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Gregory E. Munson, Todd W. Bostwick, and Tony Hull, eds., *Astronomy and Ceremony in the Prehistoric Southwest: Revisited*. Maxwell Museum of Anthropology, Anthropological Papers 9 (Albuquerque: University of New Mexico Press, 2014), 163 pp., $30 paper.

Although the first astronomical interpretation of Southwestern Native American rock art and its relationship to astronomy appeared in 1955, the discovery of subsequent celestial alignments in Chaco Canyon, New Mexico, and at other archaeological sites throughout the region garnered an interdisciplinary interest that reached a crescendo in 1979 with the Fajada Butte "Sun Dagger." High atop this conspicuous Chaco Canyon butte, in a natural alcove created by three fallen slabs of rock, summer solstice sunlight pierces gaps between the slabs in a manner that emits a "dagger" of sunlight which bisects a circular, spiraled petroglyph dating to circa 1200 BCE. Additional observations demonstrated that dual sunlight shafts "framed" the spiral petroglyph on its left and right sides at winter solstice, and at the equinoxes a shaft of light bisected the spiral halfway between its center and left side; confirming that the petroglyph was indeed purposefully pecked into the rock as a time-reckoning device by the prehistoric Puebloan inhabitants at Chaco Canyon. When Carl Sagan announced this finding in episode 3 of *Cosmos* (1980), the discipline of archaeoastronomy—which had once been viewed as the raffish intrigue of archaeologists, astronomers, anthropologists, and ethnographers—was suddenly transformed into a valid sub-discipline of Southwestern antiquarian study.

Over the ensuing years a considerable number of celestial alignments found at Southwestern archeological sites (most of which are solar) necessitated the formulation of conferences and periodicals in which such findings could be aired and published. In 1983 a conference entitled *Astronomy and Ceremony in the Prehistoric Southwest* convened at the Maxwell Museum of Anthropology in Albuquerque, New Mexico. The director of Los Angeles' Griffith Observatory, E.C. Krupp, describes it as "the first public forum on archaeoastronomy in the Southwest," adding that it "wrestled with the many of the same conundrums of proof and meaning that still raise concerns about confidence in interpretation today." Many of the presentations read at

that conference were compiled into a publication for the University of New Mexico's Maxwell Museum of Anthropology, Anthropological Papers 2 (1987), which served as the forbearer of the current, fourteen-article Maxwell Museum of Anthropology's Anthropological Paper 9 (2014): *Astronomy and Ceremony in the Prehistoric Southwest: Revisited.*

Readers are cautioned that *Astronomy and Ceremony in the Prehistoric Southwest: Revisited* is a scientific publication intended for professional scholars working in the field of Southwestern Archaeoastronomy as well as informed enthusiasts of that discipline. Numerous statistical, astronomical tables and concomitant archaeological and anthropological jargon make this a plodding read for the unacquainted. Nonetheless, all authors synthesize their data into a palatable prose that is readily comprehensible for the non-specialist.

The periodical's highlights are many, beginning with Krupp's "Under Southwestern Skies: Origin and Evolution of Archaeoastronomy of the American Southwest," an adept summary of the history of Southwestern archaeoastronomy to its present state. In "The Morning Star/Rain/Maize Complex in the American Southwest," Polly Schaafsma adroitly illustrates how specific, Ancestral Puebloan rock art images in New Mexico can be traced back to older, Mesoamerican concepts of Venus that had been culturally transmitted into the Southwest. J. McKim Malville makes a compelling argument for ritual ascent that begins in one of Chaco Canyon's Great Kivas and culminates with the winter solstice sunrise in "The Enigmas of Fajada Butte." The article "Migration, Ceremonial Staffs, and Chacoan Architecture," by Andrew M. Munro and Malville, argue that a specific type of artifact—a cross-staff—was the tool that allowed agrarian Ancestral Puebloans to orient their domiciles and religious structures to the "East of South" alignment ubiquitously found at Southwestern archaeological sites. In "Heaven on Earth: The Chaco North Road," James Copeland utilizes ethnographic and ceramic data to illustrate that the Chaco Canyon road system was an Ancestral Puebloan attempt to depict on the terrestrial earth what the "celestial road" of the Milky Way resembles in the heavens. With "New Evidence of Tewa-style Moiety Organization in the Mesa Verde Region, Colorado," Robert L. Bernhart and Scott G. Ortman make the case that a portion of Mesa Verde's last inhabitants (late thirteenth century) were ancestors of the Tewa people of modern New Mexico, whose moiety based societal structure was divided into a summer and winter round of ceremonies and rituals; the shift in such bi-yearly ceremonialism signaled by

a publicly displayed equinox marker, which the authors trace to a nearby Mesa Verdean site known today as Hovenweep Castle. Virginia Wolf and Edward Wheeler utilize ethnographic data from the Hopi tribe which elucidates the potential spiritual underpinnings of zoomorphic and Sun-Field petroglyphs that mark winter solstice alignments in, "Petroglyph Based Archaeoastronomy Sites in the Northern San Juan Region of Colorado."

Despite the paper's compelling arguments for the manner in which astronomical knowledge was utilized in the ritual and ceremony of prehistoric Southwestern Indians, this reviewer comes away wanting—yearning for a connection with the religious thoughts and beliefs that were evoked in the Ancestral Puebloans who embedded solar, lunar, and celestial wisdom within the architecture and features of their great houses, kivas, and rock art. Studies throughout the world have repeatedly demonstrated that, in archaic thought, the sky was "heaven" and the astral bodies, solar disc, and lunar orb were manifest divinities. Yet only in Schaafsma's exploration of Mesoamerican Venus symbolism in New Mexican petroglyphs, Copeland's attempt at exposing the Chaco road system as a mirror image of the Milky Way road on the terrestrial earth, and Wolf and Wheeler's exciting interpretation of southwestern Colorado winter solstice petroglyphs are readers treated to the religious concepts that lie at the core of the astronomical knowledge.

This residual "longing" is surely not a reflection of the top-notch scholarship demonstrated by the authors; but may very well lie in the manner by which Southwestern archaeoastronomy has evolved—transfiguring itself from a "fringe discipline" to a valid avenue of scientific research over the past four decades. In an attempt to develop rigorous, scientific methodology that tests new hypotheses, scholars in archaeoastronomy sometimes appear to inadvertently detach the astronomical wisdom from the cultural context in which it evolved; the context almost invariably being that of religion. The transformation from pseudo-science to valid discipline of study is complicated by the dearth of ethnographic data collected after initial contact with Europeans and the presence of written records found only among the Maya of Mesoamerica. However, the scraps of ethnographic data and Mayan texts that have survived confirm that astronomical knowledge was embedded within the framework of religion, and that this worldview incorporated a numinous conceptualization of the celestial sky into its rituals and ceremonies. One would hope that future inquires would pursue this course of investigation.

It seems highly likely that the core of archaeoastronomical study lies deeply embedded in polytheistic concepts of the sky embraced by the Southwestern American Indians themselves. In the paper's concluding article the editors themselves confide that, "Archaeologists and archaeoastronomers need to work much more closely with Native American communities in their research. Looking through native eyes may provide the insights to better appreciate the ancient skywatcher's knowledge of the sky and how it affected their lives." And it is the intermittent excursions into the religious conceptions of astronomical phenomena described in *Astronomy and Ceremony in the Prehistoric Southwest: Revisited* that transcend the ages and retroject the reader into the Pagan celestial worldview of the prehistoric Southwestern Indian.

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