

The first three essays offer the reader a history of Spiro from the plunder of the Pocola Mining Company and the archaeological work that has been conducted there. The newer work at the site has offered opportunities to reinterpret information that may (or may not) have been available in the initial destructive pothunting events of the 1930s. The subsequent chapters on the climatic changes associated with the Little Ice Age and its possible implications for the religious practices form the background for what is thought to have transpired at Spiro. A bit of detective work, based on a reexamination of old photographic records, led to more information on the “Spirit Lodge” of the Craig Mound and its role in an attempted “cosmic renewal.” This discussion sets the stage for the chapters on the “turtle warrior” and the role of the sacred bundles that were considered to have been placed in the mound.

The third section offers interpretations and discussion of the stylistic weaponry found across the Mississippian world, as well as the ear spoils that seem to have been more than just ornaments. I wear mine today as a sign of status. The fourth section considers the Braden and Craig styles of iconography, visible principally on engraved marine shell items, with the Craig style present at Spiro itself, and the Braden style associated more commonly with the Cahokia mounds and American Bottom region of Illinois.

The closing essay on the narrative symbology of Native American art speaks to the general structure of what is seen to be Native American (broadly speaking) artistic style. Whether or not a continent-wide overarching “structure” to Native American art—broadly written—can be seen, Singleton notes that when viewing the objects found at Spiro and other pre-contact Mississippian centers, “we describe it as art” (p. 255). He also says that because the artifacts are meant to be used rather than merely looked at, they are “more closely associated with craft” (p. 255). That is the dichotomy within which American Indian art has often been placed. People who used what was generally encountered and painted in European worlds were called “artists,” whereas those who created beautiful (but functional) works from natural materials found within the Native American worlds were labeled “crafts persons.” This dichotomy has been applied to so-called primitive cultures throughout time by members of dominant cultures and used to denigrate the importance of those objects and materials.

This book will be a must-have item for a large variety of people. For the archaeologist and the art historian, the series of essays on the various aspects of the material culture represented by the objects will add to the corpus of scholarship in Mississippian

archaeology. For American Indians, it will give a glimpse of the artistic and technological accomplishments of the people who created Spiro. For the art lover, the objects will draw appreciative looks of amazement and astonishment. The book will serve its title well—it will help all of us “recover” the ancient art and knowledge Spiro holds.

*Modelling Water Use at Great Zimbabwe: An Ethno-historic, Ethnoarchaeological, and GIS Landscape Analysis at an Ancient African City.* TENDAI TRED-DAH MUSINDO. 2019. BAR International Series S2952, British Archaeological Reports, Oxford. xviii + 118 pp. (paperback), ISBN 978-1-4073-5397-5.

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Within Southern Africa, many archaeologists publish their theses and dissertations in the African Archaeology Series of the British Archaeological Reports (formerly Cambridge Monographs in African Archaeology). Although BAR monographs are not peer reviewed, the series takes postgraduate research out of the “gray literature” and into the public domain. Otherwise, many African theses and dissertations are not readily available.

Musindo’s research is a contribution toward understanding Great Zimbabwe—a national monument, World Heritage site, and source for the name of the Republic of Zimbabwe. Because of Great Zimbabwe’s importance, there is a vast literature—most recently on contested interpretations of dating, spatial organization, population numbers, and the dichotomy between elite and commoners. Ignore the review of these current debates (Chapter 2), and read the original papers. Musindo does little justice to the complexity of these issues.

Musindo’s own contribution focuses on the availability of water for the town residents. She uses various GIS tools (digital elevation modeling, hydrological modeling, and cost surface modeling) to examine water sources, transport routes, and management. These tools have not been used before, and her research makes a welcome contribution. Like people living in the area today, Great Zimbabwe people relied on springs, streams, and rivers for domestic use and on rainfall for agriculture. She and others have not found evidence for irrigation.

Surprisingly, there is only one spring (Chisikana) in the residential area. This is clearly insufficient for 18,000 people at its peak (my estimate—note that half would have been children) or even 5,000 (Musindo’s reading of Chirikure’s calculations, p. 7). Musindo claims that her analyses favor a lower population

number (pp. 102–103). For this to be the case, however, she would need data on daily average consumption in rural areas and on average discharge of local springs and other sources. As it is, my population estimate is based on hut counts. The task is to determine how the large population survived.

To offset the limitations of the one spring, Musindo believes the numerous *dhaka* (soil) pits were water reservoirs. Only toward the end does she allow that these pits were the source of building material for houses. This misunderstanding must be clarified immediately. These pits were unquestionably the source for the hundreds of residential houses that existed during Period IV (AD 1285–1550/1600): I found some 39 in just one 33 m<sup>2</sup>, and remnants are visible in many other areas. For house materials, different pits yield different soil types: those at the base of Zimbabwe Hill have red, decomposed granite, whereas those on the edge of the wetland have white and yellow clays. Roger Summers used the color differences in 1958 to reconstruct a relative sequence of structures inside the Great Enclosure. Had these pits been dug for water, they would be surrounded by soil mounds, in the same way that ancient mines in Zimbabwe are. Furthermore, their primary function as a source of *dhaka* is why they are located on the edge of the marshland. Otherwise, they would have been flooded at a relatively shallow depth. Nevertheless, many pits hold water during the rainy season (September to March), and those with clay bottoms probably held water throughout wet years. Indeed, their secondary use as water reservoirs could have made the difference to the town's sustainability. This is a new and important finding.

The wetland (*matoro*) at the base of Zimbabwe Hill, where several pits are located, was created by the downslope flow of the Chisikana spring. Consequently, it is as old as the spring itself. Presumably, this can be counted in millennia. Musindo, however, claims that Zimbabwe people created the wetland as part of water engineering. The clays from some pits and the artificial causeway across the wetland at the "Watergate" obviates that claim. The use of the wetland for gardens, on the other hand, must surely have taken place and can be understood in terms of water management. Some other claims for water engineering are equally overstated. The stone terraces on Zimbabwe Hill, for instance, were not constructed to manage downhill flow (p. 101) but to support the houses of Zimbabwe elite. Furthermore, it is unlikely that people constructed the Outer Perimeter Wall to protect water sources and control access (p. 100). Equivalent walling exists at many other Zimbabwe settlements, and they all designate the west-front entrance to the *muzinda*—the leaders' area. Specific studies such as

this one are important, but ultimately, Great Zimbabwe should not be considered in isolation.

Like cities elsewhere, Great Zimbabwe's sustainability was tied to natural resources, including rainfall. Southern Africa has been steadily drying over the last 100 years, so recent rainfall data for Great Zimbabwe do not apply to Period IV. Musindo's research would benefit more from Stephan Woodborne's Limpopo baobab data. Overall, Great Zimbabwe is in a relatively high rainfall zone on the southeast escarpment, and an annual average of 800 mm is not unreasonable for most of the fourteenth and fifteenth centuries (more springs?). Droughts must have occurred, but their impact would have been much less than in the Limpopo Valley to the south. Indeed, an extended drought between about AD 1300 and 1310 contributed to the demise of Mapungubwe and the rise of Great Zimbabwe. Although traditional leaders in drier areas, such as Botswana, moved their capitals from time to time because of water problems, the first population reduction at Great Zimbabwe at about AD 1450 occurred during a wet period. Local politics rather than environmental deterioration was therefore probably the cause of Great Zimbabwe's abandonment.

If monument authorities allow it, some pit walls need to be excavated to the bottom to investigate possible fluctuating water levels. Furthermore, the entire monument area should be examined for evidence of extinct springs and check dams. And then there are the calculations needed to determine water budgets. Musindo's research lays a useful foundation for these future endeavors.

*The Global Spanish Empire: Five Hundred Years of Place Making and Pluralism.* CHRISTINE D. BEAULE and JOHN G. DOUGLASS, editors. 2020. University of Arizona Press, Tucson. xiv + 305 pp. \$65.00 (hardcover), ISBN 978-0-8165-4084-6. Open Access (e-book), ISBN 978-0-8165-4571-1.

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This book began as a session organized by Christine D. Beaulé and John G. Douglass at the SAA annual meeting in 2018. Subsequently, the session was selected as an SAA–Amerind Advanced Seminar, during which authors further developed the focus and themes for the volume. This productive process resulted in an edited volume that is cohesive in its focus yet provides many angles on the Spanish Empire due to the broad temporal and geographical scope of its 11 case studies.