Chapter 3

Settlement and Communities

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The daily lives of Hopewell people in the Scioto-Paint Creek area were spent largely individually or in small groups close to nature. Away from the great earthworks and burial mounds, in the deep forests on the terraces and bottomlands of the Scioto and Paint Creek valleys, small groups of one or two extended families built their homes and made their gardens in dispersed locations. Smaller portions of such a residential group hunted, gathered, grew crops, collected shellfish, and fished together in the main valleys and, at particular times of the year, made trips to the valley edges and up secondary streams to gather and hunt wild foods. Sometimes, a part or all of a residential group might move to these more remote settings for a harvesting period. Deer, turkey, mollusks, turtle, fish, ducks and geese, hickory nuts, acorn, pods, berries, greens, tubers, and maple syrup all could be harvested most effectively by an individual or a few persons, and provided no impetus for large numbers of people to assemble. Likewise, horticultural plots could be planted, weeded, and harvested of their seeds by a family or two. In their homesteads and while out in nature, Scioto Hopewell families raised their young, taught them the practical material, magical, and spiritual skills for living, showed their children their place among kin, instilled in them open aspects of the stories, history, beliefs, and values of their people, and tended to their sick, the well-being of the family, and personal power and protection with rituals of their own concern. Kin from a few neighboring residential groups, joined by footpaths through the forest, periodically visited each other, probably joined forces at times to clear horticultural plots and house sites, and gathered together for small celebrations. A Scioto Hopewell person's closest relationships were with nature and family.

Counterbalancing this tendency toward isolation, the lives of Hopewell people in the Scioto-Paint Creek area were richly interwoven economically, socially, politically, ritually, and spiritually into larger groups of a variety of kinds, geographic scales, social compositions, and functions. Communities of residential groups, as well as clans, clan-specific ceremonial societies, sodalities, possibly phratries, and multicommunity social-spiritual alliances, provided the groups and social networks within which critical aspects of Hopewell life occurred: enculturation in the ethos, esoteric knowledge systems, and rituals of the culture; initiation to adulthood and other social statuses; finding mates and arranging marriages; exchanging foods, raw materials, and ritual items; crafting ceremonial paraphernalia; building ceremonial centers; and performing group and multicommunity rituals that were

necessary for life, healing, burying the newly deceased, and helping them to pass to an afterlife.

This chapter and the next describe the organization of Scioto Hopewell people into social groups of many kinds, ranging from individual residential groups to multicommunity alliances. This chapter focuses on the integration of people into communities. By having a geographic dimension, and by encompassing the topics of settlement patterning and residential and logistical mobility, the concepts of community and community organization bridge the natural environmental setting discussed previously with the social realm. Chapter 4 goes on to describe social groups and categories that were not defined spatially, including clans, clan-specific ceremonial societies, sodalities, phratries, leadership roles, and genders.

Chapter 3 begins by defining three kinds of communities that differ in scale and into which Scioto Hopewell people were organized: residential, local symbolic, and sustainable communities. A Scioto Hopewellian residential community was comprised of one or two extended families who lived in one or a few spatially clustered habitations. Residential communities were spread over the landscape, isolated from one another. The chapter describes the sizes, settlement plans, annual logistical mobility, annual residential mobility, lengths of occupation, and swidden-linked resettlement cycles of residential communities. A distinction is drawn between the annual mobility patterns of residential communities in the environmentally rich Scioto-Paint Creek area and those in the less environmentally productive, northern and southern Scioto valley. Two examples of residential communities are presented. The chapter next discusses Scioto Hopewellian local symbolic communities. A local symbolic community was composed of a group of residential communities that occupied a landscape catchment usually about 6–10 kilometers in diameter and that were integrated through their jointly building ceremonial centers and participating together in ceremonies there. Two local symbolic communities, each with multiple, simultaneously used ceremonial centers, are documented. The chapter ends with a description of Scioto Hopewellian sustainable communities. A sustainable community was a set of allied, local symbolic communities that tended to reside within an area of about 16–18 kilometers in diameter. Labor, mates, and probably food and other material resources were exchanged across a sustainable community, buffering each local symbolic community from its local demographic and subsistence variations. The alliances that tied local symbolic communities to one another were spiritual-social in nature: they involved burying the dead from the multiple communities together in one or more shared cemeteries. No evidence is found for sustainable communities having been held together by a strong, centralized leadership position that spanned multiple, local symbolic communities. Two examples of sustainable communities are documented. Formal geographic analysis of the distances between ceremonial centers in the Scioto-Paint Creek area is used to define both local symbolic communities and sustainable communities there. Sustainable communities are further confirmed by the spatial distributions of styles of fabrics, shared shapes and celestial orientations of earthworks in different local symbolic communities, and strong similarities in the shapes and sizes of some charnel houses in different local symbolic communities.

COMMUNITIES OF MULTIPLE KINDS AND GEOGRAPHIC SCALES

The social and ritual lives of Scioto Hopewell peoples flowed across a landscape of sites of many kinds, and were interrelated at several, distinct geographic scales. Hopewell people built habitation sites, specialized camps that supported specific subsistence pursuits, small burial mound centers for burying and honoring their dead, larger geometric-shaped earthen enclosures with mounds for burying their dead and large spaces for a wider range of ceremonies and activities, other geometric earthen enclosures with only large spaces for unknown kinds

of rituals, and stages elevated on mounds for ceremonial performances apparently not related to death. Some of these kinds of sites were made and used by very small social groups like families or lineage segments while others were created by people within much more encompassing social networks for gatherings of a wide range of sizes and purposes (Chapter 4; Carr 2005a, b; Ruby et al. 2005).

From sociological and ecological perspectives, Scioto Hopewell people organized and carried out the activities of their daily lives and defined their identities within three distinct kinds of communities. First is the *residential* community. This is a set of households and people who live in close proximity and interact regularly on a face-to-face basis (Murdock 1949a:79–80). The people may live densely in a nucleated community or may be dispersed widely over a landscape. A residential community is a territorially based social formation, in that it combines both people and place (Mahoney 2000; Tringham 1972; Varien 1999:21), and typically its members have a sense of common identity by virtue of their ties to a place (Basso 1996). Other criteria that may be important to a community's self-definition or definition by outsiders are kinship, race, dialect, other potentially shared social identities, and peculiarities of culture and lifeways, but these are not universally essential across cultures. A residential community is also a decision-making unit that can jointly consider a wide range of cultural issues – behaviors, principles, and other ideas – that arise in daily life. In this sense, it is a corporate group (Befu and Plotnicov 1962). Scioto Hopewellian residential communities appear to have been very small hamlets of one to a few extended households, or small clusters of several single or multiple household hamlets (see below).

A second kind of community into which Scioto Hopewell people were organized is the *sustainable community* (Mahoney 2000). It is a regional social network within which mates, labor, food, and other material resources are regularly exchanged, offsetting and buffering against local demographic variations (e.g., in birth rates, age-specific death rates, sex ratios) and the ups and downs of local subsistence productivity (Braun and Plog 1982; Moore and Moseley 2001; Wobst 1974). Through exchange, long-term viability is ensured. A sustainable community is not tied to place or people; its boundaries and membership can shift dynamically with changes in the spatial distribution of demographic and subsistence variability. A sustainable community may or may not be self-recognizing with a self-given name, sense of identity, or even an outside-given name (e.g., Fried 1968). Given its potentially fluid and anonymous nature, a sustainable community may or may not be capable of making united decisions and actions. Examples of Scioto-Hopewell sustainable communities include those who gathered from afar in large numbers at geometric earthen enclosures with a great concentration of small burial mounds overlying small charnel houses or with one or more large loaf-shaped burial mounds each comprised of two or more submounds that covered the distinct rooms of a big charnel house. Mound City, Tremper, Seip, Liberty, Old Town (Frankfort), Hopewell, and Ater are ceremonial centers that fit this pattern. The multiple small mounds or the conjoined submounds represent multiple social units from varying segments of the Scioto and Paint Creek valleys who jointly participated in processing and burying their dead together and, in at least some cases, who jointly planned and/or built charnel facilities for processing their dead (see below; Carr 2005a; Weets et al. 2005).

A third kind of community into which Scioto Hopewell people organized themselves is the *local symbolic community* (Charles 1995). It is a set of residential communities, or segments of them, that actively construct and negotiate their affiliation to a larger social unit for some united purpose(s). As such, a local symbolic community is a self-identifying unit. It also is capable of united decision making and action relative to its goals, and thus is a corporate group. The goals of a symbolic community may be political, economic, religious, or some combination of these, such as warfare or regulation of irrigation (Abbott 2000; Rice 1998) or

maintenance of the cosmos (Rappaport 1968, 1971). Like a sustainable community, a local symbolic community can be fluid in its boundaries and membership in response to a changing landscape of social, political, economic, or other risks and opportunities. Some symbolic communities may have members that do not necessarily derive from a limited geographic area and may not be localized. Pan-tribal sodality organizations can illustrate this characteristic. Typically, however, symbolic communities gain some of their coherency from the geographic closeness of their members as well as the group concerns that they hold in common. Examples of local symbolic communities in the Scioto-Paint Creek area, in the latter portion of the Middle Woodland period, are the three groups of people who lived respectively in main Paint Creek valley, in the North Fork of Paint Creek valley, and in an adjacent section of the Scioto valley, and who together in turn comprised a sustainable community and jointly buried their dead together in conjoined mounds in the Seip, Liberty, and Old Town earthworks (see below; Carr 2005a).

RESIDENTIAL COMMUNITIES

A picture of Hopewellian residential communities in the immediate Scioto-Paint Creek area can be inferred in only a general and indirect way, from a few small surface surveys and excavations there, and by way of analogy to broader systematic surveys and more thoroughly excavated habitation sites in neighboring regions of Ohio. Informative, neighboring regions include the lower Scioto drainage south of the Scioto-Paint Creek confluence by 20 or more kilometers, the upper Scioto drainage north of the confluence by 30 or more kilometers and around Columbus, the Licking valley, and the upper Muskingum valley.[1] To date, only one habitation site with definable buildings has been excavated in the immediate Scioto-Paint Creek area (Pacheco et al. 2005), and it has been excavated too recently to yet be documented in print. Thus, in assembling a picture of Scioto-Paint Creek residential communities from those over the broader region, the possibility must be considered that the Scioto-Paint Creek habitation pattern varied somewhat from patterns in other, known better areas. In particular, the portions of the Scioto valley north and south of the Scioto-Paint Creek area are less productive and diverse in food resources than the ecotone in the vicinity of the Scioto-Paint Creek confluence (Chapter 2, Environmental Setting) and provide different opportunities for population aggregation and sedentism. Care must also be taken to distinguish the nature of settlements within wide, main valleys from those on features that overlook the valleys or in other upland settings along small streams. Settlements away from the main valleys tend to have lower densities and diversities of artifacts and features, and probably have different functions and seasonal patterns of use (Aument 1992; Aument et al. 1991; Ohio Department of Transportation 1993). Table 3.1 lists settlements that occur in different portions of the Scioto drainage and in main valley flood plain settings, and versus upland settings, and that shed light on the nature of Scioto Hopewell residential communities.

Within the Scioto valley at large, habitation sites were constructed directly on its flood plain as well as on its middle terraces. Sites in these geomorphological settings seem to be most concentrated in the vicinity of Hopewellian earthworks and to taper off with distance from the earthworks (Prufer 1975:316; see also Pacheco and Dancey 2006). Upland settings of habitation include end moraines, a bluff edge overlooking a narrow flood plain, a knoll over looking a wetland depression, and a small upland flat (Aument 1992; Aument et al. 1991; Baker and Genheimer 1976; Baker 1977, 1978, 1979; Church and Ericksen 1992, 1997, Ohio Department of Transportation 1993).

A general, current understanding of Hopewellian residential communities in the Scioto-Paint Creek area and neighboring portions of the Scioto drainage is that they were usually very small social units, comprised of one or two extended families each. The habitation site of such a group, at any one point in time, consisted of one or two subrectangular and/or circular houses. In main valley

Table 3.1. Multi-Season Residential Sites, Single-Season Base Camps, and Logistical Sites in the Scioto Drainage[1]

Geomorphological Setting	Scioto Valley, North and South of the Scioto-Paint Creek Area	Scioto-Paint Creek Area
Upland and/or in small tributaries entrenched in the Appalachian Plateau	Clarence Ford (33 Fa 81) seasonal base camp Gilead (33 Mw 19) seasonal base camp Marsh Run/ Walmart (33 FR 895) seasonal base camp	Starr's Knoll (33 Ro 159C) logistical camp Wade (33 Vi 315) logistical camp or possibly a seasonal base camp Ilif Riddle I (Ross Co.) seasonal base camp? Ilif Riddle II (Ross Co.) logistical camp
Main valley flood plain	Madeira-Brown (33 Pk 153) seasonal base camp (or multi-season residential site less likely) Haven (33 Dl 1448) seasonal base camp	McGraw (Ross Co.) multi-season residential site Brown's Bottom #1 (33 Ro 21) multi-season residential site[1]

[1] Material characteristics that define and distinguish primary multi-season habitations, auxilliary seasonal habitations/base camps, and logistical sites are as follows. Both primary multi-season habitations and auxilliary seasonal habitations, as residences of whole households, can have substantial buildings with large, deep, closely spaced, and regularly arranged posts; artifacts and features used in a similar, wide range of maintenance activities; and a similar size. A seasonal habitation, occupied a small percentage of the year and in contrast to a multi-season habitation, is more likely to have no or weak midden development, light artifact density, few processing pits per building, no storage pits, and a restricted range of plant food remains (e.g., largely nuts harvested in fall or maygrass harvested in spring). A seasonal habitation away from valley bottoms is more likely to have largely wild plant food remains. A logistical camp, being temporary and made by usually a subset of a household for focused subsistence purposes, is likely to have no permanent building, artifacts and features used in one or a few extractive activities and few used for maintenance activities, no midden development, light artifact and pit density, no storage pits, and a restricted range of wild plant food remains. Large numbers of bladelets found on a site are not thought to be diagnostic of a multi-season habitation or seasonal habitation. Large numbers of bladelets have been found on both multi-season residential sites (e.g., McGraw, Brown's Bottom #1) and on small, special purpose or logistical sites (e.g. Murphy IV, Pacheco 1993). Bladelets are multipurpose tools and may be produced and used expediently, not curated, and accumulate in quantity in an assemblage. See Notes 3 and 4 for evaluations of the functions of each site by these criteria and Note1 for references.

flood plain sites, where the definition of houses has been most successful (Brown's Bottom #1, Haven, Madeira-Brown, sites; 9 houses total), most houses range between 36 and 132 square meters (ca. 5–19 persons). Two modal sizes and one outlier are apparent. One mode is in the 36–60 square meter range (5–11 persons). The second mode is in the 100–132 square meter range (16–19 persons), about double the number of persons. The outlier (Brown's Bottom #1 site) is yet larger, at 188 square meters (ca. 25 persons), about three times the first, small mode in number of persons. The anomalously large building was located in the Scioto-Paint Creek area, whereas the remainder of the buildings were considerably north and south of the area. Another building in a valley setting (DECCO site) may have had either a domestic or ritual function and was 128 square meters (ca., 18 persons). (Phagan 1977, n.d.a., n.d.b.). The one upland site with excavated post patterns (Marsh Run), in the northern Scioto, contained one house in the 72–125 square meter range (ca., 12–18 persons) or two houses in the 52–72 square meter range (10–12 persons). The interior areas of all of these valley and upland houses are slightly to substantially higher than the mode of interior areas of Middle Woodland houses known across the Eastern Woodlands, at 32–40 square meters (8 persons), but within the wide total range of that mode (4.5–131 square meters; 2–18 people) (Smith 1992:214).[2] Variation in household sizes within the Scioto drainage probably reflects their life cycles of births, marriages, and deaths, as well as functional differences between primary, multiseason residences and seasonal field camps/habitations (see below, on annual residential mobility).

Within a Scioto Hopewell house, one or a few basin-shaped pits and heating/cooking pits were build. Outside a house, one or more work areas were created, consisting of combinations of shallow basins, earth ovens, occasional cylindrical pits, and posts for racks or screens. An area was typically reserved for dumping refuse in multiple-season residential sites and in some single-season base camps (e.g., Bush et al. 1989, 1992; Ohio Department of Transportation 1993; Pacheco et al. 2005; Weller and Eriksen 2005; see also Aument 1992; Aument et al. 1991; Dancey 1991; Prufer et al. 1965). Storage pits have been documented in only one case in the Scioto valley (Pacheco et al. 2005).

Buildings and work areas were sometimes relocated, up to a few times, over the length of occupation of a site (e.g., Aument et al. 1991; Bush et al. 1989, 1992; Ohio Department of Transportation 1993). These shifts occurred within both valley and upland sites.

In the Scioto and Licking drainages, in main valley flood plain settings, habitation sites were used between a few years and a decade or two before a household moved to a new location (Carr and Haas 1996:29), possibly tied to swidden cycles (Rainey 2003). Habitation sites in these settings have been interpreted as swidden farmsteads that were periodically moved as field locations changed (Dancey and Pacheco 1997a:11; Prufer et al. 1965:136; 1964a:71; Wymer 1996, 1997). In upland areas, sites appear from their sparser material remains to have been used for shorter durations. Their artifact densities and diversities have been interpreted as indicating single-season field base camps/habitations and temporary logistical hunting and collecting camps (Aument 1992; Aument et al. 1991; Church and Ericksen 1992, 1997; Ohio Department of Transportation 1993:42–47).

Most residential sites in main valleys were isolated from one another, but spatial clusters of up to six habitation sites are known (e.g., Coughlin and Seeman 1997; see also Carskadden and Morton 1997:374; Pacheco 1993, 1996). Some habitation sites within a cluster may have been contemporaneous – the product of budding off a founding family (Pacheco 1993, 1996) – whereas others may indicate the relocation of homes or reuse of a neighborhood over a series of swidden cycles.

Annual Logistical Mobility

In the Scioto drainage, both within the Scioto-Paint Creek area and further north and south, it is likely that some portions of the year, some of an extended family left their valley

homestead, went on hunting and/or gathering logistical trips, and set up short-term hunting and collecting camps in upland, end moraine, and small tributary settings (Ohio Department of Transportation 1993:42–47). This view is supported by the ephemeral nature of some sites, including their lack of permanent buildings, artifacts and features used in one or a few extractive activities and few in maintenance activities compared to multi-season valley habitation sites, no midden development, light artifact and pit density, no storage pits, and a restricted range of wild plant food remains (e.g., Starr's Knoll site, Ilif Riddle II site, perhaps Wade site, other unnamed sites; Baker 1977:27, 1979; Baker and Genheimer 1976; Carskadden and Morton 1997:374; Church and Ericksen 1992, 1997; Prufer 1997). In addition, it is empirically clear that upland rock shelters were used during the Middle Woodland as short-term logistical hunting and/or gathering camps, given the light density of Middle Woodland artifacts, the paucity of ceramics, and the anomalous projectile point-to-bladelet ratios within them compared to multi-season valley habitation sites (Seeman 1997:310–311). The fact that wild, upland plant and animal foods made up a significant portion of the diet of Scioto Hopewell people, and of farmers in the Eastern Woodlands generally up through the time of contact (e.g., Yerkes 2005:245), also strongly points to the use of logistical sites by Scioto Hopewell people.

Annual Residential Mobility

The topic of the annual residential mobility of habitations, in contrast to their annual logistical mobility, is currently under debate. Dancey and Pacheco (1997a:15, 18) have modeled that Ohio Hopewell valley habitations were occupied essentially year round, with the possibility that logistical trips were taken from them by some members of a household to hunt and gather wild foods. Their model is based on excavation data (Murphy I, III sites) and survey data from the Licking drainage, complemented with excavation data in the Scioto-Paint Creek area (McGraw site). Dancey (1991:67) argued this specifically for the Murphy I habitation based on what he saw as a well maintained spatial organization of work areas within the site, the presence of stock-piled tool blanks, and the heavy recycling of the lithic assemblage. In his view, work spaces would have been offset from each other, giving a smeared archaeological record, had the site been abandoned and reoccupied annually. Stock-piling blanks and recycling lithics would have been unnecessary if the inhabitants at Murphy I annually moved their residence to other locations where lithic raw materials were at hand. Wymer (1997:160) has argued from paleoethonbotanical data in the Licking drainage that Ohio Hopewell valley habitations were occupied by at least some persons during at least spring, summer, and early autumn, in order to work garden plots and to protect domesticated and wild plant foods in active and abandoned garden plots from predation by animals.

A second model of annual residential mobility or stability sees Ohio Hopewell households as having moved their residences seasonally between flood plain and terrace sites, upland sites, and the earthworks (Yerkes 1988, 1990, 1994). Yerkes proposed this model based on a number of characteristics of the Murphy I habitation in the Licking drainage that he considered to indicate annual residential mobility rather than residential permanency: a high frequency of expedient lithic tools and low frequency of curated and heavily utilized lithic tools, weak development of microwear on lithic tools as a result of their expedient use, lack of microwear evidence for hafting of tools which suggests their expedient use, the lack of evidence of a building, shallow and narrow posts where they exist, and the lack of deep pits for storage. The three listed characteristics of the lithic assemblage have been reasonably shown to be inadequate indicators of annual residential mobility and more attuned to the availability of lithic raw material (Pacheco 1993:60–65). Also, many posts at Murphy I are, in fact, fairly large, between 15 and 26 centimeters in diameter (Dancey 1991:51, Table 3), although not as substantial as those at most seasonal and

multi-season residences in the Scioto valley (Brown's Bottom #1, Clarence Ford, Marsh Run, Haven; see Notes 3, 4). However, the lack of patterning of posts into a house form and the lack of storage pits are significant support for the argument for annual settlement impermanence. The clear spatial structuring of activity spaces at Murphy, which Dancey (1991) used to argue for annual settlement permanence, is not indicative; it also characterizes impermanent, short occupation sites among mobile peoples (e.g., Bartram et al. 1991; Binford 1983:144–187; Carr 1982:308–342, 516–517, 1991; O'Connell 1979; O'Connell et al. 1991; Yellen 1974, 1977). Yerkes' view that Ohio Hopewell people moved their residences seasonally also interfaces with his conclusion that Eastern Agricultural Complex seed plants were a less significant contribution to the diets of Ohio Hopewellian people than Prufer et al. (1965), Dancey and Pacheco (1997a; Dancey 1991), and Wymer (1996, 1997) have inferred, and that Ohio Hopewell people were not tied down spatially year-round by stored grown foods.

A third possible variant on annual residential mobility or stability is alternation between specifically spring-summer-fall homesteads and winter homesteads. Some Middle Woodland residential buildings in the Scioto drainage are rectilinear, others round – a pattern that is like the common historic Southeastern Woodlands division between summer houses or ramadas and winter houses, respectively (Faulkner 1977), and that is reiterated in the Middle Woodland period in both the northeast and southeastern Woodlands (DeBoer 1997:230–231; Butler 1979; Freeman 1969; Sullivan 1989). At one Middle Woodland site neighboring the Scioto-Paint Creek area, houses of both shapes were present (Madeira-Brown site; Bush et al. 1989, 1992; Ohio Department of Transportation 1993), suggesting year-round residence at the site. At other sites, only rectilinear buildings were present (Marsh Run site; Haven site, late components; Brown's Bottom # 1; Aument 1992; Aument et al. 1991; Burton 2006; Pacheco et al. 2005; Paul Pacheco, Jarrod Burks and DeeAnne Wymer, personal communication, 2005; Weller and Eriksen 2005) or only a round building (DECCO site; Phagan 1977, n.d.a., n.d.b.), suggesting alternation between sites over the seasons – if building shape corresponded with season(s) of use. No current evidence from the Scioto drainage, however, indicates a correlation between the seasons of use of a house and its shape. In fact, the rectangular structures at Madeira-Brown, Haven, and Brown's Bottom #1 had close post spacings and were not ramadas, weakening the ethnohistoric and archaeological analogies. The functional and symbolic distinctions between the two structure shapes observed ethnohistorically in the Woodlands apparently are reduced to a symbolic one, alone, at best, in the Scioto situation.

The above three models of annual residential mobility/sedentism all suffer from combining habitation data from multiple drainages (the Licking, Scioto) or multiple sections within drainages (the northern Scioto, Scioto-Paint Creek area, southern Scioto) and from having been suggested to be applicable to all Ohio Hopewell traditions. In contrast, different degrees of annual residential mobility and different mixes of residential and logistical mobility are expectable in different drainages or portions of drainages that vary in their environmental productivity. A case in point is the contrast between the Scioto-Paint Creek area, with its productive and diverse food resources in a multiple-ecotone setting, and the northern and southern portions of the Scioto valley with their simpler ecology and lesser productivity. Table 3.1 shows that in the Scioto-Paint Creek area, settlements with strong indicators of multiple-season residential stability in the main valley flood plain (McGraw, Brown's Bottom #1) are found in combination with ephemeral sites that are located in upland settings or small tributaries entrenched in the Applachian Plateau and that appear to have been logistical in their function (Starr'sKnoll, Ilif Riddle II, possibly Wade).[3] Significant residential stability in combination with logistical mobility would be expected in the Scioto-Paint Creek area with its close, diverse, and productive microenvironments. In contrast, in the northern and southern portions of the Scioto drainage, no sites with

strong evidence of multiple-season residential stability on the scale of McGraw or Brown's Bottom #1 have been found, but sites that appear to have been seasonal habitations/base camps (Clarence Ford, Marsh Run, Haven site, Gilead) and one seasonal habitation/base camp or, less likely, small multiple-season residential site (Madeira-Brown) are known.[4] Greater residential mobility, with seasonal shifts among habitations in different environs and with some logistical trips taken from these, would be expected in the northern and southern portions of the Scioto valley, which were less productive.

In actuality, the situations in the Scioto-Paint Creek area and the northern and southern portions of the Scioto drainage may have been more complex than the dichotomy drawn here between these two kinds of environments and movement within them. A realistic description of residential stability or mobility in each area should consider not only the seasons of occupation of a residential site, but also the proportion of a household that resides there in various seasons. It is possible, and can be an effective subsistence strategy, for part of a household to remain at a main residential site while part goes off to exploit food resources in other areas, residing there in small residential base camps for weeks or a season at a time. Some weeks and seasons a main residential site may be occupied by all household members, other weeks and seasons by only a part of the household. The remote residential sites occupied by a part of a household for weeks at a time should not be confused terminologically with logistical sites, which are much shorter-duration hunting and collecting camps. Thus, residential stability should be conceived of on two scales (number of seasons of residential stability and proportion of a household that remains in residence) rather than on only one (number of seasons of residential stability). A further complication to envisioning residential stability or mobility is that it may change for a household with its life cycle and size. These nuances have yet to be considered empirically for the Scioto-Paint Creek area and the northern and southern Scioto drainage.

In sum, currently, the issue of annual residential mobility is open. While paleoethnobotanical and/or paleofaunal evidence (Parmalee 1965; Stansbery 1965; Wymer 1992, 1996, 1997; Yarnell 1965) in the Scioto-Paint Creek area and the neighboring Licking valley suggest at least partial household occupation of valley habitation sites during spring, summer, and early autumn, the remaining six months of the year are unaccounted for at them. In the northern and southern Scioto drainage, seasonal residential moves between complementary upland and lowland habitations appear likely, and no sites are currently known that are comparable in scale to the multiple-season residential sites found in the main valley flood plains of the Scioto-Paint Creek area. Patterns of annual residential mobility or stability possibly varied in different portions of the Scioto drainage. More nuanced understandings of residential stability and mobility that consider both seasons of residence and the proportion of a household in residence remain uninvestigated. Palynological records are sorely needed to help resolve the issue of annual residential mobility.

Examples of Residential Communities

A case of an excavated Hopewellian valley habitation that is clear in its internal organization is the Madeira-Brown site (33 Pk 153). It is located on a low terrace in the Scioto valley, 30 kilometers south of the Scioto-Paint Creek confluence. The site's debris scatter covered an area of 100×120 meters on the surface. Excavation of 25% of the site revealed three houses, only two of which could be contemporaneous (Figure 3.1). Two of the houses were circular, of similar diameter, with one post pattern on top of the second, indicating a rebuilding episode. The most completely excavated of the two circular houses was 6.8 meters in diameter, about 36 square meters in floor area, and was capable of accommodating about 8 people. A small, circular, shallow, basin-shaped pit was the only feature found inside the two buildings. The third house was subrectangular, at least 6.1×9.8 meters and 60 square meters in floor area, and could have accommodated a minimum of

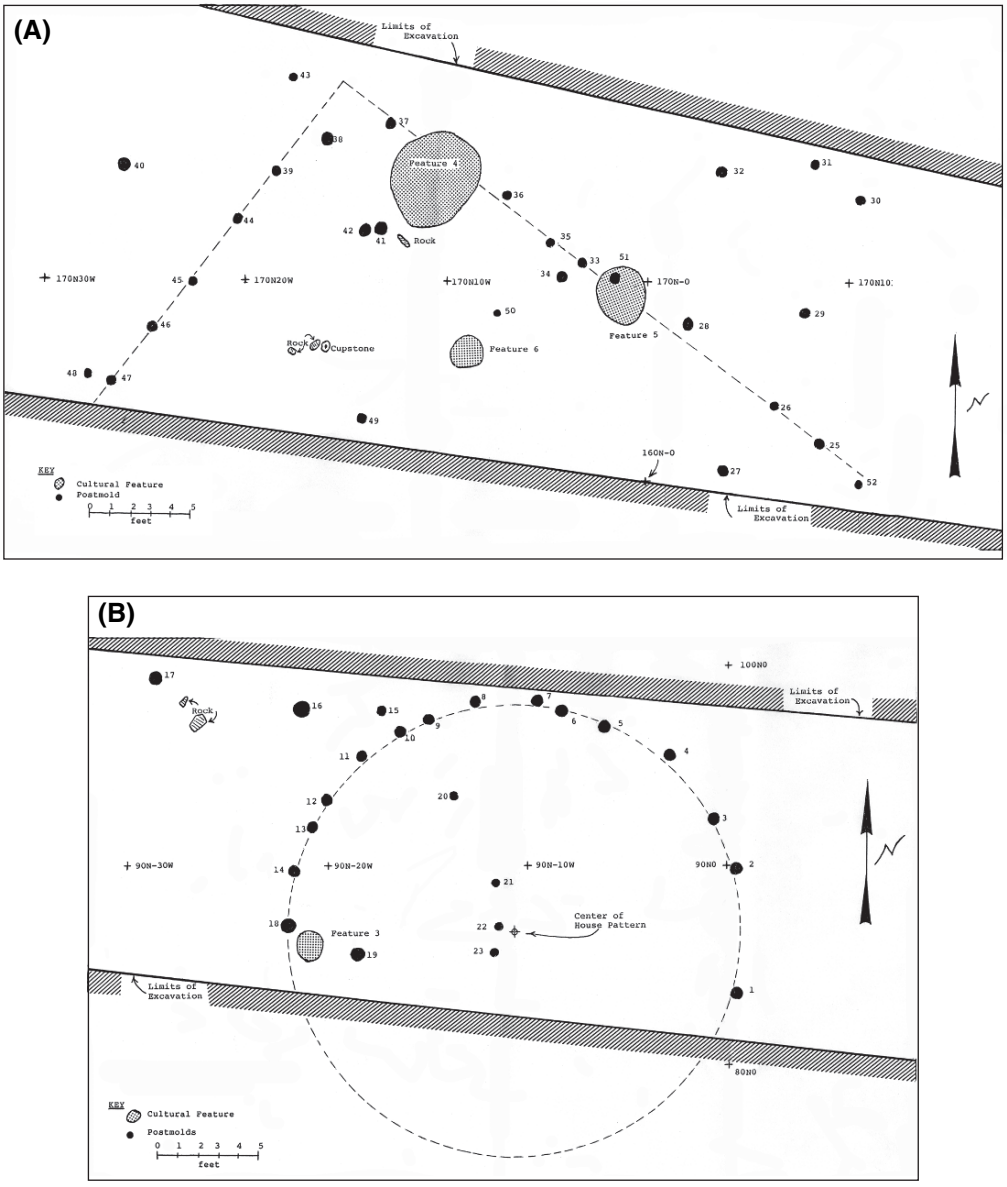


Figure 3.1. The Madeira Brown habitation site, 33Pk153, in the lower Scioto valley. (A) Floor plan of the rectangular house, within the 175′ north trench. (B) Floor plan of the two circular houses, within the 100′ north trench. See credits.

about 11 people. It, too, contained a small, circular, shallow, basin-shaped pit. Along the inside of the house's walls and partially cut by their alignment were a large, circular, shallow depression and a large, three-foot deep, cylindrical, apparent earth oven. Outside the house was a concentration of fire-cracked rock that possibly was the remnant of a pit. A swale nearby the site could have been the location of a substantial refuse dump. Very few artifacts were found at the site. The buildings at the site suggest some degree of residential stability rather than its use as a temporary logistical site. However, both the paucity of pit features and the

small artifact assemblage indicate short occupations consistent with a single-season base camp instead of a multiple-season residential site.

An excellent example of a concentration of multiple Hopewellian habitation sites that formed a residential community with a valley setting, and of the community's changing nature over time, is one documented by Pacheco (1993, 1996). The community lived in the Granville portion of Raccoon Creek valley, a tributary of the Licking valley east of Columbus and close to the Newark earthwork (Figure 3.2). A surface survey of a 50 hectare transect of primarily the terrace of Racoon creek revealed ten Middle Woodland sites/clusters of artifacts and debris, one site of which had two Middle Woodland components. Based on the size, artifact and debris density, spectrum of artifact and debris classes, lithic raw materials, and boundary crispness of each site, three functionally distinct kinds of sites could be defined: habitations marked by their refuse dumps (Murphy I, III, V, VI, and IV-Vanport chert component); a specialized camp as large as the habitations but with a high proportion of bladelets, many heavily utilized and many made of an exotic chert (Murphy IV-Wyandotte chert component); and small, short-term, specialized, logistical use areas of varying artifact and debris spectra and perhaps different functions (Clusters 1, 2, 4, 5/8, 7). The approximate historical sequence of development of these habitations and use areas, as shown in Figure 3.2, was determined by noting the varying proportions of local Vanport and exotic Wyandotte cherts among the sites and the varying kinds of artifact classes within a tool reduction sequence that were made from the two cherts, and by reasonably assuming that all 40–50 kilograms of Wyandotte chert in the area was acquired and introduced at one time. The total suite of sites appears to represent the settlement of the area by one household (Time 1, Murphy IV-Vanport chert component), its acquisition of Wyandotte chert, its relocation and perhaps its growth and budding into two households (Time 2, Murphy I, Murphy-V, and special use area Murphy IV-Wyandotte), and further settlement relocation and perhaps budding into up to three households (Time 3, Murphy I, Murphy III, Murphy VI), followed by abandonment of the area. Contemporaneity of habitations and the precise number of contemporaneous households within Times 2 and 3 cannot be assessed. The historical sequence possibly spanned several generations. The factors responsible for the shifting locations of habitations are unknown, but could include the effects of refuse build up within a habitation, household budding and privacy, and/or the desire to stay close to swidden farming plots that were relocated over time.

Long-term Cycles of Residential Mobility and the Lengths of Occupation of Sites

Residential mobility can have two components: moves that recur annually as a part of a "seasonal round" among locations, and longer-term cycles of settlement relocation that can be tied to the relocation of swidden plots, the declining availability of local natural resources due to impacts on them, refuse accumulation and health issues, and/or privacy, to name a few factors. Annual residential mobility has been discussed above, but long-term residential mobility only mentioned.

Currently, two positions have been taken on the degree to which Hopewell people in the Scioto drainage and adjacent areas were residentially mobile over the long-term. Prufer (Prufer et al. 1965:137) held that occupation of Ohio Hopewellian habitation sites was "semi-permanent" in response to the "shifting agricultural" system that he thought Hopewell people had. He made the "educated guess" that the excavated McGraw habitation site was used about "one generation, or 30 years.... Certainly the site was not inhabited for a long period of time" (Prufer et al. 1965:137). He gave no specific reasons for the estimate. In contrast, Dancey and Pacheco modeled Ohio Hopewellian habitations as stable, both annually and over the long term: "households were stable, long-term settlements of people" (Dancey and Pacheco 1997a:3; see also p. 8, and Pacheco and Dancey 2006:6). Dancey (1991:50, 66–67) argued that the excavated Murphy I site

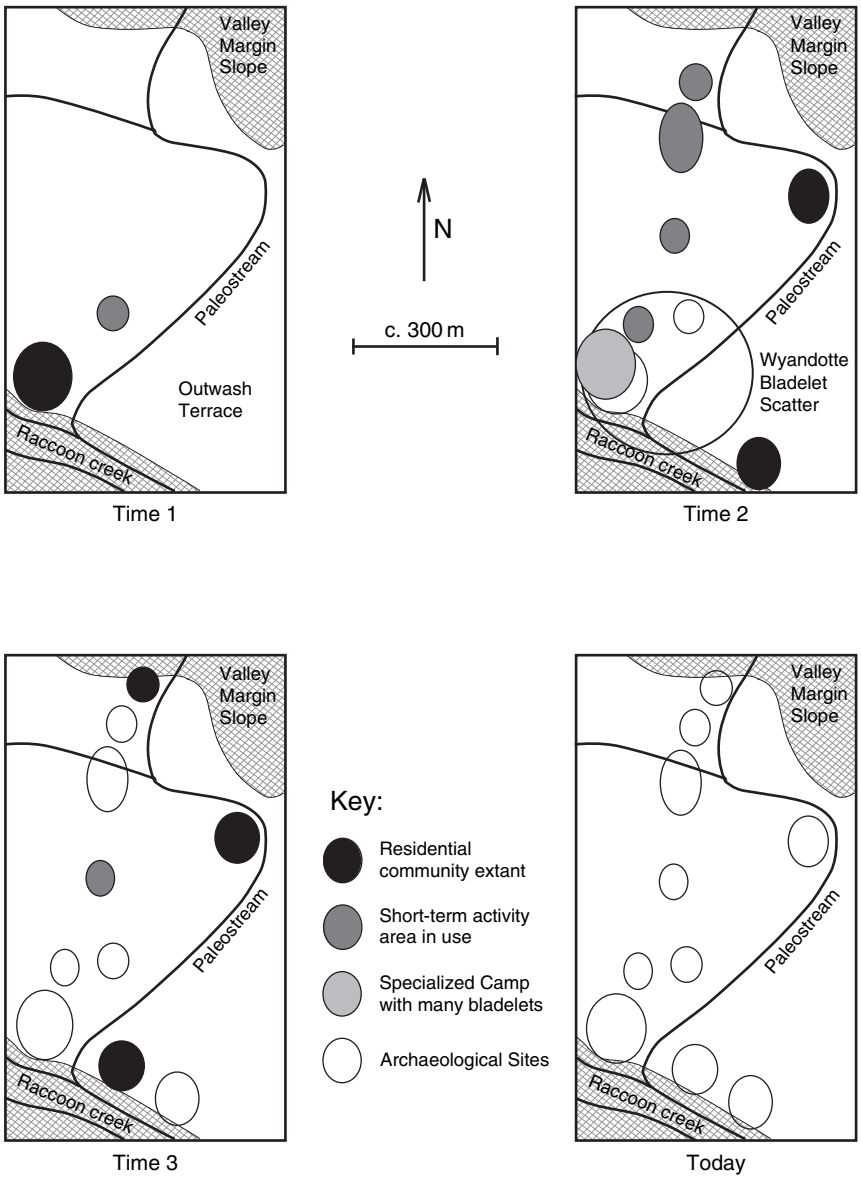


Figure 3.2. The Murphy complex, a concentration of multiple Hopewellian habitations and use areas in the Licking drainage that comprised a residential community and that shifted locations over time. Time 1 is defined by the occurrence of only local Vanport chert at the components. Time 2 is defined by the acquisition and primary use of nonlocal Wyandot chert to make tools and their occurrence at the components. Time 3 is defined by the recycling of Wyandot chert tools and their presence at the components. See credits.

was occupied "several generations, or approximately a century." His logic relied on the relatively wide spread of radiocarbon dates from the site combined with his conclusion that the site was not periodically abandoned and reoccupied (see above, Annual Residential Mobility).[5]

The disparity between Dancey's and Prufer's views is significant because the Murphy site contained many times fewer the amounts and areal densities of ceramics and lamellar blades (indicators of amounts of activity) than did the McGraw site (Table 3.2), yet one would expect the reverse from the

Table 3.2. Comparison of Artifact Density at the McGraw and Murphy Sites, Ohio, and the Smiling Dan Site, Illinois[1]

	Brown's Bottom #1[2]		Murphy I[3]		McGraw[4]		Smiling Dan[5]	
	Total	**Items/m^2**	**Total**	**Items/m^2**	**Total**	**Items/m^2**	**Total**	**Items/m^2**
Site Area (m^2)	5,000		4,000		1,236		6,705	
Ceramics	4,502	0.9	858	0.21	9,946	8.05	138,350	20.63
Debitage	2,237	0.45	21,501	5.38	1,691	1.37	65,355	9.75
Lamellar Blades	185	0.04	473	0.12	233	0.19	2,254	0.34

[1] Table constructed and graciously contributed by Bret Ruby. Numbers have been revised from Ruby et al. (2005:168, table 4.5) with counsel from P. Pacheco (personal communication 2007).
[2] Brown's Bottom #1 data from Pacheco et al (2006; Pacheco, personal communication 2007).
[3] Murphy I site data from Dancey (1991), Dancey and Pacheco (1997:table 1.1), and Pacheco (1997).
[4] McGraw site data from Prufer (1965:10, 60, 85, table 3.1).
[5] Smiling Dan site data from Stafford and Sant (1985:39, table 11.1). Ceramics total includes minor Late Woodland and Black Sand components, totaling approximately 1691 sherds. Debitage total includes flakes plus cultural blocky fragments.

conclusions drawn by the two researchers. This situation suggests the need to re-evaluate the issue of long-term residential site permanence or mobility, or in equivalent terms, the lengths of occupation of residential sites. Three empirical approaches to the issue are now presented.

First, the ceramic assemblage recovered from the Murphy habitation site suggests that its total length of occupation was short – on the order of 1.4–14 years. Because much of the site and its ceramic contents were excavated, a reasonable estimate of its duration of use can be made. The site produced only 858 pottery sherds. Assuming that a vessel breaks into 30–100 sherds, that a household used two to three vessels at a time, that only one household used the site, and that the average use-life of a vessel is six months to one year (Rice 1987:297, Figure 9.4) implies the 1.4–14 year length of occupation. Increasing the number of sherds into which a vessel breaks, the number of vessels used by a household at once, or the number of households that occupied the site – to compensate for the potential directions of errors in the estimation – would only decrease the estimated length of occupation.

Second, the swidden systems of historic Native American farmers in the northeastern Woodlands and a model of the Scioto Hopewell swidden system suggest that residences in the Scioto-Paint Creek area might have been moved between every 10 and 50 years (Rainey 2003). In the Northeast, Native American farmers moved their villages every 10–20 years, usually in coordination with shifts in the locations of fields. Fields and gardens were usually made close to or within villages, in order to tend to them and to keep wild animals from feeding on them. Field houses, which would have allowed the working of more distant fields and longer-term residential stability, were not used. By assessing the successional nature of the wild food plant remains found in six Middle Woodland habitation sites in the Scioto-Paint Creek and surrounding areas, and assuming swidden farming practices, Rainey (2003) estimated that fields abandoned up to 25–50 years were sometimes used for their secondary-growth wild resources, implying up to this duration between residential moves for some habitation sites. Shorter occupations are implied by the paleobotanical records of some other sites. These ethnohistorical and paleobotanical estimates, as well as the ceramic-based estimate of 1.4–14 years, are much less than the century of occupation estimated by Dancey (1991) for the Murphy I site.

Third, periodic, long-term movement of the residential sites of Scioto and neighboring Hopewellian peoples is also suggested by the typically multimodal nature of the sites' radiocarbon dates (Table 3.3). Of nine Middle Woodland habitation sites located in the Scioto and neighboring drainages and having multiple, reasonable radiocarbon assays, eight have two or three statistically distinct modes, suggesting abandonments and later reoccupations. Only one site appears to represent a

Table 3.3. Modalities in Calibrated Radiocarbon Dates from Middle Woodland Habitations in the Scioto Valley and Neighboring Areas[1]

Site	Number of Dates	Means of Modalities			Separations among Means of Modalities
Scioto Valley					
McGraw	11	A.D. 40	A.D. 315	A.D. 585	275 yrs, 270 yrs
Marsh Run	3	180 B.C.	A.D. 120	A.D. 290	300 yrs, 170 yrs
Decco	4	A.D. 320	A.D 441		121 yrs
Harness-28	3	50 B.C.	A.D. 380		430 yrs
Locust	3	A.D. 176			one mode only
Muskingum Valley					
Li 79.1	2	A.D. 137	A.D. 420		283 yrs
Murphy I	6	40 B.C.	A.D. 283		323 yrs
Newark Campus	2	A.D. 20	A.D. 540		520 yrs
Great Miami Valley Area					
Jennison Guard	3	A.D. 224	A.D. 398		174 yrs

[1]Dates are reported by Carr and Haas (1996) and Dancey and Pacheco (1997). Dates taken from Carr and Haas have been clustered into statistically distinguishable modes, per procedures described by them. Dates taken from Dancey and Pacheco have been sorted into modes qualitatively, noting their standard deviations and disallowing any overlap among the standard deviations of dates in separate modes. An exception is the Jennison Guard site, where overlap among defined modes is minor. When a mode is defined by a single calibrated date with multiple intersect points, the average of the multiple intersect points has been used as the estimated mode. When a mode is defined by multiple calibrated dates, the average of the dates, and/or their multiple intersection points, has been used as the best estimate of the mode. For example, the calibrated dates reported for the Decco site include one with multiple intersections (A.D. 268/273/338) and three with single intersection points (A.D. 343, A.D. 381, A.D. 441). One mode (A.D. 320) is defined by the average of the three intersection points of the first date and the single intersection points of the second and third dates. The second mode (A.D. 441) is defined by the single intersection point of the fourth date.

single occupation. This pattern is expectable as the product of swidden farming, where residences are cyclically moved, eventually to be relocated in previously used areas in order to take advantage of the greater food resource diversity created there by former human disturbances and the areas' less mature, more easily cut forests. In itself, the pattern of abandonment and resettlement is significant support for the idea that Scioto and neighboring Hopewell people were swidden farmers. In addition, the data document length of reoccupation cycles for specific habitation locations. The cycles most commonly lasted about 175–300 years. The periodicity of movement of a farming household within a general area of use, with the potential for selection of other new locations and alternative previous habitation sites for settlement within the area, could thus be considerably less than 175–300 years. That periodicity is probably well estimated by the up to 25–50-year period of farming plot regrowth concluded by Rainey (2003).

The long-term residential mobility of Hopewell households in the greater Scioto area can be placed in a broader, interregional perspective, relative to that in the Havana Hopewell area in Illinois. Table 3.2 shows the numbers and areal densities of ceramics, lithic debitage, and lamellar blades found at the Brown's Bottom #1 habitation in the Scioto-Paint Creek area and the Murphy I habitation site in the Muskingum drainage in comparison to the Smiling Dan habitation site in the lower Illinois valley. All three sites were excavated in a similar manner, by sampling and strip excavations, providing reasonably comparable assemblage data for making qualitative inferences about the durations of occupation of the sites. When standardized to densities per square meter, ceramics are 20–100 times more dense at Smiling Dan than at Brown's Bottom or Murphy, lithic debitage is 2–20 times more dense at Smiling Dan, and lamellar blades are 3–8 times more dense. The much denser record at Smiling Dan than at Brown's Bottom #1 can be attributed

almost fully to the different durations over which the sites were occupied rather than different numbers of individuals who occupied each, given the close population estimates for Smiling Dan and Brown's Bottom.[6] In addition, the Smiling Dan site had a midden dump that was up to two meters deep, and spanned the entire north–south extent of the Middle Woodland occupation there. No refuse deposit approaching this magnitude has been identified in any Scioto, Muskingum, or other Ohio Hopewell site. These observations point to the substantially shorter occupancy of habitation sites and the much greater degree of residential mobility in the greater Scioto area than in Illinois. The comparison becomes all the more significant when it is realized that Smiling Dan was a relatively small and low artifact density habitation compared to some other major Middle Woodland occupations (e.g., Apple Creek, Macoupin, Gardens of Kampsville) in the lower Illinois valley, and that Brown's Bottom and Murphy had relatively rich artifact assemblages compared to some upland habitation sites in the Scioto drainage (e.g., Marsh Run, Clarence Ford, Wade; see above and Note 4).

In summary, to the best of our current understanding, a residential community in the Scioto-Paint Creek area was normally comprised of one or two extended families who built their homes in bottom land and terrace settings of the major valleys. There, households practiced swidden farming of Eastern Agricultural Complex plant foods, which complemented their hunting and gathering of wild foods. Hunting and gathering sometimes took segments of a household away on logistical trips to upland environments. Households moved their residences every number of years, presumably in response to changing locations of swidden plots, and might reoccupy an abandoned habitation site every 175–300 years. Residential communities in the Licking drainage, which has an ecological richness and diversity similar to the Scioto-Paint Creek area, may have been organized similarly. In the less rich and diverse environments of the Scioto drainage north and south of the Scioto-Paint Creek area, households appear to have moved seasonally back and forth between valley and upland residences. Logistical sites were also probably used, but have not been well documented through excavation. Thus, the logistical, annual residential, and long-term residential mobility of communities in different locales within the Scioto drainage probably varied by locale, depending on their food resource productivity, diversity, and schedules. The logistical and annual residential mobility of a household also might have varied over the course of its life cycle and size.

LOCAL SYMBOLIC COMMUNITIES

The spatial dispersion, small size, and considerable annual residential permanence of Scioto Hopewell residential communities had the effect of isolating households from each other. Longer-term, swidden-initiated cycles of relocation of residences had the potential for disrupting local networks among households. In order to offset these effects, to meet the daily to life-long personal, cultural, and biological needs of their members, and to ensure their cultural and biological reproduction, Scioto Hopewell households formed and maintained relationships with one another by a variety of social and ritual means: the creation of local symbolic communities through ritual; possibly overlapping membership among local symbolic communities; the creation of larger sustainable communities through ritual socio-politico-spiritual alliances among local symbolic communities; a leadership structure comprised of diversified positions with complementary social and ritual roles; ritual sodalities; crosscutting membership among sodalities; and a nonlocalized clan organization. Here we focus on local symbolic communities and sustainable communities. The remaining integrative forms are described at length in Chapter 4.

Over the Scioto-Paint Creek area, households formed a number of local symbolic communities, each of which was held together by the active decisions of households to jointly build earthen ceremonial centers and to jointly participate in rituals there. Some

ceremonies focused on laying to rest and honoring dead relatives in charnel houses and/or burial mounds. Yet there were also diverse, other kinds of ceremonies that brought people together (Chapter 4, Ritual Gatherings and Alliances; Sodalities and Ceremonial Societies). Ceremonial diversity is evident in part from differences in the forms, architectural elements, and locations of the earthen ceremonial centers, themselves, and thus their uses. Middle Woodland ceremonial centers in the Scioto-Paint Creek area include: valley-situated earthen enclosures with burial mounds for primarily leaders and other persons of importance (e.g., Mound City, Hopewell), valley-situated earthen enclosures with burial mounds for a broader but still prestigious spectrum of persons (e.g., Seip, Liberty, probably Old Town), a valley-located enclosure with flat-topped mounds that probably were stages for rituals (Cedar Banks), valley-placed enclosures that lacked or largely lacked burial mounds and that surrounded primarily open space (e.g., Hopeton, Baum, Works East), a hilltop "fort" that surrounded open space (Spruce Hill), and small isolated mounds or mound clusters without enclosures (e.g., McKenzie, Rockhold, Shilder, West).

Ceremonial diversity and differences in the ceremonial functions of earthworks are also indicated by the different directions in which they were oriented. Directionality is and has been a common means by which Native Americans have symbolically expressed the themes and goals of their ceremonies (Eagle Feather 1978:87–92; Hudson 1976:229, 318–319, 342, 346, 353; Mails 1978:98–99; 1979:57–58, 80, 97–98, 120, 127–130; 1991:48, 52–54, 58–60; Nabokov and Easton 1989:40; Swanton 1931:11). In the Scioto-Paint Creek area, ceremonial earthen enclosures were oriented to summer solstice sunset, winter solstice sunrise, equinox sunrise, and moon maximum north rise (Romain 2004:104, 2005), suggesting the different themes and purposes of these enclosures.

Throughout much of the Middle Woodland period, each local symbolic community built and used contemporaneously multiple earthen ceremonial centers of different functions within their lands. It is not possible currently to fully decompose the ritual landscape of the Scioto-Paint Creek area into all of its local symbolic communities at various time-planes. However, certain such communities are known (Ruby et al. 2005, Carr 2005a, b). Fairly early in the Middle Woodland, a local symbolic community in the main Scioto valley, between about A.D. 1 and 250, built the complementary sites of Mound City with its burial mounds, and Hopeton with its open spaces (Figure 3.3 A, D, E). Mound

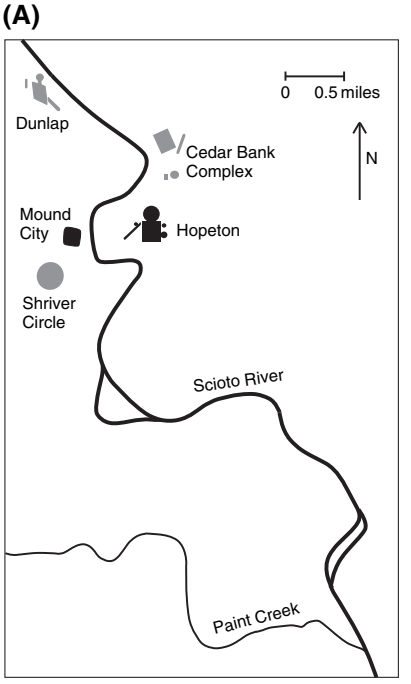
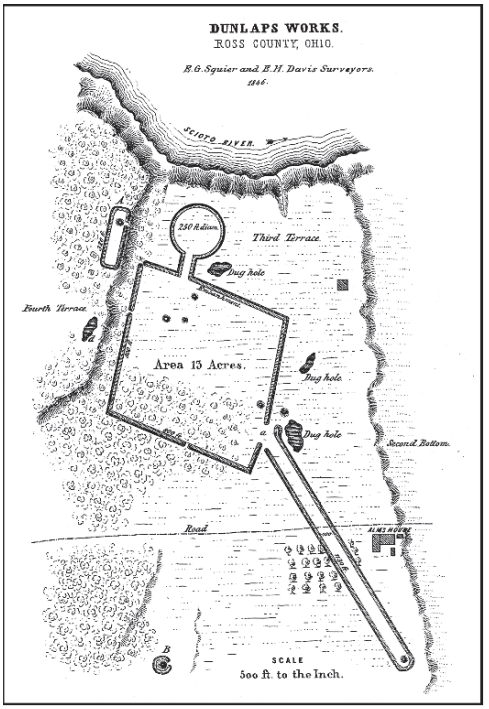
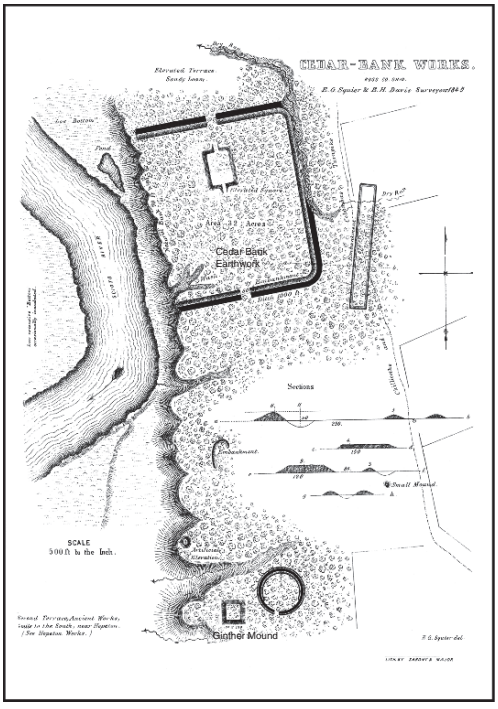


Figure 3.3. (A) A local symbolic community in the Scioto valley, between about A.D. 1 and 250, built the ritually complementary pair of sites of Mound City, with its burial mounds, and Hopeton, with its empty spaces, each in black. Other components of the community's ritual landscape may have included the Shriver Circle; the Cedar Banks complex composed of a square earthwork, a circular earthwork, two platform mounds, and a conical burial mound; and perhaps the Dunlap earthwork, each in grey. (B) The Dunlap Works. (C) The Cedar Banks complex. (D) The Mound City earthwork and Shriver Circle. (E) The Hopeton earthwork. See credits.

(B)



(C)



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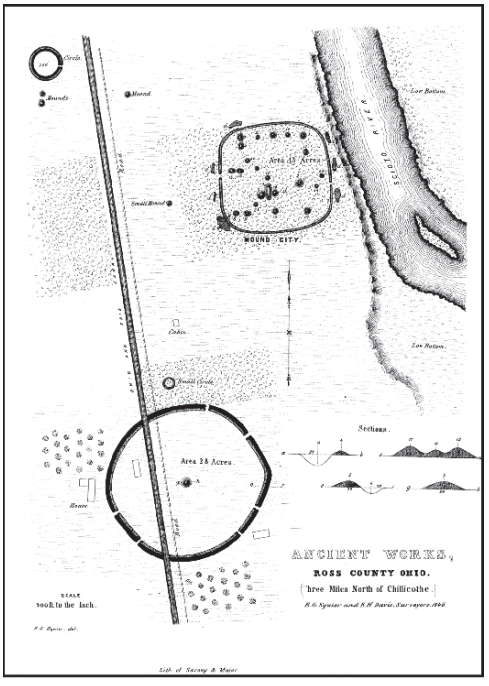


(E)

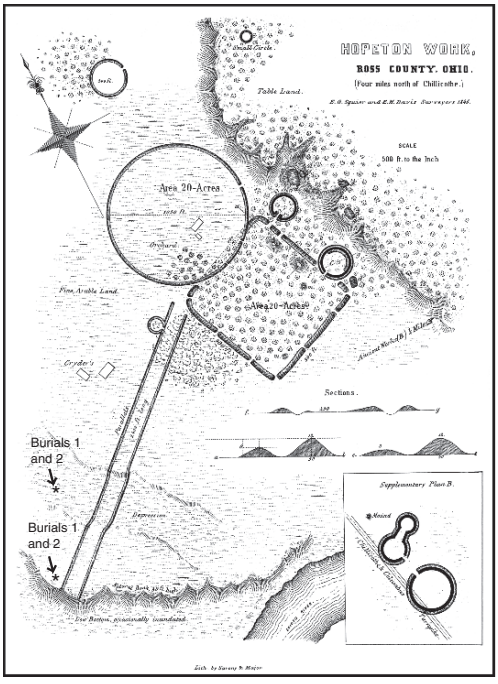


Figure 3.3. ***(continued)***

City was primarily a cemetery grounds. It contained burials of largely deceased elite, not only from the local symbolic community in which it was located, but others as well. The specific functions of the Hopeton site are unknown, beyond its apparent use in summer solstice and winter solstice ceremonies indicated by the orientations of the embankments of its square and causeway (Romain 2004:104, 2005). Other parts of the ritual landscape of this local community probably included the Shriver circle just south of Mound City; perhaps the Cedar Banks complex with its square earthwork, an open circle, two platform mounds, and the Shilder mound, all north of Hopeton; perhaps the Dunlap earthwork somewhat farther north; and less likely the more distant Junction Group of circular earthworks, at the confluence of main Paint Creek and its North Fork (Figure 3.3A–C). The ages of most of these additional earthworks and mounds are unknown.[7]

Another, neighboring local community that may have been coeval with the Mound City-Hopeton community resided in the North Fork of Paint Creek. The Hopewell and Anderson sites, and perhaps the Junction Group, may have been components of this neighboring community. The Hopewell site contains many burial mounds, Anderson seems to lack them, and Junction contains a few. Some early dates from the Hopewell site (Greber 2003:102–103; Prufer 1964a:45), an early date from the Anderson site (Maslowski et al. 1995), the similar size of the Anderson enclosure to the Mound City enclosure, and the arrangement and forms of the enclosures of the Junction Group all suggest their contemporaneity with Mound City and Hopeton or their somewhat earlier date.[8]

Toward the end of the Middle Woodland, between about A.D. 300 and 350, three local symbolic communities had formed in the area: one in main Paint Creek valley, a second in the North Fork of Paint Creek valley, and a third in the Scioto valley at its confluence with Paint Creek valley (Figure 3.4A). Each community (with some help from the others, see below) built within its lands two ceremonial earthworks that were functionally complementary. All six earthworks had tripartite symbolism. Five of the earthworks were composed of a large circle, a small circle, and a large square, and the sixth had a large tripartite mound like those in two of the other earthworks. The community in the main Paint Creek valley built the Seip earthwork with its burial mounds, and the Baum earthwork with its open spaces, both in the valley. The enclosure of Spruce Hill, with its open space, was built in the uplands overlooking Paint Creek valley not far from Baum, and may or may not have been contemporaneous with it and Seip. In the North Fork of Paint Creek valley, a community built the Old Town earthwork with its burial mounds, and continued to use the Hopewell earthwork and burial mounds. The Hopewell site, like Mound City before it, contained burials of largely deceased elite persons, from both the local symbolic community in which it was located and neighboring local symbolic communities. In the main Scioto valley, a local symbolic community built the Liberty earthwork with its burial mounds and Works East with its open spaces (Figure 3.4B–G).[9] Each of these three local symbolic community's, in the A.D. 300–350 time range, had within them earthworks that were distinct functionally from one another not only in whether or not they contained burial mounds, but also in their celestial orientations (Carr 2005b:86–87; Romain 2004, 2005): Seip from Baum, Old Town from Hopewell, and Liberty from Works East (Carr 2005b:86 Chapter 3; Romain 2004, 2005).

Each of the above five groups of multiple ceremonial sites can be identified as indicative of a local symbolic community based on analysis of the geographic distribution of earthwork ceremonial centers in the Scioto-Paint Creek area (Ruby et al. 2005:159–166). In previous models of Ohio Hopewell community organization (Dancey and Pacheco 1997a:8, 21, figure 1.2; Greber 1979a, esp. pp. 45, 57; Greber and Ruhl 1989:46–64; Prufer 1964a:71, 1964b; Prufer et al. 1965:137; Smith 1992), each geometric earthwork was envisioned as the center of a community (here, a local symbolic community) of dispersed households who did

not have daily, face-to-face contacts with one another but maintained a sense of identity and common purpose through jointly building an earthwork and participating in ceremonies and other activities within it.[10] However, in the Scioto-Paint Creek area, earthen enclosures are "too close" to each other for each to have stood at the territorial center of a distinct local symbolic community. Some local symbolic communities must, instead, have encompassed multiple earthen enclosures.

Specifically, crosscultural studies of the travel costs and the sizes of resource exploitation catchments of swidden farmers (see Varien 1999:153–155 for a summary) report that they regularly cultivate fields at distances of 3–5 kilometers from their homesteads, with 7–8 kilometers being about the maximum distance traveled. These distances can also be taken as the practical distances within which swidden farmers might interact fairly regularly with each other and actively form a local symbolic community. Significantly, these distances match well the sizes of local symbolic Hopewellian communities in the central Muskingum valley, which are distant from the complex ceremonial landscapes around Chillicothe and Newark, and which are more easily untangled and defined. In the Dresden subregion of the central Muskingum valley, a well defined cluster of small habitations, mounds, and a small earthwork has a diameter of 6 kilometers, or a catchment radius of about 3 kilometers (Pacheco 1996:29, Figure 2.8). In the upper Jonathan Creek subregion of the central Muskingum, another cluster of small habitations, mounds,

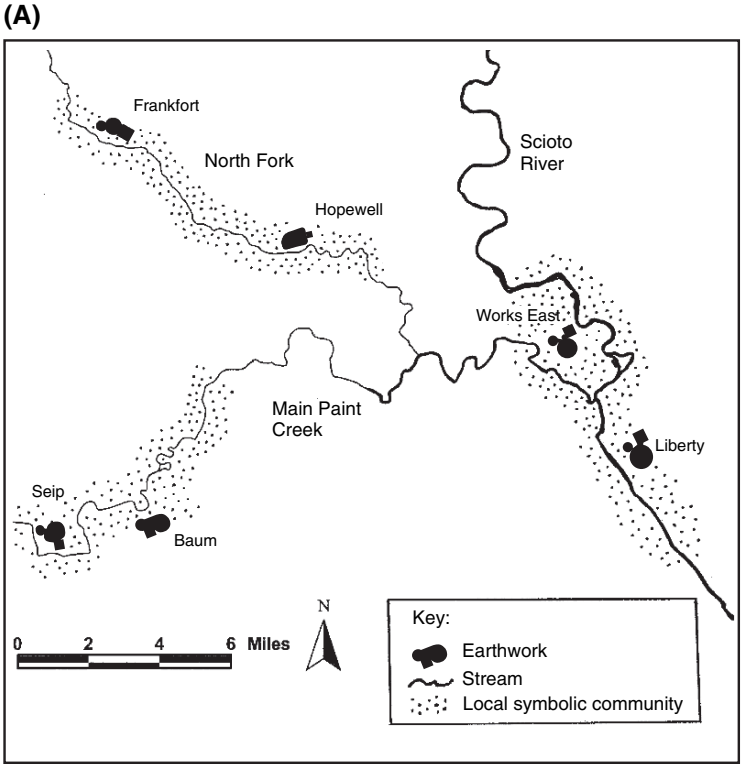


Figure 3.4. (A) Three local symbolic communities in the Scioto valley, main Paint Creek valley, and North Fork of Paint Creek valley, between about A.D. 300 and 350, built and used the ritually complementary pairs of sites of Seip and Baum, Old Town and Hopewell, and Liberty and Works East. (B) The Seip earthwork. (C) The Baum earthwork. (D) The Old Town, or Frankfort, earthwork. (E) The Hopewell earthwork. (F) The Liberty earthwork. (G) Works East. See credits.

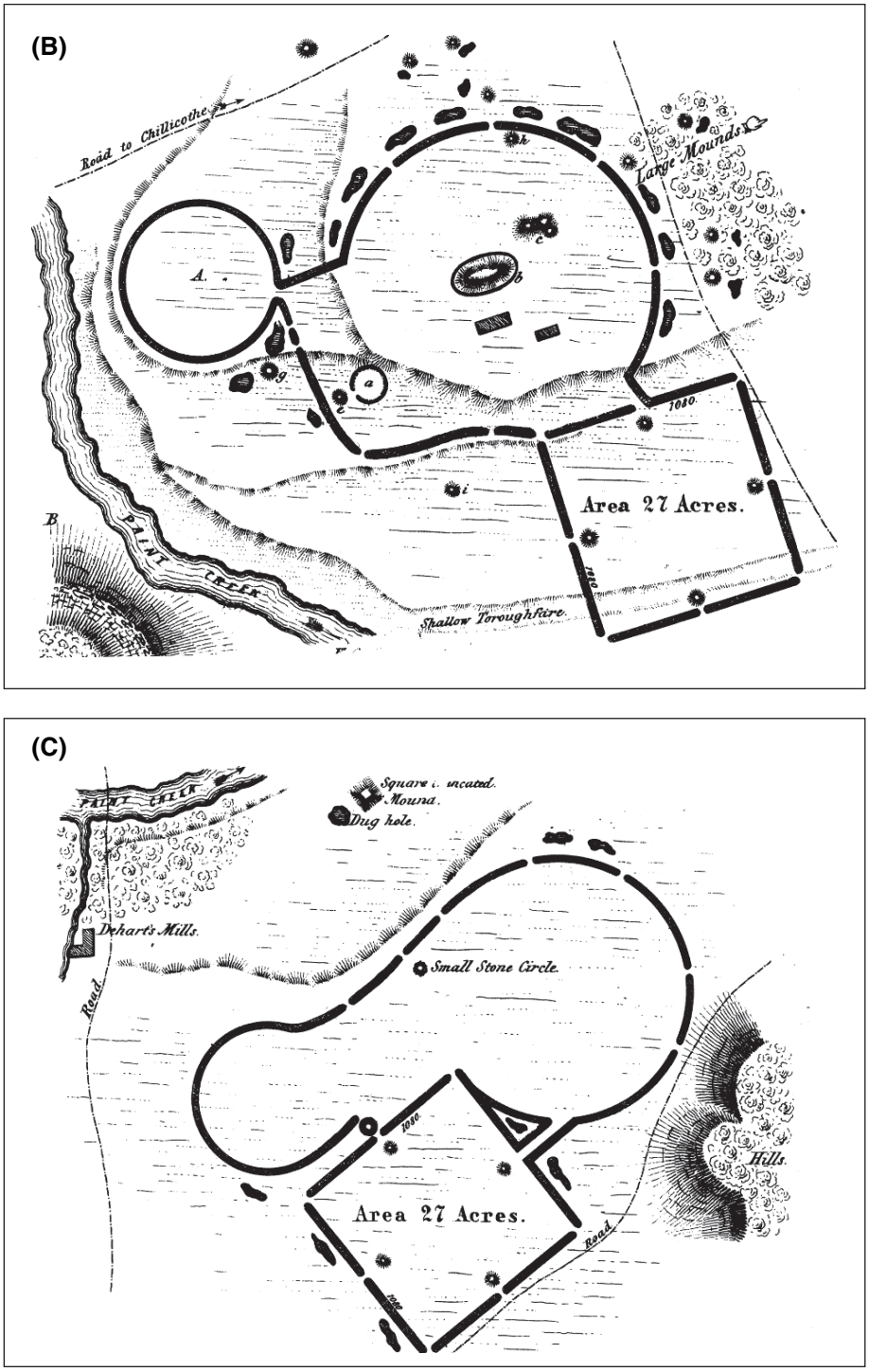


Figure 3.4. *(continued)*

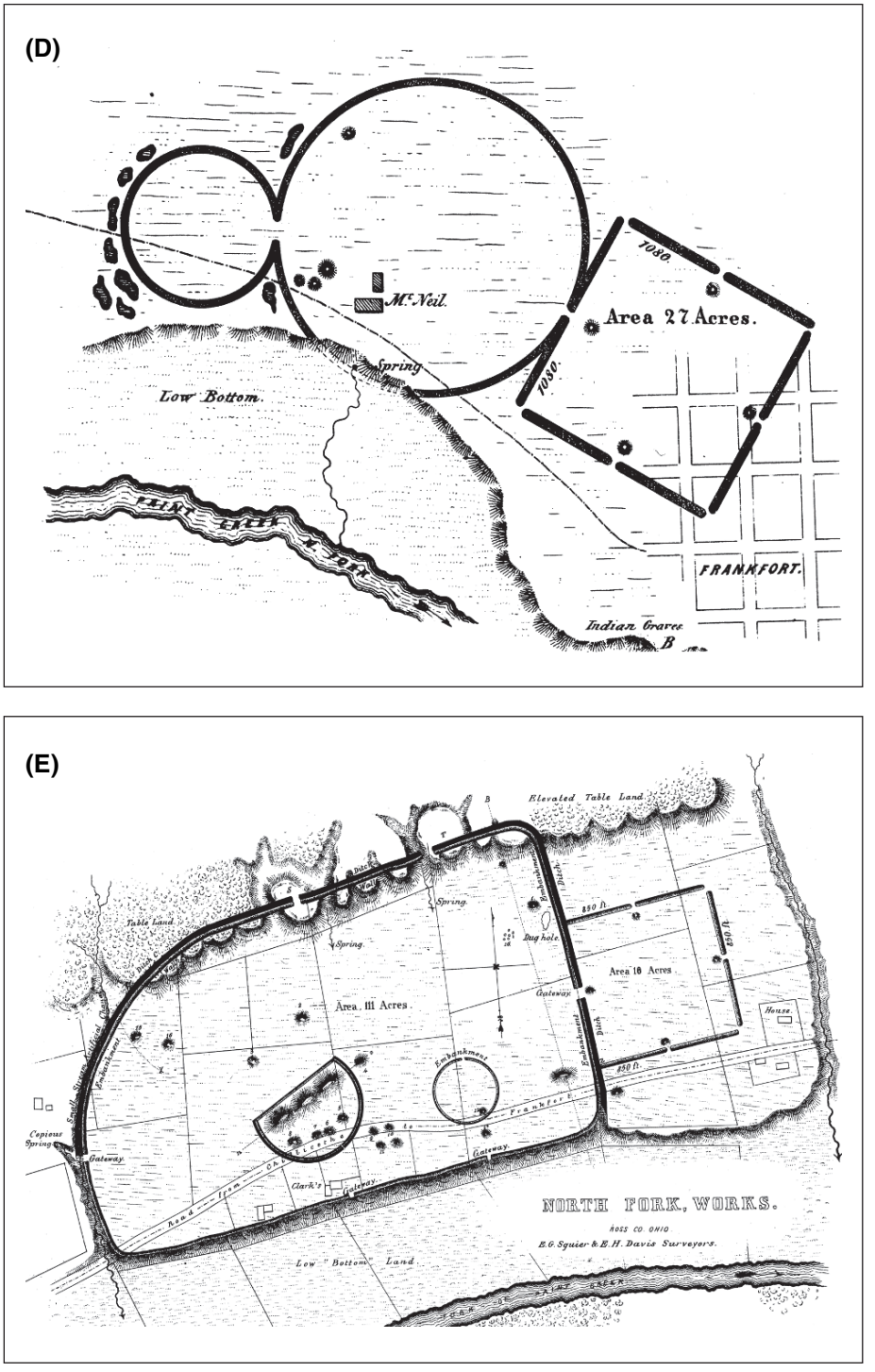
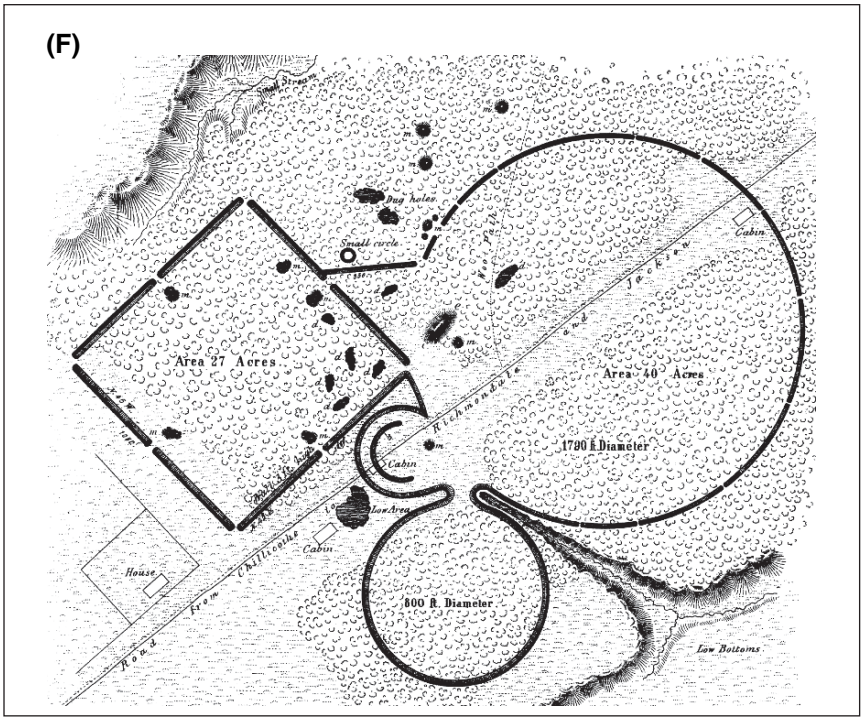


Figure 3.4. ***(continued)***



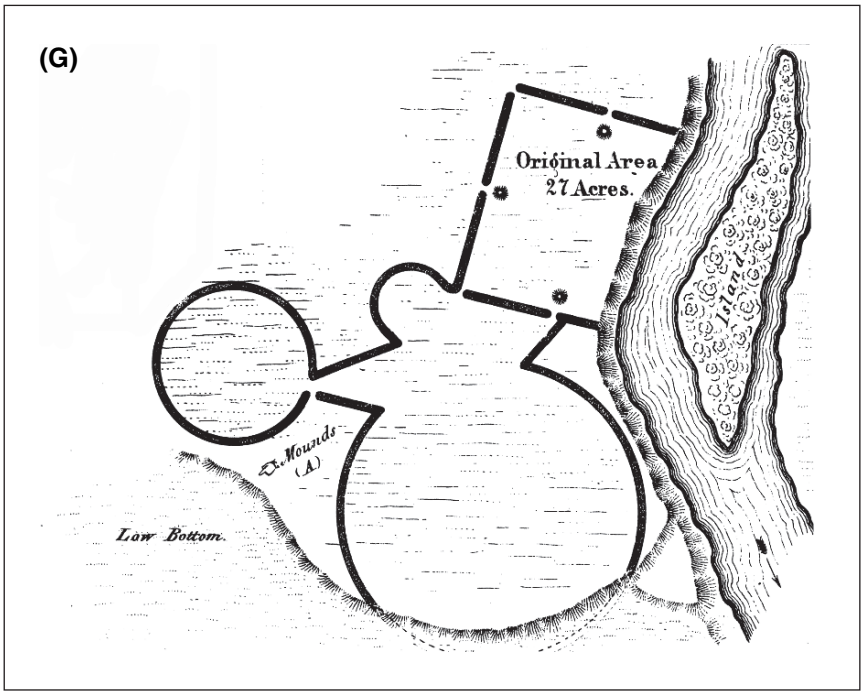


Figure 3.4. *(continued)*

and earthworks has a diameter of about 11 kilometers, or a catchment radius of about 5.5 kilometers (Pacheco 1996:31, Figure 2.11). Thus, it would seem that 3–5.5 kilometers is a good estimate of the catchment radii, and 6–11 kilometers is a good estimate of the diameters, of local symbolic communities for Ohio Hopewell swidden farmers.

In contrast to this estimate, the Mound City and Hopeton earthworks lay less than 2.5 kilometers apart, which would equate to their each having a catchment radius of only 1.25 kilometers if each earthwork was the center of its own local symbolic community. The two earthworks are less than an hour's walk apart. Thus, Mound City and Hopeton are too close, by ethnographic and Hopewellian standards, to have been ceremonial sites at the centers of two distinct local symbolic communities. Given that the two sites also are contemporaneous (Ruby et al. 2005:161, Figure 4.5) and complementary in function, it is likely that they represent two ceremonial grounds within one local symbolic community with a differentiated ritual landscape. The Ginther platform mound and adjacent Shilder burial mound, and the Cedar Banks enclosure with a platform mound, which are respectively only 0.9 and 1.6 kilometers distance from Hopeton, again may have fallen within the local symbolic community that included Hopeton and Mound City; however, it is unknown whether Cedar Banks, Ginther, and Shilder were contemporaneous with Hopeton and Mound City.

Similar arguments can be made for the other three local symbolic communities mentioned above, which each contained two ceremonial centers with tripartite symbolism within their lands. From Seip to Baum is only 6.3 kilometers; from Liberty to Works East is only 8.8 kilometers; and from Old Town to Hopewell is only 9.6 kilometers. Each of these intersite distances is less than the 6–11 kilometer estimate of the diameters of Ohio Hopewell local symbolic communities, suggesting that sites of a pair fall within the same local symbolic community. The complementarity of the functions of sites in each pair (see above), and several lines of evidence for the overlap in time of all six of these sites (Carr 2005a:305–307), support this reconstruction.

An Example of a Local Symbolic Community

The local symbolic community centered around the Seip and Baum earthworks in main Paint Creek valley provides a good illustration of local symbolic communities in the Scioto-Paint Creek area. The two earthworks are very similar in formal design (Figure 3.4B,C). Both are tripartite, comprised of an 11 hectare square, a 16 hectare large circle, and a 4 hectare small circle. The squares of both earthworks have breaks in their walls at each vertex and at the middle of each side. A "marker" mound sits just interior to each of the breaks in each side. Although the similar geometry of the two sites speak to their having been built by people who shared an identity and symbolized it (i.e., a local symbolic community), other features of the sites show their complementary ritual functions. Seip's square is oriented to the winter solstice sunrise, whereas Baum's square is oriented to the winter solstice sunset (Romain 2004:104, 2005). Seip's large circle enclosed two large burial mounds, each with a charnel house with many deceased persons, whereas Baum's large circle enclosed no burial mounds and only one small stone circle. Excluding marker mounds, Seip had a total of 14 known or potential burial mounds within and immediately outside of it, whereas Baum had only one, but did have a platform mound outside of it.

Two additional, small mound centers may also have been a part of the Seip-Baum local symbolic community. Rockhold, to the west of Seip, had three mounds that held a total of five people. No earthen enclosure was associated with the mounds. The Bourneville complex, to the east of Baum, had one mound with eleven people, a second that has not been excavated, a small 3.2 hectare ditch-and-embankment circle, and a tiny 0.3 hectare ditch-and-embankment circle (Figure 1.3). It is more probable than not that the excavated mound floors at Rockhold and Bourneville

were approximately contemporaneous with the charnel houses under Pricer and Conjoined mounds at Seip, based on Ruhl's (1996:figure 9; Ruhl and Seeman 1998) earspool chronological seriation (see Carr, Chapter 15, Chronological Uncertainties in the Scioto-Paint Creek Area). The Rockhold cemetery was built and used by probably a few related households. The Bourneville complex was built by perhaps a slightly larger number of households. For both sites, the households that constructed them had some people who were important at a broader social scale, evidenced by the ritual paraphernalia with which they were buried, and were distinct in this way from other households of more common people within the local symbolic community. In their social distinction, some members of these households were accorded mound burial at Rockhold and Bourneville, whereas other members, and many people within the local symbolic community generally, were not (see below). The fourteen small mounds within and around the Seip earthwork may also each have been a cemetery for select members of a few prestigious households within the community.[11]

The two charnel houses at Seip were used sequentially, first the larger beneath the Pricer mound, with 102 deceased persons on its floor, and then the smaller one beneath the Conjoined mound, with 43 deceased persons on its floor (Carr 2005a:309–310; Greber 1979b:37; 1997:215). The sex ratio and age-at-death profile of the individuals buried under the Pricer mound is in line with the interpretation that the mound was a community cemetery: no major age or sex group was excluded from it, and only newborns to one year olds were underrepresented, as is often the case for prehistoric Native cemeteries in the Eastern Woodlands (Konigsberg 1985:129–130). It is not possible to make a similar demographic assessment for the deceased persons buried under the Conjoined mound.[12]

Many of the social roles of those who lived in the local symbolic community situated around Seip and Baum can be inferred from the items placed with individuals who were buried in the Pricer mound, specifically in the lobe that represented that community. The lobe with the second largest burial population – the middle lobe – appears to be the relevant one (Carr 2005a:310–311). There, community-wide leadership is indicated by copper celts; some other kind of leadership is marked by a copper crescent; public ceremonial leadership is seen in a marine shell cup probably used to serve a substance like the black drink of historic Southeastern Native Americans; other possibly public ceremonial roles are found in a shark's tooth scratcher and a painting cup; shaman-like hunt and/or war divination, or sending or pulling power intrusions, is marked by obsidian bifaces; some other kind of shaman-like divination is indicated by boatstones; shaman-like body processing and possibly psychopomp work is suggested by awls; and prestigious sodality membership and/or achievement is marked by breastplates and earspools. Link-shaped mica cutouts, a copper-covered button, and a butterfly-shaped obsidian biface erratic indicate other important persons.

The individuals who had these items of social and ritual leadership and achievement are too numerous (n = 17, 46% of 37 individuals) compared to other, apparently more common persons who were not accompanied by such important items (n = 20, 54%) for the burial population in the middle lobe to be a cross-section of a community in one slice of time. Select persons from the local symbolic community in Paint Creek valley were accorded burial in the Pricer mound, and a great majority of the community's members were disposed of elsewhere, without mound burial. Selection of important people for burial in mounds was a broadly distributed practice in the area (Prufer 1964a:74), but not ubiquitious (e.g, the Tremper mound; Mills 1916).[13]

Of the nine clans that had animal eponyms or totems and are known among Hopewellian communities in the Scioto-Paint Creek area (Keller and Carr 2005:358–361), only two are indicated by clan items placed in burials in the Pricer Mound. They are Feline and Bear. The clan affiliation of most persons buried in the Pricer Mound went unmarked, so it is possible that the Seip-Baum community included other,

undetected clans. The small mound centers of Rockhold and Bourneville included markers of only the Bear clan.

SUSTAINABLE COMMUNITIES

In the Scioto-Paint Creek area, earthen enclosure ceremonial centers were seldom, if ever, built and used by members of a single local symbolic community. Instead, multiple local symbolic communities, which together sometimes comprised a sustainable community, sometimes not, combined their efforts to construct ceremonial centers and participated together there in rituals and other activities.

Local symbolic communities and sustainable communities in the Scioto-Paint Creek area can be identified and the relationship between them can be explored through geographic analysis, through study of the labor required to construct ceremonial centers, and with contextual information. Let us consider each of these means.

Within the Scioto-Paint Creek area, there are ten earthen enclosures for which some kind of evidence – radiocarbon dates, artifact styles, or architectural similarities – suggests their approximate contemporaneity.[14] A histogram of the first through ninth nearest-neighbor straight-line distances among these ten sites (Figure 3.5) reveals clustering of the sites at three nested geographic scales – the three modes of the histogram. These scales are: 3–6 kilometers (mode, 3 kilometers), 6–13 kilometers (mode, 6–10 kilometers), and 13–31 kilometers (mode, 16–18 kilometers). The first mode can be identified as the distance between very closely spaced centers within a single local symbolic community, per estimations of the catchment radii of local symbolic communities of swidden farmers in crosscultural ethnographic and Ohio Hopewell cases (3–5.5 kilometers radius, see above, Local Symbolic Communities). By the same logic, the second mode can be identified as the expanse of a single local symbolic community's earthworks, including its most distant earthworks. The second mode is similar to the diameters of local symbolic communities of swidden farmers and ethnographic and Ohio Hopewell cases (6–11 kilometers, see above, Local Symbolic Communities). The third mode indicates the expanse of multiple local symbolic communities within a single, broader sustainable community, specifically the distances between earthworks

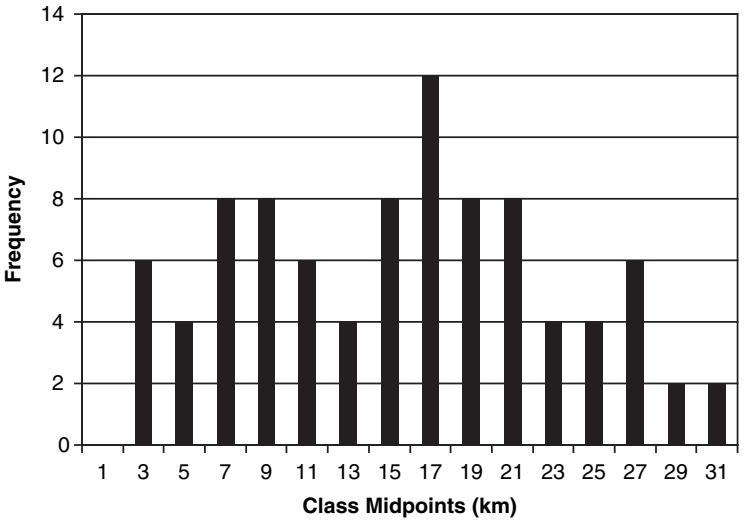


Figure 3.5. Histogram of nearest neighbor distances for ten earthworks in the Scioto-Paint Creek area and suspected to have been fully or partially contemporaneous. First through ninth nearest-neighbor distances are included for each earthwork. See Note 14 for a list of the ten earthworks.

in different, geographically separated local symbolic communities. The actual coherence of this sustainable community is evidenced by a labor analysis and contextual information provided below.

The four local symbolic communities discussed above and their interrelationships can be understood in light of this geographic model. The straight-line (air) distances between the paired sites of Mound City and Hopeton (2.5 kilometers) early in the Middle Woodland Period, and between the paired sites of Seip and Baum (6.3 kilometers), between the paired sites of Liberty and Works East (8.8 kilometers), and between the paired sites of Hopewell and Old Town (9.6 kilometers) later in the Middle Woodland Period, each fall within either the first, 3–6 kilometer mode for the distances between closely neighboring earthworks within a local symbolic community, or the second, 6–13 kilometer mode for the expanse of a single local symbolic community and its most distant earthworks. The occurrence of a pair of earthworks within each of the four local symbolic communities is implied. The distances between the nearest earthworks in adjacent local symbolic communities in the later part of the Middle Woodland period – between Baum and Hopewell (13.0 kilometers), and between Hopewell and Works East (14.6 kilometers) – fall within or close to the second, 6–13 kilometer mode for the expanse of a single local symbolic community's earthworks, including its most distant earthworks. This implies that the three local symbolic communities in main Paint Creek valley, the North Fork of Paint Creek valley, and the adjacent Scioto valley were not tightly packed together but, instead, had buffering lands between them. These buffers were approximately the size of the local symbolic communities, themselves. Again, for the later part of the Middle Woodland period, the distances between the centroids of the Seip-Baum local symbolic community and the Hopewell-Old Town local symbolic community (15.9 kilometers), between the Hopewell-Old Town local symbolic community and the Liberty-Works East local symbolic community (23.0 kilometers), and between the Liberty-Works East local symbolic community and the Seip-Baum local symbolic community (25.3 kilometers) fall within the third, 13–31 kilometer mode for the expanse of multiple local symbolic communities within a single, broader sustainable community. The three local symbolic communities in main Paint Creek valley, in the North Fork of Paint Creek valley, and in an adjacent section of the Scioto valley comprised a single sustainable community.

These relationships among earthworks and the identifications of local symbolic communities and a sustainable community in the later portion of the Middle Woodland period are captured in Figure 3.6. When catchments approximating the diameters (10 kilometers) of local symbolic communities in the Scioto-Paint Creek area are drawn around each of the six earthworks with tripartite symbolism, the catchments of earthworks within the same local symbolic community overlap and the catchments of earthworks in different local symbolic communities do not. The three local symbolic communities in main Paint Creek valley, the North Fork of Paint Creek valley, and in an adjacent segment of the Scioto valley are well defined. Together, these three communities formed a sustainable community.

That the three local symbolic communities in the later Middle Woodland did in fact constitute a coherent, sustainable community in functional terms, not simply in their geographic distribution – that is, that they constituted a regional social network within which mates, labor, food, and/or other material resources were regularly exchanged – is evident from a labor analysis made by Bernardini (1999, 2004) and other contextual information. For five of the six earthworks with tripartite symbolism, Bernardini calculated the number of person-hours it would have taken to construct the enclosure walls of each earthwork and the geographic sizes of the catchments from which laborers would have had to have been drawn to do so. The parameters that were used to make the calculations, and the resulting catchment diameters, are very conservative.[15] Nevertheless, the catchments overlap greatly – between 45% and 80% of

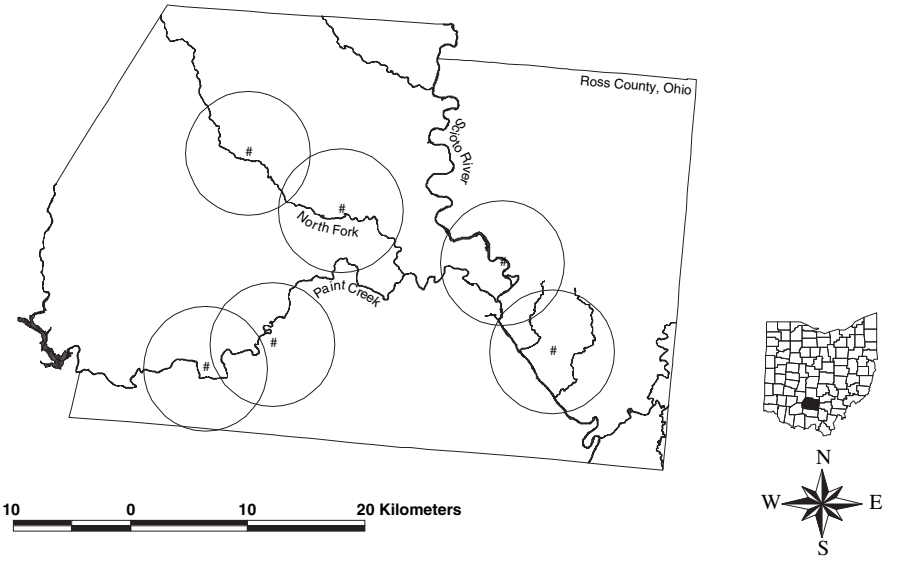


Figure 3.6. Ten kilometer diameter catchments around six tripartite earthworks in the Scioto-Paint Creek area: Seip, Baum, Old Town, Hopewell, Liberty, and Works East. The earthworks formed three local symbolic communities and one sustainable community.

their areas – showing that people from each of the three local symbolic communities in main Paint Creek valley, the North Fork of Paint Creek valley, and an adjacent section of the Scioto valley contributed substantial labor toward the building of each others' earthworks (Figure 3.7). In other words, the households in the local symbolic communities in the three valleys constituted a sustainable community.

A stylistic analysis of fabrics from the mortuaries at Seip, Liberty, Hopewell, and other sites in the three valleys that were home to the three local symbolic communities also shows their close social relations (Carr and Maslowski 1995:328–339). Certain distinctive stylistic traits were found to concentrate in each of the three valleys, characterizing the fabrics there and suggesting their manufacture in those valleys. However, cloths with the traits distinctive of one valley were occasionally found at sites in the other two valleys. This sharing of fabric styles among the three local symbolic communities in the three valleys suggests intercommunity exchange of fabrics and/or intermarrying among the three communities of persons who made the fabrics and/or the burial of clothed or shrouded persons from the three communities in each others' earthworks. Each of these possible interpretations implies that the three communities were closely tied together.

This conclusion is reinforced by strong similarities in the morphology of the tripartite earthworks in the three local symbolic communities (see above, Figure 3.4B–D, F–G). The similarities suggest at least the sharing of design details among the community leaders who planned the earthworks, and may point to the pooling of planning efforts, themselves. In particular, Seip, Baum, Old Town, Works East, and Liberty each have a large square, a large circle, and a small circle. These elements are not only the same in shape, but similar in size: an 11 hectare square, a 16 hectare large circle, and a 4 hectare small circle. The absolute dimensions of these features are very close in some cases: the small circles at Seip, Baum, Old Town, and Works East have diameters within 40 feet of each other (5.6% error); the squares at Old Town and Works East have sides within 10 feet of each other (1.0% error);

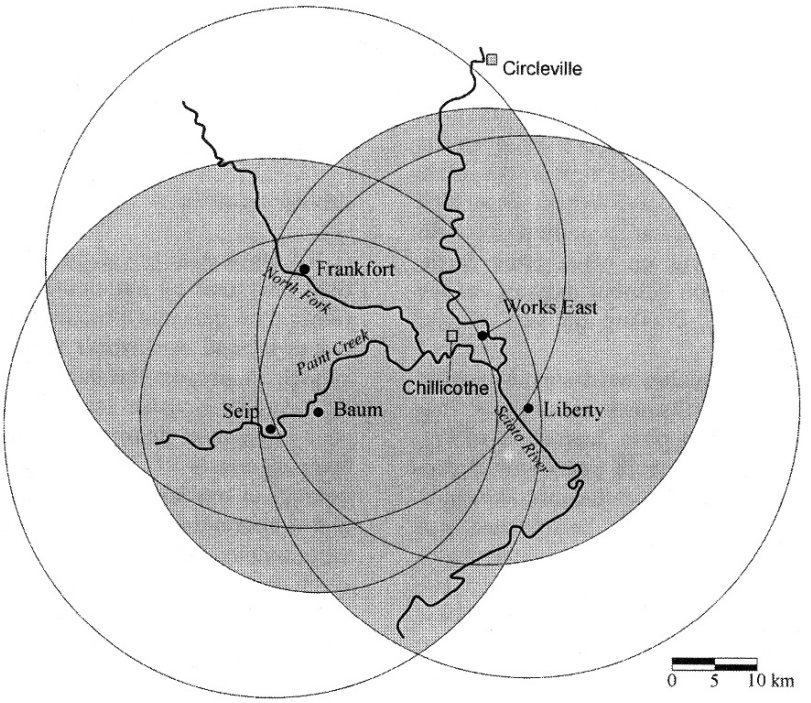


Figure 3.7. Overlapping catchments from which laborers likely were drawn during the construction of five of the six tripartite earthworks in Figure 3.6: Seip, Baum, Old Town, Liberty, and Works East. Assumes 350 laborers at a density of 0.5 laborers per square kilometer for 25 work-days per year. Catchments for 50 work-days per year are similar. See credits.

the squares at Seip and Liberty have sides within 15 feet of each other (1.3% error); and the large circles at Seip, Old Town, and Works East have diameters within 50 feet of each other (3.4% error), with those at Old Town and Works East being practically identical in size (Romain 2000:46–54). In addition, the dimensional similarities of the earthworks in turn allow the sharing among some of them of unusual and detailed geometric relationships. For both Old Town and Works East, their squares fit very closely within their large circles (i.e., the diagonals of their squares are close to the diameters of their large circles; Figure 3.8A). In addition, their small circles have a diameter approximately equal to the side of a square nested in their square (i.e., *ad quadratum* geometry; Figure 3.8B).[16]

Further, the charnel house under the Pricer mound in the Seip earthwork and that under the Edwin Harness mound in the Liberty earthwork, which occur in different local symbolic communities, had almost the same shape and were similar in size (see below, Figure 3.9A, C).[17] This strong architectural equivalence again suggests minimally the sharing of design details among the two community's leaders who planned the two charnel buildings, and perhaps the sharing of planning efforts and labor among the communities to construct the buildings.

Finally, close ties among the three local symbolic communities is suggested by the fully complementary celestial orientations of their tripartite earthworks. These differences in orientation suggest the possibility that the three local symbolic communities gathered together at one or another of each other's earthworks at different seasons of the year, to hold ceremonies with different purposes. No one local symbolic community contained the whole of the annual ceremonial calendar within its earthwork architectural repertoire, so

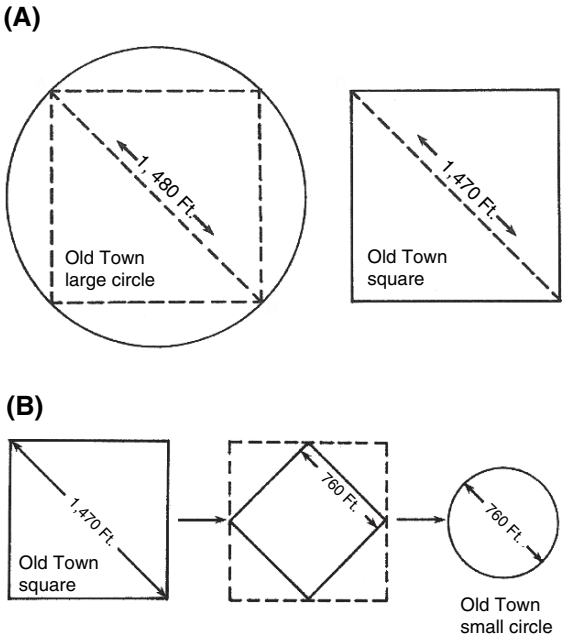


Figure 3.8. Geometric relationships shared by some tripartite earthworks in the Scioto-Paint Creek area. (A) The squares of the Old Town (Frank fort) and Works East earthen enclosures fit very closely within their large circles, i.e., the diagonals of their squares are close to the diameters of their large circles. (B) The small circles of the Old Town and Works East earthen enclosures have diameters approximately equal to the side of a square nested in their square, i.e., *ad quadratum* geometry. See credits.

each community depended on the other two for its ceremonial and spiritual completeness. Specifically, in main Paint Creek, the major diagonal axis through opposite corners of the Seip earthwork's square was oriented to the winter solstice sunrise. The major axis through opposite sides of the Baum earthwork's square was oriented to the winter solstice sunset. In the main Scioto valley, the minor diagonal axis through opposite corners of the Liberty earthwork's square was oriented to the spring/fall equinox. The square of Works East was oriented in a yet different direction, which cannot be specified for its exact celestial correlate for a lack of adequate survey data. In the North Fork of Paint Creek, the square of the Old Town earthwork was oriented in a yet different, fifth direction. It likewise cannot be assessed for its exact celestial correlate because of inadequate survey data (Romain 2004:104, table 6.11; 2005:appendix 3.1; see also Carr 2005b:86–87).

In all, the earthwork and charnel house geometry and symbolism shared by the three local symbolic communities suggest that, together as a sustainable community, they not only exchanged critical resources like labor as shown by the labor analysis, but also were a self-recognizing group and had a shared sense of identity. Further, because members of all three local symbolic communities were involved in the sharing of plans and the building of the earthworks within each community, it is likely that all three also joined together for ceremonies and other activities within the earthworks of each community. The complementary celestial orientations of the five tripartite earthworks within the three local symbolic communities

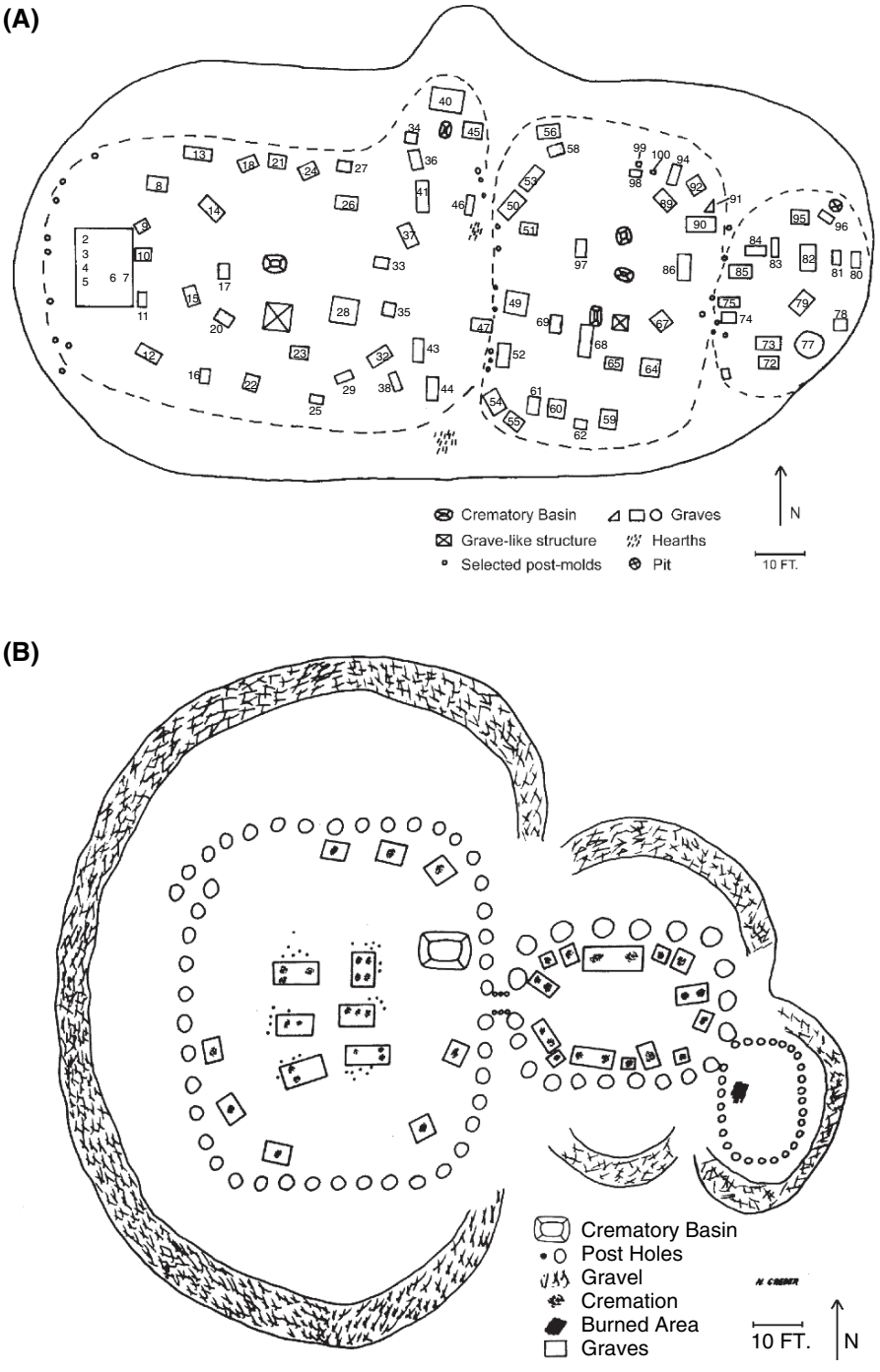


Figure 3.9. (A) Floor plan of the charnel house under the Pricer mound in the Seip earthwork. (B) Floor plan of the charnel house under the Conjoined mound in the Seip earthwork. (C) Floor plan of the charnel house under the Edwin Harness mound in the Liberty earthwork. (D) Floor plan of the charnel house under Mound 25 in the Hopewell site. See credits.

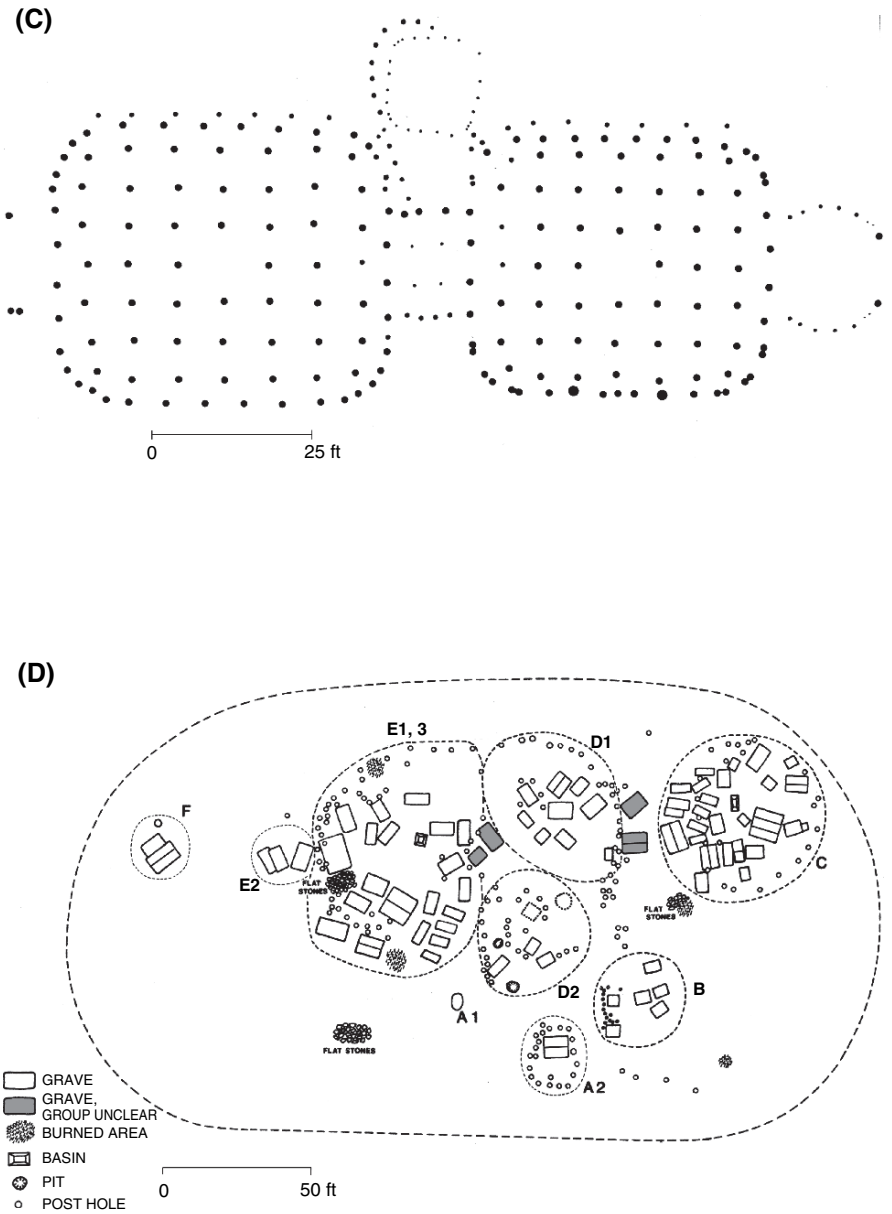


Figure 3.9. ***(continued)***

reinforces this inference. This idea is shown to actually have been the case with additional empirical evidence, provided in the example in the subsection immediately below.

For the early Middle Woodland, when the Tremper earthwork and then the Mound City and Hopeton (and Ginther?) earthworks were used, no equivalent organization of multiple local symbolic communities, each with earthworks within its own land that were planned, built, and used together by all of the communities as a sustainable community, is known. Instead, it appears that multiple local symbolic communities joined together for rituals and other activities as a sustainable community at only the one site of Tremper, within the land

of one local symbolic community. Likewise, multiple local symbolic communities shared in ceremony and other activities as a sustainable community at the Mound City and Hopeton (and Ginther?) earthworks, within the land of one local symbolic community.

The degrees to which neighboring local symbolic communities in the Scioto-Paint Creek area were stable or fluid in their membership, and territorial or permissible about the use of their lands, is unknown at this time. Gatherings of people from several local symbolic communities in a ceremonial center, to build it and participate in rituals together there, would have provided contexts for community affiliation to be negotiated. Whether this was done is uncertain. Regarding territoriality, the three local symbolic communities in main Paint Creek valley, the North Fork of Paint Creek valley, and the adjacent Scioto valley were each separated and buffered from one another by good distances greater than the 6–13 kilometer modal expanse of a single local symbolic community and its earthworks in the Scioto-Paint Creek area.[18] These separations seem to represent light population densities and communities that were not packed together. Alternatively, the spatial pattern might indicate the contraction of communities at their edges in response to each other.

An Example of a Sustainable Community

Beyond the basic archaeological task of identifying a sustainable community, it is essential to understand the particular activities, relationships, and cultural principles by which households of a sustainable community were bought together, integrated, and coordinated, and perhaps expressed a common identity – the dynamic life of the community. For the sustainable community identified above, comprised of three local symbolic communities whose earthworks had a tripartite symbolism, households in different local symbolic communities were found to have been integrated through jointly building earthen ceremonial centers, and perhaps charnel houses, in one another's lands, and probably through jointly participating in ceremonies there. They expressed their shared identity through the similar geometries of the earthworks and charnel houses they built. Here, archaeological evidence that the three local symbolic communities did, in fact, join together for ceremonies in earthworks in each other's lands is presented. The ceremonies involved the communities burying their deceased relatives together in shared cemeteries.

Below each of the Pricer mound within the Seip earthwork, the Edwin Harness mound within the Liberty earthwork, and Mound 25 within the Hopewell site, deceased persons were laid to rest in three major groups within charnel houses that were divided into three major rooms along their length (Greber 1976, 1979a,b, 1983; Greber and Ruhl 1989) (Figure 3.9A–D). A three roomed charnel house was also built under the Conjoined mound within the Seip earthwork, although only two of the rooms came to be filled with burials (Greber 1976, 1979a). Within the Old Town earthwork, a similar three-fold layout of burials probably occurred below three conjoined mounds, although only one of the mounds and its burials has been excavated (Moorehead 1892:133–143; see also Greber 2003:91).[19] These tripartite divisions of burials and charnel houses strongly reiterated the tripartite design of the earthworks in which they were constructed or, in the case of the Hopewell site, a complementary earthwork (Old Town) within the same local symbolic community.

In each of these mounds, the three major clusters of burials and/or the three rooms of the charnel house represented the three local symbolic communities in main Paint Creek valley, the North Fork of Paint Creek valley, and the Scioto valley. Persons from different local symbolic communities were buried in the different clusters or charnel rooms below a mound, segregated from one another. The totality of the mound or charnel house symbolized the shared identity of these persons as members of a single sustainable community, while not erasing their affiliations in different local symbolic communities. These cemetery

statements of local social distinctions yet supralocal ties were distributed across all three of the river valleys that were home to the three local symbolic communities. In anthropological terms, the three local symbolic communities did not constitute a formal polity but, rather, were three separate social groups linked by alliance and a developing sense of mutual identity. The alliance was forged and maintained by the communities coming together to bury representatives of their deceased together in the same burial mounds, thereby creating "permanent" spiritual ties among their relatives and, by extension, also among the living. This means of alliance was buttressed by many other forms of supralocal connection, including dyadic economic partnerships, intermarriage, mortuary and nonmortuary ritual sodalities, complementary leadership roles, complementary clan roles, nonlocalized clan organization, and an incipient form of supralocal, centralized leadership (Carr, Chapter 4). However, in the eyes of the Hopewell people in the Scioto-Paint Creek area, spiritual alliance was the most important form of supralocal connection, and it was on this connection that they placed primary symbolic attention in the layouts of their geometric earthworks and charnel houses (Carr 2005a:318–319).

The identity of the separate clusters of burials under each of the five mounds as members of different local symbolic communities can be concluded from several archaeological patterns. The social composition of the population of deceased persons in each cluster under the Pricer, Conjoined, Hopewell 25, and Edwin Harness mounds, to the extent known, had the characteristics of a community. Each cluster had persons of a wide range of social roles, clans, prestige, ages, and both sexes. Some burial population characteristics varied among the clusters of a mound in ways one might expect them to vary among communities: the particular clans present, assuming that some clans were localized; the proportions of adults to subadults and males to females selected for burial to represent their community; the proportion of prestigious burials and overall community wealth; the number of individuals buried in a cluster and thus the inferred size of their community and the diversity of clans as related to cluster population size and inferred community size.[20] Other interpretations of the burial clusters as other kinds of social groups – rank groups, leaders of different kinds, leaders versus followers, sodalities of different kinds, clans with different eponym species, age sets, genders, people who differed in the circumstances of their deaths, people bound to different afterlives – can each be ruled out for reason of contradictory patterns in the mortuary record (Carr 2005a:287–293).

The interpretation that each mound and charnel house with its three clusters of deceased persons symbolized their shared identity as members of a single alliance unit is well supported by a widespread metaphor of historic Native Americans in the Eastern Woodlands. Historic peoples of the Woodlands drew an equation between the domestic dwelling, on the one hand, and a large ceremonial building, a mound, a ceremonial dance ground, or a whole ceremonial center, on the other. In turn, these correspondences equated the family with the community, a multicommunity cooperative unit, or the cosmos at large, and implied the appropriateness of family-like ties and cooperation at these broader social scales. For example, in the Shawnee language, the word for a ceremonial building or stomp ground means "Big House" (Greber 1979b:28; 1983:26–27). In the 18th Century Muskogee language of the Creek in Alabama and Georgia, domestic dwelling and mound are equated (Knight 1989:280). Among Muskogee, Yuchi, Iroquoian, Siouan, Caddoan, and Algonkian speakers, the domestic dwelling was likened to the entire village or a congregation of bands or tribal segments (DeBoer 1997:229). By analogy, the Scioto Hopewell practice of different local symbolic communities burying their dead together in one charnel house or "Big House" under one mound would have symbolized the family-like cooperation among those communities (see Galloway and Kidwell 2004:508 and Swanton 1931:170–194 for this logic among the Choctaw) and the social identity they shared as members of an intercommunity alliance.

The act of the three Scioto Hopewell local symbolic communities burying their dead together, by its mortuary and spiritual nature, would have been a structurally substantial, ideologically potent, and long-lasting means for the communities to foster cooperation among themselves and a sense of mutual identity. Specifically, the burial of their deceased relatives within one charnel house could have symbolized the eternal cooperation of the relatives from the three communities with each other – a sacred contract. In turn, this cooperation at the spiritual level would have served as a model for behavior among the living, with potential consequences from deceased elders for those living descendants who violated the contract. This cultural logic is reasonable to propose for the Scioto Hopewell situation, given that it was the religious-ideological foundation for the historic Huron and Algonkian Feasts of the Dead (Heidenreich 1978:374–375; Hickerson 1960; Trigger 1969:106–112), which involved the burying together of the dead from multiple communities and/or tribes in order to build alliances among them, and given that this strategy for alliance building has great historical time depth in the Woodlands, going back to the Late Archaic in northern Ohio (Stothers and Abel 1993).

In sum, diverse mortuary evidence, an analogy to a broadly spread historic Woodlands Native American metaphor, and an analogy to the symbolic logic of Huron and Algonkian mortuary rites all point to three Scioto Hopewell local symbolic communities having joined together for ceremonies in each other's lands, having solidified and maintained an alliance with one another, and having developed a sense of social identity. The three communities had formed a "sustainable community" in more than the minimal ways defined at the beginning of this chapter.

Within the ceremonial landscape of the three symbolic communities, the Hopewell site in the North Fork of Paint Creek valley had a special role compared to those of Seip, Baum, Old Town, Liberty, and Works East. It was the burial place of largely a select group of important persons who filled key social roles of responsibility in each of the three local symbolic communities. In contrast, the cemeteries in Seip, Old Town, and Liberty contained a somewhat broader, yet still prestige-biased spectrum of persons from the three local symbolic communities. Several lines of archaeological evidence suggest this interpretation. The Hopewell site, especially Mound 25, stands out relative to Seip, Old Town, Liberty, and all other Scioto Hopewell mortuary sites in the richness of many aspects of its material record: total mound volume, total amounts and diversity of Hopewell Interaction Sphere finished artifacts and exotic raw materials (e.g., Seeman 1979a:392–393), the very large number and sizes of nonburial deposits ("caches") of ceremonial paraphernalia, and the quality of crafting of some ceremonial artifact forms (e.g., obsidian bifaces, copper cutouts). These material accumulations point to the prestige of those buried at Hopewell. So, too, does the very high proportion of extended inhumations compared to cremations at the site. In the Scioto-Paint Creek area, inhumation was more commonly accorded to leaders and other persons of high prestige, who were buried with copper headplates, celts, breastplates, and earspools, than was cremation. In other Hopewellian cemeteries in the Scioto-Paint Creek area, few persons were inhumed and most were cremated.[21] The Hopewell site also has a demographically unique burial population. Subadults are almost completely missing, and males are more common than females on the order of 3 males to 2 females. In social terms, the Hopewell site was a place of burial for persons who had lived to be old enough to accumulate prestige or to demonstrate the prestige they might have inherited. In contrast, the burial populations of the Seip, Liberty, and Ater cemeteries do not show biases toward adults, and the sex distribution of deceased persons at Seip is even; these cemeteries were open to a wider range of community members. All of these lines of evidence converge on the conclusion that the Hopewell site was a special cemetery for the burial of primarily key social figures from the region and its three allied, local symbolic communities, once that alliance had formed.

Centralized Leadership, Identity, and Alliance

The specific manners in which people in the three local symbolic communities were interconnected, and how they conceived of their relationships with one another, are necessary to understand because they would have had bearing on the form and quality of workings of many aspects of Scioto Hopewell life. Three most basic alternatives are possible, which I have begun to define and distinguish in the above discussion. People in the three communities might have thought of themselves as a whole, single, self-recognized polity[22] and society, if they were both governed by a centralized leadership and closely knit by kinship, marriage, spiritual ties, religious beliefs, and essential activities. Alternatively, they might not have been centrally governed, yet had a mutual sense of social identity and been well integrated by other social and cultural means of cooperation. Finally, the three local symbolic communities might not have had any single sense of identity but, instead, thought of themselves as separate but cooperating peoples – as allies, alone.

There is no evidence that the three local symbolic communities were integrated through one or a few centralized leadership positions that had strong supralocal domains of political and/or religious power, and/or that were solidly symbolic of the unity and well being of the communities at large – chiefs, chief-priests, priests, or divine kings (e.g., Earle 1997; Frazer 1935, vol 4; Huntington and Metcalf 1979: 123–124, 153–183; Netting 1972; Peebles and Kus 1977; Winkelman 1992: 69–75). Such positions in chiefdoms and kingdoms are commonly symbolized by elite residence and/or burial in the polity's geographic center, sometimes conceived of as the center of the cosmos (e.g., Huntington and Metcalf 1979:123). To the contrary, the Hopewell site is located in the narrow, North Fork of Paint Creek valley, away from the geographic center of the three local symbolic communities. Also, the redundant construction of tripartite earthworks in the lands of each of the three local symbolic communities suggests a geographically dispersed ritual-political organization. Further, the tripartite division of these earthworks, and of the large charnel houses and mounds within them, as well as the separation of deceased individuals within a charnel house by local symbolic community, all point to the retention of local community identities while expressing the process of unifying rather than unity, itself.

Leaders with incipient, supralocal domains of power, marked by plain copper headplates lacking animal referents along with stone celts, and by conch shell dippers along with shell spoons, are evident from the distributions of these artifacts within charnel houses (Chapter 4, Geographic Domains of Power of Leadership Roles; Carr and Case 2005b: 221–223, table 5.6). However the political strength of the individuals who filled these roles appears to have been weak (Chapter 4, The Question of Priest-Chief), and their roles were poorly institutionalized (Chapter 4, The Nature and Organization of Leadership Roles), as measured by several kinds of archaeological evidence. In addition, these leaders were not buried in the regionally most prestigious charnel house, under Hopewell Mound 25, but instead in the charnel house under the Seip-Pricer mound.

All of these pieces of evidence together suggest that the three local symbolic communities did not constitute a formal "polity" and think of themselves as such. Nevertheless, the three communities do appear to have had a shared sense of social-spiritual identity and of being more than a suite of allies, alone. Evidence of multiple kinds point to this self-recognition: the communities having buried their dead together in each of several charnel houses that, by historic analogy, symbolized their family-like and spiritual ties; the covering of each three-room charnel house by a unifying mantle of soil rather than three distinct caps in all cases where mound construction reached completion; the very similar layouts and sizes of the five tripartite earthworks in the different communities; the very similar sizes and shapes of two of the charnel houses (Seip-Pricer, Edwin Harness) in two of the communities;

and the complementarity of the earthworks in their celestial orientations and likely ceremonial functions and times of use by the regional population.[23]

The sense of social identity but not polity that the three local symbolic communities seem to have shared was succinctly represented by them apparently in a pair of copper geometric cutouts from the Copper Deposit under Hopewell Mound 25 (Figure 3.10). The sociological meaning of the geometrics can be understood as follows. The three lobes of each of the geometrics obviously represented something quite unique to Scioto Hopewell peoples. The cutouts are the only Scioto Hopewell artifacts of which I am aware that have a three-part design and symbolism, rather than a dualistic or four-part symbolism. Scioto Hopewell art emphasizes dualities such as light versus darkness and rough versus smooth, which were essential qualities of their cosmos, as well as four-part layouts, which refer to the four Cardinal Directions, Semi-cardinal Directions, and/or Solstice lines of their cosmos (Carr 1998, 2000b; Greber and Ruhl 1989:78–84; 275–283). I suggest that the three lobes of each of the geometrics represented the three local symbolic communities that had joined together to bury their dead and for other social and ritual activities. Just as tripartite earthworks, mounds, and charnel houses are unique to the time in Scioto Hopewell history when the three local symbolic communities forged close relationships and expressed those relationships, so the trilobate copper geometrics are unique to this time and likely expressed those relationships.

Figure 3.10. One of a pair of copper geometric cutouts from the Copper Deposit under Mound 25 in the Hopewell earthwork. See credits.

The circular shape of each of these two copper geometrics most likely represented the cosmos as a whole, as did other circular artifacts with four or eight-directional symbolism (e.g., Figures 1.8B right, 4.1S, 4.17B, C). If my identification of the three lobes is correct, the circle would also have represented the unification of the three local symbolic communities. This logic accords well with historic Woodland Native American symbolism, in which the circle is commonly layered with multiple meanings of different scales, such as domestic building, ceremonial building, ceremonial dance ground, a whole village, a congregation of bands or tribal segments, and/or the cosmos at large (see above).

Significant to the sense of social identity but not polity that architectural and mortuary evidence indicate the three local symbolic communities shared, each of the three lobes of the geometrics has its own center (a hole) – seemingly a representation of the three separate centers of the three communities and their retaining their individual political identities while nevertheless falling within the same circle of social, ceremonial, and spiritual ties. Also, there is no hole in the center of the geometric, implying no one center upon which all three communities focused politically. The absence of a center hole contrasts with the layouts of some circular symbols of the cosmos (e.g., Figures 1.8B right, 4.1S, 4.17B), which have a hole or depression at their center where lines of the Four Directions meet. Finally, the three community's perception of themselves as politically distinct is also implied by the physical separation of the three lobes of the geometric from one another and the lack of a continuous circular band around them. This format contrasts to Scioto Hopewell circular symbols of the cosmos with a continuous,

circular circumference (e.g., Figures 1.8B right, 4.17B, D).

In all these regards, the trilobate copper cutouts conform well in their symbolism to the developing sense of social identity that the three local symbolic communities seem to have shared yet their lack of political unification. Other aspects of the cutouts may also reflect these social and political characteristics.[24]

A Second Example of a Sustainable Community

In the later portion of the Middle Woodland period in the Scioto-Paint Creek area, as just described, three local symbolic communities joined together to build earthworks and hold rituals in each other's lands. In the early Middle Woodland, the regional ceremonial landscape was simpler. Multiple local symbolic communities joined together for ceremony within one or a few earthworks within the land of only one of the local symbolic communities. This was the case for the sustainable community that used the Tremper mound, and another that used the Mound City and Hopeton earthworks and perhaps the Cedar Banks-Ginther-Shilder complex. Here, let us focus on the Tremper community.

Tremper (Mills 1916) is a comparatively small, earthen, subrectangular enclosure of 1.4 hectares that is located in the Scioto valley some 35 miles south of the large 16–31 hectare enclosures around Chillicothe. It is the earliest known geometric earthwork with a large charnel house and burial population in the valley, and seems to mark the beginning of Scioto Hopewellian forms of mortuary practices and their use to solidify alliances among large numbers of people.[25] Earlier Adena mounds and ritual enclosures appear to have typically been built by one or a few adjacent, small local residential groups to bury their own kin and/or persons of importance, to reaffirm intragroup ties, and perhaps to renew relationships with close neighbors (Clay 1987:53–54; 1992:80; see also Aument 1990). Most Adena mounds covered just one to a few persons (e.g., Dragoo 1963:147, 151, 152, 158, 161; Greber 1991:11; Webb and Snow 1974: 110–131). The largest burial populations found within Adena mounds range between only about 30 and 55 individuals, with one outlier at 86 individuals; most were amassed over extended time, with different subsets of persons buried in different vertical mound strata over the course of multiple episodes of interment, implying the burial of smaller numbers of deceased persons at any one time. In contrast, Tremper appears to have been the burial place for a whole, sustainable community. Tremper came to hold the cremated remains of about 375 individuals, which approaches the size of a sustainable community as a viable breeding population in perpetuity. The individuals were placed on one floor, implying the processing of many individuals at one time. The approximately 375 individuals buried at Tremper is more than the numbers of excavated individuals buried at the Hopewell earthwork (n = 218), in the Edwin Harness and Russell Brown mounds in the Liberty earthwork (n = 183), and in the Pricer and Conjoined mounds in the Seip earthwork (n = 171) (Carr et al. 2005:484), which represented sustainable communities. Tremper was constructed not far from the confluence of the Scioto and Ohio rivers, providing easy river access to it as a gathering place for potentially multiple local symbolic communities as a sustainable community. All these characteristics point to Tremper having served a large, sustainable community.

As at Hopewell, Seip, and Liberty, a large, multi-room charnel house was built at Tremper (Figure 3.11). The building contained up to 12 crematories, which were often separated from one another in different rooms of the charnel house or by rows of posts that may have supported screens, ensuring the privacy of cremation rituals performed by different social groups. Cremated remains were then aggregated into four depositories, one of which contained about three-quarters or more of the individuals, with the remaining persons having been divided roughly equally among the other three depositories (Mills 1916:277–278). The large depository was located in the east end of

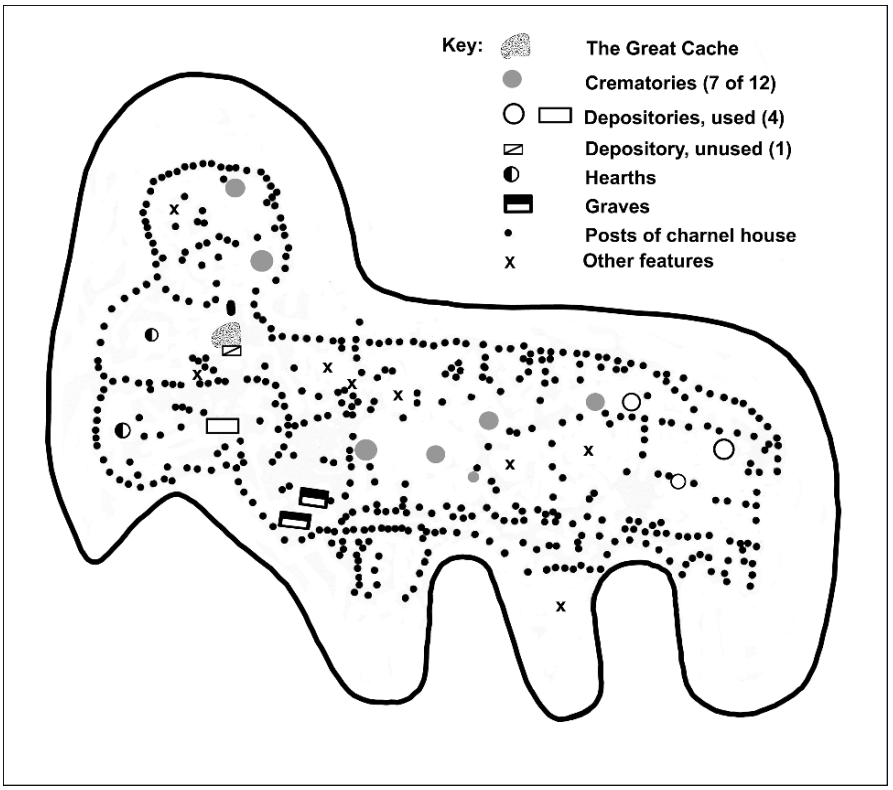


Figure 3.11. Floor plan of the charnel house under the Tremper mound. See credits.

the building. Situated close to it was the "Great Cache" – a deposit of over 500 objects, mostly ceremonial or ornamental in nature, which were decommissioned by breaking them, apparently after the cremation rituals had been completed or in the course of completing episodes of the rituals (Mills 1916:284). The charnel building was then burned in place and quickly covered with a mound (Mills 1916:273).

In contrast to the later Middle Woodland charnel structures at Seip, Hopewell, and Liberty, where the deceased persons were positioned across the mound floor by local symbolic community, the deceased at Tremper appear to have been organized spatially by clan. The four depositories of cremated remains most likely represent four geographically dispersed clans who came together at Tremper to lay their deceased to final rest. Four clans, as opposed to other kinds of social units like sodalities or communities, are implicated by the contents of the Great Cache. It contained 110 pieces of animal jaws attributable to exactly four animal groups: bear, wolf/coyote, puma, and bobcat (Thew n.d.). At least some of the jaws were made into pendants, similar to the necklaces and pendants made from animal power parts and worn by historic Eastern Woodlands clanpersons to display their clan eponyms (e.g., Figure 4.13; Callender 1978a:641). Significantly, bear, wolf/coyote, puma, and bobcat were common clans in the historic Woodlands. The identification of four clans is also suggested by the fact that the bear and wolf/coyote jaws were almost completely maxillary elements whereas the puma and bobcat jaws were all mandibular elements. These complementary power parts are most easily read as complementary social relationships between two phratries, dual divisions, or moieties that divided the bear and wolf/coyote "upper" clans from the puma and bobcat "lower" clans.

The four clans were composed of as many as 12 subgroups, such as lineages or local symbolic communities, who separately cremated their deceased members in the up to 12 crematories at Tremper, before the cremation remains were combined by clan into the four depositories.

It is likely that Tremper was built and used by multiple local symbolic communities, given the numbers of deceased persons and artifacts contained within its charnel building and the probable duration of use of the building. The cremated bodies and decommissioned artifacts in the Great Cache were more likely deposited as part of one extended, stepwise mortuary ceremony, over the course of weeks or years rather than over generations.[26] If each deceased person at Tremper was mourned by two to three persons–the known median number of gift givers at Scioto Hopewellian mortuary ceremonies generally (Carr, Goldstein, et al. 2005) – then 750–1,125 mourners, at once or over a limited time, are implied. The best estimate of the number of gift givers, alone, who contributed ornaments and paraphernalia to the Great Cache, is estimated at 191 (Carr, et al. 2005). The number of sociopolitical leaders who gave gifts is estimated at 30, which would imply a considerable dependent population of potential mourners, on the order of hundreds. Finally, the several artistic styles and elemental chemistries of the 136 pipestone smoking pipes found in the Great Cache (Weets et al. 2005; see also Emerson et al. 2002) indicate several different social groups who procured pipestone and/or pipes from different and widely separated sources. Pipestone and/or pipes were derived from northwest Illinois, southwestern Minnesota, across the river from Tremper, and an unknown location (Emerson et al. 2002). All of these archaeological data suggest the gathering of multiple local symbolic communities at Tremper.

Tremper was probably built within the lands of one local symbolic community that included the confluence of Pond Creek and the Scioto river, where the site is located. Analogous ceremonial sites were not built in the lands of the other local symbolic communities that gathered at Tremper. No geometric earthwork similar in shape to Tremper is known in its vicinity and, in fact, no earthwork contemporaneous with Tremper is known in the area.[27] This focal organization of ritual over the landscape and asymmetry of relationships among local symbolic communities differs from that in the Chillicothe area later in the Middle Woodland. There, together, each of three local symbolic community appears to have built and used ceremonial centers in each other's lands.

The logic of the historic Algonkian and Huron Feasts of the Dead for creating alliances among communities, described above, applies to the Tremper case even more closely than it does to the Seip, Liberty, Hopewell, and Old Town ceremonial centers. At Tremper, the cremated remains of the deceased from different local symbolic communities were physically placed together in the same depositories, just as historic Algonkian and Huron peoples from multiple communities and neighboring tribes buried the bones of their deceased together in one ossuary pit. To Algonkian and Huron peoples, this act was thought to involve an intermingling of the souls of the deceased persons, in that a person's bones were thought to house one of the person's two souls (Trigger 1969:103). The Huron emphasized this metaphor by actually physically stirring together the bones of the deceased as they were placed in an ossuary (Trigger 1969:111). These beliefs and practices allowed the creation of alliances among communities and tribes through the souls of deceased relatives, and reinforced the sacred and permanent qualities of the alliances. The same explicit metaphors seem to have been employed at Tremper. In contrast, at each of Seip, Liberty, Hopewell and Old Town, the bones of members of different local symbolic communities were kept separate, in different compartments of a charnel house, rather than placed in intimate contact with one another. The bones were, however, laid to rest under the roof of one, unifying charnel house and buried under one mound. In the case of the Pricer mound in Seip earthwork, at least, the bones in all compartments were laid to rest on the same, continuous, sand floor (Figure 2.8; Shetrone and Greenman 1931:364).

CONCLUSION

Hopewell people in the Scioto-Paint Creek area spent much of their life alone or in small groups of kin while hunting, gathering, cultivating, and processing foods, raising and teaching their young, and holding rituals of their own concern. They also, at times, gathered in much larger groups of kin and/or nonkin to attend to broader societal, cultural, and demographic matters, such as ceremonial rites to maintain their cosmos and ensure societal well being, rites for burying deceased relatives and helping them to pass to an afterlife, enculturating and initiating youngsters into adulthood, arranging and having marriages, developing ritual exchange partnerships, crafting and decommissioning the ceremonial paraphernalia necessary to these social tasks, and building and maintaining the ceremonial centers in which these activities could be appropriately and safely done.

Going about these affairs, a Scioto Hopewell person participated in three different kinds of communities of different geographic and demographic scales: a residential community of one or two extended families who inhabited one or a few buildings in a small area of valley terrace or bottom land; a local symbolic community typically comprised of about one hundred persons who lived in many, geographically dispersed residential communities, the most distant residences being 6–13 kilometers apart; and a sustainable community typically comprised of several hundred people from two to several local symbolic communities within 13–31 kilometers of each other.

Residential communities varied considerably in their household sizes, with residences ranging between 5 and 25 persons. These variations probably reflect the life cycles of births, marriages, and deaths within households, as well as functional differences between primary residences and seasonal field camps. A residential community moved to a new location every few years to a decade or two, and sometimes reoccupied an old habitation site two to three hundred years later, in response to the changes it made in the locations of its swidden horticultural plots. Some or all of a family left its valley residence for a part of the year to hunt and/or gather while on logistical trips and longer, seasonal stays in upland settings. Logistical mobility was the more common strategy in the resource-rich Scioto-Paint Creek area, whereas residential mobility and the use of seasonal base camps were common in less productive parts of the Scioto drainage to the north and south. In the Scioto-Paint Creek area, a valley residence was probably occupied by at least some of an extended family at least six months of the year, during spring, summer, and fall.

A local symbolic community was a corporate, self-identifying, decision making unit that was composed of multiple, dispersed residential groups, which were integrated in part by jointly building ceremonial centers and by participating together there in burial rites and other ceremonies. In the Scioto-Paint Creek area, a local symbolic community commonly built and used simultaneously several ceremonial centers of differentiated functions within its lands. Example communities, not all contemporaneous, include one that encompassed the Mound City and Hopeton earthworks and possibly the Cedar Banks complex; a second that included the Seip and Baum earthworks and possible the Spruce Hill enclosure and the Rockhold and Bourneville mound centers; a third that included the Liberty earthwork and Works East; and a fourth that centered on the Old Town and Hopewell earthworks. Local symbolic communities were liberally spaced apart from one another, with vacant or largely vacant lands between them.

A sustainable community was a corporate decision making unit comprised of a number of local symbolic communities that were integrated by alliance and within which labor, mates, and probably food and other material resources were exchanged. These exchanges buffered each local symbolic community from demographic and subsistence variations within it. Alliances among local symbolic communities were social-spiritual in nature. They involved communities burying some or all of their dead relatives together in one to several shared cemeteries and, in one instance, placing together

the human cremations from multiple communities in common ossuaries. These practices closely resemble the alliance-making efforts of historic Algonkian and Huron Nations of the Eastern Woodlands. The Algonkian and Huron believed that by mixing and burying the remains of their deceased relatives together in a single ossuary, the souls of the relatives that were resident in the bones were intermingled, creating strong, sanctified ties of cooperation among the deceased as well as the living of different villages and tribes. Spiritual alliances among Scioto Hopewell local symbolic communities in the last third of the Middle Woodland period also may have involved an annual ceremonial calendar. Communities may have joined together in the earthworks in each other's lands sequentially, in different earthworks at different seasons for ceremonies with different purposes.

Throughout most of the Middle Woodland period, spiritual alliances among Scioto Hopewell local symbolic communities took the place of their being integrated politically under one strong, centralized leadership position. One or two leadership positions with domains of power spanning multiple local symbolic communities arose only at the very end of the Middle Woodland period, and the power of individuals in these positions was restricted to specific matters and complemented by the responsibilities of other local leaders in other roles. The spiritual alliances that joined multiple local symbolic community were, however, reinforced by many other ties of a social nature. These are described in detail in the next chapter, and include dyadic economic partnerships, intermarriage, mortuary and nonmortuary ritual sodalities that may have had memberships that spanned multiple local symbolic communities, crosscutting membership among sodalities, a nonlocalized clan organization, and clans with complementary social-ritual roles.

The organization and operation of Scioto Hopewellian people and their practices within residential, local symbolic, and sustainable communities was more complex and varied than researchers have envisioned over the last forty years. Models of the community organization of Hopewellian peoples in the Scioto-Paint Creek area and neighboring locales have held that residential communities were stable in location, with lengths of occupation of about a century; that annual residential mobility was not a part of the subsistence strategies of Hopewell peoples; that multiple residential communities within a locale integrated themselves socially by building a single ceremonial center within their territory and holding ceremonies within it; and that persons buried within the mound(s) of a ceremonial center came from that one locale (Dancey 1991; Dancey and Pacheco 1997a; Greber 1979a; Prufer 1964a, b; Prufer et al. 1965; Smith 1992).

Hopewellian community life in the Scioto-Paint Creek area was richer in social and ritual ties, had more scales of organization, involved more movements of people over the landscape, and was more varied in form over space and time than previously thought. Detailed mortuary, geographic, labor, stylistic, and other analyses have revealed this complexity. Among the most key, newly understood characteristics of Scioto Hopewell community life that have been presented in this chapter are nine. (1) Residential communities moved their locations in response to their cycles of swidden horticulture every few years to decade or so, rather than remained stable in location for several generations. (2) Residential and logistical mobility patterns varied between the Scioto-Paint Creek area and portions of the Scioto drainage further north and south. Some or all of a household commonly moved seasonally between valley bottom habitations and valley-edge and upland habitations in the northern and southern Scioto drainage. In the Scioto-Paint Creek area, valley bottom residences were occupied more continuously if not continuously through the year, and logistical trips were used instead to exploit valley-edge and upland resources. (3) In the Scioto-Paint Creek area, Hopewell people were organized into communities of three different scales – residential, local symbolic, and sustainable communities. The latter, broadest level of community organization, was not an aspect of previous models posed by Prufer, Greber, and Smith, and was not defined substantially for

its nature by Dancey and Pacheco. (4) A local community formed from multiple residential groups commonly had not just one, but multiple earthen enclosure ceremonial center in its lands and used them contemporaneously (e.g., Seip, Baum). The different earthworks had different ceremonial functions. (5) At least some single earthen enclosures were constructed and used not by just one local symbolic community, but by multiple, as a means for fostering intercommunity cooperation and forging wider, sustainable communities. The sites of Tremper, Hopewell, Seip, and Liberty each document this practice. (6) Cooperation among the local symbolic communities within a sustainable community in building ceremonial centers was sometimes symmetrical, with each local symbolic community helping to build a ceremonial center or two in the lands of each other local symbolic community (e.g., Seip, Liberty, and Hopewell). In other cases, cooperation was asymmetrical, with the local symbolic communities joining together to build a ceremonial center or two in the lands of only one of the communities (e.g., Tremper; Mound City and Hopeton). Symmetrical cooperation characterized the later portion of the Middle Woodland period, asymmetry the early portion. (7) A local symbolic community handled its dead in a variety ways. Some social segments received cemetery burial while others did not–a pattern that was recognized by Prufer (1964a:74) but not carried through in subsequent models. (8) Some local symbolic communities buried their different social segments in different cemeteries. For example, the local symbolic community focused on the Seip and Baum earthworks buried some of its members of a broad spectrum of social prestige at Seip, and others of high social prestige at the Hopewell site. (9) The local symbolic communities that comprised a sustainable community not only exchanged critical resources such as labor, mates, and probably food and other material resources among themselves, but also shared a sense of identity. That identity was foremost spiritually based, through the burial of their deceased relatives together. The local symbolic communities of a sustainable community were not formally integrated by strong, centralized and institutionalized leadership roles.

NOTES

1. Excavations in the Scioto-Paint Creek area include those made at the McGraw site near Chillicothe and on the Scioto valley bottoms (Prufer 1975, Prufer et al. 1965); the Overly and Triangle tracks adjacent to the Hopeton earthwork and on a terrace of the Scioto valley (Dancey 1996b, 1997; Lynott 1998a,b, 2001); Brown's Bottom #1 on the flood plain of the Scioto valley adjacent to the Liberty earthworks (Pacheco et al. 2005; Paul Pacheco, Jarrod Burks, and DeeAnne Wymer, personal communication 2005; see also Burton 2006); the Ilif Riddle I and II sites, southeast of Londonderry, on terraces of Salt Creek, a good-sized tributary of the Scioto river (Prufer 1997); and the Wade site, southeast of Chillicothe, in the flood plain of Salt creek (Church 1989; Church and Ericksen 1992, 1997; Ohio Department of Transportation 1993). Minor investigations have been made of the Starr's Knoll site, on a kame in the upper reaches of the North Fork of Paint Creek (Baker 1979, 1993; Ohio Department of Transportation 1993). Surface surveys have been made in an opportunistic fashion over various parts of a 26 river-mile stretch of the Scioto valley from four miles north of Chillicothe southward to Waverly, Ohio (Prufer 1975) and more systematically in the vicinity of the Liberty earthwork (Coughlin and Seeman 1997). Excavations in the Scioto drainage north of the Scioto-Paint Creek area include those made at the Marsh Run site just southwest of Columbus and on an upland rise a few kilometers from the drainage divide between the Scioto river and Big Darby creek, which flows into the Scioto (Aument 1992; Aument et al. 1991); the Clarence Ford site just east of Columbus and on a bluff edge overlooking the floodplain of Sycamore creek, a tributary of Big Walnut Creek, which flows into the Scioto river (Aument 1992); the Haven site just north of Columbus and on the Olentangy river flood plain (Weller and Eriksen 2005); and the Gilead site north of Columbus near the town of Mt. Gilead and on an upland flat near the divide between Whetstone Creek, which flows into the Scioto river, and the Kokosing river, which is a tributary to the Muskingum (Baker 1978; Bush et al. 1992). Excavations in the Scioto drainage south of the Scioto Paint Creek area have been made at the Madeira-Brown site in the Scioto valley, itself, about 30 kilometers south of the Scioto-Paint Creek confluence (Bush et al. 1989, 1992). In the Licking drainage near the Newark earthworks, well northeast of the Scioto-Paint Creek area and to the east of Columbus, excavations have been made at the Murphy, Campus, and Nu-way sites in Raccoon creek, a tributary of the Licking (Dancey 1991; Wymer 1996, 1997); and at 33 Li 79 (Hale's House) on the

Licking flood plain (Hale 1980). In the Dresden area of the upper Muskingum valley, into which the Licking flows, the Cox C site has been excavated (Morton and Carskadden 1987). Surface surveys in the vicinity of the Newark earthworks have been undertaken in the Granville area of Raccoon Creek valley (Pacheco 1993, 1996), the Dresden area of the upper Muskingum valley (Pacheco 1996), and the upper Johnathan Creek valley, a tributary of the Muskingum valley (Pacheco 1996).

2. All of the population estimates in this paragraph are based on Cook's (1972:16) rule of thumb: "count 25 square feet for each of the first six persons and then 100 square feet for each additional individual".
3. Material criteria that define and distinguish primary multi-season habitations, auxilliary seasonal habitations/base camps, and logistical sites are given in Table 3.1, Footnote 1.

Characteristics of the Brown's Bottom #1 site that clearly indicate it was a multi-season habitation include: its location in the bottoms of the Scioto valley, surrounded by land suitable for horticulture; one very large building with big (25 centimeters in diameter) and deep-set (45 centimeter) posts that were regularly placed, an interior storage pit, interior hearths, and three pairs of interior indirect heating features; many processing pits for the one house, including 8 excavated, Middle Woodland earth ovens, possibly 15 to 20 more unexcavated earth ovens, and 13 other processing pits; well-structured activity space, with the house, an area around it swept clean of magnetometry-sensitive materials, an arc of earth ovens, and an open area; dense faunal remains (5.6 kilograms of deer, 15.9 kilograms of fresh water mollusk shell); dense and diverse floral remains harvested in spring and fall (erect knotweed, maygrass, thin-testa goosefoot, sumpweed, squash, hickory, black walnut, acorn, mulberry, hackberry, elderberry, sumac; nutshells 75% ubiquity; seeds 70% ubiquity); emphasis on cultigens in the seed assemblage (knotweed, maygrass, and goosefoot compose 83% of identified seeds); a large ceramic and lithic assemblage, with a minimum of 61 ceramic vessels, 82 "tools", and 185 bladelets; a dog burial and two human burials that may date to the Middle Woodland component; and two possible refuse deposits suggested by surface artifact and magnetometry survey (Pacheco et al. 2005, 2006, personal communication 2007; Steinhilper and Wymer 2006; see also Burton 2006). The site, at 0.5 to 0.85 hectares, is somewhat larger to double the size of the Murphy I site (0.4 hectares minimum), which can be considered a border-line case for a multi-season habitation.

Indicators of multi-season residential stability found at the McGraw site include: a large, discrete midden area, on average 17 centimeters thick, with a dense and diverse artifact inventory representing maintenance and extractive activities, and many subsistence remains harvested in spring, summer, and fall. Artifacts found in the midden include: nearly 9,946 sherds, 57 cores and core chunks, 12 Middle Woodland projectile points/knives, 60 complete blades, 2 celt fragments, 45 awls and awl fragments, 48 antler tools and tool fragments, 18 bone needles and needle fragments, 160 worked freshwater shells, and ceremonial equipment (1 cone, 5 figurine legs, fossils, concretions, 3 palettes for grinding red pigment). Plant food remains recovered from the midden, without the benefit of flotation, include: walnut, hickory, acorn, hackberry, and plum. The mininum number of individuals of mammals recovered include 10 deer, 37 other large and small mammals, 22 fish, 22 reptiles, and 17 birds, A total of 1,987 freshwater mussel shells and fragments were recovered (Prufer et al. 1965). The size of the site was probably large, with the midden alone having been about 0.12 hectares and other components of the occupation having been either buried by flood deposits or eroded away.

The Wade site's characteristics, taken together, suggest it to have been either a logistical site or a seasonal habitation/base camp, the former being more likely. It's 2 earth ovens and 434 sherds (Middle Woodland by their thickness, and cordmarking on half) indicate maintenance activities associated with residence. Late spring, summer, and fall use of the site is evidenced by the paleoethnobotanical record, which includes maygrass, blueberry, and goosefoot seeds, and hickory and walnut shells. However, the remaining aspects of the site, for the fairly large percentage (25%) of it that is known by excavation (Church and Ericksen 1997:350), suggest ephemeral use. The site lacked a building or wind break (only one post hole), had no midden, and had no storage pits. It had only twelve features: shallow basins, hearths, fire-cracked rock concentrations, and the mentioned earth ovens. These were not structured in space. Artifact density, like feature density, was light. Beyond the pottery sherds, only 6 bladelets, 1 biface, 1 scraper, and 11 cores were recovered through excavation. The paleoethnobotanical remains were also very sparse: only 3 goosefoot, 4 maygrass seeds, 1 blueberry seed, and 9 nutshell (Church 1989; Church and Ericksen 1997). The site is only 0.09 hectares (Church and Nass 1989:21, map 2; misstated by Church and Ericksen [1997:341, 356] and Dancey and Pacheco [1997a:27] to be 0.9 hectares) – one-fourth the size of the Murphy I site. A microwear analysis of a small sample of the lithic artifacts from the site found evidence of both extractive activities (meat knife, hide knife, hide deflesher/scraper) and maintenance activities (wood sawing, bone/antler scraper, bone/antler wedge) in roughly equal proportions (Church 1989:80), rather than heavily weighted toward maintenance activities as one would expect to find in a multi-season residential site or a seasonal auxilliary residential site. The small size of Wade, its ephemeral material record, and its lack of internal spatial pattern, combined with its activity distribution, suggest that it may have been used discontinuously and briefly as a logistical site at various seasons of the year rather than continuously from late

spring through fall. This kind of use would not be unexpected, given the peripheral position of Wade: near the headwaters of Salt Creek, 16 kilometers from its confluence with the Scioto, in a narrow (0.7 kilometer wide), deeply-entrenched valley surrounded by rugged uplands of the unglaciated Appalachian plateau.

The Ilif Riddle I site has characteristics that, together, suggest it to have been a residential site, but occupied only seasonally. It's 325 sherds indicate maintenance activities. Only summer occupation is evident from the faunal remains, which include turtle, freshwater mussel, and nondiagonistic deer. Repeated surface pick up of the site and a 16% excavation sample of its densest 100 square meters revealed only seven shallow basin-shaped pits and one post mold in no spatial pattern, no indications of a building, no midden, no storage pits, no blade cores, 340 expediently used, unretouched bladelets, 7 Middle Woodland projectile points, and only fragments of faunal remains. The Middle Woodland component of the site, which is dominated by a much bigger Archaic occupation, is only 0.25 hectares–about half the size of the Murphy I site (Prufer 1997; see also Church and Ericksen 1997). The less than multi-seasonal, residential usage of the site accords with its peripheral location, half way up Salt Creek, 9.6 kilometers from its confluence with the Scioto, in a narrow valley deeply entrenched within the unglaciated Appalachian plateau.

The Ilif Riddle II site, located 500 meters from the Ilif Riddle I site in Salt Creek valley, is much more ephemeral than its sister site and suggests only a logistical camp. Surface survey recovered only 7 bladelets, 1 exhausted core, 1 sherd, and 1 Middle Woodland projectile point. The only clear evidence of maintenance activity is one sherd. Note the lack of accompanying fire-cracked rock. No concentration of surface artifacts, which might indicate a midden deposit below, was observed. The thin Middle Woodland scatter was embedded in a larger Archaic component, and was no larger than 0.56 hectares, somewhat larger than the Murphy site (Prufer 1997; see also Church and Ericksen 1997).

Characteristics of the Starr's Knoll site that suggested to its investigator its use for hunting and collecting, i.e., a logistical function, are the site's upland location, limited horticultural ground and aquatic resources in the area, the placement of the site for viewing the valley below and surroundings, and the site's ephemeral nature. The site is located on the upper reaches of the North Fork of Paint Creek valley, some 30 kilometers northwest of its confluence with main Paint Creek valley. It lies on a bluff edge overlooking the narrow, deeply entrenched flood plain where the North Fork and Herrod Creek converge, within the northernmost extension of the glaciated Appalachian Plateau into the Till Plain. Over 70% of the site's catchment is in uplands. Artifacts found on the surface of the site were limited to 23 bladelets, 6 cores, 6 bifaces, 1 graver, and light debitage, only the bladelets and cores of which can be attributed with certainty to the Middle Woodland occupation of this multicomponent site (Baker 1979, 1993;Ohio Department of Transportation 1993; Ohio Archaeological Inventory Form for 33R0159C; Stanley Baker, personal communication 2007),

4. Material criteria that define and distinguish primary multi-season habitations, auxilliary seasonal habitations/base camps, and logistical sites are given in Table 3.1, Footnote 1.

Characteristics of the Clarence Ford site that combine to suggest it was a seasonal habitation/base camp include: its upland location remote from horticultural land, on a bluff-edge overlooking the headwaters of a small stream tributary to the Scioto; an exclusively wild paleoethnobotanical assemblage emphasizing nuts (hickory, black walnut, acorn) and including sumac seeds, which suggest fall harvesting; extractive activities represented by groundstone celts and pitted nutting stones; few chipped stone tools and sherds for maintenance activities; lack of midden by surface indicators; yet, at the same time, the remains of a building with substantial posts (30 centimeters in diameter, 50–60 centimeters deep) chinked for maintenance, a hearth, and an earth oven at a distance (Aument 1992). The site is less than 0.35 hectares – smaller than the Murphy I site (0.4 hectares minmum), which is a marginal case for a multi-season habitation.

Aspects of the Marsh Run site that together suggest it was a seasonal habitation/base camp include: its upland location remote from horticultural land, a largely wild plant food assemblage, light artifact and feature density without spatial arrangement, yet also buildings that were substantial but not highly formal, and pits that may have been used for storage. Specific site characteristics include: its position on a rise a few kilometers from the drainage divide between the Scioto river and Big Darby creek; a paleoethnobotanical seed assemblage dominated by wild sedges and rushes from the adjacent wetland, with minimal amounts of goosefoot and maygrass, both wild, but one cucurbit rind; some hazelnut, hickory, and walnut; extractive activities indicated by 4 groundstone celts, 2 pitted nutting stones, and 1 Middle Woodland projectile point; maintenance activities represented by 149 sherds, 2 drills, and 5 endscrapers; a lack of midden deposits, which is known by mechanical stripping of much of the site; the remains of one Middle Woodland building or two overlapping buildings with deep and big posts (50–60 centimeters deep, 20–30 centimeters in diameter) but widely spread and irregularly patterned; the remains of a line of posts that were equally deep and large and that could have been a wind break or remnant of a building; one hearth per building, and exterior where building outline could be determined; two deep pits ($1.5 \times 1.0 \times .75$ meters deep), one per building, that by size could have been for storage but that were exterior rather than within a building's protection, unlike the interior one at Brown's

Bottom #1; only three other shallow processing pits, one per structure; and a functionally undifferentiated site layout, with each structure, its associated pits, and surface debris having been clustered together in one node. The concentration around the one building or two overlapping buildings was 0.7 hectares, about one and a half times the size of the Murphy I site. The artifact concentration around the one possible windbreak or building remnant was 0.14 hectares, only about one-third the size of the Murphy I site. (Aument 1992; Aument et al. 1991).

The characteristics of the Gilead site that suggest it was a seasonal habitation/base camp include: its upland location on a flat near the divide between two small streams, Whetstone Creek and the Kokosing river, remote from horticultural land and proximal to forests bearing acorns, hickory nuts, and chestnuts; yet its discrete midden area and a diverse artifact assemblage that reflects maintenance activities more so than extractive activities. Artifact classes used in maintenance tasks include a few classic Hopewell and utilitarian Middle Woodland pottery sherds, 7 bifaces, 6 scrapers, 3 perforators, and 1 wedge/gouge. Extractive activity is represented by 6 projectile points. Also recovered were 36 bladelets, and debitage that resulted from decortication almost as frequently as from final tool production. All of these remains are known from surface survey, only. The size of the site is very small, with the bulk of material coming from an area of 0.02 hectares (Baker 1978; Bush et al. 1992).

The Madeira-Brown site was most likely a seasonal habitation/base camp, with much less probability of it having been a multi-season habitation. Although located in the Scioto valley on a low terrace surrounded by land suitable for horticulture and having buildings, it is a very small site with light artifact and feature density, low artifact and feature diversity absolutely and per building, and buildings with small posts. Specific characteristics of the site that suggest it was a seasonal habitation/base camp include: two round buildings and one square building each with small, shallow posts (12, 15, and 16 centimeters in diameter and 12, 15, and 17 centimeters deep, respectively); only 5 shallow basins and 1 earth oven despite 24% excavation of the site; only 14 sherds, 11 bifaces, and 7 bladelets; low artifact diversity, including these three kinds of artifacts, 3 pitted stones, 1 piece of ground stone, plus 18 pebble cores and 252 primary decortication through thinning and sharpening flakes; and no identified midden despite backhoe trenching in a swale, although there remains the possibility of deeply buried, yet unfound midden elsewhere. The site was only 0.18 hectares, about one-third the size of the Murphy I site (Bush et al. 1989, 1992).

The Haven site, like Madeira-Brown, is located on land suitable for horticulture, but its characteristics clearly point to it having been a seasonal habitation/base camp rather than a multi-season habitation. The site occurs on the flood plain of the Olentangy river flood plain. Its five Middle Woodland buildings, built during at least two occupations, each had posts of small average diameter (16, 11, 8, 14, and 16 centimeters) and shallow average depth (20, 14, 7, 13, 16 centimeters, respectively). Little midden build up, a light artifact inventory, a lack of storage pits, few hearths (only a couple internal to buildings), small numbers of pits per building (about 1 earth oven and several pits per building), and emphasis on one cultivated species available in the spring (maygrass) rather than a wide spectrum of spring and fall harvested seed and nut species indicate seasonal occupation (Weller and Eriksen 2005). The large size of the site, about 1.8 hectares (Ryan Weller, personal communication 2007) is attributable considerably to its having served as a seasonal base camp multiple times during the Early and Middle Woodland periods.

5. Since Dancey (1991) estimated the length of occupation of the Murphy I site, he and P. Pacheco have not revised this estimate in print or made any further quantitative estimates of the lengths of occupation of Ohio Hopewell habitations. They have, however, reiterated the view of the long-term use of habitations, on the order of two or three generations (i.e., about 40–60 years). "The household is a stable unit that does not vary significantly in size through time. However, the number of households may increase [in the vicinity/hamlet] as children leave the parental household to form independent residences." (Dancey and Pacheco 1997a:8). The implication, here, is occupation of the parents' structure from their social maturity until death, or about 40 years or more. "Documented structures, when excavated, are relatively large. In some cases, individual households appear to have grown through time to include several generations of the reproductive unit." Here, the implication is occupation of a house for about 40–60 years.

   Elsewhere, Dancey and Pacheco have pointed out that Ohio Hopewell habitations were occupied variable amounts of time, but have not attempted to estimate a range of durations of occupation. The focus of their argument has been on the different archaeological signatures of habitations occupied for different lengths of time, rather than estimating the absolute time. "Notable differences between sites are best explained as the product of site duration (Dancey 1992a). The effect of differential duration can be seen in variations among settlements, with deposits losing clarity the longer they are continuously occupied .... Some sites consist of only one or two structures with a few cooking pits, various basin-shaped facilities, and small low-density refuse dumps (for example, Decco and Madiera Brown). At the other end of the scale are those sites with dozens of pit features, rebuilt structures, and dense refuse deposits (e.g., Murphy and Twin Mounds). The other cases are intermediate between these two extremes (e.g., Marsh Run, Cox B, Murphy III, and Jennison Guard)" (Pacheco and Dancey 2006:13). Also, "Variation among documented

households is best explained as the product of duration as opposed to seasonality (Dancey 1992a)" (Pacheco and Dancey 2006:6).

6. The one, 188 square meter house at Brown's Bottom #1 would have been occupied by about 25 persons, according to Cook's (1972:16) rule of thumb (see above, Note 2). The three houses at Smiling Dan were 80 square meters, 56 square meters, and perhaps 80 square meters to estimate by the longest wall of this third house. These would have been occupied by about 13.5, 10.7, and 13.5 persons, respectively, using Cook's rule, for a total of 36.5 persons. The additional approximately 10 individuals who occupied Smiling Dan compared to Brown's Bottom – about 1.4 times the number of persons – is very small compared to the 20 times the ceramics density, 20 times the lithic debitage density, and 8 times the lamellar blade density found at Smiling Dan.

   No house was found at the Murphy I site, precluding a comparable population estimate for this site to Smiling Dan.

   The robustness of the comparison made of artifact densities at Brown's Bottom #1 and Murphy I to those at Smiling Dan is illustrated by a simulation suggested by P. Pacheco (personal communication 2007) and carried out by Bret Ruby and Chris Carr. It might be argued that artifact densities calculated for the Murphy I and Brown's Bottom #1 sites are not directly comparable to those calculated for the Smiling Dan site because the presumed midden component at Murphy was completely eroded away and two possible midden deposits at Brown's Bottom were not excavated, whereas the midden component of Smiling Dan was excavated. To approximately compensate for these differences, for the sake of argument, it is possible to add the artifact assemblage from the midden excavated from the McGraw site to the artifact assemblages obtained from the features, plowzone, and surface of Brown's Bottom in order to approximate a "complete" site in the Scioto-Paint Creek area. The two sites are functionally analogous and fairly close to one another, in the bottomland of the Scioto valley, making this compositing reasonable. The combined artifact counts for the model site's midden, features, plowzone, and surface might then be compared to the counts from Smiling Dan's midden, features, plowzone, and surface. In addition, because Smiling Dan was generated by three households, whereas Brown's Bottom was generated by only one and the McGraw midden is presumed to have been generated by only one, the artifact counts from Brown's Bottom and from McGraw can be multiplied by three to make them approximately comparable to the counts from Smiling Dan. This procedure attempts to remove from the analysis the effect of differences in population between the two sites and to focus attention on differences in their duration of occupation alone. The procedure overcompensates to the advantage of the model Brown's Bottom-McGraw site because the population estimate for Smiling Dan is only about 1.4 times that of Brown's Bottom, not 3 times (see above). The table below presents the results of the simulation:

   As can be seen, even when accounting liberally for the differences of Brown's Bottom and McGraw from Smiling Dan in their site formation processes, excavation representativeness, and occupant population, the assemblage from Smiling Dan is much denser than that from the "complete" Brown's Bottom-McGraw model site–about three times more dense. This suggests the substantially greater duration of occupation of Smiling Dan than Brown's Bottom and McGraw, and the much greater long-term sedentism of Hopewell people in the Havana region than in the Scioto-Paint Creek area.

7. The Shriver Circle, just south of Mound City, could conceivably belong to an earlier phase, given its Adena-like spatial structure. However, one AMS radiocarbon date obtained from the clay liner of the Shriver ditch would place it temporally coeval with Mound City and Hopeton. The date is A.D. 195+/−40, from Block 1,

Comparison of Artifact Density at the Model Brown's Bottom-McGraw Composite Site, Ohio, and the Smiling Dan Site, Illinois[1]

	Brown's Bottom #1[2]		McGraw[3]		Model Brown's Bottom-McGraw Composite Site		Model Composite Site x 3		Smiling Dan[4]	
	Total	Items/m^2	Total	Items/m^2	Total	Items/m^2	Total	Items/m^2	Total	Items/m^2
Site Area (m^2)	5,000		1,236		5,000		5,000		6,705	
Ceramics	4,502	0.9	9,946	8.05	14,448	2.89	43,344	8.67	138,350	20.63
Debitage	2,237	0.45	1,691	1.37	3,928	0.78	11,784	2.35	65,355	9.75
Lamellar Blades	185	0.04	233	0.19	418	0.08	1,254	0.25	2,254	0.34

[1] Table constructed by Bret Ruby and Christopher Carr, with counsel from P. Pacheco (personal communication 2007).
[2] Brown's Bottom #1 data from Pacheco et al. (2006; Pacheco, personal communication 2007).
[3] McGraw site data from Prufer (1965:10, 60, 85, table 3.1).
[4] Smiling Dan site data from Stafford and Sant (1985:39, table 11.1). Ceramic total includes minor Late Woodland and Black Sand components, totaling approximately 1691 sherds. Debitage total includes flakes plus cultural blocky fragments.

Unit 4, Level 10e, Zone 10, Clay Liner (Picklesimer et al. 2006). This date fits well within the spread of radiocarbon dates from each of the Mound City earthwork and the Hopeton earthwork (Ruby et al. 2005:161, figure 4.6). The open circular earthwork south of the Cedar Banks earthwork and north of Hopeton also might belong to an earlier phase than Mound City, given its Adena-like form. It is undated. The Cedar Banks earthwork, north of Hopeton, may belong to a later phase, given the large size of its square compared to the sizes of those within DeBoer's (1997) temporal seriation of earthworks. The two, rectangular platform mounds associated with the Cedar Banks earthwork may also suggest a later date for it (see Ruby et al. [2005:142] for the A.D. 420 + / − 45 uncalibrated date from the flat-topped mound IU9 at the Mann site; but also Greber [2003:103] for the wide range of uncalibrated dates between A.D. 70–190 obtained from the Capitolium Mound at the Marietta earthworks).

8. The Junction Group is comprised of nine enclosures – seven circular and two subrectangular – in a circular arrangement (Squier and Davis 1848:Plate XXII, top). The subrectangular enclosures recall the shape of the enclosure at Mound City. The circular arrangement of the nine enclosures, and the seven circular enclosures themselves, are reminiscent of Scioto Adena circular earthworks that predate Scioto Hopewell earthworks.
   The Anderson square enclosure, with its 7.4 hectares, is similar to the Mound City subrectangular enclosure, with its 5.2 hectares, and to the Hopeton square, with its 8.0 hectares. These areas are significantly larger than the early, 1.4 hectare, subrectangular enclosure of the Tremper site, and smaller than the later, 10.8 hectare squares of Seip, Baum, Works East, Liberty, and Old Town. The seriation of these sites by the sizes of their squares suggest the approximately similar age of Mound City, Hopeton, and Anderson, to extend the logic of DeBoer's (1997:232) seriation of some earthworks in the Scioto valley.
9. Between Liberty and Works East is the High Bank work with its open square and octagon. This may belong to an earlier phase; see DeBoer's (1997:232) seriation of earthworks. High Bank also has its strongest geometric connections not with Liberty or Works East, but with the distant Newark earthworks, where an enclosure is also comprised of a open circle and an octagon. The circle of High Bank and that at Newark (the Observatory Circle) are the same size (8.0 hectares) and the two circle-octagon works are aligned in a complementary fashion, with their main axes rotated 90° degrees from each other. The major site axis of the Newark circle-octagon aligns with the moon maximum north rise, while the minor axis through the vertices of the High Bank work aligns to this celestial event (Hively and Horn 1984; Romain 2004:104, table 6.11).
10. For a discussion of Dancey and Pacheco's, Greber's, and Smith's assumption that each geometric earthwork was the center of a community of hamlets dispersed around it, see Carr (2005b:79–83).

   In the explication of their model on Ohio Hopewell community organization, Dancey and Pacheco (1997a:8, 21, figure 1.2), described and drew each geometric earthwork as the center of a community of dispersed households. "At or near the center of the community is a ritual precinct – the sacred center of community life." (Dancey and Pacheco 1997a:8). Their figure 1.2 (1997a:21; reproduced from Pacheco 1993:22, figure 2) depicts a dispersion of hamlets with an earthwork in the center and labels it a community. Neighboring, similar units, with one earthwork per unit, are depicted in the figure as strung along a river valley and labeled "continguous communities along a river". Thus, Dancey and Pacheco did not envision that a single local symbolic community of dispersed hamlets might have included multiple, functionally differentiated and contemporary earthworks, rather than only one.

   At a broader scale of social grouping, a large number of earthworks and their associated hamlets within a wide area – such as the entire Scioto-Paint Creek area around Chillicothe, or the broad area around the Newark site in the Licking valley, or much of the Scioto and Olentangy rivers in Franklin county – were grouped together by Dancey and Pacheco to define what they called a "polity". Pacheco and Dancey (2006:17, figure 1.6; reproduced from Pacheco 1993:14, Figure 1) illustrate these units on a map of Ohio, label each a polity, and also describe them: "Above the scale of individual communities, functionally similar, contiguous communities may form peer polities (Braun 1986) anchored in centrally located public works, such as represented by the Hopewell, Newark, Portsmouth, and Turner earthwork groups, to name a few. These polities are located at the intersection of major physiographic provinces…" (Dancey and Pacheco 1997a: 9–10). "Each community was the principal economic unit of the tradition, and when a community was linked with its neighbors to form a polity…. An additional scale exists at the level of regional groups of peer polities…. It is unlikely that the Hopewell Earthworks functioned at a purely local scale. Instead, the site's importance appears to be more like that of a regional polity center and an interregional transaction center, perhaps even of the kind envisioned by Struever and Houart (1972)." (Pacheco and Dancey 2006:21). Thus, Dancey and Pacheco have related many contiguous earthworks to each other as constituents of a large "polity", but again did not envision a single, small, local symbolic community of dispersed hamlets as possibly including included multiple, functionally differentiated and contemporary earthworks.
11. The West mound, west of the Seip earthwork by a good distance, was probably not a part of the local symbolic community centered around Seip and Baum, or at least not contemporaneous with them. Both Ruhl's (1996:figure 9; Ruhl and Seeman 1998) earspool seriation and radiocarbon dates place the West

mound early in the Middle Woodland period (see Carr, Chapter 15, Chronological Uncertainties in the Scioto-Paint Creek Area).

12. The exercise of assessing the age-sex profile of the Seip-Pricer burial population for whether a representative sample of "a community" was buried there is informative, in spite of the fact that three local symbol communities, rather than one, contributed persons to the cemetery. The result of the age-sex profile study still shows that a representative sample of the local symbolic community situated around the Seip and Baum works was buried at Seip – along with representative samples of the other two local symbolic communities buried there.
13. It is possible that the distinction between mound burial, itself, and disposal without mound burial indicated differences in social rank at some sites and in some times in the Scioto-Paint Creek area, if societies there did exhibit ranking (Carr 2005a:317–319). The issue of ranking remains open.
14. The ten sites for which there is chronological information and that are included in this study are: Baum, Old Town, High Bank, Hopeton, Hopewell, Liberty, Mound City, Seip, Works East, and Anderson. For their chronology, see Ruby et al. (2005:161, figure 4.6), Carr (2005a:305–307), Greber (1983, 2000, 2003), Prufer (1961, 1964a:48–52), Ruhl (1996), and Ruhl and Seeman (1998).
15. For the five earthworks of Seip, Baum, Old Town, Liberty, and Works East, Bernardini calculated the volumes of soil in their enclosure walls. He also estimated the number of person-hours it would have taken to excavate the soils with a digging stick and transport them from the places from where they likely were derived. Knowing from crosscultural data that in societies of middle range complexity around that globe that members of a community are generally willing to offer between 25 and 50 hours of labor per year for public projects without coercive force, Bernardini calculated the numbers of people it would have taken to build each of the five earthworks over ten years. The estimates range between 140 and 400 persons. They are conservative because they do not include the building of charnel buildings or burial mounds, or the dumping and packing of earth. Assuming the very conservative population density of 0.5 people per square kilometer in the Scioto-Paint Creek area allowed the drawing around each earthwork of very conservatively sized catchments from which laborers would have had to have been drawn to build each earthwork.
16. Although the sites of Seip, Baum, Old Town, Works East, and Liberty each have a large square, a large circle, and a small circle, with equivalent elements being similar in area across sites, the proportional size relationships cited above between squares and large circles, and between squares and small circles, are close only for the sites of Old Town and Works East. The diagonals of the squares and the diameters of the large circles of the five sites are respectively as follows: Old Town (1470 feet, 1480 feet), Works East (1480 feet, 1480 feet), Seip (1607 feet, 1530 feet), Liberty (1566 feet, 1700 feet), Baum (1589 feet, 1320 feet). The diameters of the small circles at these sites are: Old Town (720 feet), Works East (760 feet), Seip (750 feet), Liberty (800 feet), Baum (760 feet). The sides of the squares at these sites are: Old Town (ca. 1039 feet), Works East (ca. 1046 feet), Seip (1136 feet), Liberty (1121 feet), Baum (1124 feet). Lengths for the sides of the squares of Old Town, Works East, Seip, and Liberty have been estimated from the lengths of their hypotenuses, as reported by Romain. All of these data are taken from Romain (2000:46–54), who measured them from maps of the sites published by Squier and Davis (1848). Squier and Davis' published measurements can have errors from ground measurements verified today by as much as 10% (W. F. Romain, personal communication, 2005).

    The Hopewell site's enclosure differs in shape from that of the enclosures of the five tripartite earthworks. Its construction was initiated before the planning and building of the five tripartite earthworks (Carr 2005a:305–307). However, Hopewell Mound 25 was altered in its shape, after its raising, in order to incorporate some tripartite symbolism. Specifically, to the central mound that covered its burial clusters were added two smaller mounds on its northeast and southwestern sides (Greber and Ruhl 1989:42), giving it a tripartite form. This form mimics those of the Pricer and the Conjoined mounds at the Seip earthwork and aspects of the Harness mound at the Liberty earthwork. Three clusters of burials under the Pricer mound were each covered by their own mound before being capped with a joining gravel layer and subsequent layers into one mound (Greber 1979a:41). The three sections of the charnel house under the Conjoined mound were each covered with a mound, and the mounds overlapped, forming one trilobate mound that was never capped. For the Edwin Harness mound, a submound was built over the middle cluster of burials, but it is not known whether two other submounds over the remaining two clusters were also built (Greber 1979b:28). However, three stone circles were constructed at a higher level of the mound, apparently over the three burial clusters.
17. A visual comparison of the shapes of the pattern of posts that formed the charnel house under the Edwin Harness mound to the pattern of graves within the charnel house under the Pricer mound has been presented by Greber (1983:88, figure 10.1). They are nearly identical. The sizes of the two charnel houses are not the same, contrary to what one might be led to believe from this figure, its caption, and associated text (Greber 1983:87). The posts under Edwin Harness mound form a charnel house approximately 136 feet in length, per Greber (1983:17, figure 2.4; scale is not specified but is in meters). The graves and platforms under the Pricer mound form a pattern approximately 160–162 feet long, per two maps by

Greber (1983:88, figure 1; 1979a:65, figure 6, respectively). This difference in the lengths of the two charnel houses is reflected in the lengths of the mounds that covered them. The Edwin Harness Mound was approximately 160 feet long (Putnam 1885; Squier and Davis 1848:56), whereas the Pricer mound was about 250 feet long (Shetrone and Greenman 1931:354).

18. From the Baum earthworks in main Paint Creek valley to its confluence with the North Fork of Paint Creek valley is about 17 river kilometers. From the Hopewell earthworks in the North Fork of Paint Creek valley to its confluence with main Paint Creek is 9.2 river kilometers. From the confluence of Paint Creek valley and its North Fork to the Scioto valley is another 11 river kilometers, and from there to Works East is an additional 4 kilometers, totaling 15 kilometers. See also Chapter 15, Note 31.
19. The probability is a good one. The three conjoined mounds at Old Town resemble the three lobes of the Seip-Conjoined mound over its tripartite charnel house, the three primary mounds of the Seip-Pricer mound over its three groups of burials, the three lobes of Hopewell Mound 25, and the three stone circles of the Edwin Harness mound over its tripartite charnel house.
20. The specifics of these patterns that indicate each cluster of burials to have been constituted by members of a community, rather than some other one kind of social unit, are as follows. Each cluster has persons of a range of leadership roles, sodalities, clans, and prestige, as one would expect of a community. In the Pricer mound, for example, each lobe has society-wide leaders marked by copper headplates, copper celts, and/or conch shell cups, sodality leaders or persons of high achievement within sodalities marked by copper breastplates and earspools, and other ceremonial leaders of importance. All three of the burial clusters had adults, subadults, and both sexes, as communities have. Variations among the clusters under each of the Pricer mound, Edwin Harness mound, and Hopewell Mound 25 are also indicative of their representing communities. Under Pricer, members of specific clans, marked by pendants made of the power parts of their animal eponyms or totems, were sometimes buried in all three burial clusters (feline, bear clans), sometimes in one or two burial clusters (other clans) – in accord with the expectation that clans can be localized within a community, dispersed among communities, or both. Also, under the Pricer mound, the burial cluster with the greatest number of deceased persons, which apparently represents the largest of the three local symbolic communities, had the greatest diversity of clans, as expected. Under each of the Pricer mound, Edwin Harness Mound, and Hopewell Mound 25, burial clusters with more persons had higher proportions of persons buried with prestigious goods, in line with the expectation that larger communities would have been wealthier because they had bigger labor pools for acquiring material resources and for organizing public efforts, as well as more potential mates. This positive correlation between burial cluster size and wealth across burial clusters in a mound is the inverse of the pyramidal distribution of wealth expected if different burial clusters had represented different rank groups. In that case, higher rank groups would have been represented by burial clusters with fewer individuals yet more wealth. Finally, under the Pricer mound, the particular balances of adults to subadults and of males to females apparently varied significantly from burial cluster to burial cluster. This diversity is not what would expect among different social segments such as lineages or clans within a community, where rules about who should be buried where – within a charnel house or elsewhere – should have been similar among closely interacting social groups. In contrast, different communities might have varied significantly in their rules of burial, particularly in the case of a community burying some of its dead in a charnel house of a different community.
21. At the Hopewell site, in the large Mounds 25 and 23, 75.5% and 93.8% of their deceased persons were inhumed, respectively. Seven of fifteens other, excavated smaller mounds had only inhumations, and an additional five had between 54.5% and 66.7% inhumations. Only three small mounds with four persons total had just cremations. In contrast, deceased persons at the Seip-Pricer, Seip-Conjoined, Edwin Harness, and Ater mounds were primarily cremated. Inhumations constituted only 8.9%, 10.4%, 6.2%, and 13.3%, respectively, of the burials in these mounds. For detailed information on the association of inhumation with various material symbols of important social roles, see Carr (2005a: 279–280).
22. Here, I use the term "polity" for a unit integrated and defined territorially by political institutions and processes – that is, a state, a chiefdom, and divine and secular kingdoms. This meaning fits closely to the meaning of the term "polity" in common parlance. According to Webster, a polity is "a particular form or system of government", "a state or other organized community or body", "the condition of being constituted as a state or other organized community or body", and "government or administrative regulation".
23. The conclusion drawn here, that the three local symbolic communities did not constitute a formal "polity", differs from a characterization made by Pacheco and Dancey (2006:17, figure 1.6; reproduced from Pacheco 1993:14, figure 1). They have grouped together all earthworks in the Scioto-Paint Creek area, based on their geographic clustering there, and identified them a "polity". Dancey and Pacheco also defined other Hopewell "polities" elsewhere in Ohio, based solely on clustering of earthworks in those regions.

    Dancey and Pacheco's reconstruction of the Ohio Hopewell sociopolitical landscape is misleading in two ways. First, the word "polity" denotates state, chiefly, or kingly-level organization and centralized political administration. See the previous Note. The three local symbolic communities in the Scioto Paint

Creek area who buried their dead together were clearly not organized in any of these ways. Dancey and Pacheco follow Renfrew and Cherry's (1986) broad-sweeping and sociologically muddled definition of a polity. Second, the polities that Dancey and Pacheco define are not drawn sharply enough, with chronological evidence of the contemporaneity of the earthworks they use to delimit a polity and with sociological evidence of the forms of relationships and interactions that joined together the communities within a polity. Thus, for example, the "polity" that Dancey and Pacheco define for the Scioto-Paint Creek area includes all earthworks in the entire region, rather than just those that were used contemporaneously in one time plane and by communities joined together by specific, documented means. Dancey and Pacheco's Scioto-Paint Creek polity is defined much too large for any single time plane in the Middle Woodland period.

24. The symbolizing of both the cosmos and the three local symbolic communities by the trilobate copper geometric from Hopewell Mound 25 may have been achieved in additional ways, beyond the geometric's round outline and three lobes. Each lobe may have represented two bird's heads, facing outward from one another and with a common eye, and circling the cosmos. Circling birds of the cosmos are found in other round, copper geometrics (e.g., figures 4.17C, D), and birds are commonly represented in Ohio Hopewell art, generally. Further, the possible bird symbolism for the three communities may have recalled their conception of the three river valleys in which they were located as the three forward talons of a single bird's foot – main Paint Creek valley, the North Fork of Paint Creek valley, and the Scioto valley north of Chillicothe. The section of the Scioto valley south of Chillicothe would have constituted the bird's foot rear talon. These additional, possible symbolic meanings are conjectural, and offered here as food for further thought and research.
25. The large charnel house that may have existed and been covered by the Carriage Factory mound (Moorehead 1898–1899:126–132) was possibly used around the same time or somewhat earlier than the charnel house buried under the Tremper mound. See (Chapter 15, Chronology, and Its Implications for Defining Communities and Community Organization).
26. The short duration of use of the charnel house at Tremper is evidenced by the crisp spatial distribution of human remains and artifacts on its floor, yet the lack of any evidence that the charnel building had a roof to protect the integrity of its contents. Had the charnel house been used over the course of a number of years, rain and snow melt would have disturbed the clarity of the spatial distribution of human remains and artifacts.

    It does not seem likely that the lack of evidence of a roof for the charnel house results from preservation problems. Readily decomposable and combustible twigs and limbs woven among the large posts of the charnel house to create its wall-screens were recovered (Mills 1916:274).
27. The Seal earthwork fifteen miles north of Tremper, with its square-and-circle form, probably dates to a little later in the Middle Woodland than Tremper, perhaps on the time plane of Hopeton and Mound City. The Portsmouth earthwork complex three miles south of Tremper, with its causeways, recalls architectural forms that first appeared later in the Middle Woodland Period than Tremper.

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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