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Hopewell Earthworks of Southern Ohio: A Study of the Purpose of Earthworks

Erin C. Dempsey

Abstract: Across the prehistoric landscape, the Ohio Hopewell constructed large mounds and earthworks, and though archaeologists have a general understanding of this phenomenon, questions remain as to the location, purpose, and construction of the earthworks. Answering them, however, is difficult due to the paucity of information, both written and archaeological, regarding the Hopewell and their culture. This paper attempts to discuss how the Hopewell chose earthwork locations, how the earthworks functioned within the culture, how culture affected the construction of the earthworks, and the logistics of time and labor that go into creating such large earthen structures.

Introduction

The Ohio Hopewell culture existed from 100-500 AD and is famous for building impressive mounds and earthen embankments or enclosures called earthworks. These earthworks were built utilizing geometric forms such as circles, squares, and parallel lines (called "roads") and often included multiple shapes. In fact, some of the larger earthwork complexes are tripartite, meaning they are made up of a large circle, small circle, and square, all interconnected (Bernardini 2004). Each of these shapes can encompass more than 20 acres of land, with the walls of each standing approximately 15 meters wide and up to 5.2 meters tall. The bulk of earthworks occur in southern Ohio, most specifically in the Scioto River and Paint Creek locales. Though many mounds were built for burials and mortuary practices, the reasons behind building earthworks is largely unknown. The archaeological record demonstrates a lack of artifacts associated with habitation and occupation sites. Instead, excavation has revealed a tremendous amount of ceremonial and mortuary artifacts. From this, archaeologists must paint a picture of cultural value and meaning.

This paper will discuss four aspects of Hopewell earthwork construction: 1) the locations the Hopewell chose for the earthworks, 2) the physical make-up of the earthworks, 3) the meaning behind building the earthworks, and 4) the logistics of time and labor required for constructing the earthworks. Unfortunately, little has been published on the evidence referred to below. Thus, many of the ideas presented here are based on speculation and assumption and merely provide a basis for research questions concerning Hopewell archaeology in the future. By no means is this paper meant to be an authority on the greater meaning behind the construction of such monumental earthen structures. It simply serves to create a synthesis of what possibilities lie ahead for research in this focus area.

Earthwork Location

Considering that many earthworks sit in river valley and floodplain landscapes, it is possible that the Hopewell intentionally chose locations for their specific geological and geographical attributes. The areas in which the Hopewell were active provided numerous opportunities for subsistence, economic, and interaction activities as they were close to natural resources and landforms such as hill summits, river confluences, forests, and rich soil. Also, these areas contained large rock outcroppings and such rock was an important commodity within trade networks. Each locality had something special to offer the Hopewell and allowed them a space of which they could make efficient use. Therefore, it is reasonable to assume that the Hopewell chose sites for building their earthworks because a particular feature in the landscape lent itself to highly productive settlement and trade practices.

Investigation into the geological components of the landscape show that many of the major earthworks in southern Ohio are near outcroppings of special types of rock. For example, flint is prevalent at the Newark earthworks, red ocher is found at Seip Mound, pipestone at Tremper, and salt deposits located are near McKittrick (Romain 2000). Because the Hopewell are known to have had extensive and far-reaching trade networks through which exotic rock material and other goods were transported from great distances, it is highly possible that certain groups of Hopewell preferred to live near the types of rock they harvested and traded. Therefore, the Hopewell may have been using these outcroppings to determine their settlement pattern and ultimately, the situation of certain earthworks.

Several theories have been offered to explain Hopewell settlement patterns, two of which are discussed here. Because theories

such as these examine Hopewell settlement specifically, direct correlations to earthwork function can only be alluded to. By understanding the distribution of settlement across an area and looking at the archaeological evidence that either supports or negates theories of settlement, a better understanding of the function the earthworks served and their physical place within the landscape may be achieved.

Prufer's Vacant Ceremonial Center Model suggests that the earthworks were not used as residential or domestic occupation, but rather as a ceremonial center. Figure 1 demonstrates Prufer's model by placing the earthworks in a central location as a core of a single community's identity. As Dancey and Pacheco (1997) state, "the earthwork is a focal point for community identity within the boundary of a distinct territory." The community here is defined as a group of camps and hamlets around each earthwork that make up a larger social group (7). Small, specialized camps then surrounded the earthworks and small hamlets radiated out from these. Indeed, while no domestic occupations are located directly in the earthworks, they were certainly places of recurring human activity.

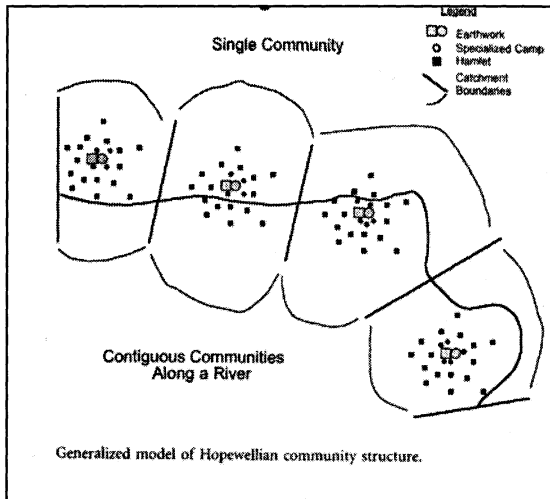


Figure 1. Prufer's Vacant Ceremonial Center Model (Dancey & Pacheco 1997: 21)

The Interaction Sphere Theory, offered by Struever and Houart, identifies earthworks as economic transaction centers. They suggest that at the local level, earthworks served as a centralized location that allowed goods such as exotic raw stone materials (i.e. obsidian, flint, chert) and finished artifacts to be exchanged within a

regularly spaced framework of settled Hopewell communities (Seeman 1979). They believe these transaction centers, or market places, were hierarchically ranked according to the type of good or goods being traded (Seeman 1979). Settlement, then, is based on the distribution of the economic centers and the types of goods changing hands at them. In all, these two theories work to examine earthwork placement as a result of settlement. Dancey and Pacheco's discussion of Pruffer's model does not attempt to identify the earthworks' actual function as specifically ceremonial. Subsequently, Struever and Hoart's theory does not take into account variation in earthwork size and, like Pruffer's model, it focuses on the distribution of settlement across the landscape, failing to correlate this to the exact placement or function of the earthworks.

Earthwork Construction and a Theory of Meaning

When the archaeological record is taken into consideration, an incongruity emerges between it and the models outlined above. This is particularly evident between the amounts of domestic and ceremonial, or ritualistic, debris recovered at earthwork sites (Bernardini 2004). Though some evidence for settlement is found at a few of the earthworks (e.g. Hopewell, High Banks, and other earthwork sites in northern Ohio), in general, the archaeology in southern Ohio has revealed little in the way of habitation debris in the direct vicinity of the earthworks (Pacheco 1996). This gap in the record suggests that constructing the earthworks was not necessarily a product or result of settlement, but rather a catalyst for something of greater cultural affinity (Seeman 1979). However, there is considerable archaeological evidence of ceremony and ritual at earthwork sites. During excavation, features containing burned soil, charcoal, ash, and mica are often found within the earthwork walls. An extant example of the possibility of ceremony or ritual occurring at earthworks can be seen at the Hopeton Earthworks, outside of Chillicothe, Ohio, in the Scioto River valley. Figure 2 is an illustration of the placement of the earthen walls.

Over the last five years, eight trenches have been dug through the extant walls of both the circle and square enclosures at Hopeton. Within these trenches, features associated with ceremonial activities as described above, were found periodically at different levels in the walls (Lynott 2005). This suggests that ritualistic burnings occurred during various phases of construction, indicating that the enclosure was either used for some sort of ceremonial purpose or possibly that the construction was ceremonial in and of itself (Lynott 2005).

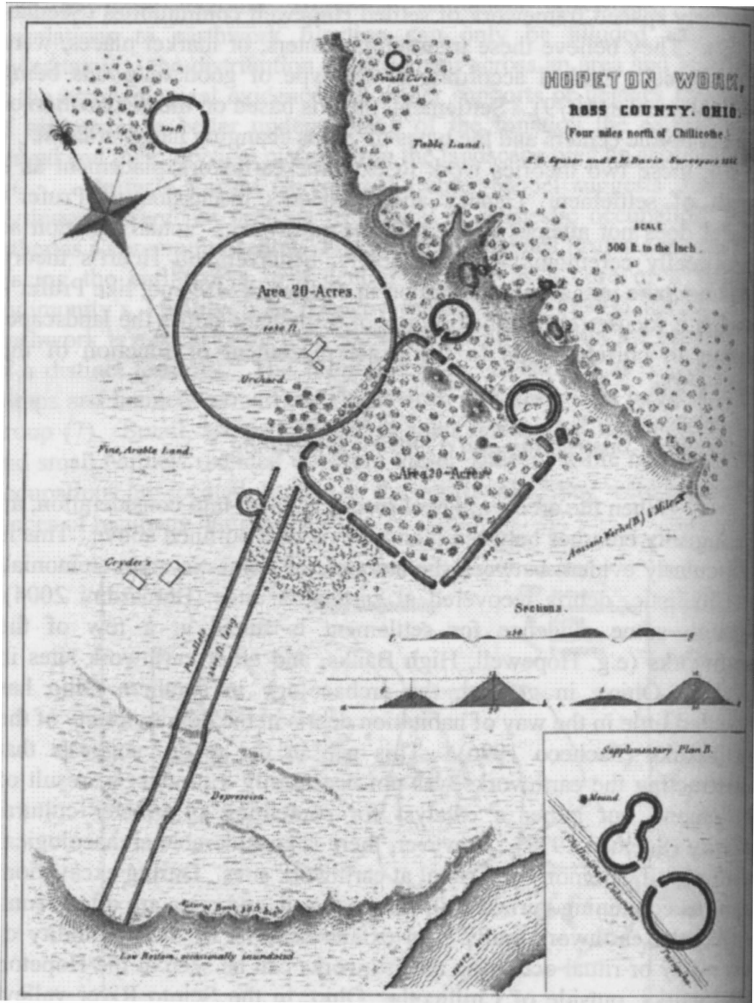


Figure 2. Map of the Hopeton Earthworks (Squier & Davis 1848)

The lack of habitation debris excavated at the site and the presence of ceremonial debris within the walls strongly suggests that the site's significance lay not in its completion, occupation, or post-construction use but rather in the physical act of construction. In other words, for the Hopewell, the experience of building the earthworks was the purpose behind building them.

Romain (2000) suggests that the Hopewell may have created such elaborate earthen structures for spiritual purposes based on their extensive phenomenological knowledge of the equinoxes, solstices, and celestial alignment. He suggests that the earthworks were actually observatories the Hopewell aligned with certain astronomical events and that the shape of the geometric structures may be reminiscent of the different types of seasonal housing the Hopewell occupied.

There is a possibility that the earthworks are related to symbolic aspects of the Hopewell culture such as numbers, colors, shapes, special trees, plants, and animals as suggested by Romain (2000). Indeed, a closer look should be taken at color use at the earthworks as it reveals an interesting phenomenon. In the trenches at Hopeton, for instance, wall profiles exhibit clear changes in soil color and extensive layering of a variety of soil types, suggesting that certain colors and textures were used for certain reasons, a trademark of Hopewell culture. The profile of a trench cut through the southern section of the circular enclosure shows a deep red sandy loam, which did not originate at the site, on the outside of the walls. The inside of the walls are formed from a yellow silt-loam, quarried from inside the earthwork. Also, gray-brown topsoil, also found at the site, was used to cover the red and yellow soils. Core samples taken from inside the earthwork enclosure during the summer of 2004 by Drs. Lynott and Mandel (Lynott 2005), revealed that the soil from the inside of the enclosures had been stripped away; the topsoil (A horizon) and upper levels of subsoil (B horizon) were removed and most likely served as the cap of the earthen walls of both the square and circle. This soil was used in constructing the parallel walls that extend southwest from the site, toward the Scioto River.

The uniformity of soil layering throughout the earthwork walls speaks to a very specific use of soil color and possibly texture. The significance or meaning behind these colors and their placement within the walls is unknown. However, due to the amount of work that would have been required to obtain them, it is assumed that using particular soils was an important part of the wall construction and therefore important to the Hopewell.

Logistical Issues in Earthwork Construction

The immense and complex physical nature of earthwork construction reveals that such structures required a significant amount of natural resources, logistical coordination, time, and labor. Researchers have suggested a single summer for smaller works, and upward of centuries for those of greatest magnitude (Bernardini 2004).

At Seip, a large earthwork group including mounds and enclosures southwest of Hopeton, Greber has identified seven major periods of construction carried out over what she believes to be twelve to fourteen generations (Greber 1997). Many believe that the earthen structures were, in fact, built over several generations, the knowledge being passed down through oral history. Radiocarbon dating can be used to identify the period of time over which an earthwork was built. For example, at Hopeton, radiocarbon dates from burn features in the earthen walls suggest that construction took place over several hundred years with a distinct period of intense construction between A.D. 100 and 300 (Lynott 2004). Figure 3 suggests that, assuming the dates are correct and reliable, earthwork construction took place over many hundreds of years and several generations.

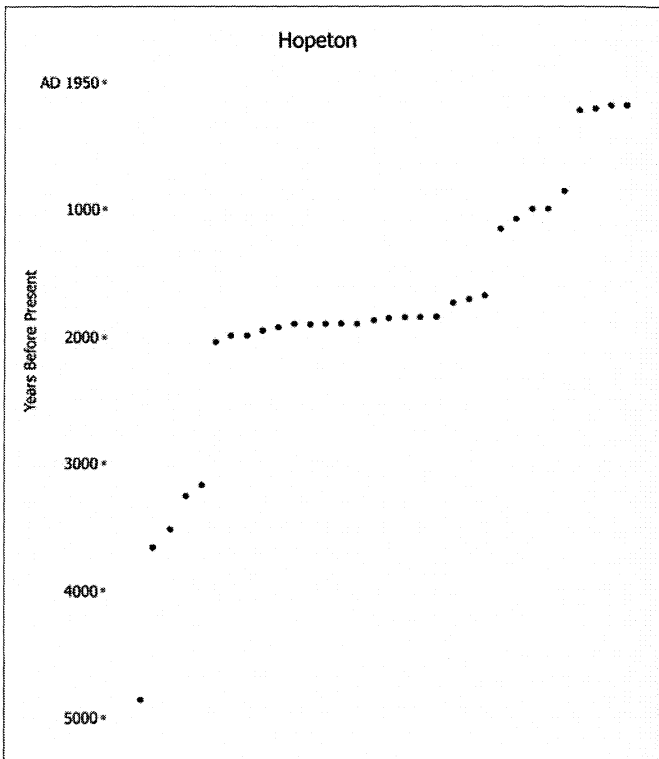


Figure 3. Radiocarbon dates from Hopeton (Lynott 2004)

There are many factors that must be taken into consideration when determining the timeframe during which the earthworks were

built: the number of days per year devoted to construction, the size and volume of the earthwork, and the amount of available labor. Bernardini (2004) estimates that a small earthwork would require between 150- 400 workers for any one phase of construction. By this estimation, one of the larger earthworks would require as many as 2,700 workers. The author uses a labor catchment analysis, a study of the area from which people would need to be drawn in order to provide the needed number of workers, to demonstrate that a huge area of occupation must have been utilized to produce a large enough labor pool given a sparse population density of .5 people per square kilometer, as figured from previous archaeological estimates of population throughout this area. This pool would have needed to be far-reaching and effective on a regional level to produce the number of workers necessary for earthwork construction (Bernardini 2004). This alone negates the Vacant Ceremonial Center Model suggested by Prufer where the construction of the earthwork is assumed by a singular core community. Since the Hopewell were a large but dispersed group, tremendous effort and devotion would have been necessary for earthwork construction to be worthwhile. This suggests that the earthworks and their construction were a significant component of Hopewell culture, one that all members were willing to participate in actively.

Discussion and Conclusion

There are many aspects to consider when determining the meaning earthworks had within Hopewell Culture. While many authors speak to Hopewell settlement patterns, which leads to a clearer view of the Hopewell use of the landscape, few are able to make inferences as to the placement and function of earthworks within this settlement framework. The two theories discussed above, imply that the construction of earthworks was a consequence of settlement and are valuable for inferring what part the earthworks may have played in the Hopewell culture. However, greater attention should be devoted to the construction of the earthworks not as a result of human settlement, but rather in advance or in lieu of settlement. We are left, then, with the insights provided by the archaeological record. At the Hopeton Earthworks, the archaeology suggests a very specific and deliberate purpose for the structures. Materials such as mica fragments, burn features, and the vast variety of soils found at the site point to a ceremonial intent for the construction of the earthwork.

There are many possibilities as to why earthworks exist. If we utilize the example established at Hopeton, we may concede that the

structures served as centers of worship, ritual, and ceremony. They were a place where members of the greater group would journey to practice or engage in their faith. The way the Hopewell dispersed themselves across the landscape, and then came to a central place to take part in common activities, can and does express a cultural dynamic: the earthworks allowed the Hopewell to interact with one another at regular, if not predictable, times throughout construction and possible use-life (Greber 1997). Indeed, the monumental undertaking of building and maintaining the earthworks suggests a major focus on cultural activity.

It is imperative that more research is conducted in this area to generate more questions. The evidence presented above can and should be considered inadequate and has, for the most part, not yet been published. However, if these trajectories are not considered, the study of Hopewell earthworks cannot proceed. Without working to understand why the Hopewell built and used their earthworks, and without pushing the boundaries of accepted knowledge, such research can never be expanded. By taking a closer look at the reasoning and implementation behind building the earthworks, we are better able to acquaint ourselves with the people behind these famous structures. Through understanding what the earthworks meant to the Hopewell and what purpose they served, we are better able to understand the culture in general.

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