarten Jansen and Gabina Aurora Pérez Jiménez, “The Ancient Mexican Astronomical Apparatus: An Iconographic Criticism,” *Archaeoastronomy* 6 (1983): 89-95. Also relevant is Daniel Schávelzon, “Caballito Blanco Mound O, Oaxaca, Mexico: A New Plan,” *Archaeoastronomy*, vol. 22 (2009): 131-38. And also pertinent, though these authors decline any comment about the possible astronomical significance of Building J, is the radical reinterpretation of the so-termed “conquest slabs,” provided by Javier Urcid, “Mound J at Monte Albán and Zapotec Political Geography during Period II (200 B.C.-A.D. 200); and Javier Urcid and Arthur Joyce, “Early Transformations of Monte Albán’s Main Plaza and their Political Implications, 500 B.C.-A.D. 200,” *Mesoamerican Plazas: Practices, Meanings, and Memories*, eds. Kenichiro Tsukamoto and Takeshi Innomata (Tucson: University of Arizona Press, 2014), 157-64.

<sup>37</sup> Among references on astronomical significance of Building P, which I will address most directly near the end of this chapter, see: Fahmel Bever, *La arquitectura de Monte Albán*, 49-55; Bernd Fahmel Bever, “El complejo de observación cenital en Monte Albán: historia de una institución,” en *Antropología mesoamericana: Homenaje a Alfonso Villa Rojas* (México: Gobierno del Estado de Chiapas, 1992), 529-45; Rubén B. Morante López, “Las cámaras astronómicas subterráneas,” *Arqueología Mexicana*, vol. 8, núm. 47 (enero-febrero 2001): 46-51; Jesús Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” in *Procesos de cambio y conceptualización del tiempo*, Robles García, ed., 276-82; Peeler and Winter, *Sun Above, Sun Below*, 24; and Aveni, *Skywatchers*, 264-269. Note also that numerous of the discussions of Building J include, as we’ll see, remarks either supporting or refuting Building P’s status as a “sighting tube” to observe the zenith passage of the sun.

<sup>38</sup> Among references for the so-termed sundial or Stela 18 (which I will not discuss at length): see Caso, “Resumen del informe de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939,” reprint version Caso, *Obras: El México Antiguo: Mixtecas y*

Albán Special Project 1992-1994, the Geodesic Vertex Group and so-termed Bejeweled Building emerge as another noteworthy case.<sup>39</sup> Moreover, the astro-calendrical based ratios and sizing of numerous Main Plaza constructions that I addressed earlier,<sup>40</sup> along with astronomical references in the murals of Mitla and Monte Albán, most located in tombs, provide two more large bodies of relevant information.<sup>41</sup> Nonetheless, because each of these cases is a multifaceted phenomenon that raises a host of issues—and most have generated numerous competing

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*Zapotecas*, vol. 1, 169-70 (my translation), where Caso, in the context of a short section on Montículo IV, comments on Stela 18, “one of the largest monoliths in Mexico,” which he says, “undoubtedly represents the writing system of Epoch II,” but he does not make any reference to its astronomical significance. For a Caso photo of Stela 18, which he re-erected in the 1930s, see *ibid.*, 168, fig. 12. Also see Fahmel Bever, “El complejo de observación cenital en Monte Albán,” 534, who believes that Stela 18 did have astronomical significance and played an important role in the layout of Monte Albán; Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 272 (my translation), who writes, “this slender, five-meter tall stele is situated on its platform in such a way that the direction of the astronomical north is indicated with great precision along both faces...;” and Rodrigo de la Torre Yarza, *Nahuitji copijcha: Una meridiana en Monte Albán* (Oaxaca: Centro de Investigaciones y Estudios Superiores en Antropología Social, 2008), proposes that Stela 18 served as a gnomon or meridian and mentions various possible astronomical functions.

<sup>39</sup> Regarding astronomical alignments in the Geodesic Vertex Group and Edificio Enjoyado or “Bejeweled Building,” which I will address later in this chapter, most important is Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 273-76.

<sup>40</sup> Among key references on the calendrical proportioning of structures in the Main Plaza, which I addressed last chapter and will again in this one, see Peeler y Winter, *Tiempo sagrado, espacio sagrado*, 1-8; Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 55-61; Marcus Winter y Miguel Bartolomé, “Tiempo y espacio en Monte Albán: la construcción de una identidad compartida,” in *Procesos de cambio y conceptualización del tiempo*, Robles García, ed., 59-72; Marcus Winter, “Religión de los *Binnigula’sa*: la evidencia arqueológica,” in *Religión de los Binnigula’sa*, Víctor de la Cruz y Marcus Winter, coords. (Oaxaca, México: Fondo Editorial, IEEPO, 2001), 68ff.; Marcus Winter, “La religión, el poder y las bases de la complejidad social en Oaxaca Prehispánica,” en *Bases de la complejidad social en Oaxaca: Memoria de la Cuarta Mesa Redonda de Monte Albán*, ed. Nelly M. Robles García (México, D.F.: Instituto Nacional de Antropología e Historia, 2009), 515; and Peeler and Winter, *Sun Above, Sun Below*, 4-27.

<sup>41</sup> Among key references concerning astronomical references in murals at Mitla and in Monte Albán tombs, which I will address later in this chapter, see Seler, “The Wall Paintings of Mitla: A Mexican Picture Writing in Fresco,” 243-324; Arthur G. Miller, *The Painted Tombs of Oaxaca, Mexico: Living with the Dead* (Cambridge: Cambridge University Press, 1995), esp. 236-38; and Galindo Trejo, “Calendario y orientación astronómica,” 295-345.

interpretations—rather than treated in succession, I will revisit them intermittently in the context on my more thematic discussion.<sup>42</sup>

As regards the logic and organization of the chapter, once again, from beginning to end, I continue my focus on “ritual-architectural allurements,” and thus on the “front-half” of the ritual architectural situation. Be that as it may, regarding the more informational or “back-half” of the ritual-architectural situation, each of the four main morphological options that I will consider in Part II, “Commemoration, Meanings and Messages: The Content of Monte Albán’s Ritual-Architectural Events,” has been linked to astronomy. The very prominent topic of “sky gods,” including deities of thunder, lightning and rain, for instance, is directly related to the commemoration of divinity (priority II-A); the linkage of sky phenomena to Oaxaca mythologies connects to the commemoration of sacred history (priority II-B); the much-discussed possibility that capitalizing on predictive knowledge of celestial events was a shrewd means of exercising socio-political control entails a linkage to the commemoration of politics (priority II-C); and the abundance of celestial references in Monte Albán funerary contexts broaches the less-discussed affiliation between astronomy and the commemoration of the dead (priority II-D). Consequently, all of these are important issues and linkages that will resurface in Part II. But in the present chapter, which is divided into three main sections, I continue to pursue matters of ritual-architectural allurements and, more specifically, the means by which astronomy (priority I-C) complements and bolsters allurements via homologized architectural schemes (priority I-A) and conventionalized architectural components (priority I-B).<sup>43</sup>

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<sup>42</sup> In a paragraph that enumerates Monte Albán features that have been ascribed astronomical significance I should mention again Building III, a.k.a. the Southeast Mound of the South Platform or M-SE, which in 1932, Zelia Nuttall, “Sobre un monumento en Monte Albán de gran importancia,” 15-26, argued was designed to observe the solar zenith passage. According to the critical analysis of Schávelzon, “Un observatorio no observado? Un edificio de Monte Albán según los primeros arqueólogos,” 75-83, that plausible idea was, owing to the politics of archaeological decision-making at the site, never given the serious follow-up attention that it deserved.

<sup>43</sup> Methodologically speaking, note that, in this treatment of the astronomy priority (I-C), I deviate somewhat from the pattern of questioning relative to the astronomy priority that is laid out in “Appendix B: An Expanded Heuristic Framework of Ritual-Architectural Priorities.” Nonetheless, in this chapter, I do address all of the key questions concerning astronomy as a strategy of ritual-architectural allurements.

As in previous and subsequent chapters, I treat each main topic in three steps: first providing general cross-cultural exemplification of the theme, then addressing its broadly Mesoamerica pertinence, before finally exploring its relevance to the specific case of Monte Albán. Following that ternary pattern, the first of the three principal sections addresses astronomical alignments that work in conjunction with the sort of homologized ritual-architectural arrangements discussed in chapter 1. That segment explores ways in which the already-alluring siting of a regional capital atop an *altépetl* water-mountain is intensified and enhanced by the integration of sky phenomena into those all-embracing schemes. The second main section explores ways in which astronomy, albeit it based on empirical observations of natural phenomena, is invariably subject to group-specific interpretations and “conventions,” and thus frequently works in conjunction with the sorts of conventionalized orientation practices discussed in chapter 2. And the main third section ventures that what is most distinctive about the connection between astronomy and orientation is a capability of orienting oneself not only with respect the past and present, but also the future; and thus, capitalizing on foreknowledge of the regular movements of celestial bodies provides ancient Mesoamericans with highly dramatic means of enhancing their ceremonial occasions. In that third section, I will explore what I term “the ritual-architectural enhancement of nature” insofar as it entails orchestrating visual effects that would not be possible without the humanly-constructed forms that create the sightines and shadows that make those occasions so famously compelling. Again, the detailed sub-titles in the Table of Contents map the logic of the discussion; and again, the chapter ends with “Closing Thoughts” that summarize key points and locate them in relation to the larger argument of this project.

Finally, regarding some important qualifications, this chapter is not, then, an encyclopedic treatment of the myriad ways in which astronomy impacts upon the organization and history of Monte Albán. My focus on astronomically-informed “strategies of instigation” for the ceremonial life of the Zapotec capital is much narrower. Moreover, given that archaeoastronomy is a sub-field vexed and energized by severe disagreements about which features and alignments, in Oaxaca and elsewhere, actually reflect deliberate pre-Columbian intentions and which derive simply from the fertile imaginations of contemporary researchers, I

will discuss numerous hypotheses that enjoy, it put it mildly, much less than full support. On many of the technical matters, I am admittedly out of my depth; and thus on most of these archaeoastronomic debates, I have no strong allegiances to one side or the other. To the contrary, in the context of a "ritual-architectural reception history," once again it is important to note that tentative and "wrong" hypotheses also belong to the history of ideas about the ancient Oaxacan city. Consequently, rather than try to settle any of these astronomy-based controversies, I persist in a hermeneutical pattern of questioning designed to appreciate the more general ways in which astronomy impacts upon the religion of Monte Albán.

## **II. ASTRONOMY IN CONJUNCTION WITH HOMOLOGIZED ORIENTATION (PRIORITY I-A): THE CREATIVE, PURPOSEFUL AND HERMENEUTICAL EXPERIENCE OF THE SKY**

By no means a comprehensive discussion of all matters of astronomy connected to Monte Albán, it is the perhaps unique feature of this discussion of the flourishing field of Mesoamerican archaeoastronomy that links the primary motive for the astronomical alignments of pre-Columbian buildings and occasions to what I term ritual-architectural allurements. While many, especially older, accounts congratulate ancient Mesoamericans for their pre-modern "scientific" accomplishments,<sup>44</sup> one discovers quickly that among the most suitably recurrent themes in the discussion of ancient astronomy is an insistence that indigenous people are *not* primarily motivated by the collection of empirical "data."<sup>45</sup> According, for instance, to the formulation of

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<sup>44</sup> Though it is a newer (2008) rather than older account of Mesoamerican astronomy, Galindo Trejo, "Calendario y orientación astronómica," 295, for instance, opines that, "The systematic observation of the sky [among ancient Mesoamericans] contributed substantially to the achievement of such a high level of sharpness, and in some aspects it was possible to develop practices that can be categorized, without doubt, as scientific."

<sup>45</sup> Of countless scholars to make this important point, Milbrath, *Star Gods of the Maya*, 1, in the first line of her book, writes, "Astronomy in ancient Mesoamerica was not an abstract science; indeed, it was an integral part of daily life, and so it remains in more traditional Maya communities." Likewise, Miguel León-Portilla, "Astronomía y cultura en Mesoamérica," en *Historia de la Astronomía en México*, comp. Marco Arturo Moreno Corral, cuarta edición (México: Fondo de Cultura Económica, 2003), 11-16 (my translation), writes: "The extraordinary thing about 'astronomy,' 'the calendar,' and 'mathematics' in this cultural area is their extreme rigor, not for knowing in and of itself, but instead for their fuller function in meeting the requirements of a Mesoamerican vision of the world and its subsistence needs. Taking this into account, any study of the 'astronomical preoccupation' of Mesoamericans

Johanna Broda, a leading voice on archaeoastronomy to whom I will refer frequently in this discussion,

"In Mesoamerica there was no dichotomy between science and religion, as is the case in modern Western societies. The exact observation of nature was intimately linked to the religious elements, and all of them formed a unit for the Mesoamerican man. In ancient cultures there were many codes that have to be read and deciphered simultaneously. The cosmovision, as a structured contemplation of the universe in relation to man, represented this intimate fusion of its constituent elements."<sup>46</sup>

Though operating from a very different methodological stance, Broda intimates something like Mircea Eliade's notion of the "archaic consciousness" characteristic of the *homo religiosus*, or Joyce Marcus on "the ancient Zapotec mind,"<sup>47</sup> when she explains in a different article that, "we want to put the emphasis on the particular mental and social processes by which astronomical observations became immersed in myth and ritual, thus leaving behind the terrain of 'objective' scientific knowledge."<sup>48</sup> In her view, it is crucial to appreciate that the conclusions ancient Mesoamericans drew from their meticulous celestial observations were "often of a

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differs radically from the position of those who inquire from the perspective of the astronomical knowledge of Western culture..."

<sup>46</sup> Johanna Broda, "Observación y cosmovisión en el mundo prehispánico," *Arqueología Mexicana*, vol. 1, núm. 3 (Agosto-Septiembre 1993): 9. Because I appeal frequently to her work, it is worth noting that, where I essentially equate "religion" with orientation or cosmovision, a concept about which Johanna Broda has written a great deal, she has a much narrower and more materialist concept of the term wherein "religion is viewed as the main expression of ideology in ancient Mesoamerican civilization and ritual as the fundamental vehicle by which ideology was put in practice." Broda, "Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica," 103. She also notes, "We understand religion as a system of symbolic representation and of action and are interested, above all, in inquiring about the social functions of this system." *Ibid.* In other words, where Broda wants to emphasize that "religion," along with the empirical observation of nature, is an essential factor in the formation of the Mesoamerican cosmovision, I prefer a broad conception wherein "religion" is the cosmovision.

<sup>47</sup> See, for instance, a section entitled "The Ancient Zapotec Mind," in Joyce Marcus and Kent V. Flannery, *Zapotec Civilization: How Urban Society Evolved in Mexico's Oaxaca Valley* (London: Thames and Hudson, 1996), 18-21.

<sup>48</sup> Broda, "Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica," 100.

nonscientific character,” grounded in a set of preconceptions and priorities “fundamentally different from that of the modern scientific mentality.”<sup>49</sup>

While I will in a moment rely on Eliade and Hans-Georg Gadamer to parse the supposed distinction between “objective science” and “subjective religion” somewhat differently, I could not agree more that Mesoamericans were (and are) intent on integrating particular sky phenomena and processes into their wider cosmivision, which is, by definition, an all-embracing outlook that unifies all realms of human and even divine activity.<sup>50</sup> Consequently, it is no surprise the homology priority (I-A), wherein the primary incentive is to fashion a ritual-architectural context that replicates the structure of the wider cosmos, and the astronomy priority (I-C), wherein built features are aligned or referenced with respect to celestial bodies, constantly overlap and merge. While the heuristic distinction between these two priorities is important, in actual Mesoamerican practice, they are far more often complementary than antagonist.

In any case, following my usual three-step format, I begin with very general observations about the homology-astronomy coupling in the broader history of religions, then move to the more region-specific relevance of that pairing in ancient Mesoamerica, before working in the third arc of this section to explore what, if anything, is distinctive about Monte Albán in this respect.

#### **A. THE HOMOLOGY-ASTRONOMY PAIRING AS A CROSS-CULTURAL PHENOMENON: THE SKY AS A “CIPHER” FOR THE ALL-EMBRACING ORDER OF THE WORLD**

According to Mircea Eliade, the human experience of the sky occupies a uniquely prominent place in the general history of religions. Human interactions with the celestial vault, wherever Eliade looks, play a paramount role in facilitating the “access to the sacred”—and the matching of one’s earthly life with comic patterns and processes—that, according to his view,

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<sup>49</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 100, 101.

<sup>50</sup> See, for instance, Alfredo López Austin, “Cosmovision,” in *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central America*, ed. David Carrasco (Oxford and New York: Oxford University Press, 2001), vol. 1, 269.

constitutes the primary preoccupation of *homo religiosi* in all cultural contexts.<sup>51</sup> In his most widely-read book, he writes,

“Beholding the sky, [the *homo religiosus*] simultaneously discovers the divine incommensurability and his own situation in the cosmos. For the sky, by *its own mode of being*, reveals transcendence, force, eternity. It exists *absolutely* because it is *high, infinite, eternal, powerful*.”<sup>52</sup>

Also his masterwork, *Patterns in Comparative Religion*, following the introduction, opens with long chapters on “The Sky and Sky God,” “The Sun and Sun-Worship” and “The Mystique of the Moon,”<sup>53</sup> which together constitute about a third of the full tome. With respect to the power and preeminence of the celestial realm in the religious experience of humankind, he contends,

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<sup>51</sup> Of many relevant sources, see, for instance, Mircea Eliade, *The Sacred and the Profane: The Nature of Religion*, trans. Willard R. Trask (San Diego: Harcourt, Inc., 1959), chap. 3, “The Sacredness of Nature and Cosmic Religion,” especially 118ff. Lawrence E. Sullivan, “Astral Myths Rise Again: Interpreting Religious Astronomy,” *Criterion* 22 (Winter 1983): 12-17, charts the way in which, though early scholars of religion such as Charles François Dupuis (1742-1809) and F. Max Müller (1823-1900) afforded observations of sky phenomena a leading role in their theories of the origin of religion, subsequent religionists drifted away from that concern; and thus the blossoming interest in archaeoastronomy and ethnoastronomy that begins in the 1970s, in large part in response to debates over Stonehenge, constitutes a major reassurance in the topic. In the context of Sullivan’s discussion—along with Lawrence E. Sullivan, “Supreme Beings,” in *Encyclopedia of Religion*, 2<sup>nd</sup> ed., ed. Lindsay Jones (Detroit: Macmillan Reference, 2005), vol. 13, 8867-81—he directs attention to numerous older, broadly framed studies of beliefs and practices focused on the sky by scholars of comparative religion, including: F. Max Müller, *Nature Religion* (London: Longmans, Green, 1889); Raffaele Pettazzoni, *The All-Knowing God*, trans. H. J. Rose (London: Methuen and Co., 1956); W. Brede Kristensen, *The Meaning of Religion: Lectures in the Phenomenology of Religion* (The Hague, Netherlands: Martinus Nijhoff, 1960), chap. 3, “The Worship of the Sky and of Celestial Bodies;” George B. Foucart, “Sky and Sky Gods,” in *Encyclopaedia of Religion and Ethics*, ed. James Hastings, vol. 11 (Edinburgh: T. & T. Clark, 1920); and E. O. James, *The Worship of the Sky-God: A Comparative Study in Semitic and Indo-European Religion* (London: Althone Press, 1963). Also provocative, if methodologically problematic, is James G. Frazer’s *Worship of Nature* (London: Macmillan, 1926), vol. 1, 1-315, on “the worship of the sky.”

<sup>52</sup> Eliade, *The Sacred and the Profane*, 119; italics his.

<sup>53</sup> Eliade, *Patterns in Comparative Religion*, 38-187.

“The sky, of its very nature, as a starry vault and atmospheric region has a wealth of mythological and religious significance. “Height,” “being on high,” infinite space—all these are hierophanies of what is transcendent, what is supremely sacred.”<sup>54</sup>

Moreover, recalling all that I said in chapter 1 about Monte Albán’s auspicious and strategic positioning on a “cosmic mountain,” Eliade notes that the prestige of such lofty places depends, in large part, on their relationship to the sky:

“Mountains are the nearest thing to the sky, and are hence endowed with a twofold holiness: on one hand they share in the spatial symbolism of transcendence—they are “high,” “vertical,” “supreme,” and so on—and on the other, they are the especial domain of all hierophanies of atmosphere, and therefore, the dwelling of the gods. Every mythology has its sacred mountain, some more or less famous variation on the Greek Olympus. All sky gods have certain high places set apart for their worship.”<sup>55</sup>

If high mountains are, in so many contexts, conceived as *axis mundis* or world centers that afford unique access to the sacred, that privilege hinges upon their being understood (or better, *experienced*) as places at which the earth and the sky, the terrestrial realm of humans and the celestial realm of the gods, meet. The experience of the sky, under which all humans live—an experience redoubled by a mountaintop vantage—is, for Eliade, the first and most cross-culturally ubiquitous means of evoking the sense of transcendence, power and holiness that the *homo religiosus* craves.

Eliade, furthermore, uses his discussion of the seemingly universal fascination with the sky as an occasion to again locate “religion” and “religious experience” beneath the realm of conscious thinking and reasoning. Speaking to the trans-scientific experience of the sky in traditional contexts, he maintains that,

“The whole nature of the sky is an inexhaustible hierophany. Consequently, anything that happens among the stars or in the upper areas of the atmosphere—the rhythmic revolution of the stars, chasing clouds, storms, thunderbolts, meteors, rainbows—is a moment in that hierophany.”<sup>56</sup>

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<sup>54</sup> Eliade, *Patterns in Comparative Religion*, 109.

<sup>55</sup> Eliade, *Patterns in Comparative Religion*, 99.

<sup>56</sup> Eliade, *Patterns in Comparative Religion*, 40.

Thus, as with the experience of other hierophanies, or manifestations of the sacred, human engagements with the sky, which is everywhere an unremitting presence, are first experiential and “pre-conscious”—the expression of “a pre-systematic ontology, a judgment not [yet] formulated in concepts”—that only much later can be processed and systematized in terms of second-order conceptualizations, for instance in this case, in calendars.<sup>57</sup> As he explains,

“It is really important, therefore, this realization that though the symbolism and religious values of the sky are not deduced logically from a calm and objective observation of the heavens, neither are they exclusively the product of mythical activity and non-rational religious experience. Let me repeat: even before any religious values have been set upon the sky it reveals its transcendence. The sky “symbolizes” transcendence, power and changelessness simply by being there. It exists because it is high, infinite, immovable, powerful.”<sup>58</sup>

The sky and the intricate but regularized movements of celestial bodies provide, then, a “religious symbol” or, in Eliade’s very apt term, a “cipher,” that is, a cryptic sort of map or code that is initially impressive though “indecipherable,” but then subsequently, as we’ll see, becomes a uniquely informing resource that can be “deciphered” to specify the space and time parameters of an all-encompassing world order.<sup>59</sup> In another favorite example of the way in which religious symbols—and, for him, the entire sky has a symbolic quality—reveal the unity (or the homology) between all sorts of realms of existence that seem otherwise unrelated, Eliade pays special attention to the symbolism of the moon, the depth of which, he thinks, far supersedes that of the sun. In his words,

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<sup>57</sup> See Mircea Eliade, “Methodological Remarks on the Study of Religious Symbolism,” in *The History of Religions: Essays in Methodology*, eds. Mircea Eliade and Joseph M. Kitagawa (Chicago: University of Chicago Press, 1959), 99. As Eliade explains, “it is not a question of a reflective knowledge, but of an immediate intuition of a ‘cipher’ of the World. The World ‘speaks’ through the symbol of the Cosmic Tree [or through the movements of celestial bodies], and this ‘word’ [sic] is understood directly. The *World* is apprehended as *life*, and in primitive thought, *life is an aspect of being*.” Ibid., 98; his italics.

<sup>58</sup> Eliade, *Patterns in Comparative Religion*, 39.

<sup>59</sup> On the use of the notion of religious symbols as “ciphers” whose full meaning requires ongoing “decipherment,” see Eliade, “Methodological Remarks on the Study of Religious Symbolism,” 86ff, 107.

"The sun is always the same, always itself, never in any sense "becoming." The moon, on the other hand, is a body which waxes, wanes and disappears, a body whose existence is subject to the universal law of becoming, of birth and death. The moon, like man, has a career, involving tragedy, for its failing, like man's, ends in death."<sup>60</sup>

Irrespective of the power of the sun (which seems to be far more important in the layout of Monte Albán), it is the moon that, for Eliade, provides the symbol *par excellence* of the human condition. The complex movement of the waxing and waning moon,

"reveals a connatural solidarity between lunar rhythms, temporal being, water, the growth of plants, the female principle, death and resurrection, human destiny, weaving, and so forth. In the final analysis, the symbolism of the moon reveals a correspondence of mystical order between the various levels of cosmic reality and certain modalities of human existence."<sup>61</sup>

In sum, then, according to Eliade's broadly cross-cultural observations, the pattern for *homo religiosi's* proper and responsible "mode of being" on earth is revealed to them foremost by the regularized movements of celestial bodies, most of all by the phases of the moon. Consequently, sky phenomena are crucial components in the sort of homologized layout and

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<sup>60</sup> Eliade, *Patterns in Comparative Religion*, 154. Regarding Eliade's insistence on the priority of the symbolism of the moon over that of the sun, see Charles H. Long, "Mircea Eliade and the Imagination of Matter," <http://www.jcrt.org/jcrt/archives/01.2/long.shtml>, 2-4; accessed on 11-8-2017. Contesting the relevance of that generalization in Mesoamerica, Miguel León-Portilla, "Astronomía y cultura en Mesoamérica," 14 (my translation), writes: "In principle it should not be forgotten that, for Mesoamericans, the universe is fundamentally related to the sun. In many languages of this area the concept of the sun is enunciated with a word whose root means 'light-heat.' In Nahuatl, for example, *tonatiuh*, derived from *tona*, 'to shine or to warm,' is related to *tonalli*, which is 'day, heat, or destiny.' On the other hand, *tonatiuh*, referring to the 'suns' that have formerly existed, means 'age,' 'cosmic time'... suggesting that man lives in a universe presided over by the sun, which is the source of life or 'giver of life,' but is always subject to the risk of weakening and succumbing. The sun is divine reality but it is not the supreme dual god, father and mother of all gods. Among the Mexicas, the sun seems more linked to other deities such as Huitzilopochtli." Regarding the importance of the sun in Zapotec culture, see, for example, Roberto Zarate Morón, "Símbolos prehispánicos y ritos contemporáneos de creación y nacimiento en el sur del Istmo de Tehuantepec," en *Estructuras políticas en el Oaxaca antiguo: Memoria de la Tercera Mesa Redonda de Monte Albán*, ed. Nelly M. Robles García (México: Instituto Nacional de Antropología e Historia, 2004), 182-84.

<sup>61</sup> Eliade, "Methodological Remarks on the Study of Religious Symbolism," 99. For a fuller exposition of the symbolism of the moon, see Eliade, *Patterns in Comparative Religion*, 154ff.

urban ambience of a place like Monte Albán—but they are much more than just one more participatory element in those unified schemes. The passages of the sun, moon, stars and planets are additionally the paramount resources, the starting point and window or “cipher” through which people are able, via sustained and systematic observation, to ascertain—or to “decipher”—the space-time particulars that will guide the scheduling both of their daily lives and special ceremonial occasions. Of all of the elements and processes of the natural world, none is, according to Eliade, nearly so important as the dynamics of the celestial vault in bringing to light “the multitude of structurally coherent meanings” of which the cosmos is composed.<sup>62</sup> In that sense, the sky is a “script”—even a “sacred text”—that is “read” and interpreted in a hermeneutical fashion. The sky is, by its intrinsic nature, alluring but also cryptic. In Heideggerian terms, the sky immediately “reveals” something of itself, but also perpetually “conceals” the fullness of its meaning, and thus is demanding of hermeneutical interpretation or “decipherment.”<sup>63</sup>

In other words, to labor on this important point just a little longer, Eliade’s suggestion that sky itself is experienced as a “religious symbol”—or, more specifically, as a recondite “cipher” in need of “decipherment”—has very important ramifications for how we conceptualize what is at issue in the human experience of the celestial realm. Though this line of argument raises complex theoretical issues that I will not rehearse here in any detail (because I have done so in many other contexts), Eliade’s hermeneutical approach<sup>64</sup> merges with Hans-Georg

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<sup>62</sup> Eliade, “Methodological Remarks on the Study of Religious Symbolism,” 99.

<sup>63</sup> Regarding Martin Heidegger on the dynamics of “revelment and concealment” or “disclosure and hiddenness,” see Jones, *The Hermeneutics of Sacred Architecture*, vol. I, chap. 1, the subsection entitled “Heidegger’s Postmodernity: Beyond Objectivity and Methodology;” or, *ibid.*, chap. 2, the sub-section entitled “Revelment and Concealment: The Otherness and Autonomy of Architecture.”

<sup>64</sup> Regarding the sense in which Eliade explicitly describes his approach to the history of religions as “creative hermeneutics,” see Mircea Eliade, *The Quest: History and Meaning in Religion* (Chicago and London: University of Chicago Press, 1969), preface and chap. 1, “A New Humanism.”

Gadamer's ideas about "the universality of hermeneutical reflection"<sup>65</sup> insofar as both imply that the experience of a symbolic sky is a kind of two-stage process wherein people are first fascinated or "allured" into a "pre-conscious" or "pre-systematic" engagement with the celestial realm. Only later, upon sustained "hermeneutical reflection" with the celestial vault, do skywatchers, expert astronomers included, arrive at the second-order insights that issue in concepts, ideas or, in the case of engagements with celestial periodicities, calendars.<sup>66</sup> Not unlike the way in which I have repeatedly described the hermeneutical experience of sacred architecture in the context of "ritual-architectural events" and "the layering of hermeneutical situations,"<sup>67</sup> the human experience of the sky, once underway, proceeds, in Gadamer's terms, as a "to-and-fro dialogue," an interactive or "relational" dialogue wherein both people and sky phenomena are "conversation partners." Accordingly, instead of taking sides in the simmering (and, I think, ill-framed) debate as to whether traditional observations of the sky are "scientifically objective" or "religiously subjective," I follow Eliade and Gadamer in relying on the more characteristically phenomenological resolution of the objective-subjective contrariety to argue that the sky, because of its "symbolic" quality, is engaged via so-termed "relational" hermeneutical reflection.<sup>68</sup>

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<sup>65</sup> See Hans-Georg Gadamer, "The Universality of the Hermeneutical Problem," in *Philosophical Hermeneutics*, trans. and ed. David E. Linge (Berkeley: University of California Press, 1976), 3-17; or, in the same volume, Gadamer, "Aesthetics and Hermeneutics," 103, where he explains: "In the last analysis, Goethe's statement 'Everything is a symbol' is the most comprehensive formulation of the hermeneutical idea. It means that everything points to another thing . . . the universality of the hermeneutical perspective is all-encompassing." Also see Jones, *The Hermeneutics of Sacred Architecture*, vol. I, chap.1, "Lineages and Legacies: The Universality of Hermeneutical Reflection."

<sup>66</sup> Note that in this paragraph I am drafting simultaneously on the terminology of Eliade (e.g., "cipher" and "pre-conscious" or "pre-systematic ontology") and Gadamer (e.g., "hermeneutical reflection" and "relational, to-and-fro hermeneutical dialogue").

<sup>67</sup> On the hermeneutical nature of the experience of architecture, see Jones, *Hermeneutics of Sacred Architecture*, vol. I, chap. 3, "Conversation and Play: The Eventfulness of Architecture." On "the layering of hermeneutical situations," see *ibid.*, vol. I, chap. 3, the subsection entitled "The Layering of Hermeneutical Situations: Architectural Experience and Interpretation."

<sup>68</sup> As is apparent in the previous quote from Eliade, *Patterns in Comparative Religion*, 39, engaging in his way the tension between "objective" versus "subjective" experiences of the sky, Eliade holds that the initial "pre-conscious" experience of the sky is neither "rational" nor "non-

Finally, though this is not the place for a sustained discussion of the attenuate theoretical issues, my insistence that the experience and “decipherment” of the sky are neither plainly objective nor loosely subjective, but rather “hermeneutical” and “relational,” has a couple of very tangible consequences for the subsequent, more specific discussion. For one, as most archaeoastronomers agree, we should keep in mind that the experience and interpretation of celestial phenomena, in Mesoamerica or elsewhere, are always informed by culturally-specific preconceptions, conventions or, what Gadamer terms, “preunderstandings.”<sup>69</sup> What ancient Mesoamericans see and appreciate when looking at the sky is very different from the perceptions of, for instance, Africans, Asians or contemporary Americans. And for two, consistent with the upcoming observations of more materialist scholars like Johanna Broda, we should also keep in mind that the second-order conceptualizations at with skywatchers arrive, again in pre-Columbian Mesoamerica or elsewhere, are invariably self-interested or purposeful. That is to say, the divine attributes and calendrical schedules that ancient astronomers adduce—and on which rulers rely—are not simply neutral observations, but rather formulations that serve their respective socio-economic and political interests and purposes. Again as both Eliade and countless archaeoastronomers maintain, ancient astronomy in all cross-cultural contexts was much less an abstract science than a creative and “interested” means of organizing lives and communities in meaningful ways.

### **B. THE HOMOLOGY-ASTRONOMY PAIRING IN MESOAMERICA: COSMOVISION, RITUAL AND THE PURSUIT AND/OR PRETENSE OF THE PERFECT ORDER**

Regarding the more region-specific “religious significance of the sky,” all of the general insights that we glean from Mircea Eliade concerning the pairing of homologized architectural

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rational, but (in terms more like those of Gadamer) “ontological,” that is, a question of *existential being* rather than *intellectual knowledge*.

<sup>69</sup> Regarding what Gadamer terms “preunderstandings” or “foreknowledge,” which speak to the non-objectivity of every occasion of understanding, see Jones, *The Hermeneutics of Sacred Architecture*, vol. I, chap. 1, the subsection entitled “Gadamer’s Contribution: Hermeneutics as Ontological and Universal.”

schemes (priority I-A) and astronomy (priority I-C) are, I would wager, relevant to ancient Mesoamerica. For instance, if, as Alfredo López Austin persuades us, the Mesoamerican cosmovision entails acknowledging a fully comprehensive “systemic complex,”<sup>70</sup> which enables a holistic and interactive experience of all dimensions of the natural and supernatural world, then assuredly celestial phenomenon and their movements must, of necessity, be coordinated with all of the other realms of social and material culture we have discussed.<sup>71</sup> But more than simply another component that has to be integrated into those homologized schemes, uniquely reliable celestial phenomena provide, here as elsewhere, the primary resource for adding specificity to those conceptions of world order. Throughout Mesoamerica, as archaeoastronomer Ivan Šprajc maintains,

“The sky provides [Mesoamericans] basic references for orientation in space and time. The observation of celestial regularities resulted in useful, practical knowledge that became particularly important with the origin of agriculture and the increasing need for scheduling seasonal activities. The order observed in the sky, apparently perfect and divine, also gave rise to a variety of ideas that explain the role of heavenly bodies in the cosmic order and their influence on earthly affairs. In any social group these concepts are intertwined and integrated in a relatively coherent worldview.”<sup>72</sup>

That is to say, while ancient Mesoamericans were committed to the general proposition of aligning earthly environments, agricultural activities, rituals and social institutions with cosmic rhythms and patterns, it is systematic and repeated observations of sky phenomena that provide the most instructive means of acquiring the particulars that enable them to do that. For Mesoamericans—because, as Šprajc notes, “the order observed in the sky [was] apparently perfect and divine”<sup>73</sup>—the celestial vault had, as Eliade suggests, the standing of a revealed sacred text, the authoritative disclosure (or hierophany) of the gods that, like the Quran or Torah,

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<sup>70</sup> Alfredo López Austin, “El núcleo duro, la cosmovisión y tradición mesoamericana,” en *Cosmovisión, Ritual e Identidad en los Pueblos Indígenas de México*, Johanna Broda y Félix Báez-Jorge, coords. (México, D. F.: Consejo Nacional para las Culturas y las Artes, 2001), 59; my translation.

<sup>71</sup> See, for instance, López Austin, “Cosmovision,” 268-69.

<sup>72</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 198.

<sup>73</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 198.

if properly interpreted or “deciphered,” provides a blueprint for how to organize and conduct one’s life. Operationalizing the aspiration to all-embracing order depended on detailed empirical knowledge of the sky.

Be that as it may, the treatment of connections among astronomy, cosmivision and ideology in pre-Hispanic Mesoamerica provided by Johanna Broda’s Aztec-focused studies advances and nuances those generic insights in a couple of key ways. The first concerns the extent to which Mesoamerican astronomy was not only existentially purposeful, but also, in her somewhat skeptical view, deliberately manipulated for socio-political purposes. In this respect, she, on the one hand, reechoes López Austin in seeing cosmivision as “the structured view in which Mesoamericans combined their notions of cosmology into a systematic whole,”<sup>74</sup> an opinion she supports by repeatedly quoting Paul Kirchhoff’s proposition that “Ancient Mexico is a world of order, in which everything and everybody has his proper place... The orderly structure can be seen in everything...”<sup>75</sup> Nevertheless, at the same time, Broda’s detailed ethnohistorical studies persuade her that, in point of fact, this is only a pretense of perfect order insofar as both the social and meteorological worlds of ancient Mesoamerica were actually characterized by persistent unpredictability and disorder. Along with frequently violent and abrupt changes in pre-Columbian authoritarian leadership, she reminds us that the geographical conditions of Mesoamerica—a region of volcanic activity, earthquakes, extreme temperature swings, torrential rains juxtaposed with droughts, etc.—exude a large measure of unforeseeability as well as order.<sup>76</sup> And consequently, irrespective of Kirchhoff’s claim that “These cultures do not know chaos,”<sup>77</sup> Mesoamerican sovereigns were challenged to hold in place the semblance or veneer of

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<sup>74</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 81.

<sup>75</sup> Paul Kirchhoff, *Unedited Papers*, Archivo del Museo Nacional de Antropología e Historia, México; quoted by Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 103.

<sup>76</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 101.

<sup>77</sup> Kirchhoff, *Unedited Papers*; quoted by Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 103.

perfect regularity irrespective of the disorder, instability and tumult in both the natural and socio-political realms that, in fact, loomed as a constant threat and perhaps motivational force.<sup>78</sup>

Moreover, besides fostering the pretense of cosmic order, Mesoamerican leaders, in Broda’s critical assessment, relied heavily on astronomy to advance the impression—as she says, “the illusion”—that their continued hegemony was absolutely essential not only to a smooth functioning society, but also the continuance of world harmony. Reechoing a familiar Marxist stance wherein “religion is viewed as the main expression of ideology in ancient Mesoamerican civilization”<sup>79</sup> and wherein rulers undertake a concerted “mystification to make social relations appear to be just,”<sup>80</sup> she considers that expertise in observations of natural cycles and recurrent celestial phenomena “provided those who had this knowledge with the ability to give *the appearance of* controlling those phenomena and producing them deliberately.”<sup>81</sup> In her surmise, via the shrewd manipulation of calendar dates and astronomically based alignments,

“the priest-rulers created *the illusion* that they were indispensable to the proper execution of the rites on which depended the recurrence of natural phenomena, the growing of maize and other food-plants, and the successful accomplishment of agricultural cycles.”<sup>82</sup>

That is to say, for her, the “purposefulness” of Mesoamerican astronomy lay primarily in its utility as valued tool of hegemonic and ideological control with which elites fostered the (false) impression of their uniquely essential role in maintaining a world order.

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<sup>78</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 82-83, explicitly restates the familiar position that “ideology” is kind of “false consciousness” that has as “its most important social function... to legitimate and justify the existing order of society.” The intimation is, then, that “cosmovision” too is a kind of “false” presentation of a world order that does not, in fact, exist.

<sup>79</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 103.

<sup>80</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 104.

<sup>81</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 104; italics added.

<sup>82</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 105; italics added.

More specifically, Broda sees “the effort of ‘imposing an order on the chaos’ of natural phenomena”—an initiative that was laborious, ongoing and invariably manipulated by self-interested elites—as evident in several spheres of Mesoamerican culture.<sup>83</sup> In architecture, for instance, she notes “two opposing tendencies” so that, while the pursuit of order was frequently achieved via built forms designed to mirror the “natural order,” in other instances, the strategy was to fabricate an “artificial order in contraposition to nature [which] imposed a new structure, a ‘human order,’ upon the ‘natural order.’”<sup>84</sup> Likewise the calendrical system, while grounded in natural processes, required not-infrequent artificial adjustments or “distortions” in order to provide a means of imposing “a cyclical order derived from astronomical cycles upon social life,” which was intended to bind the cosmos and society into one comprehensive system, and thereby “extend the same ‘predictability’ of natural phenomena to social and individual life.”<sup>85</sup> And with respect to indigenous chronology and historiography, past events—irrespective of considerable serendipity and happenstance in the actual historical record—were frequently twisted into conformity with a “cosmic history,” which advanced the impression that ruling leaders and dynasties had an otherworldly, cosmic credibility.<sup>86</sup>

In short on this first point, then, according to the bluntest reading of this materialist outlook, homologized urban layouts were primarily means of socio-political control, and homologized layouts that integrated astronomical phenomena and insights were even more effective means of socio-political control. And whether or not one shares Broda’s view that Mesoamerican astronomy and cosmovision are first and foremost about “legitimizing the

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<sup>83</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 101.

<sup>84</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 101-2. Regarding the two alternate means of creating a sense of order via architecture, Broda explains that, besides extensive efforts in harmonizing with nature, Mesoamericans sometimes fashioned a contrastive, “artificial” sense of order that differentiates architecture from the natural surroundings “by means of straight lines, constructions of plain stone, platforms and pyramids, which established a sharp distinction to the vegetation of the vicinity.” Ibid.

<sup>85</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 102.

<sup>86</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 102.

existing sociopolitical and economic conditions"<sup>87</sup> (and I do not), she helps us to see that the presentations of regularity and homologized unity in all these cultural spheres—architecture, calendrics, historiography and rulership—while indebted to natural processes, are actually, to a large extent, contrived means of presenting *the appearance of* perfect order.

Second and more succinctly, Broda's approach supports our hermeneutical concerns by consistently accentuating the crucial connections between astronomy, Mesoamerican cosmivision and periodic rituals. If celestial movements provided the most conspicuous and seemingly reliable elements in a less-than-perfectly predictable natural and social world, ritual served as the most effective means of reinforcing the impression of an all-embracing order. Rituals, especially as a consequence of their rigorous scheduling, in her words,

"established a link between architectural, calendrics, myth, and society. Ritual being fundamentally a system of social action, it imposed a socially defined order upon society, justifying it ideologically in terms of the cosmic order."<sup>88</sup>

Again, without fully endorsing her materialist view that reduces ritual to "the fundamental vehicle by which ideology was put into practice,"<sup>89</sup> I consider the point very well taken.

Broda reminds us, in other words, to reiterate a point made in the Closing Thoughts to chapter 1, that not only is the perfect order presented in homologized architecture somewhat artificial, it is also precarious. As I stated there with reference to Paul Wheatley, rather than once-and-for-all expressions of a fully encompassing order, meticulously synchronized configurations like those of Monte Albán's Main Plaza are high maintenance propositions for which carefully timed rituals provide the most effective instruments of upkeep and preservation. Ritual is, then, as Broda intimates, the periodic means of bolstering and publicizing, if not a perfect order, at least *the pretense of* a comprehensive order that subsumes cosmic, natural and social processes. And in Galindo Trejo's favored term, architecture that is aligned to sky

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<sup>87</sup> Broda, "Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica," 103.

<sup>88</sup> Broda, "Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica," 102.

<sup>89</sup> Broda, "Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica," 103.

phenomena acquires “an added ritual value.”<sup>90</sup> Thus, as I will stress more in the last main section of this chapter, to schedule and choreograph those ceremonial occasions—those ritual-architectural events—in ways that incorporated celestial events such as equinoxes, solstices and horizon risings vastly enhanced both their effect and affect. Among the Aztecs, Broda’s primary example, but also throughout Mesoamerica, homologized architectural configurations are, in a sense, quiet and static expressions of an all-embracing cosmic order that, only in ritual occasions, are activated and loudly announced.

### **C. THE HOMOLOGY-ASTRONOMY PAIRING AT MONTE ALBÁN: THE SUPPORTING ROLE OF CELESTIAL OBSERVATIONS AND ALIGNMENTS IN THE SYMBOLIC CITY**

Having argued that Monte Albán is a world-class exemplar of homologized architecture (priority I-A), and having briefly inventoried some ways in which homologized schemes are supported by astronomical observations and references both in cross-cultural and other Mesoamerican contexts, I turn next to consideration of how and to what extent the symbolic conception of the capital of the Cloud People, an appellation claimed by both Zapotecs and Mixtecs, was abetted by astronomy (priority I-C).<sup>91</sup> Brief comments on the supportive role of

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<sup>90</sup> Galindo Trejo, “Calendario y orientación astronómica,” 305; my translation.

<sup>91</sup> Nearly every Oaxacan ethnography includes comments concerning indigenous interest in sky phenomena. For instance, Ubaldo López García, “Conceptualización vernácula en lugares sagrados,” en *Sociedad y patrimonio arqueológico en el valle de Oaxaca: Memoria de la Segunda Mesa Redonda de Monte Albán*, ed. Nelly M. Robles García (México: Instituto Nacional de Antropología e Historia, 2002), 206, comments on “offerings to the moon” among contemporary Mixtecs; and Roberto Zarate Morón, “Símbolos prehispánicos y ritos contemporáneos de creación y nacimiento en el sur del Istmo de Tehuantepec,” 182-84, has more extended comments on “the importance of the Sun in Zapotec culture.” Also, with respect to the Zapotecs of Mitla during the 1920s, Elsie Clews Parsons, *Mitla: Town of the Souls and Other Zapoteco-Speaking Pueblos of Oaxaca, Mexico* (Chicago & London: University of Chicago Press, 1936), 319, writes: “An eclipse of the moon is a sign of sickness among women; an eclipse of the sun, a sign of sickness among men. At a lunar eclipse people set out in the patio a bowl of water, according to Angélica [a Zapotec “informant”] to refreshen the moon, according to Eligio [another Mitleyeño Zapotec] because they think the Sun and Moon are fighting and they wish to look into the water to see the fray, or more probably, the outcome. A comet is a sign of revolution, war, pestilence, or famine. To Etlakwatla, the First Diviner, a ‘smoking’ star was a bad sign, heralding catastrophe.” Nonetheless, Parsons, *ibid.*, 319, n. 15, notes, “Apart from this comet lore there is little or no lore about stars [among the Mitleyeños].” In a chapter

astronomic factors in three respects—Monte Albán’s siting, its architectural configuration, and its ritual scheduling—deserve mention.

### **1. The Strategic Siting of Monte Albán: Mountain Access to the Sky, and thus to the Sacred**

To begin at a very general level, given Monte Albán’s strategic positioning atop an *altépetl* water-mountain, or “hill of sustenance,” we need to recall Mircea Eliade on the invariably close relationship between mountains and “the religious significance of the sky” across the wider history of religions.<sup>92</sup> Because, as he says, “mountains are the nearest thing to the sky,” the already-poignant demonstration of each of the three principal pillars of Eliade’s model of sacred space at the mountaintop capital (all discussed at length in chapter 1) are intensified by their connections to astronomical observations and alignments. Since here I risk restating the obvious, a paragraph on each of the three will suffice.

First, regarding Eliade’s notion of “heterogeneous spaces” and the seemingly universal urge of *homo religiosi* to locate their habitations at or near a hierophany—that is, a place at which some god or numinous power has manifested itself—the conjoined experiences of the *altépetl* water-mountain and the sky complement and reinforce one another in important ways. Though the celestial realm is, of course, visible from everywhere, to ascend Monte Albán’s hill of sustenance and enter “the city in the sky”<sup>93</sup> affords an enhanced, controlled and specially

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entitled “Indian or Spanish,” Parsons, *ibid.*, 509, writes, “Of the cult of the Sun among the early Zapoteca we find surviving a morning prayer to the Sun, another parallel, by the way, with Pueblo ritual...” And, among countless other relevant (archaeological) sources, Joyce Marcus and Kent V. Flannery, “Ancient Zapotec Ritual and Religion: An Application of the Direct Historical Approach,” in *The Ancient Mind: Elements of Cognitive Archaeology*, eds. Ezra B. W. Zubrow and Colin Renfrew (New York: Cambridge University Press, 1994), 62-66, have extended comments about changing Zapotec depictions of lightening beginning as early as 1150-850 BCE.

<sup>92</sup> Eliade, *Patterns in Comparative Religion*, 38ff.

<sup>93</sup> William Henry Holmes, *Archaeological Studies Among the Ancient Cities of Mexico* (Chicago: Field Columbia Museum, 1895, 1897), 226.

resolute view of the heavens. Indeed, many contemporary visitors reiterate art historian Jorge Hardoy’s somewhat surprised impression of a Main Plaza whose “important feature is its negation of topography and natural environment” wherein, irrespective of the city’s mirador-like setting, once inside the ceremonial precinct, sightlines to the surrounding landscape are largely blocked, so that the primary view is “up” rather than “out.”<sup>94</sup> In Eliade’s terms, the comic mountain on which Monte Albán sits, together with the sky overhead, constitute paired hierophanies, each of which has the superabundant and inexhaustible quality of a religious symbol and each of which is, therefore, experienced in “pre-conscious” ways that are only later systematized.<sup>95</sup> The ever-unfolding movements of celestial phenomena—actors in a kind of ongoing hierophanic drama—perhaps even more than the stationary water-mountain, are inherently alluring, perfect exemplars of the Heideggerian notion of revealment and concealment insofar as stars, planets and the moon immediately show themselves, but then withhold the full significance of their meanings.<sup>96</sup> In that sense, therefore, sky phenomena—redoubling the auspicious siting of the ceremonial plaza—work as additional, supportive components of ritual-architectural allurement.

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<sup>94</sup> Jorge E. Hardoy, *Pre-Columbian Cities*, trans. Judith Thorne (New York: Walker and Company, 1973); original Spanish edition (Buenos Aires: Ediciones Infinito, 1964), 109. Irrespective of Hardoy’s important point about the restricted views from the Main Plaza, I will in subsequent sections note the choreography of important horizontal views of, for instance, helical risings, sunrises and sunsets along the both the surrounding natural horizon and the “artificial horizon” provided by the profiles of built forms.

<sup>95</sup> Having commented in chapter 1 on the way in which the endlessly evocative *altépetl* juxtaposition of the hard stability of a mountain with the fluidity of water has the character of a “religious symbol,” here I direct attention to the multiplicity of meanings engendered by the sky—the source of light and warmth but also thunder, lightning and rain—which also participates in religious symbols’ unique capability for expressing contradictions and/or paradoxes, “conflicting structures of ultimate reality [that] are otherwise quite inexpressible.” Eliade, “Methodological Remarks on the Study of Religious Symbolism,” 101.

<sup>96</sup> As noted, on the Heideggerian notion of the hermeneutical situation as dependent upon the juxtaposition of disclosure and and hiddenness or “revealment and concealment,” see Jones, *The Hermeneutics of Sacred Architecture*, vol. I, chap. 2, the section entitled “Revealment and Concealment: The Otherness and Autonomy of Architecture.”

Regarding the second pillar of Eliade’s model of sacred space—the notion of *imago mundis* and the enhancement of rituals by conducting them in contexts that are composed as down-sized replicas of the cosmos at large—astronomical observations and alignments again play an important complementary role. Recall, for instance, the hypothesis of Arthur Joyce that “the sacred geography” of Monte Albán resembled that of Tikal, Copán and Teotihuacan insofar as “the cosmos was rotated onto the surface of the site’s ceremonial center such that north represented the celestial realm and south the earth or underworld.”<sup>97</sup> According to this astro-political interpretation, while the more public south end of the Main Plaza, epitomized by the seemingly militaristic images of the Danzante carvings, is dominated by “iconographic references to sacrifice, warfare, and earth or underworld,”<sup>98</sup> by contrast, the North Platform, where the elites reside, “included iconographic references to the sky, rain, and lightening,” most notably the so-termed *viborón* frieze with motifs “similar to Cocijo, the Zapotec lightning (sky) deity.”<sup>99</sup> I would stress that the claim of Monte Albán nobles to a propriety relation with sky divinities is potent and legitimating only because the full population shares a sense of the auspiciousness of celestial phenomena that informs the entire city. The microcosmic conception of the whole urban layout displays, in Wheatley’s phrase, “an intimate parallelism between the mathematically expressible regimes of the heavens and the biologically determined rhythms of life on earth.”<sup>100</sup> And thus astronomical alignments play a crucial supporting role in the acclaimed “unity of conception” in which Monte Albán is configured as an earthly replica of perfect cosmic order wherein all spheres of reality—architectural space, calendrical time, social

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<sup>97</sup> Arthur A. Joyce, “Sacred Space and Social Relations in the Valley of Oaxaca;” in *Mesoamerican Archaeology: Theory and Practice*, eds. Julia A. Hendon and Rosemary A. Joyce (Oxford: Blackwell Publishing, 2004), 199. Note, by the way, similar ideas appear in Arthur A. Joyce, “Poder sacrificial en Oaxaca durante el Formativo tardío,” in *Procesos de cambio y conceptualización del tiempo*, Robles García, ed.; and Arthur A. Joyce, “Monte Albán como encrucijada material y simbólica en la antigua Oaxaca,” en *Monte Albán en la encrucijada regional y disciplinaria: Memoria de la Quinta Mesa Redonda de Monte Albán*, eds. Robles García y Ángel I. Rivera Guzmán, 50.

<sup>98</sup> Joyce, “Sacred Space and Social Relations in the Valley of Oaxaca,” 199.

<sup>99</sup> Joyce, “Sacred Space and Social Relations in the Valley of Oaxaca,” 201.

<sup>100</sup> Wheatley, *The Pivot of the Four Quarters*, 414.

hierarchies, colors, directions, body parts, natural landscapes and, yes, the movements of celestial bodies—are coordinated and unified.<sup>101</sup>

And third, nearly too obvious to merit comment, astronomical observation also enhances and clarifies the sense in which Monte Albán was perceived as an *axis mundi* or world center. While *axis mundis* are, in Eliade’s phrase, “points of ontological transition” that can facilitate descents downward to the underworld, far more often they are described as poles, ropes or ladders that provide access upward to the heavens, thereby enabling “communication with the supraterrrestrial world.”<sup>102</sup> Often they are conceived as a kind of “cosmic axis” or pillar that supports the sky. And, time and again, as we’ve seen, Eliade reiterates that, by nature, “high places are impregnated with sacred forces,”<sup>103</sup> so that the mountain location of Monte Albán was, even prior to the extensive earthmoving and homologizing construction, in and of itself precisely the sort of access point to the heavenly realm that he repeatedly describes. Appreciating that ascending the *altépetl* water-mountain was, therefore, both a journey to a world center and, in an important sense, to the sky adds viability to the prospect that the initial site-selection and rapid ascent of the Oaxaca capital, as Joyce argues, depended less on its military or commercial advantages than on the perception that a ceremonial precinct located at the mountaintop intersection of the three arms of the Valley of Oaxaca would provide an “access to the sacred” not available at lower and more peripheral sites. And thus if ancient Oaxacans were, as Joyce contends, concerned to “maintain a sacred covenant that established relations of debt and merit between humans and the gods, with sacrifice as a fundamental condition of human existence,”<sup>104</sup> then to conduct those sacrificial rites atop a centrally located mountain—and beneath the open sky—enhances immeasurably their efficacy.

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<sup>101</sup> Recall that Monte Albán’s “unity of conception” was a key theme in the Introduction to Part I, “Orientation and Allurement.”

<sup>102</sup> Eliade, *The Sacred and the Profane*, 43-44.

<sup>103</sup> Eliade, *Patterns in Comparative Religion*, 100-2.

<sup>104</sup> Joyce, *Mixtecs, Zapotecs, and Chatinos*, 60.

In short, consistent with Broda’s caution that it is actually *the pretense of* perfect order that matters most, choreographed astronomic views reinforce the impression that the once-rough and irregular terrain of the mountaintop had been transformed into an immaculately ordered, cosmically correct ceremonial plaza. As such, this was a site at which earth and sky meet.

## **2. The Strategic Configuration of Monte Albán Architecture: Revisiting the Unification of Calendrical Time and Architectural Space**

A second set of pairings of the homology (I-A) and astronomy (I-C) priorities comes in the integration of astronomically-derived principles and proportions into the configuration of the specific built forms of the Main Plaza, a topic that requires me to briefly revisit again the unification of calendrical time and architectural space at Monte Albán, which I have addressed in each of the previous chapters. In this respect, writing in 1994, Damon Peeler first expresses his skepticism about all of the most high-profile claims to astronomical alignments in the area of Monte Albán. Taking issue with each of most oft-cited examples, he contends that Aveni’s proposition that the “arrowhead” of Building J is aimed at setting of five bright stars is based on “an erroneous measurement;”<sup>105</sup> that the similarly arrow-shaped Building O in Caballito Blanco, 50 kilometers east of Monte Albán, actually has “a completely different orientation than Building J;” and that the so-termed “Pozo de Luz” or “sighting tube” in Building P of the Main Plaza is not after all, as has been reported, aligned to the noontime position of the zenith passage of the sun.<sup>106</sup> At that point, he wrote, “Indeed, with the exception of the calendar itself, the results of the search for indicators of a developed astronomy in the Valley of Oaxaca had been discouraging.”<sup>107</sup>

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<sup>105</sup> Regarding the proposition that the arrow-head or apex of Building J points toward the setting of five bright stars, see Aveni and Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” 530; or Aveni, *Skywatchers*, 263-67.

<sup>106</sup> All quotations in this long sentence come from Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 55; my translation.

<sup>107</sup> Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 55; my translation.

But then, based upon further study and measurements that emerged from the Monte Albán Special Project 1992-1994, Peeler, while still unpersuaded by the particulars of earlier hypotheses about these cases, rescinds his negative opinion and notes instead that, "Some recent research has changed this pessimistic evaluation, providing new data and reclaiming some discarded ideas."<sup>108</sup> And thus, he was willing to conclude by then that, "In summary, the practice in the Valley of Oaxaca of an astronomy sufficiently advanced to anchor a calendar to celestial phenomena with precision now seems almost incontrovertible."<sup>109</sup>

That change of heart notwithstanding, Buildings J and P (to which I will return shortly) constitute somewhat special cases within the broader layout of Monte Albán; and, therefore, with respect to ways in which astronomy bolsters the homologized conception of the Main Plaza area, Peeler actually provides more relevant information with an early take on the calendrical spacing and proportioning of numerous constructions in the central precinct (to which I have referred two times earlier). In what may be the first publication to address the issue of the spatialization at Monte Albán of three different but interrelated calendrical cycles—the 260-day, 365-day and 584-day counts—Peeler contends, in an article boldly entitled "The Zapotec Origins of Mesoamerican Astronomy and Calendars," that, while this numerical structure was eventually shared across the entire region, "it is right in the Valley of Oaxaca where we find the first evidences in Mesoamerica of both writing and calendar."<sup>110</sup> Drawing upon the then-fresh mapping efforts of the Monte Albán Special Project, Peeler reaffirms the widely recognized significance of the 260-day "ritual year" and the 365-day solar year, but notes as well that,

"Perhaps the most surprising data are those associated with the mapping work currently [in 1992-1994] carried out in Monte Albán that show the existence of architectural

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<sup>108</sup> Peeler, "Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos," 55-56; my translation.

<sup>109</sup> Peeler, "Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos," 56; my translation.

<sup>110</sup> Peeler, "Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos," 55; my translation.

representations of calendrical numbers and confirms, for the first time, the use of [not only 260 and 365, but also] the synodic period of 584 days of the planet Venus.”<sup>111</sup>

Thus, while each of those day-counts depends upon the mathematical machinations of the calendar (to which I will also return momentarily), all three ultimately derive, Peeler believes, from astronomical observations. Moreover, once he is persuaded of the significance of these three astro-calendrical counts in the spatial layout of Monte Albán—which he presents in a very clear ground plan diagram of the Main Plaza<sup>112</sup>—he opines that “it seemed surprising that they had not been noticed earlier.”<sup>113</sup>

As discussed previously, Marcus Winter, sometimes in collaboration with Miguel Bartolomé, echoes and amplifies Peeler’s observations by specifying how the designers of Monte Albán utilized the respective proportions of 260, 365 and 584 not only in the design of Building J and the principal I-shaped ballcourt, but also in the sizing of the main staircases at the respective south and north ends of the plaza.<sup>114</sup> Recall that, in their more interpretively expansive assessment, Winter and Bartolomé maintain that pre-Columbian designers “turned time into space” by replicating the respective time-counts in the proportions and distances between these various constructions:

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<sup>111</sup> Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 55; my translation.

<sup>112</sup> Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 57, fig. 1.

<sup>113</sup> Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 56; my translation.

<sup>114</sup> As cited already in chapters 1 and 2, on the significance of these three astro-calendrical counts, see Marcus Winter y Miguel Bartolomé, “Tiempo y espacio en Monte Albán: la construcción de una identidad compartida,” in *Procesos de cambio y conceptualización del tiempo*, Robles García, ed., 67; Marcus Winter, “Religión de los *Binnigula’sa*: la evidencia arqueológica,” in *Religión de los Binnigula’sa*, Víctor de la Cruz y Marcus Winter, coords. (Oaxaca, México: Fondo Editorial, IEEPO, 2001), 68; and Marcus Winter, “La religión, el poder y las bases de la complejidad social en Oaxaca Prehispánica,” en *Bases de la complejidad social en Oaxaca*, Robles García, ed., 515. Also see Peeler y Winter, *Tiempo sagrado, espacio sagrado*; and Peeler and Winter, *Sun Above, Sun Below*.

“Time management was closely related to the use of space in Monte Albán. The wise astronomers of Mount Albán resorted to calendrical proportions to create “sacred spaces.” ... By combining time and space in the structures of the Main Plaza, the center of the city became a sacred space that reflected, at the same time, the cosmic [or otherworldly] and social [or this-worldly] spheres.”<sup>115</sup>

Certainly, then, astronomical observations play a supporting—indeed formative—role in the homologized layout of Monte Albán. Moreover, in the present context, the subtlety of this systemic time-space coordination prompts two other ancillary points. For one, the thoroughgoing integration of the 260, 365 and 584 proportions into the sizing of the entire Main Plaza as well some of its specific constructions provides some of the most compelling evidence that, at least by Period II, when the entire precinct was delimited and paved, the designers of Monte Albán were indeed operating with something like a master plan. The integral incorporation of those three time-counts could not have been achieved via a piecemeal accumulation of individual structures.

Yet, for two, that meticulous proportioning, which escaped the attention of investigators until the 1970s, is ironically inconspicuous so that it would also have remained invisible to non-elite visitors to the mountain capital. Accordingly, the precise but understated unification of astro-calendrical time and architectural space belies a simplistic endorsement of Broda’s point that what really matters most is the appearance or veneer of perfect order rather than truly precise synchronization of those realms. Like Gustavo Gámez Goytia’s discernment an invisible line or “sacred axis” that, though completely out of view, was acknowledged and reinforced by strategically placed offerings that were deposited at each stage of construction in many of Monte Albán’s main structures,<sup>116</sup> this is a homologizing initiative that would have been largely

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<sup>115</sup> Marcus Winter y Miguel Bartolomé, “Tiempo y espacio en Monte Albán: la construcción de una identidad compartida,” in *Procesos de cambio y conceptualización del tiempo*, Robles García, ed., 67; my translation.

<sup>116</sup> Gustavo Gámez Goytia, “El eje sagrado en Monte Albán: Elemento central de la arquitectura religiosa Zapoteca,” in *Religión de los Binnigula’sa’*, Víctor de la Cruz y Marcus Winter, coords. (Oaxaca, México: Fondo Editorial, IEEPO, 2001), 200.

indiscernible to all but elite specialists.<sup>117</sup> The plaza needs not only *to appear* orderly, but, in actual fact, *to be* perfectly ordered. In short, irrespective of the naturally showy theatrics of sky phenomena, coordinating the architectural layout with the movements of astronomical bodies cannot have been a purely political ploy to impress the masses.

### **3. The Strategic Timing of Monte Albán Rituals: Increasing the “Symbolic Relevance” and “Ritual Value” of Murals and Buildings**

Finally, a third set of observations concerning ways that astronomy buttresses ancient Oaxaca’s homologized ritual-architectural configurations revives Broda’s emphasis on the interrelations of astronomy, cosmovision and ideology with strategically timed rituals. In this respect, archaeoastronomer Jesús Galindo Trejo, though far more concerned with the documenting the technical particulars of Mitla’s and Monte Albán’s astronomical references than with ascertaining the indigenous rationale that is responsible for them, nonetheless repeatedly links the significance of astro-calendrical alignments at these Oaxaca sites with their enhancement of the rituals undertaken there. In the wake of his detailed analyses of the extensive celestial allusions in the murals on Mitla lintels and in Monte Albán tombs, Galindo Trejo concludes,

“The knowledge obtained from the meticulous record of the regularities of the apparent movement of various stars served not only as a form of celestial cult, but also to elaborate a suitable calendrical system and thus organize all activity in Mesoamerican societies. This knowledge also allowed [ancient Oaxacans] to use some astronomical events to coordinate their rituals with the orientations of important architectural structures. In this way, it was possible *to increase the symbolic value of these buildings* [and] to demonstrate that the earthly power of the sovereigns was in harmony with the celestial realm, the abode of the gods.”<sup>118</sup>

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<sup>117</sup> Likewise the abundant astronomical allusions that Galindo Trejo discerns in the murals found in Monte Albán tombs (and that I discuss momentarily) would have been seen only by highly exclusive audiences, an observation that further belies the simplistic notion that the integration of celestial bodies into the city’s homologized ritual-architectural program was primarily a contrived effort by knowing elites to manipulate more naïve non-elites.

<sup>118</sup> Galindo Trejo, “Calendario y orientación astronómica,” 295; my translation, italics added.

That is to say, in Galindo Trejo’s assessment, which again links astronomy to calculated political ends, perhaps the primary motivation and greatest benefit of referencing particular sky phenomena in the art works on Mitla buildings and in Monte Albán tombs was “the intensification of the ritual message of a mural painting.”<sup>119</sup> And, by the same token, the sizing and alignment of whole buildings in consonance with astronomical-calendrically significant dates and numbers provided a means of “adding symbolic relevance” or affording those structures “additional ritual value.”<sup>120</sup> While I rely on the notion of “allurement” in hopes of being somewhat more precise about how astronomical alignments and references contribute to the efficacy of ancient Oaxacan rituals, Galindo Trejo’s point is, I think, important and correct.

In sum, then, while it is difficult to dispute that proficiency in anticipating regularized sky movements “provided those who had access to this knowledge with the ability to *give the appearance of* controlling those phenomena and producing them deliberately,”<sup>121</sup> we can discern at least three less strictly political ways in which attention to celestial phenomena abets and intensifies the allure of Monte Albán’s homologized layout. First, regarding its strategic siting, the allure of being located atop a hierophanic cosmic mountain is redoubled by providing a sense of proximity to the equally evocative celestial domain, which is also experienced as a hierophany; that mountain-sky pairing reinforces both the sense in which the city is an *imago mundi*, or a unifying replica of the larger cosmos, and as an *axis mundi*, or world center where people enjoy privileged access to the heavenly realm of the gods. Second, regarding the strategic configuration of its architecture, careful observations of the sky issue in the 260-, 365- and 584-day astro-calendrical counts that are then translated into spatial proportions, which further reinforce the unifying conception of the city. And third, as Broda and Galindo Trejo accentuate regarding the strategic timing of rituals, the regular movements of celestial bodies provide both the basis for the scheduling and then integral components—star attractions, as it were—in

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<sup>119</sup> Galindo Trejo, “Calendario y orientación astronómica,” 312; my translation.

<sup>120</sup> Galindo Trejo, “Calendario y orientación astronómica,” makes essentially the same point that astronomical references and/or alignments contribute an “increase in symbolic value” or “added ritual value” on *ibid.*, 295, 304, 305, 312, 328, 335, 338, 339 and 341.

<sup>121</sup> Broda, “Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica,” 104; italics added.

ceremonial occasions that periodically illuminate and reinforce the homologized order of the Monte Albán context in which they occur.

At any rate, if there is an unmistakable complementarity between astronomy (priority I-C) and homology (priority I-A), consider next the somewhat less obvious, but equally important, coupling of astronomy and conventionality (priority I-B). Mesoamerican calendars and the distinctiveness of Oaxacan astro-calendrical conventions now take center stage.

### **III. ASTRONOMY IN CONJUNCTION WITH CONVENTIONALIZED ORIENTATION (PRIORITY I-B): NATURAL SKY PHENOMENA AND HUMANLY-CONSTRUCTED CALENDARS**

The complementarity of astronomical alignments (priority I-C) and conventionalized architecture (priority I-B)—that is, ritual-architectural configurations that conform to codified rules and prescriptions and/or to historically established patterns—depends most of all on the essential mediation of calendars. The creation and authority of calendars in traditional contexts are, as few need to be persuaded, very heavily dependent on their conformity to the regular movements of natural sky phenomena. That calendars are based on and reinforced by empirical observations of celestial periodicities is beyond debate. Less obvious but no less significant is the extent to which calendars are, not unlike works of art and architecture, embedded in history, tradition and social conventions. All calendars are conventionalized.

That is to say, extending to calendars George Kubler’s insistence that no important work of art or architecture is wholly without precedent, “every well established calendar can be regarded as a historical event and as a hard-won solution to some problem... a replica or a variant of something made a little time ago.”<sup>122</sup> No calendar, in Mesoamerica or elsewhere, is based strictly on observational “data,” which explains why none is fully interchangeable across cultural contexts. Calendars are culturally specific and, as we’ll see, in cases, specific even to

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<sup>122</sup> George Kubler, *The Shape of Time: Remarks on the History of Things* (New Haven: Yale University Press, 1962), 33. In this case, I substitute “every well established calendar” for Kubler’s “every important work of art.”

individual Mesoamerican towns or cities. Just as Kubler persuades us that all significant architecture is “conventionalized,” all calendars arise within the confines of a historical tradition; each system of timekeeping is a participant in a “linked sequence of replications.”<sup>123</sup> Just as those Renaissance architectural conventions discussed last chapter that are presented as universalistic and innate to the structure of the universe are, in fact, humanly-constructed, Mesoamerican calendars, which are routinely presented as “a gift of the gods,” are the consequence of human and socially interested initiatives. Consequently, as each of the subsequent sub-sections will demonstrate, the incentive to align built structures and rituals to natural sky phenomenon (i.e., the astronomy priority, I-C) is invariable coupled with the convention priority (I-B).

To frame the problem in a different way, each of the next sections broaches a version of the infamous nature-versus-culture question by exploring ways in which calendars, and thus astronomic-calendric architectural alignments, reflect both adherence to natural celestial phenomena and conformity to more socio-political—that is, conventionalized—priorities. Also reviving the innovation-versus-imitation dynamic from last chapter, and the matter of “deliberate archaisms,” I am concerned here not only with ways in which pre-Columbian architecture expresses an urge to synchronize one’s earthly endeavors with observable sky phenomena, but also with the reiteration and copying of astro-calendric conventions that have gained prestige by the forces of tradition, historical precedent or even canonization.<sup>124</sup> Over and over the work of archaeoastronomers alerts us that, while Mesoamerican calendars and their architectural counterparts do indeed mirror the natural movements of the heavens, it is the influence of history and convention that matter most.

In the next sections, once again, brief general comments about the religious aspects of calendars in cross-cultural contexts are followed by more specific observations about

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<sup>123</sup> Kubler, *The Shape of Time*, 33. Here again I extend Kubler’s insights about works of art and architecture to calendars.

<sup>124</sup> By the reference to “canonization,” I extend to calendars the processes, usually associated with the authorization of “sacred texts,” by which humanly-composed works are afforded the status of divinely inspired and thus sacrosanct authorities.

Mesoamerican calendars, which set the stage for reflections on what is distinctive about the relations between astronomy, calendars, architecture and ritual at Monte Albán. In this astro-calendrical realm, as in so many other respects, the Zapotec capital is, as we’ll see, uniquely innovative, indeed an exemplary model and pathbreaking prototype for the entire region; and, in other respects, Oaxacans are more than willing to borrow and manipulate in their own self-interested ways the astronomic-calendric insights of other Mesoamericans.

**A. THE ASTRONOMY-CONVENTIONALITY PAIRING AS A CROSS-CULTURAL PHENOMENON:  
THE SOCIO-CULTURAL AND RELIGIOUS ASPECTS OF CALENDARS**

We can extract from ancient Mediterranean specialist Giulia Piccaluga’s broadly cross-cultural overview of the religious aspects of calendars, four very basic points that are especially relevant to our inquiry into the astro-calendrically informed architecture of Monte Albán. First, she notes that the massive literature on calendars is divided between two opposing camps: “those who believe the calendar originated as a secular phenomenon purely utilitarian in its purposes (a view accepted by the majority of scholars) and those who believe it was originally a religious institution...”<sup>125</sup> By my linkage of “religion” with orientation and cosmovision, together with the unmistakable sense in which calendars—as a seemingly universal response to recognition of the “periodicity of the world”—provide peoples in all contexts with a requisite means of orientation in time (or sometimes as an escape from the onerous sense of ongoing duration), certainly I join those who appreciate the omnipresence of calendars as an expression of “religious” concerns. Moreover, to foreshadow an argument I will make later in the chapter, astronomically informed calendars have the unique capability of orienting people with respect not only to the past and present, but also the future.

Second, Piccaluga reiterates our insistence that calendars reflect both natural and socio-cultural processes when she observes that,

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<sup>125</sup> Giulia Piccaluga, “Calendars: An Overview,” in *Encyclopedia of Religion*, 2<sup>nd</sup> ed., ed. Jones, vol. 3, 1352.

“one concept that proves to be constant across the most varied cultural contexts and the most diverse calendrical forms and manifestations [is] that time is of interest not in and of itself and as a simple fact of nature, but only as a dimension of life that can be submitted to cultural control.”<sup>126</sup>

Calendars are, then, not simply means of recording and passively acquiescing to natural regularities, which certainly do exist, but also of “concretizing time,” that is, “turning time from an abstraction into something that could be pinned down...”<sup>127</sup> By replicating and “recreating” the periodicities of nature at several levels—for instance, in calendrical time-counts, architecture forms, the structure of social institutions and the scheduling of rituals—people in all contexts “assert the priority of the unqualifiedly cultural essence of time over the mere natural fact of time.”<sup>128</sup> If both natural and more sociologically interested priorities coalesce in the formulation of calendars, it is the non-natural—that is to say, the socio-cultural and conventionalized aspects—that invariably assert themselves most strongly, which helps to explain why careful observations of one and the same sky can eventuate in such different conceptions of time.

Third, Piccaluga reechoes our contention that, irrespective of the regularity of all sorts of biological and natural phenomena, it is the movement of celestial bodies that supplies the preeminent resource or, in Eliade’s term, the foremost “cipher” that functions as the empirical starting point for the subsequent socio-cultural manipulations or “concretizations” of time. “In other words,” Piccaluga writes, “a portion of human, cultural time is inserted into the living body of natural time, which is computed on the basis of the revolution of the heavenly bodies.”<sup>129</sup>

And fourth, the “concretization” or “material embodiment” of time, and thus the means of maintaining a measure of cultural control over time, issues in “persistent attempts to identify time with space,” an urge to unify calendrical time with architectural space for which Piccaluga

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<sup>126</sup> Piccaluga, “Calendars: An Overview,” 1352.

<sup>127</sup> Piccaluga, “Calendars: An Overview,” 1353.

<sup>128</sup> Piccaluga, “Calendars: An Overview,” 1353.

<sup>129</sup> Piccaluga, “Calendars: An Overview,” 1353.

can summon no stronger example than the Aztecs.<sup>130</sup> In her broadly comparative view, calendars, so obviously a means of organizing time, also provide a tool for arranging the sort of “ideal spatial coherence”—the orderly built context of daily and ritual life—that traditional peoples require in order to maintain a responsible and meaningful orientation in the socio-natural world in which they find themselves. Indeed, Piccaluga fails to find people in any context who are able to function without some well developed and conventionalized calendar, which is invariably reflected also in their distinctive conceptions of space and thus architectural constructions.

Furthermore, to put a finer point on the paired natural and socially-constructed quality of calendars, I would add to this brief list of general attributes the observation that calendars too—not unlike the natural phenomenon of the sky on which they are based—have the multivalent and inexhaustible quality of “religious symbols,” which are thus also subject to hermeneutical reflection. That is to say, calendars, as a kind of schematic sacred text, have both the authoritative “sacred” status and the flexible “indeterminacy of meaning” that historians of religions see at work in the situational, calculated interpretation of myths and other sacred texts.<sup>131</sup> Instead of ironclad templates for the scheduling ceremonies in exact conformity to natural cycles of time, calendars are the sort of multivalent resources that are strategically manipulated and deployed in the service of choreographing effective ritual-architectural events. Not infrequently, archaeoastronomers discern willful and deliberate “distortions” of astro-calendrical dates in order to support some sort of contrived correspondence between sky

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<sup>130</sup> Piccaluga, “Calendars: An Overview,” 1353.

<sup>131</sup> I draw here on Eliade’s notion of “religious symbols,” which I discussed in chapter 1 relative to *altepepe* water-mountains; and I borrow the notion and term “indeterminacy” from Laurie L. Patton, “Cosmic Men and Fluid Exchanges: Myths of Arya, Varna, and Jati in the Hindu Tradition,” in *Religion and the Creation of Race and Ethnicity: An Introduction*, ed. Craig R. Prentiss (New York and London: New York University Press, 2003), 181-96. Historian of religions Patton demonstrates how the prestige and sacred status of each of the three sorts of Hindu texts (or myths) in her subtitle is enhanced rather than diminished by the fact that they are “multivalent” or “indeterminate” in ways that allows them to be used as authoritative sources to support not just one but numerous, often very different, meanings. In her words—which I would apply also to calendars and even to the sky itself—“a myth’s indeterminate nature and meaning can lend itself to new imaginings of social boundaries.” *Ibid.*, 194.

phenomena and the hegemonic activities or reigns of Mesoamerican rulers. And, indeed, frequently, again as we'll see at Monte Albán, the actual astronomical processes on which calendars are based recede into the background, known only to a specialized elite, while the conventionalized calendars themselves, with which everyone is familiar, become the primary instruments that organize the ongoing cycles of daily, especially agricultural, and ritual life.

## **B. THE ASTRONOMY-CONVENTIONALITY PAIRING IN MESOAMERICA: ORIENTATION TO CELESTIAL PHENOMENA AND/OR ASTRO-CALENDRIAL CONVENTIONS**

Each of Giulia Piccaluga's general points about calendars is clearly evident in the case of Mesoamerican calendars, which have been a topic of abundant, if highly specialized, study.<sup>132</sup> Jesús Galindo Trejo's overview of "celestial observations in pre-Hispanic thought," for instance, while acknowledging the political utility of privileged knowledge of astronomical knowledge and calendrical calculations, reaffirms the essentially "religious" quality of calendars insofar as they "make it possible to correlate the regular movements of the stars with those of society and thus organize all civil and religious activity."<sup>133</sup> The sole possession of neither elite astronomers nor rulers, calendars, as a kind of systematic codification of the Mesoamerican cosmovision, express, and thus solidify, a distinctive "mode of being in the world" by organizing and unifying otherwise disparate realms of reality, thereby bringing order and "religious meaning" to the everyday activities of all segments of pre-Columbian society. According to Galindo Trejo, the regularities of the celestial vault reveal to Mesoamericans a natural order that "could only have come from the gods," and thus is a model that humans were compelled to emulate; and the calendar, by systematizing and clarifying that exemplary divine order, provided a kind of guide

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<sup>132</sup> Anthony F. Aveni, "Calendars: Mesoamerican Calendars," in *Encyclopedia of Religion*, 2<sup>nd</sup> ed., ed. Jones, vol. 3, 1355-60, provides a concise overview and a very helpful bibliography of relevant sources on the topic. In addition to the sources he cites, also see, for the perspective of a historian of religions, Lars Kirkhusmo Pharo, *The Ritual Practice of Time: Philosophy and Sociopolitics of Mesoamerican Calendars* (Leiden: E. J. Brill, 2013). And particularly relevant to the current discussion of astronomy is Sharon L. Gibbs, "Mesoamerican Calendrics as Evidence of Astronomical Activity," in *Native American Astronomy*, ed. Anthony F. Aveni (Austin and London: University of Texas Press, 1977), 21-41.

<sup>133</sup> Jesús Galindo Trejo, "La observación celeste en el pensamiento prehispánico," *Arqueología Mexicana*, vol. 8, núm. 47 (Enero-Febrero 2001): 29.

and touchstone not only for daily conduct in the world, but also "a particular form of worship towards the sacred."<sup>134</sup>

Moreover, Galindo Trejo echoes Piccaluga in noting that Mesoamerican calendars, while grounded in natural phenomena and dependent on careful observations of sky phenomena, are "artificial," humanly-constructed instruments of timekeeping, which helps to account both for the uncanny (actually unbelievable) coincidences one encounters in many of these systems<sup>135</sup> and for the discrepancies among the calendars of different groups within the region. He too concurs that calendars are, in the present rubric, more conventionalized than natural. On the one hand, then, he commends ancient Mesoamericans, Oaxacans included, for the "generations of meticulous and patient observation of the heavens" that were required to create accurate means of recording and predicting chronologic regularities:

"These observers, with careful effort, managed to determine the multiple and diverse regularities of the celestial vault, and thus develop a model to describe them. In this way they arrived at the calendar as an organizational scheme to specify the passage of time."<sup>136</sup>

And yet, though confidence in Mesoamerican calendars depends, in large part, upon precise reporting of natural processes, which provide an ongoing check on their accuracy, on the other hand, Galindo Trejo's comments also reinforce the view that calendars, once created, have a kind of autonomy and authority that, in important ways, supersede the empirical observation of sky phenomena. In fact, while he makes the case that Mesoamericans' astronomical skill

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<sup>134</sup> Galindo Trejo, "Calendario y orientación astronómica," 341.

<sup>135</sup> Students of ancient Mesoamerican calendars have long recognized the deliberate manipulation of calendar dates especially to support programs of political legitimation. Early Mayanist Sylvanus Morley, for instance, termed the practice "chronological coercion," and Alfred Tozzer assigned it the even more telling label "mass compulsion neurosis." See Tozzer, *Chichén Itzá and its Cenote of Sacrifice*, 36, 256, where he recounts Morley's explanation of the "curious coincidence" by which the *katun* date of 8 Ahau in the Maya calendar is repeatedly the recorded date for important events in Yucatan history; Tozzer himself (*ibid.*) contributes several more examples of Toltecs, Itzas and Aztecs engaging in similar sorts of willful distortion.

<sup>136</sup> Galindo Trejo, "Calendario y orientación astronómica," 341.

enabled them "to develop practices that can be categorized, without doubt, as scientific,"<sup>137</sup> more telling of the prestige and practical role of astronomical allusions are his comments concerning the way in which calendars were conceived as "a precious gift from the gods."<sup>138</sup> Accordingly, even in highly technical work like his, the status of Mesoamerican calendars seems to historians of religions less like a catalogue of unbiased information or data than as a kind of canonical text; and, in that sense, comparative religionists are reminded of the preeminent, "canonical" standing of the Torah or even Quran, that is, sacred scripture recorded by humans but that is presumed to reflect a divine inspiration and authority.

While those Abrahamic sacred texts are often described as "blueprints" or paradigmatic guides for responsible and meaningful lives, religionists frequently point out as well how they are the sorts of multivalent, symbolic sources that are subject to endless reinterpretation (or "revalorization");<sup>139</sup> and thus they provide the authority not just for one approach to life and worship, but rather for innumerable very different ways of being Jewish or Muslim. With respect, then, to the "layering of hermeneutical situations" discussed previously, while the sky itself is the endlessly evocative object of interpretive hermeneutical reflection, celestial phenomena provide the basis for the composition of culturally specific calendars that also are multivalent objects of creative and interested hermeneutical reflection. Just as one and the same sky can issue in multiple calendars, one and the same Mesoamerican calendar also can be interpreted and utilized in myriad creative and interested ways.

Additionally, consonant with Piccaluga's point concerning the seemingly ubiquitous translation of calendrical time-counts into spatial configurations, Galindo Trejo provides a host

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<sup>137</sup> Galindo Trejo, "Calendario y orientación astronómica," 295; my translation.

<sup>138</sup> Galindo Trejo, "Calendario y orientación astronómica," 345 (my translation), describes calendars as "a precious benefit granted by the gods."

<sup>139</sup> On the notion of "revalorization" as applied to Mesoamerican architecture, see Lindsay Jones, "Revalorizing Mircea Eliade's Notion of Revalorization: Reflections on the Present-day Reuses of Mesoamerica's Pre-Columbian Sites and Architectures," in *Remembering/Reimagining/Revalorizing Mircea Eliade*, eds. Norman Girardot and Bryan Rennie; a Special Issue of *Archaevs: Studies in the History of Religions XV* (Bucharest: Romanian Association for the History of Religions, 2011), 119-59.

of specific examples wherein Mesoamerican conceptions of time are extrapolated into the spatial and architectural layouts of Mesoamerican cities and buildings, of course, Monte Albán included. But—and this is particularly noteworthy—he, at least implicitly, introduces the important qualification that, in many of those cases, it is actually less accurate to say that Mesoamerican buildings are aligned to natural sky phenomena per se, than that they are configured according to conventionalized “astronomical-calendrical” numbers and dates. In other words, in perhaps most cases, it is the authority of the calendar—astronomically-informed but humanly-constructed systems of timekeeping—that really determines the shape, sizing and positioning of buildings. Regarding the perhaps counterintuitive way in which conformity to “calendrical principles” supersedes alignments to actual sky phenomena, Galindo Trejo writes:

“We have identified a distinctly Mesoamerican practice, which adds a symbolic value to the architectural structure by aligning it the position of the sun at a particularly significant time *for the calendrical system*. In a certain sense, the Mesoamericans do not direct buildings to a special direction [or a particular sky phenomenon], but rather toward a given moment; *the time [as recorded in the calendar] was more important than the direction...* This symbolic “attunement” with the calendric principles complemented the pictorial discourse [e.g., in the murals of Mitla and Monte Albán], which in turn made use of calendric concepts.”<sup>140</sup>

Architectural alignment with respect to calendrical principles—sometimes in the complete absence of observable sky phenomena—was, according to Galindo Trejo, “about recognizing and demonstrating that time and its measure were sacred entities,” and thus that carefully adhering to calendrical time-counts “ensured divine favor.”<sup>141</sup> In an even clearer statement of the not-infrequent priority of conventionalized calendars over strictly empirical observation, he says concerning the astro-calendrical alignments of the Governor’s Palace at Uxmal:

“A peculiarity of the Mesoamerican orientations is that along with the astronomical alignments there were others that we call calendrical; that is to say, on a couple of dates the sun is aligned to the [Governor’s Palace], *although on such days no significant solar event occurs*. However, these dates are exceptionally important because they divide the

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<sup>140</sup> Galindo Trejo, “Calendario y orientación astronómica,” 345; my translation, italics added.

<sup>141</sup> Galindo Trejo, “Calendario y orientación astronómica,” 345; my translation.

solar year of 365 days in two periods that establish some characteristic of the Mesoamerican calendrical system."<sup>142</sup>

Frequently, then, pre-Columbian rituals were celebrated on dates that are of calendrical significance irrespective of the fact that, on many of those dates, ritual participants are treated to no observable sky phenomenon—no solar, lunar or planetary display—of special note.<sup>143</sup>

In short, detailed archaeoastronomical work like Galindo Trejo's alerts us to the larger point that, across the Mesoamerican world, while orientation with respect to natural celestial phenomena is obviously and definitely important, orientation with respect to humanly-constructed astro-calendrical conventions, many of which are eventually divorced from the observable sky occurrences on which the calendars were originally based, are even more significant. In Mesoamerica, as Piccaluga maintains in her cross-cultural overview of the religiosity of calendars, "time is of interest not in and of itself and as a simple fact of nature, but only as a dimension of life that can be submitted to cultural control."<sup>144</sup> Precise empirical observation matters, but, in many cases, observing calendrical conventions matters more.

### **C. THE ASTRONOMY-CONVENTIONALITY PAIRING AT MONTE ALBÁN: OAXACA'S TYPICAL AND PROTOTYPICAL ASTRO-CALENDRLICAL CONVENTIONS**

As I shift now from general insights to the specifics of Monte Albán, a piece by Joyce Marcus with the cautionary title, "Not One Calendar, but Many," helps us to sort out ways in

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<sup>142</sup> Galindo Trejo, "La observación celeste en el pensamiento prehispánico," 33-34; my translation, italics added.

<sup>143</sup> Though this comment is somewhat out of context, it is worth noting that, even now, Monte Albán attracts perhaps its largest crowds of visitors on the spring equinox, irrespective of the fact that those visitors (unlike their counterparts who visit Chichén Itzá on the spring equinox to observe the renowned "serpent-of-light" phenomenon on the Castillo) are treated to no exceptional astro-architectural views.

<sup>144</sup> Piccaluga, "Calendars: An Overview," 1352.

which Zapotec calendars are both typically Mesoamerican and unique.<sup>145</sup> Paul Kirchhoff, in the 1940s, included a distinctive calendar as one of the eight most “characteristically Mesoamerican traits.” In his classic exposition, all peoples in the “superarea” adhere to time-counts that feature:

“[a] year of 18 months of 20 days, plus additional 5 days; [a] combination of 20 signs and 13 numerals to form a period of 260 days; [a] combination of the two previous periods to form a cycle of 52 years; festivals at the end of certain periods; good and bad omen days; [and] persons named according to the day of their birth.”<sup>146</sup>

Concentrating on four ethnic groups—Aztecs, Mayas, Mixtecs and Zapotecs—Marcus concurs that they all operated with the same paired investment in a “secular calendar” of 365 days and a sacred calendar or “divinatory almanac” of 260 days; all utilized, as Kirchhoff maintained, the same basic system. But, in her view, it is the differences among their calendars that have been insufficiently appreciated: “Despite the fact that the Aztec, Mixtec, Zapotec, and Maya all had 260-day and 365-day calendars, these were most emphatically not the same calendar translated into four tongues.”<sup>147</sup> Accordingly, frequent attempts to show that the day

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<sup>145</sup> Joyce Marcus, *Mesoamerican Writing Systems: Propaganda, Myth, and History in Four Ancient Civilizations* (Princeton: Princeton University Press, 1992), chap. 4, “Not One Calendar, but Many.”

<sup>146</sup> Paul Kirchhoff, “Mesoamerica: Its Geographical Limits, Ethnic Composition and Cultural Characteristics,” trans. Norman McQuown from *Acta Americana*, vol. I, no. 1 (1943): 92-107; reprinted in *Ancient Mesoamerica: Selected Readings*, ed. John A. Graham (Palo Alto: Peek Publications, 1981), 1-10. This quote comes from the reprinted version, page 6.

<sup>147</sup> Marcus, *Mesoamerican Writing Systems*, 142. By contrast, Javier Urcid Serrano, *Zapotec Hieroglyphic Writing*, Studies in Pre-Columbian Art and Archaeology, no. 34 (Washington, D.C.: Dumbarton Oaks Research Library and Collection, 2001), 110, explicitly opines that, “at a given level of analysis, [Joyce Marcus’s] emphasis on ‘not one but many calendars,’ has led to much confusion in reconstruction of the calendrical system used by Zapotecs in Pre-Hispanic times.” Urcid, *ibid.*, agrees that, where calendar systems are concerned, “Mesoamerica presents us with the paradox of variability within unity,” but then opts “to focus on the commonalities of the Mesoamerican calendar... to detect some of the features that made Zapotec time reckoning unique.” That approach leads Urcid, in chapters 4-5 of the same work, to arguably the most authoritative discussion of the Zapotec calendar.

names of the Mixtec, Maya and Zapotec calendars were, albeit in different languages, the same as those in the more fully documented Aztec calendar, are, she says, “doomed to failure.”<sup>148</sup>

Marcus, moreover, shares the prevailing view (addressed more fully in a moment) that the Zapotec versions of the two overlapping calendars, while the least studied, are actually the oldest; both go back, she thinks, as far as 400 BCE in the Valley of Oaxaca, though “both may already have been ancient at that time.”<sup>149</sup> In that sense, Zapotec calendars, notably, were, quite likely, the prototype for all others in Mesoamerica. As the Zapotec system spread throughout the rest of the region, “even though the calendars kept their basic *structure* during this diffusion, the names of individual days had begun to diverge; in addition, many groups chose to begin their years in different months.”<sup>150</sup> Even individual towns, in cases, adopted their own distinctive dates for the beginning and end of the year, and assigned different measures of “fate,” luck and misfortune to specific days.<sup>151</sup>

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<sup>148</sup> Marcus, *Mesoamerican Writing Systems*, 96, 142. For a very helpful critical historical review of “problems in reconstruction the ancient Zapotec calendar,” see Urcid, *Zapotec Hieroglyphic Writing*, chap. 3. Arguably the definitive study of the Zapotec calendar (prior to that of Urcid) is Alfonso Caso, “Zapotec Writing and Calendar,” *Handbook of Middle American Indians*, vol. 3, “Archaeology of Southern Mesoamerica,” vol. ed. Gordon R. Willey, gen. ed. Robert Wauchope (London: University of Texas Press, 1965), 931-47, which summarizes his earlier seminal works on the topic beginning in 1928. Joseph W. Whitecotton, *The Zapotecs: Princes, Priests, and Peasants* (Norman: University of Oklahoma Press, 1977), 168-72, has basic comments on the 260-day and 365-day Zapotec calendars that are heavily indebted to Caso’s account (which is heavily indebted to Juan de Córdova’s sixteenth-century account) in which Whitecotton, *ibid.*, 170, notes, “there is some evidence that the Zapotec calendar was slightly different from other Mesoamerican ones.” Regarding suggestions that astronomical observations provided a basis for Zapotec calendars, Whitecotton, *ibid.*, 172, notes that “According to Howard Leigh [“Zapotec Glyphs,” *Boletín de Estudios Oaxaqueños*, núm 2 (1958), 3], the revolutions of [Mars, Venus, Mercury, and perhaps Jupiter and Saturn] formed one basis for a Zapotec long count of time, especially in Classic times.”

<sup>149</sup> Marcus, *Mesoamerican Writing Systems*, 95. On the specifics of the Zapotec calendar, also see José Alcina Franch, *Calendario y religión entre los zapotecos* (México: Universidad Nacional Autónoma de México, 1993), especially Parte III, “El calendario Zapoteco.”

<sup>150</sup> Marcus, *Mesoamerican Writing Systems*, 95, italics hers.

<sup>151</sup> Marcus, *Mesoamerican Writing Systems*, 142.

Regarding the motives for these individuated choices, Marcus appeals to the notion of “nonadaptive drift,” but likewise suggests that different groups embraced significantly different day names and calendars as “a way of preserving ethnic identity.”<sup>152</sup> Furthermore, very notable disparities notwithstanding, consistent with the “actor-centered” perspective in Marcus and Flannery’s *Zapotec Civilization: How Urban Society Evolved in Mexico’s Oaxaca Valley*, she is direct, even blunt, in arguing that, in all Mesoamerican contexts, calendars were foremost instruments by which ruling elites reinforced their control over non-elites. Rather than recording “history” per se, in her demystifying formulation,

“The calendar was a tool of the ruling class to be manipulated for propaganda purposes, by linking actual rulers to renowned mythical ancestors, selecting names that ensured good fortune for rulers, and removing blame for nobles’ bad decisions by attributing [them] to the inevitability of fate. If an important “historic” event took place on an inauspicious day, the rulers did not hesitate to move it to a more favorable date.”<sup>153</sup>

Be that as it may, Marcus’ comments on the multiplicity of Mesoamerican calendars prompt three quick points that are useful going forward to our discussion concerning the pairing of astronomy (priority I-C) and conventionality (priority I-B) in Monte Albán’s ritual-architectural program. First, by providing such a strong assertion of the primarily socio-political function of calendars, Marcus presents an unsentimental view shared by Johanna Broda and indeed most contemporary Mesoamericanists that is difficult to dispute, but nonetheless in need of some qualification—namely, that calendars, along with the astronomical allusions that support them, work for elites as effective “tools of propaganda” only because the wider non-elite audiences of those manipulations have embraced a means of timekeeping that comports with the Mesoamerican cosmovision. To accentuate yet again the multivalence of any substantial system of tracking time, one and the same calendar can provide the structure that brings meaning to both the mundane, especially agricultural, labors and to the periodic rituals of all classes of

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<sup>152</sup> Marcus, *Mesoamerican Writing Systems*, 142. “Nonadaptive drift,” sometimes termed “evolution at random”—an idea that is consistent with Joyce Marcus and Kent Flannery’s “actor-centered” historical (re)construction of Monte Albán discussed in Jones, *Narrating Monte Albán*, chap. 6—refers to cultural changes that are the consequence of individuals’ choices rather than more tangible environmental factors.

<sup>153</sup> Marcus, *Mesoamerican Writing Systems*, 142.

Mesoamerican society; and thus calendars’ utility and significance are by no means exhausted in their undeniable political expediency.

Second, by her reaffirmation of the dominate view that Zapotec calendars were the original prototype for the wide diversity of other Mesoamerican calendar systems, Marcus reopens the question of Monte Albán’s dual status as both a site of highly original innovation and strategic imitation. On the topic of astronomy and calendrics, the Zapotec capital emerges once again as both a unique case and a typically Mesoamerican example—a tension to which I will return momentarily.

Third and even more pertinent to the present discussion, by accentuating the divergences among Mesoamerican calendars, and the urge of particular constituencies to retain and advance their distinctive identities via distinctive calendars, Marcus reechoes the basic point that calendars are, in large part, culturally constructed and thus conventionalized or group-specific. Recall that, while Alfredo López Austin accentuates the essential unity and continuity of the pan-Mesoamerican “hard nucleus” of cosmovision as “a complex of ideas, quite resistant to change,”<sup>154</sup> he acknowledges as well the wide diversity of more local beliefs and practices—particularistic astro-calendrical conventions among them—that such “core conceptions” and

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<sup>154</sup> López Austin, “Cosmovision,” 268. Also note, however, that, besides alerting us to the diversity among Mesoamerica calendars, López Austin also sees calendars as among the most politicized, and thus least enduring, features of pre-Columbian religion. For instance, Alfredo López Austin, *The Myths of the Opossum: Pathways of Mesoamerican Mythology*, trans. Bernard R. Ortiz de Montellano and Thelma Ortiz de Montellano (Albuquerque: University of New Mexico Press, 1993), 108, reaffirms Marcus’s view by noting that, “The calendar was one of the most solid and elaborate creations of Mesoamerica, but it was rooted in politics. In fact its history was tied to those of writing and of power.” For López Austin, the close connections between calendars and political authority explains why “One of the most noteworthy differences between [pre-Columbian] Mesoamerican religious thought and that of natives today is its relationship to the calendar, a fundamental system in the past that is almost absent today.” Ibid. That is to say, while many elements, for example, of domestic religion were highly resilient in the face of Spanish colonialism, calendars, because they were so fully involved with political authority, were highly vulnerable, and thus largely disappeared along with other hierarchical political structures.

basic “structuring agents” accommodate.<sup>155</sup> To the large extent that calendars depend upon astronomical observations, it is additionally important to appreciate that while some celestial events, like summer and winter solstices or spring and fall equinoxes, occur everywhere in Mesoamerica on the same day, other phenomena—like the respective day of the solar zenith passage or solar antizenith passage (days when the sun lies directly overhead at noon or underfoot at midnight)—vary greatly depending upon the latitude of the observer.<sup>156</sup> As Peeler and Winter point out, “At the latitude of Monte Albán (17°02’), a day’s walk north or south is sufficient to change the date of one’s zenith passage by one day.”<sup>157</sup>

Therefore, in an important sense, just as various Mesoamerican groups live in very different ecological environments, with different climates and different landscape horizons, they likewise live beneath significantly different skies. Accordingly, region-specific astronomical observations—and thus distinctive astro-calendrical conventions—not unlike distinctive art and architectural styles, provide group-specific markers that can be strategically imitated and/or undermined, both of which, I will venture below, are happening in the case of Monte Albán.

At any rate, the next four sub-sections respond to the unassailable observation that calendars and astro-calendrical alignments are invariably conventionalized and group-specific rather than universal or even pan-Mesoamerican. The first, which relies heavily on the work of Jesús Galindo Trejo, revisits the tension between innovation and imitation at the Zapotec capital by exploring the creative and strategic ways in which Monte Albán both shares in typically Mesoamerican astronomic conventions and, at the same time, showcases its unique identity via the display of Oaxaca-specific astro-calendrical principles. The next two sub-sections, with draw heavily on the collaborations of Winter and Peeler in the wake of the Monte Albán Special Project 1992-1994, first consider the startling prospect that the endlessly debated 260-day count actually emerged from observations unique to the Oaxaca sky; and then, in the third sub-section,

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<sup>155</sup> See, for instance, López Austin, “El núcleo duro, la cosmovisión y tradición mesoamericana,” 53-59.

<sup>156</sup> Peeler and Winter, *Sun Above, Sun Below*, 10.

<sup>157</sup> Peeler and Winter, *Sun Above, Sun Below*, 10.

I explore their equally iconoclastic proposal that the elusive origin of the 16° skew of Teotihuacan’s layout is also the consequence of astronomical observations and calendrical principles that are specific, not to Central Mexico, but rather to the Valley of Oaxaca. Finally, the fourth sub-section, which relies again on Galindo Trejo’s work, focuses on the so-termed Geodesic Vertice Group, a section of Monte Albán that, irrespective of very strong Teotihuacan influences, retains distinctively Zapotec astro-calendrical orientations.

### **1. A Dual Incentive: Monte Albán’s Astro-Calendrical Alignments as Characteristically Mesoamerican and/or Uniquely Oaxacan**

Among the recurrent and most intriguing questions that archaeoastronomer Jesús Galindo Trejo asks throughout his extensive inquires into Monte Albán is which of its “calendrical-astronomical orientations” reflect pan-Mesoamerican patterns and which are unique to the Oaxacan capital. In his 2001 work, he notes the then-prevailing view that while the Zapotec capital assuredly does demonstrate the generalized Mesoamerican practice of aligning built forms toward astronomical events, “it, however, does *not* seem to share its orientations with the rest of Mesoamerica.”<sup>158</sup> Increasing doubtful of that characterization of atypicality, by his 2008 study Galindo Trejo is prepared to conclude not only that Monte Albán does reflect both pan-Mesoamerican patterns as well as more distinctly Zapotec conventions, but, moreover, that the general and Oaxaca-specific astro-calendrical conventions are frequently combined and synthesized in ways that again reveal Monte Albán as both interconnected with, but also independent from, the rest of Mesoamerica. In his words,

“The results of the present work show that the Zapotecs, while participating in the pan-Mesoamerican orientation principles, used their own orientation, also based on calendar properties. In fact, they erected buildings that simultaneously synthesized several of these orientations.”<sup>159</sup>

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<sup>158</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 271; my translation, italics added.

<sup>159</sup> Galindo Trejo, “Calendario y orientación astronómica,” 345; my translation.

In other words, reechoing my comments in the previous chapter concerning the Zapotec capital’s paired involvements in the wider Mesoamerican cosmovision and Oaxacans’ sturdy independence, Galindo Trejo recognizes a kind of dual incentive (my term, not his) wherein Monte Albán’s ritual-architectural scheme adheres both to pan-Mesoamerican and to Oaxaca-specific astro-calendric patterns. For instance, Oaxacans, like everyone in the superarea, rely on a 365-day “secular calendar” and the 260-day sacred calendar, “known in Zapotec as *Tonalpohualli* or *Piye*, [which] ran simultaneously with the 365-day count;”<sup>160</sup> and thus by their utilization of “calendrical numbers” like 52, 73, 104, 260 and 365 that are respected across Mesoamerica, his analysis shows, on the one hand, “that the prehispanic peoples of Oaxaca fully share the ancestral tradition of Mesoamerican orientation.”<sup>161</sup> And yet, on the other hand, regarding uniquely Oaxacan astro-calendrical concepts, the Zapotecs, so it seems, “developed their own variant of calendrical-astronomic orientation, based on their peculiar way of dividing the ritual year.”<sup>162</sup> More specifically,

“In its structure, the Zapotec calendar reflects pan-Mesoamerican characteristics, but nevertheless, shows its own distinctive traits by dividing the ritual or *piye* count of 260 days into four periods of 65 days each. These were called *Cociyos* and at the same time they were divided into five *trecenas* [of 13 days each]. It was said that the *Cociyos* caused all things on Earth and thus they held them as gods, to whom they presented offerings and sacrifices.”<sup>163</sup>

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<sup>160</sup> Galindo Trejo, “Calendario y orientación astronómica,” 302; my translation.

<sup>161</sup> Galindo Trejo, “Calendario y orientación astronómica,” 342; my translation. Determined to challenge earlier views that Monte Albán’s alignments are atypical of the wider region, he takes special pains to point out the abundant use of pan-Mesoamerican astronomical-calendrical references in the Zapotec capital. See, for instance, *ibid.*, 316, 318, 319, 326, 328, 329, 331, 335, 339 and, for summary comments, 341-45.

<sup>162</sup> Jesús Galindo Trejo, “Calendario y orientación astronómica,” 342; my translation. Though in this line he says that Zapotecs “developed their own variant of calendrical-astronomic orientation,” note that Galindo Trejo shares the mainstream opinion that Oaxacans were actually responsible for the first Mesoamerican calendar, which served as a prototype for all others.

<sup>163</sup> Galindo Trejo, “Calendario y orientación astronómica,” 295; my translation. He relies on Juan de Córdova, *Vocabulario en lengua zapoteca* (1578) for support of this point.

I will return later to the prospect that periods of time were conceived as deities; but note for the moment that Galindo Trejo, reechoing Marcus’s claims concerning “not one calendar but many,” maintains that “Zapotec calendar dates” are significantly different from “pan-Mesoamerican calendar dates.” Moreover—and this is the point that I will emphasize most strongly—rather than an exclusive reliance only on their own distinctive Zapotec calendar, which older theories had emphasized, he contends instead that “Some Oaxacan buildings can be considered multifunctional in the sense that they simultaneously synthesize several of the calendrical-astronomical orientations.”<sup>164</sup> Accentuating that point in the wake of his detailed “archaeoastronomical analysis” of murals both on Mitla lintels and in Monte Albán tombs, Galindo Trejo concludes that, on the one hand, by incorporating “alignments that occur in numerous architectural structures throughout Mesoamerica,” Zapotec sovereigns “made it clear that they belonged to the pan-Mesoamerican organizational scheme of time measurement, thus adding to the building a symbolic value that complements the message painted on its lintels.”<sup>165</sup> In that respect, which has the character of “deliberate archaisms,”<sup>166</sup> Zapotecs employ astro-calendrical conventions that would have been familiar to all Mesoamericans. On the other hand, however, “These orientations [at Mitla and Monte Albán] also demonstrate rulers’ desire to point out peculiar properties of the Zapotec variant of the calendar...”<sup>167</sup> And thus, in that respect, Zapotecs assert their singularity.

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<sup>164</sup> Galindo Trejo, “Calendario y orientación astronómica,” 342; my translation.

<sup>165</sup> Galindo Trejo, “Calendario y orientación astronómica,” 304; my translation. He is, at this point, speaking specifically about astro-calendrical references in murals on the lintels of the Church Group at Mitla, but his article shows how the same juxtaposition of pan-Mesoamerican and Oaxaca-specific references applies elsewhere at Mitla and also at Monte Albán, particularly in tomb murals.

<sup>166</sup> Recall that, in chapter 2 on the convention priority (I-B), I discussed at length the relevance of George Kubler’s notion of “deliberate archaisms” to Monte Albán, especially with respect to the strategic copying of Teotihuacan forms of art and architecture.

<sup>167</sup> Galindo Trejo, “Calendario y orientación astronómica,” 305; my translation. Though these lines come in his comments concerning the murals on Mitla lintels, they are consistent also with his assessment of the murals in Monte Albán tombs.

While the juxtaposition of pan-Mesoamerican and Oaxaca-specific astro-calendrical allusions is, in the context of the present discussion, the most salient point, Galindo Trejo is especially concerned to counter earlier assessments that had stressed the atypicality of Oaxacan alignments; and he does this by pointing out Zapotec utilizations of superarea-wide astronomic conventions. In Monte Albán’s Tomb 105, for instance, he discerns the incorporation of “calendrical principles considered sacred throughout Mesoamerica,” solar alignments that, in his view, enable the Zapotec capital “to demonstrate its complete belonging to the calendrical-astronomical time-recording system that prevailed for millennia in Mesoamerica.”<sup>168</sup> Likewise, the alignment of and astro-calendrical references in Tomb 103 provide “another magnificent example of a Mesoamerican practice in force for several millennia;”<sup>169</sup> and Tomb 72 is similarly notable insofar as dates concerning the specific Zapotec person interred there are complemented by “the theme of its mural painting and its solar alignment [which] denote a careful synchronism with moments of great importance for the entire Mesoamerican area.”<sup>170</sup>

Furthermore, for all its uniqueness, the more general spatial or architectural layout of Monte Albán also has a characteristically Mesoamerican quality. Galindo Trejo reminds us, for instance, with respect to the interlocking 365-day and 260-day counts—which, “after 52 solar years or just 73 ritual accounts, agree again”—that the Zapotec capital is not an exception to the fact that “In many other Amerindian sites, architectonic alignments have been found that point to these important dates.”<sup>171</sup> Additionally, the Oaxaca-specific division of the *piye* ritual year into four parts, which at Monte Albán were correlated (or homologized) with four spatial directions, each associated with “a color, one or a pair of deities, a tree, a bird, and so on,” reflects a pan-

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<sup>168</sup> Galindo Trejo, “Calendario y orientación astronómica,” 318; my translation.

<sup>169</sup> Galindo Trejo, “Calendario y orientación astronómica,” 331; my translation.

<sup>170</sup> Galindo Trejo, “Calendario y orientación astronómica,” 335; my translation. Galindo Trejo, *ibid.*, 326-28, makes similar observations concerning Monte Albán’s Tomb 112.

<sup>171</sup> Galindo Trejo, “Calendario y orientación astronómica,” 302; my translation. He notes specifically how the orientation of Monte Albán’s Tomb 105 resembles that of Pyramid of the Sun at Teotihuacan.”

Mesoamerican pattern.<sup>172</sup> In that regard—as in all these instances—references to calendrical-astronomical conventions of pan-Mesoamerican importance were juxtaposed, “synchronized” or “adjusted” with “calendrical concepts unique to the Zapotecs.”<sup>173</sup> And it is, in Galindo Trejo’s view, “the remarkable innovation” of this synchronization of cross-regional and local calendrical conventions that best exemplifies “the subtle genius of the Zapotecs,” who thereby designed an urban layout that is decipherable and impressive to the whole of Mesoamerica while, at the same, showcasing the uniqueness of their capital.<sup>174</sup>

In sum, the ingenious juxtaposition of generalized Mesoamerican astro-calendrical principles with more Oaxaca-specific conventions enabled the Zapotecs to do far more than simply mark time or even, in Galindo Trejo’s phrase, “to ingratiate themselves with the gods.”<sup>175</sup> Calendars are, moreover, as Marcus maintains, self-conscious markers of ethnic identity and political hegemony, which thus connote affiliations with particular peoples and constituencies as well as adherence to generalized natural processes. Indeed, the juxtaposition of widely shared and locally-specific astronomical conventions conforms perfectly to “the twofold structure” that characterizes all ritual-architectural events wherein meanings are made and communicated via the juxtaposition of the familiar and the strange, the general and the specific or, in hermeneutical language, the already-known and the not-yet-known.<sup>176</sup> We can, therefore, affirm but also put a finer point on Galindo Trejo’s recurrent claim that Monte Albán’s hybrid calendrical-astronomical orientations contribute “an added ritual value” by noting that highly conspicuous pan-Mesoamerican astro-calendrical references provide a vintage instance of the “front-half” of a ritual-architectural program whereby the designers of Monte Albán made their city familiar,

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<sup>172</sup> Galindo Trejo, “Calendario y orientación astronómica,” 295; my translation.

<sup>173</sup> Galindo Trejo, “Calendario y orientación astronómica,” 308; my translation. Again this is a phrase that he uses in relation to Mitla lintels, specifically in the Arroyo Group, but that applies as well to Monte Albán.

<sup>174</sup> Galindo Trejo, “Calendario y orientación astronómica,” 345; my translation.

<sup>175</sup> Galindo Trejo, “Calendario y orientación astronómica,” 345; my translation.

<sup>176</sup> On the meaning-making mechanism of ritual-architectural events, to which I repeatedly refer, see Jones, *The Hermeneutics of Sacred Architecture*, vol. I, chap. 4, “Order and Variation: The Twofold Pattern of Ritual-Architectural Events.”

legitimate and alluring to all Mesoamerican visitors. And the similarly unmistakable deployment of Oaxaca-specific alignments and allusions belong more to the “back-half” of that ritual-architectural program, which challenged people to accept Monte Albán’s claims to special status and entitlement.<sup>177</sup>

In short, in much the same way that Monte Albán rulers made their city “alluring” via “deliberate archaisms” that embraced tried-and-true architectural forms such as temples with pyramid bases, ballcourts and stelae—but then refashioned and combined those reliable old forms with distinct innovations such as two-roomed temples, round columns and the Temple-Patio-Altar configuration—Zapotecs embraced, but also manipulated in their own distinctive ways, generic Mesoamerican astro-calendrical patterns.<sup>178</sup> And by the exercise of that dual incentive, they fashioned a ceremonial center that was impressive both to local residents and to foreign visitors.

At any rate, consider next the venturous hypotheses of Winter and Peeler concerning two more specific circumstances in which Oaxaca-specific astronomical observations may have had momentous consequences for the astro-calendrical conventions of the entire Mesoamerican region. The first concerns the much-debated origins of the 260-day count; and the latter involves a theory to explain the equally notorious 16° east-of-north orientational deviation of Teotihuacan’s Avenue of the Dead.

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<sup>177</sup> While the whole of Monte Albán utilizes both pan-Mesoamerican and Oaxaca-specific alignments, Galindo Trejo, “Calendario y orientación astronómica,” 342 (my translation), makes the very interesting observation that “We believe that the Zapotecs would have used differentially different orientations” for *open and public spaces* such as the Main Plaza versus *closed spaces*, most notably tombs but also “inhabited settlements.” Then, perhaps counterintuitively, he makes the case that in “open spaces,” they accentuated Oaxaca-specific orientational schemes, while in “closed spaces” such as Monte Albán tombs, Zapotecs appealed most frequently to pan-Mesoamerican calendrical references. Ibid.

<sup>178</sup> Note that there is a kind of irony, and perhaps something like a feedback loop, in the fact that astro-calendrical conventions that had, it seems, originated in Oaxaca were eventually adopted by the rest of Mesoamerica, only to be later reappropriated and manipulated by Oaxacans at Monte Albán.

## 2. A Oaxaca Origin for the 260-Day Count: From Operative Astronomical Alignments to Conventionalized Prestige

Irrespective of popular notions about Maya origins of the Mesoamerican calendar,<sup>179</sup> most scholars have accepted the opinion proffered by Alfonso Caso in the 1930s that the misnamed “Danzante” sculptures of Epoch I Monte Albán “exhibit writing and a perfectly formalized calendar [that incorporates both the 365-day and 260-day counts], which is the earliest yet discovered in Mesoamerica.”<sup>180</sup> Anthony Aveni, for instance, while acknowledging the discovery in the 1970s of earlier examples of the twofold calendar at San José Mogote, dated about 600 BCE<sup>181</sup>—that is, a century or two in advance of the Monte Albán examples to which Caso referred—reaffirms the mainstream view that the earliest Mesoamerican calendars come from Oaxaca, perhaps with some Olmec influence.<sup>182</sup> And yet, if the geographic and temporal

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<sup>179</sup> See, for instance, Susan Milbrath, *Star Gods of the Maya: Astronomy in Art, Folklore, and Calendars* (Austin: University of Texas Press, 1999), 1-7, whose thoroughgoing Maya-based discussion of the Mesoamerican calendar makes no direct mention whatever of Oaxaca.

<sup>180</sup> Caso, “Zapotec Writing and Calendar” (1965), 931. This opinion is prefigured in Alfonso Caso’s highly influential *Culturas mixteca y zapoteca* (1936), which devotes one its longest sections to the Zapotec calendar (ibid., 28-36). Of the early presence of the 260-day “sacred year,” in his historical overview of Monte Albán in that work, he notes that, in Epoch I, “the men of this time already knew a ritual calendar” (ibid., 20, my translation). Also see Alfonso Caso, “Calendario y escritura de las antiguas culturas de Monte Albán,” en *Obras Completas de Miguel Othón de Mendizábal*, vol. I (México: Talleres de la Nación, 1947): 5-102.

<sup>181</sup> On claims that “the oldest yet discovered evidence for the ‘living’ 260-day calendar,” see, for example, Kent V. Flannery and Joyce Marcus, “Formative Oaxaca and the Zapotec Cosmos,” *American Scientist*, vol. 64, no. 4 (1976), 382.

<sup>182</sup> Aveni, “Calendars: Mesoamerican Calendars,” 1357. Sources reaffirming the Oaxaca priority in calendrics—and specifically the earliest example of 260-day count—are abundant in the extreme. For instance, Johanna Broda, “Arqueoastronomía y desarrollo de las ciencias en el México prehispánico,” en *Historia de la Astronomía en Mexico*, Marco Arturo Moreno Corral, compilador, cuarta edición (México: Fondo de Cultura Económica, 2003), 70-71 (my translation), recounts the view that the 260-day count originated in the Maya area before observing that, “However, the first evidence of the 260-day ritual calendar does not come from the Maya area or from the Olmec area of the southern Gulf Coast, but from the Valley of Oaxaca. It is in the Zapotec region where the oldest calendrical inscriptions known to date have been found. The first inscription with signs of the days appears around 600 BCE in San José Mogote, which is followed by 500-400 BCE in Monte Albán with abundant evidence of the main elements of the Mesoamerican calendrical system, including the 260-day cycle and the solar

contexts of the oldest extant examples of the eventually omnipresent 260-day count are widely accepted, the rationale and “true origin” of that idiosyncratic means of marking time remain controversial in the extreme.

Unlike the clearly empirical correlate of the “natural year” of 365 days, the inobvious logic and basis of the 260-day “sacred year”—unique in the world, but ubiquitous across Mesoamerica—have, then, prompted ongoing debate, to put it mildly. One intriguing opinion asserts that the prestige of 260 as a “sacred” number derives precisely from its “pure artificiality,” that is, the fact that it was conceived as a creation of the gods that does *not* correspond to any natural or “profane” process.<sup>183</sup> Javier Urcid states with a certainty that many would contest that, “The cycle of 260 days... was generated from observing cycles of the moon and their correspondence to the period of human gestation.”<sup>184</sup> Alternatively and more

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year.” For additional affirmation of Oaxaca’s distinction in this regard, also see, again among many examples, Joyce Marcus, “Los orígenes de la escritura en Mesoamérica,” *Ciencia y Desarrollo*, núm. 24 (México: CONACYT, 1979), 35-52. Peeler, “Los orígenes zapotecos de la astronomía y los calendarios mesoamericanos,” 59-60 (my translation), writes, “The apparent relation of distances, at a rate of 365 to 260, between the ballcourts of Monte Albán to San José Mogote and Atzompa to San José [Mogote] suggests, although tentatively, that the practice of representing measured cycles of time as distances measured on the ground could have originated, not in Monte Albán, but in San José Mogote during the Rosario phase.” Also reechoing the view that the earliest known evidence of the 260-day count comes from Oaxaca, and likely San José Mogote, Ivan Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 233, writes, “Since the orientations marking calendrically significant intervals would have been useful only in association with the formal calendrical system, it is notable that the existence of the 260-day count is attested in Monument 3 of San José Mogote, dated to the Rosario phase [700-500 BCE], and possibly also in earlier paintings in the Cave of Oxtotitlan, Guerrero. The proposed astronomical function of the orientation of Structure 19, the most important Rosario-phase public building at San José Mogote, is additionally supported by the subsequent appearance of similar orientations at Monte Albán, whose foundation has been attributed to elites coming from San José Mogote.”

<sup>183</sup> Burr Cartwright Brundage, *The Fifth Sun: Aztecs Gods, Aztec World* (Austin and London: University of Texas Press, 1979), 18.

<sup>184</sup> Urcid, *Ancient Zapotec Writing*, 79. As his authority for that position, Urcid cites Gordon Brotherston, “A Key to the Mesoamerican Reckoning of Time: The Chronology Recorded in Native Texts,” Occasional Paper 38 (London: British Museum, 1982); Gordon Brotherston, *Book of the Fourth World: Reading the Native Americas through Their Literature* (New York: Cambridge University Press, 1992); Duncan M Earle and Dean R. Snow, “The Origin of the 260-Day Calendar: The Gestation Hypothesis Reconsidered in Light of Its Use among the Quiche-

tentatively, Aveni, while admitting that "we cannot be certain how this peculiar period came to prominence in Mesoamerica,"<sup>185</sup> observes that,

"there can be no question that one of its factors, the number twenty, was derived from the number of fingers and toes on the body. The other factor, the number thirteen, represents the number of layers in the Maya [and other Mesoamerican peoples'] heaven."<sup>186</sup>

In that view, the 260-day interval arises from mathematical calculations rather than astronomical observations. He nonetheless notes, but declines to endorse, hypotheses that the 260-day count originated from solar observations at Copán in the Petén Maya area or at the Preclassic site of Izapa on the Pacific coast;<sup>187</sup> and though he presents several other plausible celestial correlates to the 260-day cycle, he concedes that "many people have objected to any hypothesis for the origin of the cycle which involves astronomical events, since no heavenly phenomena occur regularly at the same point in the cycle."<sup>188</sup>

Uncertain inception notwithstanding, Aveni proposes that, irrespective of its earliest origins, the significance of 260 may have grown as Mayas and other Mesoamerican peoples began to recognize how many astronomical, numerological and biological cycles could be matched to that duration.<sup>189</sup> For instance, not only could that count have assisted in the

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Maya," in *Fifth Palenque Round Table, 1983*, eds. Merle Green Robertson and Virginia M. Fields (San Francisco: The Pre-Columbian Art Research Institute, 1983), 241-89; and Peter T. Furst, "Human Biology and the Origin of the 260-Day Sacred Almanac: The Contribution of Leonhard Schultze Jena (1872-1955)," in *Symbol and Meaning beyond the Closed Community: Essays in Mesoamerican Ideas*, ed. Gary H. Gossen (Albany: Institute for Mesoamerican Studies, State University of New York, 1986), 69-76. But Urcid also notes "the contending hypothesis" of Vincent H. Malmstrom, *Cycles of the Sun, Mysteries of the Moon: The Calendar in Mesoamerican Civilization* (Austin: University of Texas Press, 1997), which stipulates that the 260-day calendar "was invented at Izapa, in coastal Guatemala, to mark the interval between two successive passages of the vertical sun."

<sup>185</sup> Aveni, *Skywatchers*, 140.

<sup>186</sup> Aveni, "Calendars: Mesoamerican Calendars," 1355.

<sup>187</sup> Aveni, *Skywatchers*, 144.

<sup>188</sup> Aveni, *Skywatchers*, 144.

<sup>189</sup> Aveni, *Skywatchers*, 145.

prediction of eclipses, moreover, “the actual appearance interval of Venus as morning and evening star is close to 260 (263 days on average), and Mars’ synodic period is exactly three cycles of 260 days.”<sup>190</sup> Even more notable, the 260-day count matches the duration between human conception and birth (on average 266 days), which “also turns out to be a convenient approximation to the length of the basic agricultural season in many areas of southern Mexico, where it probably originated.”<sup>191</sup> In that case, then, the accumulative preeminence of the 260 cycle would, in my rubric, reflect a fascinating merger of homologized, conventional and astronomic priorities.

In any case, Marcus Winter and Damon Peeler, while likewise acknowledging that “there is no general agreement as to why a period of 260 days was chosen as the ritual cycle,”<sup>192</sup> present a theory—or what they term “a conjecture”—that adds substance to the timeworn, albeit disputed, claim that Oaxacans deserves credit for the original creation of the eventually pan-Mesoamerican calendrical convention.<sup>193</sup> According to their bold and detailed, if somewhat convoluted (and thus difficult to summarize) proposal, the 260-day interval, which comes to be important in the ritual calendars used across the breadth of Mesoamerica, was likely “invented” by Zapotecs. Their argument—which is presented in the context of their comparison of astronomy, calendars and architecture at Monte Albán and Teotihuacan (to which I return next

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<sup>190</sup> Aveni, *Skywatchers*, 144.

<sup>191</sup> Aveni, “Calendars: Mesoamerican Calendars,” 1355. Also see Aveni, *Skywatchers*, 145.

<sup>192</sup> Peeler and Winter, *Sun Above, Sun Below*, 6.

<sup>193</sup> Focused on the Mixtec region and suggesting a Oaxacan but not astronomical origin for the 260-day count, Ubaldo López García, “El tiempo y la cosmovisión *Ñuu Sari*,” in *Memoria de la Primera Mesa Redonda de Monte Alban: Procesos de cambio y conceptualización del tiempo*, ed. Nelly M. Robles García (México, D.F.: Instituto Nacional de Antropología e Historia, 2001), 288 (my translation), writes: “[the organization of the 260-day calendar] results from the combination of 20 symbols, which refer to the names of animals, plants and objects that [ancient Oaxacans] carefully chose and then skillfully combined with thirteen numbers. Concerning the mystery of the 20 symbols, we ask: Why were they and not others selected? From my point of view, there must have been a logic such as that which led the military to choose the figures of the tiger and the eagle... because of their power, agility, fearlessness, bravery and beauty. Each symbolic element of the calendar was expressly selected for some of these kinds of virtuous conceptions... but each carries some secret.” López García, *ibid.*, 289, then proceeds to describe the main functions of the 260-day calendar among Mixtecs.

sub-section)—depends in part on celestial observations, but even more on the notion of a “ratio” or “calendar proportion” between 260 and 365, a pair of numbers that are repeatedly used as the lengths of two legs of a triangle, which respectively define “sight lines oriented to the two sunrises on important Zapotec zenith passage and nadir [or antizenith] passage dates.”<sup>194</sup> As noted earlier, they stress that while they have found no standardized Monte Albán “meter,” that makes no difference because “it is the ratio, the [260 to 365] proportion, that is significant, not the unit of measure.”<sup>195</sup> The length of the third leg of “the Zapotec triangle” fluctuates depending on the latitude, which would alter the position of the zenith and nadir passages of the sun, thereby altering also the angle at which the 260 and 365 legs intersect.

As discussed in relation to the unification of time and space at Monte Albán, Winter and Peeler find the 260 and 365 proportions reflected in the positioning and sizing of several of the Main Plaza’s features, most prominently, in the two main ballcourts and in the relative widths of the stairway at the north end of the precinct and the nearby, narrower stairway that leads down into the Sunken Patio (or Patio Hundido).<sup>196</sup> But their clearest demonstration of “the Zapotec triangle”—which is crucial to their argument about a Oaxacan origin of the 260-day count—comes in the calendric proportions of the triangle that is defined by extending the sides of the arrow-shaped Building J out into the space of the precinct to form a kind of hypothetical full triangle.<sup>197</sup> In other words, while the truncated triangle footprint of the actual building does *not*

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<sup>194</sup> Peeler and Winter, *Sun Above, Sun Below*, 22. The chart they provide of zenith and nadir dates for various Mesoamerican latitudes (ibid., 11, table 1), indicates that the zenith passage dates for Monte Albán (at a latitude of 17°03’) are May 8 and August 5, and the nadir dates are February 1-2 and November 10.

<sup>195</sup> Peeler and Winter, *Sun Above, Sun Below*, 9.

<sup>196</sup> Peeler and Winter, *Sun Above, Sun Below*, 7-8.

<sup>197</sup> Regarding the not-obvious way in which the ground plan of Building J conforms to the 260 to 365 ratio—which requires considering *the full triangle* that formed by extending the sides of *the truncated triangle* footprint of the actual building until they meet out in the open space of the Main Plaza—see Peeler and Winter, *Sun Above, Sun Below*, 12, 26. The 260 to 365 ratio applies to *the hypothetical full triangle* rather than to *the truncated triangle* of the actual building. Though that may be difficult to picture in this written description, it is quite clear in the diagram they provide at ibid., 14, fig. 9.

have the key calendrical proportions, two sides of the complete triangle formed by this extrapolation of the Building J ground plan are respectively 55.07 meters and 77.25 meters, which does conform to the 260 to 365 ratio.<sup>198</sup> While Winter and Peeler see versions of the so-called Zapotec triangle reflected in the layout of other sites, far most notably at Teotihuacan (as we’ll see momentarily), they explain that,

“only at the latitude of the Valley of Oaxaca does the Zapotec triangle form a right triangle with 90° between the 260-day leg and the 365-day leg. This suggests that the concept of the 260 to 365 solar sight line triangle originated in the Valley of Oaxaca. If Zapotecs were the first in Mesoamerica to use the calendar, as appears to be the case, they and not the Mesoamericans at Izapa, Paso de la Amada, or elsewhere at that latitude in the Soconusco region, may have been the inventors of the 260-day Mesoamerican ritual calendar.”<sup>199</sup>

While the particulars of this proposal may be difficult to picture in this brief written summary—and while few scholars have embraced this portion of Winter and Peeler’s archaeoastronomical analysis—they are describing a shift in ritual-architectural priorities very similar to that which we have seen in other instances.<sup>200</sup> That is to say, according to their very intriguing hypothesis, about which they are duly tentative, “The use of the number 260 in ritual may have originated locally in the Valley of Oaxaca as a definition of a ritually important solar angle.”<sup>201</sup> In that case, the esteemed 260-day count was originally derived from empirical

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<sup>198</sup> Peeler and Winter, *Sun Above, Sun Below*, 12.

<sup>199</sup> Peeler and Winter, *Sun Above, Sun Below*, 27.

<sup>200</sup> As noted last chapter, the preeminent set of examples of this sort of “nonfunctional” imitative alignment comes in what Aveni, *Skywatchers*, 234, terms “the 17° family of orientations,” which is composed of Tula and numerous other far-spaced sites that adopt alignments that seem to be “nonfunctional imitations following the tradition [of north-south orientations of roughly 17° east of north] established by Teotihuacan architects and astronomers.”

<sup>201</sup> Peeler and Winter, *Sun Above, Sun Below*, 27. As noted last chapter, in a claim repeated in several of her works, Joyce Marcus, “The Iconography of Militarism at Monte Albán and Neighboring Sites in the Valley of Oaxaca,” in *The Origins of Religious Art and Iconography in Preclassic Mesoamerica*, ed. H. B. Nicholson (Los Angeles: Latin American Center, the University of California, Los Angeles, 1976), 137, also includes the 260-day ritual cycle among the numerous “firsts” for which Monte Albán deserves credit. Regarding the possibility that the “invention” of the 260-day actually happened earlier at San José Mogote, Winter, “La religión, el poder y las bases de la complejidad social en Oaxaca Prehispánica,” 508 (my translation), writes,

observations of an actual celestial phenomenon, and thus was an unambiguous expression of the astronomy priority (I-C). Later, however—including at Monte Albán itself—the number 260 was utilized as part of a system of proportions that do not direct attention to any particular sky phenomenon, which is, therefore, a perfect demonstration of the institutionalization of an astronomically derived “sacred number,” that is, an expression of the convention priority (I-B). In fact, if their posit is correct, the 260-day count originates in response to empirical celestial observations that are possible only in the Valley of Oaxaca, and thus are “non-operative”—in other words, a conventional rather than astronomic principle of orientation—in all of the manifold other contexts in which the 260-day count plays such a prominent role.<sup>202</sup>

In sum, if we accept Winter and Peeler’s “conjecture,” Oaxacan astronomers deserve colossal credit for “inventing” the preeminent means of marking “sacred time” on which essentially all Mesoamericans come to rely; but, ironically enough, the basis of their pathbreaking invention is fully forgotten. In fact—and this would be true even if the 260-day “sacred almanac” derived from some other empirical celestial observation—the veritable canonization of the 260-day count is perhaps the paramount instance in which orientation with respect to natural sky phenomena (i.e., astronomy, priority I-C) was superseded, indeed wholly subsumed, by the higher priority of orientation with respect to socially constructed conventions (i.e., priority I-B).

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“In San José Mogote and other sites of the Oaxaca Valley, several Preclassic buildings are oriented 8° northeast, such as La Venta. Such orientation relates to the central star Alnilam in Orion’s Belt, not to the equinox, as Marcus and Flannery (2004) point out, and possibly figures in the origins of the 260-day calendar.”

<sup>202</sup> Regarding this shift from astronomic to conventionalized orientations, recall, for example, that Aveni, *Skywatchers*, 234, presents Franz Tichy’s aerial surveys, which show that, even in the 1970s (and probably now) agricultural fields in Central Mexico are laid out according to “alignment families” of 7°, 17° and 26° east of north that, while seemingly based on long-forgotten astronomical observations, persist as valued orientational conventions.

### **3. Zapotec Astro-Calendarical Conventions at Teotihuacan: Reasserting a Local Oaxacan Identity in a non-Oaxacan Context**

Extending their archaeoastronomical investigations in a more explicitly comparative direction, Marcus Winter and Damon Peeler revisit the contentious issue of Monte Albán and Teotihuacan relations in ways that further accentuate the frequent preeminence of astro-calendarical conventions over purely observational astronomy. Recall that last chapter on the convention priority (I-B), specifically in relation to the topic of "deliberate architectural archaisms," I reviewed numerous very different ideas about the nature of the connection between Teotihuacan and Monte Albán, a lack of consensus that eventuates in the dominant view that there was "a special relationship" between the two great capitals based not on hegemonic control, but rather on bilateral diplomatic and commercial interactions.<sup>203</sup> No one since the era of Caso and Bernal has disputed their contention that Teotihuacan influences play a major role in Period IIIA Monte Albán; and no scholars disagree that, despite the fact that Monte Albán's origins as a powerful regional capital precede those of Teotihuacan by several centuries, during the era of their greatest involvements (200-500 CE), the Central Mexican capital was as much as three times larger, with four times the population of its Oaxacan counterpart.<sup>204</sup>

As noted earlier, Oaxacanist John Paddock, who also did excavations in Tlailotlacan, the so-termed Oaxaca barrio of Teotihuacan, marks one pole in the spectrum of opinions by granting that the Central Mexicans were far stronger militarily, but insisting that they were inferiors to the Zapotecs in all intellectual and cultural matters, writing and astronomy included; in Paddock's Oaxaca-championing assessment, Teotihuacano contributions to Zapotec culture were

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<sup>203</sup> The contention of René Millon, *Urbanization at Teotihuacan, Mexico*, vol. 1, *The Teotihuacan Map*, part 1: Text (Austin: University of Texas Press, 1973), 42, that "there was a kind of 'special relationship' between Teotihuacan and Monte Albán, one that was 'closer and of a different kind' than relations between Teotihuacan and other foreign cities," has been frequently quoted by Oaxacanists. For comments on the quite different uses that Oaxacan specialists have made of that phrase, see in chapter 2 on the convention priority (I-B), the subsection entitled "Period III Teotihuacan Influences Reassessed: Architectural Archaism to Display Connections and Announce Independence."

<sup>204</sup> Alfredo López Austin and Leonardo López Luján, *Mexico's Indigenous Past*, trans. Bernard R. Ortiz de Montellano (Norman, University of Oklahoma Press, 2001), 122.

minimal.<sup>205</sup> Marcus and Flannery, while also conceding that Teotihuacan was vastly superior in military terms and "many times larger than Monte Albán,"<sup>206</sup> join the majority in soundly rejecting suggestions that Teotihuacanos exercised any coercive authority on Monte Albán;<sup>207</sup> they opine that, "Through it all, there is no evidence that Monte Albán and Teotihuacan ever went to war with one another."<sup>208</sup> And, likewise as noted earlier, Arthur Joyce, while accepting that "the possibility of hegemonic domination cannot be entirely excluded," rehearses the mainstream view when he writes, "I think the evidence is more consistent with reciprocal economic and political relations between the rulers of Monte Albán and Teotihuacan."<sup>209</sup>

However, recall also that Winter, changing his view in the wake of Monte Albán Special Project 1992-1994, became the prime proponent of the minority stance that, at the beginning of the Classic period, as part of a broader pattern of imperial domination by Teotihuacan that stretched to regions as distant as the Maya sites of Kaminaljuyú in Guatemala and Tikal in the Petén lowlands, forces from the Central Mexican capital actually conquered, occupied and controlled Monte Albán.<sup>210</sup> Understating the extent of disagreement with their atypic opinion,

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<sup>205</sup> See John Paddock, "Oaxaca in Ancient Mesoamerica," part II in *Ancient Oaxaca: Discoveries in Mexican Archeology and History*, ed. John Paddock (Stanford: Stanford University Press, 1970 [originally 1966]), 126-27; and John Paddock, "The Oaxaca Barrio at Teotihuacan," Topic 52 in *The Cloud People*, eds. Flannery and Marcus, 170-75. Or, for a more general overview of his views concerning Teotihuacan's limited contributions to Monte Albán, see Jones, *Narrating Monte Albán*, chap. 3, the section entitled "Minimizing Teotihuacan's Role: Monte Albán IIIA Success as a Thoroughly Zapotec Accomplishment."

<sup>206</sup> Marcus and Flannery, *Zapotec Civilization*, 231.

<sup>207</sup> Marcus and Flannery, *Zapotec Civilization*, 233, opine that, "Through it all, there is no evidence that Monte Albán and Teotihuacan ever went to war with one another."

<sup>208</sup> Marcus and Flannery, *Zapotec Civilization*, 233.

<sup>209</sup> Joyce, *Mixtecs, Zapotecs, and Chatinos*, 205.

<sup>210</sup> See Marcus Winter, "Monte Albán and Teotihuacan," in *Rutas de intercambio en Mesoamerica*, ed. Evelyn C. Rattray (Mexico, D.F.: University Nacional Autónoma de México, 1998), 153-84. On numerous places that Winter addresses this issue, also see Marcus Winter, Cira Martínez López, y Damon E. Peeler, "Monte Albán y Teotihuacan: cronología e interpretaciones," en *Los ritmos de cambio en Teotihuacan: Reflexiones y discusiones de su cronología*, Rosa Brambila y Rubén Cabrera, coords. (México, D.F.: Instituto Nacional de Antropología e Historia, 1998), 461-75; Marcus Winter, Cira Martínez López, y Alicia Herrera

Winter and Peeler, introduce their comparison of the astronomy, calendars and architecture at the two sites by noting: “While not all specialists agree, evidence supports the idea that Teotihuacanos conquered Monte Albán and subjugated the city’s inhabitants.”<sup>211</sup> And yet, again ironically, irrespective of Winter and Peeler’s iconoclastic view that Teotihuacan came eventually to dominate Monte Albán, the archaeoastronomically-based hypothesis they present features a seldom, if ever, appreciated Zapotec influence on the layout of Teotihuacan. In fact, by their reckoning, it was Oaxacan astro-calendrical conventions that supply an answer to the vigorously debated issue of Teotihuacan’s roughly 16° skewed orientation, a distinctive alignment that has spawned nearly as much argumentation as the origin of the 260-day count.

Concerning the myriad proposals to explain Teotihuacan’s 16° deviation, Anthony Aveni, for instance, inventories several of the most prominent hypotheses (Winter and Peeler’s not among them), some of which rely on celestial observations and others that do not.<sup>212</sup> While stressing that, in all likelihood, “scientific [that is, astronomic], religious, and magical elements of the great Teotihuacan culture all influenced the grand design,”<sup>213</sup> Aveni favors a view in which the rising of the Pleiades is the sky phenomenon most responsible for the atypically slanted orientation of the ceremonial center.<sup>214</sup> Notably, however, none of these abundant theories, unlike the Winter-Peeler thesis, affords Monte Albán or Oaxacans any significant role in Teotihuacan’s distinctive alignment.

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Muzgo T., “Monte Albán y Política e Ideología,” en *Ideología y política a través de materiales, imágenes y símbolos*, Memoria de la Primera Mesa Redonda de Teotihuacán, editado por María Elena Ruíz Gallut y Jesús Torres Peralta (México, D.F.: Conaculta, Instituto Nacional de Antropología e Historia, 2002), 627-44; and Peeler and Winter, *Sun Above, Sun Below*.

<sup>211</sup> Peeler and Winter, *Sun Above, Sun Below*, 2.

<sup>212</sup> Aveni, *Skywatchers*, 227-30. As Aveni notes, a more comprehensive review of alternate theories for the 16° skew appears in René Millon, “Teotihuacan Studies: From 1950 to 1990 and Beyond,” in *Art Ideology and the City of Teotihuacan*,” ed. Judith C. Berlo (Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1992), 383-388. Peeler and Winter, *Sun Above, Sun Below*, 21-22, also enumerate and provide critical comments about alternate explanations of the 16° alignment.

<sup>213</sup> Aveni, *Skywatchers*, 230.

<sup>214</sup> Aveni, *Skywatchers*, 227-228.

Be that as it may, regarding their specific proposal, Winter and Peeler accept the conventional sequence of historical events wherein, as early as the Nisa phase (100 BCE-250 CE, in older rubrics, early Period II), Zapotecs at Monte Albán both had a knowledge of astronomy and the calendar that far superseded that of Teotihuacanos and presumably everyone else in Mesoamerica. Moreover, by this time, Zapotecs had established themselves in Tlailotlacan, the famed Oaxaca barrio at Teotihuacan, which Winter and Peeler argue is more suitably termed “the Zapotec Barrio.”<sup>215</sup> During the subsequent Tani phase (late Monte Albán Period II), Tlailotlacan was a flourishing Zapotec enclave about three kilometers from the city center, with some 600-1000 inhabitants occupying as many as 12 apartment complexes.<sup>216</sup> As Marcus and Flannery note, “Most archaeologists assume that the people of the Oaxaca barrio were middlemen in some kind of trade between the two regions,”<sup>217</sup> a general assessment that Winter and Peeler would, with some qualification, accept.<sup>218</sup> Also key to their argument is acceptance of the general consensus that, early in Teotihuacan’s trajectory (between 100 and 200 CE), before it had attained the stature of the great regional power it would eventually become, existing structures were razed and a new urban plan was implemented; and it was at this point that Teotihuacanos adopted “a formal grid at precisely 15°28’ orientation, with streets and apartment compounds parallel to the great avenue that bisected the city, the north-south Street of the Dead.”<sup>219</sup> In all these respects, Winter and Peeler’s views are non-controversial.

The striking novelty of their thesis concerns the crucial role that Winter and Peeler afford to Zapotecs in this thoroughgoing redesign of the great Central Mexican capital. According to

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<sup>215</sup> Peeler and Winter, *Sun Above, Sun Below*, 1-3, 15.

<sup>216</sup> Peeler and Winter, *Sun Above, Sun Below*, 2.

<sup>217</sup> Marcus and Flannery, *Zapotec Civilization*, 233.

<sup>218</sup> While not completely ruling out trade relations between the two centers, Peeler and Winter, *Sun Above, Sun Below*, 27, contend that “The contribution of the Zapotec Barrio at Teotihuacan appears to have been conceptual and ideological—more specifically, astronomical and mathematical, not commercial.”

<sup>219</sup> Peeler and Winter, *Sun Above, Sun Below*, 3.

their intricate hypothesis—which will again deploy the notion of “the Zapotec triangle” based on a 260 to 365 ratio—the notorious 16° alignment did not derive from on-site astronomical observations undertaken by Teotihuacanos, but rather from the influence of the Zapotec inhabitants of Tlailotlacan. They explain, in other words,

“how Zapotec astronomy was applied at Teotihuacan—how astronomical observations recorded as calendar dates were in turn expressed architecturally, first at Monte Albán and later at Teotihuacan. We argue that Zapotec astronomical and calendar principles were incorporated in the new urban grid established around 100-200 C.E. at Teotihuacan.”<sup>220</sup>

More specifically, they note that the Zapotec barrio, although housed in typical Teotihuacan non-elite structures, is identified as such because of its Zapotec tombs and burials, Zapotec calendar and Zapotec writing, all decidedly different from those of Teotihuacan.<sup>221</sup> All these features signal to Winter and Peeler that these Altiplano-based Zapotec “transplants” were, so it seems, committed to retaining their distinctive Oaxacan identity irrespective of—or perhaps precisely because of—their Central Mexican residency. Searching for explanations of the Zapotec barrio’s purpose and its location relative to the center of Teotihuacan, they point out that the ethnic enclave is not well chosen for commerce with Oaxaca, and “so far there is no evidence of any characteristic manufacture, trade, or service connected with it.”<sup>222</sup> Also, they accentuate that the ethnic enclave was established at a critical juncture in the life of the city, during the period of major rebuilding when the 16° alignment was adopted and when construction of the

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<sup>220</sup> Peeler and Winter, *Sun Above, Sun Below*, 3. On the so-termed Oaxaca barrio at Teotihuacan, also see Michael W. Spence, “Tlailotlacan, a Zapotec Enclave in Teotihuacan” in *Art, Ideology, and the City of Teotihuacan: A Symposium at Dumbarton Oaks, 8th and 9th October 1988*, ed. Janet Berlo (Washington, D.C.: Dumbarton Oaks, 1992), 59-88; Evelyn C. Rattray, “Los Barrios Foráneos de Teotihuacan,” in *Teotihuacan: nuevos datos, nueva síntesis, nuevo problemas*, editado por Emily McClung de Tapia y Evelyn C. Rattray (México, D.F.: Universidad nacional Autónoma de México, 1987), 243-73; and Javier Urcid, “Las Urnas del Barrio Zapoteca de Teotihuacan,” *Arqueología Mexicana*, vol. 11, no. 64 (2003): 54-57.

<sup>221</sup> Peeler and Winter, *Sun Above, Sun Below*, 16.

<sup>222</sup> Peeler and Winter, *Sun Above, Sun Below*, 17.

Cuidadela and monumental Pyramid of the Feathered Serpent were initiated.<sup>223</sup> Based on those factors, Winter and Peeler propose that the Zapotec migrants were allowed to make their own site selection within the Teotihuacan area, and therefore chose a site from which they could observe in their new environs the same semi-annual solar periodicities that were so important at Monte Albán:

"The sight lines to the zenith passage and nadir sunsets cross well within the structures of the Zapotec Barrio, and these are solar sight lines on dates significant only at the latitude of Monte Albán or to a transplanted Zapotec community. It was natural then to assume that the Zapotecs had been permitted to choose rather freely any peripheral location, and chose that location so that they might observe the sunrises over the already existing Pyramid of the Moon and the Pyramid of the Feathered Serpent on those two important dates, thus maintaining and reinforcing their ethnic identity among a group quite distinct from their own."<sup>224</sup>

That is to say, effecting an ingenious hybrid configuration, the Zapotec migrants located their community at the one and only place that had redoubled virtues: for one, from this position, on important Zapotec (not Central Mexican) dates, the solar zenith and nadir (or antizenith) sight lines appeared above the respective Pyramid of the Moon and Temple of the Feathered Serpent; and, for two, connecting the dots, as it were, between those two Teotihuacan monuments and the Zapotec barrio recreated "the Zapotec triangle" with its 260 to 365 ratio or proportions.<sup>225</sup> Thereby venturing to have solved one of Mesoamerican archaeoastronomy's most vexing conundrums and, at the same time, exercising due tentativeness, Winter and Peeler conclude,

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<sup>223</sup> In support of that timing, Peeler and Winter, *Sun Above, Sun Below*, 16, cite Spence, "Tlailotlacan, a Zapotec Enclave in Teotihuacan," 295; and Winter, et al, "Monte Albán y Teotihuacan: cronología e interpretaciones," 461-75.

<sup>224</sup> Peeler and Winter, *Sun Above, Sun Below*, 16-17.

<sup>225</sup> Again, the relevant alignments are much clearer in diagrams than written text. Thus, see Peeler and Winter, *Sun Above, Sun Below*, 16, fig. 10, and 17, fig. 11, to clarify how the Monte Albán solar zenith and nadir (or antizenith) sightlines, as viewed from the Zapotec barrio, both appear above the respective Pyramid of the Moon and Temple of the Feathered Serpent and, moreover, how the configuration recreates "the Zapotec triangle" with its 260 to 365 proportions.

“The choice of the [16° skewed] angle for the Street of the Dead is somehow more closely related to the Zapotec Barrio than we anticipated. The Zapotec triangle alone is sufficient to explain the long debated reason the angle of the Street of the Dead and the Pyramid of the Sun, and to the gridlike solid packing of nearly every other building is matched. This apparently—*but only apparently*—makes unnecessary all other previously advanced explanations.”<sup>226</sup>

Again it is difficult to find supporters of this novel hypothesis.<sup>227</sup> But, like Winter and Peeler’s dissentient proposal concerning a Oaxaca origin for the 260-day count, here again its ramifications are fascinating with respect to the categories in my morphology insofar as strictly astronomical observations (that is, exercises of the astronomy priority, I-C) are merged with, or actually superseded by, socially constructed astro-calendrical principles (that is, exercises of the convention priority, I-B). In a sense reechoing Paddock’s much earlier and less subtle insistence that Zapotecs were the militarily inferior but intellectually superior party in the Monte Albán-Teotihuacan relationship,<sup>228</sup> Winter and Peeler present a scenario in which, by contrast to René Millon’s intimation that the Oaxaca barrio was occupied by “servants” or vassals to Teotihuacanos, “Monte Albán’s early use of calendar and writing, and the permanent community at Tlailotlacan suggest the [Teotihuacanos’] dependence upon Monte Albán’s knowledge and influence.”<sup>229</sup> But Winter and Peeler’s scenario also suggests that the Zapotec migrants were in it for themselves, so to speak, insofar as Oaxaca-specific astronomical observations and

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<sup>226</sup> Peeler and Winter, *Sun Above, Sun Below*, 21; italics theirs.

<sup>227</sup> For instance, in his discussion of the changing alignments at Teotihuacan, Ivan Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 234, makes no reference to the Zapotec barrio (or to Winter and Peeler’s hypothesis) and comes to the very different conclusion that, “It thus appears that the introduction of these orientations to Teotihuacan was a result of more direct relations with the Maya.”

<sup>228</sup> On John Paddock’s determined efforts to celebrate Zapotec cultural accomplishments and thus minimize Teotihuacan contributions to Monte Albán, see Paddock, “The Oaxaca Barrio at Teotihuacan,” 170-75; or, as noted, see Jones, *Narrative Monte Albán*, chap. 3, the subsection entitled, “Minimizing Teotihuacan’s Role: Monte Albán IIIA Success as a Thoroughly Zapotec Accomplishment.”

<sup>229</sup> Peeler and Winter, *Sun Above, Sun Below*, 23.

calendrical proportions are, at Teotihuacan, replicated in ways that seem designed, most of all, to reaffirm Zapotec outsiders’ sense of their Oaxacan socio-cultural identity.<sup>230</sup>

In short, it is fascinating even to entertain the possibility that Teotihuacan’s most prized orientational distinction might actually derive from the self-serving astro-calendrical machinations of foreigners. According to this startling hypothesis, the 16° skew that becomes a signature of the uniquely powerful Teotihuacan—a distinctive alignment that is eventually replicated across Mesoamerica, including in the Maya zone—is, at least conceivably, based on Zapotec celestial observations and calendar dates about which Teotihuacanos themselves were largely indifferent. Implausible as that might at first seem, all three of the previous examples in this section demonstrate that, very often, “non-operative,” conventionalized alignments take precedence over the largely or fully forgotten astronomic observations on which those alignments were originally based. And one more example to which I turn now—concerning Monte Albán’s Geodesic Vertex Group and Bejeweled Building—adds yet more weight to that possibility.

#### **4. Zapotec Astro-Calendrical Conventions at Monte Albán: Retaining Zapotec Identity in the Geodesic Vertex Group**

Fourth and finally, then, brief comment on Monte Albán’s Geodesic Vertice Group provides additional exemplification of the inevitable conventionalization of observational astronomy and, more specifically, another example of group-specific astro-calendrical alignments expressing and reinforcing socio-political identity. The name of this set of buildings derives from Alfonso Caso’s selection of its main mound, the Geodesic Vertex Building, the highest point at Monte Albán, as “the trigonometric vertex” or exact geographic point of

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<sup>230</sup> Though not pursuing this line of argument at length, Peeler and Winter, *Sun Above, Sun Below*, 27, end their article by intimating that the astro-calendrical acumen that the Zapotec migrants demonstrate at Teotihuacan, where their primary contribution “appears to have been conceptual and ideological—more specifically, astronomical and mathematical, not commercial,” also helped to strengthen the stature of Monte Albán. In their words, “These intellectual accomplishments partly explain the extraordinary binding influence Monte Albán exerted over the entire Valley of Oaxaca.” Ibid.

reference for topographic maps of the site.<sup>231</sup> Located on the North Platform, one of the largest complexes at the site, the Geodesic Vertice Group includes, by Caso’s broad definition, “an ensemble of four mounds, three courtyards and two buildings;”<sup>232</sup> by more circumspect definition, the group is a plaza surrounded by three pyramid bases (Buildings D, E and VG) and a fourth lower base with two columns.<sup>233</sup> While this is routinely considered a restricted ceremonial precinct, adjacent to it are what seem to have been elite residences. The area was explored by Batres in 1902 and heavily looted before Caso personally guided excavations there in the late 1930s, after which he put Martín Bazán in charge of the reconstruction of the complex.<sup>234</sup>

In the various structures of the Geodesic Vertice Group, Caso found abundant offerings, some of which he (like Batres) identified as Maya, and construction features belonging to

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<sup>231</sup> Caso, “Resumen del informe de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939,” reprint version, Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1, 171.

<sup>232</sup> Caso, “Resumen del informe de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939,” reprint version, Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1, 171; my translation. A detailed plan of the broader Geodesic Vertex Group (or, actually, the entire North Platform) appears, for instance, in Javier Urcid, Marcus Winter, and Raúl Matadamas, “Nuevos monumentos en grabados en Monte Albán, Oaxaca,” en *Escritura Zapoteca prehispánica: nuevas aportaciones*, Marcus Winter, coord., contribución núm. 4 del Proyecto Especial Monte Albán 1992-1994 (Oaxaca de Juárez: Centro INAH-Oaxaca, 1994), 3, fig.1.

<sup>233</sup> Nelly M. Robles García, *Monte Albán: History, Art, Monuments* (México, D.F.: Monclém Ediciones S.A. de C.V., 2004), 34, for instance, describes the Geodesic Vertex Group as “a small square surrounded by four bases.” And Fahmel Bever, *La arquitectura de Monte Albán*, 175 (my translation), describes the group as “a complex series of buildings that in their final form included a courtyard surrounded by a platform and three mounds, as well as a hall that connects this courtyard with a lower one.” For a plan drawing, see *ibid.*, 17, fig. 17; and for basic information on the various features, see *ibid.*, 175-87.

<sup>234</sup> Caso, “Resumen del informe de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939,” reprint version, Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1, 179. Also see Jorge Acosta, “Exploraciones en la zona arqueológicas en Monte Albán, Oaxaca: XVII temporada 1949,” en *Cultura y Sociedad*, año 11, t. 11, núm. 3 (1975): 1-16.

Periods I, II and III;<sup>235</sup> but, somewhat surprisingly, Caso’s eight-page description of 1939 does not make any mention of Teotihuacan influence in this portion of the site.<sup>236</sup> Later explorations, however, which opened up the east side of the complex and exposed the so-named Bejeweled Building, revealed significant signs of Teotihuacan influence; and it was extensive work in this area during the Monte Albán Special Project 1992-1994 that proved decisive in Marcus Winter’s revised view that the supposed “special relationship” between the two sites was actually one in which Teotihuacanos conquered, occupied and exercised hegemony control over the Oaxacan capital.<sup>237</sup> While the notion of a violent takeover remains a minority view, it nonetheless provides the basis for Galindo Trejo to formulate the following archaeoastronomical hypothesis:

“It seems to us that if the Teotihuacanos conquered the city, destroying various structures, in the places where they imposed their architectural style, they would have reoriented their buildings to directions that reproduced circumstances of observation of the sky as they occurred in their distant homeland.”<sup>238</sup>

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<sup>235</sup> Perhaps most significant to Caso were discoveries in the Geodesic Vertex Group that led to a reversal of his earlier position that “Monte Albán and Mitla seemed to be two totally different cities, to the point that they were attributed to two completely different cultures,” in favor his revised view “that *there is nothing in Mitla that is not found in Monte Albán, even if it is in a rudimentary form*, which proves that Monte Albán was the place from which the most important elements emerged that later had to form the characteristics of Mitla.” Caso, “Resumen del informe de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939,” reprint version, Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1, 177; my translation, his italics. Regarding this change of opinion about the relationship between Monte Albán and Mitla, which is one of the few cases in which Caso felt compelled to overturn his initial hypotheses, see Jones, *Narrating Monte Albán*, chap. 1, the section entitled “Ongoing Corrections and Readjustments: The Resilience of an Untidy Five-Stage Scheme.”

<sup>236</sup> Nor, for instance, does Fahmel Bever, *La arquitectura de Monte Albán*, 175-87, make any mention of Teotihuacan in his 1991 overview of the Geodesic Vertex Group.

<sup>237</sup> As noted in the previous section, Winter, “Monte Albán and Teotihuacan,” is one of numerous articles in which he expresses his minority views about Teotihuacano hegemony at Monte Albán.

<sup>238</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 273.

Accordingly, as a means of testing—and eventually disproving—that hypothesis, Galindo Trejo focuses his attention on the astronomical orientation of the Edificio Enjoyado or Bejeweled Building.<sup>239</sup>

This structure, which is named for a row limestone discs with traces of red paint that resembles some Teotihuacan façades,<sup>240</sup> is a distinctive case insofar as it sits immediately to the east of the main Geodesic Vertex Building, but on a much lower level, situated just off the edge of the North Platform. At present, only a portion of the complicated sequence of Period IIIA and IIIB-IV constructions is visible, largely because the rest is covered with tons of fill from the North Platform excavations. While the Bejeweled Building is occasionally included in descriptions of the Geodesic Vertice Group, or sometimes referred to as the Geodesic Vertex East Structure (Building VG-E), often it is omitted; and while it is prominently featured in some current overviews and maps of the site, it is completely absent from others.<sup>241</sup> Nevertheless,

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<sup>239</sup> Note that Šprajc y Sánchez, *Orientaciones astronómicas en la arquitectura de Mesoamérica: Oaxaca y el Golfo de México*, 35-36, provide ideas about the astronomical alignments of the Geodesic Vertex Group and Bejeweled Building that are somewhat different from Galindo Trejo’s.

<sup>240</sup> Regarding the strong connections between the Bejeweled Building and Teotihuacan, Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 273, writes, “The striking presence of a row of stuccoed stone discs painted red in the front of the building on both sides of the staircase has suggested a direct relationship with Teotihuacan. For instance, in the substructure three of Teotihuacan’s Temple of Quetzalpapalotl one can see a board decorated with large red disks. This similarity and others have led many scholars to image an intense interchange between the two cities.”

<sup>241</sup> For example, Arturo Oliveros, *Guía de Monte Albán* (Mérida, Yucatán, México: Codice Ediciones, 1996), 44, following his discussion of the North Platform, devotes a three-paragraph section just to El Edificio Enjoyado (the Bejeweled Building) and includes it on his site plan (ibid., 30-31); and Robles García, *Monte Albán: History, Art, Monuments*, 32, mentions the Bejeweled Building in her brief discussion of the North Platform (ibid., 32, 34) and includes it on her site plan (ibid., 36-37). The 120-page guide of Marcus Winter, *Monte Albán* (México, D.F.: Instituto Nacional de Antropología e Historia, 1994), 74, avoids the name Bejeweled Building and instead refers to this as Estructura VG-Este (the Geodesic Vertice East Building), which is part of his discussion of the North Platform but separate from the Geodesic Vertex Group per se (ibid., 72-77), and not included on his site map (ibid., 50-51). Nor does Fahmel Bever, *La arquitectura de Monte Albán*, include the Bejeweled Building in his discussion of the Geodesic Vertex Group (ibid., 175-87) or on his site plan (ibid., 17).

along with the façade decoration, its Central Mexican association is reinforced by an abundance of nearby mica, ceramics and green stone sculpture, and prismatic obsidian blades from Teotihuacan. And consistent with the premise that this North Platform area was the administrative center of the city, this structure has also been identified as “the Teotihuacan embassy,” another prospect that Galindo Trejo is willing to entertain.<sup>242</sup>

Regarding the unanticipated results of his archaeoastronomical analysis, Galindo Trejo determines that the Bejeweled Building is oriented to the horizon profile of the mountains to the east and that, “on February 25 and October 16, the [rising] sun aligns itself to the axis of the building.”<sup>243</sup> But he also observes that, “These dates apparently do not indicate any major solar events, and nor do they coincide with pan-Mesoamerican calendrical dates.”<sup>244</sup> Moreover, Galindo Trejo realizes that “such an orientation runs counter to the idea that it would have been Teotihuacanos, in an attempt to erase the Zapotec presence [in their own capital], that imposed new directional concepts of space in Monte Albán.”<sup>245</sup> And, therefore, contrary to his expectations, he has to conclude that

“the Edificio Enjoyado [or Bejeweled Building] does not seem to be a construction conceived by Teotihuacanos, [because] they would surely have directed it towards sunsets on the same days when in its distant city there was some important alignment.”<sup>246</sup>

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<sup>242</sup> Both Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276, and Jesús Galindo Trejo, “La orientación calendario-astronómica de estructuras arquitectónicas de Mesoamérica: un práctica cultural de origen ancestral,” en *El papel de la arqueoastronomía en el mundo maya: el caso de la Isla de Cozumel*, Nuria Sanz, coord. (México: UNESCO, 2016), 28, refers to this building as the Edificio Embajada Teotihuacana (the Teotihuacan Embassy Building).

<sup>243</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 275; my translation.

<sup>244</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 275; my translation.

<sup>245</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 275; my translation.

<sup>246</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276; my translation.

In other words, having ruled out his first three choices—(1) alignment to some significant celestial event, (2) generically pan-Mesoamerican alignments or (3) Teotihuacan-imposed alignments—Galindo Trejo determines instead that “the alignment seems to coincide with that of the great Geodesic Vertex Building, located on the backside of the Bejeweled Building, about 15 meters above it.”<sup>247</sup> And thus he must surmise, somewhat to his surprise, that “the orientation of the Bejeweled Building seems to correspond rather to calendrical principles of local origin.”<sup>248</sup> That is to say, the primary orientation of the Teotihuacan-associated structure, not unlike most other Monte Albán features, reflects Zapotec-specific not Central Mexican astro-calendrical principles.<sup>249</sup> Consequently, faced with counterevidence to his expectations, but still committed to the idea that this was a Teotihuacan-initiated structure, Galindo Trejo ventures the ingenious supposition that, instead of engendering antagonism by forcing on the Zapotecs a foreign system of alignment, the invaders opted for conciliation, and thus “the Bejeweled Building, operating as a Teotihuacan embassy, seems to have diplomatically respected the orientation defined by their Zapotec hosts.”<sup>250</sup>

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<sup>247</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 275; my translation.

<sup>248</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276; my translation.

<sup>249</sup> Again the conclusions in Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” are nuanced and carefully qualified in ways that raise a couple of noteworthy issues: For one, while he concludes that the orientation of the Bejeweled Building does *not* conform precisely to pan-Mesoamerica calendrical dates, he finds it significant that its solar alignments of February 25 and October 16 are quite close to the important pan-Mesoamerican calendar dates of February 12 and October 29, a discrepancy that he tentatively explains in terms of Zapotec-specific adjustments. *Ibid.*, 275. Here again, the “dual incentive” to synthesize pan-Mesoamerican and Oaxaca-specific astro-calendrical conventions is at play. And, for two, he reminds us, as do Peeler and Winter, that the orientation of Teotihuacan’s Pyramid of the Sun “certainly is not of Teotihuacan origin, but rather it is a pan-American orientation;” then, however, Galindo Trejo stops short of endorsing (or explicitly refuting) their attribution of that orientation to migrant Zapotecs by noting “it is not yet clear whether it arrived in Teotihuacan through Zapotec influences.” *Ibid.*, 274-75; my translation.

<sup>250</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276; my translation. Galindo Trejo, *ibid.* (my translation), notes that, “There is a possibility that a portion of the base [of the Bejeweled Building] might have been part of a later stage of construction, and perhaps that part of the building may have had a Teotihuacan orientation. However, this is a conjecture that requires more study.” Šprajc y Sánchez, *Orientaciones astronómicas en la*

In sum, we can congratulate Galindo Trejo for his dexterous, albeit tentative, interpretation of the unanticipated results of his analysis of the Bejeweled Building or Geodesic Vertex East Structure. But we can also draw more general conclusions both about the fascinatingly asymmetrical Monte Albán-Teotihuacan relationship and about the complementary pairing of the astronomy (I-C) and conventionality (I-B) priorities. His analysis, for instance, adds yet more support to the likelihood that, while the Teotihuacanos commanded vast military supremacy, the Zapotecs were their superiors in astronomy and calendrics—a preeminence that Zapotecs exercised on both ends of the non-equation. On the Central Mexican end, the Zapotec migrants, although a small minority, according to Peeler and Winter, enjoyed a measure of autonomy and respect that allowed them not only to recreate in the Tlailotlacan barrio their Oaxaca-specific astro-calendrical conventions, but, moreover, to exercise important influence over wider city-planning decisions, most notably, the 16° skew. In this respect, the Zapotecs capitalized on their astronomic expertise both to retain their distinctive Oaxaca-based identity and to exercise a prototypical influence over the broader Mesoamerican region. And at Monte Albán, even if we accept Winter’s premise that they had become subordinates in their own capital, Zapotecs managed to retain control over their astro-calendrical alignments and, to that extent, over their distinctive ethnic identity and religious orientation. As Joyce Marcus’s and Johanna Broda’s comments on the invariably political utilization of calendars suggest, retaining their own group-specific alignments may well have been a deliberate act of Zapotec resistance against Teotihuacan hegemony.

Furthermore, with respect to even broader conclusions about the complementarity of the astronomy (I-C) and convention (I-B) priorities, Galindo Trejo’s analysis of the Geodesic Vertex Group reinforces the realization that, seemingly in no instance, is the alignment of built forms merely a matter of observing and marking natural celestial movements; never, in ancient Mesoamerica, is astronomy an end unto itself. To the contrary, in every instance, the careful observation and prediction of natural sky phenomena is a point of departure, which is heavily and strategically mediated by humanly-constructed calendrical conventions. In fact, the

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*arquitectura de Mesoamérica: Oaxaca y el Golfo de México*, 34-35, acknowledge but take issue with Galindo Trejo’s analysis of the Bejeweled Building.

Bejeweled Building—whose primary alignment does not coincide with any major celestial occurrence<sup>251</sup>—seems to be yet another instance in which the actual celestial observations that account for the orientation of the wider Geodesic Vertex Group recede into the past while revered astro-calendrical convention come to the fore.

Be that as it may, consider next, as the final arc in this discussion of the astronomy priority (I-C), a set of circumstances in which the choreography of ritual-architectural allurements does depend, in much more direct ways, on the orchestration of actual views of periodic sky phenomena.

#### **IV. ASTRONOMY IN CONJUNCTION WITH PREDICTABLE SKY PHENOMENA: CELESTIAL PROGNOSTICATIONS AND THE RITUAL-ARCHITECTURAL ENHANCEMENT OF NATURE**

Arguably, the unique advantage that comes with the precise knowledge of periodic sky phenomena as a distinctive “mode of orientation in the world”—and thus as a distinctive strategy of ritual-architectural allurements—is the ability to position oneself not only with respect to the past and present, but also the future. As Anthony Aveni persuades us,

“Of all the numinous forces in nature’s domain that can serve as paragons of order in the world—cycles of plants, animals, the running of the stream, the first rain, the last frost—only what happens in heaven offers the precise predictive power that enables people to cast their eyes around the corner of time into the future.”<sup>252</sup>

Capitalizing on that “precise predictive power,” astronomically informed ritual-architectural configurations and events have a special capability that more strictly homologized and conventionalized modes of allurements do not. That is to say, while, as we’ve seen, the astronomy priority (I-C) frequently works in tandem with homologized schemes (priority I-A), and nearly always empirical celestial observations are mediated by group-specific conventions

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<sup>251</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 275.

<sup>252</sup> Anthony F. Aveni, “Sky: Myths and Symbolism,” in *Encyclopedia of Religion*, 2<sup>nd</sup> edition, ed. Jones, vol. 12, 8425.

(priority I-B), the strategic timing and choreography of ritual events in concert with the regular movements of sky phenomena engenders a dramatic and persuasive appeal that the other two orientational modes cannot match. While the homologized and conventionalized features of Monte Albán that I have discussed are constantly present, creating a stable and meaningful ambience that visitors would experience everyday of the year, the astronomy priority issues in architectural configurations that, though significant, are *not* constantly operative. Owing to the dynamic movement of the heavenly bodies themselves, many astro-architectural features and alignments are only periodically relevant; they are, in short, only occasionally operational. But, instead of a liability, it is that highly restricted, intermittent—though also highly regularized—applicability that gives those features their special effectiveness as components of allurement. Celestially informed ritual-architectural events facilitate a special binding of space and time, and special sense of orientation to the future, unequalled by either of the other two orientational modes.

That in mind, this last set of sub-sections focuses on astronomically informed configurations that capitalize on the power of prognostication as a distinct strategy of ritual-architectural allurement. The examples inventoried here entail the orchestration of visual effects—say, solar horizon risings and settings, plays of light and shadow, or reappearances of Venus, the Pleiades and Capella—that, while impossible without foreknowledge of the movements of fully natural phenomena, are also humanly-constructed and contrived insofar as those views are likewise impossible without the associated architecture. Without the carefully designed built forms, there is no “celestial” effect; and for that reason, I label this strategy of instigation “*the ritual-architectural enhancement of nature.*” Once more, I proceed by instantiating the theme first in the cross-cultural history of religions, then within the wider region of Mesoamerica, and finally at the specific site of Monte Albán.

**A. THE RITUAL-ARCHITECTURAL ENHANCEMENT OF NATURE AS A CROSS-CULTURAL PHENOMENON: FROM (SENSATIONS OF) PASSIVE HARMONY TO ACTIVE CONTROL**

While the sundials, gnomons and "medicine wheels" built by hunting peoples provide modest exemplifications of astronomically predictive architecture,<sup>253</sup> it is no coincidence that, as Peter Lancaster Brown and numerous other archaeoastronomers note, the most elaborate architectures of prediction—for instance, British megaliths, the Inca *ceque* system and Mesoamerican monuments—are associated with agricultural cultures.<sup>254</sup> Mircea Eliade likewise accentuates this connection via his repeated insistence that the "discovery" of agriculture engendered a new consciousness of the periodicity or redundancy of time; and recall that Alfredo López Austin connects the earliest emergence of the "hard nucleus" of Mesoamerican cosmivision, not to hunting and gathering, but rather to the Formative period and the experience of "daily life in agricultural societies."<sup>255</sup> In Eliade's words, this new, profoundly different approach to life required that

"... [the agriculturalist], above all, had to perfect his technique for calculating time... From then on, the cultivator had to make his plans several months before they were to be implemented, had to perform, in exact order, a series of complex activities in view of a distant and, especially in the beginning, always uncertain result: the harvest."<sup>256</sup>

According to this seemingly unassailable historical hypothesis, the heightened chronologic demands of agriculture were reechoed by similarly intensified astronomical preoccupations. The cycles of the sun, moon, planets and stars—which provide "by far the most

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<sup>253</sup> See, for instance, John A. Eddy, "Medicine Wheels and Plains Indian Astronomy," in *Native American Astronomy*, Aveni ed., 147-70; or John A. Eddy, "Astronomical Alignment of the Big Horn Medicine Wheel," in *Foundations of New World Cultural Astronomy*, Aveni, ed., 19-37.

<sup>254</sup> See Peter Lancaster Brown, *Megaliths, Myths, and Men: An Introduction to Astro-Archaeology* (New York: Taplinger Publishing Company, 1976), 11.

<sup>255</sup> López Austin, "Cosmovision," 269, writes, "Mesoamerican cosmivision was a product of daily life in agricultural societies. In a process spanning millennia, it was gradually shaped in a rational, though unconscious, manner through the action of humans facing nature and themselves."

<sup>256</sup> Eliade, *A History of Religious Ideas*, vol. 1: 37.

dependable regularly occurring natural events”<sup>257</sup>—were examined with unprecedented care and used to demarcate standardized intervals between both agricultural and associated ritual activities. Moreover, in Eliade’s view, this new consciousness of the redundancy of time had profound ramifications for the conception of space and building; specifically, these developments were decisive both in the emergence of megalithic architecture and of the homologized patterns of construction that he then finds so globally pervasive.

Furthermore—to raise a point I would stress in even stronger terms—this intensified expertise in calculating time and predicting recurrent celestial phenomena enabled a new and more commanding sense of orientation and, in that sense, a new religious outlook. The divinatory presage of an eclipse or the helical rising of Venus, for instance, implies a kind of mental mastery over the forces of nature, a higher order of orientation and, perhaps, even a previously unacknowledged confidence (or arrogance) in one’s autonomy and security as a human being.<sup>258</sup> Instead of dutiful acquiescence with the natural and supernatural patterns, the power of prognostication—and thus the experience of a largely predictable universe—moved humans beyond the level of simple continuity with nature to a sensation (however illusory) of discontinuity with and dominance over their environment.<sup>259</sup> To expropriate historian of religions Gerardus van der Leeuw’s distinction between “passive harmony” and “active control,” the new capability of prediction and foreknowledge allowed people to transcend the sensation of

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<sup>257</sup> Ruggles, *Megalithic Astronomy*, 13. I do not mean to imply that Ruggles adheres to any simple hypothesis concerning the historical connections between parallel developments in agriculture and astronomy. He is, in fact, cautious to avoid such generalizations.

<sup>258</sup> Regarding the emergence of a sensation of mental mastery over the forces of nature in the evolution of Greek sacred architecture, Vincent Scully, *The Earth, the Temple, and the Gods: Greek Sacred Architecture* (New Haven: Yale University Press, 1962), 198-210, alludes to something like this distinction between *harmony with nature* and *control over nature* when he contends that, where the Classic Greek temple incorporated and merged with the landscape, in the post-Classic temple, the relationship to the landscape was one of dominance and control.

<sup>259</sup> Though his remarks have no explicit connection either with architecture or astronomy, I am informed here by Charles Long’s contention in his *Alpha: The Myths of Creation* (Chico, California: Scholars Press, 1963), 17, that “human life represents a particular mode of being—a mode of being which is continuous with nature on one level and discontinuous on another level.”

being “caught up in and ruled by a rhythm,” and instead enabled a sense that they could “subjugate the world by mastering a rhythm.”<sup>260</sup>

While this heightened, agriculture-based sensitivity about time and adeptness at predicting sky phenomena permeated all classes of society—not least those non-elites who were preoccupied with the labor of planting, cultivating and harvesting foodstuffs—it likewise emboldened rulers with a new means of reinforcing their socio-political authority. And while I am hesitant to join with those scholars who reduce the choreography of astronomically based ritual-architectural events to their politically expedient purposes, the fact that the most high-profile exemplars of this variation on the astronomy priority (I-C), including at Monte Albán, entail the staging of large-scale ceremonies in the public precincts of traditional cities, does lend support to those sorts of politicized interpretations. A case like the Hopewell-era Newark Earthworks, the largest and most geometrically precise work of earthen architecture in the world, represents the exception insofar as a huge circular and octagonal configuration of mounds choreographs periodic views of a literally dozens of celestial, especially moon-related, events at a site that never attained urban status;<sup>261</sup> at no time the locale of a large residential population, Newark’s so-termed Observatory Circle and adjacent Octagon were, assuredly, a seasonally-visited pilgrimage center rather than the sort of hierarchical city in which astro-architectural

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<sup>260</sup> Gerardus van der Leeuw, *Sacred and Profane Beauty: The Holy in Art*, trans. David E. Green (New York: Holt, Rinehart and Winston, 1963), 24-25, develops the distinction between “passive harmony” and “active control” in connection with two types of sacred dance, and makes no direct reference to its applicability with respect to architecture.

<sup>261</sup> See *The Newark Earthworks: Enduring Monuments, Contested Meanings*, eds. Lindsay Jones and Richard D. Shiels (Charlottesville and London: University of Virginia Press, 2016), especially the archaeoastronomy-based article by Ray Hively and Robert Horn, “The Newark Earthworks: A Grand Unification of Earth, Sky, and Mind,” 62-93. Also see Ray Hively and Robert Horn, “Geometry and Astronomy in Prehistoric Ohio,” in *Foundations of New World Cultural Astronomy*, Aveni, ed., 39-60. And see Lindsay Jones, “The Ambiguity of ‘Sacred Space’: Superabundance, Contestation, and Unpredictability at the Earthworks of Newark, Ohio,” in *Place and Phenomenology*, ed. Janet Donohoe (London: Rowman & Littlefield International, 2017), 97-123.

effects are put to the service of hegemonic rulers.<sup>262</sup> As a rule, however, the sort of astronomically timed events at issue here occur in urban contexts and depend on monumental architectural forms that require large resources and outlays of labor—which is to say, those that are initiated by “the powers that be” who are frequently intent on demonstrating (or at least giving the impression) that they are actually the masters or guarantors of order in the celestial, and thus terrestrial, domain.

In traditional Chinese cities, for example, according to Nancy Shatzman Steinhardt’s analysis, ceremonial events were timed and orchestrated so as to perpetrate the notion that it was the imperial authorities who actually controlled the weather and the celestial rhythms, rather than being controlled by those forces. She cites, for instance, a passage in the *Li ji* (or *Book of Rites*) that reads:

“when they presented their offerings to God [at that felicitous spot that the rulers had chosen for their capital]... the winds and rains duly regulated, and the heat and cold came each in its proper time, so that the sage (king) had only to stand with his face to the south and order prevailed all under the sky.”<sup>263</sup>

Or, by the same token, the Incas’ Coricancha, the Temple of the Sun and seat of imperial power that was located at the hub of Cuzco’s amazingly well-ordered system of *ceque* lines that radiated out for kilometers into the reaches of the empire, was configured in ways that synchronized an annual schedule of rituals with the periodic reappearance of various sky phenomena, thereby repeatedly reinforcing the Inca rulers’ supposedly crucial role in the smooth functioning of both the celestial and social worlds.<sup>264</sup> In Aveni’s description of those sovereigns’ strategic ritual choreography,

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<sup>262</sup> Regarding Hopewell-era Newark as a pilgrimage destination but never a city, see Bradley T. Lepper, “The Newark Earthworks: A Monumental Engine of World Renewal,” in *The Newark Earthworks*, Jones and Shiels, eds., 41-61.

<sup>263</sup> *Li ji*, quoted by Nancy Shatzman Steinhardt, “Altar to Heaven Complex,” in Nancy Shatzman Steinhardt, et al, *Chinese Traditional Architecture* (New York: China House Gallery, 1984), 140.

<sup>264</sup> The Inca *ceque* system is discussed in countless contexts, all of which are indebted to R. T. Zuidema, *The Ceque System of Cuzco: The Social Organization of the Capital of the Inca* (Leiden: Brill, 1964).

“a clever set and quite simple set of cross-checked timing devices involving sun, moon, and stars [were] incorporated into the royal architecture. The king could conveniently and confidently observe these sky phenomena from his golden throne in the Coricancha, and know precisely what was about to unfold in the heavens over Cuzco. He could use the information to prescribe the conduct of human affairs and to validate his connection with nature, the ultimate source of all power.”<sup>265</sup>

To advance and sustain such grand cosmo-political claims requires more than synchronization with the predicted sky phenomena; it demands as well—and this is a second point to be stressed—the strategic ritual-architectural *enhancement* of those natural phenomena. While there are ample cross-cultural exemplars of such cagily choreographed astro-architectural effects, ancient Mesoamerica provides among the strongest illustrations of how that sort of contrived, ritual-architectural augmentation of natural processes could actually work. Thus consider next, enroute to consideration of this variation on the astronomy priority (I-C) at Monte Albán, its prevalence in the broader Mesoamerican region.

**B. THE RITUAL-ARCHITECTURAL ENHANCEMENT OF NATURE IN MESOAMERICA:  
ALLUREMENT VIA CELESTIAL PREDICTION AND CHOREOGRAPHY**

Again with respect to the ritual-architectural enhancement of nature, nearly all of these broadly cross-cultural observations are applicable to ancient Mesoamerica, though with tellingly distinctive twists. This is, to be sure, from the Formative period forward, an agricultural context in which heightened sensitivities about the regular and cyclical passage of time had taken people from merely acquiescent harmony with the processes of nature to a more active sense of their control and impactfulness on those processes; agriculturalists who burn, till, plant, cultivate and harvest are manipulators and managers of nature, not simply passive bystanders. They develop a confidence that their actions, whether in the labor of food production—or in ritual—can make a difference, either positive or disastrous, in the flow of cosmic time. Moreover, and distinct from the temporal consciousnesses of most contexts, ancient Mesoamericans exist in a cultural ambience challenged both by endemic, highly volatile politico-military competition and by what

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<sup>265</sup> Anthony Aveni, *Stairways to the Stars: Skywatching in Three Great Ancient Cultures* (New York: John Wiley & Sons, Inc., 1997), 169.

is often assessed as an almost pathological obsession with divination, prognostication, prophecy, omens, oracles and sortilege.<sup>266</sup> While self-assured with their import in insuring the continued passage of time, ancient Mesoamericans, even more than most agriculturalists, labor with a special unease about the uncertainties of the future. The prospect of cosmic calamity—especially well documented in the case of the Aztecs or the Maya *Popul Vuh*’s succession of world beginnings and endings—seemed an imminent possibility, and thus prediction a matter of especial import.

As regards the architectural consequences of agriculture, with sedentary villages come the earliest shared ceremonial precincts; but, contrary to many intimations, as Ivan Šprajc notes, agriculturalists, while particularly attuned to celestial movements, do not need elaborate architecture and “observatories” to know the proper scheduling of farming activities.<sup>267</sup> It is, then, not until the transition from relatively egalitarian villages to more socially hierarchical cities that the sort of strategically-timed astro-architectural effects discussed here emerge. As Šprajc, reechoing Johanna Broda, writes,

“the astronomical directions are most consistently incorporated in monumental architecture of urban cores, evidently commissioned by the governing class. It is thus clear that both practical uses of astronomical knowledge and broader cosmological beliefs formed a very important part of the ideology of power... An appropriate timing of both agricultural tasks and ritual performances contributed to the legitimation of power of the ruling class, sanctioned its ideology, and thus reinforced social cohesion necessary for preserving the existing political order.”<sup>268</sup>

In these hierarchical urban contexts, though everyone, from farmers to kings, was piquantly aware of the phases of the moon and the turn of the seasons, the subtleties of celestial

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<sup>266</sup> Regarding ancient Mesoamericans’ supposed fatalistic and predictive obsessions, see, among countless possibilities, the representative assessment of Muriel Porter Weaver, *The Aztecs, Maya, and Their Predecessors* (New York: Seminar Press, 1972), 93.

<sup>267</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 221.

<sup>268</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 230. Suitably and predictably, Šprajc finds support for that politicized interpretation of astronomically aligned architecture in the work of Johanna Broda, Stanislaw Iwaniszewski, Anthony Aveni and Horst Hartung among others.

prognostication—predictions of eclipses and comets, helical risings of the Pleiades, the appearance and disappearance of Venus, etc.—were, not unlike the nuances of conventionalized building prescriptions, the province of only an elite few. Accordingly, the potentialities for using—and/or abusing—predictive astronomy as a compelling, even compulsory, means of ritual-architectural instigation, either benignly or as a tool for religio-political manipulation, were enormous. To again quote Šprajc,

“The architectural alignments reproducing them can thus be interpreted not only as a sanctified materialization of the union of space and time, but also as a monumental manifestation of the ideology of the governing class, *which pretended to be responsible for a proper functioning of the universe.*”<sup>269</sup>

As in China, the Inca empire and elsewhere, in Mesoamerica, where mere acquiescence with nature seems to have been supplanted by a sense of active control, rulers were intent not simply on synchronizing earthly activities with the cyclical movements of heavenly bodies, but likewise claiming credit for sustaining or even “provoking” those cyclical movements. Against that backdrop, pre-Columbian sovereigns, very often it seems, seized upon predictable celestial occurrences and startling meteorological “coincidences,” which could then be fashioned into (seemingly) divinely sanctioned imperatives to acknowledge the seriousness and legitimacy of their religio-political ritual programs.

This ingenious and shared strategy of celestial opportunism variously exploited the unique topographical and astronomical configurations of each site: At Palenque, for instance, westward looking phenomena, particularly sunsets were favored;<sup>270</sup> at La Venta on the Gulf Coast, in consonance with other feline imagery, the Olmec oriented their buildings toward a constellation of stars that seemed to form a cat’s mouth;<sup>271</sup> and, at Teotihuacan, the melodrama

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<sup>269</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 231; italics added.

<sup>270</sup> Linda Schele, “Sacred Site and World-View at Palenque,” in *Mesoamerican Sites and World-Views*, ed. Elizabeth P. Benson (Washington: Dumbarton Oaks, 1981), 105.

<sup>271</sup> See Marion Hatch, “An Hypothesis on Olmec Astronomy with Special Reference to the La Venta Site,” *Papers on Olmec and Maya Astronomy*, Contributions of the University of

of violent seasonal thunderstorms was integrated into the agricultural rites of rain god Tlaloc and the solar year.<sup>272</sup> Sometimes, according to Šprajc, pre-Columbian structures facilitated not direct views of Venus, the moon or sun, but rather “indirect observation” of solar movements wherein “some architectural elements (jambs, columns, openings) could have been designed to produce light-and-shadow effects on certain dates.”<sup>273</sup> Presenting a Yucatec Maya exemplar, he writes,

“In the Temple of the Seven Dolls at Dzibilchaltún, for example, rectangular projections of solar light, entering the structure through a pair of windows and a pair of smaller openings in the western wall, align at sunset on the quarter-days of the year with the corresponding openings in the eastern wall.”<sup>274</sup>

And, in other cases, the ritual-architectural invitation—or, more properly, demand—was made even more emphatic by synchronization with multiple, simultaneously occurring sky phenomena.<sup>275</sup>

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California Archaeological Research Facility, 13 (Berkeley: University of California Press, 1971), 1-64.

<sup>272</sup> Clemency Coggins, “The Shape of Time: Some Political Implications of a Four-Part Figure,” *American Antiquity* 45 (October 1980), 735, reflects on the ritual integration of rainy skies, Tlaloc and the solar year at Teotihuacan.

<sup>273</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 220.

<sup>274</sup> Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 220. Ivan Šprajc, “El Satunsat de Oxkintok y la Estructura 1-sub de Dzibilchaltún: unos apuntes arqueoastronómicos,” in *Memorias del Segundo Congreso Internacional de Mayistas* (México, D.F.: Universidad Nacional Autónoma de México, 1995), 585-600, makes an argument for this sort of “indirect observation” at Dzibilchaltún; and Ivan Šprajc and Pedro Francisco Sánchez Nava, “Equinoxes in Mesoamerican Architectural Alignments: Prehispanic Reality or Modern Myth?,” in *Ancient Cosmologies and Modern Prophets: Proceedings of the 20th Conference of the European Society for Astronomy in Culture*, eds. Ivan Šprajc and Peter Pehani (Ljubljana: Slovene Anthropological Society, 2013), 319-37, presents arguments against the equinoctial orientation of the Temple of the Seven Dolls. Though suggesting that it deployed different astro-architectural strategies, Šprajc, “Astronomy, Architecture, and Landscape in Prehispanic Mesoamerica,” 238, also discusses the Governor’s Palace at Uxmal as “another eloquent example, making clear that the rulers expressed and legitimized their power not only in the ways attested in iconography and inscriptions, but also by cosmologically meaningful orientation and placement of the constructions they commissioned.”

<sup>275</sup> Regarding two circumstances in which “coincidences” of multiple sky phenomena may have been exploited, see, first, remarks on the biannual occurrence of the helical rising of the Pleiades

In all these cases, however, the *experience* of “natural” occurrences in the sky, particularly in the context of ritual, was “artificially” enhanced by ingeniously constructed architectural forms. In other words, to reiterate the point that I am, at the moment, emphasizing most strongly, while the relevant movements of celestial bodies, of course, transpired “naturally”—that is, irrespective of human intervention—strategically configured built forms and ritual procedures were indispensable to the really powerful *human experience* of these natural phenomena. The potency, and thus religious and political expediency, of those *apprehensions* of “nature” depended in ancient Mesoamerica (as elsewhere) upon a choreographed collusion of natural processes and humanly-constructed forms. In short, without the supporting architecture and careful ritual timing, there were no remarkable views.<sup>276</sup>

Among the most dramatic and high-profile Mesoamerican exemplars of this sort astro-architecturally contrived allurements is the biannual phenomenon of the “serpent of light,” which, in a figurative sense, “descends” the huge Castillo pyramid at Chichén Itzá each spring (and fall) solar equinox.<sup>277</sup> In this much-discussed case (which some regard as a stroke of luck rather than

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and the zenith passage of the sun at Teotihuacan, discussed by Anthony Aveni, “Concepts of Positional Astronomy Employed in Ancient Mesoamerican Architecture,” in *Native American Astronomy*, Aveni, ed., 3-19; and John Carlson, “The Case for Geomagnetic Alignments of Precolumbian Mesoamerican Sites—The Maya,” *Katunob: A Newsletter-Bulletin on Mesoamerican Anthropology* 10 (June 1977): 78-79. And second, for remarks on a scenario in which the Classic Maya seized upon the simultaneous inferior conjunction of Venus and a solar zenith passage as the day for an extravagant heir designation ceremony that involved a ritual battle and the final celebration of the victors, see John B. Carlson, “Ancient Skies,” *Humanities: National Endowment of the Humanities*, vol. 7, no. 5 (October 1986), 27-28.

<sup>276</sup> It is important to note that the apprehension of some celestial phenomena, say, comets and eclipses, require less artificial “enhancement” than others. I am especially concerned, however, with those phenomena such as helical risings and solstice and equinox passages that would go entirely unnoticed without the ritual-architectural choreography of a special view.

<sup>277</sup> For fuller interpretation and bibliography relative to the “serpent of light” phenomenon at Chichén Itzá, see, for instance, in Jones, *Twin City Tales*, 381-83. Jean-Jacques Rivard, “A Hierophany at Chichén Itzá,” *Miscellaneous Series*, no. 26 (Greeley: University of Northern Colorado, 1971), provides a broadly Eliadean interpretation of the Castillo equinox phenomenon; and Clemency C. Coggins, “A New Sun at Chichén Itzá,” in *World Archaeoastronomy*, Aveni, ed., 260-75, presents an alternate interpretation of the “serpent of light” phenomenon as an element in a New Fire ceremony celebrated at Chichén Itzá. Of countless more discussions of

orientational prowess), the stepped pyramid is constructed in such a fashion that twice a year in the late afternoon, as the sun sets, the nine tiers of the pyramid cast the distinctive zigzag pattern of light and shadow along the structure’s own north stairway, a pattern of elongated triangles that resembles an undulating snake and is thus usually identified as Quetzalcoatl, the mythical Plumed Serpent who is so closely associated with this site.

As an astro-engineering feat this architecturally contrived hierophany, the “Castillo equinox event,” if you will, even if cynically assessed as a colossal manipulation, is impressive even now to the some 30,000 visitors who travel to Chichén Itzá for the spring equinox. To pre-Columbian audiences, it must have been even more so. But what needs accentuation most in the context of the present discussion is the indisputable fact that the notorious “serpent of light” is *not*, after all, a natural phenomenon; it is a humanly fabricated effect—a ritual-architectural enhancement of natural celestial movements. In the absence of the stepped-pyramidal built form, nothing of special consequence happens in the Chichén Itzá plaza on the biannual occasions of equinox. Without the architecture, the luminous snake never appears.

One last, less famous but more subtle Mesoamerican circumstance in which a simultaneity of sky phenomena is hewn into an irrefusable offer to enter the closed world of the religio-architectural proceedings, and thus to consider seriously the directives articulated there—ineloquenty labeled the “Copán Temple 22-sun-Venus-maize-kingship event”—may serve both to clarify this matter of nature enhancements and to focus the broader issue of ritual-architectural allurements.<sup>278</sup> The wider astro-architectural layout of Copán, a massively complex Maya site on

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the Chichén Itzá “serpent of light” phenomena, also see Aveni, “Sky: Myths and Symbolism,” 8430-31; and Ivan Šprajc and Pedro Francisco Sánchez Nava, “Astronomía en la arquitectura de Chichén Itzá: una reevaluación,” *Estudios de Cultura Maya*, vol. 41 (2013), 31-60.

<sup>278</sup> The “Copán Temple 22-Sun-Venus-maize-kingship event,” as I’ve chosen to call it, is a particularly fortuitous example because the same circumstance has been subject to sophisticated archaeoastronomical scrutiny by Anthony Aveni, “The Real Venus-Kukulcan in the Maya Inscriptions and Alignments,” revised version of unpublished paper presented at the Sixth Mesa Redonda de Palenque, Mexico, June 1986; and to ethnohistorical, ritual interpretation by Mary Miller, “The Main Acropolis at Copán: Its Meaning and Function,” in *The Southeast Classic Maya Zone: A Symposium at Dumbarton Oaks, 6-7 October 1984*, eds. Elizabeth Hill Boone and Gordon R. Willey (Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1988), 149-94. Also see Michael P. Closs, Anthony F. Aveni, and Bruce Crowley, “The Planet Venus

the Guatemala-Honduras border, has been explained in several ways.<sup>279</sup> The scheduling of this particular (albeit hypothetical) religio-political ceremony, however, exploited the annual coincidence of two natural celestial phenomena: The first involves the sun's passage along a baseline that bisects the Main Acropolis and connects two outlying stelae (or "outliers") positioned some four miles apart on either side of the Copán Valley;<sup>280</sup> the second involves the (re)appearance of Venus on the horizon after its disappearance during the rainy season, an occurrence to which a slit-like aperture window on the west side of Temple 22 seems to have been specifically oriented.<sup>281</sup>

The one evening each year when these solar and Venus phenomena coincide, not incidentally about twenty days before the advent of the rainy season, is the scheduled date for what art historian Mary Miller believes, on the basis primarily of ethnohistorical evidence, was an elaborate rite of ascension or reaffirmation of kingship.<sup>282</sup> According to Miller, Temple 22 was both the ritual palace of the royal family and an architectural replica of the cosmic Earth

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and Temple 22 at Copán," *Indiana* 9, no. 1 (1984): 221-47; and Aveni, "Concepts of Positional Astronomy Employed in Ancient Mesoamerican Architecture," 9-13.

<sup>279</sup> Horst Hartung, "Alignments in Architecture and Sculptures of Maya Center: Notes on Piedras Negras, Copán, and Chichén Itzá," *Ibero-Amerikanische Archiv*, neue folge. Berlin: Colloquim Verlag Berlin, 1986: 237, interprets the orientation of Copán in terms of a "starting point" on the stairway of Temple 11, from which spreads a system of cardinal lines, right angles and isosceles triangles. Alternatively, Anthony F. Aveni and Horst Hartung, *Maya City Planning and the Calendars* (Philadelphia: The American Philosophical Society, 1986), 15, offer a different explanation of Copán's orientation based on three general zones each with its own alignment.

<sup>280</sup> Anthony F. Aveni, "The Real Venus-Kukulcan in Maya Inscriptions and Alignments," *Sixth Palenque Round Table, 1986*, eds. Merle Greene Robertson and Virginia M. Fields (Norman: University of Oklahoma Press, 1986), 28, compares the "outliers" located around the periphery of Copán to the *huacas* of Cuzco's *ceque* system, and conjectures that those "outliers" could have functioned as "spatial/territorial boundary markers" or "calendrical markers."

<sup>281</sup> Aveni, "The Real Venus-Kukulcan in Maya Inscriptions and Alignments," 21-28. My brief summary line does not do justice to Aveni's explanation of the relation between the window in Temple 22 and Venus; his argument is bolstered by the abundant Venus iconography on Temple 22.

<sup>282</sup> I am following the summary of Mary Miller's work on Copán presented by Aveni, "The Real Venus-Kukulcan in Maya Inscriptions and Alignments," 29-30.

Monster, a built symbol of the earth itself. On this most propitious day, then, in the context of this ceremonial reaffirmation, the king would enter the “Earth Monster doorway” of the royal temple—a metaphor for the sowing of maize—and then, in an intricate series of ritual movements, the king would, as he emerged from the building, in a sense, “sprout” and “grow.”

There was, in other words, a masterful orchestration—or astro-homologization—of the career of the king, the return of the rainy season, the act of sowing maize, the (re)appearance of Venus in the aperture window and the setting of the sun along the baseline of the outliers. Moreover, the twofold pattern of ritual-architectural events is again especially evident. Regarding the “front-half” of the occasion, a spectator standing in the forecourt of Temple 22 would have been “opened” by the witness of the celestial coincidence of Venus and the sun; that is, in other words, the conservative, catalytic, instigatory or alluring component of the ceremonial event. And then, once involved, that spectator would have encountered the component of variation and new information, that is, the “back-half” of the event, in this case, an announcement concerning the specific agenda of agricultural duty and political loyalty to the Copán king. In one fabulous ritual stroke, the king, having bound himself into the very cosmological fabric of the universe, is legitimated; the timing and, furthermore, cosmic responsibility to sow and reap maize is affirmed; and the peripheral territory of the outliers is integrated with the civic ceremonial center of Copán.

### **C. THE RITUAL-ARCHITECTURAL ENHANCEMENT OF NATURE AT MONTE ALBÁN: THE TWO MOST PROMINENT CASES**

Turning now to the specifics of Monte Albán, we note that, although the infamous fatalism of the Aztecs is seldom attributed to ancient Oaxacans, the preoccupations with knowing and predicting the future most certainly are. José Alcina Franch, for instance, in the context of his study of Zapotec religion and calendars in Oaxaca’s northern sierra region during the seventeenth century, underscores the prominent role of divination and diviners, irrespective of the disarticulation of the pre-Columbian institutions and belief system in which they formerly

operated.<sup>283</sup> When such magico-religious counselors, using one or more systems of divination, provided advice to individuals and communities about the various sacrifices, offerings or penances they ought to perform, and the specific divinities to which they ought to direct their petitions, that guidance also included specific recommendations as to precisely where and when those rituals ought to be performed. The setting and timing of Zapotec ritual—which invariably depended on the calendar and, to that extent, on astronomical periodicities—were not less important than the specific acts that were undertaken.

Though recreating pre-Columbian rituals is an uncertain business, the astronomical alignments of numerous Monte Albán buildings strongly suggest that sort of strategic timing and stage-setting was at play in the ceremonials performed at the capital during its prime. Of countless circumstances in which this probably happened, consider in turn the sorts of ritual-architectural enhancements of nature that seem to have transpired respectively in relation to its two most heavily debated structures: Building J and Building P.

### **1. Building J at Monte Albán and Building O at Caballito Blanco: A Strategic Juxtaposition of Astronomic Allure and Political Content**

Shaped roughly like home plate on a baseball diamond and skewed about 45% relative to the rest of the buildings in the Main Plaza, Building J actually has no two equal sides or angles.<sup>284</sup> Though with notable exceptions, most academic and amateur commentators on the

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<sup>283</sup> Alcina Franch, *Calendario y religión entre los zapotecos*, 70.

<sup>284</sup> Recall a footnote early in this chapter that innumeraed the standard academic sources on Building J. Regarding an art historian’s assessment of the structure, Mary Ellen Miller, *The Art of Mesoamerica: From Olmec to Aztec* (London: Thames and Hudson, 1986), 50-51, informed by Aveni’s interpretation (summarized momentarily), writes, “Mound J is, then, one of the first buildings in Mesoamerica that we can consider a great chronographic marker. Its purpose was to acknowledge the passage of time, and—interestingly enough—it appears about the same time as the proliferation of the written calendar system...” Regarding a non-Mesoamericanist’s impression of the still striking anomaly of Building J, physician, naturalist and traveler Oliver Sacks, *Oaxaca Journals* (Washington, D.C.: National Geographic, 2002), 125-26, wrote: “There is one building that startles me, because it is set at a violent angle to everything else, revolts against the symmetry of the rest. It has a strange pentagonal shape that makes me think of a ship, a spaceship, an enormous one which has crashed here on the airstrip-like top of Monte

Zapotec capital since the 1930s, when Alfonso Caso identified “perhaps the most interesting building in all of Monte Albán” as the “Observatory,” have been willing to grant that the oddly shaped Structure J has a purposeful astronomical design.<sup>285</sup> And prior to Javier Urcid’s recent, still-debated reinterpretation (which I will address in chapter 5 relative to “the sacred history” priority, II-B”),<sup>286</sup> even more pervasive since Caso’s era has been agreement that the iconographic images on the exterior walls are “conquest slabs” that present an inventory of the capital’s specific military victories during Period II.<sup>287</sup> There is, however, far less consensus on the specific skywatching rationale for the pentagonal structure’s design or on the relationship between the building’s astronomical and militaristic features, which do not, on the face of things, seem consistent with one another.<sup>288</sup> I will, however, argue at the end of this section that the

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Alban—or, perhaps, is about to launch itself to the stars. Its official name in Building J, but it is more informally known as the Observatory...”

<sup>285</sup> Caso’s most direct, though still brief, comments on Building J appear in Caso, *Exploraciones en Oaxaca; quinta y sexta temporadas 1936-1937*, reprint version Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 3, section on “Montículo J,” 12-20. Citing this work, Peeler and Winter, “Building J at Monte Albán,” 362, write that “[Caso] began the tradition of the ‘Observatory’ at Monte Albán and the search for a specific astronomical relationship for the building.” Caso does, however, make a slightly earlier reference to Building J as an “observatorio astronómico,” in Caso, *Culturas Mixteca y Zapoteca* (originally 1936), 22; and I suspect there are other earlier references than that. Recall, for instance, the (not-very-well-informed) comments of Aldous Huxley, *Beyond the Mexique Bay* (1934), 262, on Zapotec astronomical prowess, which are likely informed by Caso.

<sup>286</sup> Regarding his radically different interpretation of the Building J “conquest slabs”—a very different perspective that depends most of all on the proposition that the famous inscriptions were not originally composed for and situated on this building, but rather were harvested and reused from a previous (Pe phase) narrative composition—see Urcid, “Mound J at Monte Albán and Zapotec Political Geography during Period II (200 B.C.-A.D. 200);” or see the more accessible summary of his view in Urcid and Joyce, “Early Transformations of Monte Albán’s Main Plaza,” 157-64. As noted, I will address this topic much more fully in chapter 5 relative to the sacred history priority, II-B.

<sup>287</sup> See Caso, *Exploraciones en Oaxaca; quinta y sexta temporadas 1936-1937*, reprint version Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 3, 12-20. Regarding his interpretation of the so-termed “conquest slabs” on Building J, also see Alfonso Caso “Calendario y escritura de las antiguas culturas de Monte Albán,” in *Obras Completas de Miguel Othón de Mendizábal*, vol. I (México, D.F: Talleres Gráficos de la Nación, 1947).

<sup>288</sup> Regarding early representations of (what would come to be called) Building J that do *not* depict it as an “observatory” or even an exception to the broader orientation of the Main Plaza,

seeming mismatch is actually a deliberate, even quintessential, juxtaposition of astronomical allurements (priority I-C) and political content (priority II-C).

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consider the following: The apparently earliest plan drawing of Monte Albán, by German naturalist Johann von Müller (1857)—reproduced in Nelly M. Robles García and Alberto Juárez Osnaya, *Historia de la Arqueología en Oaxaca* (Oaxaca: Instituto Oaxaqueño de las Culturas, 2004), 34—presents Building J (labeled as “b”) as though it were a rectangle aligned like the other buildings in the Main Plaza. Another very early and more rudimentary sketch of the Main Plaza in José María García, *Descripción de algunos sitios del departamento de Oaxaca*, Boletín de la Sociedad Mexicana de Geografía y Estadística, primera época 7 (1859): 270—reproduced in Urcid, *Zapotec Hieroglyphic Writing*, 292, fig. 5-10—shows three (not four) structures in the center of plaza, all with precisely the same slightly skewed orientation. Hubert Howe Bancroft, *The Native Races*, vol. IV, *Antiquities* (San Francisco: The History Company, Publishers, 1886), 378, it seems, copies Müller’s plan, and thus likewise shows Building J as a straightly aligned rectangle. The almost completely forgotten plan of Monte Albán that appears in A.H. Wheeler, M.D., “Oaxaca and its Surroundings, As a Field for Archaeological Research,” *Popular Science News* (February 1896): 35, imposes a perfect cardinal alignment on the buildings of the Main Plaza, including Building J, which is (mis)represented as a rectangle exactly aligned with the other structures in the center of the plaza. (This rare plan is reproduced in Schávelzon, “Un observatorio no observado? Un edificio de Monte Albán según los primeros arqueólogos,” 77.) Also, both the plan drawing and the famous, hastily made but impressively accurate plan and panorama drawings in William Henry Holmes, *Archaeological Studies Among the Ancient Cities of Mexico* (1895, 1897), pt. II, opposite 226, pls. XXVII and XXVIII, present Building J as a near-square that is aligned like the other buildings in the Main Plaza. Also, the famous, hastily made but impressively accurate plan and panorama drawings in William Henry Holmes, *Archaeological Studies Among the Ancient Cities of Mexico* (1895, 1897), pt. II, 226, present Building J as a near-square that is aligned like the other buildings in the Main Plaza. Leopoldo Batres, *Exploraciones de Monte Albán* (México: Casa Editorial Gante, 1902), which reproduces numerous examples of Zapotec glyphs but makes no explicit reference to astronomy, has a panorama drawing of Monte Albán (lámina I) that shows four (rather than the actual three) other straight-aligned buildings in the center of the Main Plaza, but does seem to depict Building J as somewhat out-of-line with the others. More technical and accurate but still ambiguous concerning Building J is the 1926 topographic plan drawing commissioned by the Secretaría de Educación Pública, Dirección de Arqueología, which is signed by Ing. Mariano Tirado Osario, that appears in Alfonso Caso, *Las estelas zapotecas* (1928), or, in its reprinted version, Alfonso Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas* (México, D.F.: El Colegio Nacional, 2002), vol. 2, 89; in this 1926 plan, Building J has a somewhat irregular shape (perhaps owing to the combined disrepair and overgrowth of the structure at this point), but it still not depicted as arrowhead shaped. By contrast, the frequently reproduced “Plano topográfico de Monte Albán antes de la exploración”—which is dated 1932, attributed to Ing. Horacio Herrera and signed by Director of the Monte Albán Explorations, Alfonso Caso—accurately depicts the arrow-shape and skew of Building J; that plan is reproduced, among many places, in Alfonso Caso, *El tesoro de Monte Albán* (México, D.F.: Instituto Nacional de Antropología e Historia, 1969), following page 16.

*a. A Brief History of Ideas about Building J: The Seeming Contradiction of Astronomic and Politico-Militaristic Purposes*

Like the nearby wall of Danzante figures, Building J is the sort of highly conspicuous structure that must be addressed in every synthesis of the site, each of which has to present an interpretation that matches the author’s wider (re)construction narrative; and thus again a slight digression into the relevant history of ideas is in order.<sup>289</sup> Caso, for instance, considered Building J to be among the signal features of the Mayanoid-stimulated Epoch II’s brief but spectacular “florescence in the arts.”<sup>290</sup> More preoccupied with Zapotec writing than astronomy, Caso’s primary interest was in the series of some 50 carved stones that he believed depict specific localities that had been conquered by forces from Monte Albán.<sup>291</sup> Nonetheless, regarding possible astronomical uses, besides noting the odd shape and obvious slant with respect to other Main Plaza structures—which gave him pause to doubt Guillermo Dupaix’s assumption that it was simply another tomb—Caso suggested that a passageway through the building, which may never have been roofed at its center, might have been left open to enable a

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<sup>289</sup> Peterson, “Monte Albán Building J: An Hypothesis of Function,” 29-33, prior to presenting his own novel hypothesis that Building J was a “wind temple,” provides a helpful inventory of “current hypotheses,” which he divides between those that favor astronomical interpretations of Building J versus those that ignore astronomy and base their interpretations on the iconography and, thus, usually argue for the structure’s more political and militaristic significance. At the end of his article, Peterson, like me (though for different reasons), comes the conclusion that those two positions are actually “*companion hypotheses*” rather than mutually exclusive alternatives. *Ibid.*, 36; his italics.

<sup>290</sup> Caso, *Culturas mixteca y zapoteca*, 22; my translation. Though routinely referred to as a Period II feature, archaeologists associate at least three building stages with Building J, the first commencing before 250 BCE, and the most recent dating to 500-700 CE. Aveni, *Skywatchers*, 267, acknowledges the help of Javier Urcid in determining that building sequence. Fahmel Beyer, *La arquitectura de Monte Albán*, 94-101, enumerates four construction stages in Building J.

<sup>291</sup> See Caso, *Exploraciones en Oaxaca; quinta y sexta temporadas 1936-1937* (reprinted in Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 3, 12-20); Caso, “Resumen del informe de las exploraciones en Oaxaca, durante la 7a y 8a Temporadas 1937-1938 y 1938-1939” (reprinted in Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1, 170-71); and Caso “Calendario y escritura de las antiguas culturas de Monte Albán.”

view of something in the sky.<sup>292</sup> But he made no conjecture as to what that celestial phenomenon may have been.<sup>293</sup> Be that as it may, for Caso, the paired adeptness at astronomical observation and the detailed record of military victories made Building J an ideal exemplar of the Oaxacans’ balanced proficiency in both intellectual and political spheres.<sup>294</sup>

Art historian Ignacio Marquina, who relied very heavily on Caso, reechoes both his iconographic interpretation and the possibility of an astronomical motivation for the construction of Building J;<sup>295</sup> and archaeologist Ignacio Bernal, like everyone of that era, generally concurs with Caso’s dating of Building J (or Mound J) as well as with its paired functions.<sup>296</sup> Bernal concedes that the numerous carved stone panels “probably are testimonials to successful

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<sup>292</sup> Caso, *Exploraciones en Oaxaca; quinta y sexta temporadas 1936-1937*, reprint version Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 3, 12-14.

<sup>293</sup> Regarding the specific astronomical use of Building J, Fahmel Beyer, *La arquitectura de Monte Albán*, 94 (my translation), says that “Caso (1938) concluded that the Building J passage was not a tomb but an observatory. In this regard, Caso says there are points from which you can direct visuals to the places where the sun rises and sets during the solstices.” But I do not find any references to solstices in Caso’s report.

<sup>294</sup> Regarding Caso’s utilization of the Building J’s doubled investments in astronomy and militarism as a sign of the Zapotecs’ balance of intellectual sophistication and political acumen—as contrasted, for instance, with the purported one-sided astronomy obsessions of the Classic Mayas—see Alfonso Caso, “Monte Albán: An Archeological Zone of World-Wide Renown;” in *Mexican Art and Life*, no. 4 (October 1938); reprinted in Alfonso Caso, *Obras: El México Antiguo: Mixtecas y Zapotecas*, vol. 1 (México, D.F: El Colegio Nacional, 2002), 147, where he writes, “The Zapotec priests... erected an astronomical observatory in the center of the Great Square, and from it they followed with intent gaze the movements of the sun and moon, and the stars in their immutable courses, and haply embodied in symbolic myths the heavenly phenomena that gripped the soul of the people in fear.” Regarding a context for this overwrought and atypical Caso article, see Jones, *Narrating Monte Albán*, chap. 1, the section on “Technical Adjustments and Popular Enhancements: Answering the Exuberance of Mayanist Aficionados.”

<sup>295</sup> Marquina, *Arquitectura prehispánica*, 328.

<sup>296</sup> Regarding the role of Building J in Bernal’s broader (re)construction of Monte Albán, see Jones, *Narrating Monte Albán*, chap. 2, the section entitled “Period II: The Continuing Ascent of Monte Albán: A Combination of Oaxacan Receptivity and Mayanoid Stimulation.”

campaigns of the lords of Monte Albán,”<sup>297</sup> which may have both continued, “though in a different way,” the theme of war and victory that was expressed earlier via the contorted, seemingly tortured Danzante carvings and prefigured later stelae that also seem to commemorate military leaders and successes;<sup>298</sup> but, soft-pedaling the militarism of early Monte Albán, Bernal considered Building J most credit-worthy for its display of astronomical interest and prowess, though beyond that he was not more specific.<sup>299</sup> John Paddock, even less inclined to stress the martial accomplishments of Monte Albán in any era, favored a more cosmological than political reading of the Building J glyphs, which drew on artist and collector Howard Leigh’s suggestion that the inverted heads represent “celestial deities passing under the earth (the mountain glyph) in order to resume their heavenly procession the following day.”<sup>300</sup> And while noting the (nearly)

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<sup>297</sup> Ignacio Bernal, *The Olmec World*, trans. Doris Heyden and Fernando Horcasitas (Berkeley and Los Angeles: University of California Press, 1969), 154.

<sup>298</sup> Bernal, *The Olmec World*, 154-55.

<sup>299</sup> Ignacio Bernal, *3000 Years of Art and Life in Mexico as Seen in the National Museum of Anthropology, Mexico City* (New York: Harry N. Abrahams, 1968), 97. Recall also that, among many who were indebted to Caso’s and Bernal’s ideas, journalist Augur, *Zapotec* (1954), 105, and art historian Stierlin, *Ancient Mexico* (1963), 133, both comment on Building J’s supposed astronomical significance.

<sup>300</sup> Paddock, “Oaxaca in Ancient Mesoamerica,” 119, without a specific citation, mentions Howard Leigh’s interpretation of the “conquest slabs.” This is probably a reference to Howard Leigh, “Zapotec Glyphs,” *Boletín de Estudios Oaxaqueños*, núm. 2 (1958), 3-6, a brief article in which, according to the skeptical assessment of Urcid, *Zapotec Hieroglyphic Writing*, 49, 54, Leigh explicitly rejects the idea that Zapotec inscriptions record historical matters, and instead argues that they deal with astronomical notations and time reckoning. In any case, regarding alternate interpretations of Building J’s iconography, Paddock, “Oaxaca in Ancient Mesoamerica,” 123, reproduces images of the Building J’s carvings and Caso’s interpretation of them. By contrast, Aveni and Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” 528, and Aveni, *Skywatchers*, 265, discern images of “cross-sticks” (illustrated in Marquina, *Arquitectura prehispánica*, 332, lám. 92), which may have been used as instruments to sight stars. As noted by Peeler and Winter, “Building J at Monte Albán,” 362, the work of Jansen and Pérez Jiménez, “The Ancient Mexican Astronomical Apparatus: An Iconographic Criticism” (1983), specifically challenges that interpretation of the crossed sticks. Also see, among many sources on the Building J iconography (which I address more fully in chapter 5 relative to the sacred history priority, II-B), Gordon Wittaker, “The Tablets of Mound J at Monte Albán,” in *Coloquio Internacional: Los indígenas de México en la época prehispánica y en la actualidad*, eds. Maarten E.R.G.N. Jansen and Ted J. J. Leyenaar (Leiden: Rutgers, 1982), 50-86; Urcid, “Mound J at Monte Albán and Zapotec Political Geography during Period II (200 B.C.-A.D. 200);” Urcid and Joyce, “Early Transformations of Monte Albán’s Main Plaza,” 157-

unique shape and orientation of Building J, Paddock apparently saw the structure's 45% skew with respect to the other buildings as more purposeful than any alignment with respect to celestial bodies.<sup>301</sup>

Very differently, Richard Blanton, in the context of his much more politicized (re)construction of Monte Albán's history, acknowledges the peculiarity of Building J, but is not inclined to accentuate the structure's novelty nor its significant departure from earlier architectural styles.<sup>302</sup> Nor is Blanton predisposed, like Caso, Bernal and countless more recent commentators, to seize upon the building's supposed astronomical alignments as a warrant to applaud the mounting intellectual sophistication of the Period II Monte Albán residents.<sup>303</sup> Instead, Blanton stresses the continuity in purpose between the dozens of "conquest slabs," which he agrees with Caso refer to specific military victories, and the earlier Danzante gallery.

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64; and Bernd Fahmel Beyer, "Las lápidas del Montículo J de Monte Albán y el surgimiento del estado en los valles centrales de Oaxaca," *Anales de Antropología*, vol. 34 (2000): 81-104. Additionally and very differently, note that Marcus Winter (1982): 436-37 (cited by Peterson, "Monte Albán Building J: An Hypothesis of Function," 32), suggests that the glyphs on Building J may commemorate, not vanquished towns, but positive contributions to alliances centered at Monte Albán; but Winter does not press that interpretation in his subsequent work.

<sup>301</sup> Regarding the role of Building J in Paddock's broader (re)construction of Monte Albán, see Jones, *Narrating Monte Albán*, chap. 3, the section entitled "Period II: The Certain Onset of the Early Urbanism: 'First-Generation' Civilization at Monte Albán." Regarding Paddock's general skepticism about archaeoastronomical hypotheses, Peterson, "Monte Albán Building J: An Hypothesis of Function," 31, citing a 1985 personal communication with Paddock, says that, for him, the similar 45% skew of Monte Albán's Building J and Caballito Blanco's Building O (discussed momentarily) with *respect to the other buildings at the respective sites* suggests that is the determinative angle while the relationship of the two five-sided buildings to celestial phenomena may be simply coincidental.

<sup>302</sup> Richard E. Blanton, *Monte Albán: Settlement Patterns at the Ancient Zapotec Capital* (New York: Academic Press, 1978; Clinton Corners, NY: Percheron Press, 2004), 47. Regarding the role of Building J in Blanton's broader (re)construction of Monte Albán, see Jones, *Narrating Monte Albán*, chap. 4, the section entitled "The Period II Retrenchment of Monte Albán: Weakened External Threats, thus Weakened Capital."

<sup>303</sup> Blanton, *Monte Albán*, 47, acknowledges that Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 528-40, "have now [in 1972] interpreted the building as an astronomical observatory;" but, seemingly resistant to the then-new field of archaeoastronomy, he is unwilling (in 1976) affirm their conclusions.

Transferring the very same descriptor from the older building to the new one, Blanton contends that, "Structure J appears to have been the Period II version of the military showcase, replacing or perhaps supplementing the [Period I] *Danzantes* building..."<sup>304</sup> In his view, there can be no doubt that the new and different constructions were facilitating the same unwavering functions: "Obviously the Main Plaza continued, during the Late and Terminal Formative Periods [i.e., Periods Late I and II], to be the special area where the bulk of the community's monumental construction [sic] was evident and where military successes were advertised."<sup>305</sup>

The elaborate action-theory interpretation presented in Kent Flannery and Joyce Marcus' *Zapotec Civilization* is similarly reaffirming of Caso's interpretation of Building J's militaristic iconography, which matches their emphasis on entrepreneurial and self-interested leadership styles; but, like Blanton, they too are dismissive of the prospect of astronomical alignments, which they decline even to mention.<sup>306</sup> Elsewhere, in 1983, Marcus writes, on the one hand, "I feel that Caso's interpretation of these slabs [on Building J] is essentially correct;"<sup>307</sup> but, on the other hand, unpersuaded by Aveni and Robert Linley's then-recent efforts (discussed next

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<sup>304</sup> Blanton, *Monte Albán*, 47. Besides "military showcase," Blanton, *Monte Albán*, 63, also refers to Structure J as "a military trophy case." That he focuses so completely on the "conquest slabs" while essentially ignoring the astronomical features of Structure J (noting only that "some have interpreted the building as an astronomical observatory," *ibid.*, 47) is a particularly clear instance of Blanton's determined effort to depict the ritual-architectural agenda of Monte Albán as more one-dimensional than others (myself included) imagine that it actually was.

<sup>305</sup> Blanton, *Monte Albán*, 47.

<sup>306</sup> Regarding the role of Building J in Flannery and Marcus' *Zapotec Civilization* (re)construction of Monte Albán, see Jones, *Narrating Monte Albán*, chap. 6, the section entitled "The Period II Transition from State toward Empire: Political Climax before Cultural Florescence."

<sup>307</sup> Joyce Marcus, "The Conquest Slabs of Building J, Monte Albán," Topic 29 in *The Cloud People*, eds. Flannery and Marcus, 107. Marcus, like numerous others, notes that, in addition to the much-discussed "conquest slabs," there are also some Danzante carvings in the lowest tier of Buildings J's walls, "but these were apparently reused simply as construction stones, and there is some evidence to indicate that they were covered over with stucco." *Ibid.* (I will note momentarily the hypothesis of Peeler and Winter that even the conquest slabs were, like the Danzante stones, repurposed as facing stones and also stuccoed over during the era in which Building J was used as an "observatory.")

paragraph), she asserts that, “no one has yet been able to link its orientation to a specific star, planet, constellation, or other astronomical landmark.”<sup>308</sup> And, therefore, Marcus issues the skeptical view that, “I can see no specific evidence to suggest an astronomical function for the building.”<sup>309</sup> Having opted out of the timeworn, though admittedly vague, assumption that Building J was an “observatory”—and having assessed the apparently militaristic character of the iconography as yet more counterevidence to a celestial orientation—Marcus suggests, alternatively, that “[Building J’s] lack of alignment vis-à-vis known temples in the Main Plaza might indicate that its functions were secular, not religious.”<sup>310</sup>

Regarding alternate functions for Building J, David A. Peterson, who is far more inclined to accept the prospect of its astronomical significance, eventually (in 1992) makes the intriguing but seldom reaffirmed case that the structure was a very early example of the sort of “wind temple” that was, in later times, fairly common in other parts of Mesoamerica.<sup>311</sup> And in the major reinterpretation of the status and meaning of the “conquest slabs” provided by Urcid and Joyce, they make the totally disparate case (which I will address in chapter 5) that, albeit enlarged three times, “the different versions of Building J appear to have acted as ancestor memorials analogous to a series of Classic period quadripartite architectural complexes found at Monte Albán and other sites in the Oaxaca Valley.”<sup>312</sup> But they do not make argument for or against the astronomical significance of Building J.

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<sup>308</sup> Marcus, “The Conquest Slabs of Building J, Monte Albán,” 106.

<sup>309</sup> Marcus, “The Conquest Slabs of Building J, Monte Albán,” 106.

<sup>310</sup> Marcus, “The Conquest Slabs of Building J, Monte Albán,” 106.

<sup>311</sup> Peterson, “Monte Albán Building J: An Hypothesis of Function” (1992), 34-35, considers that Building O at Caballito Blanco could likewise have been a “wind temple.”

<sup>312</sup> Urcid and Joyce, “Early Transformations of Monte Albán’s Main Plaza,” 157.

*b. Astronomical Hypotheses and Morphological Consequences: Periodic and Permanent Modes of Astro-Architectural Allurement*

At any rate, after decades of generalized speculation, the 1972 efforts of Anthony Aveni and paleontologist Robert Linsley mark the first technically-informed attempt to discern Building J's more specific astronomical purpose.<sup>313</sup> Recreating in a planetarium the Oaxaca sky around 275 BCE, Aveni and Linsley find "no coincidences with the important solar and lunar positions;" and they detect "no astronomical significance for the tunnel mentioned by both Caso and Marquina."<sup>314</sup> Instead, they identify as the key natural phenomenon the helical rising of Capella, the sixth brightest star in the sky. Though simpler than the Copán Temple 22 event, the astro-effect they imagine similarly depends upon predictive awareness of the simultaneity of two sky events wherein annually, about May 9<sup>th</sup>, as the sun made one of its two zenith passages over central Oaxaca, Capella made its first (or helical) reappearance on the northeast horizon just before sunrise. In their assessment, this yearly occurrence "would have been quite noticeable in the clear dark skies above the high plateau on which Monte Albán is situated, and would have provided a convenient and simple means of determining the length of the tropical year."<sup>315</sup> Describing precisely the sort of annual ritual-architectural enhancement of nature on which this section concentrates, Aveni and Linsley contend that, on that day in early May,

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<sup>313</sup> Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 528, claim (in 1972) that, "Significantly, no discussion of the particular astronomical phenomena which conceivably might bear a relation to [Building J] appears in the literature." As noted, I can find nothing to refute that. It is notable also that, of Aveni's enormous oeuvre of articles and books about archaeoastronomy in Mesoamerica and elsewhere, this is among his very earliest articles.

<sup>314</sup> Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 528. Thirty years later, Aveni, *Skywatchers*, 263, affirms that "Actually, because of its zigzag shape, Caso's chamber does not give clear access to the sky, much less to any part of the horizon."

<sup>315</sup> Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 528-29. Peeler and Winter, "Building J at Monte Albán," 362, summarize Aveni and Linsley's position as follows: "...the stairway [of Building J] directly faces a vertical tube built into Building P that could have been used to determine the day of solar zenith passage, and this same sight line continues on to the point just above the northeastern horizon where the bright star Capella first appeared each year out of the glare of the rising sun before sunrise on or about the same day as the zenith passage of the sun."

"... an observer looking out of the doorway of the temple atop Mound J would have been able to view Capella rising directly in front of him. Capella was unique among the bright stars at this time since it underwent heliacal rising on or about the same day as the sun underwent the first of two annual passages through the zenith of Monte Albán. It is well known that the times of zenith passage of the sun were of considerable importance in the calendars of native American people and were frequently occasions for celebration and religious festival."<sup>316</sup>

Along with their primary conclusion that Building J's orientation owes foremost to the conjoined helical rising of Capella and a zenith passage of the sun, Aveni and Linsley hypothesize also that the pointed end of the structure was directed toward the location of the setting of five of the 25 brightest stars in the sky during Period II.<sup>317</sup> And, as another ancillary component of their Capella thesis, they also contend that a perpendicular line followed northeastward from the stairway of Building J passes directly over an opening in the stairway of Building P (to which I turn momentarily) that had a "sighting tube" that assisted in determining

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<sup>316</sup> Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 529. Note, by the way, that Jeremy A. Sabloff, *The Cities of Ancient Mexico: Reconstructing a Lost World*, revised edition (New York: Thames and Hudson, 1997), 45-45, introduces his "vignette" on Monte Albán with a two-page literary rendition of the sort of 1 CE festival and rites of human sacrifice that he thinks were initiated by Zapotec astronomers viewing from Building J both a solar zenith passage and the emergence on the horizon of "a bright star." Though Sabloff declines to identify that star as Capella in his little story, his account clearly draws on Aveni and Linsley's hypothesis, which he rehearses later in his text. *Ibid.*, 175-78.

<sup>317</sup> See Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 530 (fig. 2), where they explain this portion of their hypothesis as follows: "the setting of the five bright stars close to the direction of the apex of the building represents another notable astronomical phenomenon which might bear a relation to Mound J, although in this instance the relation would not appear to be functional." Or see Aveni, "Possible Astronomical Orientations in Ancient Mesoamerica," 174, fig. 2.

the day of the solar zenith passage.<sup>318</sup> In his later work, Aveni nuances but reaffirms these initial conclusions.<sup>319</sup>

In the early 1990s, Damon Peeler and Marcus Winter undertake the most studied reassessment of Aveni and Linsley’s Capella hypothesis in ways that, among other things, complicate and enrich our thinking with respect to just what sorts of permutations of the astronomy priority (I-C) the infamous Building J may have been involved. Peeler and Winter take issue with several of their predecessors’ specific measurements and alignments, and they argue for an earlier construction date of 1 CE (rather than 275 BCE, on which Aveni based his calculations).<sup>320</sup> These adjustments lead them to reject Aveni and Linsley’s ideas about the setting of five bright stars in the direction of Building J’s apex; and their more archaeologically informed reassessment of Building P compels Peeler and Winter also to contest its utilization as a solar zenith siting device.<sup>321</sup> But, ironically, their altered dates and alignments actually strengthen the case for the coincidence between a solar zenith passage and Capella’s annual helical rising as the primary factor in Building J’s alignment, and, to that extent, they too endorse the prospect of an annual ritual-architectural enhancement of nature (i.e., the present sort of expression of the astronomy priority, I-C). In their re-creation of the predictable concurrence of sky phenomena on which Building J’s orientation depends:

“At the later assumed date of construction [i.e., 1 CE], the zenith passage of the sun occurred on the same day as the anticipated helical rising of Capella. The case for the

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<sup>318</sup> See Aveni and Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” 529; and Aveni, *Skywatchers*, 265, 267. For supportive views on the orientation of Building J, see Horst Hartung, “A Scheme of Probable Astronomical Projections in Mesoamerican Architecture,” in *Archaeoastronomy in Pre-Columbian America*, Aveni, ed., 194, fig.1 and 201, fig. 7.

<sup>319</sup> See Anthony F. Aveni, “Possible Astronomical Alignments in Ancient Mesoamerica,” in *Archaeoastronomy in Pre-Columbian America*, Aveni, ed., 73-177; and Aveni, *Skywatchers*, 262-71.

<sup>320</sup> Peeler and Winter, “Building J at Monte Albán,” 364-66.

<sup>321</sup> Peeler and Winter, “Building J at Monte Albán,” 367-68.

alignment of the stairway side of [Building J] with the helical rise of Capella on the solar zenith passage date is very strong.”<sup>322</sup>

But then Peeler and Winter augment their interpretation of Building J’s alignment in two additional ways, which imply significantly different—complementary not mutually exclusive—strategies of pre-Columbian allurement. First is their hypothesis concerning how the extended ground plan of Building J reflects the so-termed Zapotec triangle of 365:260 astro-calendrical-based proportions, which I discussed earlier as a prime exemplar of the pairing of astronomic (priority I-C) and conventionalized (priority I-B) modes of allurement. That astro-numerical design principle is, then, by contrast to the sort of ritual-architectural allurement that capitalizes on predictive knowledge of periodic sky occurrences, a perennial (permanent not periodic) feature of Building J that constantly reaffirms its conformity to the homologized plan of Monte Albán and, indeed, the whole world.

Secondly, however, in a different arc of their work, Peeler and Winter implicate Building J in a choreographed display of light and shadow that brings to mind the “serpent of light” phenomenon at Chichén Itzá—and this little-discussed component of their interpretation does depend upon strategically capitalizing on predictable celestial periodicities. In other words, while Aveni has expressed skepticism about the intentional quality of the spring (and fall) descent of the the serpent down the Chichén Itzá Castillo because there are so few other Mesoamerican examples that seem to capitalize on the play of light and shadow in the same way,<sup>323</sup> Peeler and Winter proffer, in the context of their multifaceted interpretation of Building J, a parallel effect at Monte Albán. Like others, sensing a contradiction between the building’s astronomical and militaristic features, they assert that, “Despite Building J’s many conquest slabs carved in low relief, boasting of conquered towns and slain rulers, it appears to have been as much a calendar temple as propagandistic military monument;”<sup>324</sup> and their discernment of both

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<sup>322</sup> Peeler and Winter, “Building J at Monte Albán,” 364.

<sup>323</sup> Aveni, personal communication.

<sup>324</sup> Peeler and Winter, *Sun Above, Sun Below*, 26.

solar alignments and calendrical ratios in the structure's design bolsters that view.<sup>325</sup> But then, reechoing those who have applied the notion of a "hierophany" to the Chichén Itzá equinox event,<sup>326</sup> they also propose a biannual, albeit somewhat less dramatic, light-and-shadow effect at the Zapotec capital:

"In addition [to the 260:365 calendrical ratio on which the plan of the building is based], although it seems to have gone without comment, the design of Building J creates an interesting hierophany. The two high walls forming the "point" lie approximately east-west and north-south. The shadow of one is dependent upon the day-by-day movement of the Sun to or from the south; the shadow of the other is dependent upon the minute-by-minute movement of the Sun from east to west. At the moment of the vertical Sun, both walls will simultaneously turn from shaded to illuminated and briefly show the low relief carved conquest slabs in raking light, giving them a deeper-cut, three dimensional effect. This May 8 and August 5 shadow event occurs at noon Sun time, not local civic time."<sup>327</sup>

To anticipate my conclusions, note that, in this hypothetical ritual-architectural event, the spring iteration of which would coincide with the helical rising of Capella (and with the first of the year's two solar zenith passages), the play of light and shadow actually accentuates and enhances the "conquest slabs." That is to say, the astronomic and political features of the building complement one another. And note also that this biannual "hierophany" depends upon

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<sup>325</sup> Peeler and Winter, *Sun Above, Sun Below*, 26, write, "[Building J's] calendrical connections are clear; it lies at one end of the sight line to the antizenth passage sunrise (and the zenith passage sunset), and the full triangle of its footprint has sides in a 260:365 calendric ratio."

<sup>326</sup> Rivard, "A Hierophany at Chichén Itzá."

<sup>327</sup> Peeler and Winter, *Sun Above, Sun Below*, 26. Their description suggests, then, that the spring iteration of this light-and-shadow effect coincides with the helical rising of Capella (and with the first of the year's two solar zenith passages). Regarding the more generalized effect of sunlight and shadow in the Main Plaza, Hardoy, *Pre-Columbian Cities*, 112, writes: "When Monte Albán was occupied, the buildings were painted but never as profusely decorated with sculpture and relief work as Mayan or central Mexican constructions. The sun shining on the simple architectural volumes, the accentuated shadows at dusk in contrast to the luminosity of the taluses at the buildings' bases, and the geometrical line of shadow projecting the relief of a panel on a wall were highlights of Zapotec architecture." Additionally, Hardoy, *ibid.*, 119, n. 30, notes, "The longitudinal direction of the plaza is indicated by the north-south axis with small deviation. This means that the north and south sides alternately received the light at sunrise and sunset."

sunlighting effects that transpire only as a consequence of the built forms. Without the physical architecture of Building J, no such “shadow event” happens.

*c. The Relationship of Building J to Building O at Caballito Blanco: Prototype, Imitator, Contemporary and/or Complement*

Before venturing my own more original ideas about the twofold rationale that accounts for Building J’s distinctive plan, one last element of the debate surrounding Monte Albán’s “observatory”—namely, its relationship to the similarly shaped Building O at Caballito Blanco—deserves brief mention. From 1959-1960, when John Paddock excavated Caballito Blanco, a much smaller site near Yagul, about 35 kilometers southeast of Monte Albán, it has been customary to assert that the uniqueness of Building J’s distinctive five-sided plan is challenged only by the same-shaped, “but smaller and simpler” Building O at Caballito Blanco.<sup>328</sup> Aside from these two, no other buildings in Mesoamerica have a remotely similar design. Though Building O does not have the sort of passageway that penetrates Building J and it lacks the militaristic iconography, as Paddock first noted with respect the parallels between the two structures, “although their [45° skewed] orientation with respect to other buildings at their sites is similar, their absolute orientation [which differs by 30°] is not.”<sup>329</sup> Moreover, the two structures are near enough to contemporaneous, both dating to Monte Albán Period II (around 200 BCE),<sup>330</sup> to evoke yet again the innovation-versus-imitation dynamic insofar as some, like

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<sup>328</sup> Schávelzon, “Caballito Blanco Mound O, Oaxaca, Mexico: A New Plan,” 131-34, notes that little archaeological work was done at Caballito Blanco before or after John Paddock’s excavations there in 1959-1960. Also see Daniel Schávelzon, “Caballito Blanco, Oaxaca, un estudio del sitio y de su observatorio,” *Mexicon*, vol. 32, núm. 6 (2011): 154-58.

<sup>329</sup> Paddock, “Oaxaca in Ancient Mesoamerica,” 126. *Ibid.*, fig. 89, provides a frequently reproduced comparison of the plans of the two five-sided structures. On his Period II dating of Cabillito Blanco, see *ibid.*, 247-48. As noted, Paddock considers the 45% skew of Building J and Building O with respect to the other buildings at the respective sites to be more important and deliberate than any celestial alignment.

<sup>330</sup> See Paddock, “Oaxaca in Ancient Mesoamerica,” 120; Peterson, “Monte Albán Building J: An Hypothesis of Function,” 29; or Ignacio Bernal, “Archaeological Synthesis of Oaxaca,” in *Handbook of Middle American Indians*, vol. 3: “Archaeology of Southern Mesoamerica,” vol. ed. Gordon R. Willey, gen. ed. Robert Wauchope (Austin: University of Texas Press, 1965), 800.

Paddock or Aveni and Linsley, imagine that Building J is probably the original prototype and Building O a modest copy,<sup>331</sup> while it is also conceivable that Building J is the imitative elaboration of a design conceived first on a smaller scale at Caballito Blanco.

Finding no clear connection between Building O and Cabella, Aveni ventures instead that the arrow point of this smaller building is directed to the location on the southwest horizon of the setting of Sirius, the brightest star in the sky. As he explains,

“Like Capella, [Sirius] appears to have been of particular significance not only because of its brilliance but also, more importantly, because a careful skywatcher could have used the occasions of its helical rising and setting to divide the year into seasons. At Caballito Blanco, Sirius made its helical rising close to the first day of summer, and the first day of winter was the last occasion on which it would have been seen rising in the east after sunset.”<sup>332</sup>

Notable as that division of the year may be—and here again the key event entails predictive knowledge of a coincidence of stellar and solar phenomena—according to this thesis, the resemblance between the two structures is superficial insofar as the contemporary, similarly shaped structures serve quite different and largely unrelated astronomical purposes.

Peeler and Winter, by contrast, present a scenario in which the relationship between the two structures is much more significant. Undermining debate about originals and imitations,

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<sup>331</sup> Paddock, “Oaxaca in Mesoamerica,” 120-26, is vague in his implication that Building J is among Monte Albán’s Period II “masterpieces of art” that were eventually reproduced elsewhere. And Aveni and Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” 530, are also tentative in noting in 1972 that, “Mound O may have been only an imitation of its larger, more impressive counterpart at Monte Albán...” Later, Aveni, *Skywatchers*, 271, still tentatively, ventures that “it is difficult to know whether Building O was designed to serve an astronomical purpose (much less which object it was intended to register) or whether it is a nonfunctional imitation of Building J at Monte Albán,” which would imply the sort of supersession of astronomic orientation (priority I-C) over conventionalized orientation (priority I-B) discussed earlier.

<sup>332</sup> Aveni, *Skywatchers*, 270-71. On the topic of Building O, Aveni’s original (1980) and revised (2001) versions of *Skywatchers* are the same. Also see Aveni, “Possible Astronomical Alignments in Ancient Mesoamerica,” 175, fig. 3 and 176.

they propose that Building J and Building O were not only contemporary, but actually complementary components of one and the same larger orientational agenda. In their view,

“Building J at Monte Albán and Building O at Caballito Blanco, the two oddly shaped buildings having plans that are basically truncated triangles, are located some 35 km apart, and the line between them marks the directions of both the zenith passage sunset and the nadir passage sunrise. The intervening mountain mass of Cerro Yari Grande makes a direct sight line between the two ends impossible, but this still permits accurate sunrise and sunset observations. Any natural feature, such as the summit of Cerro Yari or any structure there, may be sighted upon from Building J or Building O. Alternatively, the principal point from which observation was made may have been toward Buildings J or O from the intervening ridge.”<sup>333</sup>

That is to say, for Peeler and Winter, Building O at Caballito Blanco “is not a pale imitation of Monte Albán’s Building J” and nor is it a modest antecedent; instead it is “part of a single ideological construct embracing as much of the Valley of Oaxaca as possible.”<sup>334</sup> Again then, according to this proposal, rather than motivated by pure fascination with the regular movements of the heavens, Zapotec rulers crafted a regional astro-architectural configuration that expressed “the extraordinary binding influence that Monte Albán exerted over the entire Valley of Oaxaca.”<sup>335</sup>

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<sup>333</sup> Peeler and Winter, *Sun Above, Sun Below*, 26. They make no reference to Sirius, which is crucial to Aveni’s interpretation of Building O.

<sup>334</sup> Peeler and Winter, *Sun Above, Sun Below*, 27.

<sup>335</sup> Peeler and Winter, *Sun Above, Sun Below*, 27. On the alignments of Building O, also see Šprajc y Sánchez, *Orientaciones astronómicas en la arquitectura de Mesoamérica: Oaxaca y el Golfo de México*, 30-32. Based on their site surveys, they find Peeler and Winter’s hypothesis about the connection between Building O and Monte Albán’s Building J “difficult to sustain, since no orientation in the two sites corresponds to the referred phenomenon [i.e., the direction of sunset on the days of its zenith passage] and, in addition, Monte Albán is not visible from Caballito Blanco because of the height of the mountains between the two sites.” *Ibid.*, 32; my translation.

*d. Astronomy and Politics: Building J as a Perfect Exemplar of the Twofold Pattern of a Ritual-Architectural Event*

In sum with respect to Monte Albán's famed "observatory," there is, from Caso's era forward, a latent, or sometimes explicit, assumption that Building J's astronomical and politico-militaristic associations are at cross-purposes. Interpretations like Blanton's and Marcus's focus on the ostensibly propagandistic wall carvings and thereby dismiss entirely Building J's astronomical significance; and analyses like Aveni's and Linsley's concentrate on the astronomy to the near exclusion of the bellicose iconography. More ingenious still, Peeler and Winter attempt to resolve, or perhaps evade, the apparent contradiction by suggesting (with the support of epigrapher Urcid's analysis) that the infamous conquest slabs actually belonged originally to some different architectural context, and then were, as a matter of expedience, reused as facing stones on Building J, where they were stuccoed over and thus largely meaningless.<sup>336</sup> In that scenario, the "calendar temple" was unencumbered by more banal political imagery.

Notwithstanding attempts to explain away the seemingly irresolvable discrepancy between the building's astro-calendrical and militaristic purposes, nearly all of these interpretations actually lend credence to the deliberate and strategic complementarity of Building J's two most famous features.<sup>337</sup> In fact, in my rubric, the juxtaposition of its astronomical orientation (priority I-C) and highly politicized iconography (expressions of the politics priority, II-C) provides a vintage instance of the twofold pattern of a ritual-architectural event to which I have repeatedly referred. Indeed, it is difficult to imagine a more unmistakable example! That is to say, when one appreciates that the Building J's astronomical alignments—together with the

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<sup>336</sup> Appealing to Urcid, "Mound J at Monte Albán and Zapotec Political Geography during Period II (200 B.C.-A.D. 200)," Peeler and Winter, "Building J at Monte Albán," 368, write, "The fact that the carved surfaces [of the so-termed conquest slabs] were covered by stucco indicates that by the time Building J was constructed the stones had already lost either meaning or importance, compared to the calendrical symbolism represented by the new structure."

<sup>337</sup> Fahmel Beyer, "Las lápidas del Montículo J de Monte Albán y el surgimiento del estado en los valles centrales de Oaxaca," 81-104, is a somewhat special case in arguing (as I do)—in his own quite different and elaborate way—that the astronomical character of Building J and the militaristic content of its inscriptions are mutually supportive rather than at cross-purposes.

strategic scheduling of rituals in relation to predictable sky occurrences—are not the sum significance of any ritual-architectural occasion, but rather “strategies of allurements” that prefigure and pave the way for the presentation of more prescriptive political messages, then the supposed contradiction vanishes.<sup>338</sup> Instead of a controverting view, Peeler and Winter’s proposal of a biannual light-and-shadow in which the conquest slabs are specially illuminated by the sun conforms perfectly to that premise. And even if we accept Urcid’s very different reading of the Building J orthostats as components of “an ancestor memorial,” it is entirely plausible that the apprehension of the inscribed stones was enhanced by the seasonal celestial effects (a prospect that Urcid neither entertains nor refutes).<sup>339</sup>

In any case, orientation with respect to celestial movements, along with Monte Albán’s other homologized and conventionalized features, belongs, in other words, to the “front-half” of the ritual-architectural situation, while reminders about past military victories, and thus announcements of the dire consequences of resisting Zapotec hegemony, belong to the more prescriptive “back-half” of those occasions. In Aveni’s apt terminology, the helical rising of Capella in the case of Building J, or Sirius in the case of Building O, are “anticipatory observations” or “announcer stars,” whose annual reappearance in the sky “triggers” or “instigates” the subsequent ceremonial proceedings.<sup>340</sup> In Gadamer’s terms, the carefully timed and choreographed enhancements of natural sky processes “start the hermeneutical conversation” and persuade audiences to take seriously what is communicated in the ensuing ritual program.<sup>341</sup> A so-termed “calendar temple” can indeed also be a “propagandistic military monument.” In short, neither the astronomy nor the threatening messages is workable or rewarding in and of itself. Each needs the other.

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<sup>338</sup> Peterson, “Monte Albán Building J: An Hypothesis of Purpose,” 36, though on quite different grounds, also makes the case that the militaristic and astronomical features of Building J, which he sees as a “wind temple,” are complementary rather than conflicting.

<sup>339</sup> Urcid and Joyce, “Early Transformations of the Monte Albán’s Main Plaza,” 157-64.

<sup>340</sup> For instance, see Aveni, *Skywatchers*, 267, where he refers to Capella as the “announcer star” (in quotation marks), or *ibid.*, 271, where he refers to “anticipatory observations.”

<sup>341</sup> See Jones, *The Hermeneutics of Sacred Architecture*, vol. 1, chap. 4, “Order and Variation: The twofold Pattern of Ritual-Architectural Events.”

At any rate, I will revisit one final time that instigatory role of astronomical alignments in the Closing Thoughts. But consider first briefer comments on the second most discussed of Monte Albán’s astro-architectural features—namely, Building P.

## **2. Building P at Monte Albán: “Zenith Tubes,” Astronomical Commemoration Complexes and/or Horizontal Observatories**

An unassuming, mid-sized structure on the eastern side of the Main Plaza, Building P is another prime contender for allurements via ritual-architectural enhancements of natural celestial phenomena.<sup>342</sup> Though a distant second to Building J in the attention it has garnered from archaeoastronomers, Building P (or Mound P)—and most notably its supposed “sighting tube”—is, arguably, Monte Albán’s next most prominent astro-architectural feature. The building, which appears on every twentieth-century plan of site, though frequently without comment, was explored by Jorge Acosta in the 1940s; and, irrespective of a typically complex history of renovation and elaboration, it is dated to Period IIIA (around 400 CE), that is, somewhat later than the earliest iterations of Building J.<sup>343</sup> But this structure, which wins no more exotic name than Building P, is not among the features to which Alfonso Caso or Ignacio Bernal devote special attention.

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<sup>342</sup> For basic information, diagrams and photos of Building P (or Mound P), see Fahmel Bever, *La arquitectura de Monte Albán*, 49-55. In that context, his sole comment on the building’s astronomical purpose is: “Halfway up, and between the steps of the second structure, there is access to a chamber about five meters deep. At its end there is a vertical tunnel, or well of light, where apparently the sun could be observed on the day it was at the zenith.” *Ibid.*, 54-55; my translation. Recall a footnote early in this chapter that directs attention to the most noteworthy sources on Building P, including Fahmel Bever, “El complejo de observación cenital en Monte Albán” (discussed below), in which he has more to say about the astronomical significance of this building.

<sup>343</sup> Jorge R. Acosta, “XIV temporada de exploraciones en la zona arqueológica de Monte Albán 1945-1946, en *Cultura y Sociedad*, año 11, t. 11, no. 3 (1975): 1-16.

*a. Building P as a Vertical “Sighting Tube”: Subterranean Viewing Chambers and the Architectural Enhancement of Sunlight*

Recall that Anthony Aveni and Robert Linsley gave Building P a significant and complementary, but not crucial, role in the orientation of Building J. Recall that, according to their hypothesis, on the auspicious day of Capella’s helical rising, the sightline of a person standing in the temple doorway of Building J (in 275 CE) and watching Capella’s reemergence on the northeast horizon would pass directly over a small opening in the stairway of Building P, which leads down into a vertical tube that ostensibly marks the zenith passage of the sun.<sup>344</sup> In that proposal, while there were other equally reliable means of ascertaining the date of the sun’s zenith passage over Monte Albán, “The priest could descend into the passage of Building P to confirm it.”<sup>345</sup> But recall also that this special role of Building P’s “sighting tube” in reaffirming the day of a solar zenith passage is one of the ancillary features of Aveni and Linsley’s hypothesis that Peeler and Winter reject. Revisiting the excavationary history of Building P, they contend that,

“A vertical tube with Building P in the Main Plaza of Monte Albán has been suggested as a “zenith tube” for observing the Sun at its zenith, but closer study shows the tube itself to be less than ideal for the purpose, and the proposed viewing chamber to be an artifact of the archaeological excavation. There appears to have been no access for observation. Judging from the shallow channel on the surface above and leading to the tube, its purpose was to receive fluid offerings—perhaps blood. This tube may have been wholly symbolic; it is possible that the Sun at its zenith was thought to enter this tube to receive the offering, but it would not have served either to view the Sun directly or project its image.”<sup>346</sup>

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<sup>344</sup> Aveni and Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” 529. Note, by the way, that they use Marquina’s designation of “Mound r” for what nearly everyone else (including Aveni in his later works) calls Building P. See also, Aveni, *Skywatchers*, 265.

<sup>345</sup> Aveni, “Concepts of Positional Astronomy Employed in Ancient Mesoamerican Architecture,” 16. Aveni, *Skywatchers*, 270, fig. 96, shows the sightline from the Building J stairway to Capella passing (almost) right over the opening on the stairway of Building P.

<sup>346</sup> Peeler and Winter, *Sun Above, Sun Below*, 24. On this point, they appeal to Gustavo Gámez Goytia, Damon Peeler and Marcus Winter, “Pozo de Luz o Pozo de Ofrenda: Elemento del Eje Sagrado Zapoteco en el Montículo P de Monte Albán,” unpublished manuscript, 1999.

I will return to Peeler and Winter's skepticism about this supposed "zenith tube" and viewing chamber. But note first that there is, in any case, considerable debate about the astronomical significance of Building P that is largely independent from the louder disagreements about Building J.

In that respect, Monte Albán's Building P's supposed sighting tube is routinely paired with a similar vertical shaft or "artificial chimney" at Xochicalco as Mesoamerica's premier examples of "subterranean astronomical cameras."<sup>347</sup> Rubén B. Morante López, for instance, considers these two, along with a couple somewhat earlier "chimney" or "skylight" configurations at Teotihuacan (dated about 200 CE), the most noteworthy of ten currently known "underground observatories" in the wider region.<sup>348</sup> He postulates that their main function was solar (not lunar or Venusian) observation, and, more specifically, that they mark the date of the zenith transit and summer solstice, which are the sole days when the sunlight penetrates the narrow opening to the underground floor of the "siting chamber."<sup>349</sup> Though conceding that no such structure and "siting tube" are required to ascertain those dates, Morante López, like most accounts, remarks on the significance of these days with respect to the agricultural activities and the onset of rain. He, moreover, presents a vivid image of the ritual-architectural enhancement of nature by suggesting that, on those propitious days, "a container of liquid was placed under the sun's rays in order to observe the luminous reflectance towards the walls and vault of the

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<sup>347</sup> See, for instance, the pairing of Building P's "zenith sight tube" with a seemingly similar tube at Xochicalco in Aveni, *Skywatchers*, 268-69; or Broda, "Astronomy, *Cosmovisión*, and Ideology in Pre-Hispanic Mesoamerica," 91, who writes, "Observations of the zenith passage [of the sun] could be made in vertical tubes built into pre-Hispanic complexes like the one in Building P at Monte Albán or the artificial subterranean chimney forming part of the central precinct at Xochicalco."

<sup>348</sup> Morante López, "Las cámaras astronómicas subterráneas," 46. Rubén Cabrera Castro, "Monte Albán y Teotihuacan: interacciones políticas, ideológicas y científicas," en *Bases de la complejidad social en Oaxaca: Memoria de la Cuarta Mesa Redonda de Monte Albán*, Robles García, ed., 259-61 (my translation), appeals to Morante López to make the case that such vertical sighting tubes were, "a contribution of the Teotihuacanos [that] later spread to Monte Albán and to Xochicalco." But I am not sure that Morante López actually makes that historical claim.

<sup>349</sup> Morante López, "Las cámaras astronómicas subterráneas," 46.

chamber."<sup>350</sup> And, furthermore, like all accounts of these tight spaces, Morante López reminds us that, by contrast to the open aspect of Building J, "underground astronomical observation was restricted to a small group of the elite."<sup>351</sup>

For his part, Aveni eventually replaces his 1972 tentativeness that "Whether the shaft [that penetrates Building P] served as a sighting tube for the purpose of observing the passage of the sun through the zenith can never be known with certainty"<sup>352</sup> with the this more confident stance, which entertains a viewing of the Pleiades as well as the zenith solar passage:

"Descending into a dark chamber in the stairway of Building P, one is led back a few meters to a bench beneath a tiny hole passing vertically through the stairway. The hole permits a 2°-wide view of the zenith... The chamber could have functioned as an observatory especially designed to view the Pleiades, which transited the zenith of Monte Albán at this time, or perhaps the image of the sun which would be cast at the base of the hole at high noon on the days of the zenith passage in the Valley of Oaxaca (May 2 and August 10)."<sup>353</sup>

That line of argument, then, beautifully exemplifies the prediction of regular sky occurrences as a means of not simply observing, but rather enhancing, those natural phenomena. Though the

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<sup>350</sup> Morante López, "Las cámaras astronómicas subterráneas," 47; my translation.

<sup>351</sup> Morante López, "Las cámaras astronómicas subterráneas," 51; my translation. Commenting on function of these "underground astronomical cameras," he concludes that such viewing configurations were "closely linked to religious beliefs that mixed science, art and myth. Subterranean observatories are both an instrument for acquiring exact knowledge about the world, and a reflection of a very peculiar way of understanding the cosmos. The moment when sunlight burst into the darkness of the underground chamber must have been part of the ritual of a people, but surely, at the same time, it was also accompanied by studies that used mathematical calculations to take advantage of the data from the most precise astronomical instrument that ancient man built." Ibid.; my translation. Similarly, the site guide by Robles García, *Monte Albán: History, Art, Monuments* (2004), 29, for instance, provides a photo from inside Building P with the sunlight shining in and a caption that reads: "A chamber inside Building P. On May 8 and August 5, when the sun passes through the zenith, a ray enters through the shaft. At this moment the Zapotecs would make offerings to Cocijo, the god of Water, and Pitao Cozobi, the God of Corn."

<sup>352</sup> Aveni and Linsley, "Mound J, Monte Albán: Possible Astronomical Orientation," 529.

<sup>353</sup> Aveni, *Skywatchers*, 265-66. Ibid., 267, fig. 95a, has a diagram of Building P; and ibid., fig. 95b, has a photo of that solar zenith effect actually happening on August 10, 1976.

subterranean ritualized occasions would have been sparsely attended, they could not happen at all without the support of the carefully constructed architectural forms.<sup>354</sup>

*b. Building P as a "Horizontal Observatory": "Astronomical Commemoration Complexes" and Artificial Horizons*

Where Morante López's synoptic analysis does not connect Building P to any other Monte Albán structure, Jesús Galindo Trejo's much more rigorous and detailed interpretation underscores a vital interbuilding relationship not with Building J, but with Building H, the middle of three conjoined structures that sit at the center of the Main Plaza.<sup>355</sup> That is to say, he reaffirms the prevailing view that "Building P houses an observation chamber to record the day-to-day solar passage of the Sun at Monte Albán (May 8 and August 5);"<sup>356</sup> but, in his studied opinion, there is also a crucial relationship between Buildings P and H:

"The importance of Building P as an instrument to follow the movement of the Sun, and thereby calibrate the calendar, is increased by noting that its front observation point is directed toward Building H, which is located opposite it, about 45 meters to the west."<sup>357</sup>

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<sup>354</sup> Architect, planner and frequent collaborator with Aveni, Horst Hartung, "Monte Albán in the Valley of Oaxaca," 60-65, in a section entitled "The Importance of the Zenith Passage of the Sun," offers his support both of Aveni's Capella hypothesis for Building J and of the notion that the vertical shaft in Building P operated a "sighting tube" that "could have been employed to observe the light of the sun when passing through the zenith." Ibid., 60. To make that case, Hartung, *ibid.*, 62-63, reproduces the same diagram of the Building P shaft-and-chamber configuration and the same photo of the illuminated subterranean chamber on the solar zenith of August 5, 1976 that Aveni uses. While lamenting that, "It seems that no attention has been paid to this particular position of the sun at the zenith in reference to pre-Columbian architecture [to which Aveni's argument is an obvious exception]," Hartung, *ibid.*, 60, reminds us that Zelia Nuttall, "Ancient American Civilizations and Calendars" (1927), 194-95, had mentioned the notion of a "'shadowless' day, using the example of a pole casting no shadow at this moment."

<sup>355</sup> For basic information, plans and photos of Building H (or Mound H), see Fahmel Bever, *La arquitectura de Monte Albán*, 78-85.

<sup>356</sup> Galindo Trejo, "Alineamientos calendario-astronómicos en Monte Albán," 276; my translation.

<sup>357</sup> Galindo Trejo, "Alineamientos calendario-astronómicos en Monte Albán," 276; my translation.

Although Galindo Trejo’s proposal concerning Buildings P and H is complex and cautiously qualified in numerous respects, in the context of the present discussion, four interrelated points are especially relevant. First, he retrieves and then nuances Bernd Fahmel Bever’s suggestion that, instead of treating Building P as an independent feature, it needs to be appreciated as a component of the “astronomical commemoration complex” that encompasses Buildings P and H, which must be interpreted as a whole.<sup>358</sup> Second, recalling his own comments about Monte Albán’s underappreciated utilization of numerous pan-Mesoamerican astro-calendrical conventions, which are strategically integrated with Oaxaca-specific astronomical principles, Galindo Trejo’s argues that the complex that includes Buildings P and H “constitutes a particular kind of observation that is present in many Mesoamerican sites;”<sup>359</sup> accordingly, this is a fairly common rather than anomalous arrangement. Third, specifying the nature of that characteristically Mesoamerican mode of skywatching, instead of the biannual view of solar zeniths through the vertical chimney (which he does not rule out), Galindo Trejo is more interested in the observation of a whole series of horizon risings facilitated by the paired Buildings P and H; and, in that sense, instead of grouping Building P with other “sighting tubes” like those at Xochicalco and Teotihuacan, he finds even more significant counterparts in “horizon observatories” like the famous E-Group at Uaxactún in Guatemala, the Stela Square of the Two Glyphs in Xochicalco and the Group of Seven Dolls in Dzibilchaltún.<sup>360</sup> Informed by

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<sup>358</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276-82, relies on Bernd Fahmel Bever, “Monte Albán: integración en una ciudad plural,” tesis doctoral en arquitectura (México: Universidad Nacional Autónoma de México, 1990), from which he draws the notions of a “horizontal observatory” and “astronomical commemoration complex.” Galindo Trejo also relies on Fahmel Bever, “El complejo de observación cenital en Monte Albán,” 529-45.

<sup>359</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276; my translation.

<sup>360</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 276-77. Regarding vertical versus horizontal viewing practices, Cabrera Castro, “Monte Albán y Teotihuacan: interacciones políticas, ideológicas y científicas,” 259-61 (my translation), comments on “two observation systems that were developed to measure time.” While he attributes the origin of vertical sighting tubes to Teotihuacan and the earliest horizontal observatory to Uaxactún, he also notes (the more certain view) that both horizontal and vertical configurations were present at both Teotihuacan and Monte Albán. Alejandro Mangino Tazzer,

those comparative examples, he reaffirms Fahmel's apt term "horizontal observatory" as a means of arguing that the really salient views are those directed outward, looking westward across the eastern portion of the Main Plaza from Building P to the centrally located Building H.<sup>361</sup>

And fourth, having redirected the emphasis from the orchestration of vertical to horizontal sightlines, Galindo Trejo's interpretation provides a fabulous exemplification of the ritual-architectural enhancement of nature by arguing that the most attention-worthy points of reference are not locations or features on the *natural* horizon, but rather the points of reference provided by the "artificial horizon" created by the silhouette of Building H.<sup>362</sup> In fact, privileging the artificial, humanly-constructed or "controlled" horizon that one sees from Building P to the (almost) complete exclusion of the ambient mountain horizons, he writes:

"In all cases, the daily movements of the sun are visible exclusively in relation to the artificial horizon formed by the architectural elements of [Building H]; the local [or natural] horizon formed by the surrounding hills does not intervene in these solar observations."<sup>363</sup>

Discerning the specific pre-Columbian views that an observer would have enjoyed from the stairway of Building P looking westward toward Building H is vastly complicated by the elusive history of enlargement and remodeling at both structures, which thereby changes the relevant sightlines; and many of Galindo Trejo's qualifications are consequent of those uncertain construction histories. Nonetheless, at the risk of oversimplifying the situation, he argues persuasively that, from the top of the Building P stairway, one can look westward over Building

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*Arquitectura Mesoamericana: relaciones espaciales*, 2 ed. (México, D.F.: Editorial Trillas, 2006), 163-68, presents a threefold typology of Mesoamerican "observatories," in which he adds the horizontal and vertical options circular configurations like that of Chichén Itzá's Caracol, which seem not to be present at Monte Albán.

<sup>361</sup> Galindo Trejo, "Alineamientos calendario-astronómicos en Monte Albán," 277-78.

<sup>362</sup> Galindo Trejo, "Alineamientos calendario-astronómicos en Monte Albán," 276-80.

<sup>363</sup> Galindo Trejo, "Alineamientos calendario-astronómicos en Monte Albán," 277; my translation. He notes that he previously made this point in Jesús Galindo Trejo, *Arqueoastronomía en la América antigua* (México y Madrid: Editorial Equipo Sirius, 1994), 132-37.

H and see the natural mountain horizon; but, more importantly, as one descends the steps of Building P, the sightline to the natural horizon is blocked so that only the “artificial horizon” created by the architecture of Building H is visible. And, irrespective of the mercurial building histories, he is able to present a very clear diagram illustrating the respective positions of sunsets throughout the entire year as they appear along the man-made (not natural) horizon created by Building H as viewed from Building P.<sup>364</sup>

In sum, then, if we grant Peeler and Winter’s contention that the subterranean “viewing chamber” of Building P is an artifact of archaeological excavation rather than a pre-Columbian feature (which remains an open question), then interpretations like Rubén Morante López’s, which focus on the vertical sighting tube, are largely voided. But interpretations like those of Galindo Trejo and Fahmel Bever, which concentrate instead on the Building P’s role in an “astronomical commemoration complex” that operates as a “horizontal observatory,” are not contingent either on the upright shaft or the subterranean chamber. Be that as it may, in both interpretations, the propitious views—whether up through the perpendicular chimney or across to Building H, either or both of which could have worked as strategies of allurements to initiate ritual occasions—depend not only on prognosticatory knowledge of celestial movements, but also on elaborately engineered architectural configurations. None of the pertinent views is available without the attenuate architecture; and none of the proposed Building P astro-architectural effects qualifies simply as an *observation* of natural celestial processes. To the contrary, all are carefully contrived ritual-architectural *enhancements* of nature.

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<sup>364</sup> Galindo Trejo, “Alineamientos calendario-astronómicos en Monte Albán,” 280, fig. 5. For a photo of the view from Building P to Building H, see *ibid.*, 279, fig.4. Note also that Hartung, “Monte Albán in the Valley of Oaxaca,” 53, n.3, has a prescient footnote in which encourages more careful consideration of “the axial relation between Structures H and P,” which is what Galindo Trejo provides.

**V. CLOSING THOUGHTS:  
ASTRONOMICALLY-ALIGNED ARCHITECTURE AS  
A STRATEGY OF RITUAL-ARCHITECTURAL ALLUREMENT**

With this discussion of ritual-architectural enhancements of nature at Buildings J and P, I bring to a close my three-chapter focus on “allurement” and the “front-half” of the ritual-architectural situation. Where, suitably enough, we encounter recurrent claims that Mesoamerican astronomy is not “objective” and “scientific,” but rather “subjective” and “cultural,” I have been arguing, alternatively, that the human experience of the sky is yet another occasion of “hermeneutical reflection.”<sup>365</sup> Indeed, operating from the theoretical basis outlined in *The Hermeneutics of Sacred Architecture*, I contend that religious life in pre-Columbian Monte Albán entails a layering of hermeneutical circumstances, to-and-fro dialogical occasions of meaning-making in which ancient Oaxacans assert their creativity and self-interest in relation to all sorts of natural and humanly-constructed features, each of which presents not one, but a myriad of interpretive possibilities. All of the ambient and built world, has, in that sense, the character of an inexhaustible “religious symbol.”<sup>366</sup>

For instance, just as the indigenous experience of an *altépetl* water-mountain discussed in chapter 1 is an occasion for indigenous hermeneutical interpretation, the sky itself is a symbolic and authoritative “sacred text”—or, in Mircea Eliade’s term, a “cipher”—that is “read,” interpreted and utilized in a hermeneutical fashion. Additionally, astronomy-derived calendars are multivalent resources that Zapotec rulers interpreted and utilized in innumerable creative and interested hermeneutical ways. And architectural forms that are informed by astro-calendrical principles are also, especially in the context of ritual occasions, likewise experienced as symbolic, superabundant and indeterminate forms, which that make them too available not to

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<sup>365</sup> Again regarding the contention that “the universality of the hermeneutical perspective is all-encompassing,” see Hans-Georg Gadamer, “Aesthetics and Hermeneutics,” in *Philosophical Hermeneutics*, trans. and ed. David E. Linge (Berkeley: University of California Press, 1976), 103. Or see Jones, *The Hermeneutics of Sacred Architecture*, vol. I, chap. 1, “Lineages and Legacies: The Universality of Hermeneutical Reflection.”

<sup>366</sup> Again, regarding the nature and workings of “religious symbols,” see Eliade, “Methodological Remarks on the Study of Religious Symbolism,” 86-107.

just one fixed-and-final meaning, but rather to a very wide range of situational uses and interpretations.

To each of these relational, to-and-fro conversational exchanges with the natural and man-made elements of their environment, ancient Oaxacans, like other human participants, bring their own distinctive and interested “preunderstandings” and expectations, some of which are reaffirmed in those occasions and others of which are challenged and thus adjusted. The transactions of meaning that happen in all of these hermeneutical situations, to the extent that they are successful and productive, are transformative of the participants, who learn and embrace new ideas, new identities and new obligations. But—as I have stressed again and again through these first three chapters—such productive interactions never get underway without that initial component of allurements, which sparks, triggers or persuades bystanders to enter into committed and vulnerable participation in the dialogical exchange. Until people are persuaded to listen, they will hear nothing. Without that component of allurements—which is far more often absent than present—nothing happens; no new meanings are tested or embraced. And once we realize that absolutely crucial role of allurements, we realize also that the lion’s share of ancient Oaxacan designers’ energy and resources were devoted to the orchestration of these sorts of ritual-architectural invitations. Consequently, much that modern interpreters—including archaeoastronomers—have mistaken for the meaningful content Monte Albán’s built forms is actually just a prelude, or choreographed enticement, to consideration of the actual meanings and messages about divinities (priority II-A), sacred history (II-B), political authority (II-C) and revered ancestors (II-D), each of which I will unpack in Part II.

At any rate, while all this talk of hermeneutical reflection may strike many as little more than an exercise in abstract Heideggerian-Gadamerian philosophy, I wager that it is our most promising route to concrete pre-Columbian historical realities and to significantly improved ways of describing and understanding the “religion” of Monte Albán. But rather than play that methodological saw yet again, I end with brief comments that summarize the “front-half” of Monte Albán’s ritual-architectural program and look forward to consideration of the “back-half.”

## **A. INTERROGATING THE LAYOUT OF MONTE ALBÁN: THREE DISTINCT, BUT ALSO COMPLEMENTARY, MODES OF ORIENTATION**

To summarize and reiterate, these first three chapters, in the interest of enlarging our catalogue of interpretive options, have worked to isolate—and to compare—three morphologically distinct strategies or modes of ritual-architectural allurements: ritual instigation via replication of microcosmic images of the universe (homology, priority I-A); instigation via conformity to the standards of tradition (convention, priority I-B); and instigation via the exploitation of predictable celestial phenomena (astronomy, priority I-C). The classificatory impulse, however, is a means rather than an end. There is, I continue to argue, on the one hand, considerable benefit in making these sorts of provisional distinctions—and in locating cross-cultural parallels to what may have been happening in ancient Oaxaca—especially when addressing a still-understudied site like Monte Albán, because that exercise forces to attention issues and possibilities that continue to go otherwise unnoticed. It is a basic principle of hermeneutical inquiry that questions never asked are seldom answered; and, as we've seen, comparative historians of religions have patterns of questioning that differ significantly from those of Mesoamerican archaeologists, art historians or archaeoastronomers. But, on the other hand, we also need to keep in mind that such distinctions are strictly heuristic, and that the boundaries between these three orientational modes are, in actual pre-Columbian historical fact, constantly blurred and transgressed.

Regarding, for instance, the overlap and complementarity of astronomy and homologized orientation (i.e., priority I-A), we have observed in succession: (1) how the strategic siting of Monte Albán reinforces the already-fabulous allure of a capital situated atop an *altépetl* mountain of sustenance with unencumbered and concerted views of the celestial vault, so that ascent to the ancient capital entails an experience of the paired hierophanies of a cosmic mountain and a dynamically changing sky; (2) how the strategic configuration of the entire Main Plaza and many of its individual features employ astro-calendrical proportioning that, though in many respects too subtle for non-elites to fully appreciate, strengthens and reaffirms the microcosmic layout of the city; and (3) how expertise in predictive astronomy enables the strategic timing of Monte Albán rituals in ways that periodically illuminate and bolster the

conformity of capital's earthly activities with the rhythms of the wider cosmos. In short, including the sky as a crucial and ever-present element of the Zapotec cityscape redoubles the sense in which this mountain locality is both an *imago mundi* and an *axis mundi* that provides a privileged "access to the sacred" not available at lower and more peripheral sites. In Broda's phrase, the pretense of perfect order is complete.

And regarding the complementarity of astronomy and conventionalized modes of orientations (i.e., priority I-B), we appreciate how empirical observations of natural sky phenomena are invariably mediated and manipulated by humanly-constructed, group-specific calendars. In this respect I have noted: (1) a dual incentive wherein Monte Albán designers juxtapose or sometimes synthesize pan-Mesoamerica astro-calendrical conventions, which make the city legible and appealing to visitors from the full region, with Oaxaca-specific astro-calendrical principles that accentuate the Zapotecs' uniqueness and independence; (2) the Zapotecs' forgetive, innovative and prototypical role in formulating astro-calendrical conventions, perhaps including even the universally revered 260-day count, that are subsequently adopted across Mesoamerica; (3) the Zapotec migrants' adroit retention of their Oaxaca-specific astro-calendrical conventions as a means of preserving a distinct ethnic identity even in a foreign Teotihuacan ambience; and (4) the means by which Monte Albán-based Zapotecs, irrespective of Teotihuacano hegemony, are able to retain their distinctive astro-calendrical principles, perhaps as a deliberate expression of socio-political resistance. Always, it seems, the natural processes of the sky are translated into group-specific precepts that demonstrate a merger of the astronomy (I-C) and conventionality (I-B) priorities.

Yet, irrespective of the fortuitous complementarity of the three orientational modes, I also find in astronomy special capabilities the other two modes cannot match. The unique potentiality of astro-architectural arrangements as strategies of allurements rests, I've argued, most of all on the *power of prognostication*, or a capacity for *prediction of the future*, that is inherent in those configurations. Where homologized and conventionalized architectures initiate ritual-architectural events with announcements of cosmic harmony and thus socio-political legitimacy, astro-calendrically referenced architecture, which also allures via presentations of harmony and reliability, has the additional facility of instigating participation by seizing upon

predictable celestial phenomena to confirm the right and propitious timing of those ritual events. By capitalizing on a foreknowledge of sky phenomena, and thus making preparations on the basis of informed anticipation of a specific celestial occurrence—for instance, a solar zenith or the helical rising of Capella—astro-architectural events enable their ritual participants to move beyond orientation with respect to the conventions of the past (I-B), and beyond orientation with respect to the homologous correspondences of the present (I-A). Astro-architectural events (I-C), moreover, afford both elites and their constituents a special opportunity to participate as well in a more commanding sense of orientation with respect to a predictable and presaged future.

Furthermore, notwithstanding debate over the precise celestial occurrences that Building J and Building P were designed to exploit, and the precise views that they cultivated, we can be certain that the choreography of those vistas depended upon non-natural architectural arrangements—that is, “ritual-architectural enhancements of nature.” For instance, while Aveni contends that the helical rising of the bright star Cappella, irrespective of any built forms, “would have been quite noticeable in the clear dark skies above the high plateau on which Monte Albán is situated,”<sup>367</sup> to predict and then watch that from the stairway of Building J enhances immeasurably the magnitude of the annual reappearance. Likewise, while solar zeniths, of course, happen without any human prompting, to view them through the “sighting tube” in the only occasionally illuminated “viewing chamber” of Building P greatly intensifies the significance of these twice-yearly occurrences. And, by the same token, while the position of sunsets along the profile of the surrounding mountains changes throughout the year, the “astronomical commemoration complex” that includes Building P augments greatly the appreciation and dramatic effect of those sun-settings by marking them with precision along the “artificial horizon” of Building H. Additionally, while the biannual light and shadow effect that Peeler and Winter imagine transpiring on Building J may lack the panache of Chichén Itza’s

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<sup>367</sup> Aveni and Linsley, “Mound J, Monte Albán: Possible Astronomical Orientation,” 528-29. Peeler and Winter, “Building J at Monte Albán,” 362, summarize Aveni and Linsley’s position as follows: “...the stairway [of Building J] directly faces a vertical tube built into Building P that could have been used to determine the day of solar zenith passage, and this same sight line continues on to the point just above the northeastern horizon where the bright star Capella first appeared each year out of the glare of the rising sun before sunrise on or about the same day as the zenith passage of the sun.”

ballyhooed “serpent of light,” the special illumination of the “conquest slabs” too is a consequence of carefully timed ritual-architectural staging rather than strictly natural celestial processes.

In all these circumstances, astronomically-informed timing and choreography enable invitations—or, actually, demands—to take seriously the ensuing ceremonial proceedings that are, it seems, more histrionically forceful than those presented by quieter homologized and conventionalized strategies of allurement. Though perhaps the most vulnerable to charges of choreographic trickery and propagandistic manipulation—recall, for instance, the popular image of saavy Mesoamerican rulers tricking the naïve populace by predicting an eclipse<sup>368</sup>—this exploitation of the predictable movements of the heavens capacitates the sort of emphatic call to attention for which indifference and noninvolvement are no longer options. This sort of ritual choreography enables elites to present themselves as the guarantors of celestial as well as social order. Allurement via astronomy, therefore, by drawing into the ritual-architectural context celestial bodies that are, paradoxically, both universally accessible but always beyond reach—“everywhere present yet imperturbable”<sup>369</sup>—has special virtues in issuing the ultimatum that noncompliance with the subsequent ritual agenda could have dire and even cosmic consequences.

#### **B. FROM STRATEGIES OF ALLUREMENT TO MATTERS OF SUBSTANTIVE CONTENT: THE ONLY- PREPARATORY ROLE OF ASTRO-ARCHITECTURAL ALIGNMENTS**

Finally, as I transition now from Part I on “Orientation and Allurement” to Part II on “Commemoration, Messages and Meanings,” I issue one final time a cautionary note concerning the crucial—but also quite limited—role of every strategy of allurement, instigation by way of

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<sup>368</sup> Images of ancient Mesoamerican rulers tricking and terrifying their naïve subjects appear, for instance, in Mel Gibson’s 2006 epic adventure film about the Mayas, *Apocalypto*, and in Gary Jennings, *Aztec: A Novel* (New York: Avon Books, 1980). Also, Oliver Sacks, *Oaxaca Journals*, 123, upon witnessing in 2000 a total lunar eclipse in Oaxaca, is another who wonders “whether the power of their priests, the awe in which they were held, might have derived in part from their ability to predict such events.”

<sup>369</sup> I borrow this apt phrase from Ruggles, *Megalithic Astronomy*, 13.

predictive astronomy included. Focused on the unique virtues of the astronomy priority (I-C), I have suggested that a proficiency in predicting celestial events may exceed the other modes of allurement insofar as it transcends aspirations for mere harmony with the order of the world by facilitating a more commanding sense of foreknowledge and influence over the future. And I have observed also that astronomically referenced architectures, which may at first seem to provide the most "natural," least affected mode of allurement, often, upon closer inspection, actually emerge as even more socio-politically contrived than those associated with the homology or convention priorities. But, if different in some important ways, I would insist that astro-architectural configurations are limited precisely like the other two modes insofar as celestial orientations too work primarily in that preliminary, instigative role that sets the ceremonial activities in motion, but virtually never constitutes the total significance of the ritual-architectural program.

In other words, recall that I ended chapter 1 on the homology priority (I-A) by cautioning that the "cosmo-magical" design features that fashion Monte Albán into a down-sized microcosm of the wider macrocosm must be appreciated not as the crux or climax of the city's ritual-architectural agenda, but instead as strategies of allurement or means of instigating effective ceremonial occasions. And I ended chapter 2 on the convention priority (I-B) with a similar warning that, irrespective of Monte Albán's ample replication of such time-tested Mesoamerican forms as pyramid bases, ballcourts, stelae and the Teotihuacan *talud-tablero* motif, adhering to the architectural standards of tradition seldom, if ever, constitutes the total *raison d'être* of any ritual-architectural program; certainly that sort of expression of conformity to pan-Mesoamerican conventions is not the payoff or punch line, as it were, of Monte Albán's design agenda. Just as we error in assessing either homologized features such as an urban layout designed as a "little cosmos" or conventionalized design elements that reecho pan-Mesoamerican elements as the substance or main message of Monte Albán's design conception, I reissue the same admonition even more strongly with respect to the capital's abundant astro-calendrical features. Astronomical alignments too, I insist, are strategies of allurement, not presentations of religious messages, beliefs or ideas; and thus, once again, oft-asked questions about "the meaning" of various celestial configurations are somewhat misplaced.

As noted, no circumstance better illustrates the problem—that is, the untoward tendency to mistake strategies of allurements for matters of substantive content—than the long-running debate as to whether Building J is an “observatory” or perhaps a “calendar temple” versus its function as a “propagandistic military monument,” as though those were irreconcilable alternatives. Instead of mutually exclusive possibilities, I have argued that those two very different aspects of the infamous arrow-shaped structure exemplify beautifully the complementary twofold pattern that characterizes all meaning-producing ritual-architectural events. To reiterate the basic hermeneutical premise, in each productive experience of a substantial work of architecture, the potency of the event depends upon the interplay of a conservative, reassuring component of order, in Gadamer’s term a “continuity of tradition,” and, on the other hand, a disconcerting component of variation or, as befits an occasion of hermeneutical reflection, a component of “otherness” or “strangeness.”<sup>370</sup> Both elements are required. And once an audience decides that an occasion is worthy of its studied attention—that is to say, once potential participants are “allured” into committed involvement—meaning is made by reflecting on, or by interpreting in creative and interested ways, that which was not previously known or accepted.

To the extent that Building J is a “calendar temple”—with a ground plan that expresses the revered 365 to 260 ratio and a distinctive shape and skew that is informed by, and then directs attention to, periodic solar and stellar movements—it is, in very large part, a component of the alluring “front-half” of Monte Albán’s ritual-architectural program. Conformity to these astro-calendrical proportions and periodic sky phenomena does not express any new or challenging information; these celestially-informed features are part of the conservative, reassuring claim to cosmic (not just socio-political) legitimacy that persuades ritual-participants to pay careful attention to more substantive meanings and messages that emerge in the ensuing ceremonial occasions. By contrast, to the extent that Building J is a “propagandistic military monument,” we are alerted to one highly politicized strand of what those challenging messages entail. While the astro-calendrical references are general and non-controversial, the enumeration in the “conquest slabs” of communities that have been vanquished by the armies of Monte Albán

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<sup>370</sup> Again see Jones, *The Hermeneutics of Sacred Architecture*, chap. 4, “Order and variation: The Twofold Pattern of Ritual-Architectural Events.”

is, precisely as we expect from the “back-half” of such ritual-architectural agendas, highly specific and also jarring, intimidating and contentious. While Building J’s astronomical allusions conform to widely shared expectations and thereby put people at ease and inspire confidence, its graphic display of militaristic triumphs issues a hard challenge to many visitors’ expectations—the “requisite enlivening effect” or so-termed “jolt” that forces to recognition something many wish were not the case.<sup>371</sup>

Whether such carefully choreographed initiatives in swaying public opinion actually succeeded in changing the hearts and minds of residents and visitors to Monte Albán, and bringing them more fully into line with the agenda Zapotec elites, is a question to which I will return repeatedly in Part II. And while Building J’s ominous reliefs speak to a seemingly totalitarian hegemonic agenda, not all of the meanings and messages presented the capital’s ritual-architectural program are so aggressively political. Therefore, as means of considering the much fuller range of topics and insights communicated in those forms and occasions, consider in the next four chapters the much-debated matter of Monte Albán’s gods and goddesses (divinity, priority II-A), myths of origin and identity (sacred history, priority II-B), additional socio-political messaging (politics, priority II-C) and, finally the Zapotecs’ renowned reverence for deceased ancestors (the dead, priority II-D).

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<sup>371</sup> I borrow the term “requisite enlivening effect” from Hans-Georg Gadamer, *Truth and Method*, trans. W. Glen-Doepel (New York: Crossroad Publishing, 1975), 140; and I borrow notion of a “jolt” or component of variation, originality or novelty that forces viewers to readjust their tastes and commitments from from Roland Barthes, “The Death of the Author,” in Roland Barthes, *Image, Music, Text* (New York: Hill and Wang, 1977), 144.