OHIO— "THE HEART OF IT ALL" FOR OVER 15,000 YEARS

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Abstract

A previous slogan of the Ohio Division of Travel and Tourism declared that Ohio was "The Heart of It All." A review of Ohio's prehistory suggests this slogan is appropriate for much of the past 15,000 years; and yet surprisingly few Ohioans today fully appreciate the impressiveness of our ancient American Indian heritage. Archaeologists need to reach out to the general public and share the knowledge we have gained about the original discoverers of America who hunted mastodons across Ohio's Ice Age landscape, the first Ohio farmers who learned how to domesticate local plants more than 3,000 years ago, and the mound-builders who translated their sophisticated knowledge of geometry and astronomy into architectural wonders of the world.

David Hurst Thomas, a curator of anthropology at the American Museum of Natural History and a founding trustee of the National Museum of the American Indian, observed that Ohio preserves "some of America's most spectacular archaeology" (2005:xi). I think it's fair to say, however, that surprisingly few Ohioans have an appreciation of that fact. I live in Newark, which encompasses the best preserved remnants of monumental geometric earthworks in North America, and some years ago my wife had an eye-opening experience while shopping for a car at a dealership just across the street from the Great Circle. In the course of her conversation with the salesman, it became clear that he had no idea that a magnificent monument of antiquity was in plain view from his office window. This might seem to be an extreme example, but I'm not so sure.

Geoffrey Clark (2010) put his finger on one of the most important reasons why there is so little public awareness of Ohio's rich Native American heritage: Americans tend to regard Pre-Columbian American archaeology as the archaeology of the "other" and as a result do not feel any special connection to heritage sites that don't relate to European American history. It's more than that, of course, because there is more appreciation for the archaeology of the American Southwest than there is for the mounds of eastern North America. This too, I think, has its roots in an ethnocentric bias favoring ruins that share our expectations for what monumental architecture is supposed to look like. The ancient buildings of Mesa Verde and Chaco Canyon are made of stone and rise vertically like modern apartment buildings, to which they invariably are compared.

The ancient earthworks of eastern North America are not like that (Figure 1). According to John Hancock, professor of architecture at the University of Cincinnati, Hopewellian earthworks, such as Fort Ancient, reflect "a spatial conception that is fundamentally beyond the grasp of the modern Western imagination" (Hancock 2004:259; see also Hancock 2010).

I think there's still another reason why the average Ohioan knows more about Stonehenge and the Anasazi cliff palaces than the Hopewellian earthworks in their own state. In my opinion, Ohio archaeologists haven't done a good enough job of conveying the wonder of Ohio's archaeology to a general audience.

It's not hard to understand why many archaeologists haven't worked all that hard to tell the story of Ohio's ancient past to a wider audience. First of all, scientific disciplines generally tend not to reward their practitioners for efforts to educate the general public. Instead, colleagues who spend time writing for the public or who appear on television promoting

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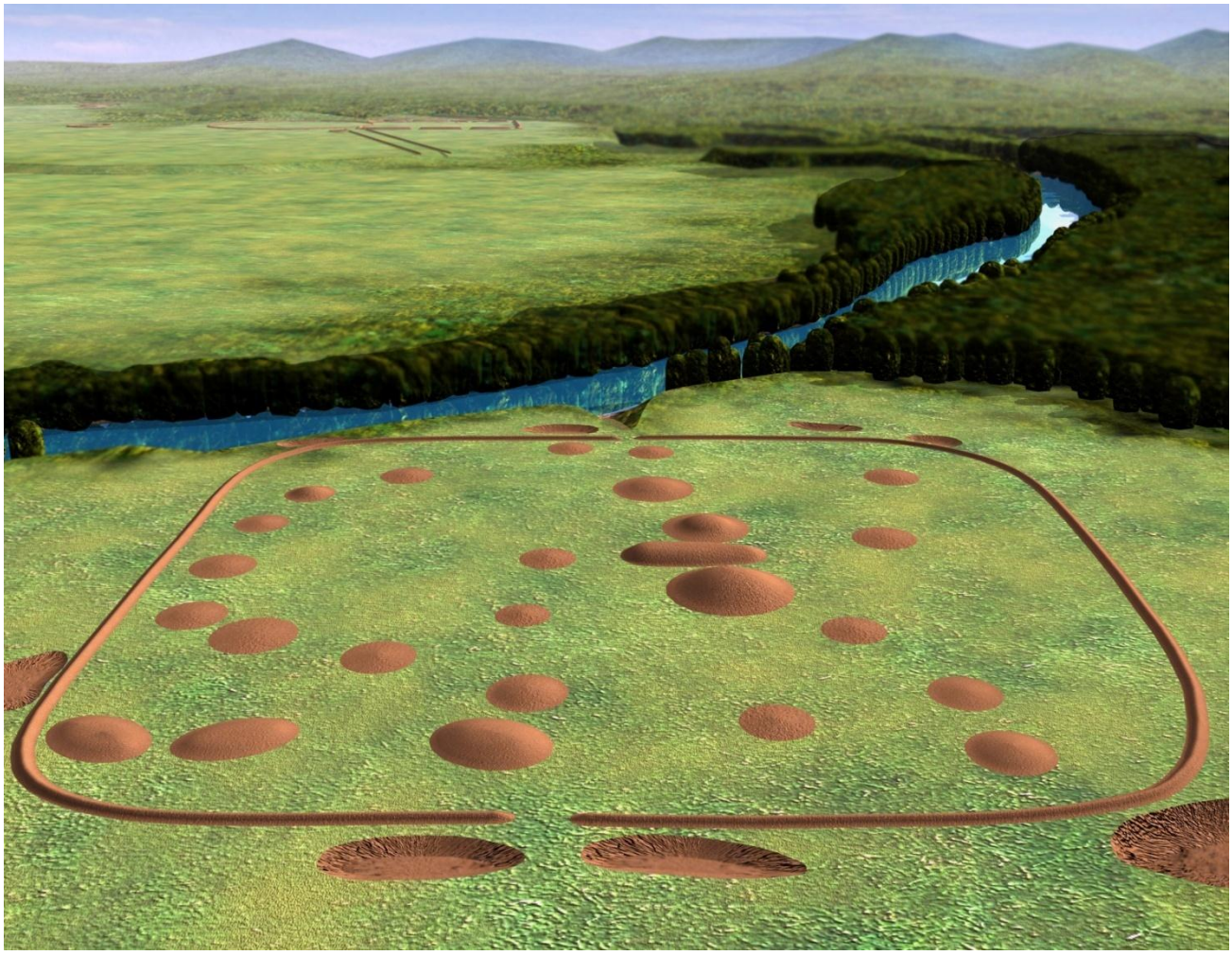

Figure 1. Digital rendering of the Mound City Group, Chillicothe. The Center for the Electronic Reconstruction of Historical and Archaeological Sites (CERHAS) at the University of Cincinnati combines the most accurate available archaeological information with state-of-the-art visualization technology to produce images that convey the form and scale of Ohio's monumental earthen architecture. Courtesy, CERHAS, University of Cincinnati.

the past sometimes are dismissed as mere popularizers or even media whores. There certainly are exceptions, however. To their credit, the Ohio Archaeological Council has a Public Awareness Award and the Society for American Archaeology has a yearly award for the best book written for a general audience. Yet activities such as giving presentations for the general public or writing popular books and articles rarely if ever are considered in tenure decisions at colleges and universities and the demands of Cultural Resource Management (CRM) archaeology seldom can accommodate, or even permit, public outreach. Finally, graduate students generally are not taught how to engage the general public effectively.

Second, because of the explosion of archaeological research and publication over the last several decades, no individual can stay current with all the relevant literature, so we tend to focus our research on increasingly narrow slices of the past or particular specialties each with its own peculiar argot. As a result, the stories many of us feel most comfortable sharing end up being so specialized and arcane that, even translated into common English, they might be of little interest to the public.

Between 1999 and 2005, I had the wonderful opportunity to work with independent film producer Tom Law on the Ohio Archaeology Project. My principal contribution to the project involved writing

Figure 2. Painting from the Ancient Ohio art series depicting a Paleoindian (ca. 11,000 B.C.) family dressing caribou hides at the Nobles Pond site in northeastern Ohio. The Ancient Ohio Art series was commissioned by Voyageur Media Group to illustrate the Ohio Archaeology book and a proposed, but so far unrealized, video documentary series. The images were created by artist Susan Walton, SA Walton Studios, Florida, under the supervision of Martha Otto, then Senior Curator of Archaeology for the Ohio Historical Society. Artist, Susan A. Walton. Courtesy, Ohio Historical Society.

the overall narrative for the book *Ohio Archaeology: an illustrated chronicle of Ohio's ancient American Indian cultures* (Lepper 2005). In the following essay, I build on the broad overview of Ohio's ancient past that I presented in *Ohio Archaeology* by focusing on particular issues that I find especially interesting or on the results of new research that have appeared since its publication. My primary aim here is to highlight the extraordinary richness of Ohio's archaeological record both for professional archaeologists as well as those members of the general public that might find such an idiosyncratic overview of Ohio archaeology of interest.

You might think that professional archaeologists don't need to be reminded about the wonderfulness of Ohio archaeology and that, by focusing on this audience, I'm just "preaching to the choir." As my old pastor used to say, however, there is a reason you preach to the choir: you want them to sing. Hopefully, this paper will encourage other professionals to share their knowledge and passion for Ohio archaeology with a wider audience. In this period of deficit reduction and budget slashing, it is even more im-

portant that we convey to the public the value of the past; else they may decide it does not warrant their support. That value is not just abstract and esoteric. With Ohio's incredible archaeological resources, heritage tourism could be an economic engine for the state.

A final reason to consider for why archaeologists should put more effort into sharing their knowledge and, almost more importantly, their passion for the past with a general audience is that if archaeologists do not take responsibility for satisfying the public's hunger for this knowledge, that vacuum will be filled by others with vastly different and sometimes competing agendas. For examples, see the various chapters in Garrett Fagan's (2006) edited volume on *Archaeological Fantasies* and Ken Feder's (2010) *Encyclopedia of Dubious Archaeology*.

Stephen Lekson begins the first chapter of his *History of the Ancient Southwest* with an essay on "How to Write a History of the Ancient Southwest." I think it contains valuable lessons for those of us attempting to write a history of ancient Ohio.

Lekson argues persuasively that too often archaeologists have underestimated American Indians and this has had unfortunate and largely unintended consequences. He presents a series of three principles that he applies consistently in his interpretations of the past and to which I whole-heartedly subscribe: "(1) Everyone knew everything! (2) No coincidences! and (3) Distances can be dealt with" (Lekson 2008:8). Of course applying these principles can lead to exaggerating the achievements of Native Americans, but like Lekson, I believe the underlying assumptions of the more traditional approach to America's past are downright sinister and a lot less fun (Lekson 2008:12-14). And if we're going to err, as we certainly will, why not err on the side of overestimating Native peoples for a change?

Ohio Prehistory: A Personal Perspective

"…all things being equal, the past was generally more interesting than not" (Stephen Lekson 2008:12).

Early Paleoindian Period, ca. 15,000 to 7,000 B.C.

The original discovery of America occurred at some point during the late Pleistocene epoch, when Paleolithic Asians first crossed the Bering Strait – either on foot plodding across the wind-swept land bridge, or in boats at times when the land bridge was submerged. When the descendents of these first colonists arrived in the Ohio valley they must have found it to be a nice place to live, for this region in general, and Ohio in particular, has a spectacular record of Paleoindian occupation (Dancey 1994). Fluted projectile points are found here in extraordinary profusion rivaling almost any other area of comparable size in North America (Seeman and Prufer 1982). When viewed on a local scale, the distributions of these points have yielded valuable insights into settlement patterning (Carskadden 2004; Lepper 1988). Moreover, sites such as Paleo Crossing, Nobles Pond (Figure 2), Welling, and the Burning Tree Mastodon have revealed a remarkable richness of insights into early Paleoindian lifeways (Brose 1994; Gramly and Summers 1986; Lepper 2006a; Prufer and Wright 1970).

No securely dated pre-Clovis sites have been identified in the state as yet, but the recovery of Flint Ridge flint debitage in the lowest levels of Meadowcroft Rockshelter makes it clear that such sites will be found (Carlisle and Adovasio 1982). The presence of cryptic pre-Clovis peoples in the region is corroborated by the observation that the Pleistocene megafauna already were in decline long before the appearance of Clovis points and during a period when there was no environmental change that might otherwise account for the decline.

Jacquelyn Gill and her co-researchers found that spores of the fungus *Sporomiella*, which are associated with herbivore dung, began declining in lakes from Indiana to New York by around 14,800 years cal B.P. This pre-dates significant environmental changes that had been proposed to be the initiating cause of the megafaunal extinctions (Gill et al. 2009:1101). The Hebior and Schaefer mammoth sites in Wisconsin, radiocarbon dated to between 14,900 and 14,200 cal B.P., also support the idea of mammoth-hunting humans in the general region during pre-Clovis times (Overstreet and Kolb 2003).

For much of my career, I have been opposed to the idea that the megafaunal extinctions in North America could be attributable principally to human predation. My objections related to the lack of evidence for megafaunal hunting outside of the few mammoth kills in the Southwest and the implausibility of the basic assumption underlying Paul Martin's Blitzkrieg model that Paleoindians were single-minded and bloodthirsty predators capable of dropping entire herds of mammoths in their tracks.

Three sets of observations, however, have con-

vinced me that Paleoindians did, indeed, play a not insignificant role in the demise of the giant Ice Age mammals. First, there is direct evidence that humans did hunt and, at least occasionally, bring down mammoths and mastodons (e.g., Brush and Smith 1994; Fisher et al. 1994; Lepper 2006a; and the less direct, but still compelling, evidence offered by Gill et al. 2009). Second, computer models of mammoth exploitation have shown that humans didn't really have to kill all that many animals to contribute to the extinction of the species (Mithen 1997). Finally, Paleoindians need not have hunted the diverse array of other species that succumbed at the end of the Pleistocene to have had a hand in their extinction. Simply killing off the proboscideans could have resulted in a cascade of environmental effects leading to the extinctions of many other species. Like elephants in Africa, mammoths and mastodons likely were "keystone" species that did much to shape an ecosystem. Therefore, simply by being opportunistic hunter-gatherers and occasionally killing a mastodon or mammoth, Paleoindians unwittingly could have precipitated the most massive wave of mammal extinctions in human history.

That said, I think it is fair to add that many archaeologists still exaggerate the extent to which Paleoindians depended upon the meat of extra large mammals for their sustenance (e.g., Waguespack and Surovell 2003). John Speth and his colleagues (2010) argue convincingly that big-game hunting using spectacular fluted spear points often crafted from exotic cherts likely was more about ritual and status for the male hunters than it was about feeding hungry mouths. As a result, mastodon and mammoth kills likely would have been relatively rare occurrences, but invested with enormous ceremonial and social significance.

Mark Seeman and his colleagues, working at the Nobles Pond site in Stark County, recovered blood residues from eight of the more than 40 Clovis points found there (Seeman et al. 2008). The results shed light on the extent to which Clovis hunters focused on megafauna. Four of the points bore traces of blood from a variety of relatively large, but not quite mega, mammals, including bison, bear, white-tailed deer and generalized cervid, which could be caribou, white-tailed deer or elk. The researchers looked for proboscidean blood, but found no traces of it on any of the points they examined. On the other hand, four other points bore traces of rabbit blood. This came as a surprise to Seeman and his team, but from the perspective of subarctic hunter-gatherers, it is perfectly understandable. Among the Cree Indians of northern Ontario, for example, hare could provide the bulk of their winter diet (Winterhalder 1977:379).

Late Paleoindian Period, ca. 9,000 – 7,000 B.C.

The Late Paleoindian period is, in my opinion, the most poorly understood cultural period in Ohio prehistory. Part of the problem is that it is defined entirely by the presence of a few projectile point types, originally defined on the western Plains, and the lifeways of these people simply are assumed to have been broadly similar to those practiced by the Plains groups. Since bison, the *sine qua non* of Late Paleoindian cultures on the Plains, were never in Ohio in numbers sufficient to sustain groups with such a focal adaptation, is it difficult to imagine how Early Holocene hunter-gatherers in Ohio could have been living lives remotely similar to those of the inhabitants of the Plains .

The problem is exacerbated by the superficial similarities of lanceolate points used virtually throughout the prehistory of eastern North America with those typologically distinctive Plano points, such as Agate Basin, which are found in Ohio (Lepper 1999). I am convinced that many, perhaps the majority, of the "Late Paleoindian" components listed on the Ohio Archaeological Inventory actually are Late Archaic or even later in age.

To my knowledge, there is no excavated Late Paleoindian component at any site in Ohio that has lanceolate points located stratigraphically below Early Archaic points. The Manning site in Clermont County offers the most potential for such a site, but no in situ lanceolate points were recovered from the limited investigation of the Late Paleoindian component (Lepper 1994) and the likelihood of future excavations there is negligible. It therefore is almost impossible, for now, to assess reliably the nature and extent of the Late Paleoindian occupation of this region.

Archaic Period, ca. 8,000 - 500 B.C.

Until relatively recently, as Matthew Purtill has observed, little research had been undertaken on the Ohio Archaic, especially when compared with the neighboring states of Kentucky and West Virginia; and such research as had been done was not terribly accessible (Purtill 2008:41). Within the past decade,

Figure 3. Painting from the Ancient Ohio art series depicting an Archaic (ca. 8,000 - 500 B.C.) encampment along the Maumee River in northwest Ohio. Artist, Susan A. Walton. Courtesy, Ohio Historical Society.

however, important research in many parts of the state has given us a much clearer understanding of cultural developments throughout the many millennia of the Archaic period (Emerson et al. 2009; Otto and Redmond 2008; Prufer et al. 2001).

The Archaic period (Figure 3) traditionally has been viewed as the time during which Late Paleoindians dealt with the dietary trauma of the megafaunal extinctions by reluctantly exploring the seemingly endless, if less savory, subsistence opportunities afforded by the eastern Woodland environment. Once these opportunities were maximized, the newly branded Archaic hunter-fisher-gatherers had reached the nirvana of "Primary Forest Efficiency" (Caldwell 1958). Having reached this pinnacle of hunter-gatherer cultural evolution, things supposedly stayed pretty much the same, for millennia, until the Woodland Revolution brought the high life of sedentary living, farming, pottery, and mound building to the Ohio valley.

Recent work, however, is revealing that the Archaic period was much more interesting than that in ways that we are finding it difficult to grasp firmly. One issue revolves around the difficulties in appreciating just how many different ways there were of being a "hunter-gatherer" (Kelly 1995). The accumulating data from the Ohio Archaic suggest that there were a lot (Abrams and Freter 2005; Otto and Redmond 2008; Prufer et al. 2001; Purtill 2009).

Early Archaic spear points and knives are much more abundant than Paleoindian points, indicating a dramatic rise in population at the outset of this period.

The general trend of increasing socio-cultural complexity from the early through the later stages of the Archaic period, as reflected, for example, in the increasing diversity of projectile point styles and the elaboration of mortuary ceremonialism throughout the Archaic, certainly relates to the increasing population density coupled with the consequent reductions in residential mobility (Abrams and Freter 2005). The result was larger social groups occupying shrinking territories. This led to a proliferation of experiments in the diversification and intensification of food production as well as in social integration as group leaders sought to strengthen the bonds holding these groups together. Subsequent developments in the Woodland period were a direct result of the outcomes of the social experiments initiated during the Archaic. For example, Timothy Abel, David Stothers and Jason Koralewski (2001) interpret the Williams Mortuary Complex, a Late Archaic cemetery and associated sites situated along the Maumee River in northwestern Ohio, as the focus of a "trade fair" – a center for the strengthening of social ties among disparate groups through common mortuary rituals and the exchange of high status artifacts. Through this process, regional populations began to develop distinctive social identities, which they expressed, at least partly, though material culture and burial practices and which are therefore discernable in the archaeological record as, for example, the Glacial Kame Culture in northwestern Ohio and the Red Ochre Culture in western Ohio.

Semi-sedentary villages, plant cultivation, the production of ceramic vessels, the acquisition of exotic raw materials for ornamental objects, and the construction of earthworks, once thought to be the hallmarks of the Woodland period, all arose, at various times and places, during the Late Archaic. By 4,000 years ago, sumpweed and goosefoot provided a major contribution to the diet of some Late Archaic groups. Some groups also may have begun to experiment with planting squash, sunflower, and marsh elder. No Late Archaic earthworks are known so far from Ohio, but sites such as Watson Brake and Poverty Point in Louisiana testify to the precocious achievements of some groups during this era (Gibson and Carr 2004).

It is now generally accepted that farming did not arise because hunter-gatherers finally figured out that seeds from a particular plant could be used to produce more of the same kind of plant. This was a fact of plant biology that hunter-gatherers certainly already understood. The decision to settle down on farms and raise crops ultimately was forced onto hunter-gatherers and was, in some respects, the "worst mistake in human history" (Diamond 1987:64). This non-intuitive (and deliberately provocative) claim is supported by the observation that the first peoples to become sedentary and rely on only a few kinds of plants for their daily bread often experienced dramatic declines in general health, reduced leisure time, the rapid deterioration of their natural environment, the beginnings of pronounced social inequalities, and an increased incidence of warfare. Tilling the soil could be the opening of a Pandora's Box of health problems and social ills. The one saving grace was that farming could reliably produce more food per acre of ground than hunting and gathering. The full extent of the various blessings and curses of agriculture would not, however, become manifest for many centuries.

The development of agriculture by the indigenous peoples of the Ohio and Mississippi river valleys is not as widely known and appreciated as is the domestication of wheat and barley in Asia's Fertile Crescent. The reasons for this include Clark's observation that modern Americans often do not seem to regard the achievements of the "other" as having much inherent interest, but also because most of the plants in the "Eastern Agricultural Complex" are not terribly important in our modern diet. The people of the Late Archaic and succeeding Early Woodland periods, however, should be acknowledged for independently transforming local varieties of plants into domesticated food crops. This feat was duplicated in only a handful of regions throughout the world, such as Mesopotamia, China, Mexico, and Peru.

Early Woodland Period, ca. 800 B.C. - A.D. 100

The Early Woodland period (Figure 4) originally was thought to mark the beginnings of the so-called "Agricultural Revolution" in eastern North America. As it already has been made clear, however, most of the elements of this revolution had appeared at different times and different places prior to the Woodland Rubicon. What makes the cultures of the Woodland period different are the ways in which those elements came together.

The Early Woodland Adena culture (named for the estate of Gov. Thomas Worthington in Chillicothe on which a particularly notable mound was located), built the earliest documented earthworks in the Ohio valley, including conical burial mounds ranging in

Figure 4. Painting from the Ancient Ohio art series depicting an Early Woodland/Adena (ca. 800 B.C. - A.D. 100) gathering at a ceremonial earthen enclosure in the Hocking River Valley. Susan A. Walton. Courtesy, Ohio Historical Society.

size from the Grave Creek Mound in West Virginia, which is 21 m (69 ft) tall and 73 m (240 ft) in diameter, to small mounds less than a meter (3 ft) high (Otto and Redmond 2008). They also built circular earthen enclosures that were as large as 150 m (470 ft) in diameter.

According to Berle Clay (1998), Early Woodland mounds served as boundary markers, or "hinges" between territories. He says they were "the architectural expressions of negotiations between groups" (Clay 1998:16). Crowell et al. (2005:93) doubtless are right to emphasize, however, that the mounds were "first and foremost religious features that bore a special emotional and psychological place" in the lives of these ancient Ohioans.

Later in the Early Woodland period, mounds and enclosures were sometimes clustered together in valley bottoms, such as the group of earthworks at "The Plains" in Athens County (Blazier et al. 2005). The greater diversity of earthworks at such locations suggests that the machinery of politics and religion was growing more complicated. Perhaps such machinery was necessary to overcome the tensions arising from formerly independent groups becoming more dependent upon one another.

The increasing importance of objects crafted from exotic raw materials was another facet of the increasing social complexity in the Early Woodland period. The exchange of rare and valuable items allowed Early Woodland groups to solidify their ties with neighboring villages. Adena people obtained copper from the upper Great Lakes, marine shells from the southern Atlantic coast or Gulf of Mexico, and mica from the southern Appalachian Mountains.

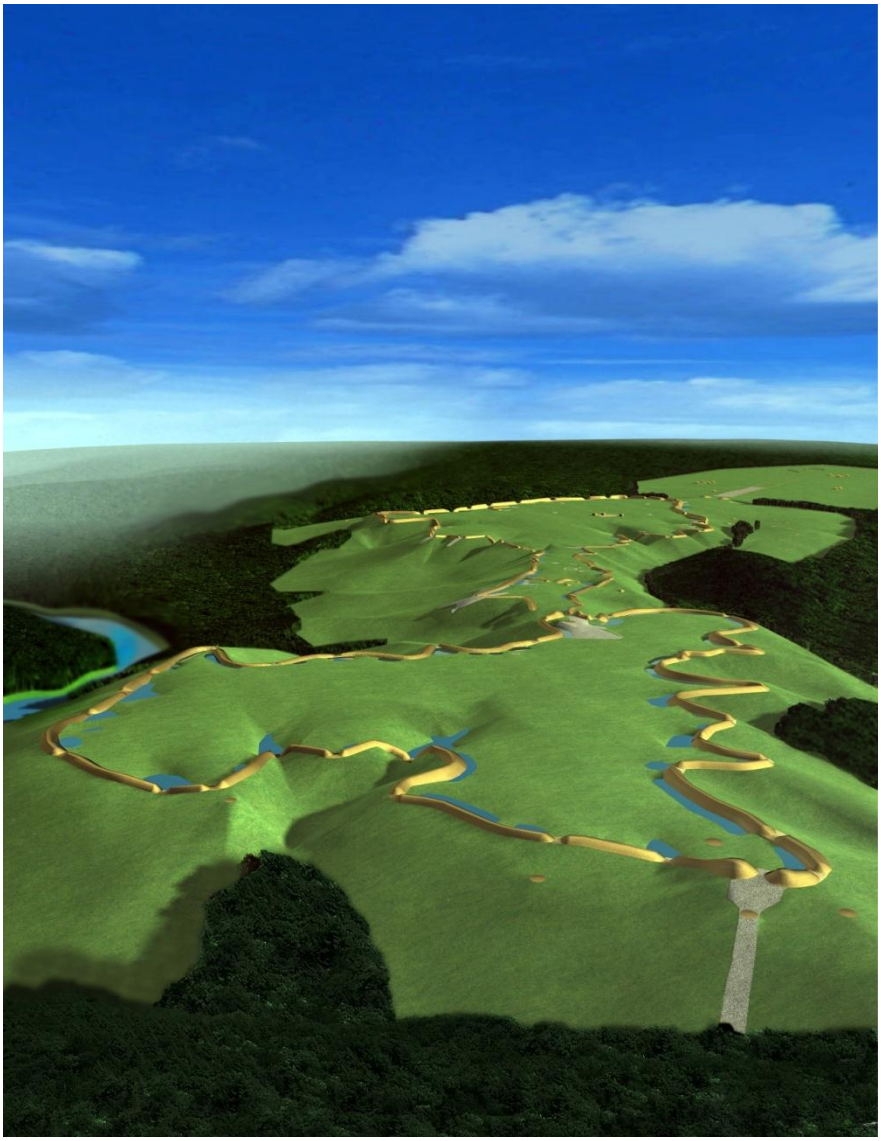

Figure 5. Digital rendering of the Fort Ancient Earthworks, Warren County. Courtesy, CERHAS, University of Cincinnati.

The artifacts crafted from these materials were highly visible indicators of status and of the connections the wearer had established with other peoples.

Blazier et al. (2005:109) argue that Early Woodland societies may have been largely egalitarian, yet the Armitage Mound, one of the mounds in The Plains group, had a central burial consisting of a 50-60 year-old male "surrounded by at least fifteen cremated skeletons wrapped in bark" (Blazier et al. 2005:113). This burial pattern is not inconsistent with some degree of increasing social inequality, although other interpretations are possible.

Middle Woodland Period, ca. 100 B.C. - A.D. 400

N'omi Greber has characterized the Hopewell florescence as a "literal explosion" (Greber and Ruhl 1989:64). Certainly, the last decade or so has witnessed its own explosion in the archaeological literature attempting to explicate the nature and consequences of that remarkable event (e.g., Byers 2004; Byers and Wymer 2010; Carr and Case 2005; Case and Carr 2008; Charles and Buikstra 2006; Dancey and Pacheco 1997; Lynott 2009; Mainfort and Sulli-

Figure 6. Digital rendering of the Observatory Circle and Octagon at the Newark Earthworks, Licking County. The moon is shown rising at its northernmost point on the eastern horizon in alignment with the main axis of the earthwork. Courtesy, CERHAS, University of Cincinnati.

van 1998; Pacheco 1996; Romain 2000, 2009).

DeeAnne Wymer argued that the agricultural efforts of the Ohio Hopewell people far exceeded those of the Early Woodland period. She asserted the Hopewell were not simply gardeners, but "sophisticated farmers." Moreover, they had become skilled "managers of their environment" (Wymer 1996:41; see also Lepper 2010a). This view was confirmed by the studies of Kendra McLauchlan (2003) at the Fort Ancient Earthworks (Figure 5). She found remarkably large quantities of pollen from Eastern Agricultural Complex plants, including sumpweed, knotweed, and goosefoot, within the sediment in the ponds inside the enclosure. These data indicate the

Figure 7. Painting from the Ancient Ohio art series depicting a Middle Woodland/Hopewell (ca. 100 B.C. - A.D. 400) shaman ministering to an ill clan member at a site overlooking the Stubbs Earthworks in southwestern Ohio. Artist, Susan A. Walton. Courtesy, Ohio Historical Society.

surrounding landscape had been extensively deforested and largely dedicated to agriculture. The food surplus produced by this large scale agricultural production at the earthwork sites may indicate how the Hopewell fed the large numbers of people that came there both to build the monumental enclosures and to participate in the ceremonial activities centered on these special places.

There was a sophisticated geometry underlying Hopewellian monumental architecture. Hopewell architects and engineers built nearly perfect circles, squares, and octagons sometimes to precise and often immense dimensions (Figure 6).

The preeminent example of Hopewellian geometry is the Newark Earthworks. The Newark Earthworks originally consisted of a series of monumental geometric enclosures connected by a network of parallel-walled roads encompassing more than twelve square kilometers. The primary enclosures included a circle, the so-called "Observatory Circle," connected to an octagon, a somewhat larger circle with an interior ditch referred to as the Great Circle, a square, and an oval surrounding a number of large and small, conical and loaf-shaped mounds (Lepper 2010b). The Observatory Circle is 320 m in diameter. Ray Hively and Robert Horn (1982) have shown how this unit of measure was integral to the plan of the entire earthwork complex. The distance between the center of the Observatory Circle and the center of the Great Circle is precisely six times the diameter of this

Figure 8. Painting from the Ancient Ohio art series depicting a Late Woodland (ca. A.D. 500 - 1200) village along the Scioto River in central Ohio. Artist, Susan A. Walton. Courtesy, Ohio Historical Society.

circle. The distance between the center of the octagon and the center of the square also are six times the Observatory Circle's diameter. The only other circle joined to an octagon is at the High Bank Works south of Chillicothe in Ross County. That circle has exactly the same diameter (Hively and Horn 1984). This common geometry is one of the lines of evidence supporting the hypothesis that Newark and Chillicothe had a special relationship and that the so-called "Great Hopewell Road" may have linked these regional ceremonial centers (Lepper 2006b; cf. Prufer 1996:416). (Recall Lekson's principle that there are no coincidences.)

Another line of evidence supporting such a special connection is the astronomical alignments encoded into the architecture at both sites. Ray Hively and Robert Horn (1982, 1984, 2006, 2010) have determined that both of these circle-and-octagon enclosures are aligned to the points on the horizon that mark the major risings and settings of the moon through a cycle that takes 18.6 years to complete (Figure 6).

These observations indicate that the Hopewell builders had a remarkable understanding of mathematics and geometry, a deep knowledge of astronomy, consistent units of measure, and reliable methods of surveying. It also indicates the people of the Hopewell culture did not lay out their earthworks in a haphazard manner. They built them according to a predetermined plan that incorporated the cyclical movements of sun, moon, and perhaps the planets and stars as well.

Why did they do it? N'omi Greber (Greber and Ruhl 1989:284) has written that the earthworks are symbols "written upon the landscape." This is certainly true, but they were not just "symbols." They likely were conceived to operate more like machines in the sense that they were not static monuments, but instead were a network of gigantic earthen retorts and conduits though which people and sacred objects moved in choreographed processions (Lepper 2010b). The enclosures not only symbolized the cosmos, these enormous engines of ceremony and ritual may have been built to permit Hopewell shamans to generate and draw upon the energies of the cosmos to heal the sick, bring rain to the crops, or promote tranquility in the community of participating villages (Figure 7).

The huge spaces encompassed by the earthworks are in striking contrast to the mostly small and widely scattered Hopewell villages. The earthworks were places where people from many villages came together to join in ceremony and celebration (Lepper 2006b).

On one level, the earthworks represented extravagantly elaborate versions of the Late Archaic "trade fairs," which functioned partly to bring large numbers of otherwise dispersed people together in order to facilitate the finding of suitable marriage partners for each group's sons and daughters. The exchange of marriage partners between villages would insure the perpetuation of each group while avoiding the genetic perils of inbreeding, but it also would establish close alliances between villages. Hopewell leaders solidified these alliances with gifts; and Hopewell burial mounds are replete with marvelous artifacts shaped from materials gleaned from the ends of their world. The things that the people of the Hopewell culture exchanged were the tangible tokens of their friendship. And it surely is not a coincidence that the extent of the "Hopewell Interaction Sphere" tracks fairly closely the extent of the genetic links found by Lisa Mills (2003) between human remains recovered from the Hopewell Mound Group and American Indian tribes scattered across North America.

On another level, a few of the really magnificent earthworks, such as Fort Ancient, the Hopewell Mound Group, the Portsmouth Earthworks, and the Newark Earthworks, represent truly special places that may have drawn pilgrims bearing sumptuous offerings from distant regions (Lepper 2006b). The size of these architectural spaces, built to a scale that would have accommodated thousands of visitors, coupled with the profusion of exotic materials found at them, suggest they served the needs of much more than the local populace. I think it is no exaggeration to compare these places with Mecca or Jerusalem. For the peoples of the Ohio Valley and beyond in the early centuries of the first millennium B.C. these must have been places of profound significance.

Late Woodland Period, ca. A.D. 500 - 1200

The Late Woodland period (Figure 8) often is considered to represent the "collapse" of the Hopewell culture. The term "collapse" is viewed by some to be inapt as it appears to convey a value judgment indicating the sudden change was unfortunate for the participants (McAnany and Yoffee 2010; cf. Diamond 2010). For example, the transformation of the Hopewell culture into the subsequent Late Woodland cultures may have been viewed, by at least some of the people that experienced it, as a beneficial change rather than a disaster.

Consider the changes that mark the transformation. Extravagantly huge earthen architecture, entailing a massive investment of labor, ceased to be built, although Mark Lynott and Rolfe Mandel (2009) have shown that some Late Woodland or Late Prehistoric folks, at least, continued to fiddle with the embankments at the Hopeton Earthworks on occasion, just as some so-called "Intrusive Mound" people sometimes returned to these sites to bury their dead in proximity to their legendary ancestors. The acquisition of exotic items from the ends of the far flung Hopewellian "Interaction Sphere" became restricted to a very short list of increasingly rare commodities, such as marine shell vessels and mica mirrors (Seeman and Dancey 2000). Another possible exotic Late Woodland acquisition is cotton, which would have had to have been obtained either from the Southwestern U.S. or northern Mexico (Blatt et al. 2011).

All of the changes could be viewed as a rejection of a religious cult grown increasingly focused on expensive rituals held in architectural settings that required massive amounts of labor to create and run by an elite priesthood claiming more and more social prerogatives and gaining more and more power to compel the compliance of adherents. The Hopewell "collapse" may have felt more like a release from burdensome obligations for some. The evident abandonment of things relating to the Hopewell appears to have been extended to the virtual proscription of the use of Flint Ridge flint, a hallmark of the Ohio

Figure 9. Painting from the Ancient Ohio art series depicting the Late Prehistoric/Fort Ancient (ca. A.D. 1000 -1600) SunWatch Village in the Miami River Valley. Artist, Susan A. Walton. Courtesy, Ohio Historical Society.

Hopewell culture that was used only sparingly, if at all, by later peoples (Lepper et al. 2001).

In spite of the Hopewellian "collapse," the population continued to grow rapidly throughout the Late Woodland period. There was a shift towards larger villages that were dispersed more widely across the landscape rather than just along the major rivers. Late Woodland villages could cover as much as four hectares and include several houses around an open plaza at the center of the village. Often the Late Woodland people surrounded their villages with stockade walls and/or deep ditches. The most plausible interpretation of such ditches and stockades is that they were defensive fortifications. Support for this interpretation is provided by Late Woodland burials of men and women with projectile points lodged in their skeletons. The Late Woodland people likely were the first to use the bow and arrow and the principal advantage of this technology appears to lie in an increase in the rate of fire, making it not so much a better hunting tool, as a more effective military weapon.

The suggestion that the Late Woodland and the succeeding Late Prehistoric periods witnessed important episodes of organized violence is controversial and even offensive to some people, including some archaeologists. The weight of the accumulating evidence, however, is forcing a reconsideration of the role of inter-societal conflict throughout prehistory (Dye 2009). I am not convinced that institutionalized warfare was widespread during Hopewell times (cf. Seeman 2007), because

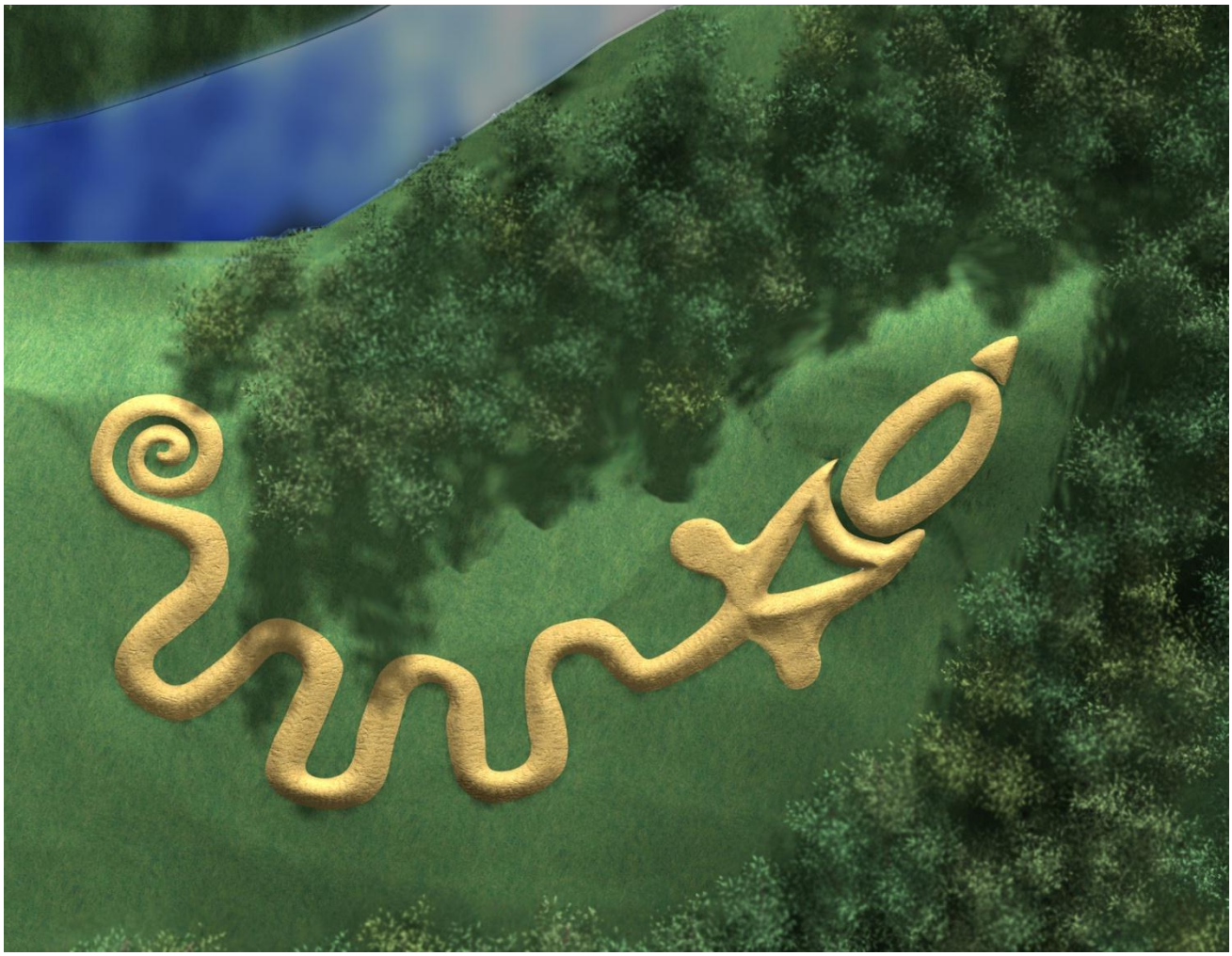

Figure 10. Digital rendering of the Serpent Mound, Adams County. Courtesy, CERHAS, University of Cincinnati.

the Hopewell achievement was so fundamentally dependent on reliable intergroup cooperation, but even Archaic human remains bear the scars of not infrequent interpersonal violence (Mensforth 2007). The role of conflict in Ohio prehistory, therefore, deserves much more consideration than it has received.

Late Prehistoric Period, ca. A.D. 1000 - 1600

The cultural transformation that defines the Late Prehistoric period included a shift to larger and more permanent villages, changes in the form and construction of ceramic vessels, changing ritual practices, increasing evidence for institutionalized leaders, and a dramatic increase in the use of maize as a staple food. These changes followed distinctive, yet generally parallel, paths among Late Woodland groups in different parts of the state resulting in the formation of discrete regional cultures: Fort Ancient in central and southern Ohio, Monongehela in the east, Whittlesey in the northeast, and Sandusky in the northwest (Genheimer 2000).

Originally, the Late Prehistoric was referred to as the Mississippian period, but archaeologists came to prefer a more neutral term since developments in Ohio seemed generally to be independent of strong influence from the Mississippian cultures to the south and west. Somewhat ironically, Robert Cook's (2008) work at SunWatch Village (Figure 9) and other sites now is pointing towards increasing evidence of direct Mississippian influence, but perhaps not as domineering and hegemonic as originally proposed (see also Cook and Schurr 2009).

Evidence for warfare, or at least escalating violence between communities, is relatively common at Late Prehistoric period sites, but, as already mentioned, the extent of this is somewhat controversial.

Recent evidence and arguments support the view that Ohio's effigy mounds, including the Great Serpent (Figure 10) and the so-called "Alligator," are expressions of Late Prehistoric ritual (Fletcher et al. 1996; Lepper and Frolking 2003). Some people still accept the original suggestions that the Serpent is an Adena effigy and the "Alligator" is a Hopewell mound. The basis for these views appears to rely almost exclusively on arguments from proximity. The Serpent is adjacent to two Adena mounds and the "Alligator" is within sight of the Newark Earthworks. Proximity, however, is a very weak argument for cultural affiliation. That said, the Serpent also is adjacent to a Fort Ancient mound and village, while the "Alligator" is in close proximity to a Fort Ancient habitation site. When viewed in a broader cultural context, the Serpent and "Alligator" make perfect sense as contemporaries both of each other as well as the numerous effigy mounds of the upper Mississippi valley, which definitely are Late Woodland to Late Prehistoric in age (Lepper and Frolking 2003). As Lekson says, "(1) Everyone knew everything! (2) No coincidences! and (3) Distances can be dealt with" (Lekson 2008:8).

The end of the Late Prehistoric period is marked by the appearance of European trade goods at sites in the Ohio valley. These incredible objects from an alien civilization came at a high cost, for the trade networks that brought these wondrous things into the region also brought devastating European diseases along with them. These diseases, followed by the military incursions of the Iroquois from the east, inaugurated the Historic period, which, for Ohio's American Indian tribes, culminated in 1843 with the forcible relocation of the surviving remnant of Ohio's last resident tribe, the Wyandot, to a reservation west of the Mississippi River.

CONCLUSION

From 1984 until the early 2000s, the Ohio Division of Travel and Tourism declared that Ohio was "The Heart of It All." A review of Ohio's prehistory suggests this slogan would have been appropriate for much of the past 15,000 years in addition to the last decades of the 20th century.

Located between the Great Lakes and the Ohio River valley with a cornucopia of natural resources, including abundant high quality flint, is it any wonder that Ohio was a Paleoindian Garden of Eden, one of the world's few hearths of plant domestication, and a setting for one of the most spectacular cultural florescences in this (or any other) hemisphere?

Seven of the most important monumental earthwork sites of the Hopewell culture are included on the current United States' Tentative List for possible nomination to the UNESCO World Heritage List. These include the Fort Ancient Earthworks (Figure 5), Newark Earthworks (Figure 6), Mound City Group (Figure 1), Hopeton Earthworks, Hopewell Mound Group, High Bank Earthworks, and Seip Earthworks. Serpent Mound (Figure 10) also is on the Tentative List as a separate nomination.

If these sites eventually are inscribed on the World Heritage List, it is my hope that the people of Ohio, by seeing these sites anew through the world's awestruck eyes, will gain a new appreciation for our American Indian heritage and accept without surprise (or disbelief) that Ohio preserves "some of America's most spectacular archaeology" (Thomas 2005:xi). As a result, "…these ancient native cultures, on whose sacred ground much of Middle America has been built, [will] take their rightful place in the public consciousness" (Hancock 2004:263) and be accepted as "a part of the shared cultural heritage of all of us" (West 1998).

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