

BOOK REVIEW

Mysteries of the Hopewell: Astronomers, Geometers, and Magicians of the Eastern Woodlands. William F. Romain. 2000. The University of Akron Press, Akron, OH. 272 p. \$44.95 hardcover.

This well-written book compares the spatial and physical parameters of archaeological surface features, known as earthworks, to specific alignments of the rising and setting sun and moon. Some of these features appear on the landscape as geometric designs, and others are in the shape of animals, many of which are more than a thousand feet across. This book attempts to answer the questions of why were they built, and who built them?

Romain suggests that most of the earthworks were constructed by the Hopewell, an ancient American Indian culture whose actual name remains unknown, a group of people who spoke the same language, had the same economy, the same social organization, the same ideology, and the same symbol systems. Most specialists assume that Hopewell can be archaeologically recognized by temporal and spatial homogeneity in material culture. Geographically, the term Hopewell has been used to describe artifacts and archaeological sites from the Atlantic Ocean to the Rocky Mountains, from the Great Lakes to the Gulf of Mexico. This book, however, is limited to the state of Ohio.

Romain goes into great detail documenting similarities in the use of Hopewell space, but his temporal parameters are "presumed." He assumes that all of the earthworks described and illustrated were constructed between 500 BC and AD 500, and "over the course of 1,000 years, the sun's (and moon's) rising and setting positions on the horizon change by less than two tenths of one degree" (p 106). But, what about culture change over a millennium? Romain assumes cultural continuity over a period of 1,000 years, that is, almost five times longer than the United States has been a country. Although the complete absence of geochronology, radiocarbon dates, or their contexts is troubling, this problem is not unique to Romain's book; rather, it is a sticky situation that has all but stifled archaeological studies in Ohio Hopewell (Greber and Ruhl 2001).

"How old is it?" is the single most important question in archaeology. If we do not know the answer to this simple question, then everything we say about the past is going to be based on pure speculation. For more than fifty years, radiocarbon dating has provided North American archaeologists with a powerful measure of time. Some Ohio Hopewell specialists have justified their use of artifact styles and earthwork forms to infer time, rather than employ chronometric dates, because radiocarbon years are not equal to calendar years. Indeed, the pro-

duction of radiocarbon in the atmosphere through time has not been constant, making radiocarbon time older or younger than sidereal time. However, other chronometric dating techniques can be used to calibrate radiocarbon dates to read as calendar years. For example, 500 BC in radiocarbon years is actually 610 BC in sidereal time, and AD 500 in radiocarbon years is actually AD 350.

For the past 200 years, interpretations of Ohio earthworks have, more often than not, gone beyond the confines of epistemology—the very nature of human knowledge, its limits and validity. In addition to attributing earthwork geometry and orientation to ancient astronomies, they have been credited to lost civilizations and even ancient astronauts. At best, such explanations are ethnocentrically biased, nationalistic, and pseudo-science.

Today, most scientists agree that truth is the ultimate goal of their research. As a science, modern archaeology seeks truth through the rigors of the scientific method. As scientists, archaeologists can never prove their interpretations of the past; rather, they disprove what is not true. If archaeologists confuse potentiality and possibility with the truth, then they create unrealistic expectations of the record, and mental closure to alternative explanations.

I have no doubt that Ohio's earthworks were built by people that were avid astronomers, geometers, and magicians. If the readers apply, as I did, Romain's solar and lunar azimuths to the locations of windows, doorways, and rooms in their homes, they may be surprised to find alignments with the winter and summer solstice sunrises and sunsets, and the maximum and minimum moonrises and moonsets. How then can we objectively prove, beyond a reasonable doubt, that an ancient Ohio earthwork, more than a thousand years old, was intentionally built in alignment with a significant astronomical event?

This book also surprised me with the description and illustration of different types of "mountains" in Ohio (p 188). It might be said that Romain's *Mysteries of the Hopewell* has made mountains out of Ohio's mounds.

LITERATURE CITED

Greber NB, Ruhl KC. 2001. The Hopewell site: A contemporary analysis based on the work of Charles C. Willoughby. Fort Washington (PA): Eastern National. 270 p.

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