

Chapter 15

Coming to Know Ohio Hopewell Peoples Better: Topics for Future Research, Masters' Theses, and Doctoral Dissertations

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How does one come to know another? For archaeologists who are students of a past society, its people, and their culture, this is an essential question. Necessarily, understanding people in another culture and arriving at views that are faithful to theirs come from immersing oneself in the details of their lives, and the social, cultural, natural, and historical contexts in which their lives were lived out. Only by situating oneself in their world and developing an awareness of their ideas, actions, responses, and sensitivities in varying contexts can one hope to begin to experience their lives as they did – to gain insight into their motivations and preferences and limitations, and the choices in thought and deed that they made. For an archaeologist, this situating process can be done only by reconstructing the particulars of past people's lives, which means fine-grained, contextualizing, and expansive exploration of archaeological data. To the extent that anthropological theory, crosscultural generalizations, or one's own life insights are used as surrogates for, rather than complements to, empirical immersion, the archaeologist

distances him or herself from the past people he or she wishes to know. Knowing others requires sincere listening.

This book and many of the chapters in *Gathering Hopewell* (Carr and Case 2005c) follow this vein. The authors and I attempt to reconstruct and describe the details of the culture, lifeways, environment, and history of Hopewell peoples who lived in the Scioto drainage and broader Ohio, so that we and readers might immerse ourselves in the particulars of their lives and begin to understand their values, motives, limitations, and choices. In addition, both books systematize and present a variety of massive data sets, to aid others in the thick description and immersion process.

There are many aspects of Scioto and broader Ohio Hopewell lifeways that remain to be reconstructed in detail and understood. This chapter enumerates some of these voids, which might be filled through further analysis of the detailed data presented in this book and *Gathering Hopewell*, through additional

investigation of extant museum collections, and/or with archaeological field work. Seven broad areas of inquiry are discussed: chronology, subsistence and mobility, community organization, ritual organization and alliances, other aspects of social organization, economic organization and its implications for sociopolitical relations, and the comparison of Hopewell community, social, and ceremonial organization in southwestern Ohio to that in the Scioto drainage. The first section, on chronology, covers several regions of Hopewell peoples across Ohio, the next five sections focus on the Scioto drainage, and the last section considers the Little Miami, Great Miami, and Scioto drainages. The wanting and complex topic of indigenous spiritual knowledge and world view is omitted from consideration here.

In the course of presenting topics for future investigation, for each I review current thought (if any) about it, and critique the limitations of those discussions relative to broader theoretical perspectives in anthropology and/or wider empirical perspectives provided by Hopewell archaeological records or ethnohistories of Woodland Native Americans. For each topic, I also discuss the archaeological data (if any) that have been evoked thus far to bear upon it, where extant data are yet inadequate to wrestle with the subject with some confidence, and new methods and data that would be useful for exploring it. Where I have insights or hunches about a subject, I lay them out for others to explore. They at least provide a place to begin. Some of the studies recommended here would be ideal for Masters' or doctoral projects; others require longer term research programs.

Key subjects that I discuss in detail in this chapter and wish to highlight are:

- the degree of competition and physical violence among individuals and among social groups of the the Scioto-Paint Creek area;
- the analysis of some burial assemblages as ritual dramas in addition to their study as symbols of the roles and prestige of the deceased;
- the wide diversity of cultural goals of Scioto Hopewell suprahousehold ceremonies within mortuary settings, beyond those currently recognized;
- the social and ceremonial relations of peoples in the flamboyant Newark earthwork area with those in the Scioto-Paint Creek area;
- the geographic expansion of the Scioto Hopewell tradition over time within the drainage;
- the history of changes in the means and media used to build alliances among individuals and communities in the Scioto-Paint Creek area;
- the possible roles of sodalities in the long-distance acquisition of fancy raw materials and the production of ritual paraphernalia, as a part of the larger topics of the organization of ritual production and its sociopolitical uses;
- the use of DNA, oxygen isotope, strontium isotope, and skeletal and dental morphological traits to track the residential and life histories of individuals, identify communities and other social groups, and describe their social compositions and interactions among one another;
- the residential and life histories of societal leaders, based on their bone and dental genetic, chemical, and morphological characteristics, as means for revealing how they arose to power, their power bases, and the activities and qualities of their lives;
- the perennial question of social ranking of Scioto Hopewell peoples and where specifically to look for evidence of its existence or not; and
- the chronological potentials of developing seriations for specific artifact classes and applying AMS dating methods to organic artifacts and organics within bone.

CHRONOLOGY, AND ITS IMPLICATIONS FOR DEFINING COMMUNITIES AND COMMUNITY ORGANIZATION

What We Know . . . Probably

In the Scioto drainage, chronological relationships among ceremonial centers with large burial populations, and among certain mounds within the centers, are known broadly. Key studies that have contributed to this understanding are: (1) Prufer's (1961:702–714; 1964a:44–52) site seriation based on the relative degree of resemblance of Hopewell mortuary sites to generally earlier, Adena ones in their artifact types, mortuary architecture, and mortuary practices; (2) DeBoer's (1997) site seriation based on covarying aspects of their morphology and area; (3) Ruhl's (1996; Ruhl and Seeman 1998; see also Greber 2003:109–110) seriation of Ohio Hopewell earspools considering their form and technology; and (4) radiocarbon dates organized by Greber (1983, 2003) and supplemented by obsidian hydration dates (Hatch et al. 1990). (5) Cross-dating of rare artifact classes and (6) various kinds of contextual arguments round out the general picture.

Prufer's and DeBoer's seriations together have established the relative temporal positions of whole ceremonial centers, in the sense of the midpoints of their histories of major construction and use and ignoring their duration. The ordering for centers with large burial populations, from older to younger, is thought to be: Tremper, Mound City, Hopewell, Seip/Liberty/Old Town, and Ater. A finer-grained history of the construction and use of charnel houses and mounds within these sites, drawing upon these frameworks and the other kinds of evidence mentioned above, is summarized by Carr (2005a:305–307, 310–311) and extended here. This review reveals key uncertainties in chronology that need to be addressed yet. All radiocarbon dates reported below are uncalibrated.

It can be said relatively firmly now that the Tremper charnel house and the one or more possible charnel houses under the Carriage

Factory mound were the earliest mortuary buildings in the Scioto valley with a distinctively Hopewellian, horizontal layout. The Carriage Factory mound may have had precedence because it was built as a part of a cemetery cluster of late Adena style mounds whereas Tremper was constructed separate from other Adena mounds. However, this evidence for ordering the two sites is weak.

Within about a generation after Tremper, the charnel building under Mound 8 at the Mound City site was built. Significant to this temporal relationship, both Tremper and Mound City Mound 8 share in each having had a large ceremonial deposit of plain and effigy platform pipes that resemble each other in their masterful naturalism, the animals depicted, and the postures of the animals. However, the Tremper pipes are on the whole more refined, somewhat larger, and were made largely of high-grade nonlocal pipestones rather than local materials in contrast to the Mound City pipes (for sourcing information see Emerson et al. 2002, 2005, personal communication 2006; Wisseman et al. 2002). The Mound City pipes thus appear to be derivatives, made in part by the hands and within the memories of those who carved the Tremper pipes. The close date of Mound 8 at Mound City to the Tremper charnel house is suggested more specifically by the occurrence in both locations of Seeman's (1977b:50) Tremper-A type pipes, which have a curved base, high neck, and a tall and relatively narrow recurved bowl. Mounds 1 and 8 at Mound City are also tied closely in time to the Tremper charnel building by the occurrence in the two mounds of a very early copper earspool form that is the sole form found at Tremper (Brown 1994:54; Ruhl 1992:52, 68, table 2). Mound building at Mound City is also known to have extended later than the decommissioning and burial of the Tremper charnel house because certain mounds at Mound City bear Hopewell ware vessels, copper breastplates, and copper headplates, which are lacking in the Tremper assemblage and late Adena sites. Some mounds at Mound City also contain copper celts, which were not found in the Tremper mound and are very rare in late Adena sites, as well as metallic

earspools, which are very rare at Tremper and in late Adena sites. In sum, the ordering of the initiation dates of the Carriage Factor charnel house and/or the Tremper charnel house, and then the Mound 8 and 1 charnel buildings at Mound City, appears most likely, with the continued use of Mound City thereafter.

The seriation of Tremper and Mound City is corroborated and they can be placed in absolute time by a suite of radiocarbon dates from them.¹ Tremper most likely dates between 50 B.C. and A.D. 1. From contextual evidence, the Tremper charnel house appears to have been built and used probably over only months or a few years (Weets et al. 2005:549–550). In contrast, the mounds at Mound City were constructed over a long duration of about two centuries, between about A.D. 1 and A.D. 250. There are no radiocarbon dates from the Carriage Factory mound. Interregional cross-dating of pipe forms and ceramic assemblages corroborate the A.D. 1 radiocarbon estimate for the initial use of the Mound City site.²

The Hopewell ceremonial center bridged and overlapped with the periods of construction and use of Mound City in the early Middle Woodland period and Seip, Liberty, and Old Town (Frankfort) toward the end of the Middle Woodland. Hopewell's layout of numerous (38+), separate, primarily small mounds, most within the site's embankment, continued in the vein of Mound City's plan, with its many (24+) individual, small mounds encompassed by an embankment. At the same time, the trilobate final form of Hopewell Mound 25, with its side lobe additions to the main mound covering its charnel buildings, foreshadowed or mimicked the tripartite forms of the Pricer and Conjoined charnel houses and their three capping mounds at the Seip site, the tripartite charnel house and three capping stone rings within the Edwin Harness mound at the Liberty Works, and the three conjoined mounds and possibly charnel houses at the Old Town Works.

Radiocarbon and obsidian hydration dates from Mounds 11, 17, and 25 at the Hopewell site (Greber 2003; Hatch et al. 1990) show that it was built over a long period – perhaps two or more centuries, with unclear beginning and

ending dates. The burial floor under Mound 25 was also probably used for a considerable time, given many converging lines of evidence: the wide spread of the radiocarbon dates associated it, the repeating of this variability in old and new assays (Greber 2003:102–103, 105–106), the wide spread of the obsidian hydration dates from the mound (Hatch et al. 1990), the great diversity of earspool forms found with burials in the mound, and the construction of several charnel buildings or screens rather than one coherent building on the floor (Greber and Ruhl 1989:42–44).

The time of construction of specifically the central, burial-containing portion of Hopewell Mound 25 appears to have been transitional between the building of some mounds at Mound City, and the building of the Pricer and Edwin Harness mounds. The fact that the side lobes of Hopewell Mound 25 were built after its central portion, rather than at the same time as the central portion as a part of the mound's original design, and in contrast to the coherent tripartite design of the Pricer and Edwin Harness mounds, suggests that Mound 25 was constructed before the Pricer and Harness mounds and before their symbolism of an alliance among three local symbolic communities had been elaborated. Also, the possibility that multiple, independent charnel houses were built and covered under Mound 25 (Greber and Ruhl 1989:42–44), rather than one large charnel house with multiple rooms, would place Mound 25 transitional between the design of Mound City, with its multiple, independent charnel houses under multiple, separate mounds (save Mounds 12 and 13), and the design of the Pricer and Harness charnel houses, each with one large structure with multiple rooms under one mound.

Two key pieces of evidence imply that the floor under Mound 25 was still in use and unmounded within at most a generation of the time of use of the Seip-Pricer charnel house floor, which can be reasonably dated to about A.D. 310 (Greber 2003:107). First, Burials 6 and 7 under the Hopewell Mound 25 have copper nostril inserts like Burial 2 under the Seip-Pricer mound. In all of the Ohio Hopewell world, with its over 1,484

documented individuals, Burials 6, 7, and 2 are the only three known to have had copper nostril inserts. In addition, each of the persons was an adult of 20–45 years old, was buried at the margin of their mound floor, had two bone awls, one to three breastplates, and metallic buttons, and lacked almost all forms of shamanic equipment. Both Burial 7 at Hopewell 25 and Burial 2 at Seip-Pricer also were surrounded by equally rare, symbolic water barriers made of hundreds of pearls. Finally, all three burials occurred within or near spatial clusters of graves that contained, on average, the greatest proportion of individuals with items of prestige and wealth relative to other clusters of graves in their mounds and that can probably be attributed to the same local symbolic community in the North Fork of Paint Creek valley (Carr 2005a: 288–290, Table 7.1). This pattern suggests that the persons in these clusters, including the persons with copper nostril inserts, came from the same important community – one apparently located in the North Fork of Paint Creek (Carr 2005a:310–311; Thomas et al. 2005:363–364, table 8.11).³ The three burials have little that is not in common. All of these shared mortuary features suggest a well-defined social role that was very limited in its time-space distribution and, thus, the very close timing of the Burials 6, 7, and 2. This conclusion is reinforced by a second strong linkage between Hopewell Mound 25 and the Pricer Mound. The two mounds share in each having contained an extraordinarily large copper celt, the two of which are very similar in size and, again, are unique in the Hopewell world. One celt covered skeletons 260 and 261 in Hopewell Mound 25; the other was placed on a clay platform in the Pricer mound. Again, both of these locations fall within clusters of burials affiliated with the same, prestigious and wealthy community, probably in the North Fork of Paint Creek (Carr 2005a:310–311; Thomas et al. 2005:363–364, table 8.11).⁴

The late Middle Woodland age and closely overlapping times of construction and use of the burial floors under the Pricer and Conjoined mounds at Seip, the Edwin Harness mound at Liberty, and the Conjoined (Porter) mounds

at Old Town are reasonably established by many lines of evidence: the close similarity and uniqueness of these sites' enclosures in their tripartite shapes, comprised of a square and two circles; the nearly equivalent dimensions of their corresponding squares and circles, within 1.3% to 5.6% of one another other (see Chapter 3, Sustainable Communities, for details); the nearly equivalent total areas of the enclosures (78 acres); the similar lengths, widths, and shapes of the charnel houses under the Pricer and Edwin Harness mounds; the morphologies of ear spoils found with burials in the mounds (Greber 2003:92; Ruhl and Seeman 1998); the composition of the mounds' artifact assemblages (Prüfer 1961, 1964a); and in the case of Seip-Pricer and Edwin Harness, the coincidence of radiocarbon assays from the mound floors (Greber 1983:89, 2003:107). The strong scalar and morphological similarities among the enclosures at the three sites and between the charnel houses under the Pricer and Edwin Harness mounds imply the sharing of design details among closely communicating peoples of the same or adjacent generations. Indeed, three charcoal radiocarbon dates from burials 16 and 32 on the floor of the Seip-Pricer mound average to A.D. 313 (Greber 2003:107), while four charcoal radiocarbon dates from pits and a post mold in the floor of the Edwin Harness mound average to A.D. 309 (Greber 1983:89).

The Conjoined mound at Seip can reasonably be inferred to have been built after the Pricer mound there, probably within a generation or less, based on several considerations. First, the Pricer mound was finalized by placing multiple layers of soil and gravel over the three submounds that covered three clusters of burials, hiding these social divisions. In contrast, the Conjoined mound was left unfinished; only one cap was placed over its three separate charnel house rooms and the primary mounds that covered them, leaving the tripartite social division exposed (Greber 1979a:41, 46; 1979b:32, 37; Mills 1909:276; Shetrone and Greenman 1931:356–359). Likewise, all three rooms of the charnel house under the Pricer mound were filled with burials when the charnel

building was decommissioned and the mound built, whereas one room of the charnel house under the Conjoined mound was left empty at the time of it was decommissioned and buried. It is also possible that the depositing of the large quantities of mica in the final capping of the Pricer mound while it was being ceremonially finished was linked in time to the depositing of the large quantities of mica placed on the floor of the Conjoined mound's charnel house while it was still in use (Greber 1979b:37). This cannot be substantiated, however. Finally Ruhl's (1996; Ruhl and Seeman 1998) seriation of earpools shows the one provenienced earpool from the charnel house under the Conjoined mound to be significantly later in rank than earpools attributable to the charnel house under the Pricer mound, hinting at the separation of the two charnel houses in their times of use (Greber 2003:96).

The Ater mound and charnel house lack radiocarbon assays, but can be fairly convincingly dated to the time when the charnel house under the Conjoined mound was being used, or sometime shortly thereafter. Ruhl's (1996; Ruhl and Seeman 1998) seriation of Ohio Hopewell earpools shows those from Ater to be interdispersed in their ranks with the younger half of the ranks of earpools in a mixed sample from the Pricer and Conjoined mounds at Seip. This younger half of the sample probably pertains more to the Conjoined mound than the Pricer mound, placing Ater and the Conjoined mound on a similar time plane. The late Middle Woodland positioning of Ater is in line with Prufer's seriation of its artifact assemblage.

From a sociological standpoint, it appears, more specifically, that the charnel house under the Ater mound was used somewhat after the one under the Seip-Conjoined mound. The charnel house with two burial clusters at Ater appears to be a sociological continuation of the pattern of only two of three rooms having been used for burial in the charnel house at Seip-Conjoined. This temporal sequence also makes sense of the fact that an earthen enclosure was built around the Pricer and Conjoined mounds at Seip whereas no earthwork was built around

the Ater mound. Specifically, both the reduction in the number of charnel house rooms used over time, from three to two from Seip-Pricer and Edwin Harness to Seip-Conjoined and Ater, and the anomalously missing earthwork at Ater can be attributed to a reduction in the number of local symbolic communities in the Scioto-Paint Creek area that were allied and participated in joint mortuary and other rites (Chapter 4, Changes in the Number of Allied, Local Symbolic Communities), and a reduction in the labor available to build grand earthen architecture. The charnel house at Ater appears to have been the last, large, intercommunity building project undertaken in area, and one that was not architecturally completed with an enclosure.

What We Don't Know

The above summary of what is known, with fairly good probability, about chronological relationships among the eight excavated Scioto Hopewell sites with large burial populations points out many levels of deficiency in our current understanding of the timing of events in the lives of Scioto Hopewell people. Filling in these chronologically uncertain relationships among sites and among their internal features is absolutely essential if further substantial progress is to be made in understanding Scioto Hopewell community organization, other aspects of social organization, ritual organization, and world view. Studies of these subjects by definition demand information on synchronic relationships among people and among their material records. Studying change in community organization, ritual organization, and world view over time and their causes likewise requires a fairly tight, continuous time scale for ordering events – as Chapter 5's reconstruction of the rise and fall of Scioto Hopewellian social and ritual life demonstrates.

This section enumerates key lacunae in our knowledge of Scioto Hopewell and broader Ohio Hopewell cultural chronology and how they might be filled in methodologically. I begin with the topic of methods.

Methods

From my experience with the mortuary data from Scioto Hopewell sites, three artifact-based methods appear to have substantial promise for improving our control over chronology. First is seriating breastplates by their sizes and shapes. Breastplates are an ideal chronological medium because they occur frequently in burials within the large Scioto charnel houses from the middle of the Middle Woodland period onward. Also, in smaller sites, which commonly have burials that have few to no artifacts, the artifacts that do occur often are breastplates and/or ear spoons. Further, breastplates differ significantly in size and shape and have good potential for providing a finely divided time seriation. Finally, a good proportion of breastplates, especially those curated at the Ohio Historical Center and Hopewell Culture National Historical Park, have organics adhering to them – especially fabrics, hide, and feathers. AMS dating of select organic samples from breastplates at various portions of a seriation of them might actually allow the construction of an absolute dating algorithm (e.g., Braun 1985). Short of that, combining information on relative breastplate seriated order with relative ear spoon seriated order (Ruhl 1996; Ruhl and Seaman 1998) into a bivariate seriation of proveniences might prove more powerful than applying the seriations separately. Either a relative or an absolute breastplate seriation has potential for clarifying internal site chronologies, for linking large charnel houses to one another in time, and for associating large and small sites in time.

Second, control over chronology might be improved by seriating platform smoking pipes. One pilot study that covered all of the Eastern Woodlands (Seaman 1977b), including 49 Ohio Hopewell pipes (47 from sites in the Scioto drainage), has already shown the promise of this approach to seriating proveniences. The study could be significantly increased in size and enhanced with more recent statistical methods of seriation. Specifically the HOPEBIOARCH data base includes for Ohio, and largely for the Scioto drainage, 40 pipes from 31 burials in 11 Middle Woodland sites, and 25 pipes in 4 ceremonial deposits in 3 Middle Woodland

sites, beyond the many dozens of whole pipes recovered from the three ceremonial deposits of pipes within Mound 13 at the Mound City site and within the Tremper mound.

Third, some chronological uncertainties among sites and among their internal features might be amended by cross-dating rare artifacts or tomb forms. The copper nostril inserts found in three burials and the huge copper celts removed from two proveniences have been mentioned above. Artifacts that are rare in the details of their form and technology are as pertinent as rare whole artifact classes. Finding these kinds of linkages requires familiarizing oneself with the details of site reports and museum collections, and is a process that can be hard to direct systematically, but has potential.

Beyond these three artifact-based methods of resolving chronological deficiencies, AMS radiocarbon means of dating museum-curated artifacts, debris, and human remains, combined with further excavation and radiocarbon dating of features, would be very worthwhile (e.g., see Greber 1983, 2003). AMS dating of collagen in uncremated human bones or teeth dentin, or associated animal bones or teeth dentin, or of organic material extracted from the root or pulp cavities of human or animal remains (e.g., Ambrose 1990; Grün 2006:7–8; King et al. n.d.; see also Hedges et al. 1995; Saliege et al. 1995), if culturally permissible, could make substantial contributions to chronologically ordering both sites and proveniences within them.

Chronological Uncertainties in the Scioto-Paint Creek Area

Inadequate chronological linkages of at least four kinds are significant to and hold back our current understanding of the community and social organizations, ritual organizations, and world views of Scioto Hopewell peoples. First is the temporal relationships among large earthen enclosure sites lacking burial mounds to those with burial mounds and to one another. Placing earthen enclosures that lack mounds into temporal positions more finely and firmly than DeBoer's earthwork seriation remains a largely unsolved problem (e.g., Carr 2005a). The enclosures lacking mounds are largely

free of temporally sensitive mortuary artifact classes, and can be dated practically and systematically only by excavation and radiocarbon methods. This tack has been taken by Mark Lynott of the Midwest Archaeological Center, National Park Service, and has allowed the Hopeton earthwork to be dated and equated in time with the Mound City earthwork. The two sites can now be envisioned as co-functioning within the same ritual landscape of one early Middle Woodland local symbolic community (Ruby et al. 2005). Other nearby sites that potentially were contemporaneous and a part of this community's ritual landscape, and that remain to be placed chronologically, include the Shriver Circle just south of Mound City (very likely contemporaneous; see Chapter 3, Note 7), the Cedar Banks complex, including the Cedar Banks square earthwork, an open circular earthwork, two platform mounds (one is Ginther), and the Shilder burial mound, all north of Hopeton, and perhaps the Dunlap earthwork somewhat farther north (see Figure 3.3A; Squier and Davis 1848:Plate 2). The more distant Junction Group of circular earthworks, at the confluence of main Paint Creek and its North Fork, may comprise part of this community on the same time horizon or another community on the same or an earlier time horizon. It requires dating as well.

How the High Bank site with its circle and octagon and the Anderson site with its square and two dwarf circles fit into Scioto Hopewell social geography is not fully clear. DeBoer's (1997) site seriation places High Bank on a time horizon approximately coeval with Hopeton and on the ritual landscape that included Hopeton and Mound City. Six radiocarbon dates from features below and within the wall of High Bank's circle (Greber 1999, 2002, n.d.) cluster around A.D. 100 and support this view. The distance of High Bank from Hopeton and Mound City relative to the known sizes of local symbolic communities in the area (Chapter 3, Local Symbolic Communities, Sustainable Communities) would suggest that it fell within a local symbolic community different than the one that included Hopeton and Mound City.

The Anderson earthwork, which is largely destroyed, possibly also had a place on this

early Scioto Hopewell ritual landscape. The 18.6 acre square of Anderson, which falls in size between the 13 acre subrectangular enclosure of Mound City and the 20 acre square of Hopeton, would place it on an early time plane within DeBoer's site seriation. The single radiocarbon date of 60 B.C. from Anderson (Maslowski et al. 1995:30) roughly agrees with the seriation estimate. However, the distance of Anderson from Mound City and Hopeton would suggest that Anderson occurred within a local symbolic community different than the one that contained Mound City and Hopeton. So, too, does Anderson's physiographic separation in a valley (the North Fork of Paint Creek) different from the one where Mound City and Hopeton were built (the main Scioto).

It is possible but unclear that the local symbolic community that included Anderson may also have contained the Hopewell site, which lies just west and upriver of Anderson, and the Junction Group, which lies just east and down river of Anderson. Some parts of the Hopewell site and the Junction Group may have been built and used at the same time as Anderson. Specifically, a number of dates from portions of the Hopewell site are early (Greber 2003:102–103; Prufer 1964a:45), although debated. Also, the subrectangular form of two of nine enclosures in the Junction Group is similar to the shape of the enclosure at Mound City, suggesting that these elements of the two sites might have been built at a similar time. However, the open circular arrangement of the nine enclosures at Junction, and the open circular shape of seven of the enclosures, themselves, are reminiscent of Scioto Adena circular earthworks, which predate Scioto Hopewell ones. If part of the Junction Group and part of the Hopewell site were constructed when Anderson was, and the three were ritual components within one local symbolic community, then that community would probably have been distinct from the one that included Mound City and Hopeton, for the two reasons given just above.

Similarly, on a late time plane, the detailed chronological relationships among certain of the five sites that exhibit tripartite symbolism in the

Scioto and Paint Creek valleys and that may all have been part of one, integrated ritual landscape need to be worked out through further excavation and radiometric dating. The currently uncertain relationships include: the Baum earthwork, lacking burial mounds, in relation to the neighboring Seip earthwork with mounds; the Works East site, lacking burial mounds, in relation to the nearby Liberty earthwork with mounds; and the remnants of the Old Town Works in relation to the neighboring Hopewell site, both with burial mounds. The burial floor of Porter Mound 15 within the Old Town Works is currently estimated to have been used at approximately the same time as the charnel houses at Seip, based on Ruhl's (1996:Figure 9; Ruhl and Seeman 1998) seriation of ear spoils. How the older High Bank, Anderson, and Junction sites might have been seen and functionally incorporated or not within the ritual landscape defined later by the five earthworks with tripartite symbolism is unknown.

A second kind of chronological linkage in the Scioto-Paint Creek area that needs investigation is the fine-scale temporal developmental sequence of the Carriage Factory site, the Tremper mound, and Mound City. Knowledge about the timing and pace of development of horizontally laid out, Scioto Hopewell style charnel houses and the world view associated with them, and our ability to specify the causes of these developments that mark the origins of "Hopewell" in the Scioto drainage, depend on clarifying the absolute initiation dates of these three sites. To do so would require a combination of excavating for radiocarbon samples in the remnants of the Tremper mound and what may remain of Carriage Factory (precise location unknown) and dating of organic materials within the curated Mound City collection.

A third area requiring further study is the durations of use of certain large sites and their burial mounds: Tremper, Mound City, the Hopewell site, and its Mounds 25 and 23. The short period of use of the Tremper charnel house inferred by Weets et al. (2005:549-550) is debatable. The beginning and ending dates of charnel house and mound construction at the Mound City and Hopewell sites are obscured by the lack of independent dates for most mounds

at these sites. It is essential to interpretations of sociological development in the Scioto-Paint Creek area to ascertain whether the initial period of mound building at the Hopewell site extended back to a time coeval with Mound City – a possibility that current dates from Hopewell leave open. Finally, the radiocarbon dates from Mound 25 at the Hopewell site are internally contradictory (Greber 2003:106), as well as out of sync with the obsidian hydration dates from the mound (Hatch et al. 1990:475). Mound 23 has no radiocarbon dates.

The durations of use of Mound City, the Hopewell site, and Mounds 25 and 23 might be addressed by developing and applying the breastplate and pipe seriations mentioned above, by combining the breastplate seriation with Ruhl's ear spoils seriation, and by radiocarbon dating of organic samples in curated collections or obtained through new excavation. Determining the duration of use of Tremper may be less tractable without re-excavation, given its lack of ear spoils and breastplates, and given its position at the very beginning of any pipe seriation that might be constructed.

The fourth kind of chronological problem is the connection between small, isolated burial mounds or mound groups and the larger sites with big charnel houses and embankments. Both small and large sites may have been components of more complex, multi-site mortuary programs. Determining whether specific small and large sites were coeval or not is a first, necessary step in exploring for and defining multi-site mortuary programs.

The local symbolic community that encompassed the large ceremonial centers of Seip and Baum in main Paint Creek valley (Chapter 3, *An Example of a Local Symbolic Community*) may also have included the Rockhold mound group west of Seip, the Bournville mound and enclosure complex east of Baum, and perhaps the West Mound at a significant distance west of Seip. Ruhl (1996:Figure 9; Ruhl and Seeman 1998) found the rank order of ear spoils from Rockhold to overlap with and on average be somewhat later than the rank order of ear spoils from Seip. She found the rank orders of three ear spoils from the Bournville site to fall late

in the seriation, overlapping with the latest style earspools from Seip. However, the two earspools from the West mound that were studied have rank orders consistent with an early time plane, on a par with those from Mound City. Two radiocarbon dates from the West Mound (Prufer 1968:153) are consistent with it dating early but have wide standard deviations.⁵ On the other hand, Prufer (1961, 1964:49) placed West and possibly Rockhold on the same time horizon as Seip. The temporal placements of Rockhold and Bourneville might be made more secure by constructing the breastplate seriation suggested above. Rockhold contained three breastplates with two burials, and Bourneville had two breastplates with two burials. The three earspools from West that Ruhl did not analyze might also be seriated to affirm the results of the other two. Rockhold, West, and Bourneville each have curated inhumations that might be dated directly by applying AMS methods to bone collagen and tooth dentin and perhaps organics in teeth root and pulp cavities.⁶

Geographic Expansion of the Scioto Hopewell Cultural Tradition over Time

Taking a broad view of what is known about site chronology in the Scioto-Paint Creek area reveals an interesting pattern in the locations of earthen enclosures of differing forms and ages (Figure 15.1). The pattern suggests a geographic expansion over time of Hopewell ceremonialism within the Scioto drainage. The expansion appears to have been directional, from the southern reaches of the Scioto valley northward, and then into the tributary valleys of the North Fork of Paint Creek and main Paint Creek. The primary evidence for this history of expansion is the dating of charnel house floors and burials by radiocarbon methods (Greber 1983, 2003; Ruby et al. 2005:161), obsidian hydration (Hatch et al. 1990; Stevenson et al. 2004), artifact and architectural seriation (DeBoer 1997; Prufer 1961, 1964a:49–52; Ruhl 1996; Ruhl and Seeman 1998), and crossdating (Carr 2005a:305–307), as discussed above. The inferred sequence of expansion and its possible culture historical interpretations will require evaluation. Some relevant kinds of information

for doing so are described at the end of this section.

The patterning of site forms, ages, and locations is as follows. The very early Tremper site, with its small, 3.5 acre, one-part, oval enclosure and unique animal effigy charnel house and mound, was built at the southern end of the Scioto valley, just five miles from its confluence with the Ohio valley (Figure 15.1, #1). The Mound City group of mounds, with its larger, 13 acre, one-part, again unique subrectangular enclosure, was then built farther north, on the Scioto river just north of its junction with main Paint Creek (Figure 15.1, #2). Mound building at Mound City was initiated perhaps a generation or less after the Tremper charnel house was mantled with earth. The 13 acre, one-part, again unique, oblique rectangular earthwork of Dunlap, in the main Scioto valley north of Mound City by about three miles, and the 18.6 acre, one-part, square earthwork of Anderson, west of Mound City by about seven land miles at the south end of the North Fork of Paint Creek, may have been built about the same time as Mound City, considering the similarity of their sizes and one-part formats to those of Mound City (Figure 15.1, #3). The length of the Scioto valley between Tremper and Mound City was then probably filled in somewhat with more earthworks, including the building of the two-part, 13 acre square and 20 acre circle earthwork of Seal, just north of Tremper, the two-part, 18 acre octagon and 20 acre circle earthwork of High Bank south of Mound City, and the two-part, 20 acre square and 20 acre circle earthwork of Hopeton, directly across the Scioto river from Mound City (Figure 15.1, #4). Around this time and afterward, earthwork building ventures expanded up the forks of Paint Creek valley. The Hopewell site, with its huge, 111 acre, subrectangle and 17 acre square earthwork was built on the North Fork of Paint Creek valley, north of the Anderson earthwork by about 2 miles (Figure 15.1, #5). Later, the large 80 acre, tripartite, two circle and one square earthwork of Old Town was built much farther up the North Fork valley, about 25 miles from the confluence of the Paint Creek and Scioto valleys. The similarly

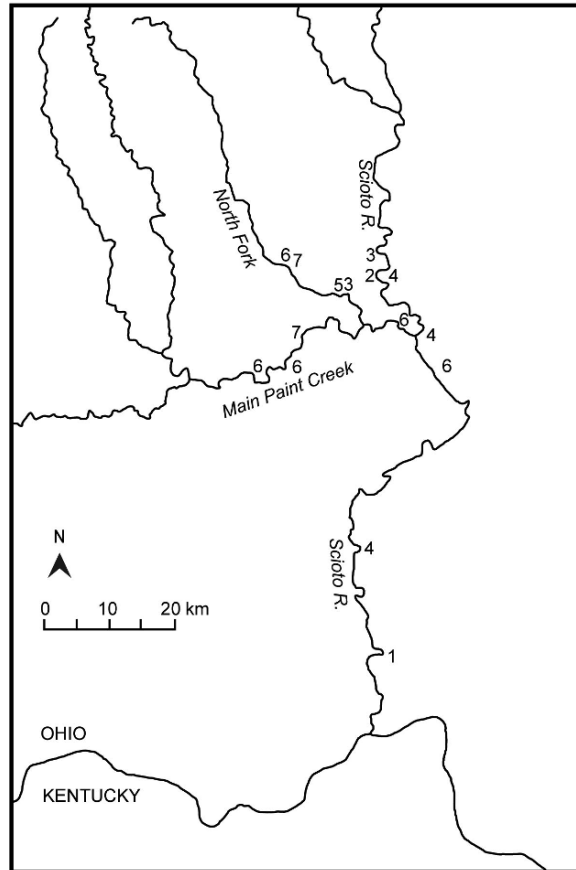


Figure 15.1. A possible geographic expansion over time of Hopewell ceremonialism up the Scioto valley and its tributaries, followed by a slight geographic contraction. Earthworks shown and defining the time trajectory are: (1) Tremper. (2) Mound City. (3) Dunlap and Anderson. (4) Seal, High Bank, and Hopeton. (5) Hopewell. (6) Old Town, Seip, Baum, Liberty, and Works East. (7) Bourneville and Ater mound.

tripartite shaped and same size earthworks of Seip and Baum were built equally far up main Paint Creek valley, Seip being about 24 miles from the confluence of the Paint Creek and Scioto valleys. In the main Scioto valley, the similarly tripartite shaped and same size earthworks of Liberty and Works East were built on either side of the junction of Paint Creek valley with the Scioto (Figure 15.1, #6). The end of the tradition of building large, horizontal-format charnel houses may have been marked by its spatial contraction. The Bourneville charnel house, which likely dates to the tail end of charnel house use at the Seip earthwork (Ruhl

1996:Figure 9), is located downstream from the Seip and Baum earthworks by about 4 miles and 1 mile, respectively, in main Paint Creek (Figure 15.1, #7). The Ater charnel house, which probably dates to after the charnel building(s) under the Conjoined mound in the Old Town earthwork (Ruhl 1996:Figure 9), is located downstream from Old Town by about 2 miles, in the North Fork of Paint Creek (Figure 15.1, #7).⁷

If this pattern of geographic expansion of Hopewell ceremonialism up the Scioto and its tributaries bears up to new research on the chronology of earthworks and mounds,

it still remains how to interpret the pattern in culture historical terms. Logically, there are at least three obvious possibilities, not all of which are equally supported empirically at this time. First, the pattern could indicate the spread of the Scioto Hopewell chanel house and earthen enclosure tradition among local symbolic communities in the drainage, with only some communities having participated in the tradition in the early and middle Middle Woodland period while others continued to follow older, Adena ceremonial practices. Current dating of Adena mounds in the Scioto drainage does not support this “late continuity” hypothesis (Carr and Haas 1996:28; Maslowski et al. 1995:29–31), but the number of well-dated Adena mounds there is small. Second, many people up and down and across the Scioto drainage and from different local symbolic communities might have participated in developing the Hopewell chanel house and earthen enclosure tradition from the beginning. The spread of Hopewell chanel houses and earthen enclosures up the Scioto valley and its tributaries over time might indicate only an expansion in the locations of focus of ceremonial activities in the drainage, as the regional ceremonial system became elaborated. A third logical alternative is that the pattern represents shifts in the locations of residence of peoples over time within the Scioto drainage. This interpretation seems unlikely as an explanation of the entire pattern of expansion, given Seeman and Branch’s (2006) documentation of the already wide distribution of mounds and probably households over the Scioto drainage by the Early Woodland period. However, shifting residences might have contributed to portions of the observed pattern. One possibility is the aggregating of local groups from small tributaries of the Scioto and Paint Creek valleys, and from portions of the Scioto and Paint Creek valleys peripheral to the Scioto-Paint Creek confluence, into that area during the early Middle Woodland as Hopewellian spiritual ideas and ceremonial rites were elaborated there (Chapter 5, Consequences of the Change in World View). Another possibility is the expansion of local groups from the

Scioto-Paint Creek confluence area up main Paint Creek valley and its North Fork during the middle and late Middle Woodland. Any such movement of households, however, would not appear to have resulted from the building of population pressure on land in the Scioto-Paint Creek confluence area. Multiple lines of evidence indicate no significant population packing there (Chapter 5, *In the Beginning: A Change in World View*).

These alternative culture historical interpretations of the geographic pattern require evaluation. The first two alternative interpretations could be evaluated by comparing the biological diversity of burial populations in chanel houses of different ages and locations. If new communities joined in the tradition over time (interpretation #1), biological diversity of the deceased in large chanel houses that served multiple local symbolic communities should have increased over time. Conversely, if people throughout the Scioto drainage were involved in Hopewell ceremonialism from its beginning and remained involved over time (interpretation #2), biological diversity of the deceased in such chanel houses should not have changed much over time. Dental and skeletal biodistance studies and DNA analyses could provide the necessary information to make this evaluation, and might be supplemented for the better by dental and skeletal chemical analyses. Further dating of Adena mounds, to determine if any were built after about 50 B.C., when Hopewell style chanel houses began to be used in the Scioto valley, would also help to assess the viability of the first and second interpretations. Determining whether shifts in the locations of residences contributed to the pattern of expansion (interpretation #3), rather than a spread of the tradition among more local groups or an increase in the locations where ceremonies were held, would require large-scale survey for Early and Middle Woodland residences in the Scioto drainage as a whole, and excavation and dating of residences. Known or refined geographic distributions of mounds during various Early and Middle Woodland times (Seeman and Branch 2006) are insufficient proxies for the geographic distributions

of residences at these different times (e.g., Carr 2005b:94–96; 2005a:286–311; Ruby et al. 2005:159–166).

Beyond the Scioto

In northeastern Ohio, both the Esch mound group and the North Benton mound are positioned at the very end of Ruhl's earspool seriation. Esch was also evaluated by Prufer to have been late, in the sense of coeval with mounds in the tripartite earthworks of Seip, Liberty, and Old Town. The less variable of the two radiocarbon assays from Esch Mound 1 dates it at ca. A.D. 270 (Maslowski et al. 1995:34),⁸ in line with Prufer's and Ruhl's estimates. Corroboration of these evaluations could be attempted by seriating the four platform pipes at Esch and the one breastplate and one pipe at North Benton. Animal bones that might be datable by collagen AMS radiocarbon techniques were recovered in good number from Esch Mound 1. Esch also contained 43 inhumations, and North Benton contained five, which have potential for dating. Two pieces of datable buckskin were removed from the North Benton mound, Burial 7. These items were accessioned into the collections of the Ohio Historical Society. The breastplate from North Benton bears copper pseudomorphs of fabric but apparently no original organic material. The feasibility of collecting new radiocarbon samples by excavating remnants of Esch and North Benton is unknown.

In the central and northern Scioto valley around Circleville and Columbus, Circleville Mound D at the center of the circular enclosure, Snake Den Mounds C and D, McKenzie Mounds A–C, and Melvin Phillips Mounds 1 and 2 would be hard to date from curated collections. Most excavated burials at these sites lacked artifacts and none of the sites contained earspools, breastplates, or smoking pipes. The western mound in the Wright-Holder mound group also contained burials with few or no artifacts, but two burials did include two earspools and a breastplate.

The many components of the Newark site in the Licking valley, northeast of the Scioto-Paint Creek area, are key to date. Newark is the

largest earthwork in Ohio, and the communities around it had close social and ceremonial relations with peoples of the Scioto-Paint Creek area, as expressed by diverse kinds of material ties (see below, Ceremonial Integration of the Newark and Scioto-Paint Creek Communities). There is little information and no consensus about the age and duration of construction of the Newark works (Greber 2003:100; Lepper 2004:80). The only radiocarbon dates from relevant proveniences are limited to four.⁹ They have means that range between ca. A.D. 100 and 300, well after the earliest Hopewellian charnel structures and earthworks constructed in the Scioto-Paint Creek area at the Tremper and Mound City sites. Two of the dates possibly associated with the construction of the Octagon earthwork range from A.D. 200 to A.D. 300, and fall a century or two after dates from the Scioto valley's High Bank earthwork, which also has an octagon of very similar shape and complementary (perpendicular) orientation (see above, Chronological Uncertainties in the Scioto-Paint Creek Area; and below, Ceremonial Integration of the Newark and Scioto-Paint Creek Communities).

High on the list of components to excavate and date would be the Octagon and Observatory Circle complex and the remnants of the Central mound of the Cherry Valley mound cluster under the Central Ohio Railroad bed (B. Lepper, personal communication 2007). Dating these features of the site would help to resolve the specific kinds of social and ceremonial relationships that tied together the peoples of the Newark and Scioto-Paint Creek areas (see below, Ceremonial Integration of the Newark and Scioto-Paint Creek Communities). Excavation and dating of the Great Circle and its associated Square, and the Oval earthwork, along with the Octagon and Observatory Circle, would provide a solid picture of the duration over which Newark was built.

In southwestern Ohio, in the Little and Great Miami valleys, of the 18 mound or mound-earthen enclosure sites with burials and/or ceremonial caches that we report in the HOPEBIOARCH data base, only four have radiocarbon dates: the Turner, Stubbs, and Fort

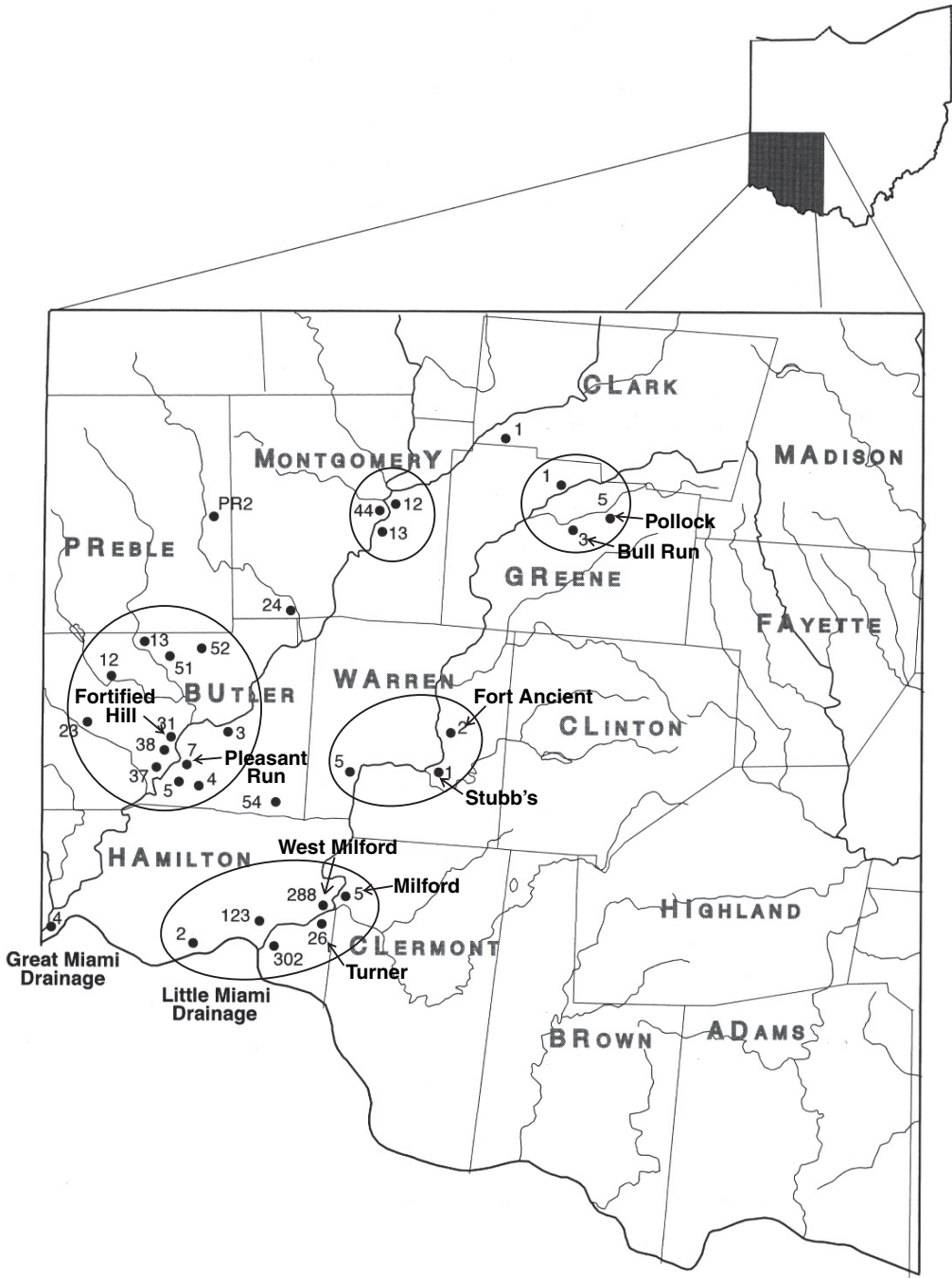


Figure 15.2. Five clusters of earthworks in southwestern Ohio. Most earthworks shown here are certainly or very probably Middle Woodland in age. See Table 15.1 for additional site names and bibliographic citations. See credits.

Table 15.1. Earthworks in Southwestern Ohio¹

Site Number ²	Site Name	Reference ³
33WA1	Stubb's Works	Whittlesey 1851, plate II
33WA2	Fort Ancient	Anonymous 1810*
33WA5	Foster Works	Riordon 1996*
33MY24	Carlisle Fort	Binkley 1889*
33BU3	Fairfield Township Works I	Squier and Davis 1848, plate VIII-1*
33BU4	Fairfield Township Works II	Squier and Davis 1848, plate VIII-2*
33BU5	Fairfield Township Works III	Squier and Davis 1848, plate XXXI-4
33BU7	Pleasant Run Works	Squier and Davis 1848, plate XXX-1
33BU12	Milford Township Works I	Squier and Davis 1848, plate XI-2*
33BU13	Milford Township Works II	Squier and Davis 1848, plate XXXI-2
33BU23	Davis Works	MacLean 1879, figure 57
33BU31	Fortified Hill	Squier and Davis 1848, plate VI*
33BU37	Ross Township Works I	Squier and Davis 1848, plate XXX-2
33BU38	Ross Township Works II	Squier and Davis 1848, plate XI-3
33BU44	St. Clair Township Works I	Squier and Davis 1848, plate XI-1
33BU46	Union Township Works I	MacLean 1879, figure 46
33BU47	Union Township Works II	MacLean 1879, figure 47
33BU51	Wayne Township Works I	Squier and Davis 1848, plate XXXI-3
33BU52	Wayne Township Works II	MacLean 1879, figure 62
33BU54	Beatty Works	No plan published, cited in MacLean 1879:174
33CL1	Osborn Works	Werren 1878
33CL5	Milford	Squier and Davis 1848, plate XXXIV-1
33GR1	Bell Works	Squier and Davis 1848, plate XXXIV-4
33GR3	Bull Works	Squier and Davis 1848, plate XXXIV-3
33GR5	Pollock Works	Squier and Davis 1848, plate XII-3*
33HA123	Mariemont Embankment	Woodward and McDonald 2002, figure 68
33HA2/1	Cincinnati Works I	Drake 1815
33HA2/2	Cincinnati Works II	Drake 1815
33HA26/127	Turner	Whittlesey 1851, plate III
33HA4/148	Miami Fort	Squier and Davis 1848, plate IX-2*
33HA302	Sand Ridge	No published plan, recorded by Starr
33HA3/323	Colerian Works	Squier and Davis 1848, plate XIII-2
33HA288	West Milford, or Camden East Fort Works ("Gridiron")	Squier and Davis 1848, plate XXXIV-2A Squier and Davis 1848, plate XXXIV-2B
33MY12	West Carrollton Fort Works	Squier and Davis 1848, plate VIII-4*
33MY13	Alexandersville Works	Squier and Davis 1848, plate XXIX-1
33MY44	Miami River Earthwork	No published plan
33PR2	Glander Works	Squier and Davis 1848, plate XII-2*

¹From Riordon (2004a:227, table 16.1). Most earthworks listed here and shown in accompanying Figure 15.2 are certainly or very probably Middle Woodland in age.

²Site numbers given are Ohio Archaeological Inventory numbers.

³Reference is to the earliest publication with the site's plan.

*These sites are regarded as "hilltop" enclosures.

Ancient earthworks, and the Purdom mound group. At least 35 earthen enclosures beyond the 18 sites that we document occur in the southwestern Ohio region, and of these, only the Pollock, Foster, and Bell Works and Miami Fort have been excavated at some level and reported (Riordon 2004a:224). However, they lack burial mounds, and only Pollock and Miami Fort have radiocarbon dates.¹⁰

The Turner site in southwestern Ohio was seriated by Prufer (1961, 1964) as late among Ohio Hopewell sites, based on its total record. Ruhl's (1996; Seeman and Ruhl 1998) earsspool seriation shows that it ended late but was used for a long period of time, and that different mounds were constructed at significantly different times. Too few radiocarbon dates (six) have been obtained from too few

proveniences (two) to draw any conclusions about Turner's duration of use. The dates range between A.D. 100 and A.D. 300 (Greber 2003). Both the Fort Ancient and Stubbs earthworks appear by their radiocarbon record to have been begun earlier and used for a longer period of time. A total of 36 radiocarbon dates from Fort Ancient suggest its construction and occupation from about 100 B.C. until A.D. 350 radiocarbon time (Connolly 2004:219–220). The majority of the dates fall between A.D. 50 and A.D. 250 (Greber 2003:103). However, there are no radiometric assays from the South Fort, which was constructed prior to the Middle and North Forts, perhaps by as much as 200 years by P. Essenspreis' estimate (Connolly 2004:220), making reasonable the 100 B.C. date for groundbreaking at the site. Hopewellian construction at the Stubbs earthwork appears to have spanned the broad period between A.D. 1 and A.D. 500, to judge from a large suite of radiocarbon assays from the site (Cowan and Sunderhaus 2002:table 1). The three charcoal radiocarbon dates from the Purdom Mound 1–2 fall early, between 70 B.C. and A.D. 100 (Heilman and Mahoney 1996:296).

Three most basic forms of spatial relationships among Hopewellian mound and/or earthen enclosure ceremonial sites in southwestern Ohio have sociological significance but their meanings remain obscured by limited excavation and radiocarbon dating. At a broad geographic scale, earthen enclosures in the Little and Great Miami valleys form five spatial clusters, in Butler, Montgomery, Hamilton, Warren, and Green Counties (Figure 15.2, Table 15.1). The chronological positioning of these spatial clusters is unknown. At a more local scale, some earthen enclosures occur very close to one another, appear to have complementary morphologies in some cases, and possibly represent functionally differentiated components of a ceremonial landscape for a local group of people. Examples include the Fort Ancient and Stubbs enclosures as a pair, the Turner, West Milford, and Mildford works as a triad, the Pollock and Bull Run works as a pair, and the Fortified Hill and Pleasant Run Works as a pair (Riordon 2004a: 238–239; see below, Comparing Hopewell Social and Ritual Organization in Southwestern Ohio and the Scioto-Paint

Creek Area). Again, chronological relationships among sites of a set are unknown. Finally, how small burial mounds and mound groups such as those documented in the HOPEBIOARCH data base relate temporally and functionally to the larger earthen enclosures is unclear.

None of these three kinds of problematic relationships appear tractable except through further field and museum work to obtain radiocarbon samples. Most of the earthen enclosures have not been investigated, and most of the excavated, small burial mound centers without enclosures lack ear spoils, breastplates, and platform pipes that might be seriated. One of the Twin Mounds and Manring Mound 2 each contained one breastplate. Organic materials within the curated collection of the Turner earthwork have been dated successfully (Greber 2003) and this work could be continued. Curated inhumations that might have datable organics in their bone and teeth are limited in southwestern Ohio Hopewell sites. The Turner site has the largest skeletal series, with somewhere between 20 and 45 individuals curated and provenienced.¹¹ Smaller numbers of inhumations are curated for the Purdom, Glen Helen, Campbell, and Boblett sites.¹² The Turner earthwork has been almost fully destroyed, except for one thick midden deposit which is productive in living debris but insufficient for unraveling the temporal complexity of the site (R. Genheimer, personal communication 2007). Nothing remains of the Milford earthwork above ground, although there are lithic scatters adjacent to where it would have been located (R. Genheimer, personal communication 2007). Only small portions of the Stubbs earthwork remain intact, most having been destroyed without excavation and radiocarbon dating (F. Cowan, personal communication 2006).

ECOLOGY: SUBSISTENCE, MOBILITY, AND DEMOGRAPHY

In order to confidently describe the ecology of Hopewellian life in the Scioto-Paint Creek area, including subsistence, mobility, and demography, much more archaeological survey and

excavation information is needed from there. No intensive, systematic, regional, surface survey of the Scioto-Paint Creek area, including both valleys and surrounding uplands, has yet been made. Regional survey is limited to a low-intensity, spotty survey within about one-third of the Scioto valley bottoms and terraces, alone, from Chillicothe to Waverly (Purfer 1975:268, 314), and a few surveys in the immediate vicinity of major earthworks (Dancey 1995, 1996, 1997; Greber 1995; Coughlin and Seaman 1997). Systematic coring of the Scioto and Paint Creek valley bottoms in order to map their depositional histories, reveal buried sites, and predict the locations of others has not been undertaken in the Scioto drainage, despite the accepted view (Prufer et al. 1965:10–11, 14, 127) that many Hopewell habitations are buried in the alluvium below plow depth. A successful model for this kind of geomorphological work is the research by Hajic (1987, 1990, 2000; Hudak and Hajic 1999) in the lower Illinois valley, adjacent portions of the Central Mississippi valley, and seven valleys in Minnesota. Hajic mapped their stratigraphy, reconstructed their depositional environments, modeled their alluvial landscape evolution based on landform-sediment assemblages, and in the Minnesota case, developed GIS predictive models for locating geologically buried archaeological sites.

Only two residential sites have been excavated in the area (Brown's Bottom #1, McGraw), and only one house and surrounding pattern of pits has been uncovered in one of them. Current understanding of the ecology of Scioto Hopewell peoples is thus based on very small windows of observation within the Scioto-Paint Creek area, and on much analogy to the neighboring Licking and Muskingum valleys and the upper Ohio valley more broadly (Burks et al. 2002; Carskadden 1996, 1997; Dancey 1991; Pacheco 1988, 1993, 1996, 1997; Wymer 1987, 1992, 1996, 1997).

Subsistence

Research projects that would advance our understanding of subsistence in the Scioto-Paint

Creek area during the Middle Woodland are of two forms. First are projects that would document the basic parameters of the subsistence system, as D. A. Wymer and colleagues have previously done for Hopewell peoples of the Licking valley. The Scioto-Paint Creek subsistence system should be described in its own right, rather than by analogy to the Licking system, given the somewhat different culture histories and ecologies of the two areas. Basic topics, which Wymer (Steinhilper and Wymer 2006) and Pacheco (Pacheco et al. 2006) have begun to explore at the Brown's Bottom #1 site, include: (1) the plant and animal species that were used by Scioto Hopewell peoples; (2) the approximate relative contributions to their diet made by plant versus animal foods, domesticated versus wild seed foods, and seed versus nut foods; (3) the forms and paces of subsistence change over time; and (4) the degree of dietary variability between households in different locales compared to the ease of harvesting different resources at those locales, as an indicator of population packing. Excavation and analysis of multiple residential sites within the Scioto-Paint Creek area are needed to roughly estimate these parameters.

These basic studies could be enhanced with several kinds of others that move beyond how the Licking valley subsistence data have been analyzed to date. First, economic modeling (e.g., Keene 1981; Reidhead 1976) of the most efficiently procured combinations of the plant and animal foods that Scioto Hopewell peoples used could provide estimates of probable diet mix with more exactitude than is currently possible with floral and faunal remains, which are difficult to place on one quantitative scale. Insights into seasonal variations in diet composition and adequacy could also be gained. Economic modeling of diet, harnessed with osteological analyses of musculoskeletal stress markers, could also contribute to the study of the division of labor, the nature of the daily lives of women and men, young and old, and the relative quality of their lives. Second, the swidden rotation schedules of Scioto Hopewell households could be modeled in finer detail,

following the lead of Rainey (2003), who used ethnohistoric analogs and Ohio Hopewell paleoethnobotanical data (Chapter 3, Long-Term Cycles of Residential Mobility and the Lengths of Occupation of Sites). Estimates of swidden rotation schedules could provide insight into other issues such as frequency of residential moves and human impact on the environment, when coupled with paleoethnobotanical indicators of environmental manipulation and impact (e.g., Wymer 1996:47–48, 1997:159–161). Third, the likely cosmological and other cultural associations of various eaten plant and animal foods, per ethnohistoric analogs, might be sought in order to create a culturally richer, native view of Scioto Hopewell diet. Information on the various symbolic referents of different foods, conjoined with archaeological data on the kinds of foods commonly found and not found together in dumping episodes and other contexts, could give insight into the symbolic construction of meals, and whether the balancing, complementing, and/or segregating of food categories was important to Hopewell peoples as one expression of their world view (e.g., Hudson 1976:165, 302, 317).

Mobility

The topic of the amount and patterning of mobility that characterized Hopewell peoples' subsistence strategies in the Scioto-Paint Creek area has at least six aspects that are sorely in need of further research. These are: (1) the seasons of occupation of residential sites by all or part of a household; (2) whether short term or seasonal residential base camps were made and used by some or all of a household in valley edge locations or further into the uplands; (3) the duration of occupation of residential sites; (4) the kinds, locations, and seasons of use of logistical sites; (5) variations in these subsistence strategies among households; and (6) the age-sex division of subsistence tasks involved in residential and logistical moves.

Addressing these issues with confidence will require intensive, systematic, regional surface surveying and a regional coring

program, in both valleys and uplands, to locate sites. Complete excavations of the layouts of a good sample of located sites of varying kinds will also be necessary. Specifying the seasonality of sites might be improved beyond that obtained in previous excavations in the Licking and Scioto valleys by taking pollen samples from sediments within micro-settings protected from wetting-drying cycles within archaeological features. To make progress at a reasonable rate in these several arenas would require substantially increased investment in the infrastructure of research archaeology in Ohio, akin to the scale that Struever (1968a, 1968b, 2004; Brown and Struever 1973) mustered for Hopewell archaeology in the lower Illinois river valley.

COMMUNITY, SOCIAL, AND RITUAL ORGANIZATION

In the last 10 years, many key details of Hopewellian community, social, and ritual life in the central Scioto valley have begun to be documented empirically. Basic social units and categories such as households, residential communities, local symbolic communities, sustainable communities, clans, sodalities, political alliances, genders, and leaders of particular kinds have been identified (e.g., Carr 2005a; Carr and Case 2005b; Dancy and Pacheco 1997b; Field et al. 2005; Pacheco 1993; Pacheco et al. 2005; Ruby et al. 2005; Thomas et al. 2005). The social and ritual roles played by these individuals and groups, the means of integration of individuals within a group, and relationships among the social categories have been reconstructed to various extents. Rituals of several kinds that differed in their sizes, social compositions, and functions have been defined (Carr et al. 2005). An integrated picture of Scioto Hopewell life is beginning to emerge.

Future studies of Scioto Hopewell community, social, and ritual organization can be made productively on at least two levels. First is the level of multiple individuals,

including social groups, organizational relationships among them, categories of individuals (e.g., males, leaders of a particular kind), and roles. Refinements and further identifications of the above-mentioned social units and categories are still needed. For example, although a suite of clans has been identified, some of these may encompass multiple clans with similar totems or eponyms and may need partitioning (e.g., the Nonraptorial Bird group). Likewise, certain social groups that may have been sodalities and/or ritual societies (e.g., represented by mica mirrors, galena cubes, obsidian bifaces) require additional lines of verification.

A second level of productive study is that of the individual and his or her “lived experience” as positioned in a society and the natural environment, as recorded in his or her “life history” (Buikstra et al. 2004; Krogman 1935; see also Buikstra 2006:348–351; Cox and Sealy 1997; Katzenberg 2000) or “osteobiography” (Saul 1972:8; Saul and Saul 1989; see also Metress 1971; Williamson and Pfeiffer 2003). Now that many basic social and ritual categories of Scioto Hopewell people have been identified, it is possible to place a specific individual in the nexus of these and to ask what his or her specific life might have been like. For example, who were each of the two individuals buried together with fancy items in grave 47 under Mound 25 at the Hopewell site? To what local symbolic community(ies) and clans did each belong? Were either of them members of one or more sodalities? What was the gender of each person: masculine, feminine, or transitional? Were both individuals considered adult, or had they yet to be initiated fully into adult social life? What social and ritual roles did each fulfill, as a member of a community, clan, sodality, gender, age category, and in any leadership capacity? How prestigious was each individual, relative to each other and to other persons interred in the charnel house? What relationships bound the two persons together such that they became buried together? What relationships bound each individual together with others with whom they were buried, in immediately adjacent graves, in a cluster of graves, and within one charnel house? Did

either of the individuals travel beyond the Scioto-Paint Creek area or trade with those who had gone afar, given the materials of his or her grave goods; and if so, for what likely purpose(s)? What were the implications of these various aspects of the life of each person for his or her health, work load, physical quality of life, circumstances of death, and age of death? In attempting to answer questions such as these, the researcher not only forms a picture of what it might have been like to have been a specific Scioto Hopewell person, but also expands the documentation and understanding of the social “organization” of Scioto Hopewell people – the operation and processes of their social life (*sensu* Firth 1951:2, 36).

Methods

Research topics of the above kinds, at the levels the group and the individual, can be pursued in part with the methods of mortuary analysis, expanding on the mortuary studies made in *Gathering Hopewell* (Carr and Case 2005c) and here. However, a more productive route would be to combine mortuary analyses with physical anthropological information on bone and dental genetic make-up, chemistry, and morphology. Several new avenues for research are open, as follows.

Analysis of DNA extracted from tooth and bone collagen or from tooth pulp cavities has good potential for significantly increasing the proportion of deceased persons for whom their sex is determined (Stone et al. 1996). Good success has already been achieved on Scioto Hopewell skeletons (Mills 2001:7; 2003; successful amplification for 69% of individuals) and Illinois Hopewell skeletons (Bolnick 2005, 2007:634; successful amplification for 71% of individuals). Sex determinations are essential for identifying gender relationships and roles, social ranking, clans, sodalities, and communities.

Analysis of nonmetric postcranial, cranial, and dental traits (Alt and Vach 1998; Blom et al. 1998; Konigsberg and Buikstra 1995; Lane and Sublett 1972; Larsen 1997:302–332; Pearson 2000:116–122; Schillaci and Stojanowski 2002;

Spence 1974), craniometrics focused on the face and skull base forward of the forward edge of the foramen magnum (Brace and Hunt 1990; Harding 1990; Minturn 2006; Relethford and Harpending 1994; Schillaci 2003; Schillaci et al. 2001; see also Konigsberg and Ousley 1995; Suzanne 1977), oxygen isotope and strontium isotope analysis of teeth and bone (Hodell et al. 2004; Price et al. 2000; White et al. 2002, 2003), and mtDNA (Bolnick 2005, 2007; Mills 2001, 2003; Shimada et al. 2004) can afford information on an individual's biological group affiliation, biological distances among groups and individuals, and/or locations where a person has lived, both early in life and closer to death. Success has been had at both the regional and local scales, making coarser and finer-grained distinctions among biological populations, social groups, and individuals. In turn, basic information on group affiliation, biological distances, and residences has been used to document and corroborate a wide range of aspects of social organization (see above references). In the local Scioto Hopewell case, such potential applications include inferring an individual's local symbolic community affiliation; the fluidity of membership of communities; rates and vectors of intermarriage among communities, clans, and prestige groups and of adoption among communities; post-marital residence patterns; geographic patterns of relocation of an individual at various points in his or her life history, either locally, regionally, or interregionally; and the solidity of intercommunity alliances considering marriage, residence, and relocation patterns. The viability of mtDNA analysis in making fine-grained, local-scale reconstructions that genetically distinguish different prestige or other groups and that identify patterns of post-marital residence has already been demonstrated for an Illinois Hopewell cemetery population (Bolnick 2005, 2007) and is likely for Scioto Hopewell populations, which show the same haplogroup diversity as Illinois ones (Bolnick 2005, 2007; Mills 2001, 2003).

Musculoskeletal stress markers (MSM) on skeletons (Capasso et al. 1999; Hawkey and Merbs 1995; Merbs 1983) can be used to

infer some of the various physical activities an individual repetitively undertook during life (e.g., running, throwing a spear, knapping flint, grinding seeds, pounding nuts or copper ore, pulling weeds) and his or her work load for each task and in total relative to other individuals. Such information can give insight into the varying kinds of work, work loads, and qualities of life of individuals who differed by gender, social role, prestige, community, or other social categories. A study of MSM on skeletons from the Turner site in southwestern Ohio (Rodrigues 2005) is successful in these ways. No MSM studies of skeletal populations in the Scioto valley has been made.

In light of these modern physical anthropological methods, which have scarcely been used to study Scioto Hopewell peoples, and considering what has come to be documented about Scioto Hopewell community, social, and ritual organization over the past decade, I now suggest some further areas of sociological research that are ripe.

Community Organization

One cornerstone topic that needs further exploration is the existence and nature of local symbolic communities of Scioto Hopewell people. Ruby et al. (2005) hypothesized that, between the level of the residential community comprised of one or a few households and the sustainable community comprised of many households that gathered together periodically at large ceremonial centers, there existed an intermediate level of community organization in the Scioto-Point Creek area: the local symbolic community. The sets of households who comprised a local symbolic community are inferred to have had a sense of common identity, consequently to have buried their dead together within a definable spatial cluster within a charnel house, and to have been territorially based in that they lived in different segments of the Scioto and Point Creek valleys.

The existence of the local symbolic community level of organization of Scioto Hopewell peoples has been posited thus far from three empirical patterns. First is the apparent

clustering of residential sites around the large ceremonial centers in the Scioto valley rather than the uniform distribution of the residences up and down the valley, as recorded through a surface survey directed by Prufer (1975:316). Second is the trimodal spacing of large, late Middle Woodland ceremonial centers from one another in the Scioto-Paint Creek area. The first mode represents the distance between very closely spaced centers within a single local symbolic community. The second mode has been identified as the expanse of a single local symbolic community's earthworks, including its most distant earthworks, and per chance, also the distances between different, geographically separated local symbolic communities, that is, the distances between nearest earthworks in adjacent local symbolic communities. The third mode indicates the expanse of multiple local symbolic communities within a single, broader sustainable community, as expressed in the distances between ceremonial centers in different local symbolic communities (Chapter 3, Sustainable Communities; Ruby et al. 2005:161–165, 170, table 4.6). A third kind of evidence that suggests the existence of local symbolic communities, and additionally each's sense of identity, is the varying styles of fabrics found in ceremonial centers thought to fall within different local symbolic communities (Carr 2005b:93–94; Carr and Maslowski 1995).

The existence and nature of local symbolic communities of Scioto Hopewell people could and should be tested through additional archaeological survey and by bone and dental morphological, genetic, and chemical analyses. The issue can probably be addressed most easily for the late Middle Woodland period, when the inferred organization of local symbolic communities is clearest. It has been reconstructed that at this time, three local symbolic communities resided in the Scioto-Paint Creek area: one in the Scioto valley, one in main Paint Creek valley, and one in the North Fork of Paint Creek valley (Chapter 3, Local Symbolic Communities; Carr 2005a, 2005b; Ruby et al. 2005). Knowing now what the surface signatures of Hopewell habitation sites look like

in the Scioto-Paint Creek area (Coughlin and Seaman 1997; Pacheco 1993), a systematic surface survey should be made from the mouth of Paint Creek along its length to the Baum and Seip earthworks, as well as up the North Fork of Paint Creek valley to the Hopewell and Old Town earthworks. If a relatively continuous distribution of Hopewell habitation sites were to be found between Baum and Seip, and between Hopewell and Old Town, and if a hiatus in habitation sites occurred someplace between Baum and Hopewell, and between these and the Scioto valley, then the existence of the three local symbolic communities and their territorial basis would be corroborated.

Bone and dental morphological, genetic, and chemical analyses of burials from the Seip-Pricer mound, Hopewell Mound 25, and the Ater mound would provide additional tests of the idea. Specifically, within the charnel houses under each of these mounds, two or three spatial clusters of burials have been identified through systematic mortuary-sociological analysis to represent persons from two or three local symbolic communities who buried their dead adjacent to one another (Chapter 3, An Example of a Sustainable Community; Carr 2005a). At Seip-Pricer, the western burial cluster is thought to have been constituted by deceased persons from the local symbolic community in the North Fork of Paint Creek valley, the middle burial cluster by deceased members of the local symbolic community in the main valley of Paint Creek, and the eastern burial cluster by deceased persons from the local symbolic community in the Scioto valley (Carr 2005a:310–311; Thomas et al. 2005:364, table 8.11). If this reconstruction is correct, then the deceased within a cluster might exhibit more similarity to one another in their bone and dental morphology and chemistry and in their genetics than do the deceased from different clusters. Nonmetric postcranial, cranial, and dental traits, craniometrics focused on the face and mandible, oxygen isotope ratios and strontium isotope ratios of bones and teeth, and mtDNA each might show this pattern (see Mills [2001:13] for a nascent Ohio Hopewell application and Bolnick [2005, 2007] for an Illinois Hopewell

application). It is possible, however, that the expected pattern would not emerge, despite the organization of Scioto Hopewell peoples into the proposed local symbolic communities, if intermarriage and/or adoption among the communities was great and if persons were buried with their families of marriage rather than families of birth.

Three other basic features of the community organization of Scioto Hopewell peoples could be investigated in the course of making the above bone and dental morphological, genetic, and chemical analyses. First is the overall degree of fluidity in membership of local symbolic communities, as a function of intermarriage, adoption, persons changing their residence to join relatives in other communities, etc., in contrast to the degree of endogamy of local symbolic communities. This feature bears on the questions of whether or not individual local symbolic communities were viable breeding populations, and of regional population density. A second feature of Scioto Hopewell community organization that the above analyses could reveal is patterns of postmarital residence – patrilocal, matrilineal, or bilocal. The degree of variability that males compared to females within a burial cluster in a charnel house exhibit in their bone and dental morphology and chemistry would allow this determination (e.g., Lane and Sublett 1972; Larsen 1997:326–329; Schillaci and Stojanowski 2002, 2003; Spence 1974). Documenting postmarital residence pattern would help to complement our nascent understanding of how kinship was reckoned among Scioto Hopewell peoples (Chapter 4, *Gender, Gender Relations, and Kinship Structure*; Field et al. 2005) and current thought about the importance of horticulture to them (Chapter 2; Wymer 1996, 1997). Finally, bone and dental morphological, genetic, and chemical analyses could easily shed light on the frequency with which persons who were born and raised in distant regions came to and were buried within Scioto Hopewell ceremonial centers (Hodell et al. 2004; Price et al. 2000; White et al. 2002, 2003). These instances are expected to have been rare (e.g., Ruby and Shriner 2005).

Regional Mortuary Programs and Intercommunity Alliances

If Scioto Hopewell peoples were organized into local symbolic communities, as evidence implies, a next logical subject is whether their mortuary programs were regional and multi-site in scale. Two questions are essential to the topic: (1) Did a given local symbolic community bury its dead in one site or multiple sites over a region? (2) Did multiple local symbolic communities across a region bury their dead together in a single site?

For the late Middle Woodland period ritual landscape in the Scioto-Paint Creek area, these two questions concern the veracity of the hypothesis of the “tripartite alliance” (Chapter 3, *An Example of a Sustainable Community*; Carr 2005a). In this model, during that period, each of three local symbolic communities in three different river valleys (see above) buried some of their dead together in large charnel houses in each others’ valleys. Thus, for example, it is proposed that people who were members of the local symbolic community in main Paint Creek valley interred their dead not only within the charnel house under the Pricer mound in the Seip earthwork in that valley, but also within the charnel house under the Edwin Harness mound in the Liberty earthwork in the Scioto valley, and within charnel houses under Mound 25 in the Hopewell earthwork and under the Conjoined mound in the Old Town earthwork in the North Fork of Paint Creek valley (re. Question 1). Obversely, the Seip-Pricer charnel house is proposed to have included deceased not only from the local symbolic community in main Paint Creek, where the Seip-Pricer charnel house was located, but also deceased from a local symbolic community in the North Fork of Paint Creek and others from a community in the Scioto valley (re. Question 2). This burial of the deceased from the three different local symbolic communities together in a charnel house in each of the community’s lands is interpreted to have been a powerful means for creating a spiritual alliance in perpetuity among the deceased and their living descendants

(Chapter 3, An Example of a Sustainable Community; Carr 2005a).

The proposed, regional, multi-site mortuary program, and the hypothesized alliance between three local symbolic communities that the mortuary program implies, could be tested with bone and dental morphological, genetic, and chemical analyses of human remains from the Seip-Pricer mound, Hopewell Mound 25, and the Ater mound, which occur in two of the three valleys. Two kinds of tests are immediately suggested, pertinent to the two questions, above. First, if a local symbolic community buried its dead in multiple charnel houses over the region, the deceased who were laid to rest in certain spatial clusters in different charnel houses but who are thought on archaeological evidence to have been members of that same one local symbolic community (Carr 2005a:310–311; Thomas et al. 2005:364, table 8.11) should be more similar in their bone and dental characteristics than are the deceased placed in different spatial clusters in some one charnel house and thought to have been members of different communities. For example, the bone and dental morphological and chemical characteristics of persons buried in the western cluster under the Seip-Pricer mound, in Cluster E under Hopewell Mound 25, and in the southern cluster under the Ater mound, all of whom are inferred to have been members of the local symbolic community in the North Fork of Paint Creek, should resemble one another more, on average, than do the bone and dental characteristics of the deceased buried in the different spatial clusters within some one of these mounds. Second, if multiple local symbolic communities across the region buried their dead in a single charnel house, and if those persons had lived out much of their lives in different local symbolic communities in different valleys, then, as above, the deceased who lay in different spatial clusters within that charnel house and who are thought to have been affiliated with those different local symbolic communities should, on average, be distinct from one another in their bone and dental morphological, genetic, and chemical characteristics. For example, if

each of the charnel houses under the Pricer, Hopewell 25, and Ater mounds held the remains of persons who had lived much of their lives in different local symbolic communities, then those deceased who were placed in different spatial clusters within any one of these charnel houses should, in general, be distinguishable from one another in their bone and dental characteristics (see Mills [2001:13] for a nascent, model study). Again, both of these tests presume that intermarriage and/or adoption among communities was not great and that persons were buried with their natal families.

The issue of whether a given local symbolic community buried its dead in multiple sites over a region (Question 1) involves not only the relationships of contemporaneous, large charnel houses with large burial populations to one another, but also the relationships of large charnel houses to smaller burial mounds. For example, in main Paint Creek, who were buried in the small mound sites of Rockhold and Bourneville, to the west and east of the Seip earthwork, respectively, in contrast to those buried in Seip's large charnel houses under the Pricer and Conjoined mounds? If the small sites were roughly contemporaneous with either the Pricer or Conjoined mound, as they appear to have been (see above, Chronology), were the deceased who were interred in the small mounds natal members of the local symbolic community that resided in main Paint Creek valley? Or were they persons who married into that community from other local symbolic communities in the Scioto-Paint Creek area? Or were they persons from more distant places outside of the Scioto-Paint Creek area who married into the community and/or had ties of a kind with it? If they were natal members of the local symbolic community in main Paint Creek valley, are there any features of their burials that suggest why they were segregated from persons interred in the large charnel houses in the Seip site? Analysis of bone and dental morphological, genetic, and chemical characteristics of persons buried under the Rockhold, and Bourneville mounds compared to those of the deceased under the Pricer or Conjoined

mounds at Seip could answer the issue of the origins of the persons buried at Rockhold, and Bourneville.¹³

A similar line of questioning applies to the relationship of the small mound site of West, in far western Paint Creek drainage, and the large earthen enclosure of Mound City. If these sites overlapped in their times of use (see above, Chronology), did the deceased who were buried at Mound City include persons from distances as far as the western portions of main Paint Creek drainage, where the West mound is located?

The issue of whether multiple local symbolic communities across a region buried their dead together in a single site (Question 2) likewise involves not only the large charnel houses mentioned above, but also smaller burial mounds. The earthen enclosures of Hopewell, Seip, Liberty, and Old Town, for example, each had many small mounds within them and nearby, in addition to the large charnel houses that they contained. The Mound City embankment held solely many small mounds. In each of these sites, the persons buried under the small mounds might have been members of the local symbolic community in which the site was built, members of one or more other, allied local symbolic communities in the Scioto-Paint Creek area, or persons from outside the area who had marital or other connections to members of the community in which the site was built. These alternative ideas might be sorted out through bone and dental morphological, genetic, and chemical analyses. (See Mills [2001:13–14] for an incipient, model analysis.)

In the case of the Hopewell, Seip, Liberty, and Old Town earthworks, if some or all of the persons in their small mounds turn out to have been from the Scioto-Paint Creek area, the culturally interesting question arises as to why these people were buried separately from others in the large charnel houses at these sites, yet near to them. Some possible ways in which the persons in small mounds might have been distinguished, and that would require study, include differences in circumstances of death, other pollutions, social rank or role, or time – for example, later in a site’s history, after the

closing of a large charnel house, or early in its history, before the site became regionally important.

In the case of Mound City, the sheer quantities of quartz spearheads, mica mirrors, and galena cubes that were buried in large, homogeneous ceremonial deposits in some mounds and that were used by ritual specialists suggest the gathering at those mounds of large numbers of specialists who must have come from multiple local symbolic communities within and possibly outside of the Scioto-Paint Creek area (Table 4.8; Carr et al. 2005:486–488, Table 13.2). However, whether the deceased placed in those mounds also came from multiple local symbolic communities, and from communities near or far away, is unclear. For other mounds at the site that lack large ceremonial deposits, the community and regional affiliations of the persons buried in them are also unknown. These uncertainties cannot be investigated through bone and dental analyses because hardly any Middle Woodland period skeletal remains from Mound City are curated in archives today.

A particularly interesting case of the community affiliations of persons buried in different mounds within a single site is the comparison of those interred under Mound 25 to those interred under Mound 23 at the Hopewell site. These two mounds mirror each other in both being very large, in having elaborate tombs in general, and in containing largely adults, with subadults almost completely missing. At the same time, the two mounds are complementary in that many burials under Mound 25 had many and/or elaborate grave goods, whereas most burials under Mound 23 had few or no grave goods. In addition, the burial population under Mound 25 is heavily skewed toward males (3:2), whereas the sex distribution of that under Mound 23 is unknown. Also, the persons buried under Mound 25 appear to have come from at least three different local symbolic communities (Chapter 3, An Example of a Sustainable Community; Carr 2005a), whereas the community affiliation(s) of the deceased under Mound 23 are unknown. One possible interpretation of the two mounds is that burial

within Mound 25 was restricted to particular, largely important classes of individuals – hence the richness of artifacts and male bias (Carr 2005a:278–280) – whereas Mound 23 contained spouses or other affines of the persons not eligible for burial in Mound 25. Other possibilities are that persons buried in Mound 25 versus Mound 23 differed in rank (see below, Social Ranking; also Carr 2005a:337–338), that the two mounds were built at different times when Scioto Hopewell social organization and mortuary practices were somewhat different or at different times within a long-term ritual cycle, or that persons buried in Mound 25 came largely or entirely from within the Scioto-Paint Creek area whereas those interred in Mound 23 came from outside of it. To investigate these alternative interpretations, it is necessary to identify the sexes of available, curated individuals from Mound 23 and Mound 25 through DNA analysis and the locations of residence of the individuals through bone and dental morphological and chemical analyses. The numbers of curated individuals, however, is not ideal – about one-third from each mound.¹⁴

Alliance Formation, Ritual Gatherings, and Ceremonies

Our understanding of the alliances that Scioto Hopewell individuals and communities crafted among one another could be refined in two arenas. One is the nuts-and-bolts documentation of the sizes of ritual gatherings, the distances from which people came to join together in rituals, the culturally-specified functions of the rituals, whether some might have taken the form of ritual dramas, and the calendrical or circumstantial precipitants for their being scheduled. The second area in need of research is inventorying the different means and media used by Scioto Hopewell peoples to create and refashion alliances, and documenting how means and media complemented one another and changed in the balance of their use over time. Among the vehicles for alliance making that Scioto Hopewell peoples used and that seem tractable for archaeological and/or bioarchaeological study are: mortuary

rituals, other ceremonies, the decommissioning of fancy materials and artifact forms together by ritual participants, their burying their dead together, building earthworks and mounds, utilitarian ceramic and lithics exchange, perhaps valuables exchange, and marriage exchange. At the core of the topics of decommissioning fancy items together, building earthen structures, and exchanging items is the essential issue of the spiritual essence, power, sentience, and/or personhood attributed to these objects, and the effects of these properties on the nature, quality, and permanence of the alliance relationships that were built.

Sizes of Ceremonies

The sizes of mortuary and mortuary-related rituals that occurred within charnel houses and on mound floors in the Scioto-Paint Creek area and across Ohio have been estimated quantitatively and in great detail by Carr, Goldstein, et al. (2005; see also Chapter 4, The Sizes of Gatherings). This first attempt used the numbers of redundant artifacts in individual graves and ceremonial deposits to infer the number of persons who placed gifts in graves during mortuary ceremonies or who decommissioned artifacts in deposits after mortuary or mortuary-related ceremonies. The study provides minimum estimates of numbers of ritual participants in part because it considers only gift givers or persons who decommissioned artifacts, not others who simply attended the rites or who had ceremonial roles that did not involve gift giving or artifact decommissioning. The estimates are also minimal because the study considers each grave or deposit individually rather than in potentially contemporaneous sets of graves and/or deposits. The first bias does not seem correctable, but the second might be.

A promising approach for overcoming the bias of analyzing individual graves and deposits as units of social gathering would be to argue contextually those that might have been made at one time and contributed together to drawing a gathering. The contents and/or spatial adjacency of graves or deposits might be used successfully in some instances to associate them. Then,

the numbers of redundant artifacts in the entire suite of graves or deposits, rather than in the graves or deposits individually, might be used to calculate the number of persons who gave gifts or decommissioned artifacts. For example, the artifact contents of Altars 1 and 2 under Mound 25 in the Hopewell site may have been complementary (Greber 1996:162, 164; Greber and Ruhl 1989:79–81, 276) and possibly were created contemporaneously as a part of one ritual. Similarly, the six persons, Burials 2–7, placed on a high, raised platform above the floor of Pricer Mound in the Seip earthwork might have been laid out in one episode. Combining ceremonial deposits and/or burials and their redundant artifacts in this fashion to estimate the minimum sizes of ritual gatherings would produce higher estimates than those made by Carr, Goldstein, et al. (2005). A reanalysis might also lead to somewhat different empirical patterns across sites of different kinds and over time, and modified sociological inferences. However, the typology and general patterning of gatherings of various sizes and social compositions found by Carr, Goldstein, et al. is robust and probably would not change much.

Geographic Expanse of Participation in Ceremonies

The geographic distances from which Hopewell people came to bury their dead in a given mound or earthwork, and the community and societal affiliations of the participants, has been inferred only qualitatively to date. Specifically, the likelihood that people came from multiple communities within and perhaps outside of the Scioto-Paint Creek area to inter their deceased or to hold mortuary-related ceremonies there has been inferred from the large numbers of ritual paraphernalia or social role markers of a kind that were placed in a grave or ceremonial deposit (Carr, Goldstein, et al. 2005; Weets et al. 2005:549). The hundreds of mica mirrors placed in each of Mound 7 and Burial 1 of Mound 13 within the Mound City earthwork, the approximately 500+ pairs of earspools deposited in Altar 1 of Mound 25 in the Hopewell earthwork, the 100,000 pearls equatable to approximately 400 strands that were put in Altar 2 of Mound

25, and the 94–95 copper breastplates and 66 copper celts laid over skeletons 260 and 261 in Mound 25 each suggest the ritual gathering of very many persons beyond the number that would be found in a single local symbolic community or perhaps the several in the Scioto-Paint Creek area and wider region.

This picture could be refined considerably by identifying the geographic locations where deceased persons who were buried in a mound or earthen enclosure had resided early and later in their lives – their histories of residence. Bone and dental chemical and genetic characterizations of the deceased have good potential for providing this information, following the model analyses of White et al. (2002, 2003), Hodell et al. (2004), Price et al. (2000), and Bolnick (2005, 2007). With such facts in hand, it might be possible to answer some perennial questions about Hopewellian social interaction pertinent to several scales, culture-historical issues, and proposed ideas about the causes of elaboration of Scioto Hopewell culture. For example, (1) from how far up and down the Scioto valley were people attracted by religious and ritual developments in the Scioto-Paint Creek area and drawn there to live and/or participate in burying their dead there? Were local population densities significantly increased in the Scioto-Paint Creek area by such immigrations, as modeled in Chapter 5, and did they further stimulate social organizational and ritual elaboration there? Did the geographic expanse from which people were drawn to the area increase over the Middle Woodland period? (2) Did Hopewellian peoples from the Licking drainage, or the Little or Great Miami drainages, participate in ceremonies in the Scioto-Paint Creek area, immigrate there, and occasionally or frequently come to be buried there? What would these findings imply about the cultural mechanisms by which the circle-octagon elements of the distant Newark and High Bank earthworks came to be constructed in nearly identical form, with circles of the same size, with the same relationship to lunar events, and in precisely perpendicular orientations (Lepper 1998:130–131; see below)? What would the findings imply about the cultural means by which the distant

Hopewell and Turner sites came to share a pattern of each having had paired ritual basins that were complementary in their soil-fill colors, orientations, and/or perhaps certain aspects of their artifact contents (Greber 1996:162–164), with the possibility that certain basins at the two sites were contemporaneous (Greber 2003:96, 106)? Do the combined chemical, genetic, and artifactual evidence support models of long-distance pilgrimage to a ceremonial center or travel to a center of learning (Carr 2005d:589–591, 600–604, 608, table 16.2; Lepper 1996; 2004:79; 2006), spirit adoption and intermarriage among peoples of distant areas (Carr 2005d:587–589, 608, table 16.2; Hall 1997:157, 161; 1989:255–256), or the buying of religious prerogatives from distant elite (Carr 2005d:586, 608, table 16.2; Penney 1989:159–229)? (3) Was there a significant immigration of Havana elite or commoners from Illinois into the Ohio area, as Prufer (1964a:55, 57–59) hypothesized from artifactual, radiocarbon, and osteological evidence, or in the opposite direction, as Bolnick (2005:132–138) has concluded from a genetic study, or none to speak of, as Sciulli and Mahaney (1986) have concluded from cranial discrete traits? What would this finding imply about the likelihood and levels of participation of Havana Hopewell and Scioto Hopewell peoples, beyond any immigrants, in each other's ceremonies?

Ceremonial Integration of the Newark and Scioto-Paint Creek Communities

The ceremonial and other cultural relationships between peoples of the Scioto-Paint Creek area and those around the Newark earthwork are especially important to document. Newark is the largest of all Hopewellian earthworks in Ohio and in the Eastern Woodlands (Lepper 1996:226), encompassing some 575 acres. Also, the Newark region is one of the areas of Hopewell ceremonialism closest to the Scioto-Paint Creek area, laying less than a day's canoe trip away. From all available evidence, ties between the peoples of these two regions appear to have been very strong, on a par in some ways with the relationships among local symbolic communities within the Scioto-Paint

Creek area, itself. Events within the two areas and interactions among their peoples likely directly influenced culture-historical trajectories within each area. Nevertheless, the social and ritual particulars of these relationships and their historical effects have only begun to be explored (Lepper 2006:128–131).

The Newark earthwork lies some 80 miles by river valleys from the Scioto-Paint Creek confluence. Most of the trip can be made by water, canoeing up the Scioto and Walnut Creek to within a mile or two portage of the South Fork of the Licking river, which flows past Newark. This distance is about three times greater than that between farthest-spread, contemporaneous earthworks within the Scioto-Paint Creek cluster.

Diverse and reinforcing kinds of material evidence, related to earthwork building and burial concepts and practices, suggest the close social and ceremonial ties between peoples of the Newark and Scioto-Paint Creek regions. First and strongest of the evidence are the precise geometric and astronomical equivalency and the directional complementarity of the High Bank octagon-and-circle earthwork in the Scioto-Paint Creek area and the Observatory Circle and Octagon elements of the Newark earthwork. Of all the earthworks that Hopewellian peoples built across Ohio, only two combine a circle and an octagon: High Bank and Newark (Lepper 1998:130). The Observatory Circle of Newark and the circle of High Bank are both the same size: 20 acres. The octagon-circle layouts of Newark and High Bank each create alignments that mark the eight extremes of the 18.6 lunar cycle: maximum and minimum northern moonrise on the eastern horizon, maximum and minimum southern moonrise on the eastern horizon, and the four analogous moonset points on the western horizon (Lepper 2004:77, 79; Hively and Horn 1982, 1984). In addition, the two octagon-circle earthworks are complementarily oriented 90° from each other. The major axis of the Newark Octagon and Observatory Circle marks the maximum north moonrise, whereas minor axes through opposite vertices of High Bank's octagon mark this celestial event (Romain 2004:104, table 6.11).

Second, the square of the Liberty earthwork in the Scioto-Paint Creek area and that of the Newark earthwork both have their minor axis through opposite vertices aligned to the equinox sunrise (Romain 2004:104, table 6.11). These are the only two square enclosures, of the dozen or so in Ohio, that are oriented to the equinox sunrise.¹⁵

Third, the Newark earthwork and many earthworks in the Scioto-Paint Creek area share layouts that incorporate a 3–4–5 right triangle (Marshall 1996:213). These triangles may have been instrumental in laying out the earthworks on the ground.

Fourth, the Newark earthwork and some works in the Scioto-Paint Creek area express the fascination of peoples in both areas with geometric equivalency relationships among squares and circles. Specifically, the Square and the Great (Fairgrounds) Circle at Newark have equal perimeters. In the Scioto-Paint Creek area, the circle of the Hopeton earthwork is contained precisely in its square. The square of the Works East earthwork is contained precisely in its circle; likewise for the Frankfort earthwork and the Circleville earthwork (Romain 2000:48–49, 62–63).

Fifth, from the Octagon at Newark, a causeway that was formed by two parallel embankments extended southwestward at least six miles. Significantly, the causeway was oriented toward the confluence of the Scioto river and Paint Creek (31° west of south from Newark) (Lepper 1998:130). Lepper has interpreted the causeway as a sacred road (1996:237–238; 1998:130–133; 2004:79; 2006) that spanned the full territory between Newark and the earthworks in the Scioto-Paint Creek area (2006:126) and allowed the safe passage of pilgrims to Newark, analogous to the “white roads” of the Maya and Delaware (Lepper 1998:132, 2006:126–127). At least near Newark, a small circular enclosure branched off the road every mile to mile and a half (Lepper 1998:129), which might have been used for pilgrimage rites as a person or group approached Newark and prepared for entrance into it from the southwest. It is possible that the road did not extend from Newark much more than the

six miles for which it has been documented, and that any pilgrims from the Scioto-Paint Creek area first traveled by canoe up the Scioto and up to the headwaters of Walnut Creek, portaged briefly there to the South Fork of the Licking, and then canoed down the South Fork some miles to the vicinity of the start of the road. Whether the causeway extended physically all the way from Newark to the Scioto-Paint Creek area or was only partial and symbolic of the total journey, it marked a strong conceptual and ritual tie between the two regions.¹⁶

Sixth, similar burial practices and symbolism connected, perhaps very strongly, peoples of the Newark and Scioto-Paint Creek areas. Specifically, Newark appears to have contained a large chanel house complex for burying together the dead from multiple social units, analogous to the chanel houses constructed in the Scioto Paint-Creek area at the Liberty, Seip, Old Town, Hopewell, and Tremper sites. At Newark, within its elliptical earthen enclosure, the large Central mound of the Cherry Valley cluster of 12 mounds covered substantial posts of what was probably one or more chanel buildings (Wilson 1868:69 in Lepper 1998:121). The Central mound was comprised of four conjoined mounds (Salisbury and Salisbury 1862a; Wilson 1868; Whittlesey 1838), which could have covered four distinct rooms of one chanel house or four separate but closely spaced chanel houses, by way of analogy to the conjoined mound and chanel house designs of the Pricer, Conjoined, and Edwin Harness mounds, and Mound 25, at the Seip, Liberty, and Hopewell earthworks. Three of the Central mound’s conjoined mounds formed a line (Salisbury and Salisbury 1862a; Wilson 1868; Whittlesey 1838), as did the three conjoined mounds that comprised each of the Pricer, Seip-Conjoined, Edwin Harness, and Porter-Conjoined mounds, and Mound 25, at the Seip, Liberty, Old Town, and Hopewell sites. The fourth mound of the Central mound projected to the east (Salisbury and Salisbury 1862a; Wilson 1868; Whittlesey 1838; see also Lepper 1996:236; 2004:77). Within the largest, northernmost of the four conjoined mounds was unearthed a “‘tier of skeletons’ placed

with their heads to the center and their 'feet radiating toward the outside' " (Salisbury and Salisbury 1862b:12 cited in Lepper 1996:237). The arrangement of these bodies suggests a self-contained cluster of burials in this one mound of the conjoined four. Considering the distinct cluster of burials placed under each of the three conjoined mounds of the Pricer mound, likewise under each of the three conjoined mounds of the Edwin Harness mound, and probably under each of the three mounds of the Porter Conjoined mound (Carr 2005a; Greber 1979a, b; Moorehead 1892:133–143), the Central mound at Newark can be posited to have had four clusters of burials, one under each of its conjoined mounds.

Very significant, if the central mound of the Cherry valley group did, as seems likely, hold a four-chambered charnel house, or four closely spaced charnel buildings, each with a set of burials, the four groups of people could have been members of four different communities: perhaps the three allied local symbolic communities from the Scioto-Paint Creek area who buried their dead together there in each of several charnel houses (Chapter 3, An Example of a Sustainable Community; Carr 2005a), and a local symbolic community in the Newark area. Just as the three local symbolic communities in the Scioto-Paint Creek area marked a spiritual alliance among themselves by burying their dead together in each of the Pricer, Edwin Harness, and Porter-Conjoined mounds in the Seip, Liberty, and Old Town earthworks, so they *may* have marked their spiritual alliance with a local symbolic community in the Newark area by all four communities having buried their dead together in the Central mound of the Cherry Valley mound group. This interpretation implies a very strong social-ritual connection between peoples of the Scioto-Paint Creek area and those of the Newark area, and is a priority for investigation.

Other interpretations of the four lobes of the Cherry Valley central mound are also possible. The four lobes might have contained persons from different local symbolic communities in the Newark area, alone, or persons from different clans, as was probably the situation in

the charnel house under the Tremper mound, or persons distinguished by other social or situational criteria.¹⁷ Any of these scenarios, however, minimally imply the sharing of key mortuary symbolism and practices between the Newark and Scioto-Paint Creek areas and a connection between them.

Together the multiple lines of evidence presented above suggest very strong social and ritual ties of one or more kinds that linked peoples of the Newark and Scioto-Paint Creek areas. Specifically implicated are the sharing of geometric and astronomical details of earthwork designs among community leaders who orchestrated the building of the octagon-circle earthworks at High Bank and Newark, and the squares at Liberty and Newark; possibly the pilgrimage of Scioto-Paint Creek peoples to Newark along an embanked road, part or much of the way; and possibly the burial of peoples from three communities in the Scioto-Paint Creek area and one in the Newark area together within the same charnel building or a suite of charnel buildings under the Central mound of the Cherry Valley group at Newark.

The question of whether three local symbolic communities in the Scioto-Paint Creek area and one from the Newark area buried their dead together in the Central mound, or whether the four hypothesized groups of people in the mound were all local, can still be investigated today. A remnant of the center portion of the Central mound lays preserved under the Central Ohio Railroad bed (B. Lepper, personal communication 2007). It could be excavated. Any skeletons found might then be compared to collections of skeletons from the Scioto-Paint Creek area for similarities and differences in their bone and dental morphological, chemical, and/or genetic traits, in search for Scioto-Paint Creek individuals who were buried in the Central mound at Newark. As a complement to this work, the chemical signatures of skeletons from Scioto-Paint Creek cemeteries could be compared to the signatures of wild game or any excavated skeletons from the Newark area, in search for people from the Newark area who were buried in Scioto-Paint Creek cemeteries. Cooperative burial rites among peoples of the two regions might have been reciprocal.

Functions of Ceremonies

The many culture-specific functions that ceremonies within charnel houses and earthworks might have had for Scioto Hopewell peoples have hardly been investigated. Recent literature on Hopewellian ceremonies in Ohio and Illinois has focused repeatedly and narrowly on primarily world renewal ceremonies and ancestor cults (Buikstra and Charles 1999:214–216, 221; Buikstra et al. 1998:88; Byers 1996:182–183; Romain 1996:208; 2000:191–200, 218–226; 2004:163–167; Sunderhaus and Blosser 2006; see also Mallam 1982). Most attention has been given to world renewal rites, following a break-through insight provided by Hall (1979:260–261, after Henricksen 1965:65). He proposed that the mucks, muds, clays, and marls dug from wet areas or beneath bodies of water and placed over midwestern Hopewell burials or as a bed for them, and that the bone awl skewers sunk into the four corners of Illinois and Michigan Hopewell tombs to peg down a hide or other covering over a grave pit, were likely aspects of mortuary ceremonies that reenacted the Earth Diver myth of the creation of the world. However, recent literature on the symbolism of Hopewell mound construction has not reiterated Hall's further suggestions of the intricate intertwining of world renewal ceremonies with spirit adoption and succession rites and with mourning rituals (Hall 1987:30–34, 38–39; 1997:160, 168). Also not considered by recent researchers in their ethnohistorical analogies are the many themes and practices that comprise world renewal rites of Woodland and Plains Native Americans, beyond rites of re-creating the cosmos through reiteration of creation myths by oratory, drama, and material construction. These additional elements of ceremony include: petitioning for the fertility of animal and plant species; renewing day length and maintaining the seasons; communing with ancestors; offering thanks to ancestors and spirits; celebrating the harvest; purifying the whole community; removing disease from a whole community and perpetuating its health; pardoning wrongdoings; instructing the community in moral behavior; cleaning and repairing the ceremonial grounds;

clearing the community of old and worn out items, and such (see Table 4.11 for other elements of ceremony and references). Romain (2000:221–225; 2004:164–166) mentions a few of these themes. Ancestor cults, which seek to maintain connections of the living with deceased ancestors and which are distinct from funerals and rites of passage of the deceased to an afterlife (Morris 1991), have occasionally been discussed for their ritual integration with or segregation from world renewal ceremonies and their performance by Hopewell peoples in mound and enclosure sites (Buikstra and Charles 1999:220–221; Byers 1996:181–183). Mortuary rites of separation, liminality, and reincorporation (van Gennep 1909, 1960) have seldom been distinguished and identified in Ohio Hopewell sites (Carr 2005c:470–471; Carr, Goldstein, et al. 2005:500–503, 522–525).

In contrast to the few, functionally distinguished kinds of supra-household ceremonies that have been broached in studies of Hopewell ritual is the much greater spectrum of supra-household ceremonies that were performed historically by Woodlands and Plains Native Americans (Table 4.11). These ceremonies were held to meet the many perennial material, social, and spiritual needs that all humans and societies have.¹⁸

Ceremonies similar or analogous to the many ones listed in Table 4.11 can be expected to have been performed by Scioto Hopewell peoples; evidence for whether or not they were performed should be sought archaeologically. Detailed analyses of the contents, sizes, and contexts of ceremonial deposits within charnel houses and surrounding locales would be one productive approach to the subject, as demonstrated by studies made by Cowan (2005), Seeman (1979b), Greber (1996), and Carr, Goldstein, et al. (2005).

Among the supra-household ceremonies that were performed historically in the Woodlands and Plains (Table 4.11) and within the earthworks of Scioto Hopewell peoples are those of sodalities, whose members were drawn from multiple clans, multiple residential communities, and perhaps multiple local symbolic communities. The nature and

functions of the rites held by Hopewell sodalities marked by breastplates, earspools, and smoking pipes, and by possible ones marked by mica mirrors, galena cubes, and obsidian bifaces, are hardly known (Chapter 4, Sodalities and Ceremonial Societies) and should be investigated. To date, insights into these rites have been based solely on the possible functions of the artifacts that marked those sodalities. Likewise the ceremonies held by clan-specific societies, including one marked by bear canines and possible others marked by the power parts of canids, fox, elk and raccoon, are opaque to us and should be explored (Chapter 4, Sodalities and Ceremonial Societies). The specific nature and purposes of the ceremonies of these various sodalities and societies could be explored by examining the kinds of artifacts that were placed in large deposits during their ceremonies (Table 4.8) and that were auxiliary to the artifact markers of the sodalities and societies, i.e., artifacts additional to breastplates or earspools or fox teeth, etc. Clues might also be gotten from the broader archaeological contexts of the ceremonial deposits, similar to the approach taken by Greber (1996).

Recent literature on ritual at Hopewell ceremonial centers in Ohio and elsewhere is also limited in the specific archaeological correlates that have been used to characterize and distinguish the varying kinds of rites that might have been held there. This issue has several manifestations. First, the functional distinction of funerals and other mortuary rites of passage from ancestor cults has been linked by Buikstra and Charles (1999:204–205, 211–212) and Charles (1995:84–85) only indirectly to material correlates. Buikstra and Charles open two windows into the past: whether a ritual involves competition among social groups (rites of passage) or emphasizes tradition and the status quo (ancestor cults), and whether multiple communities partake in the ritual (rites of passage) or only a single community does (ancestor cults). The degree of competition and group size involved in a ceremony are then linked to the archaeological correlates of whether or not artifacts of extra-local origin are deposited at a burial site, and

whether artifact assemblages are large or small. Not considered are the distinctive nature and goals of the two kinds of ceremonies and the different kinds of paraphernalia, bodily manipulation, and other material correlates that consequently are intrinsic or necessary to them and would distinguish them archaeologically. Bridging arguments of this kind remain to be built.

Second, and similarly, the specific, differing archaeological correlates of the several themes that may comprise world renewal ceremonies have not usually been sought. Romain (2000:221–225; 2004:164–166) begins the process, separating the material manifestations of purification by bathing, first-fruits offerings, and renewal of flora. These distinctions are appropriately made in Scioto-Hopewell specific material terms but are left unexplored for their general archaeological correlates.

Third, and more disturbing in discussions of ritual at Scioto Hopewell ceremonial centers, is the naive and misleading implicit equation that has been made between symbolic representations of the cosmos and ceremonies intent on world renewal (Buikstra and Charles 1999:214, 216; Byers 1996:181–183, 2004:78–79; Romain 2004:164; Sunderhaus and Blosser 2006:145; but see Romain 2000:219, 222; Sunderhaus and Blosser 2006:141–142). Cosmological symbols were used widely in historic Woodlands and Plains ceremonies of diverse kinds and their expression in the archaeological record cannot be equated singularly with renewal of the cosmos. Other kinds of ceremonies may be indicated by cosmological symbols in an archaeological record (see especially Chaudhuri and Chaudhuri 2001). Obversely, world renewal ceremonies may emphasize maintaining the fertility of species of this world or other themes and not emphasize the structure of the cosmos at large.

Fourth, the distinct material manifestations of mortuary rites of separation, liminality, and reincorporation, which have begun to be enumerated by Carr (2005c:470–471; Carr, Goldstein, et al. 2005:500–503, 522–525), remain to be explored more fully in Hopewell-specific and general terms.

Fifth, the archaeological correlates of possible Scioto Hopewell ceremonies that had functions other than world renewal, connecting with the ancestors, and helping the deceased and bereaved through their transitions (Table 4.11) have largely not been defined yet. For example, the kinds, amounts, and spatial distributions of archaeological remains generated during rites aimed at curing an individual, renewing the health of a whole community, adopting a community member to end a period of mourning, or initiate male or female youths to adulthood need consideration. What kinds of special paraphernalia were used in such ceremonies historically and might have been decommissioned at the end of them? Did the ceremonies require any special kinds of architectural facilities (e.g., Hopewell parallel wall embankments that led to water, artificially built ponds, or seclusion buildings)? Who and how many typically attended such ceremonies and what amounts of food remains might have been generated by them? Did the ceremonies include rites that involved the deceased and that were located in charnel houses or by the place of burial? Survey of the ethnohistoric literature for the answers to these and related questions would be extraordinarily helpful.

In all, the building of middle range theory, ethnographic models, and Scioto Hopewell context-specific arguments that link the functions of supra-household ceremonies to their material correlates is much in need.

Ceremonial Form: Ritual Dramas

Closely tied to the topic of the culture-specific functions that ceremonies within charnel houses and earthworks might have had for Scioto Hopewell peoples is their forms. One form for which archaeological evidence is accumulating and research is warranted is the ritual drama. Here, I follow the lead of Brown (2003, 2006), who has sought to recognize such ceremonies later in time at the Mississippian site of Cahokia.

A ritual drama is a ceremony, the content and form of which expresses a mythic or historical event, the larger structure of a myth, the culturally-posed content and/or organization of the cosmos (i.e., a cosmogram),

a supernatural/spiritual character, and/or a “personnage, that is, a person who exists in perpetuity, often represented by a name or seat, and sometimes associated with an estate or ranked position (Mauss 1938, 1985, see also Gillespie 2001:82–83), such as a “body politic” (Metcalf and Huntington 1991:162–179). Ritual dramas can occur as a part of rites of many kinds, including funerals. In a mortuary setting, the contents and layout of a cemetery, a cluster of graves, or a single grave, which are archaeologically visible, can indicate the narrative content and plot of the drama. Examples of ritual dramas and/or their material correlates include the layout of Cahokia’s Mound 72 burials as a Mississippian cosmogram (Brown 2003, 2006); the funerary rites of the divine kings of the African Shilluk, which reenact the unification of the nation (Metcalf and Huntington 1991:166); a long Berewan funeral song that describes the geography that the soul of the deceased traverses to an afterlife in the idyllic homeland from where the Berewan migrated historically (Metcalf and Huntington 1991:87–89); and the accession rites and funerals of Maya aristocrats who, along with bundles of valuable heirlooms and memorializing tablets, represented the personage of the founding head of a royal house (Gillespie 2001:96–99). The target audience of such acted out and/or materialized dramas may be a large, public gathering (e.g., Ortiz 1972), a small assembly of ritual specialists or sodality members (e.g., Radin 1945), and/or one or more deities, spirits, culture heroes, or an array of deceased ancestors (Rappaport 1968). A given ritual drama may be a part of a larger cycle of dramas performed over the course of a year or years (Ortiz 1972:156), or may be situationally determined but repeated (Metcalf and Huntington 1991:166) or situationally determined and unique (e.g., Brown 2003, 2006). Beyond the event-specific purpose of a ritual drama, it has the effect of “mobilizing a community’s [or other group’s] moods and motivations and reflect[s] their collective identity” (Ortiz 1972:139).

Evidence that Hopewell peoples in the Scioto-Paint Creek area and in the Little Miami

drainage performed ritual dramas is found in the contents and layouts of both graves and ceremonial deposits. The manners in which the skeletons, cremation remains, and artifacts in some graves were arranged suggest that they, themselves, were actively used to materialize dramatic scenes, possibly as a part of larger performances that were acted out. Examining these grave arrangements for how they were created and their possible symbolic meanings through contextual study and the forensic-like bioarchaeological methods of *anthropologie du terrain* (Nilsson-Stutz 2003) could shed strong light on several difficult topics: the specific nature and purposes of certain ceremonies that Scioto Hopewell peoples held, their philosophical-religious beliefs and cosmology, and just perhaps something of their myths, if historic Woodland Native American myths had some continuity in theme and content into the Middle Woodland past (see Lankford [1975] for evidence and an analysis to this effect). Moreover, identifying any ritual dramas that might have taken place in Scioto Hopewell ceremonial centers and might have structured mortuary remains could correct for the remains having, perhaps in some cases, been misinterpreted by researchers (including myself) who have viewed them in terms of social positions, social roles, philosophical-religious beliefs, circumstances of death, and other better-known determinants of mortuary practices. (See Brown [2006] for possibly such a correction in a Mississippian case at Cahokia.)

Some Scioto Hopewell graves that seem ripe for this kind of study and that illustrate some of the diverse grave arrangements that might represent ritual dramas are ones that rendered skeletons into bird-men, cremations into human-like faces, and cremations into abstract geometric patterns. I describe examples of each of these classes of burials now.

Under Mound 25 in the Hopewell earthwork, skeletons of a middle-aged probable male, a young adult probable female, and a middle-aged probable female (Burials 41A, B, C, respectively), all buried within one tomb, were each arranged to suggest their identity as a bird-person (Figure 15.3A). Burials 41A

and 41B had their arms spread out like wings. Burial 41C was missing all of the phalanges and some of the metatarsals on each foot, but three metatarsals had been retained in one foot area, giving the appearance of the front three talons of a bird, and four metatarsals had been positioned in the other foot area, resembling the front three talons and hind talon of a bird, instead of five-toed human feet. This treatment resembles artistic depictions of the claws of some bird-men in later Mississippian art works (e.g., Brain and Phillips 1996:48, 61; Brown 2004:114; Dye 2004:194; Lake Jackson site copper plate, Florida Bureau of Archaeological Research; Holmes 1883:plates 74, 75; Phillips and Brown 1978:187, figure 242; 1984:plate 147, 200, 302, 303, also 217, 223). The same pattern of arms spread like wings characterizes the skeleton of a middle-aged adult male, Burial 3, under Mound 4 in the Hopewell earthwork (Figure 15.3B).¹⁹

A human face looking forward was rendered with the cremated remains and associated artifacts of a person of unknown age and sex – Burial 1 under Mound 20 in the Hopewell earthwork (Figure 15.3C). The cremated remains defined the overall shape of the head, while two earspools represented the eyes and a panpipe the nose. Two sections of femurs in the mouth area may have represented a bird's beak, which would make the person a bird-man. A similar face with cremated remains defining the head, two earspool eyes, and a nose, beak, or mouth represented by an unidentified light-colored object characterizes Burial 1 under Mound 25 (Figure 15.3D). The age and sex of the person are unknown.

Abstract, geometric designs formed from cremations and associated artifacts are exemplified by Burial 43 under Mound 25 in the Hopewell earthwork and Burial 13 plus four others under Mound 9 in the Mound City earthwork. Burial 43 was the cremated remains of an middle-aged adult male and a child, arranged into an inverted U-shaped arc with a conch shell at each end of the arc (Figure 15.3E). The conchs were oriented identically. The arc surrounded one normal sized and one small copper breastplate, while

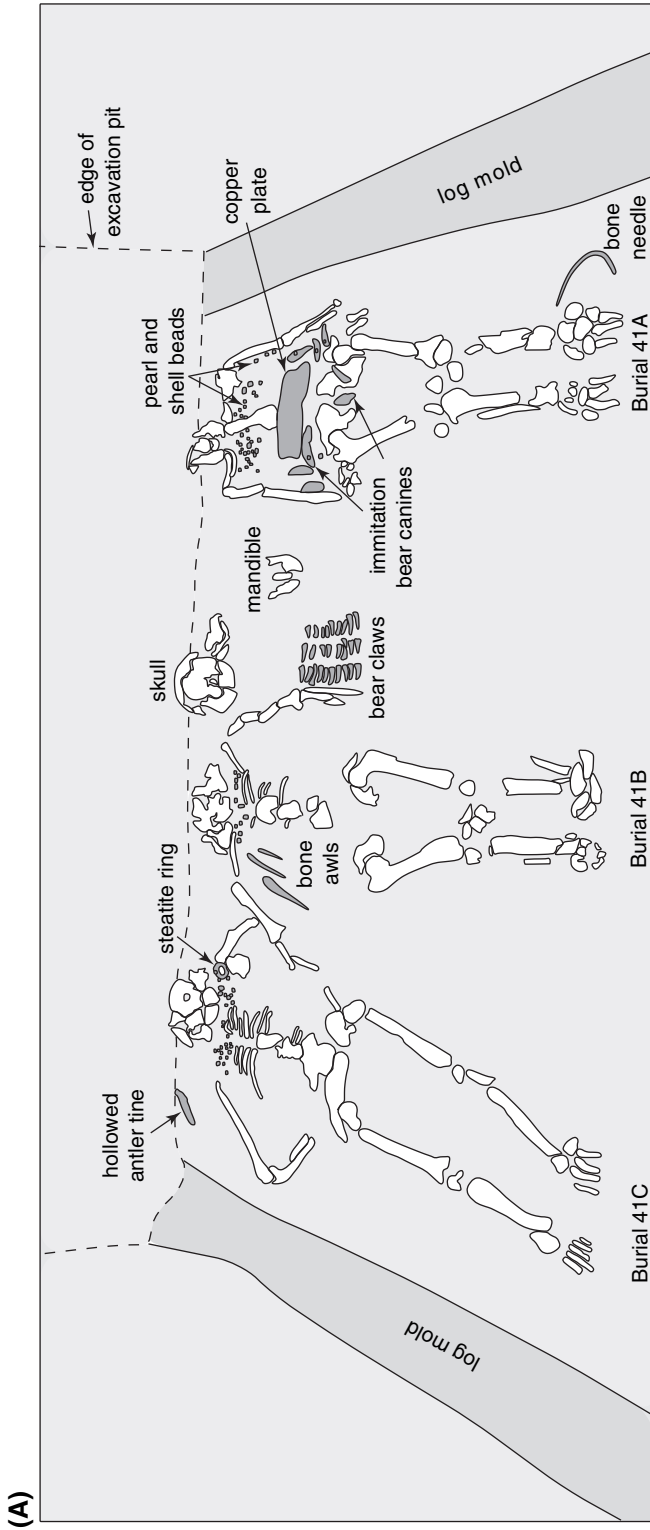


Figure 15.3. Examples of Scioto Hopewell burials with arrangements of skeletons, cremation remains, and/or associated grave goods that may have been materialized ritual dramas. See text for interpretations. (A) Three skeletons, possibly renditions of bird-persons. Burials 41A, B, C, Mound 25, Hopewell earthwork. (B) Skeleton, possibly a rendition of a bird person. Burial 3 under Mound 4, Hopewell earthwork. (C) Cremation in the form of a human face, looking forward, with earspool eyes and possibly a bird's beak. Burial 1, Mound 20, Hopewell earthwork. (D) Cremation in the form of a human face, looking forward, with earspool eyes. Burial 17, Mound 25, Hopewell earthwork. (E) Cremation arranged as an inverted, U-shaped arc with a conch shell at each end. Burial 43, Mound 25, Hopewell earthwork. (F) Multiple cremations arranged in a complex geometric design. Burial 13 plus four others, Mound 9, Mound City earthwork. For original excavation photographs that have been published for some of these graves, see: (B) Shetrone (1926a:37, figure 9); (C) Shetrone (1926a:52, figure 17); and (F) Shetrone (1936:99, figure 49). See credits.

(B)

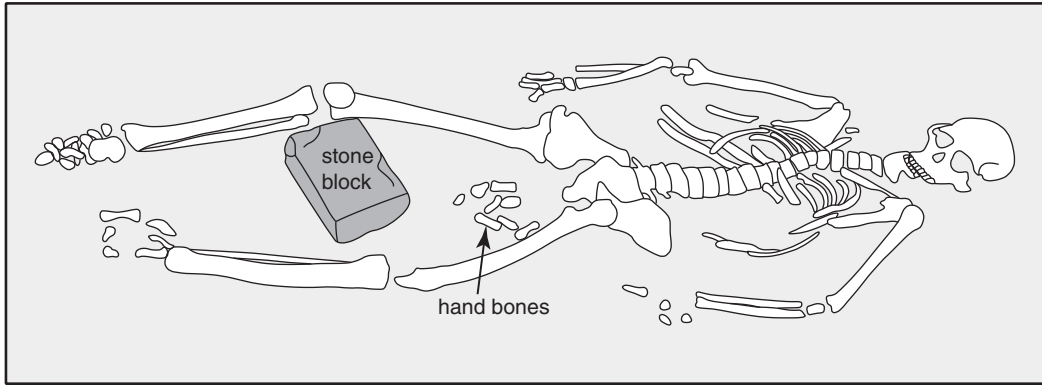
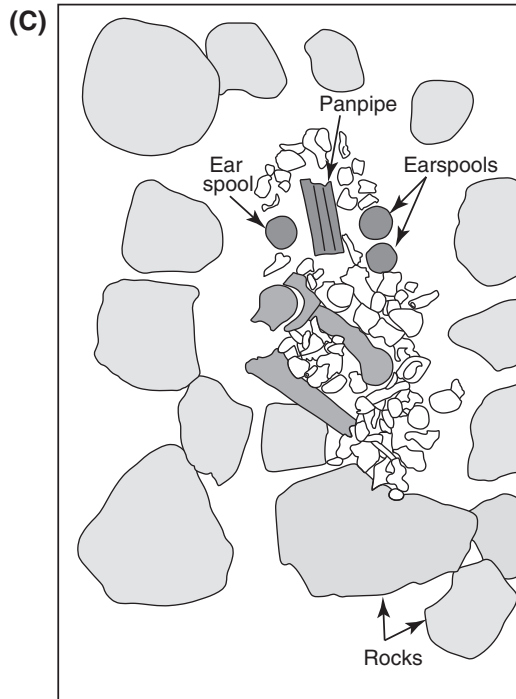


Figure 15.3. (continued)

two unidentified objects were placed above the arc. One possible, death-associated interpretation of the burial arrangement that comes to mind is the Milky Way – a pathway taken by souls to a land of the dead in the beliefs of many historic Woodland Indians – with its ends in the primal waters around the earth. The Milky Way and souls on it would have been closely symbolized by the arc of cremated remains, while the primal waters would have been symbolized by the conchs. Burial 13 and its four associates were the cremated remains of several individuals arranged into two circular piles with three rectangular piles above (or below) them (Figure 15.3F). No artifacts other than a few pieces of mica were found with the burials. The arrangement could represent two eyes of a face with an upright headdress and/or down-hanging partial face mask, depending on the arrangement's intended orientation(s). The arrangement could be part of a larger work, the full extent of which is not shown in the field photograph.

In all, I have identified in the photos archived in the Ohio Historical Society, Columbus, more than 30 Scioto Hopewell burials that indicate manipulation and arrangement of a corpse, skeleton, cremated remains, or artifacts, and that are candidates for the physical remains of ritual dramas. The potential for gaining insights into Hopewell ceremony, beliefs, and mythology through the forensic-like and contextual study of such burials is great.

Like some graves, certain ceremonial deposits – both large and small – are suggestive of ritual dramas. Deposits with many artifacts of diverse kinds suggest dramatic performances that involved large casts of characters and the participation of big audiences. One example is the Central Altar of Mound 4 at the Turner site, Ohio (Willoughby and Hooton 1922:63–74). The altar contained the cremations of a number of people; at least 11 clay figurines of men and women in various stances in life and perhaps prone in death; a carving of a Below-realm composite creature with bull-like horns, four limbs like an aquatic mammal, and a rattlesnake's tail; and a second Below-realm watery creature of a kind with four legs. All of these representations were overlain by a large mica cutout of a horned snake probably analogous to the horned serpent of the Below-realms in historic Algonkian, Iroquoian, and Siouan belief (Barbeau 1952; Hamell 1986/1987:79; 1987:76; Howard 1960:217; Martin 1999:202; Skinner 1915:162–186, 263; 1923). The deposit appears to have been comprised of decommissioned ceremonial paraphernalia and cremations that were used to create a drama about a group of individuals who had died, their journey to a land of the dead, and their encounter with creatures of one or more Below realms along the way. In historic Ojibwa lore and near death experiences, this journey required the deceased's soul to cross over a rushing river on an unstable or



(D)

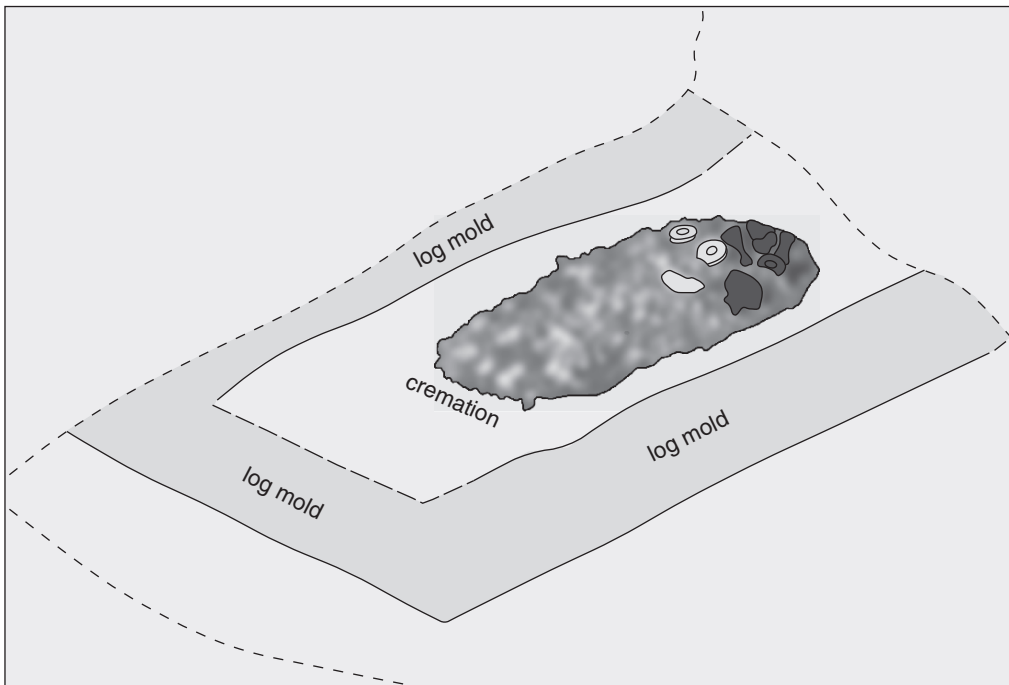
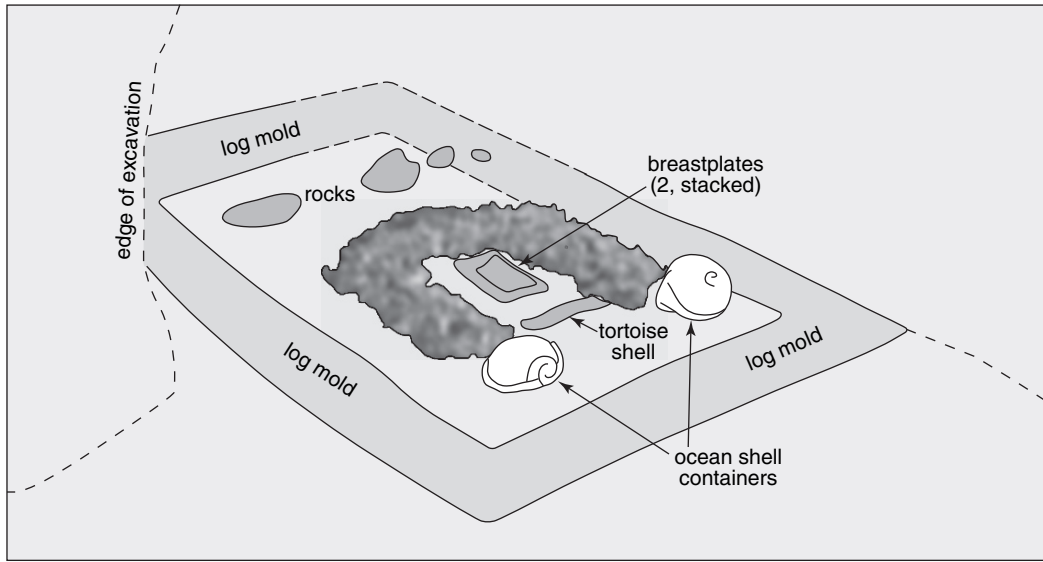


Figure 15.3. (continued)

(E)



(F)

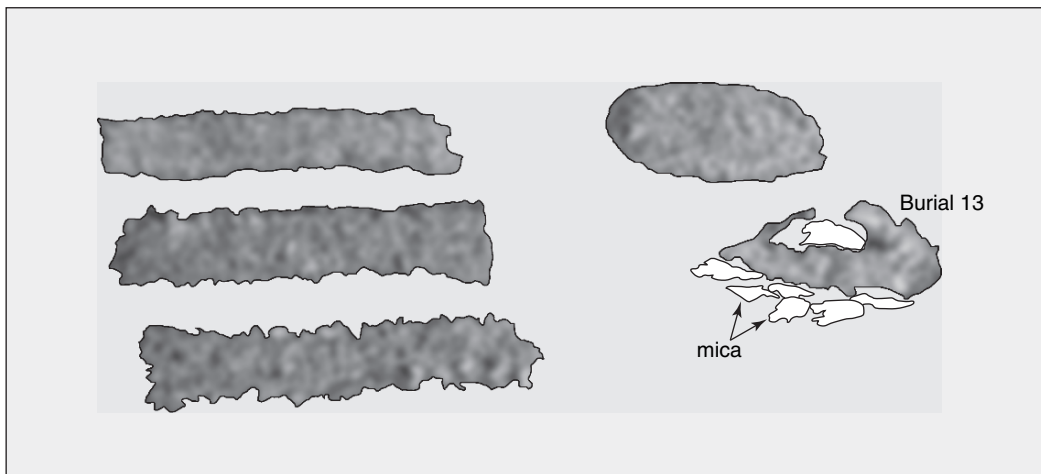


Figure 15.3. (continued)

rising and falling log, which turns out to be a serpent. If a soul lost its footing and fell in the river, it was lost (Barnouw 1977:18–19, 136; Kinietz 1947:145; Kohl 1860:218–219, 222–223; see also Penney 1983). In addition to the above, key remains, the Central Altar contained very large numbers of diverse, other kinds of artifacts (Carr, Goldstein, et al. 2005:493–494),

implying a large participating audience. The number of persons who contributed items to Mound 4’s Central Altar has been estimated at 441 (Carr, Goldstein, et al. 2005:507).

A second example of a large ceremonial deposit that appears to have been the remains of a ritual drama is the Copper Deposit adjacent to Burials 260–261 under Mound 25 in the

Hopewell earthwork. This deposit contained many geometric symbols cut out of sheet copper into diverse forms. Many of the symbols represented basic dimensions, realms, and motions of the Scioto Hopewell cosmos: the cosmos as a whole, the four Cardinal Directions and four Quarters of the earth-disk, the Semi-cardinal Directions, the Solstice Directions, the spin of the cosmos, key creatures of the Above and Below realms and its earth-disk, and the conjoining and balancing of creatures of these realms (Carr 1998, 2000b). The forms that expressed these meanings include, respectively, rings; rings with interior crosses, and squares; rings and a pair of earspools with both interior crosses and semicardinal holes; an oblique cross and diamonds; swastikas; animals and animal parts such as an eagle, the talons of birds of prey, a mammal's head, an antler, a snake's head, snake tongues, a bear paw, bottom-dwelling sucker fish, and a saw-shaped cutout that possibly depicted a shark's jaws and teeth; and forms that combine some of these creatures into a single, composite work of art (Moorehead 1922:109; Shetrone 1926a:74–75). The cosmological thrust of the bulk of the symbols in the deposit suggests their use in a ritual drama concerned with the whole of the cosmos and the relationships of its many dimensions and realms to one another and the whole.

The large number of copper cutout designs in the deposit (109+) and their large size and visibility from a distance suggest that, if they do evidence a ritual drama, it was large, with many dozens of actors. In addition, a very large audience may be indicated by the huge and diverse numbers of items gifted and placed in nearby Altar 1 and in the deposit of copper breastplates and celts put on top of Burials 260 and 261, and in the moderately sized deposits coded in the data base as Shetrone 1924:7–9 and Shetrone 1924:7–16 and comprised of animal jaws, teeth, and claws. This interpretation presumes that some or all of these several deposits were created contemporaneously with one another and the deposit of copper designs – a distinct possibility, given that all five deposits are located within the same burial cluster and charnel building or

section of a charnel building (Appendix 7.2, Hopewell Mound 25 Greber&Ruhl.jpg). The estimated minimum number of gift givers who contributed to Altar 1, Altar 2, and the deposit of copper breastplates and celts are 514, 52, and 186 persons, respectively, for a total of 752 persons (Carr, Goldstein, et al.: Appendices 13.3 and 13.4).

Other ceremonial deposits that contained many items of diverse kinds and that are opportune for exploring ritual dramas in Scioto Hopewell societies include the Central Altar under Turner Mound 3, the Lower Cache under the Tremper mound, and Offering 1 and Deposit 2 under Shetrone's Mound 17 at the Hopewell site. Smaller yet diverse ceremonial deposits that hold promise include the spatially structured artifact layouts in Burials 9 and 12 under Mound 7 in the Mound City earthwork.²⁰

Timing of Ceremonies

That the timing of some Scioto Hopewell ceremonies within earthen enclosures followed a calendar while others were initiated by circumstance is almost certain. Earthworks were oriented to the summer solstice sunset, perhaps summer solstice sunrise, winter solstice sunset, winter solstice sunrise, the equinox, the moon's eight maximum and minimum northern and southern rise and set points, and other unidentified but repeated directions (Romain 2005; see also Carr 2005b). These orientations suggest a diversity of celestially timed ceremonies, which in view of historical Native American analogs in the Eastern Woodlands and Plains would have had defined functions. Surely the idiosyncratic timing of deaths, illnesses, and perhaps births, poor weather, poor productivity of plant or animal foods, and such also scheduled Scioto Hopewell rituals.

Unclear and without empirical substantiation at present, however, are the specific functions of the ceremonies that were regularly scheduled. Earthworks with the above-named orientations cannot be tied to ceremonial deposits or burials that repeatedly have the same artifact compositions and that could give insights into the functions of cyclical rituals. Neither single ceremonial sites or charnel

houses nor multiple, contemporary or nearly contemporary ones in the Scioto drainage have such repeating assemblages of artifacts – at least not for the large and spectacular ceremonial deposits and burials. For example, there is only one deposit predominated by obsidian spear points (at the Hopewell site), only one deposit with mainly quartz spear points (at Mound City), only one grave with large numbers of celts and breastplates (at Hopewell), only one deposit predominated by cones and hemispheres (at Hopewell), only one accumulation comprised of primarily copper geometrics (at Hopewell), only one deposit of hornstone preforms (at Hopewell), and only one deposit of chlorite disks (at Hopewell) (Carr, Goldstein, et al. 2005:486–488, 490–494; Tables 13.2 and 13.3). There are two, huge and diverse deposits (Altars 1, 2) under Mound 25 at the Hopewell site and apparently within the same charnel house room, but their contents are neither equivalent nor complementary. The only ceremonial deposits that hint at a possibly cyclical ritual of a specific function are the three substantial deposits of galena cubes at Mound City (Mound 5, Altar; Mound 13, Burial 1) and Hopewell (Shetrone's Mound 29). Remaining to be explored is whether smaller deposits with less spectacular contents repeat within and/or among ceremonial sites or charnel houses and indicate regularly scheduled ceremonies of particular functions.

Means and Media Used to Build Alliances

How alliances in the Scioto-Paint Creek area changed over time in their nature and solidity is understood to a good degree (Chapter 4, Changes in Alliance Strategies, Changes over Time in the Sizes and Social Compositions of Gatherings; Carr 2005a; Carr, Goldstein, et al. 2005), but could be refined. It is known that, initially, economic and social relationships among individual commoners as dyads in nonmortuary contexts were a primary means by which households and kin groups sought and solidified connections with one another. Ritual ties, in the form of individuals participating together in the ceremonies of a sodality marked

by smoking pipes, possibly including smoking together to seek the power of their individual animal spirit helpers, buttressed dyadic relationships. So, too, did individuals contributing their pipes and other personally owned artifacts to the one large Great Cache at the Tremper site. Later, alliances were negotiated among whole local symbolic communities through leaders who represented them and orchestrated cooperative and/or competitive material displays nested within mortuary rituals inside earthworks. Spiritual connections among communities were built by their burying some of their dead together within a single enclosure but in separate mounds (at Mound City) and then on one prepared ceremonial floor but in adjacent buildings or rooms (at the Hopewell site). Communities then perfected these spiritual means for making alliances among themselves by burying large numbers of their dead within the same charnel house (at Seip, Liberty, perhaps Old Town). This innovation made material displays less necessary, although leaders continued to play key, nodal roles in alliance making. Finally, when alliances among local symbolic communities in the Scioto-Paint Creek area began to break down, there was some reversion to individual dyadic means for maintaining intercommunity alliances.

This history of changes in how alliances were built, maintained, and held onto in the Scioto-Paint Creek area could be filled out in two important ways. First is by considering additional strategies and material media that were used to make alliances – in particular, “utilitarian exchange” of ceramic vessels and lithic raw materials – and how frequencies of exchange shifted over time, in coordination with or in complement to the other means of making alliances just described. Exchange of ceramic vessels over distances as great as 25 kilometers and encompassing multiple local symbolic communities in the Scioto-Paint Creek area during the Middle Woodland period has been documented through electron microprobe and instrumental neutron activation analyses of the clay pastes of vessels (Carr 1990–1991; Carr and Komorowski 1995). Exchange or direct procurement of lithic raw materials from greater

distances within Ohio and across neighboring states is also reported (Vickery 1983; see also Cowan 2006:34; Pacheco 1993). One would anticipate that as Hopewellian social, ritual, and spiritual means for creating and maintaining alliances among households, kin groups, and local symbolic communities became effective and blossomed, utilitarian exchange of ceramic vessels and lithics would have become less necessary and declined in frequency. One would also expect that rates of utilitarian exchange would have rebounded as Hopewellian social, ritual and spiritual alliances broke down toward the end of the Middle Woodland Period. These expectations are based on sociocultural theory about how individuals and groups tend to build effective alliances, following an ordered sequence of strategies (for a summary, see Carr 2005a:314–316).

It is possible to investigate these dynamics of Scioto Hopewell alliance making by identifying local and nonlocal ceramics and lithics at domestic sites and by tracking over time changes in percentages of nonlocal items. This research is feasible using the two large domestic assemblages obtained from the McGraw site (Prüfer et al. 1965) and the Brown's Bottom #1 site (Burton 2006; Pacheco et al. 2005, 2006), supplemented by smaller samples available from the residential and/or camp sites of Harness-28 (Seaman n.d.), Starr's Knoll (Ohio Department of Transportation 1993), and Wade (Church 1992; Church and Ericksen 1997; Ohio Department of Transportation 1993).

A longer term but coarser grained, preliminary study of utilitarian ceramic exchange over the entire Woodland period in the Scioto and Licking drainages (Carr 1990–1991) did find changes in exchange rates in line with the proposed pattern, excepting the predicted increase in exchange rates at the end of the Middle Woodland. Percentages of trade vessels, which were identified by their having paste chemistries anomalous from the local norm, decreased significantly from the Early Woodland (50–58%; 13–15 of 26 vessels) through the Middle Woodland (13.3%; 12 of 90 vessels) to the Early Late Woodland (5.4%; 3 of 56 vessels). These preliminary results suggest that the proposed research should be fruitful.²¹

A second way in which the history of changes of Scioto Hopewell alliance building could be understood better is by considering the culture-specific meanings of the various material media that Scioto Hopewell peoples employed to create alliances with one another, and how those meanings were instrumental in alliance building. Particularly tangible are the materials and artifact forms that were placed together in large deposits within ceremonial centers by multiple individuals, groups, and communities, and that certainly expressed the form and quality of relationships that these units were attempting to build or maintain with one another. These media changed through time, and have the potential for giving insight into how alliances were conceived of and how these conceptions changed over time – in specific social, political, and/or spiritual terms. Early in the Middle Woodland, at Tremper, the cremated remains of hundreds of individuals were placed together. In a separate large deposit, their personal smoking pipes, clan markers, and the paraphernalia of diviners (mica sheets, cones, boatstones, galena cubes), but also utilitarian personal and household items (projectile points, mealing stones), were placed together. Slightly later at Mound City, personal smoking pipes, personal ornaments (beads), divining paraphernalia (mica sheets, galena cubes, quartz projectile points), and clan markers (elk canines) were placed in large numbers in several deposits, now separated by the kind of item. All the divining paraphernalia and beads are light in hue. Later, at the Hopewell site, large, separate deposits were formed of dark obsidian projectile points, dark preforms of Indiana hornstone chert, light divining equipment (galena cubes), hundreds of thousands of light colored personal ornaments (beads), clan markers (wolf and fox teeth), and markers of sodalities (breastplates, earspools) and leaders (geometrics of mica and copper).

While I have focused previously on the social and political roles and relationships implied by the large deposits of these items (Chapter 4; Carr, Goldstein, et al. 2005), issues of spiritual connection, spiritual power, and personhood, and how they energized

and were used in forming and maintaining social and political relationships, remain open to exploration. These religious–philosophical beliefs are as significant in and of themselves as is their use in social and political life, when attempting to understand the culture and ways of Scioto Hopewell peoples. A large number of questions arise. Were the above-named kinds of artifacts attributed spiritual essence, power, sentience (consciousness), and/or personhood (capable of social relations), as nonhuman things commonly were among historic Algonkian peoples and Woodland peoples generally (e.g., Hallowell 1960; Hudson 1976; see also Carr and Case 2005a:39–42)? If so, what does the placing together of these kinds of items from multiple individuals, groups, and communities imply about the nature and quality of the connections that they were creating among one another? Consider the Huron metaphor of mixing together the body souls of multiple deceased individuals when mixing their cremated remains (Trigger 1969:108). Were there differences between human cremated remains, ritual paraphernalia of various kinds, personal ornamentation, and utilitarian tools in the kind or quantity of essences, power, sentience, and/or personhood that they were attributed? If so, what does the placing together of items of one kind versus another imply about the nature of the relationships that were being created? Did combining many smoking pipes in a large deposit mean the same thing spiritually and conceptually to Scioto Hopewell peoples as did combining obsidian projectile points into a large deposit? What does the shift over time from placing cremated human remains together to not placing them together and instead assembling artifacts suggest? What does the continuity, throughout the Middle Woodland sequence, in placing divining equipment together imply about the nature of the relationships that were being built? Likewise the continuity in depositing clan markers together? What does separating multiple kinds of items from one another in different deposits, or mixing them together in one, imply? For example, at Tremper, what does the separation of deposits of human

cremated remains from the Great Cache of ritual paraphernalia and other kinds of artifacts suggest? In Hopewell Mound 25, what does the combining of large numbers of metallic breastplates and celts over Burials 260 and 261 imply? Did light and dark colored items differ in the kind or quantity of essences, power, sentience, and/or personhood that they were thought to have? What does the shift over time from depositing primarily light-colored ritual paraphernalia to depositing both light and dark-colored ritual paraphernalia mean? Likewise, from depositing mainly mica ritual paraphernalia to both mica and copper ritual paraphernalia? What was the religious–philosophical significance to Scioto Hopewell peoples of systematically segregating large deposits of certain kinds of artifacts from graves of the dead (e.g., smoking pipes, cones, mica mirrors, obsidian projectile points, quartz projectile points, copper cutouts, mica cutouts) whereas other kinds of artifacts were usually placed in large deposits with the deceased (e.g., animal power-part clan markers other than bear canines) or were laid in both contexts (e.g., galena cubes, bear canines, breastplates, earspools, pearl and shell beads)? What is the significance to the spiritual essence(s), power, sentience, and/or personhood possibly attributed to various artifacts of their never having been surrounded immediately by ghost barriers of water-associated substances when placed in deposits without human remains, whereas some human remains were surrounded immediately by ghost barriers? How were these many and various patterns of laying human remains and artifacts to rest, and the meanings that these materials and depositional patterns encompassed, logically suited in native terms for building social and political relationships among individuals, groups, and communities?

These questions are tough to answer, and won't likely be answered with the same certainty as whether a particular ceramic vessel was made locally or imported. However, in their considering the interrelatedness of belief, social formation, political action, and material expression, these topics are central to, if not at the heart of, what Scioto Hopewell culture

was – for them and for archaeologists today (e.g., Seeman 1995). Some nascent analytical approaches for addressing these questions are offered by Turff and Carr (2005). Critical to the success of archaeological inference in this domain is archaeologists familiarizing themselves more thoroughly with Woodland Native American spiritual and philosophical beliefs and practices.

Social Competition

Intertwined with the subjects of Scioto Hopewell intercommunity alliances, ritual gatherings, and ceremonies is whether they involved and originated in intense competition among individuals and among social groups. Interpretations of Scioto Hopewell social life over the past 25 years have repeatedly put forward the notion that its showy material record, and particularly the massive ceremonial deposits of glistening raw materials and paraphernalia that were ritually destroyed and placed within charnel houses, indicate intense social competition. Ceremonial flamboyance has been cast as a sociopolitical strategy that aggrandizing individuals and competitive lineages used to display and augment their social power and prestige, and to recruit social followings and mates. This interpretation aligns with the popular, if not pervasive view in sociocultural anthropology and anthropological archaeology that competition among individuals and social groups is necessary to the development of social complexity in all small and mid-scale societies.

To the contrary, I suggest here that by placing Scioto Hopewell ceremonial deposits in their broader cultural and archaeological contexts, and by exploring the meaning of the deposits from multiple lines of evidence, these remains instead indicate remarkably refined and well-orchestrated social complementarity and cooperation among Scioto individuals and groups. In more general anthropological terms, the road to social complexity in some small and mid-scale societies can center on social cooperation and be motivated by collective values and concerns, in contrast to social competition.

At play here are two conceptual levels of disagreement. The first is the general theoretical issue of the nature of society: whether it is intrinsically and always strongly competitive. The second concerns the middle-range theoretical problem of how to identify and discriminate between competition and cooperation archaeologically.

Some of the lines of evidence that I present from the Scioto Hopewell empirical record to address these two issues are incomplete and open to debate. Opportunities for important future research rest in both the two conceptual concerns and the empirical uncertainties.

The Competitive View of the Scioto Hopewell Archaeological Record

Flamboyance is a word repeatedly used to describe the Scioto Hopewell material record. Within the charnel houses at the sites of Tremper, Mound City, Hopewell, and Seip, Scioto Hopewell peoples laid to rest huge quantities of ceremonial paraphernalia and exquisite raw materials in special ceremonial deposits, and sometimes in graves. In all, 24 distinct kinds of paraphernalia and raw materials were decommissioned in one or more of 43 impressive deposits (Table 15.2, see also Carr, Goldstein, et al. 2005:486–494, tables 13.2 and 13.3). For example, 94–95 copper and iron breastplates and 69 copper and iron celts were arranged over Skeletons 260 and 261 in Mound 25 at the Hopewell site. Between 250 and 500 pairs of metallic earspools were decommissioned in Altar 1 in the mound. An 8 foot × 4 foot pavement of 100s of mica mirrors and sheets were placed adjacent to Burial 9 under Mound 7 at the Mound City site. Similar large deposits of mica were found in Mounds 13 and 23. Several hundred obsidian spear heads and 50–100 quartz spear heads were respectively placed in Altar 2 under Mound 25 at Hopewell and in the Altar under Mound 3 at Mound City. Over 100,000 pearl and shell beads, equivalent to about 400 necklaces of common Scioto Hopewell size, were recovered from Altar 2 under Hopewell Mound 25 (Figures 1.2, 1.9, and 4.16).

Table 15.2. Ceremonial Paraphernalia and Raw Materials Deposited in Large Numbers in Scioto Hopewell Sites¹

metallic breastplates
metallic earspools
copper celts
mica mirrors and sheets
obsidian projectile points
quartz projectile points
copper geometrics
large, community smoking pipes
small, personal smoking pipes
divining cones and hemispheres
metallic panpipes
crescent-shaped gorgets
pearl and shell beads
bear canines
bear claws
wolf teeth
fox teeth
elk teeth
raccoon teeth
effigy alligator teeth
galena cubes
quartz crystals
hornstone disks
chlorite disks

¹At the Turner site in southwestern Ohio, large ceremonial deposits also included small animal canines and reel shaped gorgets. These items were not placed in large deposits in Scioto Hopewell sites.

Such deposits and other showy aspects of the Hopewell life in the Scioto valley and elsewhere have repeatedly been interpreted by American archaeologists in Western, political-economic terms that emphasize competition among individuals and social groups, and that assume a sense of the self as separable from society. The archetypal statement has been made by Brown (1981) for Illinois Hopewell societies and then was expanded to Scioto Hopewell societies and Hopewell societies in general by Braun (1986). For Brown (1981:36), “The considerable consumption of long-distance trade goods in burial and in living activities attests conspicuous consumption that is typical of groups vying with each other for highest prestige. Friedman and Rowlands (1977) have argued that such jockeying for prestige affects the economic future of the local group by recruiting new individuals through marriage and other means.” (See also Brown 1997:243.) More generally, “...

the competitive social contests that are embedded in feasts and showy consumption of material goods (e.g., the potlatch) give a structure to inter-group social relations that would otherwise be absent (Friedman 1975)” (Brown 1981:26). Braun (1986), generalizing Brown’s interpretation to Hopewellian groups in the “North American midlands” (ibid., p. 117), saw “increased demands for production beyond subsistence to accommodate competitive displays of would-be local leaders” (ibid., p. 121); also “... differential mortuary association of exchange goods suggests that the interments involved are those of persons active in the manipulation of exchange” (ibid., p. 118). Seaman (1988) and Buikstra and Charles (1999) have elaborated the viewpoint of competitive, ostentatious displays and conspicuous consumption for Ohio and Illinois Hopewell groups, respectively, and Fagan and Milner have repeated it in their textbook descriptions of Hopewell life.²² In all, material flamboyance and social complexity are envisioned as the products of intense competition rather than pervasive cooperation among individuals and social groups.

This competitive view of the social lives of Scioto Hopewell peoples has its basis in two lines of thought. One concerns the general anthropological issue of the nature of society. It is the prestige goods model of political economy in societies of middling complexity, as originally developed by French Marxist anthropologists Dupre (Dupre and Rey 1973) and Meillassoux (1978, 1981) and then applied by British archaeologists Friedman and Rowlands (1977). Concepts of Sahlins (1972) and Hayden (2001) complement those of the core proponents. In essence, the model says that the flow of prestige goods necessary for the payments of social debts, damages, bride-price, and other social functions is taken control of and manipulated by self-aggrandizing individuals for their own prestige and power. Self-interested competition among lineages is viewed similarly. Competition is seen as intrinsic to social life.

The second contributing line of thought maps this competition into the archaeological

record and concerns the middle-range theoretical problem of archaeologically identifying and distinguishing competition and cooperation. Pearson (1982; 2000:32, 84–87) and Cannon (1989), followed by others (Morris 1991; Charles 1995:84–85, 89–90; Buikstra and Charles 1999:205, 211, 215, 220), have argued that mortuary-related rituals are times when individuals, kin groups, communities, classes, political blocks, and/or leaders recreate their social relationships, affording opportunities to renegotiate their relative social prestige, political power, and/or economic advantage (see also Childe 1945:17 as a precursor). Social standing is altered through such means as competitively decorating deceased persons, competitively constructing large and elaborate tombs, competitively destroying and burying wealth, and competitive gift giving and feasting among the living (see also Binford 1964b:414). For these authors ritual and material flamboyance are equated single-mindedly with social, political, and economic competition, overlooking the alternative of cooperation among individuals and groups.

Crosscultural Variation in Conceptions of the Self

The prestige goods model of society and the competitive model of mortuary ritual grandeur are heavily loaded with the Western conception of the self as an individual separable from society. Yet, it is easy to point out empirically, with crosscultural research in psychology, social psychology, and anthropology, that the individualist notion of the self is hardly universal. Consequently, we tread on thin interpretive ice archaeologically when we assume a priori that the native peoples we study were rugged individualists and that ritual flamboyance always reflects social competition.

Specifically, the modern Western world, and particularly Anglo-Americans, are well known to be extreme in their valuation and expression of individualism and social competition compared to other peoples around the globe. In Anglo-American culture, the “self” is conceived to be coterminous with the

body and separable from society. Children are enculturated in being individualists – that is, in pursuing and giving priority to personal goals over the goals of collectives, or in making collective goals “their own” (Triandis 1989). In contrast, in many nonwestern cultures, and commonly in Africa, Asia, and historic Native American tribes, the self is equated with a larger group such as the family, the community, or the tribe. Children are enculturated in being collectivists – that is, in identifying with collective goals and endeavors, rather than personal ones, as a source of satisfaction and a set of experiences by which they define themselves (Triandis 1989 and many references therein; see also Carrithers et al. 1985; Marsella et al. 1985; Shweder and LeVine 1984).

The differences that distinguish some nonwestern notions of the self and motivations from Anglo-American ones are not merely a matter of the “balance” in valuation of individual pursuit versus social responsibility – a pull that Anglo-Americans do commonly feel in making decisions about their actions. Rather, there is a *qualitative* difference in experience and motivation attributable to a qualitatively different frame of reference. For example, in the case of the Kaliai of New Guinea, one’s experience of oneself, one’s orientation to the world, and one’s motivations are relational rather than as a discrete, physically-defined individual. So relationally oriented are the Kaliai that a person is not conceptualized and experienced as dead (*antu*) until all his or her social obligations to others and rights in others have been balanced (Counts 1979). Creek Native Americans have a continuous concept of the self: a human being is connected through his or her heart to a pervasive energy continuum (*boea fikcha/puyvfev*) of which all things are a part and, together, comprise the sacred All (*Ibofanga*) (Chaudhuri and Chaudhuri 2001:2, 24). Psychologists and social psychologists have identified, since the 1980s, a wide variety of societies globally that have such relational or continuous concepts of the self (Carrithers et al. 1985; Triandis 1989 and references therein).

Significantly, relational and continuous concepts of the self, in their holistic views,

do not lay the motivational groundwork for interpersonal competition or an ideology of domination in the way that the Western, separable notion of the self does. Competition becomes decreasingly sensible logically and emotionally as the “other” is experienced increasingly as an aspect of “oneself”.

To make the point concrete, I relate a story told to me by the President of the Arizona Psychological Association. Working in the Flagstaff area, he frequently counseled Navajo clients. He summarized how Navajo were different from Anglos in their approach to life, in his experience, with the following incident. A young man in high school came in to see him for personal help. To open the conversation, the psychologist said, “I see that you’re a line-backer on your high school football team. Do you enjoy football?” “Oh, yes, I like it a lot,” said the Navajo. “How did your team do last season?” “Oh, we did really great.” “You won a lot of games?” “No, we lost most of them – but we played together really well.” Not exactly what you expected, right? Here, we see a very competitive American sport reworked by a Navajo and expressing his own culture’s sense of self, society, and values – one that emphasizes the collective self and collective goals over the physical individual and individualistic pursuits, and one that creates satisfaction through social cooperation rather than competition among individuals and groups.

In this light, it is clear that variation among cultures in how they define and experience the self, and in the efficacy of social competition or cooperation in a given cultural–psychological context, are fundamental issues with which archaeologists must grapple when exploring the emergence of social complexity in small and mid-scale societies, and in the Scioto Hopewell case in particular.

Anglo-American Archaeological Practice

The effort to understand a specific culture’s way of defining the self, with its implications for social competition and cooperation, is not one that commonly has been made historically by Anglo-American archaeologists. For those of us

who study past, traditional Woodland Native Americans, because we do not naturally see their behaviors through their cultural values and their concepts and experience of the self and right action, I suspect that we have often made mistakes in understanding their motivations and behaviors (see also Gillespie 2001, 2002).²³ Without being aware of it, we probably have all too often placed our own Western values, and our own enculturated understandings of how social life works, upon past Woodland peoples.

This misleading situation is exacerbated when key data about the past peoples who we study are limited. The interpretive freedom that is possible with only broad evidential constraints makes it easy to lay a Western interpretation of a past people’s actions and motivations upon their material record. In the case of Scioto Hopewell peoples, the intensely competitive view of their social lives that archaeologists constructed in the 1970s and 1980s solidified before many of the details of their richly crosscutting social, community, and ritual organization had become known, and before the history of changes in their subsistence practices and population levels had been sketched. Assumed social, ecological, and demographic conditions, aligned to popular paradigms of the time, led to interpreting the flamboyant ritual deposits left by Scioto Hopewell peoples, and the elaborate ceremonies implied, as the products of intense social competition among individuals and groups. Now, with many more data and sociological studies on Scioto Hopewell peoples in hand, this interpretation is ripe for empirical scrutiny and debate.

An essential point to be understood from the beginning is that there is nothing *inherent* in material and ceremonial flamboyance to tie it singularly and necessarily to competition between individuals or social groups. The flamboyance of a ceremony and the large investments in materials, labor, and social capital entailed can result from many motives: to praise, thank, or beseech ancestors, spirits, or deities for any of the necessities of life (e.g., health, good hunting, abundant harvest,

good weather, protection from enemies); to reenact a cultural mythic event or sequence to ensure the well being of a community; to renew and “purify”; to satisfy the newly deceased and encourage their departure; to ward off negative conditions (e.g., disease, spirits causing disease); to mark a change in leadership; to renew friendships or trade partnerships; and for fun and socializing (Table 4.11). Significantly, the target audience can be deceased ancestors, spirits, or deities with whom social competition may not be an issue, rather than the living with whom it may. Further, some of these various motives for ceremonial flamboyance can be founded on collective, relational, and/or continuous notions of the self, philosophies of social life, and cultural values that are distinctly different from individualistic and competitive Western ones.

Determining which of these various interpretations pertains to the Scioto Hopewell case is an empirical matter rather than one of assumption. It requires exploring the material record deeply and following out multiple lines of evidence, in awareness of our own Western biases – the tactics of what I have called the practice of “thick prehistory” (Chapter 1).

The Question and the Evidence to Consider

The question arises, then, for consideration here and for future empirical research, do the flamboyant ritual deposits left by Scioto Hopewell peoples, and the elaborate ceremonies implied, reflect intense social competition among individuals and social groups, or well-orchestrated and rich ties of social cooperation and complementarity, or something else? My weighing of the Scioto Hopewell material record at this time is that numerous, corroborating aspects of the Scioto Hopewell material record converge on the conclusion of social complementarity and cooperation, and that previous interpretations of intense competition among individuals and groups is an implicit projection of Western concepts of the self onto the record.

The corroborating lines of evidence are many, and both direct and contextual in nature. They include: (1) the decentralized and complementary organization of leadership roles and the crosscutting and complementary organization of ceremonial sodalities that integrated the lives of Scioto Hopewell peoples; (2) the occurrence of the huge ceremonial deposits of fancy artifacts within charnel houses that metaphorically symbolized social and spiritual cooperation in multiple ways; (3) the nature of the deposited artifacts, themselves, which marked unified social groups, including sodalities, a clan, and probably a phratry, rather than competing individuals and social groups; (4) a lack of skeletal evidence for violence, including (5) the results of recent osteological and contextual studies that show in good likelihood that few if any isolated, culturally modified human remains were trophies of war; (6) a paucity of elite artifacts that might depict human trophy parts, and the existence of reasonable alternative interpretations for the few that might; (7) a lack of elite artifacts that unambiguously symbolize implements of war; and (8) evidence for stable population levels, negligible population packing, and little competition over local food resources. All of these lines of evidence are new findings, subsequent to the reconstructions of intense social competition offered by Brown, Braun, Seeman, Charles, Buikstra, Fagan, and Milner. The lines of evidence that are most in need of further basic data collection and evaluation are numbers 5 through 8. Let us consider each of these eight points in greater detail.

First, new mortuary analyses made by several authors and presented in *Gathering Hopewell* (Carr and Case 2005c) reveal that the construction, artistic, and ceremonial efforts of Scioto Hopewell peoples were not orchestrated through centralized leaders like Big Men, chiefs, or priests, who might have jostled and domineered, nor through strongly defined, competing or ranked lineages that were symbolized materially. Rather, Scioto Hopewell societies were fairly flat, with complementary and crosscutting social units: multiple kinds of leaders who had specialized and complementary

roles that were weakly institutionalized; cross-cutting ceremonial societies; clans that shared leadership roles and whose members crosscut both sodalities and communities; perhaps a phratry of four linked clans; and intercommunity alliances. These rich social interconnections among individuals and groups would have dampened competition considerably. They also point to a social ethical system focused on complementarity, with implications for a collective view of the self at the scales of the individual and group.

Second, the flamboyant deposits that archaeologists have interpreted as evidence of intense social competition and display occurred in charnel houses. However, these were places where strong ties of cooperation were explicitly expressed materially. There, multiple communities buried their deceased together in order to create and affirm spiritual alliances among themselves (Chapter 3, Sustainable Communities). This was the case for the charnel houses under the Tremper mound, the Pricer and Conjoined mounds in the Seip earthwork, the Edwin Harness mound in the Liberty earthwork, and Mound 25 in the Hopewell earthwork. In the Tremper charnel house, 12 social units – most probably four clans in each of three different local symbolic communities – cremated their dead together in 12 separate crematories and then combined most of the dead, about 280 persons, in a single depository. On the floors of each of the other four mounds, three local symbolic communities buried their dead in three spatial clusters within the same charnel structure or adjacent charnel buildings, which in most cases were then covered with a unifying mantel of earth. Significantly, in the logic of the historic Algonkian and Huron Feasts of the Dead, the burial of the bones of Scioto Hopewell deceased together in a single charnel house and/or under a single mound probably implied intimate contact of their souls, the eternal cooperation of the dead with one another, and the necessary cooperation of their living descendants (Trigger 1969:108; see also Galloway and Kidwell 2004:508 and Swanton 1931:170–194 for a similar logic among the Choctaw). Further, in the logic of a widespread historic Woodlands Native

American metaphor, the Scioto Hopewell charnel house probably was equated symbolically with the domestic dwelling, and those persons from multiple communities buried together there would probably have been thought of as having family-like ties. Historically, Woodland Native Americans equated the domestic dwelling with a large ceremonial building, a mound, a ceremonial dance ground, or a whole ceremonial center, and through this symbolism, the appropriateness of family-like ties of cooperation at the broader scales of the community and multiple-community cooperative endeavors (see DeBoer 1997:229 for many ethnohistoric references; Knight 1989:280). Finally, the 12 social units that gathered to bury their dead at Tremper decommissioned the ceremonial paraphernalia that they had used there within one great deposit of over 500 items, rather than in separate deposits for display, comparison among groups, and one-up-manship. In these five charnel settings potentially symbolizing close social cooperation, it makes little sense to interpret the flamboyant ceremonial deposits within them as the products of competitive, ostentatious displays among communities competing for highest prestige.

Reinforcing the reconstruction that multiple communities cooperated closely with one another, rather than competed, in the rituals held at ceremonial centers is a labor analysis made by Wesley Bernardini (2004; see Chapter 3, Sustainable Communities, Figure 3.7). He calculated that the laborers who constructed each of the five earthworks of Seip, Baum, Old Town, Liberty, and Works East, which are located in three different local symbolic communities in three different river valleys, must have come from all three communities, who worked together. Close cooperation among the three communities is also shown by the almost identical shape and the similarity of the sizes of the charnel houses under the Pricer and Edwin Harness mounds respectively within the Seip and Liberty earthworks, and by the strong similarities in the sizes and tripartite shapes of all five of the earthworks, which imply the sharing of charnel house and earthwork design details

among the leaders of the different communities (Chapter 3, Sustainable Communities).²⁴ Cooperative earthwork construction paralleled burial of the dead together.

A third empirical reason for concluding that the showy ritual deposits left by Scioto Hopewell peoples affirmed their social cooperation rather than expressed competition among individuals and groups is the nature of the deposited artifacts, themselves – the social groups that they marked. Copper breastplates, metallic earspools, platform smoking pipes, mica mirrors, and galena cubes each marked a given sodality or probable sodality, that is, an integrative club-like group whose members came from multiple residence and kinship units – in this case, multiple clans and residential communities, and perhaps multiple local symbolic communities. In addition, bear canines likely represented a ceremonial society whose members all belonged to the Bear clan, which was dispersed across local symbolic communities (Chapter 4, Sodalities and Ceremonial Societies). Each of these artifact classes was placed in one or more deposits comprised of many items of largely that one kind, suggestive of collective sodality or clan rites similar to those held by historic Woodland Indians. Significantly, as members of one sodality or one clan, the individuals who deposited breastplates, bear canines, or some other one kind of artifact together would have been expressing their cooperation and joint identity as sodality or clan members, rather than their competition with one another.

A good example of the collective and corporate emphasis of such ceremonies held by Scioto Hopewell sodalities is the large number of copper earspools that were bound together in a bundle with a heavy cord, and placed in Altar 1 of Hopewell Mound 25 (Figure 4.18). The bundle implies a group offering rather than the separate contributions of individuals (Ruhl 2005).

Another kind of cooperative social group that probably existed and helped to generate an especially flamboyant ceremonial deposit in the Scioto valley was a phratry – that is, a set of clans who reciprocally support

one another in certain social tasks. Within the Great Cache in the Tremper charnel house were 110 jaws and jaw pendants of wolves, bears, puma, and bobcats. These items marked four clans and their totems or eponyms, as did analogous items historically in the Eastern Woodlands. Importantly, all the puma and bobcat jaws were mandibles, whereas almost all the wolf and bear jaws were maxillae (Thew n.d.) – a physical complementarity that suggests the social complementarity of these two sets of clans (Chapter 4, Clan Organization). Again, the jaws were placed together in one deposit, implying cooperation and complementarity within a whole, rather than in separate deposits for display, comparison, and prestige-building among clans.

The fourth through eighth reasons for concluding that the rich ceremonial deposits left by Scioto Hopewell peoples reflect celebrations of cooperation rather than displays of competition are contextual and require further research. The fourth reason is the lack of skeletal evidence for interpersonal violence. Of the approximately 250 excavated skeletons of Hopewell people in the Scioto drainage, none are known to have embedded projectile points or their markings, parry fractures, cracked ribs, bashed in skulls, or other signs of interpersonal violence. Neither unhealed examples associated with death or healed examples have been observed in extensive modern osteological studies by physical anthropologists Cheryl Johnston and Paul Sciulli, or were recorded in field notes by original excavators and attending physicians (C. Johnston, personal communication 2007). Significantly, this situation contrasts markedly with later Late Woodland and Fort Ancient skeletons and earlier Late Archaic and Early Woodland skeletons from Ohio and neighboring regions (Johnston 2002:112; Mensforth 2001; Milner 1995:232, 234–235; 1999:120–122). The same patterns and contrast are found in Illinois for Havana Hopewell societies (Buikstra 1977:80).²⁵

It is possible that the mortuary records of Scioto Hopewell people do not accurately reflect rates of interpersonal and intercommunity violence because killed warriors and war

captives were tabooed from burial with other community members in mounds and disposed of elsewhere, or were cremated rather than inhumed and thus remain unidentified. It is true that in many societies, those who have died what is deemed to be a “bad” death are separated in burial from those who have died what is thought to be a “good” death (Carr 1995). And it is known that those Scioto Hopewell people who were buried in mounds must have been some subset of the entire population, given their relatively small number compared to the duration of the Middle Woodland period (e.g., Prufer 1964a:74). However, casting strong doubt on the idea of a skeletal record completely biased against incidences of violence is the distinction between causes of injury and causes of death. If raids, skirmishes, and/or feuds had occurred among communities or clans within the Scioto drainage with any regularity, or among Scioto peoples and more distant societies, one would expect at least some individuals who had been injured through violence, healed from their injuries, and then died “good” deaths later in life, to be among the inhumations in Scioto burial mounds. This is not the case, suggesting peaceful living conditions.

The argument of a biased skeletal record resulting from segregation of persons who died “bad deaths”, although not currently supported empirically, is interesting and worthy of further study.²⁶

Fifth, and related to the fourth argument, culturally modified, isolated human skulls and mandibles, once concluded by Seeman (1988) to have been primarily trophy skulls of young male recruits for warfare, have been shown through more modern osteological research and further contextual studies to indicate a variety of other cultural practices, and uncommonly if ever war trophies. Counter to the trophy interpretation, 53% of the Scioto valley modified human remains sexed by Seeman (1988:570–571, table 1) are female, and 36% to 54% of the ageable individuals are not young compared to their expected age of death.²⁷ These persons are unlikely candidates for slain warriors, contrary to the logic and conclusion drawn by Seeman. Further, although it might be argued that in hit-and-run raids, those killed and beheaded are as

likely to be children, women, and old persons as young male warriors – which is a late prehistoric Midwestern, Southeastern, and Plains pattern (Case 1995) and which would make the sample of Scioto Hopewell modified human remains in line with the war trophy interpretation – in fact, a more spatially and temporally relevant comparative sample of Late Archaic trophy skulls from Kentucky and Ohio is predominated strongly by adult males (Mensforth 2001:117–115, 117–119, 123, 132, table 3; see also Mensforth 2007:272). In addition, for the Hopewell site population, restudied by C. Johnston and P. Sciulli, none of the modified human remains show evidence of ante- or perimortem injury (Johnston 2002:112). One would expect skull trophies of war to sometimes have signs of combat, but they do not. Also, none have scavenger damage sometimes seen on victims of conflict who are not buried immediately after death (Johnston 2002:112). Finally, at the Hopewell site, 50% of the persons with whom the modified human remains were buried and that can be sexed are females – again unlikely warriors who took trophies, although the sample size is small (Johnston 2002:329, figure 12).

Beyond these direct osteological data, contextual evidence of several kinds also does not support the idea that the isolated human skulls and mandibles are war trophies. None of the persons with whom the remains are buried is accompanied by any grave associations such as quartz or obsidian projectile points, or mica or copper effigy projectile points or atl atls, which might mark them as prestigious warriors or hunters. Also, across Scioto Hopewell charnel houses, frequencies of modified human remains and frequencies of showy ceremonial deposits do not correlate with each other. One would expect such a correlation if the skulls and mandibles were trophies of war, and the ceremonial deposits resulted from competitive displays among rival groups: warfare should correlate with competition. Further, the psychology of several communities burying their dead together in one charnel house in order to build an alliance among themselves does not mix easily with the psychology of also burying

in that same charnel house the trophy heads that members of the communities had supposedly taken from one another.²⁸ Finally, the manner in which human maxillae and mandibles were modified by Scioto Hopewell peoples is similar to the way in which they modified bear, coyote/wolf, bobcat, and mountain lion maxillae and mandibles (Johnston et al. 1997; Seaman 1988:569; see also Nawrocki 1997; Thew, n.d.). Both human and nonhuman specimens were modified primarily by grinding and drilling, much less frequently by cutting, and occasionally by notching, scoring and snapping, and painting (Johnston et al. 1997; Seaman 1988:570–571). Also, at the Tremper site, both a modified human mandible and modified bear, coyote/wolf, bobcat, and mountain lion mandibles and maxillae were deposited together in the same cache of ceremonial paraphernalia and personal items (Thew, n.d.). The similarity in how both human and nonhuman mandibles and maxillae were worked might be explained in a number of ways. One is that both were, in the eyes of Scioto Hopewell peoples, revered relatives and ancestors. If one considers that the species of animals whose mandibles and maxillae were modified were also the totems or eponyms of Scioto Hopewell clans (Thomas et al. 2005) and may have been thought to have been ancestors, like ancestors, or relatives by clanpersons with those totems or eponyms, then by analogy, similarly modified, decorated, and deposited human modified remains might also have been relatives or ancestors. The identification of modified human remains in Ohio as “revered” relatives and ancestors is a well-known, possible alternative to the interpretation that they were trophies of war (Webb and Snow 1945:287; Willoughby and Hooton 1922:61; see also Seaman 1988).

The weight of empirical evidence from specifically the Scioto Hopewell record on the cultural causes of its modified human skulls, maxillae, and mandibles thus currently leans heavily to the interpretation that few, if any, were trophies of war, removing this line of evidence that Scioto Hopewell life was strongly competitive. However, several kinds of additional analyses could refine or refute the

lines of argumentation made above. Modified human remains from sites additional to the Hopewell site could be studied for whether they show evidence of ante- or peri-mortum injury, or scavenger damage, improving the sample size and evaluation made by Johnston (2002:112). DNA testing of remains would help to increase the number of individuals of known sex. Bone and dental morphological and chemical analyses and genetic studies might tell whether the modified remains were of individuals who had been born or resided outside of the Scioto drainage or had familial ties to outsiders, rather than local Scioto Hopewell persons. This distinction is important. It is possible for Scioto Hopewell social life to have been peaceful and strongly cooperative internally, yet for the modified human remains to represent trophy taking, if the slain individuals came from distant Hopewellian or non-Hopewellian groups and trophy taking was motivated by other than individual prestige-building, which it can be (Rosaldo 1989; see also Gardner 1964).²⁹

In any of this new work or rethinking of previous osteological and contextual studies, it will be important to segregate analytically and interpretively the modified human remains found in the Scioto drainage from those found in southwestern Ohio at the Turner and Marriott sites. Social life and the level of competition among Hopewell peoples in southwestern Ohio, where elevated hill forts are common and charnel houses shared by multiple communities are undocumented, may have been significantly different than life and the degree of competition in the Scioto drainage, where only one Middle Woodland hill fort occurs and all large charnel houses were shared by multiple communities. Further, the practice of modifying human skulls, maxillae, and mandibles, as well as that of placing them in burials, may have had different motives and cultural meanings in the two regions. This segregation was not made in Seaman’s (1988) study of Hopewell culturally modified human remains, which aggregated them from across Ohio at large (see Note 27), and which was made before diversity in Hopewell social organizational forms across different valley systems in

Ohio was appreciated. Other geographic regions and scales are also critical to distinguish, yet have not been.³⁰

Sixth, the absence of skeletal indications of warfare is coupled with a paucity of elite artifacts and artwork depicting human parts that might be interpreted as war trophies. All of the few examples (Table 5.1) have alternative interpretations. The five effigies of a finger, hands, and an ear all could reflect the common historic Woodlands practice of dishonoring a person for an antisocial act by cutting off an ear, a nose, digits, or appendages. The four effigies of human bodies lacking heads, legs, and/or hands could represent ceremonial sacrificial victims. Further, no association occurs between the presence of such effigy human parts and the presence of showy ceremonial deposits across charnel houses in the Scioto-Paint Creek area. Again, one would expect this association if the effigies represented war trophies and the ceremonial deposits indicated competitive displays among rivals. The scarcity in Scioto Hopewell art of depictions of possible human body part trophies contrasts markedly with their commonality in the art of Mississippian societies, who are well-documented for their warfare (Brain and Phillips 1996:45; Brown 1985:100, 115; Moorehead 1932:Figures 14 and 15; Phillips and Brown 1978:188, Figures 243 and 244; 1984:Plates 153, 154, and 295; Dye 2004:191, 199; Brown and Dye 2007; Dye 2004:191, 199; 2006).

A seventh reason for questioning the idea that the showy ceremonial deposits of Scioto Hopewell peoples were competitive displays and reflect intense social competition is the lack of elite artifacts that unambiguously symbolize implements of war or feuding. Although effigy projectile points and atl atls made of mica, copper, quartz, and/or obsidian are common (Table 5.1) and might have symbolized warrior status or been used in war divination or in sending power intrusions to enemies, these artifacts equally could have symbolized the prestige of skilled hunters and/or been used in hunt divination. The hunt interpretation fits the data better: none of the effigy points or atl atls occurred in burials or ceremonial deposits that

contained supposed takings of war – modified human skulls or mandibles, or effigy human parts.

A final reason for concluding that the flamboyant rituals and rich ceremonial deposits of Scioto Hopewell peoples were expressions of cooperation rather than displays of intense competition among individuals and groups is the broader ecological context. Evidence is lacking for higher regional population densities and increased competition over subsistence resources in the Scioto-Paint Creek area from the Early Woodland through the Middle Woodland periods. The mound survey made by Seeman and Branch (2006; see Carr, Chapter 2, Ecological Setting), using the Ohio Archaeological Inventory and Mill's *Archaeological Atlas of Ohio*, found that from the Early through Middle Woodland periods in the Scioto drainage, the numbers and sizes of mounds built, and the implied labor expended, did not increase – that is, no substantial regional population growth.

One does see through time the concentration of mound building and people from the Scioto drainage at large into the Scioto-Paint Creek confluence area, and a redistribution of people from uplands, small tributary streams, and the edges of the Scioto and Paint Creek valley trenches onto the terraces and bottom lands of the Scioto and Paint Creek valleys. However, three additional kinds of information show that this redistribution of people within the region did not result in a tight packing together of communities, territoriality, and competition over primary subsistence resources. Geographic analysis of the locations and areal sizes of local symbolic communities in the Scioto drainage during the last third of the Middle Woodland period indicates that even at that late time of most increase in local population density, communities were well separated from each other, by roughly 11–20.5 river kilometers, or approximately their own sizes, rather than packed together and competing for land (Chapter 3, Sustainable Communities).³¹ In addition, paleoethnobotanical data from the Brown's Bottom No. 1 site in the Scioto valley (Steinhilper and Wymer 2006) and sites in

the neighboring Licking valley (Wymer 1987, 1996) show that Hopewell peoples in these areas used those plant food resources that were most available and most easily collected or grown locally, with different kinds and amounts of species used at different sites (Chapter 2, Opportunism, Figures 2.14–2.16).³² This pattern of plant exploitation is what one observes where hunter–gatherer–farmers are not crowded together. Had population packing and competition over critical, first-line resources developed in the Scioto-Paint Creek area, one would expect to see the use of a wide diversity of both easy and harder-to-gather or grow plant species at each site. Finally, the evidence against packing of communities and competition over primary subsistence resources aligns with evidence against territorial strategies: the retention of a dispersed settlement system throughout the period of Hopewell ceremonialism in the Scioto-Paint Creek area, and the shift to aggregated villages with surrounding ditches only later in time – more than a century later, about A.D. 500 (Carr and Haas 1996:30–31; Dancey 1988; Seeman and Dancey 2000:595–597, figures 22.8, 22.9). Thus, available evidence does not indicate a demographic or subsistence basis for intense social competition in the Scioto-Paint Creek area.

Additional research is necessary to get a firmer picture of demography, subsistence, and settlement patterns in the Scioto-Paint Creek area and to evaluate the ecological potential for social competition there. As discussed above (Ecology: Subsistence, Mobility, and Demography), intensive, systematic, regional surface surveying and coring are sorely needed in main Paint Creek valley, its North Fork, and the Scioto valley north of the Liberty earthwork, in order to locate residential sites and document better whether local symbolic communities in these three valleys were well separated from one another. Paleoethnobotanical records from a larger number of broadly excavated residential sites in the Scioto-Paint Creek area are needed if a more reliable picture is to be constructed of variation in the use of plant and animal food resources across locales.

The above, eight lines of evidence for assessing the cooperative or competitive quality of social relations among Scioto Hopewell peoples do not address the issue of competition for mates. This has been said by Brown (1981:36; 1997:243) to have been the driving factor behind long-distance procurement of fancy raw materials and ceremonial elaboration. It is a factor, however, that should be demonstrated empirically rather than assumed. Currently, I do not know how to firmly assess the degree of competition for mates directly from the archaeological record or indirectly through its common causes. The latter include birth sex ratios, survivorship sex ratios, the degree of polygyny, the abundance of agricultural land as one determinant of polygyny, the nuances of how kinship was reckoned, and settlement patterning of kin as a determinant of polygyny (Ember 1974; Keesing 1975:26–41). Most of these social and demographic parameters are not currently tractable with the Scioto Hopewell archaeological record. However, the one modern osteological study of sex ratios of a Scioto Hopewell mortuary population tentatively suggests that Scioto Hopewell communities had a fairly balanced adult sex ratio (Konigsberg 1985). A balanced adult sex ratio is usually associated with monogamy (Ember and Ember 1981:346), which does not encourage competition over mates as would polygyny.³³

In sum, there is little hard evidence to support the common interpretation that Scioto Hopewell social life was intensely competitive – that large ceremonial deposits of exquisite paraphernalia and raw materials reflect ostentatious displays of social power and wealth among would-be local leaders, lineages, and communities vying with each other for highest prestige. Instead, the bulk of the archaeological evidence, of multiple and diverse forms, indicates cooperative ritual celebrations and relations among members of closely-knit social units: communities, sodalities, clans, and perhaps a phratry. Further, crosscultural research in psychology and social psychology on how self image is constructed and defined in collectivist societies, give pause to and qualify the party line in anthropology, that competition

among individuals and social groups is essential to the development of social complexity in all small and mid-scale societies, and that ceremonial flamboyance, such as that of Scioto Hopewell peoples, can always be read as social competition. These studies invite the possibility of interpreting ceremonial flamboyance more broadly, as either social cooperation or social competition or some balance, to be worked out on a case-by-case basis, as I have begun to do here for Scioto Hopewell peoples.

At this time, there is little sound reason for us to continue laying our own Western views of self-interested individuals and competitive social life upon Scioto Hopewell peoples, when the available data speak so loudly against this psychology and social form. To do so disrespectfully diminishes a major accomplishment of Scioto Hopewell peoples equal to their monumental earthworks and beautiful art. The Scioto Hopewell appear to have mastered to a considerable degree the art of cooperation in social relations, and to have created a well-orchestrated social and ritual life.

The challenge to Woodland archaeologists at this time is to empirically explore in further detail the veracity of this new view of Scioto Hopewell social relations, while leaving behind our Western and personal preconceptions of “the” nature of social life. Toward this end, several kinds of additional studies of Scioto Hopewell data have been suggested above, and critical thinking about our own cultural world view assumptions, values, and self-constructions is warranted.

Leadership

Good headway has been made on defining many of the key characteristics of leadership in Scioto Hopewell societies through analyses presented in *Gathering Hopewell* (Carr 2005b; Carr and Case 2005b; Field et al. 2005; Keller and Carr 2005; Rodrigues 2005; Thomas et al. 2005). The topics addressed there include the roles (duties and tasks, domains of action) taken on by leaders, whether roles were centralized in the hands of a few persons or segregated among many, the degree to which roles were

institutionalized, the power bases of leaders of various kinds, the geographic expanse of the domains of power of leaders, criteria for recruiting leaders, and how leadership organization developed over time.

Metallic Celts

Further research on leadership in Scioto Hopewell societies is needed to refine our understanding of it in a couple key areas. One is the nature of a particular leadership role marked by metallic celts. Analysis to date (Carr and Case 2005b) suggests that in the Scioto-Paint Creek area, copper and iron celts marked a community-wide leadership position of a kind. The position had roles that complemented those of another kind of community-wide leader marked by copper and iron headplates. That metallic celts and headplates each marked community-wide leadership roles has been inferred from the symbolism of their forms, their materials, their frequencies in burials, their age and sex distributions, and/or other characteristics. Crowns and headdresses are common natural symbols of heading a social unit crossculturally, and axes were key icons of power in later Mississippian societies of the Woodlands (Brown 1976:126; Dye 2004: 202–203; Phillips and Brown 1978:13, 18–19; 1984:plate 104; Waring and Holder 1945:10–11, 15). The copper from which nearly all celts and headplates were comprised was associated by historic Woodland Native Americans with the power of supernatural beings of the Above and Below realms (Turff and Carr 2005). This power might have been thought to have been especially concentrated in celts, which on average were comprised of larger masses of copper than any other copper artifact class made by Scioto Hopewell peoples (Bernardini and Carr 2005). Further, as expected of symbols of top leadership roles, both celts and headplates occurred in very low percentages (7.0 %, 4.0 %, respectively) of the burials excavated from early through late Middle Woodland cemeteries in the Scioto drainage, including Mound City, Hopewell, Seip, Liberty, and Ater. In addition, unlike the significant overlap found in the membership lists of different sodalities marked

by breastplates, earspools, and possibly mica mirrors and galena cubes, there are no clear cases of individuals who were recruited into both leadership positions marked by celts and headplates.³⁴ Also, unlike the members of sodalities marked by breastplates and earspools, the persons who filled the roles marked by celts and headplates were commonly recruited from a limited number of clans: Raptor and Nonraptorial Bird, and Racoon and Canine, respectively.

That the specific roles marked by metallic celts were distinct from and complementary to those symbolized by headplates can be inferred from the difference in persons and clans who filled those two positions. It is also evident in the different age and sex distributions of the persons. Headplates were found only with elder males, in the 35–50+ years age range, for those individuals whose age and/or sex have been determined. In contrast, celts were found with primarily younger persons less than 20 years old and with both males and females, for those individuals of identified age and/or sex. The young age of the men and women found with celts suggests that it was probably the physical accomplishments of these persons that celts marked, in contrast to the social achievements, power, and respect of the old men who were leaders marked by headplates.³⁵ The total picture formed by integrating all of the above archaeological patterning is one of a division of top leadership in Scioto Hopewell societies, perhaps like the distinction between older heads of internal affairs and younger heads of external affairs among historic Native American tribes in the Eastern Woodlands (for references see Chapter 4, *The Nature and Organization of Leadership Roles*).

Although the bulk of evidence aligns with the interpretation that metallic celts symbolized community leadership positions, two characteristics of celts are unexpected, requiring further study of their sociological meaning. First, celts occurred not only sparsely among individual burials like headplates, but also were placed in great number (66 copper, 3 iron celts) in a ceremonial deposit over Burials 260 and 261 under Mound 25 at the Hopewell site.

This deposit recalls other large accumulations of smoking pipes, breastplates, and earspools, and perhaps mica mirrors, galena cubes, and obsidian bifaces, which have been interpreted as remains of the collective ceremonies of sodalities and shaman-like professional groups (Chapter 4, *Sodalities and Ceremonial Societies*). In addition, the deposit contained a huge, 58 centimeter-long celt of copper that may have been a group contribution to the deposit, analogous to big, possibly community-owned, smoking pipes (in the Pricer Mound at Seip; Mound 1 at Esch), and perhaps other extraordinarily large items such as occasional, huge obsidian bifaces, galena crystals, and books of mica. These two characteristics of metallic celts suggest a different dynamic to the power of those community leaders marked by celts than those marked by headplates.

What specifically the difference was is unclear and a good topic for further study. It should be approached considering the differences in the clan affiliations and age-sex distributions of persons buried with metallic celts compared to those interred with metallic headplates. The possibility that the large deposit of celts and breastplates over Burials 260 and 261 was the remains of a ritual drama that featured and was planned by one or more community-wide leaders marked by metallic celts and a sodality marked by breastplates should be considered.³⁶

Life Histories

A second important arena for future research on Scioto Hopewell leadership is the life histories of leaders. Documenting the histories of particular leaders through bone and dental genetic, chemical, and morphological studies, and contrasting their histories to those of more ordinary people, could shed light on the means by which individuals rose to be leaders, their power bases, and the activities and qualities of their lives.

It is known from a Scioto region-wide mortuary study (Thomas et al. 2005:375–377) that success in gaining leadership positions depended on the wealth of one's clan and the degree to which one's clan was

well networked socially through its members belonging to various sodalities. What more personal historical or circumstantial factors might have also been important to a person becoming a leader? Were leaders of a local symbolic community ever born and raised in other, neighboring communities, and perhaps spirit-adopted into the community in order to replace a deceased leader-kinsman? Were leaders ever born and raised in other Hopewell traditions across the Woodlands, as Prufer (1964a:74) thought? Was the local symbolic community of birth of a person significant to his or her gaining leadership positions; for example, were leaders in the Scioto-Paint Creek area more likely to have been born and raised in the community in the North Fork of Paint Creek, which was wealthier (Carr 2005a:311)? Were some particular kinds of leaders more likely to have been born in neighboring or distant communities while other kinds were usually born locally? For example, one can imagine that people who filled rare forms of leadership, such as the three persons who were buried with copper-nostril inserts under the Seip-Pricer mound and Hopewell Mound 25, and the three persons buried with barracuda jaw scratchers under these mounds,³⁷ might have been foreign to the Scioto-Paint Creek area. Were shaman-like leaders of one kind, or leaders of any given kind, closely related to one another genetically, suggesting some degree of inheritance of that leadership position? Crossculturally, shamanic talents sometimes run in family lines and shaman sometimes are recruited repeatedly from the same family (Harner 1988:13; Walsh 1990:34; Winkelman 1992:33, 34). Personal, life-historical questions such as these have good likelihood of being answered through bone and dental genetic, chemical, and morphological studies.

The life histories of leaders, as revealed through their musculoskeletal markers of stress, paleopathological indicators, and bone and dental chemical studies, could also inform us about specialized activities that they might have routinely performed, specialized diets, and whether they were privileged in the amount or kinds of work they did, giving a picture

of the nature and quality of their lives. For example, a MSM study of the skeletal series from the Turner earthwork, in southwestern Ohio, discovered that male leaders, but not female ones, were sheltered from extensive work. Shaman-like leaders were found to have incurred less chronic and traumatic physical stresses than the rest of the population. They also spent much time in activities that involved the hand, wrist, and forearm flexion and extension, which might indicate manufacture of paraphernalia, artistry, and/or drumming, among other possibilities (Rodrigues 2005:426–427). In the lower Illinois valley, Havana Hopewell persons in central tombs were found more so than others to have had auditory exostoses possibly indicating diver's ear – a condition that might have developed when diving for pearls in cold water (Buikstra 1976, table J-1, personal communication 2007).

Information on the life histories of individuals, including such topics as those just mentioned, could be used in at least three different approaches to help personalize our understanding of Scioto Hopewellian life. The approaches differ in scale. First, broad patterning in the life-histories of multiple leaders of a kind, or of all kinds, might be sought and compared to the life histories of more common Hopewell people in order to characterize leaders and leadership in general. The questions mentioned above implicitly take this global perspective. Analysis at this statistical level reveals the *organization* and *institutionalized operation* of socio-political and ritual-political positions and roles, and the general impact of such traditions upon the lives of those who fill those positions and roles. Rodrigues' (2005) study of leaders buried in the Turner earthwork (see above) is an example of this sociology-like, statistical approach.

At the other extreme, the life history of a specific individual who was a leader, and in contrast to the life histories of more common Hopewell people, might be documented in detail to view Scioto Hopewell social, political, and ritual life from the inside out, from the *eyes of one person*. This highly personalized and experiential approach has not yet been taken in

studies of Scioto Hopewell leadership and life. McGregor's (1941) detailed description of the leadership roles, life, and death of a Puebloran ceremonial leader exemplifies this approach, but without the benefit of detailed bone and dental genetic, chemical, and morphological information. Another example are the many studies that have been made of the life history, moment of death, and other experiences of the European "Ice Man" (Spindler 1993, 1996; see also Bortenschlager and Oeggle 2000; Hodder 2000:27).

Between these two scales of analysis, it would be possible to examine the life histories of a few leaders who were placed in the same grave, the same cluster of burials, or the same single room of a charnel house, and who possibly interacted with one another in life. Their life histories could be compared and contrasted, to one another and in light of their social, political, and ritual identities. By this means, it might be possible to explore fine-grained aspects of the social, political, and ritual *relationships* of the persons to one another, and the intertwining of their life experiences, in dyads or small numbers. The result would be a study of specific "social relations", which were the building blocks of Scioto Hopewell social, political, and ritual "organization" (*sensu* Firth 1951:2, 28, 36). Like the one-person life history approach, this one would be highly personalized and experiential in nature rather than statistical and sociology-like, and help to bridge the individual and society. This last approach might be especially productive in the Scioto Hopewell case, allowing insights into the *complementary* nature of Scioto Hopewell leadership roles, rights, duties, and domains, which were distributed among multiple persons in a decentralized manner. All three of the approaches to studying Scioto Hopewell leadership would be more experientially loaded than the broad, community and area-wide perspective taken in this book in Chapters 2 through 5.

Social Ranking

Whether Scioto Hopewell peoples were organized into groups of different social rank

and, if so, what the criteria for ranking might have been, are two questions that were explored in detail in *Gathering Hopewell* but were not answered satisfactorily. There, it was shown that archaeological patterns previously thought to define rank groups (Greber 1976, 1979a) do not align with the patterns proposed by contemporary middle range theory for identifying social ranking (Carr 2005f:241–247, table 6.1), and instead indicate the affiliations of persons in different local symbolic communities (Carr 2005a). The patterns that were evaluated were the differing total, ordinal-scaled quantities of artifacts of various kinds contained in graves in different sections of the charnel houses under the Seip-Pricer and Ater mounds, as well as the distributions of individual artifact classes, individual tomb characteristics, and the age and sex of the deceased among graves in different sections of the charnel buildings under the Seip-Pricer, Seip-Conjoined, Edwin Harness, Hopewell 25, and Raymond Ater mounds. In each of these cases, none of the artifact classes that represent unusual investments in energy expenditure and that were common enough to have been symbols of rank rather than leadership was found with adults, subadults, males, and females in the proportions that one would expect in a rank level of a society. Further, none of the artifact classes of these kinds concentrated in any single charnel house room. Also, no charnel house room held deceased adults, subadults, males, and females in the proportions one would find in a rank level of a society. Further, the prestige of persons buried in different rooms of a charnel building or charnel complex was not distributed pyramidally, whereby group size decreases as group prestige increases. Nor, alternatively, was prestige distributed such that groups of different prestige were of approximately similar size. Instead, the charnel house rooms with the materially richest burials, overall, also had the most individuals.

Three kinds of mortuary patterning remain to be examined for indications of social ranking and hold promise for determining whether it was an aspect of Scioto Hopewell society. These patterns differ in scale or form from

those explored above and include: (1) differences among mounds within an earthwork and/or its vicinity; (2) differences between inhumations and cremation in the later Middle Woodland period; and (3) qualitative distinctions in the elaboration of certain kinds of prestigious artifact classes.

Differences in artifact classes, artifact quantities, and/or tomb forms and sizes among different mounds within an earthen enclosure, or among the mounds in these large complexes and those in smaller ones within the same valley, might reveal rank groups. The mound in which a person was buried could have been a very substantial, visible symbol of the person's social rank. This possibility fits the crosscultural pattern whereby within-cemetery burial location is sometimes determined by the vertical position of the deceased, although less strongly than by horizontal social position (Binford 1971:22; Carr 1995:181), as well as the crosscultural tendency for differences in cemetery locations to be determined foremost by differences in vertical social position (Carr 1995:162).

One contrast between mounds that would be prime to investigate is that between Mounds 25 and 23 in the Hopewell earthwork. The contrast is a natural one. These are the two largest mounds by volume and burial population within the earthwork, both are loaf-shaped, and Mound 23 may have covered one or more charnel buildings like Mound 25, given the good number of posts, some large and deep, that were found under Mound 23 (Moorehead 1922:99–100, plate XLV). In both mounds, the deceased were largely inhumed rather than cremated. Yet, the two mounds differ greatly in the percentages of their deceased who were accompanied by fancy artifacts that marked leadership, sodalities, or other prestigious roles, the quantities of these artifacts per grave, and whether they contained large deposits of decommissioned social symbols and ritual paraphernalia – Mound 23 being diminutive in all these ways.³⁸ The far fewer marked leaders and sodality members buried in Mound 23 and the smaller ceremonies held on its burial floor cannot, however, be equated automatically with the lower rank of the persons buried

there, by contemporary criteria for identifying ranking archaeologically (Carr 2005f:241–247, table 6.1). These criteria, including ones for distinguishing symbols of rank from those of leadership, sodality membership, and other prestigious roles, will have to be applied systematically. In addition, further sexing of individuals through DNA analysis will be necessary in order to estimate with confidence the sex distributions of individuals in the two mounds. It would also be preferable to make bone and dental chemistry studies, in order to assess whether the persons buried under both Mounds 23 and 25 had lived much of their lives in the same geographic area. Ranking refers to prestige differences within a society, not between societies. Finally, studies of the relative health and relative work loads of the persons buried in the two mounds could provide supplemental information useful in evaluating the social conclusions drawn from the archaeological and demographic evidence.

Other contrasts among mounds of an earthwork complex that should also be considered in exploring whether Scioto Hopewell people were organized into groups of different social rank are between the large Mounds 25 and 23 at the Hopewell site compared to the 15 excavated small mounds with recorded burials, of the 36 small mounds within and around the enclosure (e.g., Lloyd 1998:7, table 2); the large Pricer and Conjoined mounds at the Seip site compared to the two excavated small mounds with recorded burials, of the 16 small mounds within and around the enclosure; the large Edwin Harness mound at the Liberty site compared to the three excavated small mounds with recorded burials, of the 17 small mounds within and around the enclosure; and the among the 14 excavated mounds in the Mound City site that are recorded to have had burials, of the 24 mounds within the enclosure. Time differences among mounds would be essential to consider in these studies (e.g., Greber 1983:90–91; 2003:91–92, 109).

At a somewhat broader scale, contrasts could also be drawn reasonably between burial mounds within a large earthen enclosure and small mounds that are in its vicinity and

within the lands of the same local symbolic community. Social ranking might have been distinguished by burial in mounds enclosed by earthen embankments, in contrast to burial in mounds not enclosed. Burials at the Seip site in the middle third of the charnel house under the Pricer mound, and in the middle third of the charnel house under the Conjoined mound, which include persons apparently affiliated with the local symbolic community in main Paint Creek valley (Carr 2005a:310–311; Thomas et al. 2005:364, table 8.11), could be contrasted reasonably with burials in the closely neighboring, smaller sites of Rockhold and Bourneville in the valley. Burials in the small site of West in the valley might also be brought into the comparison, although it is more distant from Seip, and possibly dates significantly earlier than Seip (see above, Regional Mortuary Programs and Intercommunity Alliances; and Chronological Uncertainties in the Scioto Paint-Creek Area). A similar but somewhat less controlled comparison might be made between burials in the Edwin Harness mound of the Liberty earthwork and burials in the smaller, neighboring McKenzie mound group. Burials from the south section of the charnel house under the Edwin Harness mound, which included persons who likely were affiliated with the local symbolic community in the Scioto valley (Carr 2005a:310–311) and which are more or less distinguishable from burials in the middle and north sections of the charnel house, could be compared with the burials from McKenzie.³⁹ The McKenzie mound group appears to date to late in the Middle Woodland period like the Edwin Harness mound, according to Ruhl's (1996:91, figure 9; Ruhl and Seeman 1998) earspool seriation.

A second kind of mortuary patterning that has potential for studying whether Scioto Hopewell peoples were organized into ranked social groups is the contrast between inhumation and cremation. Early in the Middle Woodland period, nearly all persons buried within the sites of Tremper and Mound City were cremated. Also, most persons were cremated at the West mound, which more likely dates to around the

time of Mound City than later (see above, Chronological Uncertainties in the Scioto-Paint Creek Area). However, by the later half of the Middle Woodland period, inhumation was used almost as commonly as cremation as a form of body treatment. Inhumations predominated at the sites of Hopewell, Old Town, and Bourneville, while cremations characterize Seip, Liberty, and Ater. These distinctions are not geographic: Hopewell, Old Town, and Ater occur in the North Fork of Paint Creek valley, whereas Bourneville and Seip occur in main Paint Creek valley. The distinctions do not symbolize different local symbolic communities. The three local symbolic communities represented by the three rooms of burials in the charnel house under the Pricer mound at Seip each cremated most or all of their dead. They did the same in the charnel house under the Edwin Harness mound at Liberty. Two of those local symbolic communities both cremated their dead and buried them separately in two rooms of the charnel house under the Conjoined mound at Seip. In contrast, at the Hopewell site, within the charnel structures under Mound 25, each of the three communities largely inhumed their dead and placed them in separate charnel rooms. The same pattern may have been followed at the Conjoined (Porter) mounds at the Old Town site. Thus, the inhumation-cremation distinction spanned multiple local symbolic communities and could have been a regionally-recognized symbol of a difference in rank or some other cultural category.

Whatever the contrast between inhumation and cremation meant to Scioto Hopewell peoples in the later half of the Middle Woodland period, it correlates with differences in the age-sex structures of the above burial populations (Hopewell site, Old Town site versus Seip-Pricer mound, Edwin Harness mound, Ater mound; Carr 2005a:278) to the extent that ages and sexes are known. The contrast also parallels differences in the relative importance of persons, specifically whether or not the person was a community-wide leader marked by a copper headplate or celt, or a member of a sodality marked by a copper breastplate or metallic earspools. More important persons

who were buried with these items tended to have been inhumed. The correlation between inhumation-cremation and social importance occurs both within single mounds and among mounds at different sites (Carr 2005a:279–280). These additional patterns must be accounted for when assessing whether the inhumation-cremation distinction represented a difference in social rank. My preliminary look at this issues suggests that the inhumation-cremation contrast did not mark social rank, but it is well worth a detailed evaluation.⁴⁰

A third kind of mortuary patterning that might reveal whether Scioto Hopewell peoples were socially ranked is qualitative distinctions in the elaboration of certain kinds of fancy artifact classes. Some examples that immediately come to mind, but that are false leads, include rare, copper earspools overlaid with silver or silvery iron versus common, plain copper earspools versus a person having none at all; rare, iron breastplates versus common, copper breastplates versus a person having none at all; and bear canines inset with pearls versus those not versus a person having none at all. These artifact classes have been shown through detailed statistical–contextual studies to have not indicated specifically social ranking and instead to have marked membership in an earspool sodality, a breastplate sodality, and a bear clan-specific ceremonial society (Carr 2005a:274–275, 280–286). Material differences among earspools, or among breastplates, or among bear canines might represent differences in the prestige achieved by different persons within the ceremonial society marked by that artifact class – similar to the levels of the historic Algonkian Midewiwin medicine society (Hoffman 1891) – but these distinctions are not ranking in the sense of societal-wide ranking as defined by contemporary American mortuary archaeologists who have followed Fried (1960, 1967) and Service (1962) and as meant here (see also Carr 2005f:239–241). Other fancy, Scioto Hopewell artifact classes that vary qualitatively in their materials or forms might meet contemporary middle-range theoretical criteria for identifying rank groups and would be worth searching for.

Researchers interested in the possibility of social ranking should not be confused about copper headplates that have deer antlers with differing numbers of tines. Headplates marked leadership – specifically community-wide leadership (Carr 2005a:282–283; Carr and Case 2005b:221–223) – and symbols of leadership must be carefully distinguished and excluded from potential symbols of rank when searching for rank organization (Carr 2005f:241–247, table 6.1). In addition, it is more likely that headplates with differing numbers of tines pertained to ceremonial rites of species growth and renewal than to leaders of differing prestige and power. A carved femur from Burial 278 under Mound 25 at the Hopewell site (Moorehead 1922:111, plate 82), or perhaps Burials 260 and 261 (Greber and Ruhl 1989:247, 269; Moorehead 1922:126, 128), depicts a person with a headdress that has antler stubs that transform into a full antler rack. It does not depict two persons, one with an antler-stub headdress and one with a full antler-rack headdress. Analogously, Burial 4 under Mound 13 at the Mound City site (Mills 1922:545) contained a copper headplate with three sets of copper antler racks – one with no tines, one with 3 tines, and one with 4 tines per rack. The antler racks possibly were alternative attachments to the copper headplate and worn sequentially by the person in the course of a ceremony of renewal, rather than by different persons at once to mark their distinctions in prestige and power. The three antler racks were found with one individual, not three.

Clans

Clans, and their places in the activities and organization of social, ritual, and political life of Scioto Hopewell people, have been identified with good detail. Their totems or eponyms, rough sizes, distributions among communities, relative wealth, access to leadership positions, ceremonial roles, and possible partnering into a phratry have each been addressed (Chapter 4, Clan Organization). Also known is a shift over time in the spatial layouts of mortuaries from one organized foremost apparently by

clan affiliation (i.e., Tremper mound) to one organized by local symbolic community (e.g., the Hopewell 25, Seip-Pricer, Seip-Conjoined, Edwin Harness, and Ater mounds) (Chapter 4, *Changes in Alliance Strategies*).

Nonetheless, important, basic questions about Scioto Hopewell clans still remain. These questions concern whether more clans than those previously identified were constituents of Scioto Hopewell societies, as well as social and ritual parameters of the clan system, such as recruitment, ownership of power through names and sacred packs, and ceremonial functions. The possibly different geographic origins of clans who resided in the Scioto-Point Creek area also warrants study.

Identification of Clans

Nine clans or groups of clans that have been identified to date for Scioto Hopewell communities, based on the occurrence of their animal power part markers in burials and the correspondences of these animal species to the common eponyms of clans in the Eastern Woodlands: bear, canine, feline, raptorial bird, raccoon, elk, beaver, nonraptorial bird, and fox (Thomas et al. 2005:358–361, tables 8.8 and 8.9). Still to be evaluated more thoroughly as possible clan totems or eponyms are opossum, deer, and turtle.

Drilled opossum teeth pendants were found in number along with drilled raccoon, fox, and mountain lion teeth pendants in a ceremonial deposit (the Burnt Offering) under the Seip-Pricer mound. That all four species were represented by analogous power parts, were made into pendants, and were deposited in association, and that raccoon, fox, and mountain lion have already been identified as Scioto Hopewell clan eponyms, suggests that opossum was, too. Opossum was, in fact, the eponym of a clan in at least one historic Eastern Woodland tribe (the Timucua; Thomas et al. 2005:344, table 8.1). Only the absence of opossum teeth from burials sets them apart from the power part markers of other clan-associated species identified for Scioto Hopewell peoples.⁴¹

A similar but weaker argument can be made for deer. A collection of 284 deer and elk

astragali were found together in a ceremonial deposit (the Central Altar) under Mound 4 of the Turner site, in southwestern Ohio. Again, that both species were represented by analogous power parts and were placed in association, and that elk has been identified as a Scioto Hopewell clan eponym, suggests that deer might have been, as well. The commonality of both deer and elk as clan eponyms among northern Woodlands tribes (Thomas et al. 2005:345, 360, tables 8.1 and 8.8) reinforces this conclusion. However, evidence that deer power parts were placed in burials and were worn as pendants in the Scioto-Point Creek area or at Turner is lacking, distinguishing them from the power parts of other animal species that have been identified as Scioto Hopewell clan eponyms. Further, the Turner site, for which some evidence of a deer clan exists, is removed geographically from the Scioto-Point Creek area.

Turtle was a common clan eponyms among historic Woodland tribes and might be supposed to have been among the clans of the Scioto Hopewell (Thomas et al. 2005:345, 360, tables 8.1 and 8.8). In general, the most common clans of the historic tribes were also Scioto Hopewell clans. A hint that turtle was a Scioto Hopewell clan eponym is found in the ceremonial deposit, Altar 2 under Mound 25 of the Hopewell site. There, a number of drilled tortoise shell pendants were found, analogous to the pendants typically made of power parts of other animals that have been identified as clan eponyms in the Scioto-Point Creek area. Significantly, the tortoise pendants had also been placed in association with a large number of pendants made from teeth and claw power parts of bear and with 690 foot bone power parts of small animals in the Altar (Moorehead 1922:114). A turtle shell pendant was also recovered in association with bear teeth pendants and a beaver maxilla power part from Burial Feature 4 under the Martin Mound, in the Walhonding valley in northeastern Ohio (Mortine and Randles 1978). These associations between tortoise/turtle shell pendants and pendants made of the power parts of other animals that were Scioto Hopewell clan eponyms suggest that turtle may have been among them.⁴²

Further evaluations of whether opossum, deer, and turtle were eponyms of clans in the Scioto-Point Creek area could be made by exploring and analyzing museum collections from ceremonial sites in the area. Unpublished instances of the power parts and power part pendants of these species might well be found, given the early dates and incompleteness of the reports written about Scioto Hopewell ceremonial sites. In addition, the 284 deer and elk astragali found in the Central Altar under Mound 4 of the Turner site could be examined for drill holes or cord-wrap wear marks showing that they were worn as pendants and/or for other wear marks indicating other long-term use and curation. Deer astragali showing such modifications and uses would reinforce the idea that the astragali marked deer clan members and that Scioto Hopewell peoples had a deer clan. No drill holes, however, are apparent in the published photograph of the astragali or mentioned in their textual description (Willoughby and Hooton 1922:64, plate 17e). Finally the species of the 690 small animals, the foot bones of which were found in Altar 2 under Mound 25 of the Hopewell site, might be identified in order to determine whether some or all were species of the eponyms of Scioto Hopewell clans. If some were, this would reinforce the conclusion that turtle, the remains of which were associated with the foot bones, was also a Scioto Hopewell clan eponym. Identifying the species of the foot bones might also reveal other possible clan eponyms currently unknown.

Beyond the possible addition of opossum, deer, and turtle to the list of nine, solidly identified Scioto Hopewell clans and clan groups, some of the nine might be refined by subdividing them into their constituent species as categorized by Woodland Native Americans. The Raptor, Nonraptorial Bird, and Feline groups could be subdivided. In the Eastern Woodlands, species of raptors that historically were eponyms of clans included bald eagle, golden eagle, eagle generally, hawk, pigeon hawk, turkey buzzard, and buzzard generally. Species of nonraptorial birds that served as clan eponyms included crow, raven, black bird,

martin, pigeon, partridge, and snipe, as well as the water birds swan, loon, and heron. Feline species included panther, lynx, and wild cat.

Determining whether any of these species were clans of the Scioto Hopewell would require a more detailed study of the modified animal bones curated in museums and the contexts of deposition of the bones. H. Thew's (n.d.) analysis of the fauna from the Great Cache under the Tremper mound is a good example of such work. She identified the animal maxillae and mandibles deposited in the Cache to be bear, wolf, coyote, puma, and bobcat. The wolf and coyote remains were largely maxillae and were modified in the same way, suggesting that they had been categorized together by Scioto Hopewell peoples and represented but one clan. This inference is supported by the fact that wolf and coyote are similar in body size (the coyote is about 85 % the size of a wolf), body shape, and dental formula and shape. Whether puma and bobcat were likewise categorized together by Scioto Hopewell peoples and represented one clan is less certain. The bones of both species are all mandibles and were modified in a like manner, and in one distinct from how wolf and coyote maxillae were modified. However, a bobcat is only about 50 % the size of a puma, making it more likely that Scioto Hopewell peoples would have seen the two species as distinct. This suggestion appears correct when the bobcat, puma, coyote, wolf, and bear remains are placed in the context of other artifact and spatial patterning at the Tremper site (Weets et al. 2005:543–545).

It is possible that Scioto Hopewell clans also included ones with eponyms other than animal species, as was the case for the clans of historic Woodland tribes. If so, some of these additional clans might have been marked materially in fairly direct ways and might be recoverable archaeologically, such as the historic hickory nut, tree, blackberry, sun, moon, arrow, paint, and calumet clans. I have not looked for evidence of these potential clans. Others clans might have been symbolized in much more elusive ways, such as the historic wind, water, night, cloud, salt, dirt, fresh land, stone, long dew, spirit, and medicine clans.

(See Thomas et al. [2005:344–346, table 8.1, appendix 8.2] for lists of clan eponyms in the Eastern Woodlands).

Social and Ritual Parameters of the Clan System

The clan systems of the historic Central Algonkian tribes, including those of the Prairie (Sauk, Fox, Kickapoo, Potawatomi), Woodland (Menomoni), and Ohio Valley (Shawnee, Miami, Illinois) tribes, differed from one another at A.D. 1800 in several key ways. These differences include: (1) whether the clan was a descent group comprised of actual or conceptually related lineages; (2) whether its members claimed descent from a totem; (3) whether it owned a stock of names, which were sources of power, and was responsible for naming individuals; (4) whether its constituent lineages owned sacred packs that embodied the powers of intense visions of founding ancestors; and (5) whether it had ceremonial responsibilities, typically associated with a sacred pack. In addition, none of the Central Algonkian tribes had clans that (6) controlled land or property, and/or (7) determined residence. (8) In all of these tribes, clans helped to regulate marriage; marriage within the clan was prohibited. However, in a few tribes, marriage was further restricted by a moiety system (Callendar 1962:11–42; see also Tooker 1971).

The nature of Scioto Hopewell clans relative to most of these eight parameters remains to be defined. It has already been shown empirically that Scioto Hopewell clans were not likely corporations that regulated residence and controlled property. Scioto Hopewell clans were not segregated from one another in different local symbolic communities (Thomas et al. 2005:363–365). Also, they were similar in wealth, suggesting but not demonstrating that property was not transferred and accumulated within the clan (Thomas et al. 2005:375–377). These characteristics fit those of historic Central Algonkian clans.

The question of whether Scioto Hopewell clans were descent groups, or tended to be so, could be addressed by comparing the bone

and dental genetic make-up, chemistry, and morphology of persons buried with different clan markers and within the approximately coeval charnel houses under the Hopewell 25, Seip-Pricer, and Ater mounds. A strong pattern of descent within clans would in turn suggest that clan eponyms were conceived of as totemic ancestors, in the historic Woodland (Menominee) pattern (Callendar 1962:35). A weak pattern of descent would suggest that clan eponyms were associated with clan ownership of a stock of eponym-related names and with naming, as in the historic Prairie pattern, and/or with the control of naming to the extent of requiring a name to refer in a manner to the clan eponym, as in the historic Ohio valley pattern (Callendar 1962:29–30, 40; Howard 1981: 87–88).

Both ancestral totemic linkage to a species and name linkage to a species were means by which Central Algonkian tribes transferred power in nature to the individual. Whether the difference between these two means had ramifications for the acquisition and distribution of social power I am uncertain; this topic should be explored ethnologically and applied to the Scioto Hopewell case. However, totemic linkage did involve an origin legend and a ceremony describing the formation of the entire clan system, whereas name linkage did not (Callendar 1962:35). It would be fruitful to examine in detail whether large ceremonial deposits that contained the power parts of a wide range of animal species (i.e., the Burnt Offering under the Seip-Pricer mound; the Central Altar under Mound 3 at the Turner site) might represent the remains of clan system origin ceremonies, and to compare this conclusion to the results obtained from bone and dental genetic, chemical, and morphological studies of descent, with their implications for whether totemism was an aspect of Scioto Hopewell clan organization.

Whether Scioto Hopewell clans had sacred packs is significant, especially to the issue of how individuals obtained spiritual power. Sacred packs that embodied the powers of visions of founding ancestors of clans were used in clan naming ceremonies as a means of

linking an individual to power in nature, among the historic Prairie Algonkian tribes (Callendar 1962:31). In contrast, sacred packs were not owned by clans and did not link individuals to power in nature among the Ohio valley tribes and the Menominee. Instead, sacred packs were owned by groups who neither oversaw naming nor thought themselves descended from a totemic species. Among Ohio Valley tribes, sacred packs were owned by large tribal divisions, which were localized, patrilineally related village groups. Among the Menominee, sacred packs were used by hunting and war sodalities.

In the Scioto Hopewell record, identifying sacred packs will require careful contextual analysis. Publications and field notes will have to be combed for small clusters of artifacts in tight spatial association, preferably with the artifacts having indications of having been wrapped in fabric or a pelt, as were historic Central Algonkian sacred packs. Scioto Hopewell people did wrap and sometimes bundle breastplates and large copper celts with these materials. Whether any discovered sacred packs can be determined to have been clan-owned will depend on their content and any patterning among them in their contents and depositional contexts.⁴³

The ceremonial responsibilities of Scioto Hopewell clans to the broader community have been explored to a degree. It is likely that the Bear and Canine clans were responsible for certain stages of mortuary rites, such as body processing and/or psychopomp work, based on several lines of evidence. These include the disproportionate abundance of their markers in graves, the unexpected co-occurrence of their markers with those of other clans, and sculptures of a bear-man possibly with a decapitated head in his lap and of a dog eating a decapitated head (Chapter 4, Clan Organization; Figures 4.6B and 4.14).⁴⁴ Whether Scioto Hopewell ceremonies included any of the broader range of community-wide ceremonies enumerated in Table 4.11 for historic Woodland and Plains Indians, and what roles clans might have played in them, have scarcely been studied. Clans in historic Prairie

Central Algonkian tribes were key means for organizing ceremonies pertinent to community welfare. They owned both ceremonies and sacred packs necessary to performing the ceremonies (Callendar 1962:31). In contrast, clans of the Ohio Valley Algonkian tribes and the Menominee were not responsible for performing community ceremonies and did not own sacred packs (Callendar 1962:35, 41). It has been suggested above that a ritual drama pertinent to the whole of the cosmos and the relationships of its many dimensions and realms to one another and the whole was performed and resulted in the Copper Deposit adjacent to Burials 260-261 under Hopewell Mound 25. How clans might have figured into this ceremony could be investigated, considering the animal forms and designs in the deposit and perhaps the contents of nearby Altars 1 and 2.

Clan-specific ceremonies for clan needs, such as naming, refurbishing the clan pack and ratifying the original pack agreement made by the founder, and other periodic rites, were integral to the life of the Prairie Central Algonkian tribes (Callendar 1962:31). Ceremonies specific to a clan, or a few clans, seem to be evidenced in the Scioto Hopewell record by ritual deposits and graves that contained large numbers of power parts of one or a few species. Large deposits of solely elk canine pendants have been found at the Mound City site (Mound 8, Burials 2, 3; Mound 2 Burial 16). Deposits with only bear canines are known from the Seip site (Pricer mound, Cremation Basin 2 and the Burned Offering), the Hopewell site (Mound 25, Burial 34), and the Liberty site (Edwin Harness mound, a cremation). At Mound City, a large deposit (Mound 13, Deposit 5) contained many elk canine pendants, and some bone effigy bear canine pendants and copper effigy turtles, the latter of which might or might not have been clan markers. At the Hopewell site, a large deposit of wolf and fox teeth pendants was recovered (Mound 23, Skeleton 207), as well as a large deposit of raccoon teeth and bear claws (Mound 25, Burial 41). The specific functions of the ceremonies represented by each these 10 deposits might be identified by considering the

social, ritual, and/or utilitarian functions of the other kinds of artifacts found in the deposits.

Clan Origins

It is possible that the number of clans in the Scioto-Paint Creek area increased over time during the Middle Woodland period (Chapter 4, *Clan Organization*). Animal power parts indicating the Raptor, Raccoon, Elk, Beaver, Nonraptorial Bird, and Fox clans were not buried in the very early charnel house at the Tremper site, but were included in later charnel houses at the Mound City, Hopewell, and Seip sites (Table 4.7). If the Scioto Hopewell clan system did grow over time (Chapter 4, Note 9), a critical question is whether the new clans formed in the area, or were migrant clans that came into the area from farther up and down the Scioto drainage or elsewhere, having been attracted to the increasingly showy ceremonies performed in the area. The concentrating of peoples into the Scioto-Paint Creek area from up and down valley seems likely from available population distribution data (Chapter 2, *Ecological Setting*; Seeman and Branch 2006), and might have been accomplished socially through the channel of clans and interclan relations.

To explore this possibility, the genetic constitutions and the chemical and morphological bone and dental signatures of individuals buried with markers of clans that were present in the Scioto-Paint Creek area at the beginning of the Middle Woodland period might be compared with the constitutions and signatures of individuals buried with markers of clans that appear to have been additions later in the period. These two categories of individuals should be more distinct from each other than are individuals who were members of clans that were present in the Scioto-Paint Creek area from the beginning of the Middle Woodland period. This would be expected regardless of whether clans were also descent groups.

Sodalities and Ceremonial Societies

The basic fact that Scioto Hopewell peoples had sodalities and ceremonial societies in

addition to their kin and residential units has been established only very recently (Carr 2005a:280–286). Sodality organization had previously been thought to have arisen in the early Late Woodland period (Braun 1977, 1986:123–125). Current understanding of the sodalities and ceremonial societies includes: the firm identification of four such groups represented by metallic breastplates, metallic earspools, platform smoking pipes, and modified bear canines, with likely two more groups marked by mica mirrors and galena cubes; something of the ceremonial functions of most of these groups; their cooperation together in complementarity to perform large ceremonies, on occasion; the overlap in the memberships of at least some of the groups; the moderate differences in prestige among them; their not having been organized into a ranked hierarchy, with membership in one group as a requisite for membership in another; and the possibility that some of the ceremonial societies had grades of members (Chapter 4, *Sodalities and Ceremonial Societies*; Carr 2005a: 280–286; Thomas et al. 2005: 361–362).

Knowledge about Scioto Hopewell sodalities and ceremonial societies could be advanced along eight, key topical fronts. First is the identification of possibly additional sodalities beyond those documented thus far. Second is the geographic expanse of sodality memberships. Third is the possibility of grades of prestige within some sodalities. Fourth is the relationship of long-distance procurement of the fancy raw materials used to create sodality paraphernalia to sodality rites and activities. Fifth, who crafted the exquisite paraphernalia that sodalities used? Sixth, did leaders of different kinds vary in their power bases by having been more or less well networked socially through membership in one or more sodalities or ceremonial societies? Seventh, what was the relative importance of geographically dispersed clans compared to sodalities and ceremonial societies in integrating residential communities and local symbolic communities? Eighth, were any of the different ceremonies that were performed by different sodalities and

societies linked together over time as a sequence comprising an annual or other ceremonial cycle? I discuss the first six topics, which are the most tractable archaeologically.

Identification

To date, three sodalities and one clan-specific ceremonial society of Scioto Hopewell peoples have been identified with good certainty. These groups were marked by metallic breastplates, metallic earspools, smoking pipes, and modified bear canines. The identity of the groups has been inferred from their markers having been placed in large numbers in ceremonial deposits within charnel houses and the markers having been distributed among burials and cemeteries in accord with six criteria (Chapter 4, Sodalities and Ceremonial Societies).

Other artifact classes that also were deposited en masse within charnel houses and that require further study to see whether they marked sodalities or clan-specific ceremonial societies include mica mirrors, galena cubes, obsidian bifaces, and the teeth of elk, raccoon, fox, and canids. Determining the ages and sexes of more individuals who were buried with each of these kinds of items is possible and would improve the ability to evaluate whether or not the items marked sodalities or ceremonial societies. Genetic approaches to sexing will be necessary if sexing of skeletons in the Scioto-Paint Creek area is to be markedly improved. A restudy of the large skeletal series from the Ater mound using modern osteological methods would be helpful, however.

The Geographic Expanse of Sodalities

It is unclear whether breastplates marked one sodality that spanned multiple local symbolic communities in the Scioto-Paint Creek area, or multiple, like sodalities each with members from a single local symbolic community. The same is the case for earspools. For example, late in the Middle Woodland period, did breastplate owners who resided during life in the community in main Paint Creek valley and in the community in North Fork of Paint Creek valley and in the community in main Scioto

valley all belong to the same sodality and meet together? Or did breastplate owners in the three valleys belong to three separate but like sodalities? This subject is critical because it concerns the specific means by which the multiple communities in the area were integrated, just how tightly integrated they actually were, and how they might have served in organizing and accomplishing the remarkable earthwork-building feats in the region.

A related key question is how the rise of possible pan-regional breastplate and/or earspool sodalities over the course of the Middle Woodland might have complemented or coordinated with the development and refinement of joint burial ceremonies as a means for forging alliances among local symbolic communities.

Efforts to explore these two related, geographic questions might be started by identifying through dental and bone chemistry the valleys of birth and childhood, and of adulthood, of persons who were buried with earspools or breastplates. The life histories of persons in the same charnel house rooms, same charnel houses, and different charnel houses in the same or different valleys might then be compared in order to work out the geographic expanse of the memberships of the sodalities.

Grades of Prestige

Some sodalities and ceremonial societies in the Scioto-Paint Creek area might have had grades of prestige through which members passed upon attaining set achievements. The levels of the historic Algonkian Midewiwin medicine society (Hoffman 1891) serve as one analog. Hints of these grades in the Scioto Hopewell case are found in qualitative variations among the material markers of a given sodality or society and the lesser frequencies of fancier variants: earspools of plain copper (very common) versus those overlaid with meteoric iron or silver (moderately rare); breastplates of copper (very common) versus those of meteoric iron (extremely rare); plain bear canines (common) versus those inset with pearls (less common) versus bear claws (less common) versus bear jaws (rare) (Chapter 4, Overlap in

Membership Among Sodalities and Grades of Achievement).

These artifact variants could be evaluated for whether they did represent prestige grades by noting the qualities and numbers of other kinds of artifacts placed in the graves of persons with different variants. If fancier, rarer markers of a sodality and society marker (e.g., silver covered earspools, bear canines set with pearls) are found to have occurred in generally richer graves (more prestigious or powerful persons), and more common, plain markers in generally more mundane graves (less prestigious or powerful persons), then the likelihood that the variants did represent grades of prestige within that sodality or ceremonial sodality would be improved.

Materials Acquisition

The roles that sodalities might have played in obtaining the distant, fancy raw materials from which their paraphernalia was made, and perhaps the paraphernalia of Scioto Hopewell leaders, needs to be thought out, examined in relation to possible ethnographic analogs, and investigated empirically. The materials that were used to make the ceremonial paraphernalia of Scioto Hopewell sodalities and possible sodalities include: copper and silver from the Keweenaw peninsula in Lake Superior for breastplates and earspools (Spence and Fryer 2005), Sterling pipestone from northwest Illinois and catlinite pipestone from Minnesota for platform smoking pipes (Emerson et al. 2005; Farnsworth et al. 2004), probably mica from the southern Appalachians for mirrors, probably galena from the upper Mississippi valley (Walthall 1981:41), and possibly obsidian from Yellowstone, Wyoming and the Camas-Dry Creek formation in Idaho for large ceremonial blades (Griffin 1965; Hatch et al. 1990; Hughes 2006; Wiant 2000).

The long-distance journeys that were necessary to get these materials might have been part of the rites of initiation of persons into sodalities or collective pilgrimage rites of sodalities (Carr 2005d:582–585; Gill 1982:101–105). The locations to which initiates and member-pilgrims would have traveled almost

certainly would have been considered powerful, by their distance, geologic qualities, and/or weather (Bacon 1993; Carr 2005d:582–584; Helms 1988; Martin 1999; Turff and Carr 2005:672–676), and the journeys considered in part a quest for power to be managed, integrated, and used through sodality rites. In this scenario, a Scioto Hopewell sodality would have had (owned?) the spiritual knowledge and ritual practices necessary to safely remove material-spiritual power from its source, to work the material into powerful ceremonial paraphernalia, and to use that paraphernalia in ceremony for specific purposes. The ownership of sacred knowledge by Puebloan kiva and other ceremonial organizations and the necessity of that knowledge to perform specific ceremonies (Brandt 1977, 1980) would be an example of this logic.

On the other hand, the long-distance journeys made by Scioto Hopewell peoples to powerful places also might have been accomplished by small groups of individuals on vision and/or power quests unrelated to sodality activities. The Algonkian vision quest (Callender 1978a, b, e; Callender et al. 1978; Skinner 1913) of boys and girls being initiated into manhood and womanhood, and of shaman (Dewdney 1975:22), are examples. It is unlikely, however, that the materials that an individual obtained during a personal vision quest and that served as a tangible manifestation of his or her personal power would have then been exchanged to others within the Scioto-Paint Creek area upon returning home, including members of sodalities that used those materials to make their paraphernalia.

Production of Ritual Paraphernalia

Closely related to the issue of what roles sodalities might have played in acquiring the distant raw materials from which their paraphernalia was made and that marked their members at burial is who manufactured their paraphernalia. This question concerns the organization of production of ceremonial paraphernalia. The question probably has multiple answers, depending on the kind of paraphernalia and the technical expertise required to manufacture it

(K. Spielmann, personal communication 2006), and probably whether the sacred knowledge and/or formulae necessary to produce the item was restricted to a few persons or widespread in Scioto Hopewell communities. Platform smoking pipes, with their exquisite animal effigy sculptures and tight stylistic conventions, were probably made by a very small number of artists (Otto 1984:24; 1992:5). The artists would more likely have been pipe sodality members, perhaps of a high level of prestige within the sodality, considering the strong cross-cultural relationship in small-scale societies between the creative process of manufacture, the power that it involves or connects with and harnesses, the power of the manufacturing tools, the power of a manufactured item, and the producers who can control those powers and use the item (e.g., Escobar 2007:19, 66–67, 110–111, 138, 142–144, 217; Helms 1993:18–32, 53; McNaughton 1988:xvi, 16, 20–21, 42–43, 58–64, 103, 111–114, 121–139; Richards 1989; see also Eliade 1964:470–474). For example, among the Pueblo, those members of a sodality who make masks, paint, and certain other ceremonial paraphernalia are restricted to particular persons (Spielmann 1998:156, multiple references therein). However, it is possible that the Hopewell artists who made pipes were a few individuals who were not pipe sodality members and whose productions were commissioned by the members. Analogously, the masks of the Iroquois False Face sodality were both commissioned from outside persons and carved by its members (Ritzenthaler 1969:15). Scioto Hopewellian obsidian bifaces that were large, yet thin, also were probably made by a very few expert knappers, again more likely high-level members of the sodality that used these items, but possibly not.

Some kinds of Scioto Hopewell paraphernalia are technically more easy to produce, and might have been made by the members at large of the sodality that used the paraphernalia, or by others outside the sodality. However, in these cases, the sacred knowledge and/or formulae necessary to safely and effectively produce such an object of power might have been socially restricted, thus limiting those who actually

produced the object to sodality members or a select few within the sodality. Such paraphernalia possibly include small obsidian bifaces, metallic earspools, metallic breastplates, mica mirrors, and drilled bear canines. The same is true of the techniques employed to patinate copper breastplates with multicolored images of animals, animal-humans, and humans in ceremonial garb (Carr 2000d, 2005e; Carr et al. 2002). For each of these more easily made kinds of ceremonial paraphernalia, the possible act of all members of a sodality together manufacturing that one kind of paraphernalia could have been an integral aspect of the sodality's collective ceremonies.

Galena cubes were used without modification and do not raise the question of who manufactured these possible sodality items.

For all of the kinds of manufactured ceremonial paraphernalia used by Scioto Hopewell sodalities (and leaders), it is unclear whether those who acquired the raw materials to make the paraphernalia, those who manufactured the items, and those who used them were the same or different individuals. There is also the possibility that the person who dreamed or was otherwise the source of inspiration for the design of an item was yet a different individual (e.g., Rosenthal 1995). Further, different stages in the production of an item might have been carried out by different individuals by social and belief restrictions (e.g., Dawson 1975:148; Roe 1979:199–200). All of these possible divisions in the work of forming and using ceremonial paraphernalia imply potential points for social exchange, complementarity, and interdependence. They would not have been out of place in Scioto Hopewell society, which was characterized by many axes of differentiation of social and ritual roles, and by marked role complementarity (see Chapter 4).

In none of the above cases of production of ceremonial paraphernalia is it likely that a sodality of artisans made items of a kind for beyond their own use – for members of a community or several communities to use in ceremonies. This form of production and distribution is exemplified by the Gitsontk sodality of carvers among the Tsimshian of the Northwest

Coast, who were the only persons allowed to carve ritual paraphernalia and did so for commoners and chiefs (Shane 1984; Spielmann 1998:155; 2002:200). The practice of sodality-based production of ceremonial equipment for the wider society does not seem pertinent to the Scioto Hopewell case because none of the above kinds of paraphernalia had community-wide distributions, or even close to community-wide distributions, in graves of the deceased.⁴⁵

Leadership and Sodalities

The bases of power of Scioto Hopewell leaders of various kinds have been documented for the most part. The power of leaders can be traced to the shamanic tasks they performed, as well as the shaman-like world view of Scioto Hopewell peoples, including the idea of power obtained from animal spirit helpers and other nonhuman beings and expressed through transformation. One or a few kinds of primarily “secular” activities may also have brought leaders power (Tables 4.1 and 4.2). Not yet investigated is the degree to which leaders of different kinds might have varied in their power bases by having been more or less well networked socially through membership in one or more sodalities or ceremonial societies. This topic could be explored by observing the frequencies of graves of leaders of given kinds that contained sodality or society markers. A similar analysis of the varying power bases of different clans, including their involvement in sodalities, has been made (Thomas et al. 2005: 375–377, table 8.15) and can serve as a model for the proposed study.

Gender Roles

Through studies of skeletal biology, grave good distributions, and ceramic figures, all presented in *Gathering Hopewell* (Rodrigues 2005; Field et al. 2005; Keller and Carr 2005), the world of gender definition and relations in the Scioto, Miami, Mann, and Havana Hopewell areas was opened for exploration and discussion. Tentative understandings are presented there about the number of genders that Hopewell peoples recognized;

role definitions of masculine and feminine; the distribution and complementarity of roles among the sexes; gender inequity in personal prestige and leadership; the distributions of work loads, physical traumas, and disease loads among the sexes; and the lack of contribution of gender patterning to any single, interregional Hopewellian ideology.

Marked improvements and some alterations in our understanding of these gender conditions in the Scioto-Paint Creek area, and more broadly in Ohio, might be obtained if the numbers of skeletons identified to sex were increased substantially by DNA analysis. Some of the gender patterns found by Field et al. (2005) and Rodrigues (2005) were based on small numbers of sexed individuals and might change with a larger sample. In addition, an analysis of the musculoskeletal stress markers of Hopewellian human remains from the Scioto-Paint Creek area has not been made. Rodrigues’ (2005) study of MSM was limited to the Turner site in southwestern Ohio. A study for the Scioto-Paint Creek area could shed important light on occupational and role differences between men and women there, and in contrast to role differences in southwestern Ohio.

ECONOMIC ORGANIZATION AND SOCIO-POLITICAL RELATIONS

In both this book and *Gathering Hopewell*, the authors and I have not ventured to reconstruct the forms of economic organization that Scioto Hopewell peoples might have had internal to the region. Nor have we considered the relationship of economic organization to socio-political relations among individuals and social groups, such as how control over material acquisition, production, and/or distribution might have been used politically for gain in prestige, power, and/or authority. Our silence on these matters results largely from the lack of much direct evidence in the Scioto Hopewell record for specific forms of economic organization, and our unwillingness to lay crossculturally inspired economic and political interpretations

upon Scioto Hopewell peoples without that empirical backing (*contra*. Braun 1986:117; Brown 1981:36; 1997:243; Ford 1974; Milner 2004:94–95; see above, Social Competition).

Common subjects of economics that require study in the Scioto-Hopewell case include the social organization of production, distribution, exchange, and consumption; surplus; Hopewellian measures of value of exchangeable items (e.g., labor, raw material qualities); and labor specialization. The issues of production, distribution, exchange, and consumption each entail sensitivity to and defining of native categories of things that were thought exchangeable or not considering their social functions and ideological loadings, as well as defining of “spheres of exchange” (Bohannon 1955). By the latter is meant kinds of things that might or might not have been thought exchangeable for one another, given their native classification into categories with different qualitative meaning and value. One essential part of this definitional work is breaking apart the etic category of fancy artifact classes lumped under the label of “social valuables” or “prestige goods” into kinds of items that differed in their social functions, ideological loadings, and qualitative values, and thus whether they could be exchanged and, if so, their rough equivalencies (e.g., Table 4.1; Bayman 2002; Carr 2005f:241–245, table 6.1; Carr and Case 2005b:206–207, table 5.4; Carr et al. 2005, appendix 13.2; Winters 1968).

Production

The production of the ceremonial paraphernalia used by sodalities (e.g., metallic breastplates, earspools, platform smoking pipes, large obsidian bifaces) has already been considered above. A privileged few members of a sodality, all of its members, or talented artists outside of the sodality might have made its ritual items, depending on the technical complexity of the artistic processes involved and possibly on who had and did not have access to sacred knowledge and formulae necessary for producing the items (see above, Production of Ritual Paraphernalia). Who produced the diverse, relatively

uncommon kinds of paraphernalia used by Scioto Hopewell leaders of the shamanic, shaman-like, and nonshaman-like kinds (e.g., metallic headplates, carved batons, copper and mica crescents, reel-shaped gorgets, certain copper geometrics, Table 4.1) is unknown. One possibility is the leaders, themselves, considering the crossculturally common equation or functional linkage between the power of crafting materials and the power of crafting social and sociopolitical relations as a leader (Helms 1993:69–77). Another possibility is select artisans as individuals or as groups analogous to the Tsimshian’s Gitsontk sodality of carvers, who made paraphernalia for Tsimshian chiefs (Shane 1984; Spielmann 1998:155, 2002:200).

Production of some kinds of ritual items by groups of persons who worked together is evident at the Seip earthwork (Baby and Langlois 1977, 1979), but the social composition of those work groups has not been identified. Sodality members who were readying themselves for their collective rites is one possibility. Some other kinds of ceremonial paraphernalia possibly used by individuals on their own for their own purposes (e.g., cones and plummets for divining, flutes) were likely produced by these lone individuals, perhaps in conjunction with their having “bought” the prerogatives to produce and use the item (Penney 1989:159–229 and ethnohistoric references therein).

The role of sacred knowledge in limiting who could and could not produce various kinds of ceremonial paraphernalia is difficult to grapple with empirically because it is hard, if not impossible, to specify who produced those items compared to who used and/or were buried with them. There are hints, however, of sacred knowledge having been a key restricting factor in the manufacture of certain kinds of items. The very, very narrow range of stylistic variation of the animal effigy smoking pipes found at the Tremper and Mound City sites suggests a very small number of artisans (Otto 1984:24, 1992:5) and limitation on who was allowed to make them. The cautious saving of most obsidian and quartz debitage from knapping obsidian and quartz points, and the

depositing of the debitage in compact ceremonial settings (Hopewell Mound 11, Crematory Basin; Stubbs, Koenig Cache; Cowan 2005; Shetrone 1936:202) implies restrictions on contact with obsidian and quartz, and probably those who could have handled it. The lack of nearly all forms of fancy raw materials and production debris from working them, other than mica and Indiana hornstone, at domestic sites in southern Ohio (Dancey 1991; Dancey and Pacheco 1997b; Prufer et al. 1965) suggests limitations on minimally where these materials could be worked, if not by whom. Only mica scrap has a widespread distribution across domestic sites as well as ceremonial centers, implying relatively freer access of individuals to working it and more open availability to any sacred knowledge and formulae that might have been involved in working it. Indiana hornstone is less widely distributed among domestic and ceremonial sites, but does occur in some domestic sites in significant quantities, suggesting openness in working it. Its significant presence at only some domestic and ceremonial sites seems to reflect when nodules of the material became available to local peoples by direct procurement or exchange (Pacheco 1993), rather than any cultural restrictions on who could work it or where it could be handled.⁴⁶

Although specialization in production of ceremonial paraphernalia by sodalities and select persons within sodalities is likely, and specialization by small groups of artisans outside of sodalities is a possibility, there is not convincing evidence for specialization by local symbolic community. It is true that certain raw materials and paraphernalia were deposited in quantity in only particular earthworks: mica cresents at Tremper; platform pipes at Tremper and Mound City; quartz projectile points at Mound City; mica mirrors and galena cubes at Mound City and Hopewell; large obsidian points, hornstone bifacial disks, and cones and hemispheres at Hopewell; copper celts at Hopewell and Seip; copper breastplates at Hopewell, Seip, Liberty, and Old Town; and large “Copena” pipes at Seip. However, the differentially concentrated distributions of all of these kinds of ceremonial paraphernalia can be explained by three intersecting factors: the differing times of use of

these different sites, the different times of origin of various sodalities and their rise and fall in popularity over time, and distinctions in site function – specifically, Mound City and Hopewell as places of burial of disproportionately large numbers of leaders and prestigious individuals, in contrast to Seip, Liberty, and Old Town where broader social spectra of individuals were buried.

Whether any utilitarian goods were produced by specializing individuals, households, or communities is unknown. The roughly equitable distribution of potting clays, lithics, wood, bone, and other natural resources among households and across valleys and local symbolic communities in the Scioto-Paint Creek area does not necessarily imply a lack of specialization. In small scale societies, different villages may specialize in making different kinds of utilitarian goods, despite environmental homogeneity in raw materials, as a social strategy for developing exchange networks and alliances (e.g., Chagnon 1968:100–101; Spielmann 2002:198 and references therein).

Local Exchange

It is possible that households and kin dispersed over the Scioto-Paint Creek area exchanged foods with one another directly with some regularity (Ford 1974). However, spatial leveling of subsistence risks might equally have been achieved through logistical trips to different natural food patches. This option appears to have been open to Scioto Hopewell peoples, given the lack of evidence for local or regional population packing (Chapter 2, Ecological Setting, Opportunism; Chapter 3, Sustainable Communities; above, Social Competition). Food was shared and exchanged through ceremonial feasting within and around earthen enclosures (Seaman 1979b), but the frequency of such events and the amount of food exchanged and its impact on annual diet are unknown. Utilitarian ceramic vessels were exchanged distances as great as about 25 kilometers radius and with frequency, as evidenced by a chemical analysis of vessel

pastes and natural clays (Yeatts 1990; see also Carr and Komorowski 1995). Prestige goods in the form of shell and pearl necklaces and copper bracelets might have been exchanged to balance social debts, as compensation for damages, as bride-price, and for other social transactions. There is no direct evidence for these activities, but they were common historically among Woodland Indians (see shell and copper in Table 11.3, Appendix 11.8). Few, if any, of the diverse kinds of elaborate ritual paraphernalia made of fancy, exotic raw materials and used by sodalities (e.g. metallic breastplates, metallic earspools, obsidian bifaces, animal effigy platform smoking pipes) or by leaders (e.g., metallic headplates, carved batons, copper and mica crescents, reel-shaped gorgets, certain copper geometrics) would likely have been exchanged. Rather, their retention is what one would expect, given their instrumental purpose in defining the social-ceremonial roles of individuals. Moreover, animal effigy platform smoking pipes embodied the personal relationship of an individual to his or her animal tutelary spirit, with which an individual would not have wanted to part. Ceremonial paraphernalia that were likely produced by individuals for their own purposes (e.g., cones and plummets for divining, flutes) might or might not have been considered exchangeable. The power that such an item might have been thought to accrue over its history of use could have discouraged its exchange. So, too, could have the personal relationship that an individual developed with a ceremonial item over time, especially if that item were thought to have personhood (Hallowell 1960). However, prerogatives to the manufacture and use such items might have been “sold” and “bought” (Penney 1989:159–229). In general, evidence for the lack of interregional exchange of many kinds of fancy ceremonial paraphernalia – including effigy platform pipes, bird-effigy Hopewell ware vessels, ceramic figurines, metallic earspools, metallic sheathed panpipes, and copper celts (Bernardini and Carr 2005; Carr 2005d:592–594; Keller and Carr 2005; Penney 1989; Ruhl 2005; Turff and Carr 2005), and possibly alligator teeth, barracuda jaw

scratchers, and obsidian (Bernardini and Carr 2005; Griffin 1965, 1973) – parallels the above arguments for such items not having been exchanged locally.

The frequency and geographic distances of marriage exchanges in the Scioto-Paint Creek area and elsewhere in Ohio, and their relationship to the degree of social competition over mates, have not been documented (see above, Social Competition). Some insights into frequencies and distances of marriage exchanges could be gotten through bone and dental genetic, chemical, and/or morphological studies of descent, relatedness, and local out-marriage/in-marriage ratios, drawing upon the skeletal samples of different communities excavated from different rooms within the charnel buildings under the Hopewell 25, Seip-Pricer, and Ater mounds, and from other smaller mounds.

Surplus

Whether Scioto Hopewell households produced food surpluses annually, whether the food requirements of social gatherings for ceremony and to build earthworks drove a surplus production of staples dedicated to times of gathering, and what roles prestigious individuals might have had in driving any surplus food production are all unknown. Storage pits are rare in the Middle Woodland houses in southern Ohio at large, and none are known from charnel buildings. However, alternative forms of storage remain a possibility (Chapter 2, How Important Was Farming?).

Socio-Political Uses of Economic Relations

Without much of an empirically firm understanding of the local economic organization of Scioto Hopewell peoples, we are not currently in the position to study how individuals and social groups might have used economic relations to their advantage to generate prestige, power, or privilege (if any), and to secure and retain specific leadership positions within and across local symbolic communities. For example, without knowing what categories

of individuals had rights to produce specific kinds of paraphernalia and symbols of religious potency, it is unclear who, if anyone, might have used such control over production to leverage socio-political gain and how operationally they might have done so (for possibilities, see DeMarrais et al. 1996:16; Helms 1976; Penney 1989). Without knowing the patterns and intensities of local exchange of foods and utilitarian goods through either secular or ceremonial spheres in the Scioto-Paint Creek area, one cannot begin to explore whether and how heads of households, lineage or clan segments, or communities might have orchestrated such exchanges to their or their social unit's advantage (for possibilities, see Braun 1986; Ford 1974).

Some might be tempted to argue that control over the production of fancy ceremonial paraphernalia by leaders, sodalities, clans, or other individuals or groups went hand-in-hand with these persons or groups broadcasting their power through elaborate material displays during social gatherings at ritual centers, as evidenced by the large ceremonial deposits generated there. However, without knowing who produced particular kinds of paraphernalia, and given the likely cooperative and complementary social relations rather than intense competition expressed through such displays (see above, Social Competition), this linkage appears more misleading than productive. Consider also the Tsimshian case (Shane 1984; Spielmann 1998:155, 2002:200), where leaders who displayed fancy ceremonial paraphernalia were disconnected from the means of production of those paraphernalia by the Gitsontk sodality of carvers, who controlled the production of ritual paraphernalia for Tsimshian chiefs and commoners.

What does appear correct is that fertile ground for exploring how prestige, power, privilege (if any), and leadership were created among Scioto Hopewell peoples probably lays more in the realm of religious beliefs and practices and their connection to the material than in the arena of secular economic activity. This situation is indicated by the heavy balance for Scioto Hopewell leaders and sodalities

to have been shaman-like practitioners rather than secular ones (Chapter 4, Power Bases of Leadership).

COMPARING HOPEWELL SOCIAL AND RITUAL ORGANIZATION IN SOUTHWESTERN OHIO AND THE SCIOTO-PAINT CREEK AREA

In *Gathering Hopewell* (Carr and Case 2005c), many details of the social and ritual lives of Hopewell peoples in the central Scioto valley are reconstructed and reported. Comparable reconstructions for the Little and Great Miami drainages in southwestern Ohio are limited in the book to issues concerning gender: the roles, relative prestige, gender categories, and geographic mobility of males and females (Field et al. 2005; Keller and Carr 2005; Rodrigues 2005). A broader array of sociological topics can now begin to be explored for Hopewell peoples in southwestern Ohio with the availability of new mortuary data on them, reported here in the HOPEBIOARCH data base. A total of four large ceremonial centers (Turner, Fort Ancient, Stubbs, Miami Fort) and 14 smaller ones are documented for the Little and Great Miami drainages. Many of the detailed topics that have been considered for the Scioto drainage, however, still remain intractable in the Miami drainages. Reasons include the occurrence of only one known charnel house with possibly a large burial population (Whittlesey's mound, Stubbs earthwork) in the Miami drainage, compared to the numerous large charnel houses in the Scioto drainage; the lack of systematic excavation of the one known charnel house in the Miami drainages; the fewer grave goods generally placed with the deceased in the Miami valleys; and the unavailability of the human remains uncovered at most excavated mortuary sites in the Miami valleys, which precludes modern age-sex determinations and bone and dental morphological, chemical, and genetic assays. Most Hopewell ceremonial centers in the Little

and Great Miami valleys are hilltop enclosures, which apparently seldom have mortuary facilities.

Community and Ceremonial Spatial Organization

The intertwined topics of community organization at multiple scales and the organization of mortuary and other ceremonies across potentially multiple, complementary sites can be explored with data from southwestern Ohio to a degree, in a qualitative fashion. Five spatial clusters of earthen enclosures in southwestern Ohio (Figure 15.2, Table 15.1) suggest the possibility of five different sustainable communities in the area, each of a geographic scale similar to or somewhat smaller than that of the sustainable community documented for the Scioto-Paint Creek area in the late Middle Woodland (Chapter 3, Sustainable Communities, An Example of a Sustainable Community). However, because most of these sites are enclosures without burial mounds, and few have been excavated and radiocarbon dated, tying the sites within a cluster together socially by expressive mortuary artifact styles and temporally with relative or absolute dates is largely not possible at this time.

Within clusters, the complementarity of the ceremonial functions of certain pairs of sites can be suggested on the basis of whether or not they include burial mounds, their burial patterning, their complementary shapes, and/or their complementary elevations and placement on the landscape. The pairs of sites include Fort Ancient and Stubbs, Pollock and Bull Run, and Fortified Hill and Pleasant Run (Figure 15.2; Table 15.1). Each pair could represent ceremonially differentiated centers built by a single local community within its own lands, or built by multiple local communities who cooperated in constructing centers in each others' lands. The distance between sites of a pair can suggest whether they likely occurred within the lands of one or two local communities, but not the number of such communities involved in building them (Chapter 3, Sustainable Communities).

The Fort Ancient and Stubbs enclosures lie only about 8 kilometers apart along the Little Miami river, and were largely coeval, having been built over a similar, long period of time (see above, Chronology, Beyond the Scioto). The two sites clearly differ in their primary ceremonial functions. Ceremonies for processing, burying, and honoring the dead appear to have been among the main uses of Stubbs, whereas these kinds of rites appear largely incidental to the ceremonies that occurred at Fort Ancient. Specifically, Stubbs contained a large, multilobed mound that covered a series of large rooms that were defined by large, widely spaced posts and that probably were not roofed. The rooms may or may not have been connected together into a large charnel building like the posted and unroofed Tremper charnel house. There is evidence from surface finds on the mound's remnants that one or more rooms were used to bury the dead (Cowan 2006). By analogy to Scioto Hopewell charnel houses, mortuary-related rites would have been the major function of the whole room complex at Stubbs; but this cannot be said with certainty. In contrast, the Fort Ancient earthwork contains no Middle Woodland charnel structures. The bulk of deceased Middle Woodland persons were buried in an ossuary in the Great Gateway that connects the North and South Forts, in a similar deposit in a small earthen mound just south of the Great Gateway, in an apparently accretive pile of stone graves on terraces below the west side of the South Fort, and in more discontinuously distributed stone graves on a terrace east of the Great Gateway (Connolly 2004:47; Moorehead 1890:37–41, 84–86). Fort Ancient is more readily seen as a ceremonial enclosure for primarily rites not focused on the deceased.

Other evidence of the differing major ceremonial functions of Stubbs and Fort Ancient is the dissimilar landforms upon which they were constructed and their different relative elevations. Fort Ancient stands on a promontory-plateau 250 feet above the floor of the Little Miami valley (Otto 2004:3) whereas Stubbs was built on lower and more accessible ground – a terrace just above the floodplain of

the Little Miami valley. Fort Ancient's greater height is reinforced by its location upriver from Stubbs. These topographic differences between the two sites probably had cosmological significance in the eyes of Miami Hopewell peoples (to follow the logic of Riordon [2004b]; see below), and probably reflect the different kinds of ceremonies for which the two sites were intended and constructed.

Significantly, the distance of 8 kilometers between Fort Ancient and Stubbs is analogous to the 6.3–9.6 kilometers distances between pairs of functionally differentiated ceremonial centers in the Scioto-Point Creek area that fell within the lands of single local symbolic communities (Seip and Baum; Liberty and Works East; Hopewell and Old Town; see Chapter 3, Sustainable Communities). It can thus be suggested as a working hypothesis for future research that Fort Ancient and Stubbs were ceremonially differentiated centers within one local symbolic community. The scale of each of these earthworks, however, would suggest the hands of many people from multiple local symbolic communities.

Other examples of ceremonial centers in southwestern Ohio that may have been paired, functionally differentiated, and built by one or more communities, and that are inviting for future study, have been pointed out by Riordon (2004a:238–239, 2004b). The earthworks pairs are Pollock and Bull Run, which are only a mile apart, and Fortified Hill and Pleasant Run, which are less than a mile apart. These pairs are two of five cases of earthwork building in the Little and Great Miami valleys that appear to illustrate a general cosmological principle about relationships among places that was held by Hopewell peoples in that valley. The principle distinguishes pairs of closely spaced earthworks, or parts of a single earthwork, that were built on high versus low ground and that also differ in shape. Riordon (2004b) suggested that the higher of a pair of works may reference an Above realm (“astral or solar sphere”), whereas the lower work may reference “this world”. In three instances, the elevated earthwork is a circle or approximates it while the lower earthwork is a

square or contains a square element. Thus, the elevated, circle-like Pollock contrasts with the lower, square Bull Run earthwork; the elevated, irregular circle-like Fortified Hill contrasts with the lower, square Pleasant Run earthwork; and the Milford Works' elevated circle contrasts with its lower, flattened circle with an intrusive rectangle.⁴⁷ The Fort Ancient and Stubbs pair of earthworks, discussed above, partially fit the pattern, with higher, irregularly shaped Fort Ancient contrasting with lower, square-and-circular Stubbs (see above).

The short distances between Pollock and Bull Run and between Fortified Hill and Pleasant Run imply that each of these pairs of sites fell within the lands of a single local symbolic community. However, each pair may have been constructed by people from multiple, neighboring local symbolic communities.

Study of the internal spatial organization of cemeteries in the Little and Great Miami valleys, in order to infer aspects of community organization, may be productive in one or two instances. For the Scioto valley, such studies were invaluable. There, the Hopewell 25, Seip-Pricer, Seip-Conjoined, and Ater mounds each had beneath them distinct clusters of burials, separated from one another in different charnel rooms or buildings. The clusters could be compared to one another with rich demographic, artifactual, and tomb form data and shown to have been the dead from different local symbolic communities who gathered together for burial ceremonies (Chapter 3, An Example of a Sustainable Community; Carr 2005a). This model of analysis, however, is largely impracticable with the mortuary remains from the Miami drainages. Clusters of burials within charnel rooms may have existed under the multilobed mound at the Stubbs earthwork, but it was largely destroyed before the burial areas could be excavated. Only the central portion of the mound remains (F. Cowan, personal communication 2007). At Turner, the multilobed, conjoined mounds 3, 4, 5, 6, 7, 9, and 14 had burials only under Mound 3, and there only four burials. The Turner Great Burial Place, which probably laid below a single mound, was excavated only in part, here and there,

with the distances between excavations made by different archaeologists known only approximately. Thus, any spatial clusters of graves that might have existed under the mound cannot be defined. In addition, artifacts are sparse in the graves, limiting social analysis.

However, individuals within the Great Burial Place do separate cleanly into an eastern spatial group versus a western one by body orientation (east–west orientation, north–south orientation, respectively; Greber 1979:53–54). It would be worthwhile to compare these two social categories of people and to evaluate whether they came from different communities by applying archaeological criteria for identifying communities, as was done for spatial groups of burials in Scioto valley charnel houses (Carr 2005a). Individuals from other cemeteries within the Turner earthwork could also be brought into the comparison. Encouragingly, Ruhl (1996:61–64; Ruhl and Seeman 1998:658) did find statistically significant differences in the size and/or morphology of earspools placed with the two differently oriented groups of individuals in the Great Burial Place, as well as differences among them, earspools found in the Mound 12 cemetery, and earspools found in Mound 1 of the Marriott group.⁴⁸ The two groups within the Great Burial Place, as well as burials from other cemeteries in Turner, could also be profitably compared to one another using bone and dental morphological and genetic measures of biodistance, and chemical measures of residence at birth and through life, to inquire into possible differences among individuals in their community affiliation and residence. Persons from distant regions might also be identified through these biodistance studies. Twenty or more skeletons are curated and provenienced from the Great Burial Place, and individuals from other cemeteries at the site may also be available for study (see Note 11).

A biodistance and residence study of the Middle Woodland skeletons dug up from different locations within the Fort Ancient site might be also prove productive for determining whether one or more communities buried their deceased there – if the skeletons are still curated

and identified to provenience (Chapter 7, Fort Ancient Earthwork).

In the course of such osteological and dental work on the Turner human remains and any from Fort Ancient, it would also be possible to investigate patterns of post-marital residence (e.g., matrilocality, patrilocality).

Whether persons from a given local symbolic community buried their dead in both large earthworks like Turner and Fort Ancient and smaller, neighboring mounds cannot currently be assessed. Small mounds that are close to the two earthworks and that were recorded by Mills (1914) have not been excavated. The closest small, excavated burial mounds to Turner are 20–40 kilometers distant – beyond the diameter of a sustainable community in the Scioto drainage (Chapter 3, Sustainable Communities). The mounds also contain few skeletons. Small, excavated burial mounds are even more remote to the Fort Ancient earthwork.⁴⁹

Ceremonial Gatherings

Some of the topics about ceremonial gatherings that have been or could be investigated for sites in the Scioto drainage can also be examined for sites in southwestern Ohio. These subjects include the size and social role compositions of ceremonial gatherings, with multiple cultural implications; the geographic distances from which people came to attend ceremonies, with implications for alliance building; and ritual dramas. A comparison between the Scioto region and southwestern Ohio along these several lines would provide a welcome perspective on interregional diversity in Hopewell ceremonialism.

The sizes and social compositions of ceremonial gatherings of Hopewell people in southwestern Ohio have been previously reconstructed only for the Turner site (Carr, Goldstein, et al. 2005), and in this case as part of a pan-Ohio sample of sites and study rather than to explore the unique characteristics of gatherings at Turner, itself. With newly assembled information from the Great and Little Miami drainages on an additional 19 large

and small ceremonial centers, from which were excavated 127 graves with 184 individuals, it is now possible to describe the sizes and social compositions of ceremonial gatherings there, and to compare them to ones in the Scioto-Paint Creek area. At the 20 southwestern Ohio sites, including Turner, there are 19 ceremonial deposits and 37 graves with 40 individuals, each with redundant examples of artifact classes that indicate ritual gatherings and that are telling of their nature.⁵⁰

Three kinds of studies should produce significant insights. First would be to compare the sizes and social role compositions of gatherings at the Turner earthwork in southwest Ohio to those at the Hopewell and Seip earthworks (considered individually and combined) in the Scioto-Paint Creek area. All three of these ceremonial centers are large and were used and built by multiple local symbolic communities, making them roughly functional equivalents among the broader spectrum of ceremonial centers in the two areas. Also, Turner likely spans the time approximately represented by Hopewell and Seip combined, from the middle to late Middle Woodland (see above, Chronology, and Its Implications for Defining Communities and Community Organization). Such a study would reveal how similar or different Hopewell ceremonies in southwestern Ohio and the Scioto-Paint Creek area were in their scale, functions, functional diversity, organization, scheduling, and perhaps their means of integration, coordination, and scheduling at the pinnacle of Hopewell social-ceremonial complexity.

A second likely productive study would be to compare the sizes and social role compositions of all 20 documented, large and small ceremonial centers in southwestern Ohio to the 16 documented large and small centers in the central to southern Scioto drainage. My sense is that the gathering size distributions for both regions are dominated by frequent, small gatherings and have only a few large gatherings; however, in the Scioto drainage, the size distribution may be more continuous, with a fair proportion of intermediate size gatherings, whereas in southwestern Ohio, intermediate size gatherings may

be proportionally rare (see Carr, Goldstein, et al. 2005:509, table 13.8). This pattern could imply that Hopewell community organization was simpler and less multi-scalar in southwestern Ohio than in the Scioto drainage, perhaps with weaker and/or more fluid local symbolic communities in southwestern Ohio (Chapter 3). In tribal societies, weaker and/or more fluid local symbolic communities can be expected in settings with lower population densities.

A third form of study that would likely offer insight would be to calculate for each region the proportion of gatherings within cemetery-bearing ceremonial centers that resulted in artifact accumulations within graves compared to gatherings that led to artifact accumulations in ceremonial deposits lacking human remains. I think it will be found that the proportion of gatherings leading to accumulations within graves was much higher in the Scioto-Paint Creek area than in southwestern Ohio. This would suggest a closer integration of ceremonies of various functions within funerary rites of separation, liminality, and/or reincorporation in the Scioto-Paint Creek area than in southwestern Ohio, and the more central position of death in the ceremonialism and perhaps religious thought of Hopewellian peoples in the Scioto-Paint Creek area. This finding would not be surprising, given the different overall thrust of the functions of ceremonial centers in the two areas: specifically, the fairly large proportion of earthen enclosures in the Scioto-Paint Creek area that include burial mounds and the very low proportion of earthen and stone enclosures in southwestern Ohio that do. Most enclosures in southwestern Ohio are hilltop forts that lack burial mounds (Riordon 2004a). In turn, the finding would speak once again to the diversity rather than the uniformity of "Hopewellian thought and practices" across regional traditions in eastern North America (Carr 2005d:577–578, 616–621; Turff and Carr 2005:691–693), and to a very specific manner of difference.

The distances from which people came to attend ceremonies in southwestern Ohio Hopewell sites could be studied with bone

and dental morphological, chemical, and/or genetic information for individuals in several cemeteries of moderate to large size: the Great Burial Place within the Turner site, and the smaller cemeteries of Purdom and Glen Helen, and the combined sample of neighboring Campbell and Boblett cemeteries (see Note 12 for the accessibility of human remains). Whether the associated individuals of a cemetery were members of one local symbolic community, several such communities, and/or more distant populations would have implications for understanding community organization, possibly at multiple geographic scales, and perhaps alliance formation among communities if they buried their dead together. Especially relevant to the subject of alliance building, but not accessible for bioarchaeological study, is the ossuary in the Great Gateway at Fort Ancient, where the remains of at least 25 persons were commingled (Moorehead 1890:84) and recall the commingled remains at the Tremper site in the Scioto valley (Chapter 3, A Second Example of a Sustainable Community). Other mass graves at Fort Ancient that may be pertinent to the issue of alliance building are the 18–20 persons buried together in a pile of stones on the terrace east of the Great Gateway (Moorehead 1890:84), the more than 20 persons buried under a layer of stone on one of the terraces of the bluff on the west side of the South Fort (Moorehead 1890:39–40), and the approximately 12 commingled persons buried in another terrace half way down the bluff (Moorehead 1890:87–88). Unfortunately, it appears that all of the bones from the Great Gateway ossuary and the other mass graves were either not collected in the field or have since been discarded.⁵¹

Ritual dramas are evident in the remains placed in the Central Altars of Mounds 3 and 4 at the Turner site. A likely purpose and meaning of the drama expressed at Mound 4 has been discussed (see above, Ceremonial Form: Ritual Dramas), while the nature of the drama that occurred at Mound 3 has yet to be interpreted.

Leadership

The kinds of leadership roles that were found in southwestern Ohio Hopewell societies, the degree to which the power bases for those roles were more sacred (shaman-like) or secular in nature, and whether leadership roles tended to be centralized in the hands of a few social positions and people or more widely distributed can each be addressed. Burials from both the large and rich Turner earthwork and some smaller mound sites (Boyles Farm No. 6, Purdom, Richard Shumard's Farm, Twin Mounds, Campbell, Manring, Shinkal), as reported in the HOPEBIOARCH data base, are useful for these studies. The degree to which leadership roles and their bundling into multi-role leadership positions were institutionalized cannot be estimated with these mortuary sites, for the lack of repeating examples of leadership paraphernalia of given classes. This may suggest poorly institutionalized roles or the strong tendency for mortuary symbolism among southwestern Ohio Hopewell peoples to have been subdued. Changes or stability in the several aspects of leadership mentioned above cannot be tracked well over time, currently, for lack of a temporal series of large burial populations. However, with extant mortuary data, insight can be gotten into whether shaman-like concepts and practices were pervasive across the general populace or more restricted to leaders. The subject of the criteria by which individuals were recruited into leadership positions can be partially addressed. Gender as a criterion has already been evaluated by Field et al. (2005) and Rodrigues (2005). The importance of age to recruitment, and whether leadership positions were achieved or ascribed by other social principles, can be examined to some degree for some positions using the demographic information reported in the HOPEBIOARCH data base for the Turner site. It might be possible to significantly enlarge the sample of skeletons from Turner that can be aged and sexed, beyond what Field et al. and Rodrigues used, by untangling the mislabeling of skeletons from the Turner and Madisonville sites at the Peabody Museum of Archaeology and Ethnology, Harvard University (Teresa

Rodrigues, Penny Drooker, personal communications 1997; see Note 11).

Social Ranking

The burial population from the Turner site has potential for exploring whether social ranking was marked there by the artifact classes placed with individuals and the forms of their tombs. The burials from Turner that are recorded in the HOPEBIOARCH data base include 72 with information on whether they died as adults or children, 32 of these with more specific age information, and 18 with information on their sex (13 males or possible males; 5 females or possible females). Procedures for identifying ranking with these kinds of mortuary data have been refined and presented by Carr (2005f). The smaller cemetery sites reported in the HOPEBIOARCH data base have insufficient burial populations, burials with prestigious artifact classes, and age-sex data for investigating social ranking.

Clan Organization

The animal totems or eponyms of clans of Hopewell peoples in southwestern Ohio, like those in the Scioto-Paint Creek area, are knowable from the power parts of animals – their teeth, jaws, claws, talons, and feet bones – that were made into pendants and buried with individuals or placed in large ceremonial deposits. Seven strong reasons for equating these kinds of artifacts with clan symbols are given in Chapter 4 (see Clan Organization). Animal power parts were found in southwestern Ohio in large numbers at the Turner site in the Central Altar of Mound 3, Altar 1 of Mound 4, and with five individuals within the Great Burial Place. The species represented include bear, canine, large feline, deer, elk, fox, bay lynx, raccoon, beaver, opossum, and badger. All of these species were clan totems or eponyms for Hopewell peoples in the Scioto-Paint Creek area, save the badger and perhaps deer and opossum. Scioto Hopewell clan totems that are not represented at Turner are limited to raptors and nonraptorial birds. Smaller burial sites in

southwestern Ohio broaden the range of clan totems a bit. Two marmot jaws, one muskrat bone, and one squirrel bone were recovered from a few graves at the Purdom and Campbell mounds. Whether the muskrat and squirrel bones were power parts and referred to clans is unknown. In either case, marmot, muskrat, and squirrel are not among the animal associations known for clans in the Scioto-Paint Creek area. Bear canines were found at the small sites of Irvin Coy, Twin Mound, and Campbell, as they were at Turner.

Knowledge about the animal clan totems and eponyms of Hopewell peoples in southwestern Ohio might be augmented by identifying the species of the 2,000 small mammal canine pendants and the 600 small mammal phalanges found in the large ceremonial deposit in the Central Altar of Mound 3. Apparently only some of these canines and none of the phalanges were identified to species (Willoughby and Hooton 1922:46, 55–56, plate 12e).

Other aspects of clan life in southwestern Ohio appear largely unanswerable with extant archaeological documentation. Animal-associated clan markers were seldom buried with individuals in southwestern Ohio; only 15 cases are reported in the HOPEBIOARCH data base. Difficult topics include the relative sizes of clans, the social roles into which particular clans were recruited, whether clans varied significantly in their prestige and wealth, whether phratries or moieties existed, and seven other characteristics considered for the Scioto Hopewell clans (see above, Social and Ritual Parameters of the Clan System).

Sodalities and Ceremonial Societies

The kinds of sodalities, shaman-like professional societies, and clan-specific ceremonial societies that may have existed in southwestern Ohio can be investigated reasonably well with archaeological data from the sites of Turner, Fort Ancient, and Stubbs. At these three sites, as in the grand ceremonial centers in the Scioto-Paint Creek area, there are certain artifact classes that are found in ceremonial deposits in

redundant, large numbers. These remains give a first hint of the possible assembly of the members of sodalities, shaman-like professional societies, or clan-specific societies for collective rites, followed by the members decommissioning their ceremonial equipment together. In the Scioto-Point Creek area, the deposits commonly contained one kind, or largely one kind of ceremonial equipment, suggesting the gathering of members of one kind of group for exclusive, or largely exclusive ceremonies (e.g., the quartz projectiles deposited in Mound City, Mound 3, Altar and Crematory Basin). Much less frequently, the deposits contained a diversity of kinds of ceremonial paraphernalia used by different groups, implying their joint assembly (e.g., Hopewell Mound 25, Altar 1; for details, see Chapter 4, *The Social Compositions of Gatherings*). At Turner, Fort Ancient, and Stubbs only six large ceremonial deposits have been excavated, and in contrast to the Scioto-Point Creek cases, four suggest socially diverse gatherings (Turner Mound 3, Central Altar; Turner Mound 4, Altar 1; Fort Ancient Powell Cache, Fort Ancient Cowan-Wolfe Cache) and only two imply a socially homogeneous gathering (Turner Mound 15, Cache; Stubbs Koenig Quartz Deposit).

The artifact classes at Turner that occurred redundantly in large numbers in ceremonial deposits and that potentially marked sodalities, shaman-like professional societies, or clan-specific ceremonial societies include: 53 copper earspools, 36 bear canines, 25 stone reel-shaped gorgets, 11 obsidian projectile points along with 11 mica schist effigy projectile points, 13+ tear-drop shaped pendants with and without center holes, 17+ brachiopod fossils, 12 alligator teeth, 10+ large lumps of cannel coal, 284 deer and elk astragali, 600 small mammal phalanges, and 2000 small mammal canine pendants. The artifact classes at Fort Ancient that similarly were found in large numbers in deposits include: 100 mica sheets, 37 galena cubes, 14 obsidian straight or curved bifaces, 5 quartz bifaces, 5 quartz crystals, 12+ Harrison county chert disks, and 7 slate gorgets. At Stubbs, 150 kilograms of raw and worked vein and crystal quartz, including

biface fragments, were found in the Koenig deposit. Of these nineteen artifact classes, only eight are found in large ceremonial deposits in the Scioto-Point Creek area: earspools, bear canines, obsidian projectile points, quartz projectile points, mica sheets, galena cubes, quartz crystals, and Harrison county chert disks. There, earspools have been identified to have marked a sodality of unknown purpose, and bear canines a bear clan-specific ceremonial society involved in mortuary practices (processing corpses?, psychopomp work?) and/or doctoring. Mica mirrors and galena cubes possibly indicate members of two professional sodalities of shaman-like practitioners. Whether obsidian points marked a professional society of shaman-like practitioners is less clear (Chapter 4, *Sodalities and Ceremonial Societies*). Other ceremonial societies or possible ceremonial societies that have been identified in the Scioto-Point Creek area but that are not evidenced in the deposits at Turner, Fort Ancient, or Stubbs are ones marked by breastplates, smoking pipes, and perhaps canine, fox, elk, and raccoon power parts. Two breastplates and four smoking pipes did occur individually in six burials at Turner, and one breastplate was found in the Powell Cache at Fort Ancient, but there is no evidence in the form of massive deposits of them that they represented ceremonial societies there. The overall picture is one of contrast between the Scioto-Point Creek area and southwestern Ohio in the kinds of ceremonial societies that formed in the two regions. This is a significant fact in relation to the question of what “interregional Hopewell” was, and whether or not it was a coherent system of social organization, ceremonial rites, symbols, and/or spiritual beliefs (for this discussion, see Carr 2005d:576–577, 616–621; Turff and Carr 2005:691–693).

Future research on the ceremonial societies of Hopewell people in southwestern Ohio would best begin by rigorously examining the 19 artifact classes that potentially marked ceremonial societies for their correspondence to six archaeological criteria that identify sodalities archaeologically. These criteria concern the residential and kinship affiliations of ceremonial

society members, the numbers of members, their age and sex distributions, and prestige variation among ceremonial societies (Chapter 4, Sodalities and Ceremonial Societies). Of the 19 classes, eight – earspools, mica mirrors, galena cubes, stone reel-shaped gorgets, deer astragali, elk astragali, small mammal phalanges, and small mammal canines – occur in large enough numbers in ceremonial deposits to argue that their owners came from multiple local symbolic communities and were moderately common in their communities. Four classes – earspools, bear canines, mica mirrors, and galena cubes – are found in burials at Turner ($n = 13, 7, 4,$ and 4 graves, respectively) and can be examined for their age and sex distributions tentatively. Differences in prestige between deceased persons with the four kinds of items can also be explored. The Turner burial data does not, however, allow the kinship affiliations of persons with one or more of these four artifact classes to be assessed, for the paucity of clan markers in graves at the site.

If it is assumed that markers of ceremonial societies in the Scioto-Paint Creek area also symbolized ones in southwestern Ohio, even when the markers have yet to be found in large numbers in ceremonial deposits there, then other artifact classes found in burials at Turner should be evaluated for their adherence to the six criteria for identifying sodalities, to the extent possible. These artifact classes include breastplates (2 graves) and smoking pipes (4 graves).

To the extent that some evidence points to one or more artifact classes potentially having marked ceremonial societies, their sociological characteristics and workings can be explored, with varying degrees of confidence. Examples include: the likely ceremonial functions of the groups; which ones cooperated in complementarity to perform large ceremonies; whether any of the different ceremonies performed by different sodalities and societies linked together over time as a ceremonial cycle; the degree of overlap in the memberships of the groups; whether they differed much in prestige and power; whether they were organized into a ranked hierarchy, with membership in one

group as a requisite for membership in another; perhaps whether the ceremonial societies internally had grades of members; the degree to which leaders of particular kinds were well networked socially through membership in one or more ceremonial societies; and the relative importance of geographically dispersed clans compared to sodalities and ceremonial societies in integrating residential communities and local symbolic communities. For example analyses, see Thomas et al. (2005) and Carr (2005a:280–286). Data for investigating these topics are fairly sparse in southwestern Ohio compared to the Scioto-Paint Creek area. Data from both large ceremonial sites and small mound groups in southwestern Ohio should be used.

Further Studies of Gender Roles

The issue of the subsistence activities and roles that were taken on by females compared to males in southwestern Ohio Hopewell societies, and patterns there compared to Scioto Hopewell societies, could prove to be very important for understanding the economic foundations of social life in these areas. Rodrigues (2005:418) discovered, through osteological analyses of a small sample of 19 skeletons from the Turner site, that males and females shared the domestic tasks of grinding nuts and seeds and preparing hides. Females were found to have been more active in flintknapping using a hammerstone and in running, possibly associated with hunting, than were males. These observations run counter to the strong ethnohistoric pattern among native North Americans and world-wide in pre-agricultural and agricultural societies for females to work soft substances such as hides and clay, males to work hard substances such as stone, bone, wood, and metals, and for females and young to obtain plant foods and smaller mammals while males hunt larger mammals that involve intense running (Driver 1969; Murdock and Provost 1973). A systematic analysis of the varying kinds of utilitarian equipment found in the graves of Hopewell females and males throughout southwestern Ohio sites, and further osteological analyses of skeletons from the area for indications of specific tasks and overall work

load, would be welcome tests of Rodrigues' findings. For example, a female buried at the Headquarters village held a prepared flint core in her hand, implicating her in flint knapping (Lee and Vickery 1972), as Rodrigues' study would predict. In addition, the sample of identified males and females available for such studies could be enlarged through DNA analysis of human remains. Sites with curated human remains that are useful for extending Rodrigues' study in the above ways include Glen Helen, Purdom, Campbell, Boblett, and perhaps Headquarters, and Miami Fort (see Note 12 on curation).

Firm knowledge of the different subsistence activities that males and females performed in southwestern Ohio Hopewell societies could give insight into the personal qualities that defined masculinity and femininity there. In turn, these concepts could have been one factor that contributed directly to the much more important place that women appear to have had in leadership and prestigious sodality roles than did men in Hopewell societies in southwestern Ohio, both absolutely there and relative to the pattern in the Scioto valley (Field et al. 2005:394, 398).

Extending the sample of individuals from southwestern Ohio that are sexed and studied osteologically and for burial patterning might also improve our understanding of the number of genders recognized by Hopewell peoples in the area, gender inequity in personal prestige and leadership, the distributions of physical traumas and disease loads among the sexes in relation to their social roles, and the lack of contribution of gender patterning to any single, interregional Hopewellian ideology. Investigation of these topics has barely begun (Rodrigues 2005; Field et al. 2005; Keller and Carr 2005).

CONCLUSION

Hopewell peoples in the Scioto valley and in southern Ohio, generally, left a spectacular and intimately expressive material legacy of their lives. This record has invited investigation and

interpretation by professional archaeologists for more than 150 years and still remains deep and rich in the understandings of Hopewell peoples that it has to offer. The very many new projects for future research presented in this chapter, the diversity of questions they might answer, and what Hopewell peoples still have to teach us attest to the vibrancy and creativity of their lives. It is Troy Case's and my sincere hope that the detailed data on Ohio Hopewell bioarchaeological and archaeological records that we have assembled and organized in this book, our overviews of Scioto Hopewell life as currently pictured, and our thoughts on productive, pointed future research projects stimulate your curiosity and excitement about past Hopewell peoples and ease your way in coming to know them better.

NOTES

1. Two radiocarbon dates from the Tremper site fall at 100 B.C. \pm 100 (Prufer 1968:153), and 40 B.C. \pm 70 (Emerson et al. 2005:195). The four earliest of seven dates from the Mound City site indicate that its construction was begun later than Tremper's: 150 B.C. \pm 150 (Mound 13); A.D. 0 \pm ? (Mound 3); A.D. 0 \pm ? (Mound 23); A.D. 60 \pm 100 (midden created prior to building the enclosure and incorporated within it as Feature 35) (Brown 1994:49; Maslowski et al. 1995:29–31; Prufer and McKenzie 1975:359–360; Ruby et al. 2005:161). Subsequent "acceptable" Middle Woodland dates from Mound City include A.D. 172 \pm 58 (Mound 10), A.D. 180 \pm 80 (Mound 13), and A.D. 270 \pm 60 (Mound 10) (Brown 1994:50; Maslowski et al. 1995:33).
2. Seeman's (1977:50) smoking pipe form Tremper-A was popular in Illinois around A.D. 1 (Seeman 1977:52). The McFarland phase ceramic assemblage from the Yearwood site, Tennessee "offer[s] the best comparison [of Southeastern pottery] with Mound City." The weighted average of radiocarbon dates from Yearwood (Butler 1979: 155, table 20.1) is A.D. 32 \pm 31 or 3 B.C. \pm 31, depending on whether or not a late outlying date is included in the average (Brown 1994:56).
3. Burials 6 and 7 under Hopewell Mound 25 were in Cluster F, near to Cluster E, in the western portion of the mound. Burial 2 under the Seip-Pricer mound was in the West Cluster. Both Cluster E and the West Cluster included the greatest proportion of individuals with items of prestige and wealth, compared to other clusters of burials in those mounds.
4. Skeletons 260 and 261 under Hopewell Mound 25 occurred in Cluster E. The celt on the clay platform under the Seip-Pricer mound was in the West Cluster.

These two clusters had the greatest proportion of individuals with items of prestige and wealth, compared to other clusters of burials in those mounds.

5. The radiocarbon dates from West Mound are A.D. 60 ± 200 and A.D. 120 ± 200, uncalibrated (M-650, M928, respectively) (Prufer 1968:153).
6. There are respectively 2, 3, and 1 inhumations from the West, Rockhold, and Bourneville mounds extant in the collections of the Ohio Historical Society, Columbus, Ohio (Ohio Historical Society, personal communication, 2006). The Bourneville specimen is very fragmentary and does not offer much hope for having ancient organic material. One of the Rockhold specimens is also fragmentary.
7. The northward expansion of earthwork building possibly evidenced by the construction of Tremper and then Mound City assumes that the Carriage Factory mound, located near Mound City, was built after Tremper. It is not known, however, when the Carriage Factory mound was constructed. Further, the many undated earthen enclosures in the Scioto Paint-Creek area, and the lack of dates for most of the many small mounds at the Hopewell site, make the proposed history of ceremonial use of the Scioto drainage tentative.
8. The second, more variable radiocarbon date from Esch Mound 1 would date it to A.D. 1. The two dates are: A.D. 270 ± 90 and A.D. 1 ± 120 (Maslowski et al. 1995:30, 34).
9. A gravel-filled pit located near one the platform mounds that were structurally a part of the Octagon earthwork within Newark produced two dates: A.D. 180 ± 80 years (Beta 76909) and A.D. 300 ± 80 (Beta 76908) uncalibrated and uncorrected (Lepper 2005; Maslowski et al. 1995:33, 34). One pit that contained mica sheets and that was associated with a rectangular structure (Hale's House) just outside the Oval Enclosure of Newark produced a radiocarbon date of A.D. 310 ± 90. A second shallow basin associated with the house was dated to A.D. 105 ± 90 (Lepper 1998:122; Maslowski et al. 1995:32, 34).
10. Pollock has been dated by at least 15 radiocarbon assays (Maslowski et al. 1995:29–34; Riordon 1996:248), which range fairly continuously between 75 B.C. and A.D. 330. Riordon (1996:242; 1998:81–82) has summarized that construction began on Pollock no later than sometime in the first century A.D. and continued through the third century, calendrical time. Five stages of construction over this period have been identified (Riordon 1998:81–82). Miami Fort has only one, highly variable date, A.D. 270 ± 150, from a sample taken from the lower portion of the northern embankment (Fischer 1968:19).

The Todd Mound, 33BU205, has been dated by four radiocarbon assays. However, no information on internal proveniences is currently available, so the mound is not reported in the HOPEBIOARCH data base. The mound was excavated in 1977 or 1978 by Pat Tench and one other graduate student at the University of Cincinnati with the help of volunteers from the Central Ohio Valley Archaeological Society (Pat Tench, personal communication 2005). At present, the field notes and photographs of artifacts cannot be located. The artifacts and human remains taken from the mound are housed at the University of Cincinnati, and are currently being inventoried by Prof. Ken Tankersley.

The Twin Mounds site, which is recorded in the ASU data base, has no direct radiocarbon dates. However, it is located on the same promontory as Miami Fort, which is only about 0.6 mi away. Miami Fort does have one radiocarbon date, just mentioned.
11. From the Great Burial Place at the Turner site, 64 individuals were removed. At the Peabody Museum of Archaeology and Ethnology, Harvard University, mislabeling and confusion of curated skeletons from the Turner and Madisonville sites has reduced the number of skeletons clearly attributable to the Great Burial Place to about 20 (Teresa Rodrigues, Penny Drooker, personal communications 1997). This number might be increased by a systematic investigation of the skeletal collection labeled as having come from Madisonville for individuals actually attributable to Turner. An additional 23 skeletons were excavated from Mounds 1, 2, 3, 11, and 12 at Turner, are reported in the data base, and might be curated and provenienced at the Peabody Museum.
12. The numbers of inhumations excavated from small mound sites in southwestern Ohio are: Purdom Mound 1/2 ($n = 9$), Purdom Mound 3/4 ($n = 3$), Glen Helen mound ($n = 7$), Campbell Mound 1 ($n = 7$), Boblett Mound 2 ($n = 1$). Additional cremations were found at Purdom and Campbell Mound 1 but are not relevant to radiocarbon dating. Most inhumations from Purdom and Glen Helen (Dayton Museum of Natural History) and Campbell (Clark County Historical Society, Springfield) are currently curated, although not all can be associated with particular burial numbers and, thus, grave content. Remains of individuals in the collection from Campbell are mixed together to a degree. None of the individuals excavated from Manring Mound 1 ($n = 1$) and Manring Mound 2 ($n = 2$) is curated at the Clark County Historical Society or the Ohio Historical Society. It is not clear whether the skeletons exhumed from the sites of Headquarters ($n = 3$) and Miami Fort ($n = 5$), which were curated in the Department of Anthropology, the University of Cincinnati, can be located now.
13. From the West, Rockhold, and Bourneville mounds, there are respectively 12, 3, and 1 inhumations or cremations, or a total of 16 individuals, extant in the collections of the Ohio Historical Society, Columbus, Ohio (Ohio Historical Society, personal communication, 2006). From the Seip-Pricer mound, 87 individuals are curated there, mostly cremations (Königsberg 1985).
14. Of the 54 individuals and 111 individuals inventoried by Johnston (2002:307–309) to have been recovered from Hopewell Mounds 23 and 25, respectively, only 16 and 38, respectively, could be located in museum archives.
15. Related but different orientations are expressed by the square of the Seal earthwork, which has its minor axis through opposite sides oriented north–south, and the Portsmouth Group B, U-mound, which has its major

axis oriented north–south. Equinox sunrise and sunset only approximate cardinal east and west, and are only approximately perpendicular to cardinal north and south.

16. A related line of evidence that may pertain to the strength of social and ritual ties that linked peoples of the Newark and Scioto-Paint Creek areas is the use of Flint Ridge flint, which outcrops approximately 10 miles from the Newark earthworks, by peoples in the Scioto-Paint Creek area. It is unclear whether this situation implies the involvement of Newark peoples in mining Flint Ridge flint and their exchanging it to peoples in the Scioto-Paint Creek area, or the direct procurement of the flint by Scioto Hopewell peoples, themselves, at Flint Ridge. It is unlikely, however, that persons from the Scioto-Paint Creek area and elsewhere who might have made pilgrimages to the Newark site were given Flint Ridge flint or artifacts as tokens of their ritual experiences there – a suggestion made by Lepper (2006:129). Tokens of pilgrimage and vision quests are typically exotic materials and items that are rare back home (e.g., Coleman and Elsner 1995:100 and Morinis 1992:6 in Lepper 2006:129; Gill 1982:102; see also Carr 2005d:582–585). In contrast, Flint Ridge flint was distributed in quantity and widely across sites in the Scioto-Paint Creek area. It is found within habitation sites, between habitation sites, in rock shelters, within and around geometric earthworks, on mound floors, and within mound fill (P. Pacheco, personal communication, 2007). At the McGraw site, blades of Flint Ridge flint dominated the blade assemblage (80.3 %) and chips of Flint Ridge were common (15.0 %) (Pi-Sunyer 1965:79, 85). Two to three hundred Flint Ridge blades were found at each of the McGraw, Brown's Bottom No. 1, and Ilif Riddle No. 1 habitations (*ibid.*; P. Pacheco, personal communication 2007; Prufer 1997:362). Four to a dozen blade cores of Flint Ridge flint have been excavated from each of the McGraw site (Pi-Sunyer 1965:85), Brown's Bottom No. 1, and the Overly Tract habitations (P. Pacheco, personal communication 2007). Site A on the Robert Harness farm contained a cache of 2,427 broken biface fragments of Flint Ridge flint (Coughlin and Seaman 1996:236). A token of Flint Ridge flint obtained during pilgrimage of a Scioto Hopewell person to Newark would not have stood out against this backdrop use of Flint Ridge flint in the Scioto-Paint Creek area.
17. Perhaps relevant to interpreting the four conjoined mounds that comprised the central mound of the Cherry Valley mound group is the similar conjoining of four mounds to build the Eagle mound in the center of the Great (Fairgrounds) Circle. The Eagle mound covered a building or two adjacent buildings that had mortuary functions. Within the building(s) was a stone altar covered with calcined bones, charcoal, and ashes (Lepper 1998:125; Smucker 1881:266 cited therein).
18. Both the relative frequencies of performance of the various kinds of ceremonies held by historic Woodlands and Plains Native Americans and the diversity of kinds of ceremonies held (Table 4.11) indicate that the issues of world renewal, connections between the living and the deceased, and passage of the deceased to an afterlife – although important – were not the common foci of Woodlands and Plains ceremonial life. The relative frequencies of different kinds of ceremonies is my subjective assessment from reading the literature cited in Table 4.11.
19. Another skeleton that has its arms spread out, but less widely, is the middle-aged adult, Burial 42 under Mound 25 in the Hopewell earthwork. (Ohio Historical Society, catalog no. P396/B3/F2/E6/Photo 856.)
20. DeBoer's (2004:99–100, Figure 12) interpretation of the several artifact classes in Burial 12 under Mound 7 in the Mound City earthwork as elements of a single costume is unlikely. The social and ritual roles marked by those artifact classes were usually segregated from one another and distributed among different individuals in Scioto Hopewell societies (Carr, Goldstein, et al. 2005:214–224, table 5.5).
21. Fine-grained data for tracking rates of ceramic exchange among households over the course of the Middle Woodland are available for study through Christopher Carr, Arizona State University. The data include characterizations of several hundred vessels for the mineralogy of their temper particles and texture of their pastes through petrography and the chemistry of their pastes by INAA and electron microprobe. The sites from which the vessels come include ones in the Scioto-Paint Creek area (McGraw, Harness-28, Mound City, Seip, Edwin Harness mound), in the northern Scioto drainage (DECCO), and in the neighboring Licking valley (Murphy, Newark Campus). The same ceramic characterizations are also available for Early Woodland, early Late Woodland, and late Late Woodland sites in these regions.
22. For Ohio Hopewell societies at large, Seaman (1988:573) argued “that the cooperative aspects of Hopewell interaction recently have been perhaps overemphasized – and the evidence for potential competition largely ignored. High levels of Hopewell cooperation imply at least some competition for resources and social position as well, and certain themes in Hopewell iconography, the elaborate patterns of Hopewell personal decoration and hairstyling, the conspicuous consumption of exotic artifacts in public ceremonies, and ‘monumental’ earthwork construction must be seen as relating with this emerging, broadening perspective on Hopewell exchange and ceremonialism (see Bender 1985; Braun 1986).”
Buikstra and Charles (1999:205), speaking theoretically about ceremonies in mortuary settings, have said “... formal and stylized ancestral cult rituals define contemporary power arrangements, while grave rites constitute one of the battle grounds for disputing those arrangements... Those aspects of the cult that focus on the ancestral grave are more concerned with political competition than with glorifying rigid status hierarchies or group unity. Working out the tensions in such

dualities serves to recreate society, perhaps in an altered form." Concerning Illinois Hopewell, Buikstra and Charles (1999:220) have spoken of "... elaborate rituals that served to negotiate fragile power relations of the Middle Woodland social and political landscape." They compared Illinois Hopewell and Archaic mortuary sites, saying "[Archaic] kin groups came to the flood plain Bullseye site to engage in the competitive behaviors that established their place among their contemporaries and to create alliances..." (ibid., p. 211). "Archaic peoples attempted to become more powerful through graveside ostentatious display... The monuments built by Hopewell people also reflect social and political aspirations of individuals, kin groups, and communities" (ibid., p. 220). "Rather than simply being contests for competitive ostentation, however, the flood plain landscape now served the ever-larger audiences that met to celebrate the world order" (ibid., p. 215).

In recent textbook renditions of Ohio Hopewell life, Fagan (1995:416) has spoken of Hopewell life as involving "competitive displays of wealth and prestige, in both life and death" between Big Men. Milner (2004:94–95) stated, "Common burial in elaborate tombs or structures served to reaffirm group affiliation while reinforcing the social standing of key lineages within local communities. The most influential people were ones who were able to marshal the resources they needed to organize impressive displays related to funerals and celebration of ancestors... it is even possible that gift-giving, commonly practiced during the historic period as part of significant events, put people in debt of their hosts... One is reminded of the Northwest Coast where large quantities of items, many of which had symbolic significance, were presented, distributed, and destroyed on occasions calculated to enhance the prestige of the individuals who sponsored them."

23. See Gillespie (2001, 2002) for similar concerns about the Western views of the self and personhood being assumed inappropriately in the interpretation of Mayan archaeological remains.
 24. That multiple local symbolic communities came together to build the earlier Hopewell earthwork may be indicated by variation in the symbolic colors of the soils used to build different segments of the walls (Lynott et al. 2005). For details, see Chapter 5, Note 9.
 25. The only likely evidence of violence in the lower Illinois is a suite of six skulls in Feature 1 of Mound 3 at the Elizabeth site (Leigh et al. 1988:46–49, figure 5.8a). The skulls are of males, ranging from 22–30 years old to 47+ years old. They were in various states of disarticulation when buried: crania with articulated mandibles and cervical vertebrae that suggest decapitation, crania with articulated mandibles, alone, and crania lacking both mandibles and vertebrae. It is possible that they were victims of feuding among local groups, who were killed over a range of time.
 26. Additional insight into the possibility of separation of bodies of persons who died "bad" deaths from those of persons who died "good deaths" could be gotten by a detailed osteological study and reading of field notes aimed at searching for whether instances of other kinds of "bad" deaths, beyond those caused by interpersonal violence, are also missing from the mounds. Premature fetuses, mothers and fetuses who died during birthing, and persons with unhealed bones who clearly died from a sudden accident, rather than interpersonal violence, are examples.
 27. These statistics pertain to only those modified human remains in Seeman's (1988:570–571) table that come from sites in the Scioto drainage (Tremper, Hopewell, Seip, Harness, and Ater) and exclude the tabulated isolated skulls from sites in southwestern Ohio (Turner, Marriott Mound 1). The sample used here is 22 individuals who were aged to a numeric age range, rather than simply adult or subadult, and 15 individuals whose sex was determined with confidence or some question. The statistics reported in the text differ from Seeman's (1988:570, 572) summary of the table's patterning because his summary includes modified human remains from southwestern Ohio in addition to those in the Scioto drainage. One third of the sample of aged and sexed remains that Seeman used comes from southwestern Ohio, and two thirds from the Scioto drainage.
- Seeman's mixing of individuals from two distant and culturally different groups into one pan-Ohio characterization is inappropriate because the level of social competition in southwestern Ohio may have been much higher than that in the Scioto drainage, for reasons given in the text. Also, the practices of modifying human remains and placing them in burials may have had different meanings and purposes in the two regions. An interregional difference of some kind is clear. At Turner, by Seeman's table, 7 (88%) of 8 sexed human remains are male, whereas in sites in the Scioto drainage, only 7 (47%) of 15 sexed remains are male. (Modified human remains in the two regions are similar in their percentages of young versus old individuals.)
- Two definitions of young are used here, yielding the 36% to 54% range given in the text. If a young person is considered to be less than 30 years old, which is a generous definition compared to the expected age at death, 36 years, as determined from individuals buried in the Seip-Pricer mound by Konigsberg (1985), then the percentage of individuals who are old in the sample of Scioto modified human remains is 36%. If "young" is defined to mean of draftable age, probably unmarried, about 25 years old or less, then the percentage of individuals who are old in the sample of Scioto human remains rises to 54%.
28. If the modified human remains were trophy heads of persons from distant lands outside of the Scioto drainage, then their inclusion in the charnel house would not be out of line psychologically. However, this situation would not support the position that Scioto Hopewell individuals and social groups had intensely competitive relationships with one another.

29. For example, consider the people who lived in the neighboring Hocking valley east of the Scioto drainage, or in Kentucky to the south, who were contemporaneous with Scioto Hopewell societies but were largely unresponsive to Scioto Hopewell beliefs, ceremonies, and material culture (Black 1979; Blazier et al. 2005; Murphy 1975:219–229). Whether Scioto Hopewell people took heads from them is an important question for future research.

An ethnographic case where internal social competition and prestige-building are not the motivations for taking heads of persons in other societies is that of the Ilongot of northern Luzon, the Philippines (Rosaldo 1989). The Ilongot view head hunting as a vital, psychologically necessary aspect of the grief process upon some devastating loss, such as the death of a loved one. They say that taking the head of a member of a neighboring tribe is a way for them to release their anger and thereby lessen their grief. Similarly, Gardner (1964) reports that the Dugum Dani of New Guinea will kill a member of a neighboring tribe in order to reinvigorate their souls (*endai egen*) from the grief they feel at the death of one of their own.

30. For the same reasons given in the text, future studies of social competition and modified human remains should distinguish between internal affairs within the Scioto drainage and those in each other region of Hopewellian development. For example, differences in community organization, population aggregation, and territoriality between Hopewellian peoples in the Scioto valley compared to the Illinois River valley (Ruby et al. 2005) are well known and essential to the subjects. Likewise, it is important to distinguish between the internal affairs of peoples within the Scioto drainage and external relations among Hopewellian peoples in different regions across the Eastern Woodlands at large – the topic of the “Pax Hopewelliana”. These two scales of interpretation were blurred by Seeman (1988).
31. In the Scioto valley, the local symbolic community that contained the pair of earthworks, Liberty and Works East, possibly extended westward from the Scioto valley into main Paint Creek valley as much as 4.4 kilometers – half the distance between Liberty and Works East. In the North Fork of Paint Creek, the local symbolic community that included the pair of earthworks, Old Town and Hopewell, possibly extended southeastward beyond Hopewell by as much as 4.8 kilometers – half the distance between Old Town and Hopewell. Subtracting the 4.4 kilometer possible westward extension of the Liberty-Works East community and 4.8 kilometer possible southeastward extension of the Old-Town Hopewell community from the 20.2 kilometer distance between the Hopewell site and the confluence of Paint Creek with the Scioto river yields a distance of roughly 11 kilometers between the Old Town-Hopewell local symbolic community and the Liberty-Works East local symbolic community. In the main Paint Creek valley, the local symbolic community that included the pair of sites, Seip and Baum, possibly extended eastward

past Baum by as much as 3.1 kilometers – half the distance between Seip and Baum. Subtracting this 3.1 kilometers and the 4.4 kilometers that the Liberty-Works East community might have extended westward up main Paint Creek from the 28 kilometer distance between Baum and the confluence of Paint Creek with the Scioto yields a distance of about 20.5 kilometers between the Seip-Baum community and the Liberty-Works East community. Subtracting the 4.8 kilometers that the Old Town-Hopewell community might have extended southeastward from Hopewell along the North Fork of Paint Creek and the 3.1 kilometers that the Seip-Baum community might have extended eastward of Baum along main Paint Creek from the 26.2 kilometer distance between Baum and Hopewell yields a distance of approximately 18.3 kilometers between the Old Town-Hopewell community and the Seip-Baum community. All distances are measured here as approximately river trend-line distances rather than air distances. See Chapter 3, Note 18 for some of the benchmark distances upon which the calculations made here are based.

32. The paleoethnobotanical remains from the extensive excavation of the Brown’s Bottom No. 1 site have been preliminarily reported, based on 22 soil samples totaling 110 liters from 7 Middle Woodland features (Steinhilper and Wymer 2006). The diversity of Eastern Agricultural Complex seeds at Brown’s Bottom is similar to what is found in Licking valley sites, with erect knotweed and maygrass dominant and goosefoot secondary. However, the percentages of these species vary considerably from one site to another, suggesting differences in local productivity and use. The same is true of nut species. At Brown’s Bottom, black walnuts were preferred over hickory nuts and acorns 3 to 1, whereas in Licking valley sites, hickory nuts, or hickory nuts and acorns, comprised nearly the entirety of each nut assemblage examined (Wymer 1996:figure 3.3). Also, hazelnuts have not yet been identified at Brown’s Bottom, whereas they were a component of the nut assemblages of all examined Licking valley sites (Wymer 1996:figure 3.3). Finally, reliance on nut resources compared to seed foods of all kinds appears to have been much greater at Brown’s Bottom than in Licking valley sites (D. Wymer and P. Pacheco, personal communications 2006). The count of seeds per gram of nutshell found to date at Brown’s Bottom is 56 (Steinhilper and Wymer 2006), whereas at the Murphy and Campus sites in the Licking valley the counts are approximately 770 and 4,860, respectively (D. A. Wymer, personal communication 2007).

The ubiquity of all kinds of identified seeds across features at Brown’s Bottom (70 % of samples) is lower than in Licking valley Middle Woodland sites (82 %, Table 2.2). Likewise, the ubiquity of nuts at Brown’s Bottom (75 %) is lower than in Licking valley sites (84 %, Table 2.2). The density of all kinds of seeds per liter at Brown’s Bottom (maximum of 10 counts/liter in the pit feature with the greatest density), is much

lower than in Licking valley sites (30 counts, 22 counts) (D. A. Wymer, personal communication 2007).

33. The lack of depictions of females in Scioto Hopewell art may indicate that they were not unusually valued and competed for.

Birth and survivorship sex ratios are hard to model, given the limited number of Scioto Hopewell individuals who can be sexed. It is not clear from the hunting and gathering and horticultural tasks that Scioto Hopewell men and women would have undertaken (e.g., hunting deer and small animals, fishing, gathering mollusks, nuts, and green plants, and clearing forests for swidden plots) that either men or women lived more dangerous lives, which would have upset the sex ratio. A demographic study of the Seip-Pricer mound, which contained a sampling of individuals from three local symbolic communities, indicates their having had a fairly balanced sex ratio (Konigsberg 1985). However, only 26 of the 123 individuals buried in the mound were sexable, and a few of these were from strata above the charnel house floor or were unprovenienced.

The degree of polygyny of Scioto Hopewell peoples, and most other tribal peoples, cannot be confidently estimated from the frequency of graves having an adult male and multiple adult females (possible wives). In polygynous societies, husbands are commonly older than their wives and die before their wives. The multiple wives tend not to be buried with their husband upon his death or thereafter but, instead, are given away in marriage to other men. Thus, the paucity of Scioto Hopewell graves with a man and multiple women does not translate directly into a low frequency of polygyny.

Among primary forest and long-fallow swidden horticulturalists, where land is readily available and the cost of having additional wives is low while their extra labor is valuable for producing surplus food, economic polygyny is common and advantageous for men attempting to build their prestige. However, these conditions do not appear to pertain to Scioto Hopewell peoples, who relied heavily on wild plants and animals, and for whom there is no evidence of their having stored food in quantity and generated surpluses.

It is likely that Scioto Hopewell peoples were moderately patrilineal in ethic and practice (Field et al. 2005). However, the nuances of their kinship system, how kin were distributed over the landscape, and how these conditions might or might not have encouraged polygyny is currently unknown.

34. In the double burial, 260–261 under Mound 25 of the Hopewell site, both individuals had headplates. Above the two individuals, rather than laid out on the same floor with their bodies, were placed 69 copper and iron celts and 94–95 copper and iron breastplates. These were arranged in an intermixed fashion. The association of the celts and breastplates with the two individuals probably resulted from the gifting and decommissioning of the celts and breastplates by celt and breastplate owners in a ceremony focused on the grave of the two deceased leaders with headplates. It is much less likely

that the two leaders with headplates “owned” the celts and breastplates placed above them.

35. The physical accomplishments of young males and females that gained them a leadership position marked by metallic celts could have been a part of their initiations to adulthood or subsequent paths to important adult statuses. Both interpretations are possible because the age distribution of persons buried with celts includes individuals estimated at 5–8 years, 9 years, 14–16 years, and 14–19 years, in addition to adults of unidentified ages.

To speculate, the accomplishments could have been long journeys that they made to the Upper Great Lakes for the copper from which their celts were made or to distant meteorite falls for the iron from which their celts were made. Celts may have had symbolic associations with building dug-out canoes used for long journeys and related meanings (Bernardini and Carr 2005:635–636). Success in warfare is less likely to have been the form of accomplishment marked by metallic celts, given the equivalent number of identifiable females and males who were buried with metallic celts. However, the sample of individuals is small.

36. The possibility that the metallic celts and breastplates placed over Burials 260 and 261 were the remains of a ritual drama is suggested by the orderly spatial arrangement of the celts and plates. These produce the image of a bird-man in profile, in the common style of bird-men depicted by patination on celts and breastplates, themselves (Carr 2000c, d; Carr and Lydecker 1998). In Negative 39670 at the Field Museum of Natural History, Chicago, rotated 180 for proper orientation, the bird-man faces left, in profile. The head has been composed from breastplates and unidentified (metallic?) sheet artifacts. The upper beak is rounded and not that of a raptor. The neck is made from the form of one breastplate oriented vertically. The blocky body has been composed from many breastplates and celts oriented horizontally in a regular pattern like a brick wall.

It is also important that very few of the metallic celts deposited over Burials 260 and 261 (Bernardini and Carr 2005, appendix 17.1) were miniatures. This situation makes it unlikely that the celts were tokens of power produced or sponsored for production in number by one or a few leaders marked by celts, and then handed out to Scioto Hopewell people and visitors in order for them to play roles in a ritual drama and to integrate them. This idea has been posed by K. Spielmann (personal communication 2006; see also Spielmann 2002:202) for interpreting some large ceremonial deposits.

37. The persons who were buried with copper-nostril inserts are Burials 6 and 7 under Mound 25 at the Hopewell earthwork and Burial 2 under the Pricer mound at the Seip earthwork. The persons who were buried with a barracuda jaw are Burials 25, 41A, and 45A under Mound 25 at the Hopewell earthwork.
38. The number of shamanic and nonshamanic leaders, sodality members marked by ear spoils and breastplates,

and other prestigious persons marked by crescents and reel-shaped gorgets who offered gifts to the deceased, per deceased person, was 24–30 times greater for the Mound 25 population than the Mound 23 population (Carr, Goldstein, et al. 2005:508–509, tables 13.7 and 13.8). Also, Mound 25 contained five large ceremonial deposits of fancy artifacts, whereas Mound 23 had none.

It is not possible to assess how the tombs in which the deceased were buried differed between Mounds 23 and 25. Moorehead (1922) did not document tomb architecture in Mound 23, although he did state that most burials in Mound 23 occurred in log tombs (Lloyd 1998:8, 2000).

39. It is possible to distinguish fairly well the burials placed in the south section of the charnel house under the Edwin Harness mound from those placed in the middle and north sections. Putnam (1886b) dug the north and central parts of the mound. The two shafts of Squier and Davis (1848) also were dug in these sections. Moorehead in his 1896 season (Moorehead 1897b) and Mills in his 1903 season (Mills 1903; see also Murphy 1978) dug the south and some of the middle section of the mound. Burials removed by Moorehead in 1896 and Mills in 1903 can be used in the proposed comparison with burials from the McKenzie mound group. See Greber (1979b:31, 34, figure 6.4, table 6.3) for a map and table of the different areas and sets of burials excavated in the Edwin Harness mound by these archaeologists. Also see Squier and Davis (1848:178, figure 67) and Moorehead (1897b:223–224, figures 16 and 17). The burials excavated by Mills in his 1905 excavation apparently came from the north section of the mound (Greber 1979b:34–35, tables 6.3 and 6.4).
40. If it is assumed for the moment that inhumation represents a higher social rank, cremation a lower social rank, and some other form of disposition outside of mounds perhaps a yet lower rank, then this symbolism could explain the different age-sex distributions and the different frequencies of prestigious roles of the deceased buried in different, large charnel houses of the later Middle Woodland period in the Scioto Paint Creek area. Inhumation, which predominates at the Hopewell and Old Town earthworks, would suggest that those sites were burial places for high ranking individuals. Their high rank would explain their predisposition to having commonly attained roles of leadership and other social importance marked by metallic headplates, celts, breastplates, and/or earspools, as well as other elaborate ceremonial paraphernalia. Their having commonly filled leadership and other important roles would in turn explain why they are largely adults and, at least in the case of Hopewell, more commonly male. In contrast, cremation, which predominates at the Seip, Liberty, and Ater earthworks, would suggest that these sites were burial places for lower ranking individuals. Their lower rank would explain why they less commonly attained leadership and other important roles, and, in turn, their more normal age-sex distributions, at least at the Seip-Pricer and Ater mounds, where mortuary demographics are better known.
- Although initially promising, interpreting these different sites as places for burying persons of different rank meets with problems. The obvious, crossculturally common criteria for establishing differences in rank among persons – differences in community affiliation and in the ecological potential of the community's lands, and differences in descent – are not observed among the burial populations of these sites. The charnel houses under Mound 25 at Hopewell, the Pricer and Conjoined mounds at Seip, the Edwin Harness mound at Liberty, Ater mound, and perhaps the Conjoined mound at Old Town each contained persons from the same multiple (three or two) communities (Carr 2005a). Also, those buried under Hopewell Mound 25 and the Seip-Pricer mound were members of a broad and similar range of clans – Canine, Feline, Raptor, Raccoon, Beaver, and Nonraptorial Bird (Thomas et al. 2005:364, table 8.11). What criteria might have distinguished the proposed high rank, inhumed people at Hopewell and Old Town from the proposed lower rank, cremated people at Seip, Liberty, and Ater is unclear, and a reasonable question for future research.
41. Opossum teeth pendants were also found in association with dog, fox, raccoon, bay lynx, and badger teeth pendants in the Central Altar under Mound 3 at the Turner site in the Little Miami valley, Ohio (Willoughby and Hooton 1922:46–47, 56), at a distance from the Scioto-Paint Creek area. The facts that canine, fox, raccoon, and feline have been recognized as eponyms of clans in the Scioto Paint Creek area, that the opossum teeth pendants were found in association with the pendants of teeth of these other species, that all of these animals were represented by their power parts (teeth), and that the power parts were made into pendants for personal ornamentation, imply that opossum was a clan eponym like canine, fox, raccoon, and feline in the Little Miami valley and Scioto-Paint Creek areas. This evidence from the Central Altar under Turner Mound 3 is somewhat weaker than that from the Burnt Offering under the Seip-Pricer mound, given that the Turner site is distant from the Scioto Paint Creek area.
42. There are 15 other known burials in the Scioto drainage, in the sites of Hopewell, Seip, and Ater, that have unmodified pieces of turtle shell or turtle shell artifacts – rectangular book-mark shaped items with designs, a tablet, combs, an atl-atl effigy, and a bird engraving – but these are not obvious clan markers, in contrast to turtle shell pendants.
43. A fabric bag that probably held many decommissioned platform pipe fragments, many pearl and shell beads, a number of galena crystals, a galena bead, and whitneyite was found at the Mound City site under Mound 8 adjacent to the central altar – the “Depository” (Mills 1922:436–437). The fragmentary nature of the pipes and the large size of the bag (ca. 18" × 20") suggest that this was not a sacred pack. However, a search

- of the published literature and field notes for similar bagged or wrapped, whole, ceremonial artifacts that might represent sacred packs would be worthwhile.
44. The idea that the common occurrence of bear canines in graves resulted from the Bear Clan having contributed bear canines to the graves of some individuals when processing them could be evaluated by determining the relative frequencies of deceased persons who had bear canines placed on or near their bodies compared to deceased persons who wore bear canine necklaces around their neck and probably owned them.
 45. It is true that platform pipes, small obsidian spears, and earspools were deposited, on one occasion each, in large numbers (200 or more) in a ceremonial deposit (Mound City Mound 8; Hopewell Mound 25, Altars 1, 2), with the number of items approaching the number of adults who might have resided within a local symbolic community in the Scioto-Paint Creek area. However, in each of these three cases, contextual evidence suggests that multiple communities rather than one were involved in the decommissioning ceremony. Thus, rather than each deposit indicating sodality-based production of ceremonial equipment for a whole local symbolic community, each deposit more likely represents the decommissioning of a sodality's paraphernalia at a collective rite of its own many members from multiple communities.
 46. Indiana hornstone constituted most of the lithic artifacts and debris at the Murphy V domestic site and moderate percentages of the lithic artifacts and debris at the Murphy IV and Murphy VI domestic sites in Licking valley (Pacheco 1993:192, 193, 195, 212), as well as a significant proportion (6.0%) of the artifacts and debris from the McGraw domestic site in the Scioto valley (Pi-Sunyer 1965:79). Only about 1.5% of the lithic assemblage from the Brown's Bottom No. 2 site in the Scioto valley was Indiana hornstone, and only two pieces of it were among the ca. 22,000 lithic artifacts and debris found at the Murphy II site (Dancey 1991:55, 58–59). Indiana hornstone constituted moderate to low but significant proportions of the lithics from the Mound City, Seip, and Hopewell earthworks (28%, 10.9%, 4.5%, respectively), but was almost completely absent from the Liberty earthwork (0.08%) (Vickery and Sunderhaus 2004:178–179, table 12.3).
 47. In a fourth case, the Turner site, the elevated element is again a circle but the lower element is an ellipse. Riordon's (2004b) fifth case, Fort Ancient, is less convincing. It contrasts the elevated and supposedly irregular circle of the South Fort with the lower North Fort which has a number of supposedly rectilinear embankments. A different or complementary idea is the upper–lower elevation distinction between Fort Ancient as a whole and its neighbor, the Stubbs earthworks (see text, above). All seven of the earthworks just discussed are within 50 miles of one another within the Little and Great Miami drainages. The seven are posited by Riordon (2004b) to represent a local ceremonial and religious tradition.
 48. Ruhl (1996:61–64) found that earspools buried with persons oriented north–south versus east–west in the Great Burial Place were statistically different in the mean diameters and cup diameters of their obverse (front) plates, and in the abruptness of the concave–convex transition between their cups and surrounding annuli. Earspools interred with persons in the Great Burial Place, Mound 12, and Marriott Mound 1 were statistically distinct from one another in the ratios of the areas of their cups and annuli, and in the ratio of the diameters of their obverse and reverse plates.
 49. Richard Shumard's Farm, with its one inhumation, is about 20 kilometers away from the Turner earthwork. The Perry Township site, with its two burials, and the Joseph Boyle's Farm site, with three skeletons and a few cremations, lie yet farther away from Turner, more than 40 kilometers away.
 50. The ceremonial deposits that reveal ceremonial gatherings include: 12 at the Turner earthwork (Carr, Goldstein, et al. 2005:509, table 13.8, appendices 13.3 and 13.4), 3 at the Fort Ancient earthwork (Cowan-Wolfe Cache, Powell Cache, Mound 50 Deposit), 1 at the Stubbs earthwork (Koenig Quartz Deposit), 1 at Purdom Mound 1-2 (Deposit J), and 2 in Campbell Mound 1 (Deposit 1, Stone Altar). The graves that have redundant artifacts and indicate ceremonial gatherings include: 32 or 35 at the Turner earthwork (Carr, Goldstein, et al. 2005:509, table 13.8, appendices 13.3 and 13.4), depending on whether the artifacts buried with multiple persons in a grave are counted as one gathering or multiple gatherings; Fort Ancient, the Moorehead 1890:87 mass burial; Manring Mound 2, the Altick 1941:4 burial; Purdom Mound 1-2, Burial M; Perry Township Mound, Burial 1; and Glen Helen Mound, Burial 1M. The large number of bear canines found in Boblett Mound 2, Burial 1 appear to have been part of the ceremonial costume of this individual rather than contributions to him or her from many other individuals.
 51. The human remains excavated by Moorehead from the Fort Ancient site are not curated currently at the Field Museum of Natural History, the Ohio Historical Society, Harvard University's Peabody Museum of Archaeology and Ethnology, or the Smithsonian Institution's National Museum of Natural History, as determined by collections managers in 2007. Robert Connolly (2007, personal communication) found a note from the late 1930s in the records of the Field Museum saying that all fragmentary material from the site had been consigned to waste. Many of the human remains from the ossuary in the Great Gateway, the terrace east of the Great Gateway, and the terraces west of the South Fort at Fort Ancient would have been fragmentary and would possibly have been deaccessioned then, if they were removed from the field at all.

The Scioto Hopewell *and Their Neighbors*

Bioarchaeological Documentation and Cultural Understanding

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Cover Design Acknowledgment: Digital painting, “On the Way”, by Christopher Carr, based on portraits of three ceremonial leaders rendered on three copper celts by anonymous Ohio Hopewell artists, compositions of processions of persons rendered on copper breastplates by anonymous Ohio Hopewell artists, and an early photograph of a virgin hardwood forest in the Allegheny Plateau province of Ohio. The three celts bearing the portraits of leaders, from left to right, are: Carr no. C023 Side A, from the Hopewell earthwork, possibly Mound 25, Skeletons 260–261, curated at the Ohio Historical Society, cat. no. 283/351B; Carr no. C301 Side A, from the Edwards Mound Group, 33HA7, curated at the Harvard Peabody Museum, cat. no. 84-6-10/32346; and Carr no. C011 Side A, from the Seip earthwork, curated at the Ohio Historical Society, cat. no. 957/-. Example depictions of processions of ceremonial leaders are found on breastplates Carr B061 Side B, from the Liberty earthwork, curated at the Ohio Historical Society, cat. nos. 7/1.007 and 13716; and Carr B025 Side A, from the Hopewell earthwork, Mound 25, Burial 6, curated at the Ohio Historical Society, cat. no. 283/83C. The portraits and processions were revealed by color and near-infrared digital photography, hybrid color-near-infrared image display, and image contrast enhancement. The full forest photograph is published by Gordon (1969:Frontispiece). Top and bottom border designs are, respectively, a snake-skin design incised on the top of a pottery vessel and a rocker-stamped bird feather design placed on the body of the same vessel, from the Hopewell earthwork, Mound 25, Altar 1 (Moorehead 1922:171, Figure 70). Cover layout by Christopher Carr and Deann Gates.

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D. Troy Case, Christopher Carr, Ashley E. Evans, and Beau J. Goldstein

Data Base of Intrasite Layouts

Christopher Carr and Rebekah A. Zinser

Regional Geographic Data Base

Christopher Carr and Rebekah A. Zinser

Ethnohistorical Data Base

Christopher Carr, Rex Weeks, and Mark Bahti

Figures

Christopher Carr and Rebekah A. Zinser

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