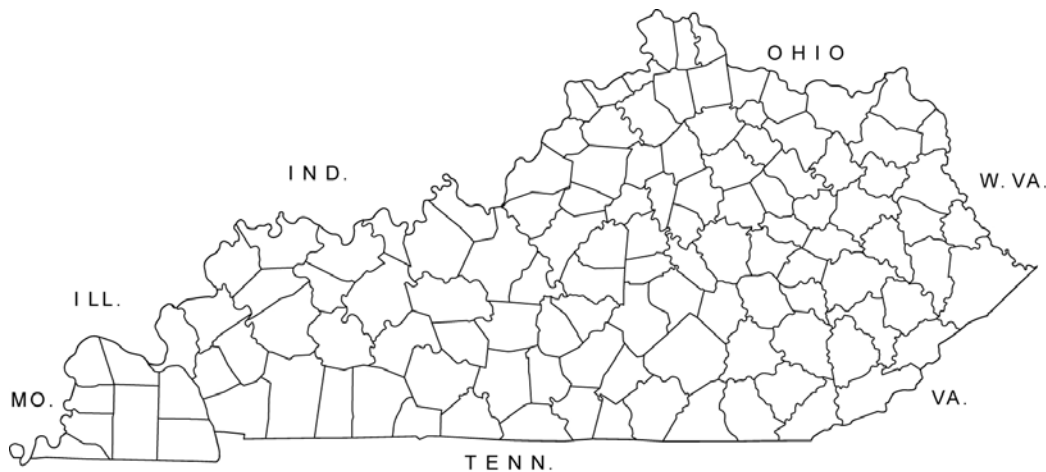


THE ARCHAEOLOGY OF KENTUCKY: AN UPDATE

VOLUME TWO



Edited
by
David Pollack

Kentucky Heritage Council
State Historic Preservation Comprehensive
Plan Report No. 3

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Kentucky Heritage Council

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CHAPTER 6: MISSISSIPPI PERIOD

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INTRODUCTION

In this chapter, the Mississippi period is treated both as a unit of archaeological time, spanning roughly A.D. 1000-1700, and as a unit of cultural similarity, the Mississippian “cultural tradition.” As such, this chapter’s geographical scope is restricted to the Purchase, the Green River, and the Upper Cumberland management areas and a portion of the Salt River Management Area. Contemporary sites located in the central and northeastern portions of the Commonwealth have been classified as Fort Ancient and are described in the next chapter.

Mississippian groups throughout the Southeast, including those in Kentucky, shared an economy based on hunting; the cultivation of maize, squash and native plants; and the collection of wild plants (Edging 1995; Rossen and Edging 1987; Schurr 1992, 1998; Sussenbach 1993). The Mississippian settlement system consisted of a hierarchy of habitation sites, the most archaeologically visible of which represent the remains of planned administrative centers that featured plazas flanked by substructure mounds (Lewis et al. 1998). Other Mississippian site types consisted of large villages, small villages, hamlets, farmsteads, and cemeteries (Green and Munson 1978; Muller 1978, 1986; Pollack 1998, 2004). The political organization of Mississippian society has been characterized as that of a chiefdom (Service 1971), and Mississippian groups shared a basic iconography (Brown 1985).

Historically, the concept of “Mississippian” has changed as archaeologists have developed new research interests (Cobb 2003). In the 1930s, “Mississippian” was defined largely on the basis of material culture similarities (Griffin 1985:50-51). This definition strongly reflected the culture historical approach that dominated American archaeology during the era that Willey and Sabloff (1980) call the “Classificatory-Historical period” (1914-1960). With the broadening of archaeological research interests in the 1960s (the beginning of Willey and Sabloff’s “Explanatory period”), the definition of “Mississippian” shifted toward a greater emphasis on the cultural adaptations that could be inferred from archaeological remains (e.g., Griffin 1967; Smith 1978, 1984, 1985).

As with Mississippian societies located throughout the Southeast, western and southeastern Kentucky polities were probably the product of the various social and

¹ Adapted from Lewis 1990

subsistence needs of a regional population. Access to wild resources, changes in the organization of labor that accompanied intensification of maize cultivation, and social integration are all factors that may have contributed to the spatial distribution and interrelationships of settlements associated with these polities (Blitz 1993a:123). The leaders of these societies may have used information and goods (e.g., nonlocal cherts, marine shell, and copper) obtained through exchange relationships with neighboring elites to perform ceremonies that were designed to legitimize and maintain their positions within their respective societies. Through their relationships with Mississippian elites in other regions, leaders of these societies would have been able to obtain not only nonlocal goods, but also knowledge about the world around them that was not available to others (Helms 1979). Nonlocal goods, such as galena or marine shell beads, obtained through intersocietal exchange relationships with other Mississippian elites also may have had religious, political, or economic significance within Kentucky Mississippian societies.

The social integration of the families that comprised a regional polity would have required a certain level of coordination of rituals that legitimized an elite's position. By linking formal leadership institutions to group rituals and ceremonies held on or near a platform mound, local elites may have sought to further validate their positions. Throughout the year, they may have organized and conducted rituals and ceremonies important to maintaining their positions within society. If this was the case, then regional administrative centers would have been the focus of economic, political, religious, and ceremonial life for households residing at the center and at nearby settlements.

ORIGIN AND DEMISE OF MISSISSIPPIAN

Although archaeologists can identify with relative confidence what is or is not “Mississippian” in a given region, the temporal parameters of regional Mississippian occupations can seldom be determined with the same degree of confidence. This often reflects the level of work conducted in a region and the difficulties archaeologists have documenting transitions in the archaeological record. For the purposes of this chapter, the beginning of the Mississippi period in Kentucky has been set at A.D. 1000. Some researchers may disagree with the choice of this temporal cutpoint, claiming that they can cite examples of “Mississippian” materials from slightly earlier contexts. Others may argue that the Mississippi period post-dates A.D. 1000 in some regions, noting that some “Late Woodland” archaeological manifestations, such as Yankeetown (see Chapter 5), continued into the early twelfth century. While it is certainly recognized that Mississippian polities were not established simultaneously throughout western and southeastern Kentucky, for the purposes of this chapter, it was necessary to select an arbitrary starting point that could then be used to compare and contrast developments in different management areas and sections.

The factors that led to the rise and decline of Mississippian chiefdoms remain poorly understood. Clearly the rise is tied to an increased reliance on domesticated crops, and to maize in particular. The establishment of Mississippian polities also is tied to changes in the power and prestige that occurred with the establishment of an elite class. While archaeologists have debated the degree of authority local elites had over regional

populations (Milner 2006; Muller 1997, 1998; Pauketat 1994), all would agree that leaders of Mississippian societies had more power and prestige than earlier Late Woodland leaders.

Mississippian chiefdoms, in Kentucky and elsewhere, did not develop or exist in isolation from their neighbors. They appear to have developed over a very broad area at about the same time, which points to some level of extraregional interaction among these various polities (Smith 1990). As competing aspiring elites gained power and prestige, they may have been linked to each other economically, through exchange and interaction networks, and politically, through alliances.

Some of the best evidence for Mississippian elites' involvement in a wider Mississippian economy/interaction sphere comes from ceramic vessels: in particular, Ramey Incised ceramics (Pauketat and Emerson 1991) and Angel Negative Painted vessels (Hilgeman 1992). In Kentucky, both ceramic types account for less than 0.1 percent of site ceramic assemblages. The widespread occurrence of small quantities of Ramey Incised pottery within ceramic collections throughout the Midwest suggests these vessels may have been highly charged religious or cultural items, their symbols representing an ideology that involved the elites' interpretation of the cosmos and their communication of that interpretation to nonelite subgroups (Pauketat and Emerson 1991:935). Likewise, the presence of Southern Cult motifs on Angel Negative Painted ceramics (Hilgeman 1992, 2001) reflects regional elites' participation in Mississippian religion and cosmology. This interaction would have given elites access to information and esoteric knowledge that they then could use to validate their positions within their respective societies (Cobb 2003; Hall 1991; Helms 1979; Knight 1986; Schortman and Urban 1992; Welch 1991).

Access to nonlocal goods through participation in a Mississippian prestige goods economy/interaction sphere also may have played an important role in the development and maintenance of regional elites (Brown et al. 1990; Steponaitis 1991; Welch 1991). By controlling and regulating access to these goods (e.g., objects manufactured from marine shell and copper, and high-quality Dover and Mill Creek cherts), local elites would have enhanced their power and prestige within their region (Brown et al. 1990; Frankenstein and Rowlands 1978; Peregrine 1992; Smith 1986; Steponaitis 1986; Welch 1991). These goods also would have assumed meaning as social valuables within Mississippian societies (McGuire 1989:49).

While participation in extraregional interaction spheres may have led to the rise of Mississippian polities, it did not ensure their longevity. Throughout Kentucky and the Southeast, archaeologists have documented that many were short-lived. As a result of factionalism and elite competition, most administrative centers were occupied for only 50 to 150 years before they were replaced by another administrative center (Cobb 2003). This process has been referred to as the cycling of chiefly power (Anderson 1994), and indicates that Mississippian polities, like chiefdoms in general, were not very stable (Anderson 1994; Blitz 1999; Clay 1997; Cobb 2003; Hally 1996). It also led to the relocation of Mississippian households from floodplain localities to interior upland settings (Butler and Cobb 2004).

Factionalism and elite competition did not always lead to the establishment of a new administrative center. By the end of the fourteenth century, environmental and

cultural factors (see below) led to the collapse of many regional polities, with the local populations dispersing to smaller, less intensively occupied settlements that have low archaeological visibility, or relocating to another region. This process led to the abandonment of administrative mound centers and associated communities throughout most of western and southeastern Kentucky, as well as other areas in adjoining states. Many of these regions were included in what has become known as the “Vacant Quarter” (Cobb and Butler 2002; Williams 1990). The exception to this pattern is the Angel to Caborn-Welborn transition. Following the collapse of the Angel chiefdom, the local population relocated slightly downstream and continued to live in large villages in a 60 km-long area that was centered on the mouth of the Wabash River (Green and Munson 1978; Pollack 1998, 2004; see Ohio River II Section).

Understanding the factors and processes involved in the collapse of individual regional Mississippian chiefdoms, as well as the widespread post-A.D. 1400 collapse of Mississippian polities throughout most of Kentucky, is important to developing an understanding of how these populations reacted to social and environment stress. Archaeologists have identified a variety of factors that may have contributed to the collapse of regional Mississippian polities (Edging 1995; Green and Munson 1978; Hall 1991; Muller 1986; Rindos and Johannessen 1991; Williams 1990). One line of thought is that changes in climate patterns (Little Ice Age), environmental degradation, drought, resource depletion, and/or soil exhaustion led to a decline in agricultural yields, which undermined faith in the ability of the elite to govern (Green and Munson 1978; Muller 1986; Rindos and Johannessen 1991; Williams 1990). Others (Hall 1991; Muller 1986) have suggested that the introduction of new varieties of maize and beans may have improved yields and reduced subsistence risk, which allowed greater household autonomy and also undermined the power of the elite.

While changes in environmental conditions and the reduction of agricultural yields may have contributed to the demise of a single chiefdom, it remains to be demonstrated whether these factors led to the widespread and contemporary collapse of regional Mississippian polities throughout the Vacant Quarter (Williams 1990). In attempting to explain the collapse of regional chiefdoms, another factor that has been considered is the extent to which changes in external relationships may have affected regional elites (Pollack 2004). Disruption of Mississippian interaction spheres and access to prestige goods and esoteric knowledge may have undermined local elites’ positions within their respective societies. Without the goods they needed to validate their positions in society, local elites may have been unable to withstand challenges to their authority, which ultimately led to their demise.

In the Caborn-Welborn region (Ohio River II Section) and in far southwestern Kentucky (Mississippi River Section), Mississippian sites were occupied well into the 1600s. The collapse of these societies and the subsequent abandonment of their respective settlements and regions are tied to Euro-American exploration and settlement of the Ohio and Mississippi river valleys, and the disruption of indigenous exchange networks.

DISTRIBUTION OF MISSISSIPPIAN SITES

Mississippian sites have been documented in the Purchase, Green River, Upper Cumberland, and Salt River management areas (Figure 6.1). Since 1987, the number of recorded Mississippian sites has grown from 289 to 1,327 (Table 6.1). Much of this growth is the result of cultural resource management surveys undertaken throughout the state. During the last 20 years, however, there also have been several research projects that targeted Mississippian sites (e.g., Jefferies 1995, 1996; Jefferies et al. 1996, 2000; Pollack 1998, 2004). The most dramatic increase in site recordation occurred in the Upper Cumberland Management Area, where the number of Mississippian sites increased from 13 to 263.

Table 6.1. Site Type by Management Area.

Site Types	Purchase		Green River		Salt River		Upper Cumberland		Total	Pct
Open Habitation w/o Mounds	226	76.3	469	77.5	154	94.5	95	36.1	942	71.0
Rockshelter	6	2.0	53	8.8	3	1.8	145	55.1	207	15.6
Cave			7	1.2			3	1.1	10	0.8
Quarry			2	0.3			1	0.4	3	0.2
Stone Mound			2	0.3			2	0.8	4	0.3
Earth Mound	11	3.7	19	3.1	1	0.6			31	2.3
Mound Complex	5	1.7	10	1.7	1	0.6			16	1.2
Petroglyph/ Pictograph			2	0.3			1	0.4	3	0.2
Workshop	2	0.7			1	0.6	2	0.8	5	0.4
Isolated Burial	1	0.3	1	0.2			6	2.3	8	0.6
Cemetery	21	7.1	21	3.5	2	1.2	2	0.8	46	3.5
Other Special Activity Area			1	0.2	1	0.6	2	0.8	4	0.3
Open Habitation With Mounds	24	8.1	18	3.0			6	2.3	48	3.6
Total	296	100.0	605	100.0	163	100.0	263	100.0	1,327	100.0
Percent	22.3		45.6		12.3		19.8		100.0	
Prior to 1987	82		162		32		13		289	
Percent	28.4		56.1		11.1		4.5		100.0	

Sites classified as open habitations without mounds range from farmsteads to large villages. They make up almost 70 percent of all recorded Mississippian sites in Kentucky, but in the Upper Cumberland Management Area, they account for only 36.1 percent of the sites. This is due to the large number of rockshelter sites documented in this management area. In the Upper Cumberland Management Area, rockshelters may have served some of the same functions as farmsteads, but also may have been used as hunting camps.

Sites classified as open habitations with mounds range from large administrative centers with multiple mounds that cover several hectares, to smaller, single-mound centers

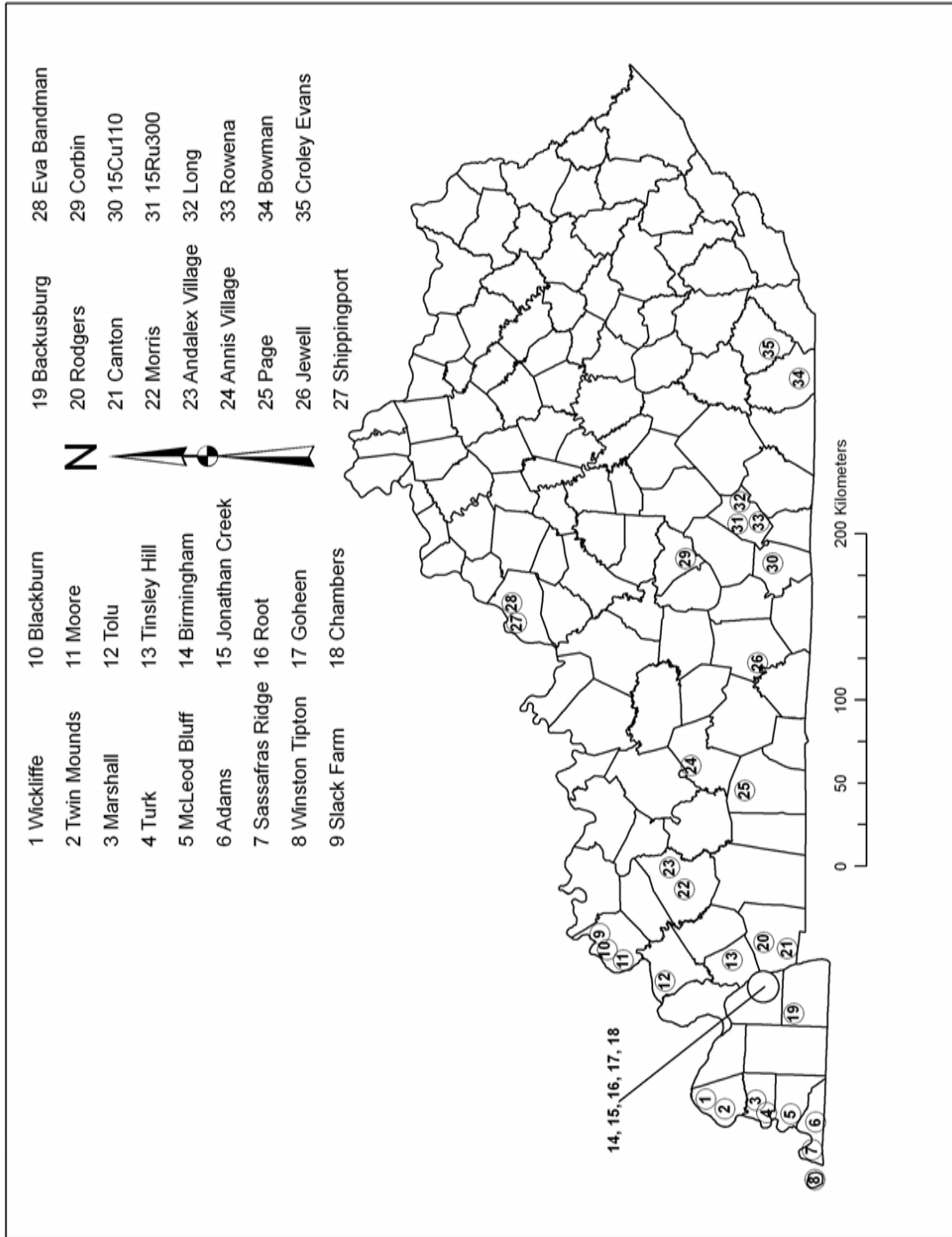


Figure 6.1. Important Mississippian Sites.

that encompass less than a hectare. Half of these sites are located in the Purchase Management Area, with the remaining examples located in the Green River and Upper Cumberland management areas. None were documented in the Salt River Management Area, but they are known to have been present in Jefferson County (Bader 2003) and at the Prather site, a well-known Mississippian regional mound center located across the Ohio River in Indiana (Munson et al. 2006). In general, larger centers are located along major rivers in the Purchase Management Area. Smaller centers are located in the other management areas, with the smallest examples being located along tributaries of the Green River and along the Upper Cumberland River.

PURCHASE (MANAGEMENT AREA 1)

MISSISSIPPI RIVER SECTION

Previous Archaeological Research

The earliest information concerning a Mississippian site in this section is Rafinesque's (1824:34) mention of a site near Hickman that contained a mound measuring 135 m in length, 9 m in width, and having a height of 3 m. Funkhouser and Webb (1932:131) incorrectly identified the site as Adams (15Fu4), a major Mississippi period administrative center in Fulton County. The real location of this site, if it still exists, is not known, but the O'Byams Fort site (15Fu37) is a likely possibility.

Beyond its distinction as the earliest archaeological reference in the region, the Rafinesque report contributed little to the study of the Mississippi period in this section. The first publications of lasting utility did not appear until the final decades of the 1800s. Foremost among these is Loughridge's (1888:173-195) monograph on the geography and geology of the Purchase Management Area, which also contained a chapter on archaeology. Loughridge published the first, and until recently, only, maps of the major Mississippian mound groups in this section. He also reported measurements of mounds and intrasite dimensions that have proved to be reasonably accurate when field verified nearly 100 years later.

Concurrent with the Loughridge study, but apparently not aware of it, the Bureau of American Ethnology's survey of mound sites in the eastern United States yielded only a sketch map and description of the McLeod Bluff site (15Hi1) in Hickman County (Thomas 1894:279-283). C. B. Moore's (1916:493-508) visit to this region a few decades later also generated little information on Mississippian sites. Moore conducted excavations of an as-yet-undetermined scale at several major Mississippian sites in this section, including Sassafras Ridge (15Fu3) and Turk (15Ce6). The sketchy report published on this work suggests that the sites didn't meet Moore's expectations. In the 1930s, Webb and Funkhouser (1933) returned to McLeod Bluff, where he noted the presence of a platform mound, a cemetery, and associated habitation area.

Few archaeological studies were conducted in this section between the end of World War II and the mid-1980s. The basic framework for the regional temporal sequence of this section, however, was constructed between 1950 and 1975, based on archaeological investigations conducted across the Mississippi River in the Cairo Lowland of Missouri (Lewis 1982; Williams 1968, 1972, 1974; Williams 1954). Subsequent work conducted by Murray State University and the University of Illinois in the 1980s and 1990s at archaeological sites in Kentucky sites led to substantial refinement of this sequence (Kreisa 1988b; Lewis 1986, 1990b, 1991; Sussenbach and Lewis 1987; Wesler 1985, 1988a, 1991a, 1992, 2001).

Though Wickliffe is located in the Ohio River I Section, it is situated near the northern edge of the Jackson Purchase Section, and any chronology developed for this site

would have relevance for Mississippian sites located in nearby Carlisle County. Since Wickliffe is located in the Ohio River I Section, work conducted at that site is described in the next section.

From the mid-1980s continuing into the early 1990s, archaeologists from the University of Illinois undertook a long-term study of Mississippian regional centers in this section. To date, investigations as part of this program have been conducted at the following mound centers: Adams, Sassafra Ridge, and Turk (Allen 1984; Dunavan 1985; Edging 1985, 1995; Kreisa 1991b; Lewis 1986; Lewis and Mackin 1984; Stout 1984a, 1984b, 1985, 1991). Several hamlets and villages, such as Burcham (15Hi15), Site 15Fu16, and Marshall (15Ce27), also have been investigated (Kreisa 1988b; Sussenbach and Lewis 1987).

In 2003, Trader (2003) undertook a controlled surface collection and limited investigation of the Winston Tipton site (15Fu119), a hamlet located in extreme southwestern Fulton County. Otherwise, little Mississippi period research was conducted in this section during the 1990s and the early years of the twenty-first century.

Important sites recorded in this section are listed in Table 6.2.

Chronology

In the mid-1980s, two competing chronologies were proposed for the Mississippi River Section. One was based on the work of the University of Illinois and was section-wide in scope. The other was based on Murray State University's work. Though specific to the Wickliffe site (Wesler 2001), the chronological sequence developed for this site may be applicable to sites located in nearby northern Carlisle County (since Ballard County is located in the Ohio River I Section, Wesler's Wickliffe sequence is described in that section).

The phase sequence proposed by Lewis (1990b, 1996) was intended to replace the Cairo Lowland phase (Phillips 1970:925; Williams 1954), which had become nothing more than a synonym for the Mississippi period in this region. Lewis' sequence improved considerably on the Cairo Lowland phase by incorporating the results of several decades of research, and by its division of the Mississippi period into four new phases, each of which is two centuries in duration. The choice of a 200-year phase interval reflects the limitations of radiocarbon dating, which presently has a maximum precision of roughly 100-200 years. Phase cutpoints are set at the beginning of every other century encompassed by the Mississippi period in order to: underscore the primarily temporal nature of these units; to dispel possible illusions of chronometric accuracy where little may sometimes exist; and to serve as a continual reminder that phases do not necessarily reflect an underlying prehistoric cultural reality. The alternative procedure would have been to assign cutpoints as precisely as possible. Other researchers, for example, might have chosen to set the beginning of the Jackson phase at about A.D. 1550 when Euro-American artifacts began to occur in the interior Southeast. Although this approach has its merits, chronometric tools that can produce dates with that level of accuracy are not yet available.

Table 6.2. Important Sites: Mississippi River Section.

Site No.	Site Name	Site Type	References
15Ce6	Turk	Open habitation w/mounds	Edging 1985
15Ce27	Marshall	Open habitation w/mounds	Sussenbach and Lewis 1987
15Fu3	Sassafras Ridge	Open habitation w/mounds	Lewis 1986
15Fu4	Adams	Open habitation w/mounds	Lewis 1986
15Fu11		Open habitation w/o mounds	Kreisa 1988a
15Fu16		Open habitation w/mound?	Kreisa 1988b
15Fu17		Open habitation w/mound?	Kreisa 1988b
15Fu18		Open habitation w/o mounds	Kreisa 1988b
15Fu19		Open habitation w/o mounds	Kreisa 1988a
15Fu20	Glidewell	Open habitation w/o mounds	Kreisa 1988b
15Fu24	White	Open habitation w/o mounds	Sussenbach and Lewis 1987
15Fu45	Stahr Hill	Open habitation w/mounds	Carstens 1982
15Fu67	Running Slough	Open habitation w/o mounds	Railey 1985d
15Fu115		Open habitation w/o mounds	Kreisa 1988a
15Fu119	Winston Tipton	Open habitation w/o mounds	Trader 2003
15Hi1	McLeod Bluff	Open habitation w/mounds	Webb and Funkhouser 1933
15Hi14		Open habitation w/o mounds	Kreisa 1988b
15Hi15	Burcham	Open habitation w/o mounds	Kreisa 1988b

James Bayou Phase (A.D. 900-1100)

Many cultural changes that are widely characterized as “Mississippian” (Griffin 1985), including the major elements of a regional settlement hierarchy, were present in this section by the end of the Late Woodland period. To highlight what they view as important culture changes that occurred across most of the eastern United States at roughly this time, some researchers (e.g., Bareis and Porter 1984; Kelly 1990) have assigned this temporal unit to the “Emergent Mississippian” period. This concept will not be used in this chapter, since it only serves to solidify the stage-like qualities of existing chronological frameworks.

The Marshall site, a large village situated on the Mississippi Valley bluffs in northwestern Carlisle County, is one of the few large James Bayou communities that has been excavated (Sussenbach and Lewis 1987). In addition, unlike most other major James Bayou settlements, which were continuously occupied throughout much of the Mississippi period, the primary settlement locus of the Marshall site community appears to have shifted a few hundred meters south to the next bluff spur (the Turk site) during the Dorena phase. As a result, the large, thick James Bayou phase midden at Marshall was not greatly disturbed by centuries of subsequent occupation at the same site locus.

Investigation of the Marshall site demonstrated that it contains evidence of occupations that span the James Bayou and Dorena phases (roughly A.D. 900-1300) (Table 6.3). There is evidence of mounds and other earthworks (Sussenbach and Lewis 1987), but the nature and age of these features are largely unknown. Wall-trench structures and buildings with individually-set wall posts, both of which were constructed in shallow basins, have been partially excavated at this site. Here, as elsewhere in the Purchase Management Area, there is a gradual change in domestic architecture: from walls comprised of single-set posts to walls formed by posts set in narrow trenches or footings. None of the examined house floors show evidence of interior hearths.

Table 6.3: Purchase Management Area Radiocarbon Dates.

Lab No.	Age (B.P.)	Calibrated Date* (2-sigma)	References
Mississippi River			
Turk (15Ce6)			
ISGS-1288	710±90	AD 1058-1073, 1154-1422	Edging 1985:15
ISGS-1289	700±70	AD 1208-1410	Edging 1985:15
ISGS-1323	910±70	AD 1016-1259	Edging 1985:15
ISGS-1324	710±70	AD 1186-1201, 1206-1406	Edging 1985:18
ISGS-1724	490±70	AD 1297-1373, 1377-1522, 1574-1626	Edging 1990
ISGS-1725	630±70	AD 1268-1425	Edging 1990
ISGS-1734	630±70	AD 1268-1425	Edging 1990
ISGS-1735	590±120	AD 1190-1196, 1207-1525, 1557-1631	Edging 1990
ISGS-1736	1090±150	AD 662-1216	Edging 1990
Marshall (15Ce27)			
ISGS-1435	910±70	AD 1016-1259	Sussenbach and Lewis 1987
ISGS-1504	1160±70	AD 691-749, 763-999, 1002-1013	Sussenbach and Lewis 1987
ISGS-1505	900±70	AD 1020-1258	Sussenbach and Lewis 1987
ISGS-1507	790±70	AD 1043-1104, 1118-1302, 1367-1382	Sussenbach and Lewis 1987
Sassafras Ridge (15Fu3)			
ISGS-1142	660±80	AD 1222-1422	Lewis 1986:156
Adams (15Fu4)			
ISGS-1141	610±70	AD 1277-1430	Lewis 1986:156
ISGS-1149	700±70	AD 1208-1410	Lewis 1986:156
ISGS-1150	820±70	AD 1040-1110, 1115-1285	Lewis 1986:156
ISGS-1151	610±70	AD 1277-1430	Lewis 1986:156
ISGS-1161	900±70	AD 1020-1258	Lewis 1986:156
ISGS-1172	810±80	AD 1030-1297, 1373-1377	Lewis 1986:156
Running Slough (15Fu67)			
ISGS-1618	930±90	AD 902-916, 968-1270	Wolforth n.d. (cited in Sussenbach 1993:46)
ISGS-1597	890±90	AD 994-1276	Wolforth n.d. (cited in Sussenbach 1993:46)
White (15Fu24)			
ISGS-1543	640±70	AD 1262-1424	Sussenbach and Lewis 1987
ISGS-1544	560±70	AD 1287-1446	Sussenbach and Lewis 1987
Burcham (15Hi15)			
ISGS-1647	530±70	AD 1286-1481	Kreisa 1988b:101
ISGS-1648	650±70	AD 1254-1425	Kreisa 1988b:104
ISGS-1651	640±70	AD 1262-1424	Kreisa 1988b:104
Ohio River I			
Twin Mounds (15Ba2) (see Chapter 5)			
ISGS-1706	630±70	AD 1268-1425	Kreisa 1988b:49
ISGS-1708	770±70	AD 1047-1089, 1122-1139, 1149-1317, 1353-1390	Kreisa 1988b:49
Wickliffe (15Ba4)			
ISGS-1143	830±70	AD 1040-1112, 1115-1281	Lewis 1986:156
ISGS-1152	760±70	AD 1050-1083, 1125-1136, 1151-1322, 1347-1392	Lewis 1986:156

Table 6.3. Continued.

Lab No.	Age (B.P.)	Calibrated Date* (2-sigma)	References
ISGS-1156	765±76	AD 1046-1092, 1120-1140, 1148-1323, 1346-1393	Lewis 1991:285
ISGS-1171	720±70	AD 1177-1400	Lewis 1986:156
Beta-12529	520±70	AD 1287-1493, 1602-1613	Wesler 2001:84
Beta-25218	920±60	AD 1015-1226, 1233-1240, 1248-1251	Wesler 2001:84
Beta-25217	1030±60	AD 890-1155	Wesler 2001:84
Beta-25216	430±650	AD 352-367, 380-1955	Wesler 2001:84
Beta-31520	620±50	AD 1284-1410	Wesler 2001:84
Beta-31833	1060±70	AD 875-1046, 1090-1121, 1139-1149	Wesler 2001:84
Beta-25911	770±60	AD 1054-1078, 1153-1309, 1361-1386	Wesler 2001:84
Beta-25219	740±70	AD 1157-1333, 1336-1398	Wesler 2001:84
Beta-25220	730±50	AD 1209-1319, 1352-1390	Wesler 2001:84
Beta-27506	750±60	AD 1160-1316, 1354-1389	Wesler 2001:84
Beta-27507	580±60	AD 1290-1432	Wesler 2001:84
Beta-33584	760±80	AD 1046-1092, 1120-1140, 1148-1328, 1341-1395	Wesler 2001:84
Beta-33585	760±90	AD 1044-1102, 1118-1143, 1146-1331, 1338-1397	Wesler 2001:84
AA-31218	965±45	AD 990-1170	Matternes 2007:17
AA-31219	745±50	AD 1182-1308, 1362-1386	Matternes 2007:17
AA-31220	825±50	AD 1047-1088, 1122-1139, 1149-1280	Matternes 2007:17
AA-31221	1015±50	AD 898-921, 944-1155	Matternes 2007:17
AA-31222	880±50	AD 1034-1252	Matternes 2007:17
AA-31223	770±40	AD 1186-1202, 1205-1289	Matternes 2007:17
AA-31224	810±45	AD 1058-1074, 1154-1282	Matternes 2007:17
AA-31225	995±50	AD 899-918, 964-165	Matternes 2007:17
AA-31226	745±60	AD 1162-1318, 1352-1390	Matternes 2007:17
AA-31228	725±55	AD 1189-1197, 1207-1324, 1345-1393	Matternes 2007:17
AA-31229	815±55	AD 1047-1090, 1121-1139, 1149-1284	Matternes 2007:17
AA-31230	865±55	AD 1039-1261	Matternes 2007:17
AA-31231	850±55	AD 1042-1107, 1117-1269	Matternes 2007:17
AA-31232	715±50	AD 1217-1321, 1349-1391	Matternes 2007:17
AA-31233	670±50	AD 1265-1399	Matternes 2007:17
Chestnut Lake (15Lv222)			
Beta-177944	530±50	AD 1302-1366, 1383-1448	Herndon 2003:22
Beta-177945	620±50	AD 1284-1410	Herndon 2003:22
Steam (15McN24)			
UGa-3574	490±85	AD 1294-1526, 1556-1632	Butler et al. 1981:91
UGa-3575	550±65	AD 1292-1446	Butler et al. 1981:91
Site 15McN38			
UGa-3573	235±70	AD 1483-1707, 1719-1826, 1832-1886, 1912-1953	Butler et al. 1981:48
Crawford Lake (15McN18)			
ISGS-2152	550±220	1024-1697, 1725-1814, 1835-1877, 1917-1952	Mehrer 1991:64

Table 6.3. Continued.

Lab No.	Age (B.P.)	Calibrated Date* (2-sigma)	References
Reed (15McN51)			
Na	740±180	AD 894-1515, 1598-1617	Kreisa 1995:170
Na	460±220	AD 1185-1954	Kreisa 1995:170
Rowlandton (15McN3)			
ISGS-2154	540±70	AD 1285-1464	Kreisa 1991a:37
Beta-201911	690±40	AD 1258-1324, 1345-1393	Wesler 2006:151
Beta-201912	540±40	AD 1308-1362, 1386-1441	Wesler 2006:151
Beta-201913	1220±60	AD 669-899, 918-954, 957-961	Wesler 2006:151
Beta-201914	1070±60	AD 780-791, 806-1046, 1091-1121, 1140-1148	Wesler 2006:151
Lower Tennessee-Cumberland			
Tinsley Hill (15Ly18)			
I-478	300±80	AD 1437-1690, 1729-1810, 1924-1952	Trautman 1963:70
Beta-3921	520±40	AD 1316-1355, 1388-1447	Butler 1991
Beta-38510	720±50	AD 1215-1320, 1350-1391	Clay 1997:22
Beta-38511	850±50	AD 1043-1104, 1118-1269	Clay 1997:22
M-1150	570±150	AD 1058-1075, 1154-1661	Clay 1963a:81
Jonathan Creek (15M14)			
Beta-180074	790±40	AD 1174-1281	Schroeder 2006:131
Beta-180075	780±40	AD 1182-1284	Schroeder 2006:131
Beta-180076	820±40	AD 1058-1072, 1155-1277	Schroeder 2006:131
Beta-180077	800±40	AD 1167-1278	Schroeder 2006:131
Goheen (15M114)			
I-477	350±85	AD 1413-1680, 1764-1800, 1939-1951	Trautman 1963:70
Dedmon (15M168)			
UGa-247	905±85	AD 992-1268	Allen 1976:167
UGa-249	690±90	AD 1167-1424	Allen 1976:165
UGa-251	905±75	AD 1000-1001, 1013-1264	Allen 1976:167
Chambers (15M1109)			
Beta-12867	760±60	AD 1155-1316, 1354-1389	Pollack and Railey 1987
Beta-12868	720±70	AD 1177-1400	Pollack and Railey 1987
Beta-12869	660±60	AD 1261-1411	Pollack and Railey 1987
Beta-12870	810±60	AD 1045-1095, 1119-1141, 1147-1288	Pollack and Railey 1987
Beta-12871	700±60	AD 1219-1333, 1336-1398	Pollack and Railey 1987
Beta-11249	690±60	AD 1224-1399	Pollack and Railey 1987
Beta-11250	490±90	AD 1292-1528, 1552-1633	Pollack and Railey 1987
Beta-12251	1040±60	AD 883-1156	Pollack and Railey 1987
Beta-12252	590±60	AD 1287-1428	Pollack and Railey 1987
Beta-12253	380±60	AD 1438-1641	Pollack and Railey 1987
Beta-12254	810±60	AD 1045-1095, 1119-1141, 1147-1288	Pollack and Railey 1987
SFU-283	850±200	AD 721-741, 770-1444	Pollack and Railey 1987
SFU-284	1170±140	AD 623-1157	Pollack and Railey 1987
Roach (15Tr10)			
I-479	410±85	AD 1325-1344, 1394-1660	Trautman 1963:70
*Dates calibrated using Calib Revised Version 5.0.2 (Hughen et al. 2004; Reimer et al. 2004; Stuiver and Braziunas 1993; Stuiver et al. 1998).			

The economic base of the James Bayou phase community at Marshall was maize horticulture, hunting, and gathering. Faunal preservation at the site is relatively poor, and few animals other than white-tailed deer, fish, and turtles have been identified in the collection (Kreisa 1987). Maize cupules, kernels, and glumes were found in nearly all of the flotation samples, and the economic importance of this cultigen is demonstrated by its archaeological abundance in several different contexts. Gathered plant foods included hickory nuts, pigweed, smartweed, and the American lotus (Woodard 1987).

The Marshall site ceramic assemblage is dominated by plain or cordmarked utilitarian wares that represent jars or bowls (Sussenbach and Lewis 1987). Identified types include, in order of frequency, Mississippi Plain, Baytown Plain, *var. Mayfield*; Mulberry Creek Cordmarked, *var. Sandy Branch*; Old Town Red; Kimmswick Fabric Impressed; Bell Plain; Crosno Cordmarked; and Wickliffe Thick. The pastes of the utilitarian wares range from a relatively fine-tempered grog (Baytown Plain, *var. Mayfield* and Mulberry Creek Cordmarked, *var. Sandy Branch*) to a coarse shell (Mississippi Plain). Most of the Baytown-paste sherds are hard to distinguish from the Mississippi Plain examples, since they exhibit attributes of both Mississippi Plain and Baytown Plain as these types have been traditionally defined (e.g., Phillips 1970). This sorting difficulty may reflect changes in ceramic technology that occurred throughout the lower Mississippi Valley and adjacent regions during the early portion of the Mississippi period (Sussenbach and Lewis 1987).

Artifacts other than ceramics are often present in low quantities on Mississippian sites, and Marshall is no exception. The chipped stone assemblage is dominated by hoe fragments and resharpening flakes. Projectile points, bifaces, scrapers, graters, picks, and other tools occur, but in somewhat low frequencies.

Comparable ceramics, lithic tools, structures, and other features have been found at the Burcham site (Kreisa 1988b) and a James Bayou component maybe present at Adams (Lewis 1986) and Turk (Edging 1985). Based on these findings, it appears that large, planned communities that served important local social and economic functions probably developed during the Late Woodland period and were a basic component of the local settlement system by the beginning of the Mississippi period.

Dorena Phase (A.D. 1100-1300)

The settlement system and economic organization of Dorena phase communities are similar to those of the preceding James Bayou phase. To date, research in this section has not identified any major cultural differences in basic Mississippian adaptive patterns between these two phases. Components have been assigned to the Dorena phase on the basis of site stratigraphic sequences, absolute dates, and cross-dated artifact attributes.

Dorena phase ceramic assemblages generally contain smaller quantities of Mulberry Creek Cordmarked, Baytown Plain, and Kimmswick Fabric Impressed sherds relative to older components, and smaller quantities of Mississippian incised types (e.g., Matthews Incised and O'Byam Incised) relative to younger components. Among the few incised types associated with Dorena phase components, O'Byam Incised, *var. Adams* (incising on flanged-rim bowls), appears to be temporally diagnostic. Frequencies of Bell Plain, a fine paste ware, show a gradual increase from the James Bayou phase. Vessel form

diversity may increase slightly during the Dorena phase, but as with earlier James Bayou phase components, plates are rare in Dorena phase components.

Excavated Dorena phase components include Marshall (Sussenbach and Lewis 1987), Turk (Edging 1985, 1990), Burcham (Kreisa 1988b), Sassafras Ridge (Kreisa 1990), and the lower levels of the Mississippi period midden at Adams (Lewis 1986; Lewis and Mackin 1984). All of these sites are large villages or regional administrative mound centers.

The Turk site, which is located in northeastern Carlisle County, is a good example of a regional administrative mound center that was occupied throughout the Dorena phase. Turk covers about 2.5 ha of a dissected bluffcrest that is adjacent to the Mississippi River floodplain (Edging 1985, 1990). The site's center is dominated by the mound-and-plaza arrangement of public space that characterizes Mississippian regional centers. Although in the late 1800s several smaller mounds were identified outside of the area bordering the plaza, they have long since been destroyed.

Limited excavations conducted at Turk have documented that the major site occupation began during the Dorena phase and continued into the early Medley phase. All of the site excavations, except for Moore's (1916:506-507) pit in Mound C, have been limited to domestic contexts near the plaza. The midden ranges from 0.5 to 1 m in depth and contains a large number of wall-trenches, refuse-filled pits, fire basins, and infant burials. Excavations conducted to date at Turk have been too limited in their horizontal distribution to permit the investigation of intrasite spatial patterning at this site.

Throughout the Mississippian occupation of the Turk site, the economic base of the community was maize horticulture, hunting, and gathering (Edging 1995). Staple animal food species included white-tailed deer, raccoon, and wild turkey (Kruger 1985). As at the neighboring Marshall site, maize is ubiquitous in the midden, and it was clearly of great economic importance to the site's inhabitants. Gathered plant foods included hickory nuts, goosefoot, marsh elder, and persimmons (Edging 1985, 1990, 1995).

The Dorena phase ceramic assemblage from Turk is dominated by Mississippi Plain and, to a much lesser extent, Bell Plain. Wickcliffe Thick, Kimmswick Fabric Impressed, Old Town Red, and O'Byam Incised, *var. Adams*, also have been recovered from Dorena phase contexts. Most Matthews Incised and O'Byam Incised, *var. O'Byam* sherds at the Turk site have been found in the upper half of the midden, and therefore appear to be primarily associated with the Medley phase component at this site. Baytown Plain and Mulberry Creek Cordmarked comprise only 0.1 percent of the 1984 collection. These types account for a much greater portion of the James Bayou phase assemblage at the Marshall site. Their low representation in the Turk site assemblage is suggestive of a site locus shift during the early Dorena phase from Marshall to Turk.

As at Marshall, nonceramic artifacts found at Turk are mostly hoe fragments and flakes. Adze fragments, abraders, projectile points, and flake tools dominate the remainder of the assemblage (Stelle 1985).

Medley Phase (A.D. 1300-1500)

There is evidence for continuity of the local settlement system and economy from the preceding phase to this phase (Lewis 1984, 1990b, 1996). However, some fortified regional mound centers that had probably been occupied since the Late Woodland subperiod appear to have been abandoned, which allowed other mound centers to come into prominence during this phase. The causal mechanisms of these settlement shifts are as yet unknown, but the cycling of power from one regional mound center to another has been well-documented throughout the Midwest and Southeast (Anderson 1990, 1994; Blitz 1999; Hally 1996; Lewis 1990b).

Investigated Medley phase components include Adams, Sassafras Ridge, Burcham, and White (Kreisa 1988b; Lewis 1986; Sussenbach and Lewis 1987). The Adams site is a large (7.25 ha) Mississippian administrative mound center located on an isolated terrace of the lower Bayou de Chien Valley in Fulton County. The spatial extent of this community was circumscribed by a stream, a swamp, and a slough. The site was initially described in 1888 by Loughridge, but it was not investigated by professional archaeologists until 1983, when the University of Illinois began research there. Limited excavations have shown that Adams contains a Mississippi period component (Dorena and Medley phases) as well as an earlier Late Woodland component (see Chapter 5).

Adams consists of a central mound group, plaza, and two distinct village segments, one located to the east of the plaza and the other situated southwest of the primary platform mound. The platform and conical mounds surround a plaza, and within the habitation areas, houses may have been spaced at 25-30 m intervals (Stout 1985, 1989, 1991; see also Lewis et al. 1998; Stout and Lewis 1998). Midden development in the village segments was extensive and ranged from 1 to 1.5 m thick. Investigation of the Medley component documented the presence of several superimposed wall-trench houses, pits, fire basins, and other features (Lewis 1986).

A great deal of information is available about the economy and food preferences of the Adams site inhabitants. White-tailed deer, raccoons, wild turkeys, turtles, and fish were the most commonly hunted animals. Gathered plant foods included persimmons, hickory nuts, and the starchy or oily seeds of several wild plants. Cultivated plants included maize, beans, squash, and gourds.

As at earlier Mississippian sites, Medley phase ceramic assemblages are dominated by Mississippi Plain and Bell Plain. Relative to earlier components, incised types such as Matthews Incised, O'Byam Incised, *var. O'Byam*, and Barton Incised are more common in Medley phase component assemblages. Nevertheless, decorated sherds seldom account for more than three to five percent of site ceramic assemblages. There is an increase in vessel form diversity during this phase, and Bell Plain plates are more common relative to the two preceding phases.

Other ceramic artifacts include earspools and pins. Nonceramic artifacts include recycled hoe fragments and resharpening flakes, projectile points, drills, sandstone abraders, metates, adze fragments, and bone awls.

Jackson Phase (A.D. 1500-1700)

This is the final aboriginal archaeological phase in the Mississippi River Section. The Jackson phase brackets the time interval during which many aboriginal populations across eastern North America became extinct, were decimated and assimilated into other groups, or were otherwise culturally and biologically affected by introduced diseases from the Old World (cf. Milner 1980; Ramenofsky 1982). In this section, and undoubtedly across much of western Kentucky, the lifeways of native populations were affected by indirect contact with Euro-Americans. By the time Euro-Americans arrived in this section, all of the Mississippian administrative centers, villages, hamlets, and farmsteads had been abandoned.

Some of the effects of contact with Euro-Americans may have been felt by Mississippian groups living in this section as early as the mid-A.D. 1500s, and ethnohistorical data from the late A.D. 1600s suggest that the aboriginal population density of this section had been low for some time (Lewis 1986). To date, Jackson phase components have been documented at Adams, Sassafras Ridge, Twin Mounds (see Ohio River I Section), and Winston Tipton (Lawrence and Mainfort 1995; Lewis 1986, 1996; Trader 2003). All of these sites, with the exception of Winston Tipton, are large administrative mound centers that have a long occupational histories.

Winston Tipton is a single component Jackson phase site located in southwestern Fulton County. It encompasses 4.7 ha and contains a 20 cm-thick midden that is not continuous throughout the site (Lawrence and Mainfort 1995; Trader 2003). Recorded in 1991, Lawrence and Mainfort (1995) noted that local informants had reported finding historic trade items at the site. Subsequent limited investigations at this site recovered several diagnostic late Mississippian artifacts, such as Nodena points, triangular endscrapers, and bowl rims with beveled lips (the "Memphis Rim Mode") (House 1993:27), but failed to recover any historic trade goods. In general, the Winston Tipton materials are similar to Armorel phase materials from northeastern Arkansas (Trader 2003; Williams 1980).

OHIO RIVER I SECTION

Previous Archaeological Research

The earliest site records for this section also can be traced to Rafinesque (1824), but it was not until the late 1800s that archaeological research was initiated in this section. Loughridge's (1888) geographical and geological study of the Purchase Management Area resulted in the publication of a sketch map and narrative description of the Wickliffe site, drawings of pictographs near the town of Wickliffe, and brief descriptions of several other sites. Moore (1916) was the next archaeologist to visit and report on sites in this section. He conducted excavations of an as-yet-undetermined scale at Wickliffe, but did not have much success gaining access to other sites in this section.

In the 1930s, Fain (1936) and Blanche King (1937, 1939) undertook a large-scale archaeological excavation project at the Wickliffe site, and the University of Chicago conducted archaeological research at the Kincaid site, which is located in the Ohio River floodplain across from Paducah. The Kings' work at Wickliffe represents one of the earliest excavation projects undertaken at a major Mississippian center in this section (Wesler 1988b). Their work also helped make many people aware of the rich archaeological resources of the Purchase Management Area. They accomplished this by developing Wickliffe as a tourist attraction called "Ancient Buried City," which offered the public a glimpse of the past in the form of a museum built around open excavations that were protected under frame shelters.

The University of Chicago's research at the Kincaid site led to the development of a chronological framework for the lower Ohio River Valley. Though this chronological framework has been refined over the years, it is still used by archaeologists working in this section (Butler 1977, 1991; Cole et al. 1951; Muller 1978, 1986).

The next major fieldwork in the region was Clay's (1971) archaeological survey of the Kentucky side of the Ohio River in Ballard and McCracken counties in the late 1960s and early 1970s. This research documented several sites that contained Mississippi period components (Weinland and Gatus 1979:33). Building on Clay's work, the Kentucky Heritage Council's archaeological survey of Ballard County in the late 1970s documented 22 sites that had Mississippi period components (Weinland and Gatus 1979:33), Southern Illinois University undertook limited excavations at Site 15McN38 and the Steam site (15McN24) (Butler et al. 1981), and Murray State University undertook limited investigations at the Reed site (15McN51) (Hensley-Martin 1982; Railey 1985f).

When Murray State University took over the Wickliffe site (Ancient Buried City) in the early 1980s, they renamed it the Wickliffe Mounds Research Center, initiated major improvements to the museum, upgraded the quality of the educational activities conducted at the site, assessed the site's research potential, and inventoried the collections curated there (Wesler 1985). A long-term research project also was initiated at this administrative mound center (Kreisa and McDowell 1995; Matternes 1994, 1995, 1996, 2000, 2007; Wesler 1985, 1988a, 1988b, 1989, 1991a, 1991b, 1991c, 1996, 1998, 2001; Wesler and Neusius 1987). Based on this work, a three-phase temporal sequence was developed for the site: Early (A.D. 1100-1175), Middle (A.D. 1175-1250), and Late (A.D. 1250-1350) (Wesler 1991b, 2001, 2006:142-143) (see below). Murray State University's management of this site led to the removal of the burials from display in the 1990s (Wesler 2001). In 2004, ownership of Wickliffe was transferred from Murray State University to the Kentucky Department of Parks, and Wickliffe was formally designated Kentucky's first archaeological historic site.

In addition to the work conducted at Wickliffe, during the late 1980s and continuing into the mid-1990s, several other projects conducted in this section yielded information on Mississippian sites. These studies were undertaken as part of compliance-related projects (Schenian 1988; Schock 1994; Stout 1996) or grant-funded research (Kreisa 1988b, 1991a, 1995, 1998; Mehrer 1991). Among the sites documented or revisited were Site 15Lv169, Site 15Lv208, Twin Mounds (15Ba1), Crawford Lake (15McN18), Rowlandton (15McN3), and the Carrsville Mound (15Lv30) (DiBlasi and Sudhoff 1978).

In 2001, Kit Wesler began a multi-year investigation of the Rowlandton platform mound. While much of the habitation area had been disturbed by modern activities, aerial photographs from the 1930s showed a stain to the north of the mound. If this stain represents the center's habitation area, the size of this community would have been comparable to Wickliffe (Wesler 2006:148). In 2003, the Chestnut Lake site (Herndon 2003) was investigated in advance of highway construction.

Important sites recorded in this section are listed in Table 6.4.

Table 6.4. Important Sites: Ohio River I Section.

Site No.	Site Name	Site Type	References
15Ba2	Twin Mounds	Open habitation w/mounds	Funkhouser and Webb 1932; Kreisa 1988b, 1995
15Ba4	Wickliffe	Open habitation w/mounds	Lewis 1986; Wesler 1985
15Ba16	none	Open habitation w/o mounds	Kreisa 1988b
15Ba41	none	Open habitation w/o mounds	Kreisa 1988b
15Ba60	none	Open habitation w/o mounds	Kreisa 1988b
15Ba90	none	Open habitation w/o mounds	Kreisa 1988b
15Lv30	Carrsville	Stone Mound	DiBlasi and Sudhoff 1978
15Lv169	none	Open habitation w/o mounds	Schenian 1988
15Lv174	none	Open habitation w/o mounds	Schenian 1988
15Lv222	Chestnut Lake	Open habitation w/o mounds	Herndon 2003
15McN3	Rowlandton	Open habitation w/mounds	Wesler 2006
15McN18	Crawford Lake	Open habitation w/o mounds	Kreisa 1991a, 1995; Mehrer 1991;
15McN24	Steam	Open habitation w/o mounds	Butler et al. 1981
15McN51	Reed	Open habitation w/o mounds	Hensley-Martin 1982; Kreisa 1995
15McN69	Puckett	Open habitation w/o mounds	Kreisa 1988b

Chronology

In this section, a three-part chronological sequence (Early, Middle, and Late) has been developed based on work conducted at Wickliffe (Wesler 1991a, 1991b, 1992, 1998, 2001, 2006). This chronological sequence relies heavily on temporal trends in ceramic decoration and appendage forms. Other researchers have applied the chronological sequence used in the Mississippi River Section to sites in this section (Kreisa 1998; Lewis 1986) or the chronology developed by researchers at Kincaid and in the lower Tennessee-Cumberland drainage (Butler 1991; Clay 1979, 1997) (see Lower Tennessee-Cumberland Section for a characterization of the latter sequence).

Early Wickliffe (A.D. 1100-1175)

Early Wickliffe ceramic assemblages are characterized by Mississippi Plain jars and bowls, and Kimmswick Fabric Impressed pans (Wesler 2001). Among the decorated ceramics types associated these components are Matthews Incised, *var. Beckwith* and *var. Manly*, Barton Incised, and Mound Place Incised. Early Wickliffe ceramic assemblages contain a higher ratio of red-slipped to incised sherds than Middle and Late Wickliffe

assemblages, and jar handles are predominately loops. Faunal assemblages are similar to those of other Mississippian riverine sites, and emphasize a reliance on deer, fish, small mammals, ducks, turkey, and turtles (Kreisa and McDowell 1995:216). The botanical assemblage is similar to that recovered from other Mississippian sites in the confluence region and remained relatively stable throughout the Wickliffe sequence (Edging 2001). Maize is ubiquitous and starchy seeded native cultigens, such as goosefoot, are well-represented as are wild plants and nuts.

Throughout Early Wickliffe times, the Wickliffe community consisted of a compact settlement, with structures clustered around a plaza. Toward the end of this component, the initial stages of mounds A and B were constructed over earlier Mississippian middens. Infants and some children were buried in the village at this time, but it is not known where the adults were interred.

Middle Wickliffe (A.D. 1175-1250)

Middle Wickliffe ceramic assemblages are similar to those associated with Early Wickliffe components, but are distinguished by the introduction of flared-rim bowls, some of which are decorated, and a decrease in the number of hemispherical bowls. When all vessels are considered, however, there is an increase in serving vessels relative to cooking vessels. Among the new decorated types associated with Middle Wickliffe components are O'Byam Incised, *var. Adams* (Wesler 1992). Red-slipped wares continue to be common, although incised types increase in popularity throughout this phase. Handles are primarily narrow and wide intermediate loop/straps (Wesler 1992).

During Middle Wickliffe times, the amount of deer consumed, relative to fish, increased, and there is a shift in exploitation from species associated with backwater lakes and sloughs to ones adapted to the Mississippi River channel (Kreisa and McDowell 2005:216). Box turtles also are more common in Middle Wickliffe contexts relative to Early Wickliffe contexts.

Most of the mound building at the Wickliffe site occurred during the Middle Wickliffe period and this was also a time of village expansion, as the site grew to the south and north. Additional stages were added to mounds A and B (Wesler 2006:147), and a three mound complex designated Mound C was constructed. While the initial function of Mound C is not known, shortly after it was constructed, it became the location of a cemetery that may have contained as many as 900 individuals (Matternes 2007; Wesler 2001:47). Both extended and bundle burials were documented and there may have been a single cremation. Based on a series of radiocarbon dates obtained from a sample of the burials associated with the Mound C cemetery, Matternes concluded that this cemetery was associated with the Middle Wickliffe occupation. This conclusion is differs from earlier suggestions that most of the burials associated with Mound C post-date the Middle Wickliffe and Late Wickliffe occupation of this site (Clay 1997:25-26; Matternes 1994:96-97, 1995, 1996).

At the Wickliffe site, bowls are especially common in the vicinity of Mound B. The Middle Wickliffe deposits associated with this mound had an especially high ratio of serving to cooking vessels. Residents of this portion of the site also appear to have had

access to better cuts of meat and nonlocal goods: in particular, Burlington chert and Ramey Incised pottery (also recovered from Mound A) (Wesler 1991). The presence of these particular types of nonlocal goods points to some level of interaction with Mississippian groups in the American Bottom. In general, these patterns suggest higher status individuals lived in the vicinity of Mound B, and, coupled with village expansion, may indicate that the strongest or most centralized period of the Wickliffe chiefdom occurred during Middle Wickliffe times (Wesler 2001).

Late Wickliffe (A.D. 1250-1350)

Late Wickliffe ceramic assemblages are characterized by the introduction of true plates, and a continued increase in the use of bowls at the expense of jars and pans. There also was an increase in incised decoration, coupled with a decrease in the use of red-slipped vessels. Among the decorated ceramic types that are diagnostic of this phase are O'Byam Incised, *var. O'Byam*, Leland Incised, Winterville Incised, Owens Punctate, and Carson Red-on-Buff (Wesler 1992, 2001). Handles continue to be primarily narrow and wide intermediate loop/straps. Relative to Middle Wickliffe times, there is a decline in the use of nonlocal Burlington chert, which may reflect diminished interaction with the American Bottom region (Wesler 2001). The pattern of faunal exploitation observed during Middle Wickliffe times continued into Late Wickliffe times (Kreisa and McDowell 2005).

At the Wickliffe site, mound building continued during this phase, with the addition of mounds D, F, G, and H (Mound E could not be relocated or assigned to a component). The residential area expanded to the edge of the bluffs overlooking the Mississippi River and the site encompassed about 2.5 ha (Wesler 2001). By the end of Late Wickliffe, the mounds had been capped, and the village was abandoned by A.D. 1350.

Other Sites

Limited excavations have been conducted at several sites in the Ohio River I Section. These sites, which range from farmsteads to regional administrative centers, are described in this section.

Investigation of the Reed site by Murray State University in the early 1980s determined that this stratified site contained a Mississippian component that overlaid a middle to late Woodland component (Railey 1985f; see Chapter 5). Mississippian ceramics recovered from this site include Mississippi Plain, Bell Plain, Kimmswick Fabric Impressed, Old Town Red, Matthews Incised, O'Byam Engraved, and Barton Incised. A portion of a collapsed house wall overlaying a basin-shaped Mississippian structure was documented at this hamlet (Railey 1985f).

As part of her investigation of a planned development situated west of Smithland in Livingston County, Schenian (1988) documented sites with Mississippian components (Site 15Lv169 and Site 15Lv174) in the Ohio River floodplain. At Site 15Lv169, she documented the presence of at least four pit features and a possible intact midden. The small ceramic assemblage from this site consisted of Mississippi Plain sherds. Site 15Lv169 is either a small village or a series of overlapping hamlets. At Site 15Lv174,

Schenian recovered a small assemblage of Mississippi Plain sherds and documented the presence of a possible midden.

Kreisa (1988b, 1995), as part of his investigation of small Mississippian administrative centers, undertook limited excavations at three sites in this section in the late 1980s and early 1990s: Twin Mounds (15Ba1), Crawford Lake (15McN18), and Rowlandton (15McN3). As its name implies, Twin Mounds contains two large mounds, an associated plaza, and a 2 m-thick midden (Burks and Stout 1996). It is located in the Ohio River Floodplain in Ballard County just upstream from the confluence of the Ohio and Mississippi rivers. The lower levels of the midden yielded mainly Mississippi Plain, Bell Plain, Old Town Red, Wickliffe Thick, and Kimmswick Fabric Impressed sherds. Only a few decorated sherds were recovered from these levels, with slipped specimens being more numerous than incised sherds. The upper levels, in addition to the ceramic types found in the lower levels, yielded more and a greater variety of decorated types, such as Matthews Incised and O'Byam Incised. In addition, incised sherds outnumbered slipped specimens; jar handles tended to be straps; and notched or beaded rim strips were present. Based on the materials recovered, ceramic trends observed in the midden, and radiocarbon dates (Table 6.3), the Mississippian component at this site dates from ca. A.D. 1200-1450 (Kreisa 1995). As such, the site's occupation spans the Dorena and Medley phases of the Mississippi River Section and the Middle and Late Wickliffe periods of the Ohio River I Section.

As with Wickliffe, the botanical assemblage from the site fits the general pattern of Mississippian plant exploitation in the confluence region (Edging 1988). The plants remains are dominated by high-row Midwestern maize. Other cultivated plants include goosefoot, erect knotweed, maygrass, and little barley. Mammals and in particular whitetail deer contributed the largest portion of meat to the diet, with fish, birds, and reptiles rounding out the diet (Kreisa 1988b).

Occupation of Twin Mounds continued after the abandonment of Wickliffe. That these sites are located in close proximity to each other led Clay (1997:25) to suggest that growth of the Twin Mound community during the 1300s may be related, in part, to households that relocated to this site from Wickliffe. Twin Mounds was probably abandoned sometime during the fifteenth century, though it may have been occupied into the sixteenth century (Lewis 1996).

The Crawford Lake site is located in McCracken County on the banks of an oxbow lake south of the Ohio River and west of Paducah (Kreisa 1995; Mehrer 1991). The site encompasses about 1 ha, and limited excavations conducted at this site documented the presence of a 20 cm-thick midden. The ceramic assemblage consisted primarily of Mississippi Plain, Bell Plain, and Kimmswick Fabric Impressed sherds. The radiocarbon assay obtained from this site has an extremely large standard deviation and is of little utility in dating the site (Table 6.3). Based on the ceramic assemblage, Kreisa (1995:169) suggested a site occupation range of A.D. 1200-1275, which would place the Mississippian occupation in the Middle Wickliffe period.

Rowlandton is located in McCracken County on the banks of an oxbow lake south of the Ohio River and west of Paducah. Though the site has been severely impacted by modern use of the locale as a farm, greenhouse, and steel mill, it still contains a large

platform mound (Kreisa 1991a, 1995, 1998; Wesler 2001). A 40 cm-thick midden is present near the mound. While much of the habitation area had been disturbed by modern activities, aerial photographs from the 1930s showed a stain to the north of the mound. If this stain represents the center's habitation area, then this community would have been comparable in size to Wickliffe (Wesler 2006:148). This is a similar size estimate provided by Kreisa (1995:170), who suggested that the site encompassed 3 ha. The ceramic assemblage from this site consists of Mississippi Plain, Bell Plain, Kimmswick Fabric Impressed, Old Town Red, O'Byam Incised, and Matthews Incised (Kreisa 1991a, 1995; Wesler 2001)

Within the habitation area, portions of several wall-trench structures were documented. Like other Mississippian platform mounds, the Rowlandtown mound was constructed in several stages. At least nine mound stages were documented, with the initial stage being constructed over an earlier midden (Wesler 2001). There were clear indications of structures on two summits and probable midden development on a third. While the upper stages yielded radiocarbon dates and artifacts that are contemporary with Late Wickliffe (A.D. 1250-1350) (Wesler 2001) and earlier investigations of this site (Kreisa 1991a, 1995), the submound midden and initial mound stage appear to predate Wickliffe (Table 6.3). This indicates that the Rowlandton community was established sometime before A.D. 1100 (Wesler 2001).

Kreisa (1995:173) has argued that mound centers dating from A.D. 1200-1400, such as Rowlandtown, Twin Mounds, and Tolu (see the Ohio River II Section), represent an expansion of the Kincaid chiefdom during the thirteenth century, rather than the *in situ* development of smaller regional polities. He based this interpretation on the absence of earlier Mississippian components at these sites and similarities in material culture (Kreisa 1988b, 1995:173). With Wesler's work at Rowlandtown, it is now known that at least one of these regional administrative mound centers was established early in the Mississippi period. Thus it is quite possible that the growth of some of these regional administrative mound centers represents *in situ* development, rather than the expansion of the Kincaid polity.

Farmsteads and hamlets also have been excavated in this section. Two of these sites are located in McCracken County and two are located in Livingston County. Site 15McN38 is a farmstead that measures 65 m in diameter. It is located on the Ohio River floodplain west of Paducah. Limited excavation documented the remains of a house basin, but the investigators could not determine if it was of wall-trench or single-set post construction. All of the ceramics were classified as Mississippi Plain or Bell Plain, with one sherd being derived from a scalloped rim plate (Butler et al. 1981; Kreisa 1995). The one radiocarbon date from this site has a calibrated date range of A.D. 1483 to 1953, rendering it of little or no utility. Based on the ceramics recovered from this site, a date range of A.D. 1200-1300 has been suggested (Butler 1991; Kreisa 1995:168). Other Mississippian farmsteads may be associated with sites 15McN36 and 15McN37, based on the presence of small quantities of shell tempered ceramics.

The Steam site was located in the Ohio River floodplain near Site 15McN38, but was substantially larger, encompassing about half a hectare, and was more intensively occupied, with 25-30 cm of intact subplowzone deposits being present. Based on its size and the density of materials recovered, the Steam site appears to have been a hamlet

(Butler et al. 1981; Kreisa 1995). The partial remains of several wall-trench structures and other features were documented. The ceramic assemblage consists of Mississippi Plain, Bell Plain, Kimmswick Fabric Impressed, Old Town Red, and Matthews Incised, *var. Manly*. Though calibrated radiocarbon dates from this site are suggestive of an occupation sometime between A.D. 1300 and 1450 (Table 6.8), based on the ceramic assemblage, Kreisa (1995:169) suggested a date range of A.D 1200 to 1300.

Of the two smaller Mississippian sites that have been excavated in Livingston County, Site 15Lv208 may have been a farmstead or small hamlet. Mississippian ceramics and chipped stone tools were recovered, and the presence of a Mississippian wall-trench house was documented (Schock 1994; Stout 1996). The house measured 2.5-3 m wide by 5-6 m long. It had been set in a basin that extended approximately 5 cm below the ground surface. The presence of two pit features some distance from this structure suggests that other structures, destroyed by plowing, were once present (Stout 1996). Ceramics from the site were primarily Mississippi Plain, but Kimmswick Fabric Impressed and shell tempered cordmarked sherds also were present. Both Dover and Mill Creek chert artifacts were recovered, with the latter being somewhat more common. Given the small size of the Site 15Lv208 ceramic assemblage, Stout (1996) did not attempt to date this site relative to other Mississippian sites in the Ohio River I Section.

A wall-trench house with an intact clay floor was documented at Chestnut Lake (Herndon 2003). It measured 3 by 6 m, and was similar in size to the structure documented at Site 15Lv208 (Schock 1994; Stout 1996). Several associated pits and postholes also were excavated. Recovered ceramics consisted predominantly of Mississippi Plain jars, Bell Plain bowls and plates, and Kimmswick Fabric Impressed pans. A couple of Angel Negative Painted and three Matthews Incised sherds also were recovered, as were two ceramic ear spools and an ear pin. The two calibrated radiocarbon dates (Table 6.3) obtained from charred roof fall are suggestive of a fourteenth century Tinsley Hill phase (see Lower Tennessee/Cumberland Section) occupation (Herndon 2003:140). It is quite likely that this structure and its associated features were part of a larger settlement that extended outside the project area (Herndon 2003). If this was the case, then the Chestnut Lake site may have been a small hamlet.

The Carrsville Mound (15Lv30) is a small burial mound located on the bluffs overlooking the Ohio River in Livingston County (DiBlasi and Sudhoff 1978). The site was revisited in the early 1990s by the author and Valerie Haskins. Examination of three looter holes documented the presence of stone box graves, disturbed human remains, Mississippian ceramics, the top of a spud manufactured from Kaolin chert, and a polished piece of fluorite. Local informants reported finding Mississippian materials in the nearby floodplain.

LOWER TENNESSEE-CUMBERLAND SECTION

Previous Archaeological Research

Loughridge (1888), Moore (1916), and Rafinesque (1824) each published early, sketchy accounts of archaeological sites located in this section, but beyond drawing attention to the Jonathan Creek site (15Ml4) in Marshall County, their reports contributed little to the study of Mississippian adaptations in this area. The first monograph-length treatment of Mississippian remains in this section was Funkhouser and Webb's (1931) report on the excavation of 62 stone box graves at the Duncan site (15Tr4). This work, however, failed to stimulate additional research interest in this region.

In the late 1930s, the attention of archaeologists again turned to the lower Tennessee Valley in Kentucky and Tennessee after the TVA dam, which would create Kentucky Lake, was approved for construction near Gilbertsville in northern Marshall County. Following a grab bag-type site survey of the impoundment area, excavations were undertaken by the University of Kentucky under the auspices of the WPA and CCC at five sites: Jonathan Creek, Birmingham (15Ml8), Goheen (15Ml14), Roach (15Tr10), and Root (15Ml11), all of which had Mississippi period components (Clay 1963a:21). The project ended abruptly with the entry of the United States into World War II in late 1941, and the first report (Webb 1952) on any aspect of this project did not reach print until a decade later. Published reports or manuscripts on most of the site excavations now exist (e.g., Clay 1963a; Fryman 1966; Rolingson and Schwartz 1966), but the reports of investigations at Birmingham and Root have yet to be written.

Following the war, Mississippi period archaeological investigations were not conducted in this section for nearly 20 years. Mississippi period research resumed in this section when another major reservoir project was initiated, this time, the construction of the Barkley Lake and Dam on the lower Cumberland River in the late 1950s and early 1960s. The publication record for the archaeological research in the Barkley Basin is far better than that for the Kentucky Lake project. Mississippian sites excavated in the Barkley Basin include Tinsley Hill (15Ly18) (Clay 1961, 1963b, 1963c; Lane 1998a; Schurr 1998; Schwartz 1961; Schwartz and Sloan 1958) and Rodgers (15Tr17) (Clay 1963d). Clay (1976, 1979, 1984, 1997), a participant in the Barkley Basin archaeological project, has continued to publish the results of research that draw on these data.

Subsequent to the flooding of both major river valleys in this section, Mississippi period research has tended to be conducted in response to cultural resources management-related projects. Highway construction, for example, resulted in the excavation of the Dedmon site (15Ml68), a multicomponent Late Woodland and Mississippi period village in Marshall County (Allen 1976), and a bridge replacement project resulted in the investigation of the Chambers site (15Ml109), a Mississippian village in the same county (Pollack and Railey 1987).

Since the early 1990s, there has not been a great deal of work undertaken at Mississippian sites in this section. Though mapped by Rafinesque in 1820, the administrative center at the Canton site (15Tr1) in Trigg County was not investigated by

professional archaeologists until 1992, when it was again mapped and limited excavations were conducted along its western margin, which overlooks the Cumberland River floodplain (Stout 1991; Stout et al. 1996). In 2006, archaeologists returned to the Canton site and examined its southern edge in advance of a highway construction project (Bradbury 2006) and in 2007, the purported location of Mound 3 was examined (Pollack and Schlarb 2008).

Relative to other parts of Kentucky, a large number of Mississippian sites have been extensively investigated in the lower Tennessee and Cumberland valleys (Nance 1976:4). Unfortunately, it is also true that the results of less than half of this research have been published. Research undertaken by Schroeder (2003, 2005, 2006, 2007) at the turn of this century (see also Wolforth 1987, 1991) has begun to address this issue. Through a reexamination of field notes, site maps, and material culture, Schroeder has identified the internal organization and growth of the Jonathan Creek site.

Important sites recorded in this section are listed in Table 6.5.

Table 6.5. Important Sites: Lower Tennessee-Cumberland Section.

Site No.	Site Name	Site Type	References
15Cw64	Backusburg	Open habitation w/mounds	Hensley 1981; Railey 1985e
15Ly18	Tinsley Hill	Open habitation w/mounds	Clay 1961, 1963a, 1963c; Schwartz 1961 Clay 1963a; Schroeder 2005, 2006, 2007;
15MI4	Jonathan Creek	Open habitation w/mounds	Webb 1952; Wolforth 1991
15MI8	Birmingham	Open habitation w/o mounds	Clay 1963a
15MI11	Root	Open habitation w/o mounds	Clay 1963a
15MI14	Goheen	Open habitation w/o mounds	Clay 1963a; Fryman 1966
15MI68	Dedmon	Open habitation w/o mounds	Allen 1976
15MI109	Chambers	Open habitation w/o mounds	Pollack and Railey 1987 Funkhouser and Webb 1932; Stout 1991;
15Tr1	Canton	Open habitation w/mounds	Stout et al. 1996
15Tr4	Duncan	Cemetery	Funkhouser and Webb 1931
15Tr10	Roach	Open habitation w/o mounds	Clay 1963a; Rolingson and Schwartz 1966
15Tr17	Rodgers	Open habitation w/o mounds	Clay 1963d

Chronology

Clay (1963a, 1979) was the first to define Mississippi period phases for this section. Based on his analysis of ceramic collections recovered from several sites excavated in advance of the construction of Lake Barkley and Kentucky Lake, he proposed the Jonathan Creek and Tinsley Hill phases to characterize the beginning and ending of Mississippian occupation of this section. Like subsequent researchers, he recognized that there was a gap of 100 to 200 years between these phases (Butler 1991; Clay 1979, 1997; Lewis 1990a; Pollack and Railey 1987; Schroeder 2006). Some archaeologists (Butler 1991; Clay 1997) have suggested assigning components that fall within this gap to the Angelly phase, initially defined in the Black Bottom of southern Illinois (Riordan 1975), while others

(Pollack and Railey 1987) have suggested that a new phase should be defined for this section.

Another temporal issue that needs to be addressed is the continued assignment of the Jonathan Creek site to the Jonathan Creek phase. Schroeder's (2005, 2006, 2007) work with the Jonathan Creek materials and records clearly indicates that this site was occupied well into the thirteenth century, and at least part, if not all, of the Mississippian occupation of this site should be assigned to another phase. Though Schroeder (2005, 2006, 2007) recognizes that the bulk of the Jonathan Creek assemblage cannot be assigned to the Jonathan Creek phase as presently defined, she has been reluctant to propose a new phase. It is tempting to do so in this document, but it has not been done, as this chapter is intended to be a synthesis of previous work.

Jonathan Creek Phase (A.D. 1000-1150)

This phase encompasses the initial Mississippian occupation of this section (Clay 1979:119-120), and two sites have been assigned to it: Dedmon and Jonathan Creek. Of the two, it is now known that the bulk of the Jonathan Creek assemblage postdates Dedmon and the Jonathan Creek phase (Schroeder 2005, 2006, 2007; see also Wolforth 1991) (see next section).

The Dedmon site (15M168), situated in the Tennessee Valley of northern Marshall County (Allen 1976), represents the other end of the settlement hierarchy from regional mound centers like Jonathan Creek. Interpreted as a farmstead (Allen 1976:166), the component at Dedmon consisted of one wall-trench structure with four interior pits. This component lacked an associated midden. The ceramic assemblage is characterized by Mississippi Plain, Bell Plain, and Kimmswick Fabric Impressed. Small quantities of McKee Island Cordmarked (a type comparable to Crosno Cordmarked), Old Town Red, and Mound Place Incised also are present (Allen 1976; Clay 1979:118, 1984:108). Handles are primarily loops, but an intermediate loop/strap and a strap handle also were recovered.

Although it can be inferred that the economic base of Jonathan Creek phase communities was maize horticulture, hunting, and gathering, there is little in the way of excavated data upon which to base detailed inferences. Analysis of the Trench 3 remains from Dedmon, within which the Jonathan Creek phase component was delineated, indicated that white-tailed deer, raccoons, and wild turkeys were important game animals (Allen 1976:160), but no direct evidence of cultivated plant foods was recovered (Allen 1976:166).

Angelly Phase (A.D. 1150-1300)

For comparative purposes, sites that postdate the Jonathan Creek phase and predate the Tinsley Hill phase have been assigned in this document to the Angelly phase, defined based on work undertaken at the Angelly site in southern Illinois (Riordan 1975:174). Since the mid-1970s, it has become apparent that most of the traits used to define the Angelly phase postdated A.D. 1200 (Butler 1991). Following Butler (1991) and Cobb and Butler (2002), it has been assigned a temporal range of A.D. 1150 to 1300. Having done so,

it is recognized that more work is needed to better define and refine the chronological sequence in the Lower-Tennessee Cumberland Section, as well as in the Ohio River I Section.

The following discussion relies heavily on the Chambers and Jonathan Creek sites, as they are the best-defined Angelly phase communities in this section. An Angelly phase component also may be present at the Roach site and at Tinsley Hill (see the next section). Based on a suite of calibrated radiocarbon dates, the Chambers site appears to have been occupied from A.D. 1250 to 1350 (Pollack and Railey 1987). As Butler (1991) has noted, this time frame spans the Angelly and Tinsley Hill phases and reflects some of the problems with the current temporal sequence. It should be noted that, relative to Tinsley Hill phase components, the Chambers ceramic collection contains a much higher percentage of loop and intermediate loop/strap handles, and lacks the wide thin strap handles so common in later Mississippian assemblages. As such, the Chambers handle assemblage supports assignment of this site to the Angelly phase, rather than to the Tinsley Hill phase.

Chambers is a large village located on a ridgetop overlooking the Middle Fork of the Clark River in Marshall County (Pollack and Railey 1987). It covers 6 ha, and a stone box cemetery is reported to have been located in the southwestern portion of the site (Pollack and Railey 1987:7). A small portion of this site was excavated in the mid-1980s following its inadvertent discovery in a borrow pit for a bridge replacement project. In the northern edge of the borrow pit, two wall-trench structures and several associated features were documented. One of the structures measured 5 by 6.4 m; the other, which was only partially excavated, measured 6 by 8 m. Downslope from these houses, a large trash disposal area that measured 10 by 16 m was documented.

Along the southern edge of the borrow pit, one meter of intact deposits was sampled with two 2 by 2 m units. These units were placed about 10 m downslope from the ridgetop (Pollack and Railey 1987:18). In both units, over 1 m of Mississippian deposits were documented. Within Unit 3, the edge of a series of prepared floors was encountered, while in Unit 4, which was located downslope from Unit 3, thick midden deposits were documented. Calibrated radiocarbon dates from the bottom and top of both units indicated that these deposits accumulated over a relatively short period of time (Table 6.3). Pollack and Railey (1987) noted that no postholes or wall-trenches were directly associated with any of the prepared floors, but they both intruded into the floors. That the floors were located downslope from the top of a ridge and sloped sharply uphill toward the east suggested to Pollack and Railey that they may have been associated with

an artificial terrace or bench which either supported a series of successive house structures, or served as exterior activity surfaces adjacent to domestic structures. More or less constant sweeping and successive re-building of these floors could largely account for the rapid and concurrent accumulation of dark, ashy midden deposits which characterize Zone IV downslope from the prepared floors. The lenses of disturbed floor material in Unit 4 may have been re-deposited as a result of re-building or through deconsolidation and displacement of nearby prepared floors such as those encountered in Unit 3 (Pollack and Railey 1987:28).

Butler (1991) has questioned this interpretation, and Clay (1997) firmly believes that Pollack and Railey encountered the edge of a Mississippian platform mound:

It is suggested that they were clearly excavating in the skirt of a low mound, nipping the edge of the structure without excavating far enough into it to encounter the wall-trenches of the specialized mound structure. Comparing Chambers to Tinsley Hill, it is possible that the mound events at the two sites were very similar insofar as their stages with structures were concerned. Unfortunately, the test trenches at Tinsley Hill did not fully explore the same sort of mound “toe” encountered at Chambers (Clay 1997:24).

Bell Plain accounts for slightly more than 12 percent of the Chambers site ceramic assemblage. This is consistent with other Mississippian sites in this section, but is much less than has been documented at regional mound centers in the Mississippi River Section (Pollack and Railey 1987:94). Kimmswick Fabric Impressed and Kimmswick Plain account for about six percent of the assemblage, and incised decorated types, such as O’Byam Incised and Matthews Incised *var. Beckwith, Matthews, and Manly*, are well represented. Incised decorated types outnumber slipped sherds by a ratio of 2.5 to 1. While the full range of Mississippian vessel forms are present in the Chambers site ceramic assemblage, in comparison to large regional mound centers, such as the Adams site, pans are much more common at Chambers (17 percent to 6 percent, respectively), while bowls are much more common at Adams (37 percent to 16 percent, respectively). A variety of lugs (paired and bifurcated) and handles are present in the site’s ceramic assemblage. Almost all of the handles were loops and intermediate loop/straps.

Both Dover and Mill Creek chert hoes were recovered from Chambers. Almost an equal number of Dover and Mill Creek chert tools and polished flakes also were recovered. As such, it appears that the site’s inhabitants had access to and used both chert types.

In general, subsistence patterns identified at Chambers are similar to those documented at other western Kentucky Mississippian sites. The Chambers site botanical assemblage does, however, contain a much higher density of nutshell and greater quantities of some native cultigens (e.g., maygrass) than the others (Rossen 1987; Rossen and Edging 1991). With respect to faunal exploitation, the Chambers site is distinguished from sites located along the Ohio and Mississippi rivers by a lower percentage of fish (five percent compared to 15 to 20 percent) and the absence of migratory avifauna (Tune 1987). The lower percentage of fish is probably attributable to the site’s location on a minor tributary of Clarks River; and the absence of migratory avifauna reflects the fact that the site is not located along a major flyway.

Analysis of the Jonathan Creek site records and ceramic assemblage has demonstrated that, while this site may have been established in the eleventh or twelfth century A.D., its size and influence peaked in the thirteenth century (Schroeder 2005, 2006, 2007). The site ceramic assemblage is more consistent with later Angelly phase assemblages (Schroeder 2007:143). This observation is based on the presence of O’Byam

Incised, Nashville Negative Painted, Angel Negative Painted, Matthews Incised, *var. Matthews* and *var. Beckwith*, Mound Place Incised, and Rhodes Incised in the site ceramic assemblage (Clay 1963a:113-122; Webb 1952; Wolforth 1987, 1991). Their presence indicates that Jonathan Creek was occupied during the Angelly phase. In addition to the ceramic data, four calibrated radiocarbon dates from this site overlap between A.D. 1180 and 1280 (Table 6.3) (Schroeder 2006:131), pointing to a Mississippian occupation that postdates the Jonathan Creek phase.

Loughridge (1888:192-193) and Moore (1916:189) each described the site in the late 1800s. Loughridge's account included a sketch map of the location. Were it not for the fact that both men were so precise about the site's location, it would seem that two different locations were described. Being unable to reconcile the apparent discrepancies in those descriptions, Lewis (1990a) tended to accept Loughridge's account. Based on his experience working in the Mississippi River section, Loughridge's site descriptions proved to be of greater accuracy than Moore's. Loughridge's description of Jonathan Creek is also at least partially corroborated by Webb's (1952) description of the locality, which was extensively excavated in the early 1940s (Webb 1952).

The Jonathan Creek site appears to have been constructed around the mound-and-plaza public space that defined the center of social activity in many Mississippian regional centers. Webb (1952) excavated the southern edge of the village that was built around this space. He also delineated the remains of numerous houses, eight distinct stockade lines with bastions that had been constructed around the town; and an interior wall that lacked bastions (Schroeder 2006:121). Based on an examination of site maps and field records, the initial stockade may have been constructed hastily by leaders shortly after they relocated to this area from a nearby region and in response to a real or threatened attack (Clay 1979; Schroeder 2006). In time, the stockade was rebuilt to accommodate additional households and to maintain some level of security. There also appears to have been a shift in the use of some areas from secular to sacred ritual space, associated with the construction of a much larger and more impressive stockade (Schroeder 2006). In the last stage of the life history of the Jonathan Creek community, stockade building went beyond strictly defensive needs and was intended to impress outsiders (Schroeder 2006:135).

Though no large cemeteries were excavated at Jonathan Creek, small cemeteries were documented within the residential area. Burials also were found in association with a with a mortuary mound that had a series of charnel structures on top of it (Schroeder 2006:125, 2007).

In Webb's (1952:67-74) original interpretation of domestic architecture trends at this site, he inferred that there was a change from wall-trench structures to those with individually-set wall posts. Clay's (1979:117) reanalysis of the excavation notes suggests that Webb's inference is incorrect and is based on a misinterpretation of the evidence of house rebuilding or repair. In addition, Wolforth's (1987, 1991) examination of a sample of the ceramics from wall-trench and single-post structures indicated that similar types of ceramics were associated with both types of houses, which indicated that they were contemporary.

The Roach site, a multicomponent habitation site located on a low rise along the eastern edge of the Tennessee River in Trigg County, also may contain an Angelly phase component. Though the site was initially assigned to the Tinsley Hill phase (Clay 1979), the fact that almost all of the handles are loops (Rolingson and Schwartz 1966) suggests that the Mississippian component at this site predates this phase. Lewis (1990a) noted that the ceramics recovered from this site were similar to Dorena phase (A.D. 1100-1300) components. Among the decorated ceramics recovered from this site are Old Town Red and an incised sherd that may be a crude example of a Matthews Incised, *var. Beckwith* sherd (Clay 1963:126). Other artifacts associated with this component included triangular projectile points, a chert hoe, a celt, a chert pick, an adz, a pottery trowel, and several scrapers and other unifacially worked tools (Rolingson and Schwartz 1966:38-40).

The Mississippian occupation at Roach consisted of one wall-trench structure (3.9 by 5.8 m) and a few associated pit features. Rolingson and Schwartz (1966:31) suggested that it represented a small farming outpost associated with one of the larger Mississippian villages located on the west side of the Tennessee River. The house had been constructed in a shallow basin and contained an interior hearth.

The Canton site also contains an Angelly phase component, but it may have been occupied as early as the Jonathan Creek phase. Though the Canton site was recorded more than 180 years ago by Constantine Samuel Rafinesque (1833; Stout et al. 1996), it has not received a great deal of attention from the archaeological community. When Rafinesque mapped the site in the late 1820s and early 1830s, he noted that it contained at least nine mounds and was surrounded by a 1 to 2 m high wall. Webb and Funkhouser (1932:376), however, noted only the presence of Mound 1, a large platform mound. They also pointed out that a stone box cemetery was located 100 m from this mound (Webb and Funkhouser 1932:376). When the site was mapped by Stout et al. (1996), they could only confirm the presence of mounds 1 and 5. The locations of the remaining mounds, however, have yet to be verified. Limited excavations conducted by Stout et al. (1996) along the site's western margin, which overlooks the Cumberland River floodplain, documented the presence of disturbed Mississippian deposits.

What remained of Mound 7 was purported to be under the foundation of a church constructed in the mid-nineteenth century. In 2006, the church was demolished, and in 2007, the area that had been under the former church was excavated. This work documented the presence of intact Mississippian deposits, but found no evidence to suggest that a mound had once been present in this area (Pollack and Schlarb 2008). Among the intact deposits documented in this portion of the site was a wall-trench structure, which measured 4.2 by 3.6 m (Pollack and Schlarb 2008). This structure had been set in a shallow basin and had a central hearth. A portion of a basin-shaped wall-trench structure that had been rebuilt at least once also was documented, as were a minimum of three additional structures, a large central post, and a large trash pit.

The Canton site ceramic assemblage is dominated by Mississippi Plain, followed by Bell Plain and Kimmswick Fabric Impressed. Other types represented are Kimmswick Plain, Nashville Negative Painted, Old Town Red, and Matthews Incised, *var. Beckwith* and *Manly* (Bradbury 2006; Pollack and Schlarb 2008). Slipped sherds outnumber incised sherds, and riveted loop handles are the predominant type of appendage. In general, the ceramic assemblage compares favorably with materials recovered from

Jonathan Creek and Chambers. Relative to the latter, as a group, Old Town Red, Angel/Kincaid Negative Painted, and Matthews Incised account for a similar percentage of both sites' ceramic assemblage. Among the decorated types recovered from Chambers that have yet to be recovered from Canton are O'Byam Incised, Barton Incised, and Mound Place Incised. The absence of these types at Canton may be related to sample size, as the Chambers site ceramic assemblage is about 10 times larger. When these types are included, along with unidentified incised sherds, however, somewhat more decorated sherds were recovered from Chambers than Canton. Based on these comparisons, it appears that the Canton site may have been occupied sometime between A.D. 1150 and 1300 (Pollack and Schlarb 2008).

Tinsley Hill phase (A.D. 1300-1500)

Much of the discussion about this phase (Butler 1983, 1991; Clay 1979, 1984, 1997) has centered not on its content, but on its calendrical dating. This was due to a very late date indicating that the Tinsley Hill site was occupied into the seventeenth century A.D. (Table 6.3). Based on subsequent radiocarbon dates obtained from the upper village and cemetery, the site's Mississippian component dates primarily to the fifteenth century. This has led most researchers to conclude that the very late date from Tinsley Hill (Table 6.3) is not a reliable or acceptable date. To date, no Mississippian sites that postdate A.D. 1500 have been documented in this section.

There are several excavated Tinsley Hill phase components, including Tinsley Hill and Rodgers in the Cumberland River valley, and Birmingham and Goheen, in the Tennessee River valley (Clay 1979). The settlement system and economy of Tinsley Hill phase communities appear to have been similar to that of earlier Mississippian communities in this section. As with other Mississippian sites, Tinsley Hill ceramic assemblages are dominated by Mississippi Plain and Bell Plain. Common decorated types are Matthews Incised, *var. Beckwith* and *var. Manly*, and O'Byam Incised, *var. Stewart* (Clay 1979:123). As in the Medley phase of the Mississippi River Section, incised sherds usually account for a minor proportion of the ceramic assemblage, but they are more common than slipped or negative painted sherds. Small amounts of Tolu Fabric Impressed, which, unlike Kimmswick Fabric Impressed, is associated with the interior of bowls, are present in most Tinsley Hill phase ceramic assemblages (Clay 1963:267-258). This ceramic type is not present at earlier Mississippian sites in this section. Outside the Lower Tennessee/Cumberland Section, this type is primarily known from sites in the Ohio River II Section. Handles associated with Tinsley Hill phase ceramic assemblages are primarily wide thin straps.

Tinsley Hill, the type site for the phase, was a small regional center that covered about 7 ha of the Cumberland River floodplain and three low bluffs near the mouth of Eddy Creek in Lyon County. Several seasons of excavations there yielded data on the village area, cemetery, and platform mound (Clay 1961, 1963b, 1963c, 1997; Schwartz 1961; Schwartz and Sloan 1958). Limited excavations undertaken in the village area at the base of one bluff documented the presence of two Mississippian period middens that were stratigraphically separated by colluvium. Clay's (1979) initial inferences, based on his examination of the sherds from the two stratigraphically distinct middens, was that the

lower midden was contemporary with the Jonathan Creek site, and he assigned it to the Jonathan Creek phase. Based on calibrated radiocarbon dates from contemporary submound structures on the bluffs overlooking the midden and the Cumberland River (Table 6.3), this component was later assigned to the Angelly phase (Clay 1997:19). The initial temporal consideration of the lower midden zone at Tinsley Hill as dating to the Jonathan Creek phase (i.e., because late Mississippi period incised types were absent), can be accounted for simply as a function of differences in the size of the sherd collections from the upper and lower zones (Clay 1997; Lewis 1990a). The later Mississippian component was assigned to the Tinsley Hill phase.

The platform mound at Tinsley Hill stood about 2 m tall. The lower strata consisted of a series of at least five structures. While the size of these structures could not be determined, one had a length of at least 7.5 m. The structures associated with this mound may have been larger than the village structures and do not appear to have been covered with daub (Clay 1997:20). After the uppermost structure was burned, the mound was capped with 65 cm of deposits.

The later village may post-date the use of the platform mound (Clay 1997:22). If this was the case, this community's status within the lower Cumberland drainage may have changed, as power shifted to another regional administrative mound center. While the platform mound was no longer in use by the Tinsley Hill phase, the cemetery was associated with the later village (Clay 1997). This cemetery consisted of 54 stone-lined graves, that contained a minimum of 99 individuals (Lewellyn 1964; Lane 1993, 1998a; Schwartz 1961). Of these, 55 were adults and 44 were subadults under the age of 20. Forty-two percent of the individuals were male and 58 percent were female. One case of possible scalping was the only evidence of interpersonal violence documented. Based on mortality profiles, and dental and skeletal pathologies, this population exhibited severe levels of biological stress (Lane 1998a:226).

Based on comparisons with a much smaller data set (22 individuals) from the Long site (15Ru17) in the Lake Cumberland Section of the Upper Cumberland Management Area, the Tinsley Hill site inhabitants represented a relatively heterogeneous population in which nutritional stress, as reflected by enamel hypoplasia and dental caries, was more common (Lewellyn 1964:30, 38-39). The Long site population, on the other hand, was more homogeneous and exhibited fewer caries, but significantly more occlusal wear. While the identified differences in tooth conditions were initially interpreted as reflecting a greater dependence on maize horticulture by the Tinsley Hill site inhabitants (Lewellyn 1964:38), subsequent research (Lane 1993:Table 26) has shown that most of the individuals recovered from the Long site date to the Late Archaic subperiod. Thus, temporal differences as well as differences in subsistence patterns appear to account for the observed differences in tooth wear.

Analysis of stable carbon isotopes and nitrogen from a sample of the Tinsley Hill population points to a high reliance on maize. The Tinsley Hill population had a mean C12/C13 stable carbon isotope of -8.7 percent, and a mean nitrogen value of 8.6 percent. Both values are similar to what has been documented at other western Kentucky Mississippian sites (Schurr 1998:250).

SITE DISTRIBUTION PATTERNS

The 296 Mississippi period sites has been recorded in the Purchase Management Area (Table 6.1). This represents an almost 350 percent increase in the number of Mississippian components in this region. In 1987, almost 30 percent of known Mississippian sites in Kentucky were located in this management area; by 2005, they accounted for 22.3 percent (Table 6.1).

In 1987, almost 60 percent of Mississippi period sites in this management area were located in the Mississippi River Section, with about 30 percent being located in the Ohio River I Section, and less than 10 percent being situated in the Lower Tennessee-Cumberland Section (Table 6.1). By 2005, almost equal numbers of Mississippian sites were located with the Mississippi River and Ohio River I sections, with the Lower Tennessee-Cumberland Section accounting for only 19.3 percent of the sites (Table 6.6). These changes in site distribution are indicative of the level of survey effort that has been undertaken in response to compliance-related work within each section: much less work has been undertaken in the Mississippi River Section relative to the other two sections.

Table 6.6. Purchase: Site Type by Management Section.

Site Type	Mississippi River		Ohio River I		Lower Tennessee-Cumberland		Total	Percent
Open Habitation Without Mounds	87	76.3	99	79.2	40	70.2	226	76.3
Rockshelter			6	4.8			6	2.0
Earth Mound	8	7.0	3	2.4			11	3.7
Mound Complex	4	3.5			1	1.8	5	1.7
Workshop	1	0.9			1	1.8	2	0.7
Isolated Burial					1	1.8	1	0.3
Cemetery			11	8.8	10	17.5	21	7.1
Open Habitation With Mounds	14	12.3	6	4.8	4	7.0	24	8.1
Total	114	100.0	125	100.0	57	100.0	296	
Percent	38.5		41.9		19.3			100.0

Not surprisingly, within all three sections, most sites were classified as open habitation sites without associated mounds (Table 6.6). All of the 24 sites classified as “open habitations with mounds,” represent the remains of regional administrative centers. Although 16 isolated mounds or mound complexes also have been identified in this management area, none have been investigated and little is known about them. Many of these are sites that were recorded by Webb and Funkhouser (1932). The remaining sites are workshops or cemeteries without known associated habitation areas. Only six rockshelters have been recorded in the Purchase Management Area and all are located in the Ohio River I Section.

GREEN RIVER (MANAGEMENT AREA 2)

OHIO RIVER II SECTION

Previous Archaeological Research

Like the sections in the Purchase Management Area, the earliest reference to archaeological sites in the Ohio River II Section is the work of Rafinesque (1824). As with most of Rafinesque's reports, the value of his information is of limited utility.

Lyons (1871) reported on the exploration of several mounds in Union County, including the Slack Farm site (15Un28) and others that have Mississippi period components. However, the first major research project to target a Mississippian site in this section took place at the Tolu site (15Cn1), a group of three mounds and an associated village area located about two km from the Ohio River in Crittenden County that covers 8 ha (Webb and Funkhouser 1931). A substructure platform mound and a cemetery were excavated at this site.

After the Tolu excavations and the statewide survey report that followed a year later (Funkhouser and Webb 1932), little or no archaeological research occurred in this section until the 1960s, when several cultural resource management-related surveys were conducted (Hoffman 1966; Ottesen 1981:3-5; Weinland and Fenwick 1978:27-30). Although investigation of Mississippian sites was not the primary focus of these projects, they generated important data on the distribution of Mississippian sites in this section. For example, in his report on the survey of two lock and dam areas along the Ohio River, Hoffman (1966) noted that the frequency of Mississippian sites decreased between Henderson and Owensboro, a pattern that is corroborated by site survey data from the Indiana side of the Ohio River (Kellar 1956, 1958; Power 1976).

In the 1970s, a survey conducted in Daviess County documented 11 sites with Mississippian components, eight of which were situated on the Ohio River floodplain (Weinland and Fenwick 1978:173); and a survey of portions of Union, Henderson, and Daviess counties also documented several Mississippian sites in the Ohio River floodplain (Ottesen 1981, 1985). During the course of the latter project, limited excavations were conducted at the Stull site (15Un95), a multicomponent Late Woodland Yankeetown and Mississippi period (Caborn-Welborn) hamlet (Ottesen 1981, 1985).

A surface collection and limited excavations were undertaken at Papineau (15Cn11), a farmstead or small hamlet on Claylick Creek in Crittenden County in the early 1980s (Railey 1984). The looting of the Slack Farm site in 1987 led to an intensive investigation of this large Caborn-Welborn village (Pollack 1998, 2004). This investigation was followed in the 1990s by a survey project designed to relocate all known Kentucky Caborn-Welborn sites, and to document additional Caborn-Welborn sites in Kentucky (Pollack 1998). As a result of these efforts, 52 sites with Caborn-Welborn components are now documented for Union and Henderson counties.

Also in the 1990s, limited excavations were conducted at the Tolu and Foster (15Da68) sites (Kreisa 1991a, 1995; Sussenbach 1991, 1992). At Tolu, Kreisa determined that the mounds had been destroyed and that much of the site had been disturbed, though he noted that isolated areas of intact deposits may still be present at this site. The Foster site is an Angel phase Mississippian farmstead.

Important sites recorded in this section are listed in Table 6.7.

Table 6.7. Important Sites: Ohio River II Section.

Site No.	Site Name	Site Type	References
15Cn1	Tolu	Open habitation w/mounds	Funkhouser and Webb 1931; Kreisa 1991a, 1995
15Cn11	Papineau	Open habitation w/o mounds	Railey 1984
15Da39		Open habitation w/mounds	Weinland and Fenwick 1978
15He775	Cummings	Open habitation w/o mounds	Pollack 1998, 2004
15Un5	Grundy Hill	Stone mound complex	Pollack 1998, 2004
15Un9	Gough	Open habitation w/o mounds	Pollack 1998
15Un28	Slack Farm	Open habitation w/o mounds	Pollack 1998, 2004
15Un42	Moore	Open habitation w/o mounds	Pollack 1998, 2004
15Un57	Blackburn	Open habitation w/o mounds	Pollack 1998, 2004
15Un95	Stull	Open habitation w/o mounds	Ottesen 1981; Pollack 1998
15Un110		Stone mound complex	Niquette and Rotenizer 1990

Chronology

Research at the Angel site (12Vg1), a large (ca. 40 ha) Mississippian fortified administrative center located near the banks of the Ohio in Vanderburgh and Warrick counties Indiana (Black 1967), and at smaller sites in southwestern Indiana and northwestern Kentucky has resulted in the delineation of two phases: Angel and Caborn-Welborn (Green and Munson 1978). Both are directly applicable to Kentucky's Ohio River II Section. Most of the data presented below for both phases draws heavily on Green and Munson's (1978) work in this region, as well as that of Hilgeman (2000), Munson (1995, 1997, 2000), and Pollack (1998, 2004, 2006; see also Pollack and Munson 1998).

Angel Phase (A.D. 1000/1100-1400)

This phase, which has been described by several investigators (e.g., Green and Munson 1978; Hilgeman 2000; Honerkamp 1975; Power 1976), encompasses the beginning of the Mississippi period in this region and extends to the collapse of the Angel chiefdom. The origins of the phase and its relationship to the preceding Yankeetown phase (see Chapter 5) are not fully understood. While some (Redmond 1990) have argued for continuity in settlement and subsistence patterns from Yankeetown to Angel, others (Hilgeman 2000), pointing to differences in ceramic decoration, argue for discontinuity in the archaeological record. While the earliest Angel phase sites may date as early as A.D.

1000, most researchers suggest a date of ca. A.D. 1100 (Hilgeman 2000; Redmond 1990). Calibrated radiocarbon dates from the Foster site have been used to argue that the Yankeetown-to-Angel transition may have occurred as late as ca. A.D. 1150 (Sussenbach 1991) (Table 6.8).

Based on the ceramics recovered from the Angel site and calibrated radiocarbon dates, Hilgeman (2000) subdivided the Angel phase as follows: Angel 1 or Stephan-Steincamp (A.D. 1000/1100-1200); Angel 2 (A.D. 1200-1325); and Angel 3 (A.D. 1325-1450). To avoid overlap with the Caborn-Welborn phase, and for the purposes of this chapter, A.D. 1400 has been set as the end of the Angel phase.

Of the three Angel phases, the most poorly known is Angel 1. It is defined largely on ceramics recovered from the Stephan-Steincamp site (12Po33) in Posey County, Indiana. Angel 1 ceramic assemblages consist primarily of Mississippi Plain and Bell Plain ceramics, but also contain relatively large amounts of cordmarked and slipped sherds. All handles are of the loop variety (Hilgeman 2000).

Angel 2 ceramic assemblages are similar to Angelly phase ceramic assemblages found at sites in the Ohio River I and Lower Tennessee-Cumberland sections. They contain greater amounts of Angel Negative Painted ceramics than contemporary Angelly phase sites (Hilgeman 2000:36-37). Among the incised types that are present in Angel 2 assemblages are Ramey Incised, *var. Green River*, and O'Byam Incised, *var. Adams*. Plate rims tend to be narrow, and both loops and intermediate loop/strap handles are present.

Except for the addition of Parkin Punctate, the ceramic types found in Angel 2 contexts are found in Angel 3 contexts. Angel 3 ceramic assemblages, however, are distinguished from the former by the presence of thick and thin strap handles, deep rim plates, notched appliqué strips and beaded rims on bowls, and colanders.

The Angel site is the best known and most extensively excavated Angel phase settlement. It was occupied from A.D. 1200 to 1400, and both Angel 2 and Angel 3 components are present. Decorated ceramics, which consist primarily of red filming or negative painting, comprise less than one percent of the sherds recovered (Kellar 1967:472-473; Hilgeman 2000). Unlike contemporary Mississippian site ceramic assemblages in the Purchase Management Area, where incised decoration can account for as much as three to four percent of the sherds, incised sherds are very rare in Angel phase ceramic assemblages (Kellar 1967:468).

The extensive Angel site excavations demonstrated that the typical domestic structure was a wall-trench house with a hip roof (Black 1967:497-498). Some houses were constructed in shallow basins, but this architectural feature does not appear to have been as common in this part of the Ohio Valley as it was in the Purchase Management Area.

At the top of the Angel settlement hierarchy was the Angel site. This large regional administrative center is located east of Evansville, Indiana and slightly downstream from the mouth of the Green River. It covers more than 40 ha and consists of 13 mounds, extensive residential areas, and associated cemeteries (Black 1967).

Table 6.8. Chronometric Dates: Green River Management Area.

Lab No.	Age (B.P.)	Calibrated Date* (2-sigma)	References
Ohio River II			
Foster (15Da68-69)			
Beta-42594	980±50	AD 973-1180	Sussenbach 1991:57
Beta-42593	840±50	AD 1044-1098, 1119-1142, 1147-1274	Sussenbach 1991:57
Site 15He580			
Beta-185506	600±60	AD 1284-1424	Versluis 2004:469
Slack Farm (15Un28)			
Beta-62688	630±60	AD 1276-1415	Pollack 1998, 2004
Beta-62689	570±50	AD 1297-1431	Pollack 1998, 2004
Beta-62690	550±50	AD 1299-1370, 1380-1441	Pollack 1998, 2004
Beta-62694	420±50	AD 1415-1527, 1554-1633	Pollack 1998, 2004
Beta-62695	600±50	AD 1288-1417	Pollack 1998, 2004
ISGS-2849	640±70	AD 1262-1424	Pollack 1998, 2004
ISGS-2850	470±70	AD 1306-1363, 1385-1528, 1553-1633	Pollack 1998, 2004
ISGS-2851	570±70	AD 1286-1442	Pollack 1998, 2004
ISGS-2853	390±70	AD 1422-1645	Pollack 1998, 2004
Western Coalfield			
Annis Village (15Bt20)			
Beta-181396	660±30	AD 1278-1322, 1347-1392	Hammerstedt 2005a:335
Beta-181397	710±30	AD 1256-1307, 1362-1385	Hammerstedt 2005a:335
Beta-181398	630±30	AD 1287-1332, 1337-1398	Hammerstedt 2005a:336
Andalex Village (15Hk22)			
Beta-29878	660±60	AD 1281-1420	Niquette 1991a:202
Beta-29879	670±50	AD 1285-1406	Niquette 1991a:203
Beta-39876	810±60	AD 1045-1095, 1119-1141, 1147-1288	Niquette 1991a:192
Beta-39877	780±80	AD 1041-1108, 1116-1314, 1356-1388	Niquette 1991a:194
Beta-39878	1010±60	AD 894-929, 932-1162	Niquette 1991a:195
Beta-39879	710±50	AD 1219-1322, 1348-1392	Niquette 1991a:196
Beta-39880	1390±80	AD 435-490, 509-517, 529-782, 789-812, 845-856	Niquette 1991a:197
Beta-39881	800±60	AD 1046-1092, 1120-1140, 1148-1293	Niquette 1991a:201
Beta-40569	940±70	AD 982-1227, 1232-1241, 1247-1251	Niquette 1991a:198
Beta-40570	930±60	AD 996-1006, 1012-1221	Niquette 1991a:199
Beta-40571	970±80	AD 895-926, 936-1223	Niquette 1991a:200
Beta-40796	620±70	AD 1273-1428	Niquette 1991a:193
Morris (15Hk49)			
I-480	475±90	AD 1298-1371, 1378-1536, 1539-1547, 1549-1635, 1637-1641	Trautman 1963:69
I-481	270±80	AD 1447-1697, 1725-1814, 1835-1877, 1917-1952	Trautman 1963:69
Site 15Hk208			
Beta-65103	830±80	AD 1030-1285	Smith 1993b:69
Beta-65104	860±60	AD 1039-1264	Smith 1993b:70
Perkins (15Hk214)			
Beta-80529	500±60	AD 1298-1371, 1378-1496, 1508-1510, 1601-1615	Smith 1995:Table 8, 1997:Table 7
Beta-84172	450±60	AD 1325-1344, 1393-1528, 1551-1634	Smith 1997:Table 7
Beta-84171	590±60	AD 1287-1428	Smith 1997:Table 7

Table 6.8. Continued.

Lab No.	Age (B.P.)	Calibrated Date* (2-sigma)	References
Holland (15Hk248)			
Beta-83678	510±70	AD 1291-1512, 1601-1616	Smith 1997:Table 11
Beta-83679	780±70	AD 1045-1096, 1119-1142, 1147-1310, 1360-1387	Smith 1997:Table 11
Beta-85855	800±60	AD 1046-1092, 1120-1140, 1148-1293	Smith 1997:Table 11
Site 15Mu166			
Beta-58325	640±70	AD 1262-1424	Smith and Chapman 1993:103
Beta-58326	750±60	AD 1160-1316, 1354-1389	Smith and Chapman 1993:104
Site 15Mu190			
Beta-167918	750±60	AD 1160-1316, 1354-1389	Merritt and Versluis 2002:32
Beta-167917	820±60	AD 1044-1100, 1119-1142, 1146-1283	Merritt and Versluis 2002:32
<u>Pennyroyal</u>			
Site 15A1329 (see Chapter 5:Table 5.12)			
UGa-4480	910±105	AD. 899-919, 949-1282	Schock and Langford 1982
UGa-1710	560±100	AD 1258-1522, 1574-1584, 1590-1625	Schock and Langford 1979a
Site 15Wa8			
Uga-1709	485±255	AD 1047-1089, 1122-1139, 1149-1955	Schock 1979a
Uga-2185	200±75	AD 1521-1578, 1581-1591, 1620-1953	Schock 1979a
Dunklau (15Wa374)			
Uga-1715	639±85	AD 1227-1234, 1237-1435	Schock 1979a
<u>Upper Green River</u>			
Jewell (15Bn21, 15Bn349, 15Bn384, and 15Bn390)			
I-1108	527±120	AD 1266-1642	Hanson 1970:26
I-1109	657±100	AD 1177-1443	Hanson 1970:25
I-1110	922±125	AD 784-786, 827-840, 864-1297, 1373-1377	Hanson 1970:24
Beta-85813	770±40	AD 1186-1202, 1205-1289	Lowthert et al. 1998:Table 4.1
Beta-98789	670± 90	AD 1187-1199, 1206-1434	Lowthert et al. 1998:Table 4.1
Beta-98790	760± 80	AD 1430-1691	Lowthert et al. 1998:Table 4.1
Beta-98791	790±60	AD 1048-1087, 1122-1138, 1150-1298, 1371-1378	Lowthert et al. 1998:Table 4.1
Beta-98792	740±60	AD 1166-1319, 1351-1390	Lowthert et al. 1998:Table 4.1
Beta-100551	840±60	AD 1042-1107, 1117-1276	Lowthert et al. 1998:Table 4.1

The bulk of the Angel population appears to have lived at or in close proximity to the Angel site. The remainder lived at farmsteads, hamlets, and small villages located on floodplain levees, terraces, and bluff margins adjacent to the Ohio River in Kentucky and Indiana. These sites are found within a 120 km-long area from the mouth of the Anderson River in Indiana to the mouth of the Wabash River in Illinois (Green 1977; Green and Munson 1978; Munson 1983). None of the smaller villages contain platform mounds or cemeteries, but at the Southwind site (12Po265) (Munson 1994), houses were organized around a central plaza, and the village was enclosed by a stockade. The presence of a large number of burials at Angel, coupled with the absence of burials or cemeteries at Angel phase farmsteads, hamlets, and villages, suggests that all members of Angel society were interred at the Angel site.

Monumental public architecture is very evident at Angel, in the form of platform mounds and stockades (Black 1967). However, there is little evidence of differential access to personal wealth: within Angel society, greater importance appears to have been placed on the elites' ability to organize communal activities and group rituals that served to link the polity's various settlements than on individual displays of wealth. Grave goods, which primarily consisted of chipped stone tools, bone awls, undecorated pottery vessels, pottery ear plugs, and bone hair pins, were found with slightly less than ten percent of the Angel site burials. Objects manufactured from nonlocal materials interred with the dead consisted of a conch shell columella, a sheet-copper crescent, and galena cubes (Kellar 1967; Schurr 1992:307). The general lack of grave goods at Angel led Schurr (1992:314) to suggest that the Angel site skeletal series, which was primarily derived from habitation areas, represented a nonelite segment of this administrative center.

The Angel site undoubtedly played an important role in Mississippian social, economic, and political developments in the Ohio River II Section. Given the site's location (just upstream from the confluence of the Green and Ohio rivers), it also may have had some influence on Mississippian developments in the adjacent Western Coal Field Section.

By the late fourteenth century, the power and prestige of the Angel elite may have been on the decline (Clay 1997). As evidence of this decline, Clay (1997) argued that the most intensive use of Angel postdated the construction of platform mounds. He did, however, acknowledge that during this time, some of the existing mounds continued to be added to and maintained.

If the construction of platform mounds is associated with the rise to prominence of elites (Hally 1996), then a period characterized by new mound construction may reflect the changing fortunes of competing elites or ongoing intrasocietal competition (Anderson 1990). On the other hand, a period characterized by continued additions to existing mounds, could reflect political stability, as a ruling elite solidified and maintained its position within society (Hally 1996). As such, the absence of new mound construction at Angel, coupled with the maintenance of existing mounds, and an increase in population nucleation does not necessarily point to a decline in the power and prestige of the elite as suggested by Clay (1997). Nor does it mean Angel society became more egalitarian and politically decentralized. Instead, as more households were attracted to this regional administrative center and its population grew, one would expect that the elites' status would have been enhanced rather than diminished.

The Foster site is one of the few Angel phase farmsteads that have been excavated in Kentucky (Sussenbach 1991, 1992). Limited investigation of this site resulted in the excavation of a portion of a Mississippian wall-trench house that initially measured 5 by 4.5 m (this site also contains a Late Woodland Yankeetown component; see Chapter 5). Rebuilding the western wall enlarged this structure to 5 by 5.2 m. Mississippi Plain and Kimmswick Fabric Impressed were the only ceramic types associated with this structure. Though no radiocarbon dates were obtained, Sussenbach (1991, 1992) suggested that Angel phase component post-dated A.D. 1150 (see Chapter 5 for radiocarbon dates obtained from this site).

Undoubtedly other sites with Angel phase Mississippian components remain to be documented in Daviess and Henderson counties (Green and Munson 1978:303, Figure 11.3). For instance, Site 15Da39 and Site 15He850 may have Angel phase components, but this has yet to be verified (Versluis 2004; Weinland and Fenwick 1978).

Other Mississippian Sites

Papineau is a 0.3 ha farmstead or small hamlet on Claylick Creek in Crittenden County (Railey 1984). A basin-shaped feature found in a test unit may be the corner of a structure. The ceramic assemblage is dominated by Mississippi Plain; but small amounts of Kimmswick Fabric Impressed and one Old Town Red sherd also were present. Of particular note was the recovery of Mill Creek and Dover chert hoe flakes, and the presence of three Dover chert hoes in the Papineau family collection. Except for the presence of these artifact types, the Papineau assemblage is similar to Angel phase farmsteads as well as farmsteads located in the Western Coalfield Section.

Caborn-Welborn Phase (A.D. 1400-1700)

This phase dates to the late Mississippi period and sites assigned to it have been documented within a 60 km-long area centered at the confluence of the Wabash and Ohio rivers (Green and Munson 1978:294; Pollack 1998, 2004). Hence, it is more spatially circumscribed than the earlier Angel phase. Following the collapse of the Angel chiefdom, the bulk of the local population appears to have relocated slightly downstream, where they reconstructed social and political relationships (Green and Munson 1978; Pollack 1998, 2004, 2006; Pollack and Munson 1998). This suggestion is based on continuities in ceramic technologies, the types of motifs placed on ceramic vessels, and settlement patterns (see Hilgeman 2000 for an alternative interpretation).

The recovery of objects of European manufacture at Caborn-Welborn sites, such as Slack Farm, Blackburn (15Un57), Moore (15Un42), and Cummings (15He775) (Pollack 1998, 2004), indicates that some of these sites were occupied into the seventeenth century. There is, however, little data to suggest that any Caborn-Welborn site was occupied after A.D. 1700. Efforts to determine when the last Caborn-Welborn sites were occupied have been hampered by a paucity of good regional ethnohistorical data, and it is unlikely that future research will be able to associate this phase with an historically documented aboriginal tribe.

More than 80 Caborn-Welborn sites have been documented within a four-county area along the Ohio River in Kentucky, Indiana, and Illinois. Of these, 52 are located in Henderson and Union counties. Except for Slack Farm, none of the sites located in Kentucky have been excavated, but controlled surface collections have been undertaken at several sites (e.g., Site 15He779, Site 15He780, Hooper [15Un177], Site 15Un178, Cummings, Ritz, Blackburn, and Moore) (Pollack 1998). The Caborn-Welborn settlement system consisted of farmsteads, hamlets, small villages, large villages, and cemeteries (Green and Munson 1978; Pollack 1998, 2004).

Cummings is a good example of a farmstead. This site is located on a northeast-southwest trending Ohio River floodplain levee. Well-developed sloughs are situated on

both sides of the levee. Cummings encompasses an area that measures 160 x 40 m, and within the site's boundaries four concentrations of materials that ranged in size from 20 x 20 m to 20 x 70 m were documented. These concentrations suggest the presence of at least four households or periodic short settlement shifts of one household over an extended period of time. The ceramic assemblage from this site includes Mississippi Plain, Bell Plain, Kimmswick Plain, Caborn-Welborn Decorated, Matthews Incised, and Vernon Paul Applique. Among the chipped stone tools were six triangular endscrapers. In addition to ceramics and chipped stone tools, historic trade goods also were found. They primarily consisted of beads and tubes manufactured from native copper, European copper, or brass (Gersch et al. 1998). Two turquoise/Robin's egg blue drawn glass beads also were found at this site. Other Caborn-Welborn sites classified as farmsteads include Hart, Site 15He38, Site 15He779, Site 15He790, Site 15Un38, Site 15Un96, Hooper, Site 15Un178, Site 15Un179, and Stull (Pollack 1998).

Mulligan is a good example of a Caborn-Welborn hamlet. This site is located on a north-south trending Ohio River floodplain levee and encompasses an area that measures 150 m north-south by 50 m east-west. Five small concentrations of ceramics and chipped stone tools documented at this site may correspond to clusters of households. The ceramic assemblage recovered from the surface consisted of Mississippi Plain, Bell Plain, Kimmswick Plain, Caborn-Welborn Decorated, and Campbell Punctate. Among the other ceramic types recovered from burial contexts at this site were Caborn-Welborn Decorated, Campbell Punctate, and Matthews Incised, *var. Manly*. A head pot also is reported to have been found at this site. Among the chipped stone artifacts recovered from Moore were five triangular endscrapers. Other Caborn-Welborn sites classified as hamlets are Site 15He37.1, Site 15He43, Site 15He51, Site 15He52, Site 15He110, Site 15He111, and Ritz (15He777) (Pollack 1998).

The Moore site is a good example of a small Caborn-Welborn village. It is located in Union County on the Ohio River floodplain and encompasses ca. 2 ha. Three concentrations of materials were identified, with 80 to 90 cm of intact deposits being associated with Concentration 3. Zones of burning and charcoal observed in soil core profiles suggest the rebuilding of structures. Unlike many other Caborn-Welborn villages, there is no evidence to suggest that the residents of this community or the nearby Blackburn village (see below) buried their dead in cemeteries situated within this village. Rather, the residents of these two communities appear to have interred their dead on the bluffs overlooking the Ohio River floodplain.

The ceramic assemblage recovered from this site consisted of Mississippi Plain, Bell Plain, Kimmswick Fabric Impressed, Kimmswick Plain, Caborn-Welborn Decorated ceramics, and several other decorated ceramic types including Barton Incised, Parkin Punctate, Campbell Applique, Campbell Punctate, Ranch Incised-like, Old Town Red, and Walls Engraved. One of the Barton Incised jar rims and a Campbell Punctate bottle rim have interior-beveled lips that are similar to what House (1993:27) has referred to as the "Memphis Rim Mode." Among the chipped stone artifacts recovered from Moore were 15 triangular endscrapers.

Blackburn is also a small Caborn-Welborn village. This site encompasses 3 ha and is located in the Ohio River floodplain to the south of Moore. A plaza ca. 30 m in diameter is present in the northern one-half of the site. The ceramic assemblage

consisted primarily of Mississippi Plain, Bell Plain, Kimmswick Fabric Impressed, Kimmswick Plain, and Caborn-Welborn Decorated. As at Moore, a small amount of other decorated ceramic types, including Angel/Kincaid Negative Painted, Campbell Incised, Mound Place Incised, Old Town Red, and Parkin Punctate, were recovered from Blackburn. Among the chipped stone tools were 25 triangular endscrapers. In addition to shell tempered ceramics and chipped stone tools, a catlinite disk pipe fragment (Gunderson 1994) and a brass tube (Gersch et al. 1996) were recovered. An additional catlinite disk pipe and pipe fragment with engraved lines on its sides, along with several other copper and brass artifacts, also are reported to have been found at this site (Mike Moore, personal communication 1994). Other small Caborn-Welborn villages include Gough (15Un9) and Alzey.

Only one large Caborn-Welborn village (Slack Farm) is located in Kentucky. It is located on a terrace at the base of the bluffs and extends onto the surrounding floodplain (Pollack 1998, 2004). Slack Farm was first investigated in 1868 by Sidney S. Lyon (1871), who surveyed and excavated a number of features in the site area as well as earthen mounds (Site 15Un70) on the bluff overlooking the site. The site received little professional attention until the Kentucky Heritage Council was informed of looting taking place there in the fall of 1987. In the late winter and spring of 1988, more than 450 looter holes were investigated by professional archaeologists (Pollack and Munson 1989). During the course of the investigation of these holes and associated backdirt piles, over 300 complete or partially complete burials were recorded, and it was determined that a minimum of 850 individuals had been disturbed by the looters.

Slack Farm encompasses about 30 ha and contains at least seven residential areas with associated storage facilities and cemeteries. Six of the residential areas are situated around a plaza or a series of courtyards. The seventh was located across a ravine and downstream from the main residential area. Additional residential areas, some with small associated cemeteries, are located in other portions of the site, with some being situated on the floodplain.

Features identified in the residential areas at Slack Farm included structures (house basins), posts, small and large pits, and hearths. Although no structure was completely exposed, portions of at least 40 houses were documented. Most appear to have consisted of wall trenches set in shallow basins, and many had prepared clay hearths. The sides of the structures were covered with wattle and daub. Small pits were often located within and in the immediate vicinity of structures. There also is evidence to indicate that when a house was abandoned, old cooking and storage vessels were left behind. This is reflected in the concentrations of Mississippi Plain jars found in the hearths of several structures. Among the features located near these structures were large pits. Many (n=30) of these pits had diameters and/or depths of 1.5 to 2.0 m. These “underground silos” were probably used to store dried plant foods. Within each cemetery, individuals were often laid out in parallel rows and oriented toward the central plaza (Pollack 2004). (At the Hovey Lake site [15Po10], a large village located in Posey County, Indiana, some individuals were interred in the floor of a house [Munson and Cook 2001]).

In general, grave goods were placed near an individual’s upper torso, from between the hip and the head. Objects recovered from Slack Farm that are known to

have been interred with the dead include small Mississippi Plain, Campbell Punctate, Parkin Punctate, and Miscellaneous Incised/Trailed jars; long-necked Bell Plain bottles; fish effigy Bell Plain jars; limestone disk pipes; copper or brass beads, tubes, and coils; and shell beads and ear plugs. Other objects reported to have been interred with dead at this site include Kent Incised-like jars; conch shell bowls; Bell Plain human effigy bowls and Bell Plain bowls with effigy rim riders; Old Town Red bottles; light blue drawn glass beads; and copper/brass bracelets.

The Caborn-Welborn ceramic assemblage from Slack Farm is quite large and diverse. Ceramic types recovered from this site include Mississippi Plain, Bell Plain Caborn-Welborn Decorated, Kimmswick Fabric Impressed, Kimmswick Plain, Tolu Fabric Impressed, Parkin Punctate, Matthews Incised, *var. Manly, Matthews*, and *Beckwith*, Old Town Red, Angel Negative Painted, Walls Engraved, O'Byam Incised, Oneota-Like, Fortune Nodes, Kent Incised-Like, Mound Place Incised, Barton Incised, Campbell Punctate, Campbell Applique, and Campbell Incised. Among the chipped stone artifacts recovered were more than 600 triangular endscrapers (Pollack 1998, 2004).

One of the most well-known Caborn-Welborn cemeteries is Grundy Hill, which was investigated by Lyon (1871) in the late nineteenth century (see also DiBlasi and Sudhoff 1978:36, 159) (Pollack 1998, 2004). This site consists of several mounds located on the bluffs overlooking the Ohio River. A small collection of materials from this site was donated to the Smithsonian Institution in the 1960s. These materials were reportedly found by Mr. Thomas Barker Hite in the early 1900s. Lewis (1990a:410) notes that among the artifacts from this site donated by Mrs. Marjorie Jean Hite to the Smithsonian were a disk pipe, Barton Incised sherds, and a single astragalus die. Examination of these materials by the author revealed that the Barton Incised sherds are not sherds, but a complete Barton Incised jar. Also observed in the Smithsonian collection was a Mississippi Plain jar, a portion of a Bell Plain bottle, a pestle fragment, and a Caborn-Welborn Decorated jar. A Fortune Noded vessel also was found at this site (Mike Moore, personal communication 1994). Webb and Funkhouser (1932:382) noted that an "excellent" flourspar figurine reportedly came from this site. Three flourspar pendants and two catlinite disk pipes, which are curated at the Kentucky Museum at Western Kentucky University, also are reported to have been found at this site. One flourspar artifact is described as a bear or owl effigy, another an owl effigy, and the third a human face. On the base of one of the catlinite disk pipes is an engraved bird-man figure with a triangle on its chest, and a broken arrow is engraved on each side of this pipe.

Site 15Un40 is another important Caborn-Welborn cemetery. Unlike Grundy Hill and other Caborn-Welborn cemeteries, such as Site 15Un70 and Site 15Un110, the cemetery at Site 15Un40 is located on a ridge-shaped spur that extends from the top to the bottom of the bluffs (Pollack 1998, 2004). Following the publication of an article in the *Courier-Journal* newspaper (1968), Mike Rodeffer of the University of Kentucky Department of Anthropology visited it and examined 15 ceramic vessels in a private collection. An engraved hematite gorget with an "interesting design" also was examined. Unfortunately, Rodeffer's notes concerning this visit contain little information on the types of ceramic vessels he examined or a description of the design observed on the hematite gorget (fieldnotes on file, Office of State Archaeology, University of Kentucky).

An additional 16 ceramic vessels from this site in a private collection were examined. Ceramic types in this collection include Mississippi Plain, Bell Plain, Parkin Punctate, Campbell Punctate, and Campbell Applique (Pollack 1998). The latter two types account for slightly more than forty percent of these vessels.

Based on research conducted at Slack Farm and other Caborn-Welborn sites, a three-part internal sequence has been proposed for the Caborn-Welborn phase (Pollack 1998, 2004). The early subdivision (A.D. 1400-1450) represents the initial establishment of Caborn-Welborn communities following the collapse of the Angel chiefdom (Pollack and Munson 2003). These settlements consisted primarily of a cluster of small and large villages located near the confluence of the Wabash and Ohio rivers (Pollack 1998, 2004; Pollack and Munson 1998, 2003). The absence of smaller settlements may reflect sampling biases, or could reflect an initial period of population aggregation following the collapse of the Angel chiefdom.

Early Caborn-Welborn ceramic assemblages are characterized by a relatively low percentage of Caborn-Welborn Decorated; relatively broad trailed lines; a high percentage of shallow bowls with outslanting walls and castellated rims; a high percentage of Kimmswick Fabric Impressed pans; and a low percentage of hemispherical bowls with notched or beaded rimstrips. These assemblages also may include Oneota-like vessels, central Mississippi Valley-derived ceramic types, triangular endscrapers, Nodena points, catlinite pipes, native copper artifacts, and marine shell objects. The Oneota-like ceramics, triangular endscrapers, and objects manufactured from catlinite and native copper represent an increase in social and economic interaction with groups living north of the Ohio Valley. Intersocietal interaction with the central Mississippi Valley is reflected by the presence of ceramic types such as Parkin Punctate, Walls Engraved, Campbell Punctate, Barton Incised, and Kent Incised-like; Nodena points; and marine shell objects (Pollack 1998, 2004; Pollack and Munson 1998). In Kentucky, early Caborn-Welborn components have been documented at Slack Farm and Gough (15Un9).

Once established, subsistence patterns appear to have remained relatively constant throughout the Caborn-Welborn sequence. As with earlier Mississippian groups, Caborn-Welborn botanical collections are characterized by grew a variety of plants including corn, squash, tobacco, and starchy-oily seeded plants, such as maygrass, chenopod, sunflower, and marshelder (Rossen 1995). In addition to these plants, domesticated beans are present. Wild plants present in these collections include nuts (hickory, black walnut, butternut, pecan, acorn, and beechnut) and fleshy fruits and berries (persimmon, pawpaw, and plum).

Although corn was a staple of both the Angel and Caborn-Welborn diet, carbon isotope data indicate that Caborn-Welborn households may have eaten less maize (Powell et al. 1996; Schurr 1992, 1994). This is reflected in a somewhat lower mean carbon isotope obtained from a sample of Slack Farm burials (-10.9) relative to the earlier Angel site (-9.1). It should be noted, however, that while Caborn-Welborn households may have consumed less corn than earlier Angel households, the C12/C13 ratios, as well as the paleobotanical remains (Rossen 1995), indicate that corn still constituted a significant part of their diet.

While Caborn-Welborn groups appear to have slightly reduced their maize consumption and added beans to their diet, relative to the Angel phase population, animal subsistence patterns and the amount of meat consumed by Caborn-Welborn households apparently continued unchanged from the preceding Angel phase. Nitrogen values obtained from Angel (mean=8.9) and Caborn-Welborn (mean=9.1) skeletal remains indicates that both populations consumed similar amounts of aquatic foods, animal protein, and legumes (Powell et al. 1996).

As at most Mississippian sites in the lower Ohio and central Mississippi valleys (Smith 1978), large mammals, primarily deer, but also bison, dominate Caborn-Welborn faunal collections (Garmiewicz 2000; Terry Martin, personnel communication 1997). Small mammals, such as raccoons, beavers, opossum, squirrels, and rabbits, and reptiles, such as turtles also are well represented in these collections. Birds (ducks and turkey) and fish (gar, catfish, buffalo, bass, and drum) also are present, but in lower quantities than at Mississippian sites located further downstream and along the Mississippi River (Garmiewicz 2000; Smith 1978; Terry Martin, personnel communication 1997).

During the middle Caborn-Welborn subdivision (A.D. 1450-1600), settlement expands along the Ohio River east and west of the Ohio/Wabash confluence. All settlement types (farmsteads, hamlets, small villages, large villages, and blufftop cemeteries) are represented. Sites with middle Caborn-Welborn components include Hart, Alzey, Mulligan, Ritz, Hooper, Moore, Blackburn, Stull, Slack Farm, Site 15Un40, and Grundy Hill. Expansion of the Caborn-Welborn region may have been the result of intraregional competition and factionalism that led to fissioning of early Caborn-Welborn villages; internal population growth; or segments of neighboring chiefdoms relocating to the Caborn-Welborn region following their collapse (Pollack 1998, 2004).

Middle Caborn-Welborn ceramic assemblages are marked by an increase in Caborn-Welborn Decorated, a decrease in trailed line width, and a greater use of punctuation as fill. The middle Caborn-Welborn subdivision also is characterized by a decrease in Kimmswick Fabric Impressed pans, an increase in Kimmswick Plain pans, and an increase in hemispherical bowls with notched or beaded rimstrips. Nonceramic objects recovered from middle Caborn-Welborn sites are similar to those found at early Caborn-Welborn sites (Pollack 1998, 2004).

Continued social and economic interaction with Oneota groups is reflected in the incorporation of Oneota motifs within the Caborn-Welborn decorative tradition. It also is reflected by a decrease in trailed line width and a greater use of punctuation as fill. Some type of social and economic interaction with central Mississippi Valley groups is reflected by the presence of the same ceramic types recovered from early Caborn-Welborn sites. Other ceramic types and attributes that point to interaction with this region include Campbell Applique jars, jars with the "Memphis Rim Mode" (House 1993), jars with arcaded handles, and the incorporation of vertical notched strips within Caborn-Welborn decorative shoulder designs. Trace element analysis indicates that all of the Oneota-like and central Mississippi Valley types recovered from Caborn-Welborn sites were manufactured from locally derived clays (Shergur et al. 2003).

Only a few sites have been assigned to the late Caborn-Welborn subdivision (A.D. 1600-1700). These sites are located throughout the Caborn-Welborn region and

consist of small and large villages (e.g., Blackburn and Slack Farm) and farmsteads (e.g., Cummings). Assignment of sites to this subdivision is based on the presence of historic trade goods. It is expected that as more sites are intensively investigated, additional late Caborn-Welborn components will be identified.

The late Caborn-Welborn subdivision is marked by a decrease in Caborn-Welborn Decorated jars. Handles continue to become less functional and more decorative. A preference for Kimmswick Plain pans continues, and most lack the exterior lip protrusion that characterized earlier pans. In general, ceramic trends initiated during the middle Caborn-Welborn subdivision continue, and nonceramic objects recovered from late Caborn-Welborn sites are similar to those found at middle Caborn-Welborn sites. The most significant characteristic of late Caborn-Welborn artifact assemblages is the presence of historic trade goods (metal ornaments and glass trade beads). These materials, as well as central Mississippi Valley ceramic types, point to continued economic and social interaction with groups outside the Ohio Valley. By the end of this subdivision, Caborn-Welborn groups had abandoned most, if not all, of their settlements, bringing to a close the indigenous occupation of the Wabash-Ohio River confluence area.

WESTERN COALFIELD SECTION

Previous Archaeological Research

There are few descriptions of Mississippian sites in the Western Coalfield Section prior to Funkhouser and Webb's (1932) statewide survey. In their report, one can usually identify Mississippian period sites only by their reference to the presence of stone box graves. Early in the twentieth century, C. B. Moore (1916) traveled the Green River in his steamboat, the "Gopher." Though he was primarily interested in Archaic shell middens (see Chapter 4), he did investigate Annis Mound (15Bt2) in Butler County and three sites with stone box graves that also were located in Butler County. None yielded any artifacts (or at least any of interest to Moore), and the location of these sites within Butler County has yet to be determined.

Several important excavations of Mississippian period sites were conducted in this section by the University of Kentucky in the late 1930s, but, as was the case with so much WPA-sponsored archaeological work in Kentucky, with the United States' entry into World War II, the notes and artifacts were put into storage to be analyzed at a later date. Reports on four of the excavated sites were prepared in the late 1950s and early 1960s: Eaton (15McL6) and Kirtley (15McL19) in McLean County, Morris (15Hk49) in Hopkins County, and Annis Mound in Butler County. Reports describing the Kirtley (Rolingson 1961) and Morris (Rolingson and Schwartz 1966) site investigations were subsequently published.

Until the late 1980s, little in the way of additional Mississippian research had been undertaken in this section. But in 1989, Andalex Village (15Hk22) was excavated in advance of a coal mining operation. This site had been recorded in 1932 (Funkhouser and Webb 1932:191) and revisited in the late 1970s (Weinland and Delorenzo 1980) and the late 1980s (McIlhany 1988). During the latter visit, it was noted that the site

encompassed 2 ha. The subsequent excavation of this site focused on the platform mound and associated domestic structures (Niquette 1991a). A rockshelter (15Hk85) with a Mississippian component was located directly below Andalex Village (Weinland and Delorenzo 1980).

Since the late 1980s, several farmsteads have been excavated in this section. Among them are Site 15Hk208, Site 15Hk213, Perkins (15Hk214), Holland (15Hk248) Fulkerson (15Mu166), Walker (15Mu190), and Site 15Oh255 (Merritt and Versluis 2002; Schlarb et al. 2004; Smith 1993b, 1995, 1997; Smith and Chapman 1993). There also have been some investigations of Mississippian components associated with rockshelters in this section, such as the Evans Rockshelter (Hockensmith 1991) and Site 15Hk280 (Olmanson 2003). As with Andalex Village, most of these sites were documented during the course of projects undertaken in advance of proposed coal mining operations.

In 2003 and 2004, archaeologists from Pennsylvania State University conducted limited excavations at the Annis Village site (15Bt20) (Hammerstedt 2005a, 2005b, 2007). In addition to collecting new data, the curated materials and records from this site at the William S. Webb Museum of Anthropology at the University of Kentucky were examined.

Important sites recorded in this section are listed in Table 6.9.

Table 6.9. Important Sites: Western Coalfield Section.

Site No.	Site Name	Site Type	References
15Bt1	Martin Mound	Open habitation w/mounds	Milner and Smith 1986
	Annis Village Site Complex		
15Bt 1, 2, 20	(Annis Village, Annis Mound, and Martin Mound	Open habitation w/mounds	Hammerstedt 2005a, 2005b; Young 1962
15Hk22	Andalex Village	Open habitation w/mounds	Niquette 1991a
15Hk49	Morris	Open habitation w/o mounds	Rolingson and Schwartz 1966
15Hk85	Larkin-Atkinson Mounds	Open habitation w/mounds	Weinland and Delorenzo 1980
15Hk214	Perkins	Open habitation w/o mounds	Smith 1997
15Hk236	Cates Farm	Open habitation w/o mounds	Smith 1993a
15Hk280		Rockshelter	Olmanson 2003
15Oh225		Open habitation w/o mounds	Schlarb et al. 2004
15McL6	Eaton	Open habitation w/o mounds	Hanson 1959
15McL19	Kirtley	Open habitation w/o mounds	Rolingson 1961

Chronology

While several Mississippian sites in this section have been excavated, a chronological sequence has yet to be defined for this region. Thus, following Lewis (1990a), the results of major excavations are presented in relative chronological order. It should be noted, however, that while there is evidence of Mississippian occupation from ca. A.D. 1000 to A.D. 1400 in this section, there is little evidence of a post-A.D. 1400 Mississippian presence.

Eaton and Kirtley are open habitation sites that lie within 2 km of each other on an isolated upland remnant near the headwaters of Cypress Creek, a Green River tributary in

McLean County. Eaton was excavated by a WPA crew in 1937-1938, and the only report of this investigation was prepared as a University of Kentucky class term paper (Hanson 1959). The site was described in the field notes as a low earth mound that measured approximately 18 m in diameter. The mound's central feature was a Mississippi period wall-trench structure that measured 7.5 by 7.5 m (Hanson 1959:3). The interior of the structure showed a "packed earth floor," a hearth, and two associated ash pits (Hanson 1959:4). The association of this structure with a mound should be considered tenuous at best.

Nonceramic artifacts included 16 projectile points, many of which are clearly earlier types; drills; endscrapers; and a chipped stone pick (Hanson 1959:5). The ceramic assemblage from this site is dominated by Mississippi Plain, followed by Bell Plain, Old Town Red, and Kimmswick Fabric Impressed (Table 6.10). The large number of slipped sherds from this site distinguishes it from other Mississippian sites in this section. That most are described as having a light brownish gray slip that "was all but gone on most sherds" suggests that this classification is questionable. Appendages recovered include a loop handle and nodes associated with a hooded effigy bottle. Based on his analysis of the data, Hanson (1959:17) inferred that the site dated to about A.D. 1200, while Lewis (1990a) suggested that it was occupied sometime between A.D. 1000 and A.D. 1200. Although Hanson (1959) suggested that Eaton represented a hamlet that was probably tied to the nearby Kirtley site (see below), that the site only contained one structure is more suggestive of a farmstead.

Table 6.10. Western Coalfield Section Farmsteads.

Ceramic Type	Eaton	15Hk	15Hk	Perkins	Holland	Fulkerson	Walker	15Oh
	15Mcl ¹	208 ²	213 ²	15Hk 214 ^{4,5}	15Hk 248 ⁵	15Mu166 ³	15Mu 190 ⁶	225 ⁷
Mississippi Plain	387	19*	25	542	160	37*	212	286
Bell Plain	49							25
Kimmswick Fabric Impressed	11			3	3		1	1
Old Town Red	43							
Pond River Incised					1			
Totals	490	19	25	547	164	37	213	312
*includes mixed shell/clay tempered sherds.								
¹ Hanson 1959; ² Smith 1993b; ³ Smith and Chapman 1993; ⁴ Smith 1995, ⁵ Smith 1997; ⁶ Merritt and Versluis 2002; ⁷ Schlarb et al. 2004								

Extensive excavations were conducted at Kirtley by a WPA crew during the spring of 1937. The site was excavated because the Green River bottomland sites, where the archaeologists would have preferred to work, were inundated (Rolingson 1961). The investigations documented a shallow midden and the remains of several Mississippi period houses and associated pits. If rebuilding and repair of houses is counted, this small village consisted of 15 structures (Rolingson 1961:43). On the other hand, if the count is restricted to discrete house locations, there would have been between six and eight standing structures in this community at any one time.

Two major types of refuse-filled pits were documented. One type consisted of three large, shallow "midden pits" with irregular horizontal plans. These features, which

measured as much as 6.5 m long and less than 25 cm deep, were tentatively interpreted as trash-filled, house-wall plaster pits (Rolingson 1961:47). The second type consisted of three pits that were smaller (less than 3.5 m in length) and deeper (more than 50 cm) than the midden pits (Rolingson 1961:47).

A list of the Kirtley site pottery types is given in Table 6.11. Nonceramic artifacts from Kirtley included projectile points; numerous scrapers, drills, and knives; a celt; and several other groundstone implements (Rolingson 1961:48-53).

Table 6.11. Western Coalfield Section Regional Centers and Villages.

Ceramic Type	Kirtley		Morris		Annis Mound		Annis Village		Andalex	
	No.	Pct	No.	Pct	No.	Pct	No.	Pct	No.	Pct
Mississippi Plain	4752	86.7	5626	94.4	1628	95.0	13533	93.3	15257	90.9
Bell Plain	562	10.2	72	1.3	**		472	3.3	1164	6.9
Kimmswick Fabric Impressed	98	1.8	236	4.4	35	2.0	459	3.2	135	0.8
Kimmswick Plain	42	0.8			**		**		4	<0.1
Cordmarked/Net	20	0.4	2	0.1	40	2.3	30	0.2	39	0.2
Angel or Nashville Neg. Pt.			1	<0.1					1	<0.1
Wolf Creek Check Stamped	4	0.1							20	0.1
Matthews Incised, <i>var.</i> <i>Beckwith</i>	1	<0.1								
Matthew Incised, <i>var. Manly</i>					1	0.1			1	0.1
Pond River Incised, <i>var.</i> <i>Hopkins</i>									8	<0.1
Pond River Incised, <i>var.</i> <i>McLean</i>									11	<0.1
Mound Place Incised									2	
Old Town Red	#		18	0.3			2	<0.1	66	0.4
Powell Plain					1	0.1				
Ramey Incised					2	0.1				
Wickliffe Thick					1	0.1			17	0.1
Unidentified Incised/Engraved					6	0.4			54	0.3
Total	5479		5955		1714		14498		16782	
** Unless otherwise noted, plain-surface sherds are classified as Mississippi Plain.										
# Clay 1991 argues that the slipped and painted sherds identified by Rolingson and Schwartz are, in fact, refired sherds that have a red exterior surface.										
Annis Mound (Hammerstedt 2005), Annis Village (Hammerstedt 2005a), Kirtley (Clay 1991, Lewis 1990a; Rolingson 1961), Morris (Clay 1991; Lewis 1990a; Rolingson and Schwartz 1966), and Andalex (Kreisa 1991c:Table 8-1).										

There are close similarities between the Kirtley and Eaton ceramic assemblages. For instance, at both sites Bell Plain accounts for about 10 percent and Kimmswick Fabric Impressed accounts for about 2 percent of each site ceramic assemblage. The primary differences are that a greater variety of ceramic types were recovered from Kirtley than Eaton. While these differences may be related to sample size, they could reflect site function, as Kirtley was a much larger settlement than Eaton. They also may be related to relative site occupation duration: Kirtley appears to have been occupied longer than Eaton. Rolingson (1961:54-55) suggested an age estimate of around A.D. 1500 for the Kirtley occupation. Based on cross-dating with ceramic assemblages from sites in the Purchase Management Area, however, Lewis (1990a) suggested that the Kirtley site occupation should date to about A.D. 1000-1300. The relatively high

percentage of Bell Plain ceramics, the presence of a Beckwith Incised sherd, and a predominance of strap handles led Clay (1991:147, 1997:288) to suggest that the site was occupied somewhat later, and was contemporary with the Tinsley Hill phase (A.D. 1300-1450) of the Lower-Tennessee Cumberland Section and Angel 3 (A.D. 1325-1450) at the Angel site. From this discussion, it is apparent that there is no clear consensus about when Kirtley was occupied.

The Morris site was a multicomponent site situated on a small knoll near the juncture of two small creeks southwest of Madisonville in Hopkins County. It was excavated in 1940-1941 by a WPA crew, and the results of this work were published by Rolingson and Schwartz (1966:64-126) as part of their study of Paleoindian and Early Archaic sites in Kentucky.

The Mississippi period component was a fortified village that consisted of at least 12 structures (10 wall-trench and two individually set posts) arranged around a small public space (Rolingson and Schwartz 1966:71-76). Interior features were postholes and “small pits,” some of which appear to have been hearths. The village had been enclosed on at least two occasions by a stockade, which incorporated bastions into its design. The remains of three wall-trench structures were superimposed on the oldest stockade (Rolingson and Schwartz 1966:78-79).

A list of the Morris site pottery types is given in Table 6.11. In addition to ceramic vessels, several small pottery disks and pottery trowels were recovered from this site. Nonceramic artifacts included triangular projectile points, picks, adzes, small stone disks, a hoe, a discoidal, and bone awls (Rolingson and Schwartz 1966:79-83). The apparent absence of unifacial tools, such as scrapers, is probably attributable to the difficulty of separating these artifacts from the assemblages of older components at this site.

In comparison to Kirtley, a lower percentage of Bell Plain and Old Town Red and higher percentage of Kimmswick Fabric Impressed pans were found at Morris (Table 6.11). Morris is one of the few sites in this section that has yielded a negative painted sherd. Charcoal from hearths in Structure 3 and Structure 10 yielded calibrated radiocarbon dates of A.D. 1298-1641 and A.D. 1447-1952, respectively (Table 6.8). The latter date is one of the latest Mississippi period radiocarbon dates obtained from a Kentucky site. Clay (1991, 1997, 2006; see also Lewis 1990a) has questioned the reliability of both dates, and, based on intersite pottery comparisons, has suggested that the Morris site was occupied as early as A.D. 1200 but not later than A.D. 1350.

Four sites (Martin Mound [15Bt1], Annis Mound [15Bt2], Annis Village [15Bt20], and Annis Sand Mound [15Bt21]), were excavated in 1939-1940 by WPA crews in the “Big Bend” locality of the Green River in north-central Butler County (Milner and Smith 1986:Appendix 1). Of these, the Annis Sand Mound, once thought to be associated with Annis Mound and Annis Village (Lewis 1990a), has since been determined to date to the Archaic period (Hammerstedt 2005a:68). The latter two sites, which constitute the Annis Village Site Complex are located adjacent to each other, while the Martin Mound is located about 0.5 km upstream from them on a prominent spot overlooking the Green River.

Annis Mound was first described by Moore (1916:480), who excavated part of it. During the Depression, the WPA crew excavated the entire mound down to subsoil and

exposed a large portion of the fortified village (Annis Village) that lay immediately north of the mound. Materials from the Annis Mound were reported on by Young (1962) and Hammerstedt (2005a, 2005b, 2007).

At the time of the WPA project, the Annis Mound measured roughly 31 m long, 26 m wide, and about 4 m high (Young 1962:6-7), although it was being eroded by the Green River. It was situated at the southern end of a narrow plaza that was flanked by at least 17 structures. Annis Mound was constructed in three stages (Sub-Primary, Primary, and Secondary) over an Old Humus layer. A total of 27 posts, associated with the latter, occurred in two distinct clusters: one along the mound's northern edge and one along its southern edge. The Sub-Primary Mound measured 15 by 24 m and stood 70 cm high. A structure that may have been rebuilt at least once was associated with this mound stage. The structure's long axis measured 11.02 m and its short axis measured at least 8.03 m (the latter measurement was incomplete due to erosion of the mound). The total area encompassed by this structure was at least 89.7 m². Features associated with this structure included nine hearths and four trash pits (Hammerstedt 2005a, 2005b; Young 1962:98-106).

The next construction stage, the Primary Mound, measured 30.5 by 18.3 m at its base. A 90 cm thick layer of added soil brought the height of the mound to 1.6 m. As with the Sub-Primary mound, a structure was built on its summit. It measured 21.3 m by at least 13.9, and encompassed a total area of at least 250 m². Given the size of this space, this "structure" may, in fact, have been a fence that enclosed a wall-trench structure. Such a fence would have effectively screened the structure from the public (Hammerstedt 2005a, 2005b). Among the associated features were six puddled-clay fire basins, six fire basins, and 12 surface hearths.

After completion of the Secondary Mound, the Annis Mound measured 33.5 m on a side and its height had increased to about 3.7 m. Again, a structure was built on its summit. It measured 12.3 m by at least 8.5 m, with a total area of at least 104.8 m². Interior partitions, two post supports, three possible storage pits, a prepared hearth, and three surface hearths were noted in association with this structure, and there was evidence of some rebuilding (Hammerstedt 2005a, 2005b).

Among the ceramics recovered from the Annis Mound were two Ramey Incised sherds: one from the Old Humus Layer and one from the Sub-Primary Mound. A Powell Plain sherd and a Matthews Incised, *var. Manly*, sherd also were recovered from the Sub-Primary Mound. Both Ramey Incised sherds and the Matthews Incised sherd appear to have been manufactured from nonlocal pastes, as reflected by neutron activation analysis (Hammerstedt 2005a:115). The Powell Plain sherd, however, appears to have been manufactured locally. Most of the handles recovered from the mound fill were loops, which suggests that the mound was constructed sometime between A.D. 1100 and A.D. 1300 (Hammerstedt 2005a, 2005b). There is an increase through time in the use of lug handles at the site.

Annis Village was excavated by WPA crews from February 1939 until April 1940, and during the summers of 2002-2004 by crews from Pennsylvania State University. Over the course of these investigations, three concentric palisades and 17 structures and associated features were documented (Hammerstedt 2005a:129). Only one burial was

found. The palisades represent successive enlargements of the village. The inner palisade yielded calibrated radiocarbon dates (Beta-181396 and 181397) that, at two standard deviations, overlap between A.D. 1287-1392, while the middle palisade yielded a calibrated date of A.D. 1256-1385 (Beta-181398) (Table 6.8). Only the outer palisade had a bastion.

Both single-set post and wall-trench structures were found at Annis Village. Many had been rebuilt; some three or four times. They had a mean length of 6.15 m and a mean width of 5.57, and had average floor area of 34.89 m² (Hammerstedt 2005b:22).

The ceramic assemblage is dominated by Mississippi Plain (Table 6.10). Lugs were the most common type of jar handle, followed by thin, wide strap handles. That strap handles outnumbered loop handles points to a post-A.D. 1300 occupation of the village and corroborates the radiocarbon dates (Hammerstedt 2005a:194).

Bell Plain and Kimmswick Fabric Impressed are the next most common types. No incised sherds were recovered, but two Old Town Red sherds were present. As with other Mississippian site assemblages, jars were the predominant vessel form, but the collection contains almost as many pans as bowls (Hammerstedt 2005a:197). Following Wesler (2001:66) and Milner (1984), Hammerstedt (2005a:193) suggests that the former may have been used for parching seeds or as griddles. Chipped stone artifacts were primarily manufactured from local Curlew and Fort Payne cherts, but a few Dover chert celts and wood-working tools were recovered (Hammerstedt 2005a:205).

The Annis Village Site Complex may have been the administrative center of a dispersed chiefdom, similar to that documented in the vicinity of the Jewell site (Lowthert et al. 1998; see below). As many as 100 people may have lived at the village at any one time, with several hundred people living in scattered farmsteads and hamlets within a 10 km radius (Hammerstedt 2005a:260).

Within this community, status was primarily reflected by where one lived. The chief lived on the mound in a larger house and had access to some nonlocal goods in the form of decorated pottery (Ramey Incised and Matthews, *var. Manly*) that may have been derived from the Mississippi Valley. Nonlocal ceramic vessels or even vessel fragments may have been infused with special meaning. The widespread occurrence of Ramey Incised ceramics within ceramic collections throughout the Midwest may represent elite interpretation of the cosmos and the communication of their beliefs to nonelite subgroups (Pauketat and Emerson 1991:935). The recovery of such items from the Annis Village Site Complex suggests that the leaders of this polity were linked into this wider network of exchange of goods and ideas. As the mound center grew, more labor was invested in the construction of the platform mound and palisade, which also would have enhanced the status of the local elite.

Though the materials and human remains recovered from the Martin Mound have never been analyzed, at least 50 individuals were interred within this mound, with both cremations and stone box graves being present (Hammerstedt 2005a:241). The presence of stone box graves, is suggestive of a post-A.D. 1200 site occupation, which led Hammerstedt (2005a:241) to suggest that the Martin Mound was contemporary with the Annis Village Site Complex. He also suggested that since few burials have been

documented at Annis, that some of the inhabitants of this community may have been interred in the Martin Mound.

As with the Annis Village Site Complex, establishment of a Mississippian community at Andalex Village (15Hk22) predated the construction of the platform mound at this single mound administrative center (Clay 2006; Niquette 1991b:30). Located on a bluff overlooking the Pond River in Hopkins County, this site encompassed a little more than 2 ha, and consisted of a platform mound, a central plaza, and at least 11 wall-trench structures. It probably once contained additional structures, but the site has been severely impacted over the years by agricultural practices. Three domestic structures were found at the base of the mound, suggesting that a Mississippian village predated construction of the platform mound (Niquette 1991b:30). These structures ranged in size from 4 by 6 m to 5.2 by 6 m. At two standard deviations, the three calibrated radiocarbon dates (Beta-40569, Beta-40570, and Beta-40571) obtained from these structures overlap between A.D. 996 and 1221 (Table 6.8).

The mound, which measured approximately 35 by 45 m and had a height of 1.5 m, was constructed in five stages. Originally, it would have been much taller, as shown by the fact that Stages 3-5 were only evident along its sides. The five mound stages have been interpreted as representing possible periods of abandonment and reoccupation over several hundred years (Niquette 1991a), or at a minimum, a break in the occupation between the establishment of the initial settlement and construction of the mound (Clay 1997:28, 2006:53).

Stage 1 was 50 cm thick, and a wall-trench structure was documented on its summit. This structure measured 4.8 by 6.2 m and may have had a 1.7 by 3.8 m addition (Niquette 1991b). The three calibrated radiocarbon dates (Beta-29878, Beta-29879, and Beta-39879) associated with this structure overlap at two standard deviations between A.D. 1285 and 1392 (Table 6.8). Stage 2 was 65 cm thick, and a structure measuring at least 5 m on a side also was associated with it. An anteroom was clearly part of this structure. Though Structure 2 was not completely defined, it appears to have been rebuilt several times. A calibrated radiocarbon date (Beta-40796) of A.D. 1273-1428 was associated with this structure (Table 6.8). A calibrated date of A.D. 1045-1288 (Beta-39876) obtained from charcoal collected from the mound fill above the floor of this structure is not consistent with the other dates from the mound and was thus considered unreliable (Niquette 1991b:37).

As previously mentioned, domestic structures not covered by the platform mound had been severely disturbed by agricultural practices. Though the size of these structures could not be determined, the best preserved measured at least 5 m on a side. Two charcoal samples from one of these structures yielded calibrated dates (Beta-39877 and Beta-39881) that, at two standard deviations, have date ranges that overlap between A.D. 1046-1293 (Table 6.8). These dates and three from below the mound (Beta-40569, Beta-40570, and Beta-40571) (a fourth radiocarbon sample [Beta-39880] yielded an unacceptable calibrated date of A.D. 435-856 [(Niquette 1991b:30)] have a slightly more restricted date range of A.D. 1046 to 1223, suggesting that the submound structures may be contemporary with some located in the site's residential area.

As with most Mississippian sites, the Andalex Village ceramic assemblage is dominated by Mississippi Plain (Table 6.10) (Kreisa 1991c). A fair amount of Bell Plain is present, but Kimmswick Fabric Impressed sherds comprise less than one percent of the assemblage. A small amount of Wolf Creek Checked Stamped was recovered, and incised sherds slightly outnumbered slipped sherds. Jar handles were equally divided between loops and straps, with nodes and lugs also present.

Two provisional ceramic types, Pond River, *var. Hopkins*, and Pond River, *var. McLean*, were documented at this site, and Kreisa (1991c) suggested that they may be related in some way to Caborn-Welborn Decorated ceramics, perhaps as antecedent types. Pond River, *var. Hopkins*, is characterized by a series of “lines set horizontally and obliquely to the rim. These lines are then incised with “tic” mark incisions set perpendicular to them (Kreisa 1991c:80). To date, this type of decorative treatment has not been documented on any Caborn-Welborn ceramics (Pollack 1998, 2004). It is, however, very similar to Yankeetown Pseudo-fillet, the main difference being that Yankeetown ceramics are primarily tempered with grog and Pond River, *var. Hopkins*, is tempered with shell (Clay 1991:153). This author has observed the presence of a line-and-tic motif, in this case as a stamp, on Crab Orchard ceramics from Slack Farm. The presence of this decorative treatment on Crab Orchard and Yankeetown ceramics suggests that it may have a long history of use in the Green River Management Area. It clearly predates the establishment of Caborn-Welborn settlements in the Ohio River II Section.

Unlike Caborn-Welborn Decorated, where the decorative motif is placed between the neck and the shoulder, on Pond River, *var. McLean*, ceramics, incised/trailed lines were placed directly below the lip. Though Kreisa (1991c:81) noted the similarity of this type to Barton Incised, he suggested that Pond River, *var. McLean*, reflected interaction with the Caborn-Welborn region of the Ohio River II Section rather than interaction with groups in the Purchase Management Area or the Mississippi Valley. Unfortunately, there is nothing in the archaeological record in these areas to support such a suggestion. In addition to ceramics, chipped stone debitage, projectile points, shell beads and hoes, and modified bone tools and adornments, were recovered from this site

Faunal exploitation at Andalex Village was focused on deer, supplemented with other large mammals, such as bear, and smaller mammals, such as raccoon, fox, squirrel, and rabbit. Aquatic resources, however, do not appear to have been intensively exploited as fish, muskrat, and beaver are poorly represented in the faunal collection (Kreisa 1991d). In comparison to faunal remains, a very limited inventory of plant remains was recovered from this site. In particular, very low densities of maize (8 and 10 row, Northern Flint?), nuts (hickory), and native cultigens (chenopodium and maygrass) were recovered relative to other western Kentucky Mississippian sites (Crites 1991; Rossen 1998:99).

The radiocarbon dates from Andalex Village, and differences in the ceramics recovered from the bottom and top of the mound, have been interpreted as reflecting a long history of use, as well as periods of abandonment and reoccupation (Clay (1991, 1997; see also Kreisa 1991c):

Like Morris, Andalex was first established without a mound circa 1000 A.D. A mound was later constructed over parts of three houses, which existed prior to it but which were probably not “specialized” themselves.... The mound was built some time before 1250 A.D., and there was a temporal gap between the first use of the site and the first mound stage. The first mound stage at Andalex with its summit building, Structure 2, was abandoned by 1250 A.D. Additional mound construction followed, hypothetically by an ethnically different group (Clay 1991:156).

In addition to investigations conducted at regional administrative centers, several farmsteads have been investigated in this section. Farmsteads that have been excavated include sites 15Hk208, 15Hk213, and 15Oh225; Fulkerson; Walker; Perkins; and Holland (Merritt and Versluis 2002; Schlarb et al. 2004, Smith 1993b, 1995, 1997; Smith and Chapman 1993). Except for Site 15Oh155, which is located on the Green River floodplain, all are associated with interior ridgetops.

Site 15Oh225 was the only one of these farmstead sites to contain midden deposits. Both excavated units documented the presence of a 15 cm-thick midden within a ca. 20 by 20 m area in the southern portion of the site. A small pit or large post was documented in one of the units. Chipped stone tools included one Madison triangular point, a retouched flake, and a drill. All of the tools and debitage were manufactured from local cherts that were primarily obtained from nearby river gravels. Among the ceramics recovered were Mississippi Plain, a small amount of Bell Plain, and one Kimmswick Fabric Impressed rim (Table 6.10). Based on the presence of a thin strap handle, the site’s Mississippian component probably post-dates A.D. 1250 (Schlarb et al. 2004).

A wall-trench structure was documented at the Holland site in Hopkins County (Smith 1997). This structure measured 5 by 5.5 m, and had a central hearth and a large number of interior posts. A few pits and posts were found directly adjacent to the structure. All of the ceramics were classified as Mississippi Plain except for three Kimmswick Fabric Impressed sherds and a decorated sherd classified as Pond River Incised (variety unspecified) (Table 6.10). One Madison triangular point was recovered from this site, and all of the debitage was derived from local St. Louis cherts. As with most Mississippian sites, the botanical assemblage is dominated by maize. Among the other plant remains were a few native cultigens (knotweed and chenopodium), squash, and nuts. A wild bean (*Fabaceae* sp.) as well as a cultivated bean (*Phaseolus* sp.) were recovered from the Holland site. The presence of the cultivated bean is somewhat surprising, as the three calibrated radiocarbon dates (Table 6.8) obtained from the site suggest a thirteenth century occupation (Smith 1997). As such, the presence of a cultivated bean at the Holland site represents one of the few documented instances of domesticated beans in a pre-A.D. 1400 context in western Kentucky. This farmstead may have been associated with Morris Village, which is located about three km away (Smith 1997).

At the Perkins site, located near the Holland site (Smith 1995, 1997), Mississippian ceramics were recovered from six pit features within a 15 by 15 m area, but no structure was documented. Except for three Kimmswick Fabric Impressed sherds, all

of the ceramics were classified as Mississippi Plain (Table 6.11). The presence of thin strap handles points to a post-A.D. 1300 date for this site, as do three calibrated radiocarbon dates (Table 6.8). Other artifacts recovered include lithic debitage, projectile points, and faunal remains. Faunal remains recovered from this site included deer, snakes, small birds, and large birds. Although a few mussel shells were recovered, fish remains were notably absent (Smith 1997:27). Based on the presence of maize, hickory nuts, and wild plum seeds, Smith (1997) suggested that the site represents a temporary hunting and gathering camp that was occupied during August and September.

At Site 15Hk208, Fulkerson, and Walker, Mississippi period pits and clusters of posts were found within a ca. 500 m² area at each site (Merritt and Versluis 2002; Smith 1993b; Smith and Chapman 1993). All contained a low density of artifacts, but each yielded Mississippian ceramics. Except for a Kimmswick Fabric Impressed sherd from Walker, all of the ceramics were classified as Mississippi Plain (Table 6.11). At Site 15Hk208 and Walker, however, the authors noted that some finely-tempered sherds were similar to Bell Plain, but they chose not to classify them as such. The Fulkerson site ceramic assemblage is distinguished from the other two sites by a predominance of shell and grog tempered pottery and the presence of a loop handle and a crenellated rim (Smith and Chapman 1993). Food plant remains were not well-represented at these sites and consisted primarily of small quantities of maize and nuts. Deer was the only identified faunal remain recovered. All three sites yielded radiocarbon dates that are similar to those obtained from Perkins (Table 6.8). Other farmsteads documented in this section include Site 15Hk87 (Schock 1979b) and the Cates Farm site (15Hk236) (Smith 1993a, as referenced in Smith 1997).

In addition to farmsteads, Mississippian use of rockshelters has been documented at several rockshelters in this section (e.g., Evans Rockshelter [15Bt75], and sites 15Bt4, 15Bt40, 15Bt74, and 15Hk280) (Hockensmith 1991:148; Olmanson 2003). Of these, only the Evans Rockshelter and Site 15Hk280 have been excavated by professional archaeologists. A small ceramic assemblage, consisting primarily of Mississippi Plain followed by McKee Island Cordmarked and Wolfe Creek Check Stamped, was recovered from the Evans Rockshelter. The botanical assemblage was dominated by carbonized nut shell, and no maize was recovered. Among the faunal remains recovered were deer, raccoon, and box turtle. Based on the site's proximity to the Annis Village Site Complex and the absence of cultigens, Evans Rockshelter may have been a seasonal camp that was occupied in the late summer by residents of that complex (Hockensmith 1991).

At Site 15Hk280, Olmanson (2003) recovered shell tempered ceramics, a hoe, a hand drilled pearl bead, and a cannel coal bead from disturbed deposits. Human remains found at this site also may be associated with the Mississippian component as may a petroglyph with a thunderbird motif and V-shaped symbols (Wells 2003:136).

In summary, among the excavated Mississippian period sites in this section, components that date to between A.D. 1000-1400 are well-represented. Little is known, however, about the final centuries of prehistory in this region. The relative permanence of large villages, such as Morris, and regional administrative centers, such as the Annis Village Site Complex and Andalex Village, is reflected in the abundant evidence of structure repair and rebuilding, and multiple stages added to platform mounds. The relatively small size of these administrative centers, especially when compared to larger

centers, such as Jonathan Creek, Angel, Kincaid, and Adams, coupled with the large number of farmsteads documented in this section, points to the presence of dispersed chiefdoms, similar to those identified in the Upper Green River Section (see below).

PENNYROYAL SECTION

Previous Archaeological Research

The earliest mention of archaeological sites in this section are those referenced by Rafinesque (1824), several of which can be tied to known locations. During the early decades of the twentieth century, Fowke (1922) visited several cave and rockshelter sites in this section, but his account is superficial and marred by incorrect site locations (e.g., the Glover site [15Ch3] is reported by Fowke to be in Todd County rather than Christian County, its true location).

Webb and Funkhouser were active in this section in the late 1920s. At the Glover site, they initially excavated at least 14 stone box graves (Funkhouser and Webb 1928; Webb and Funkhouser 1929). This work was apparently followed immediately by the excavation of a substructure mound and a cemetery at the Williams site (15Ch2), also in Christian County (Webb and Funkhouser 1929), and the excavation of numerous stone mortuary cists at the Page site (15Lo1) in Logan County (Webb and Funkhouser 1930).

The next major fieldwork on Mississippian sites in this section occurred in the early 1960s with archaeological survey and limited excavation projects undertaken in the “Barren River Basin #2” in Allen and Barren counties (Clay 1963e; Sloan and Schwartz 1960) (since most of these sites are located in close proximity to the Jewell site [15Bn21], they are described in the next section). Elsewhere, limited investigations were conducted at the Hadden site (15To1), a Late Woodland and Mississippian village site in Todd County (Long 1961, 1974).

Beginning in the 1960s and continuing into the early 1980s, fieldwork was conducted at the Watkins site (15Lo12) (Applegate 2000). This site consists of two burial mounds and an associated habitation area. The initial work, undertaken by the Southern Kentucky Chapter of the Tennessee Archaeological Society, focused on Mound A (Applegate 200; Ray n.d.). While most of the burials appear to date to the Middle Woodland subperiod, some of the stone box burials may date to the Mississippi period. Subsequent work in the late 1970s and early 1980s by Schock (1977a) focused on the habitation area, where a wall-trench structure that measured ca. 6.5 by 8.5 m, and several features were documented. The structure was originally assigned to the Middle Woodland component, but Applegate (2000:137) suggests that it was affiliated with the site’s Mississippian component.

Dunklau is a Mississippian period cemetery (15Wa374) and associated habitation area (15Wa380) that also has a Woodland component (see Chapter 5). The mortuary area consists of seven more-or-less distinct burial mounds, which range in size from 3 to 10 m in diameter and in height from 0.1 to 1.5 m (Foster 1972; Railey 1985a). All contain

stone box graves. The habitation area is characterized by a dark midden stain and a moderate to dense concentration of artifacts. Though few diagnostic artifacts were recovered in direct association with graves at this site, shell tempered sherds were associated with the mound fill. Materials recovered from the habitation area include shell tempered sherds, an ovate biface, and animal bone.

The Kentucky Heritage Council's survey of Christian County (Sanders and Maynard 1979) identified several new Mississippian sites. The most important was McRay (15Ch139), a palisaded village that had been excavated by an amateur archaeologist (Dossett 1966).

In 1983, the University of Kentucky surveyed the Fort Campbell military reservation in portions of Christian and Trigg counties (O'Malley et al. 1983). This project documented several sites with Mississippian components in the southern portion of this section. Subsequent work (Bradbury 1998, 1999) within that installation has documented additional sites with Mississippian components. Those that have produced significant data are located in the Tennessee portion of the reservation (Kreisa et al. 2002).

Since 1987, very little in the way of Mississippi period research has been undertaken in this section, aside from the work conducted at Fort Campbell.

Important sites recorded in this section are listed in Table 6.12.

Table 6.12. Important Sites: Pennyroyal Section.

Site No.	Site Name	Site Type	References
15Ch2	Williams	Open habitation w/mounds	Webb and Funkhouser 1929
15Ch3	Glover	Open habitation w/o mounds	Webb and Funkhouser 1929
15Ch139	McRay	Open habitation w/mounds	Dossett 1966; Sanders and Maynard 1979
15Lo1	Page	Open habitation w/mounds	Webb and Funkhouser 1930
15To1	Hadden	Open habitation w/mounds	Long 1961, 1974
15Wa374, 380	Dunklau	Open habitation w/mounds	Foster 1972; Railey 1985a
15Lo12	Watkins	Open habitation w/mounds	Applegate 2000, 2002

Chronology

The single major attempt at a Mississippi period synthesis for this section still remains an unpublished class term paper by Allen (1977). This brief, but useful, paper focused on the mortuary facilities of Page and related sites in this region and outlined (very tentatively) two phases: Page and Hadden. The following section draws heavily on his paper and is just as tentative.

Page Phase (A.D. 900-1100)

This phase is based largely on what little is known about the Page site in Logan County, which was investigated in the late 1920s (Webb and Funkhouser 1930) and is by far the most extensive mound complex in Kentucky. At that time, the site contained at

least 67 recognizable mounds (Figure 6.2), although many had been destroyed previously.

Their investigation of 18 well-preserved mounds in this complex indicated that most represented the remains of cist-type mortuary facilities (Webb and Funkhouser 1930). One of the largest excavated mounds, Mound 3, did not contain any burials. Rather it may have been a platform mound. Though it lacked a clearly definable wall- trench or single-set post structure, a layer of rocks had been placed over a blue-gray clay. Small posts associated with the rock layer are suggestive of some type of structure (Webb and Funkhouser 1930:181-187). Several other large mounds, which were described but not excavated, also may not have been mortuary facilities.

The mortuary cists excavated at Page are unusual enough to warrant quoting portions of Webb and Funkhouser's (1930:147-150) descriptions of one of them.

Mound 48 was ovoid in shape and measured sixty feet in length north and south, forty feet in width east and west and seven feet in height . . .The removal of the earth from the sides of the mound at once revealed a heavy, well built wall of rock which had been constructed entirely around the central area. This wall enclosed a rectangular pit fifteen feet in length, six feet in width, and five feet in depth in inside measurements. This pit was almost completely filled with human bones, charcoal, and ashes. Thousands of fragments of human bones in all stages of burning were taken from this pit, together with bushels of charcoal. The inside walls of the pit showed evidence of terrific heat, the inside edges of the rocks having been cracked and blackened, while the clay in the interstices had been burned to brick...It would be a mere conjecture to attempt to estimate the number of individuals represented in these cremations. A rough count in the field of one bone which could be most quickly and easily recognized -- namely, the head of the femur -- showed one hundred and eighty-two examples of the right femur...The bones seemed to be in three distinct layers, each layer about a foot thick and separated by a few inches of small flat stones and earth. It would appear that the pit had thus served on three different occasions as a place of cremation of a large number of individuals (Webb and Funkhouser 1930:147, 149).

It should be evident from the description of this mound that Page is an unusual and unique Mississippian site. It is unfortunate that almost 80 years later, the scientific understanding of this location must still depend on Webb and Funkhouser's single, superficial publication.

The age of the Page site cannot be estimated with any degree of precision. Few cross-datable artifacts were found in the mortuary features. Most of the ceramic materials were collected from the fill of Mound 3, a large platform mound that showed evidence of at least two construction stages (Webb and Funkhouser 1930:181-187). All of the roughly 300 sherds from this mound were tempered with limestone, and all but four were plain; of the remaining sherds, one specimen was cordmarked, one was checkstamped, and two were

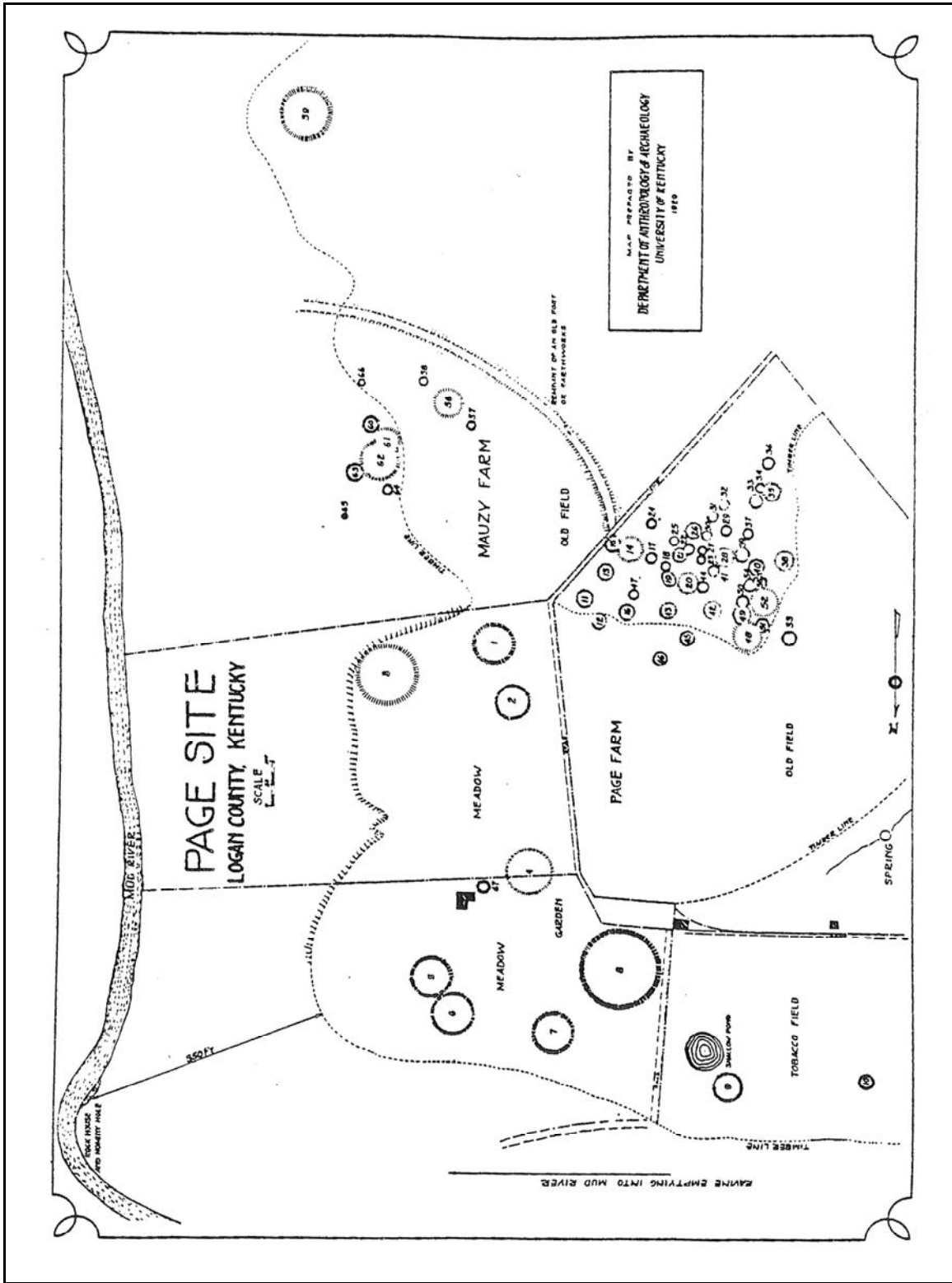


Figure 6.2. The Page Site (Webb and Funkhouser 1930).

described by Webb and Funkhouser (1930:204) as having “irregular linear markings of indefinite design.” Allen (1977:13) inferred that the absence of shell tempered pottery in the site collections “might indicate that the mounds were constructed prior to the availability of significant amounts of shell tempered pottery in whatever village debris area was being used for mound fill” and tentatively assigned the major occupation of the site to the early Mississippi period.

Hadden Phase (A.D. 1100-1650)

Like the Page phase, the Hadden phase is primarily a mortuary complex. However, it differs from the earlier phase in a number of ways. First, there are several recognized components of this phase, including Hadden (15To1), Dunklau, and Martin Mound, the latter of which is situated in the Western Coalfield Section (Allen 1977:14). Second, the ceramic assemblages from these sites are primarily tempered with crushed mussel shell (Allen 1977:13). Third, Hadden phase mortuary facilities consist of small mounds within which one or a few stone-lined burial features are present (Allen 1977:11).

The Hadden site is a small Late Woodland and Mississippi period complex of mortuary facilities and associated midden areas situated on a hilltop overlooking the Whippoorwill Valley in Todd County. A small village site, Site 15To10, is located on the bottoms below Hadden, but little information is available concerning it.

Limited excavation of the Hadden site mortuary facility documented the presence of a stone box grave and a stone slab-lined crematory cist that measured approximately 1.6 m long, 1 m wide, and 70 cm deep (Long 1961:79-91, 1974). Among the Mississippian ceramics recovered from this site are 137 Mississippi Plain, three Bell Plain, 85 Old Town Red, 15 Wolf Creek Check Stamped, and nine McKee Island Cordmarked sherds (Long 1961:18-28). The large number Old Town Red sherds suggests that this sample may not be very representative of the site as a whole. The presence of the Wolf Creek Check Stamped sherds does, however, point to affinities with Mississippian sites located in the Upper Green River Section, where this type accounts for between 20 to 80 percent of site ceramic assemblages. Given the lack of incised types, Lewis (1990a) suggested that the Hadden site’s Mississippian assemblage was comparable to those that date to the early Mississippi period (A.D. 1000-1200) in other parts of western Kentucky.

Ultimately, it may prove to be more meaningful to apply the term “mortuary complex” rather than “phase” to the Page and Hadden phases described above. In each instance, little is known about the social, political, and economic organization of the groups who created the sites assigned to these phases. It is also difficult to determine the age range for either phase given the limited amount of archaeological work that has been conducted at both sites. In addition, there is little comparative information on burial styles in this section.

UPPER GREEN RIVER SECTION

Previous Archaeological Research

Archaeological research in this portion of the Green River drainage has been dominated by the investigation of rockshelter and cave sites, with much of this work being undertaken in the Mammoth Cave region (Carstens 1980; Watson 1974). Elsewhere in this section, Fowke (1922) explored several caves, some of which contained evidence of prehistoric use. Funkhouser and Webb's (1932) statewide survey mentions mostly rockshelter sites in this section, many of which had already been disturbed by curiosity seekers.

Archaeological investigations were conducted by WPA crews in the late 1930s at two rockshelters in Barren (Walter Jones Cave [15Bn8]) and Metcalfe (Bell Rockshelter [15Mc9]) counties (Milner and Smith 1986). Nothing else is known about either site, not even the approximate age of the prehistoric occupations.

Surprisingly little information on Mississippi period occupations emerged directly from archaeological surveys and excavations undertaken in the 1950s and 1960s as part of reservoir impoundment area projects in this section (e.g., Clay 1963e; Hanson and Dunnell 1964; Sloan and Schwartz 1960). This work did, however, lead to intensive investigations of two administrative centers in this section: Jewell (15Bn21) and Corbin (15Ad4) (Clay 1963e; Duffield 1967; Fryman 1968; Hanson 1970; Hanson and Dunnell 1964). The McIntire site (15A1110), a hamlet, also was investigated at this time. This site contained a 50 cm-thick midden, refuse pits, and stone box graves.

Subsequent cultural resource management-related archaeological projects undertaken in the late 1970s and early 1980s yielded relatively little new information on the Mississippi period occupation of this section. One exception to this generalization is Schock and Langford's (1979a, 1982) investigation of Mississippian habitation sites and cemeteries in Barren River Lake in Allen, Barren, and Monroe counties. During the course of their investigations, they recovered a fairly large ceramic collection from the Jewell site, as well as from sites 15A1327 and 15Bn341A. They also documented that some of the sites in their project area (e.g., sites 15A1327, 15A1328, 15Bn341A, and 15Bn349) contained intact subplowzone deposits, and that others (e.g., sites 15A1323, 15A1329A, and 15Bn349) contained stone box grave cemeteries. As part of this project, Schock and Langford (1979a, 1982) excavated 25 stone box graves at Site 15A1329A, which is located directly across the lake from the Jewell site. These remains have since been reanalyzed (Applegate and Cannon 2003; Applegate and DeDominico 2002) (see Chapter 5; the results of this analysis are included in the Woodland chapter, since this cemetery may date to the Late Woodland subperiod).

Since 1987, there has not been a great deal of research conducted at Mississippian sites in this section. The exception is the work of Lowthert et al. (1998) at the Jewell site (15Bn21, 15Bn349, 15Bn384, and 15Bn390). This study involved the excavation of portions of several structures at Site 15Bn384 and stone box graves at Site 15Bn349

(Lowthert et al. 1998). It resulted in the expansion of the boundaries of the Jewell site to include these two sites as well as Site 15Bn390.

Important sites recorded in this section are listed in Table 6.13.

Table 6.13. Important Sites: Upper Green River Section.

Site No.	Site Name	Site Type	References
15Ad4	Corbin	Open habitation w/mounds	Duffield 1967; Fryman 1968
15Bn21, 349, 384, 390	Jewell	Open habitation w/mounds	Hanson 1970; Lowthert et al. 1998
15Bn341A		Open habitation w/o mounds	Schock and Langford 1979a, 1982

Chronology

There is no existing regional sequence for the late prehistory of this section, despite the fact that Fryman (1968) described a “Green River” phase: it apparently refers to all Mississippian sites in the Green River drainage and is not really a temporal unit. Thus, in the absence of even an outline of a sequence, the investigations at Corbin and the Jewell site (which consists of four sites [sites 15Bn21, 15Bn349, 15Bn384, and 15Bn390] located in close proximity to each other [Hanson 1970; Lowthert et al. 1998; Schock and Langford 1982]) are summarized below.

The Corbin site was situated on the upper terrace of the Green River Valley in Adair County in a bend described by Duffield (1967:4) as the largest area of flat bottomland in the Green River Reservoir Impoundment Area. The site consisted of a fortified village that covered about 2 ha and included at least three mounds and a shallow midden (Figure 6.3). It was extensively excavated in 1965-1967 (Duffield 1965, 1967; Fryman 1968).

Investigations of the mounds revealed that Mound A was possibly a very eroded substructure mound (Fryman 1968:12-15) and Mound D was a natural rise (Fryman 1968:26). Mound C was mostly an accumulation of village midden (Fryman 1968:23-25). Evidence of an extensive occupation, including the remains of wall-trench and single-set-post houses, was documented during the excavation of Mound C. Analysis of house pattern superpositioning demonstrated that over time, there was a gradual architectural change from single-set-post houses to wall-trench structures (Fryman 1968:43-53). This excavation area yielded the bulk of the artifacts collected from the Corbin site.

Mound B, which was situated near the center of the site (Figure 6.3), is unique among excavated Kentucky Mississippian mounds. It was simply a mounded earth cap that had been constructed over a rough, square-shaped (7.2 m on a side) rock platform (Figure 6.4). It was oriented 8 degrees west of north (Duffield 1967:16; Fryman 1968:26-33). The rocks that composed the platform were mostly limestone or sandstone and had been placed so that their flattest surfaces were turned upwards. In spite of this clear attempt to prepare at least a partially level surface, the platform may not have been a good floor due to the rock pavement’s irregular surface (Duffield 1967:18). Similar

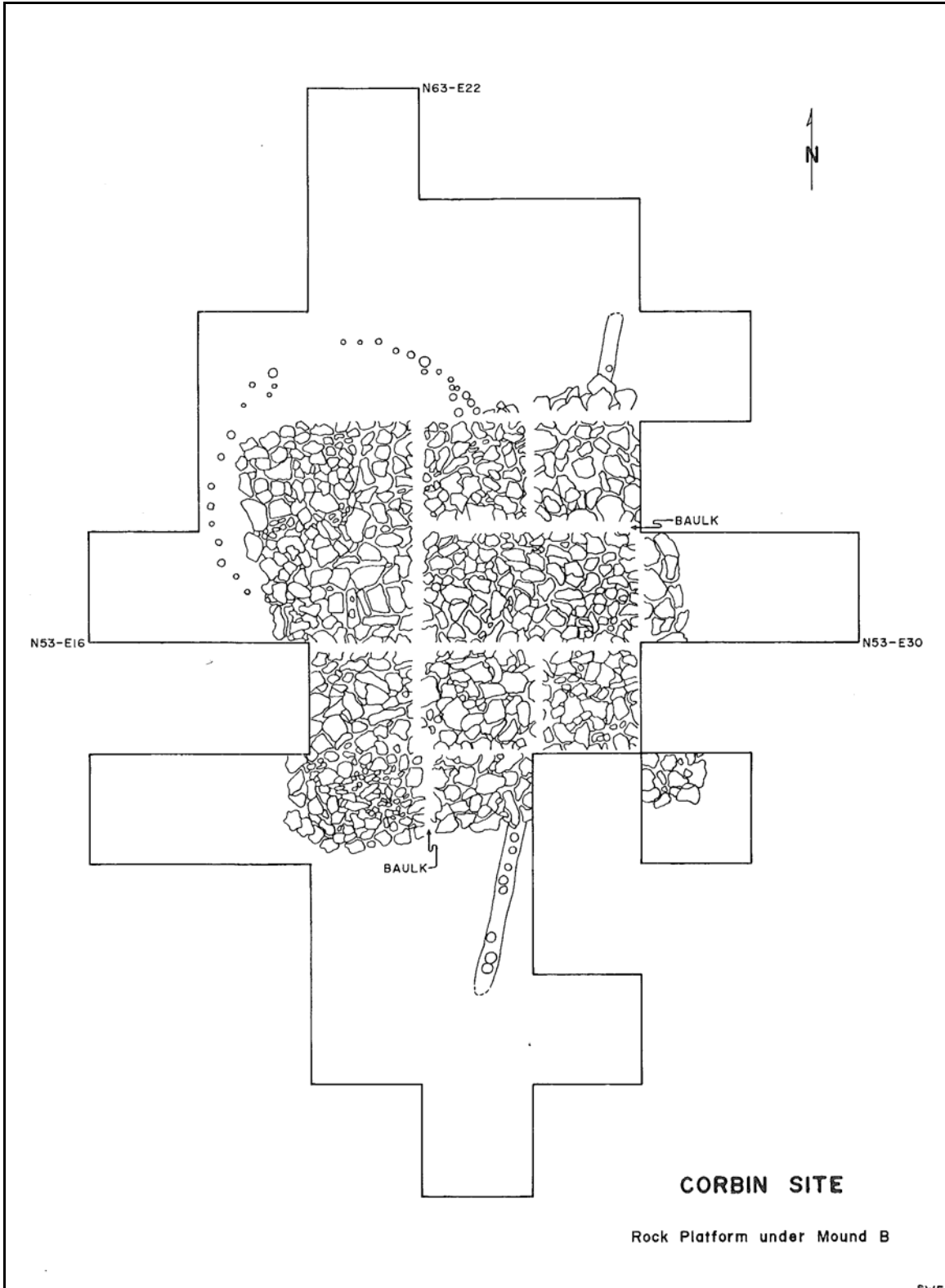


Figure 6.4. The Corbin Site Mound B subplatform (Fryman 1968:36).

stone platforms have been found in association with mounds at several Fort Ancient sites (see Chapter 7).

Beneath the platform and delineated in the buried topsoil were the remains of a circular structure, a long wall-trench, and several burned areas (Figure 6.5). The structure measured about 5 m in diameter and had been constructed from individually set wall posts (Fryman 1968:38-39). The wall trench, which measured 12.4 m long, may have marked one side of a very large building (Fryman 1968:38). This wall trench, however, could have just as easily been part of a screen or wall used to delineate a ritual space (Lewis 1990a).

While village design, domestic architecture, presence of fortifications, and other basic features of the Corbin community appear to reflect the regional Mississippian pattern, there are significant differences between this site and those located farther west in Kentucky. For example, although more than 28,000 artifacts were recovered during the 1967 field season at Corbin (Fryman 1968:63), over 20,000 were classified as “flint detritus” (Fryman 1968:63), and only 866 specimens were identified as sherds (Fryman 1968:135). At sites in the Purchase Management Area, or even sites in other sections of the Green River Management Area, only a small proportion of artifacts are made of chipped stone. This difference, in part, may reflect resource access patterns, but there is undoubtedly more to this difference.

The nonceramic artifacts found at Corbin include 161 projectile points (108 of which are small, triangular specimens) (Fryman 1968:75); drills, knives and reamers; 12 categories of scrapers; anvils; discoidals; and debitage. Given the diversity of tools, their different forms, and other characteristics of the Corbin site lithic materials, it is possible that at least part of the assemblage is actually derived from as-yet-unidentified Late Archaic and Early Woodland components.

The Corbin site pottery assemblage also differs from those recovered from other Mississippian sites in Kentucky because Wolf Creek Check Stamped dominates (Table 6.14). Mississippi Plain accounts for only 13.7 percent of the ceramic collection, which is less than its usual representation at Kentucky Mississippian sites by about a factor of 10.

It is unfortunate that no absolute dates are available for the Corbin village, particularly in view of its unusual pottery assemblage. Based on the general architectural characteristics of the village, the absence of Mississippian incised types, and the relatively high percentage of cordmarked sherds in the site’s ceramic collection, Lewis (1990a) suggested that Corbin may have been occupied between ca. A.D. 1000 to 1200 (Fryman 1968:157-158).

As presently defined, the Jewell site is comprised of four sites (15Bn21, 15Bn384, 15Bn349, 15Bn390) in Barren County that encompass a platform mound, two stone box cemeteries, and at least six distinct habitation areas: one north and one south of the platform mound at Site 15Bn21; Habitation Areas 1 and 2 at Site 15Bn384; and the habitation areas associated with Sites 15Bn349 and 15Bn390. A stockade may have enclosed the platform mound and one or both habitation areas located immediately adjacent to it; and a plaza maybe present at Site 15Bn384 (Hanson 1970; Lowthert et al.

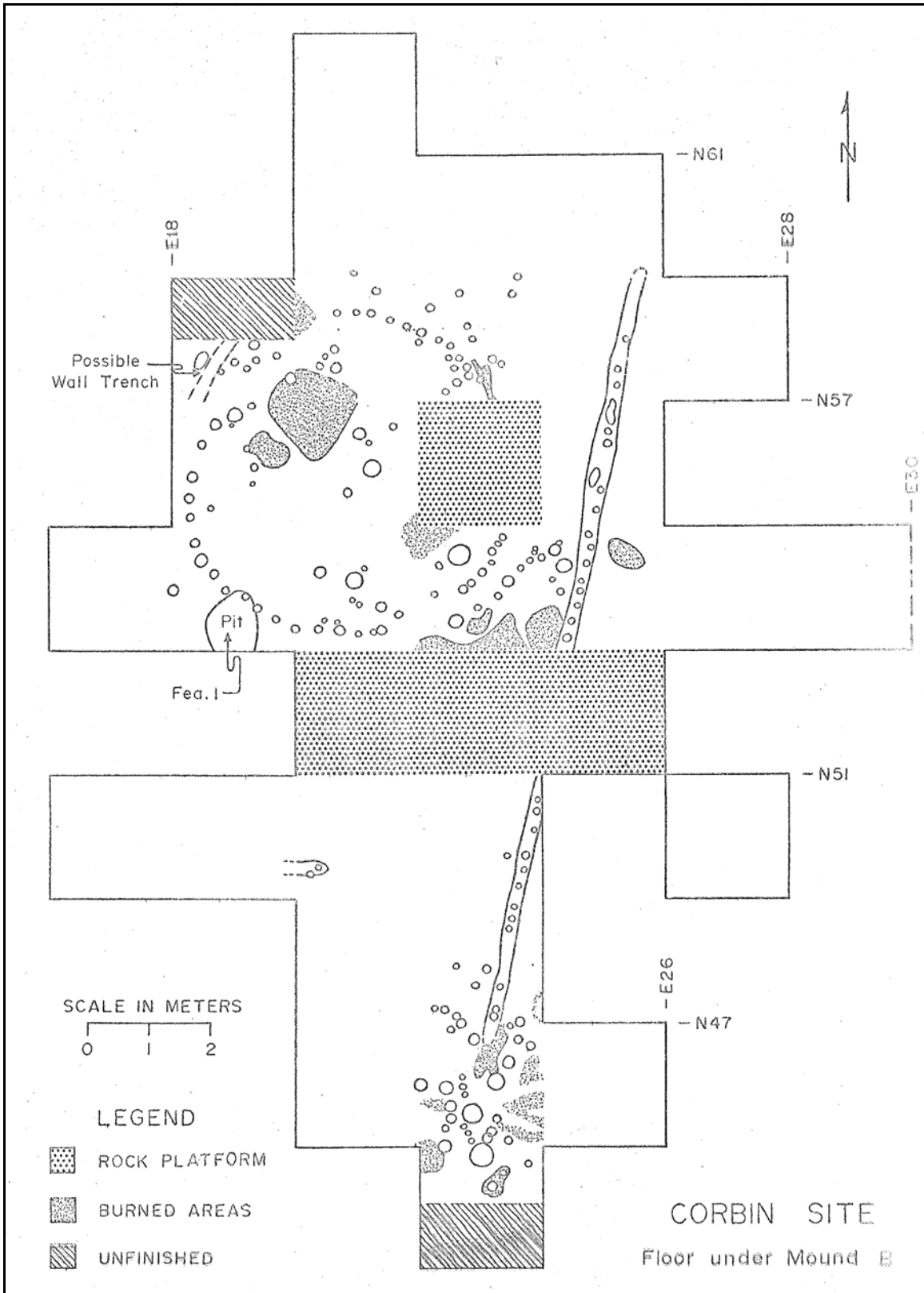


Figure 6.5. The Corbin Site Mound B platform (Fryman 1968:29).

1998; Schock and Langford 1982). Although there is no evidence to suggest that these archaeological remains are contiguous within the area encompassed by these four sites, all are located so close to each other that Lowthert et al. (1998) suggested that they consisted of an administrative mound center for a thirteenth-century dispersed Mississippian chiefdom. They defined it as the Peter Creek Complex, based on their work at the Jewel site and an examination of the spatial distribution of Mississippian sites in the Barren River Lake region.

Table 6.14. Upper Green River Section Ceramic Collections.

Ceramic Type	Jewell		Corbin	
	No.	Percent	No.	Percent
Mississippi Plain	4463	66.1	119	13.7
Bell Plain	404	6.0	*	
Kimmswick Fabric Impressed	270	4.0		
Kimmswick Plain	11	0.2	*	
Cordmarked	272	4.0	41	4.7
Angel or Nashville Negative Painted	5	0.1		
Wolf Creek Check Stamped	1309	19.4	704	81.3
Matthews Incised	3	<0.1		
Unidentified Incised	15	0.2	2	0.2
Total	6753		866	
*All plain surfaced sherds were grouped together. Corbin (Fryman 1968; Lewis 1990a); Jewell (Lowthert et al. 1998).				

Excavation of the platform mound revealed that it had been constructed in three stages, each of which was delineated by a structure floor (Hanson 1970:22). The earliest stage, Stage A, was capped by a rectangular, wall-trench structure. A carbonized wood sample recovered from this structure yielded a calibrated date of A.D. 784-1377 (Table 6.8). The next stage, Stage B, was comprised of two substages. The most recent contained the remains of a wall-trench structure that was dated at cal A.D. 1177-1443 (Table 6.8). Stage C also was comprised of at least two substages. The first contained the remains of two structures on its summit, both of which were rectangular buildings. One structure, Structure 4, was constructed of individually set wall posts, while the walls of the other building had been set in narrow trenches. Carbonized wood associated with Structure 4 was radiocarbon dated at cal A.D. 1266-1642 (Table 6.8). Hanson (1970:26) also suggested that another stage may have been added to the mound after the construction of Structure 4, but evidence of this stage was no longer present in the stratigraphic profile. It is represented by at least three structures that post-date Structure 4. One was circular and had a diameter of 9.5 m, while the remaining structures, which were rectangular, ranged in size from 9.8 by 11.0 m to 12.0 by 14.0 m.

Calibrated radiocarbon dates from the Jewell site, and in particular those from Site 15Bn384, have their greatest frequency of overlap in the thirteenth century (Lowthert et al. 1998) (Table 6.8). Although the dates obtained from the platform mound and associated habitation areas at Site 15Bn21 are suggestive of a 400-year period of structure rebuilding and mound construction, these dates overlap with the dates from Site

15Bn384 at two standard deviations (Hanson 1970) (Table 6.8). The similarity in the types of ceramics and chipped stone tools recovered from the platform mound and the habitation areas near it, and from Site 15Bn384, coupled with overlap in the standard deviations of the radiocarbon dates, suggest that the Jewell site was probably occupied for less than 200 years (Lowthert et al. 1998:139).

Most of the houses excavated at the Jewell site were wall-trench structures (Hanson 1970:10; Lowthert et al. 1998). They ranged in size from 6.4 by 6.4 m to 9.0 by 9.9 m. Some were set in shallow basins: one basin was 60 cm deep.

Mississippi Plain accounts for almost two-thirds of the ceramics recovered from the Jewell site (Table 6.14). Wolf Creek Check Stamped is the next most frequently occurring type, followed by Bell Plain, Kimmswick Fabric Impressed, and cordmarked ceramics. A small number of incised jars and pans, and Nashville Negative Painted sherds also were recovered. Although incising on jars could not be assigned to a specific type, the decoration on pan lips resembled O'Byam Incised, *var. Adams* (Lewis 1986:40-43).

Jars were the predominant vessel form utilized by the Jewell site residents, followed by pans, bottles, bowls, and plates. Jar handles are primarily thick straps and loops, some of which are bifurcated toward the top of the lip. Several handles have nodes attached to the top of the handle. Appendages associated with jars include bifurcated lugs, and single flat and cylindrical lugs. Nodes were the primary type of appendage associated with bowls.

Nonceramic artifacts included small triangular projectile points, knives, drills, scrapers, anvils, celts, a chert hoe, and a pick. The chipped stone assemblage was made primarily from local stream gravels (French 1998). Most of the debitage was classified as Ft. Payne, which outcrops in close proximity to the site. St. Louis chert, which outcrops about five km from the site, accounted for only 12.5 percent of the debitage but almost 40 percent of the formal tools. Most of the remaining tools were made from Ft. Payne chert. The paucity of Dover chert and the absence of Mill Creek chert points to limited access to nonlocal chert hoes.

Although the Jewell site overlooks the floodplain of the Barren River, the lack of backwater sloughs in this region is reflected in a minor dependence on fish and other aquatic resources for food. Faunal remains point to a greater dependence on black bear, elk, and deer than has been documented at Mississippian sites located along the lower Ohio and Mississippi rivers. The pattern of faunal exploitation documented at Jewell, however, is similar to that documented for Mississippian sites to the south in the Nashville basin, and to Fort Ancient sites to the east in central Kentucky (Breitburg 1993, 1998; see Chapter 7).

Plant-use at the Jewell site is consistent with that of other Kentucky Mississippian sites (Rossen 1998) and is characterized by a reliance on "Midwestern 12" maize. Starchy- and oily-seeded native cultigens and nuts were secondary food sources. The occurrence of a higher frequency of wild fruit seeds and possibly greens distinguishes the Barren River Mississippian plant-use system from their neighbors to the west. These differences suggest that these plants may have played a more important dietary role in this region than at other Kentucky Mississippian sites (Rossen 1998).

Intrasite variation in the distribution of local resources suggests that those living closest to the platform mound (elite?) appear to have had better access to high quality St. Louis chert than those who resided in habitation areas 1 and 2 at Site 15Bn384. They also may have had greater access to other local and nonlocal goods, but this has yet to be demonstrated archaeologically. The presence of galena, marine shell beads, and Dover chert at habitation areas 1 and 2, however, indicates that, while the families living near the platform mound may have had greater access to some goods, those residing in houses further removed from the platform mound also were able to obtain a similar range of goods. Whether families that resided at nearby Mississippian sites had access to these goods as well is not known.

Mortuary practices consisted of both extended inhumations and cremations. Both types of burials were placed in the stone box cemeteries (Lane 1993, 1998a, 1998b). The presence of cremations is rather unique for western Kentucky Mississippian sites. If it is not a product of sampling, the absence of grave goods at this site, coupled with the presence of cremations, suggests that status differences were reflected in burial treatment and location rather than in the types of materials interred with the dead. The presence of cremated individuals at Jewell also is suggestive of the presence of a charnel house or some other type of facility to process these individuals. Although rarely cremated, defleshed and disarticulated individuals at other Mississippian centers were typically collected into bundles, and sometimes were reburied in small square stone boxes in a cemetery cluster or mound (Brown 1981; Smith 1992).

In addition to the Jewell site, more than 50 Mississippian sites have been identified within or adjacent to what is now Barren River Lake (Schock and Langford 1970a, 1982). These sites are located in Barren and Allen counties (sites in Allen County, though located in the Pennyroyal Section, are discussed here because of their proximity to Jewell). Collectively, these sites constitute the Peter Creek Complex (Lowthert et al. 1998). Most of these sites are located on the floodplain and adjacent terraces of the Barren River and its tributaries, but a few are located on nearby bluffs. What is known about the majority of these sites is derived from surface collections, since only a few have been excavated. Based upon work conducted to date, some general observations can be made about the distribution of Peter Creek Complex settlements and the relationship of smaller residential sites and cemeteries to the Jewell site, the region's administrative center (Lowthert et al. 1998).

Almost all of the Peter Creek Complex sites are farmsteads. These small sites encompass less than 0.5 ha and may have contained from one to four structures. Within the vicinity of the Jewell site, they tend to be associated with one of three settlement clusters (Figure 6.6). The northern cluster consists of 18 farmsteads and one stone box cemetery, while the southern cluster consists of seven farmsteads. The central cluster consists of three farmsteads and an additional stone box cemetery (15A1329A), in addition to the Jewell site itself with its platform mound and two stone box cemeteries. A fourth cluster of seven farmsteads and one hamlet (McIntire) is located about 14 km south of the Jewell site (Clay 1963e).

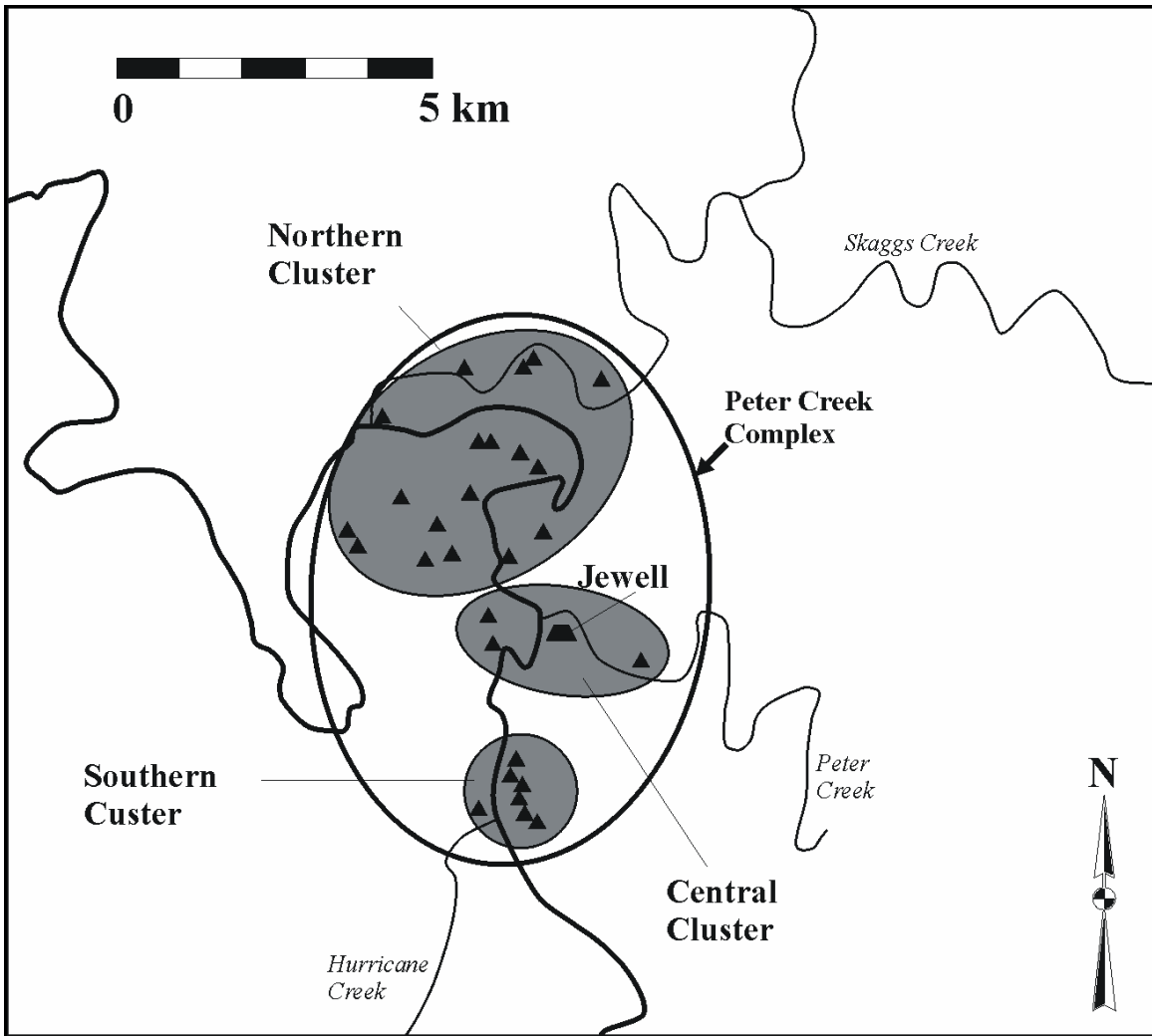


Figure 6.6. Peter Creek Complex.

SITE DISTRIBUTION PATTERNS

Slightly more than forty-five percent of Kentucky's Mississippian sites have been reported from the Green River Management Area (Table 6.1). This is a small reduction from 1987, when this area accounted for 45.6 percent of the documented Mississippian sites.

Among the 605 recorded sites, almost fifty percent are located in the Ohio River II Section (Table 6.15), with the remaining sites being evenly distributed in the other three sections. Open habitation sites without associated mounds account for 77.5 percent of the sites assignable to a site type, with this site type accounting for between 56.0 and 88.0 percent of the sites in each section (Table 6.15). That this site type accounts for only 56.0 percent of the sites in the Pennyroyal Section is somewhat surprising. That 17.2 percent of the sites documented in this section are mounds or cemeteries may reflect the paucity of

archaeological investigations in this section that have targeted Mississippian habitation sites.

Table 6.15. Green River: Site Type by Management Section.

Site Types	Ohio River II		Western Coalfield		Pennyroyal		Upper Green River		Total	Pct
	No.	Pct	No.	Pct	No.	Pct	No.	Pct		
Open Habitation Without Mounds	253	88.0	78	72.9	65	56.0	72	73.7	469	77.5
Rockshelter	8	2.8	10	9.3	16	13.8	19	19.2	53	8.8
Cave	1	0.4			3	2.6	3	3.0	7	1.2
Quarry					1	0.9	1	1.0	2	0.3
Stone Mound					2	1.7			2	0.3
Earth Mound	4	1.4	9	8.3	6	5.2			19	3.1
Mound Complex	1	0.4	4	3.7	5	4.3			10	1.7
Petroglyph/ Pictograph	1	0.4			1	0.9			2	0.3
Isolated Burial					1	0.9			1	0.2
Cemetery	10	3.5	3	2.8	7	6.0	1	1.0	21	3.5
Other Special Activity Area					1	.9			1	0.2
Open Habitation With Mounds	4	1.4	4	3.7	8	6.9	2	2.0	18	3.0
Total	282	100.0	108	100.0	116	100.0	99	100.0	605	100.0
Percent	46.6		17.9		19.2		16.4		100.0	

Only 18 open habitation sites with associated mounds have been identified in this management area: 44.4 percent of these types of sites are located in the Pennyroyal Section. Only two habitation sites with mounds have been documented in the Upper Green River Section, and this section is the only one that lacks other types of mound sites (Table 6.15). Sites classified as an earth mound or mound complex have been documented in the other three sections, but stone mounds have been reported only for the Pennyroyal Section.

A much lower proportion of open habitation sites with associated mounds have been documented in this management area relative to the Purchase Management Area: 3.0 to 8.1 percent, respectively (Table 6.1). Since these types of sites tend to be large villages or regional centers, which are also very visible archaeologically (and therefore usually readily discovered), this pattern suggests that regional administrative centers may not have been as concentrated within this management area as they were in the Purchase Management Area. It also could indicate that the Mississippian inhabitants of the Green River Management Area distributed economic and societal power less hierarchically than did their Purchase counterparts.

Open habitation sites with mounds account for only 1.4 percent of the documented sites in the Ohio River II Section. This is somewhat surprising, since this section is associated with the Ohio River floodplain. This section also has the greatest number of Mississippian sites, and the highest percentage of open habitation sites without

mounds, which may reflect the large number of systematic surveys conducted in this section that have documented small Mississippian sites (Pollack 2004).

Though Mississippian rockshelter sites occur in each of the Green River Management Area sections, they are somewhat more prevalent in the Pennyroyal and Upper Green River sections, where they account for 13.8 and 19.2 percent of the sites, respectively. Almost all of the caves with Mississippian components are located in these two sections.

SALT RIVER (MANAGEMENT AREA 3)

Post-A.D. 1000 sites in the Salt River Management Area have the potential to be assigned to either the Fort Ancient or Mississippian periods, a classification that often depends on the investigator's research orientation. With this in mind, this chapter focuses on late prehistoric sites documented within those counties situated on the western periphery of this management area and in the Falls Region of Jefferson County. Sites in these parts of this management area have the greatest likelihood to be Mississippian period occupations. Fort Ancient sites in this management area are discussed in Chapter 7.

Previous Archaeological Research

Some of the earliest work on Mississippian sites in this management area was undertaken by Guernsey (1939, 1942), who worked at several late prehistoric sites (e.g., Prather [12Cl4]) on the Indiana side of the Ohio River, but did not publish more than summary articles on his investigations. Griffin (1978:551) briefly described the results of Guernsey's work under a "Prather Complex" heading. He went on to voice a generalization that sums up many researchers' thoughts about the late prehistory of this region: "The Louisville area seems to have been the eastern border of Mississippian sites, but no significant analysis of any of the material - which apparently represents important settlements - has been published" (Griffin 1978:551).

Boisvert (1977:83-87, 136) recorded one site (15Hd42) in Hardin County that consisted of two low mounds near the Rolling Fork of the Salt River. Limited excavations at that site by a local amateur archaeologist yielded one shell tempered sherd among other artifacts. The site has been interpreted as a probable "outlying Mississippian habitation/ceremonial(?) site."

In Bullitt County, Kryst and Weinland (1980:97-104) described two Mississippian sites (sites 15Bu73 and 15Bu74) in the Bullitt's Lick area. Site 15Bu73 was interpreted as a camp site used repeatedly throughout prehistory as a "salt procurement station." Site 15Bu74 was a multicomponent open habitation site with an associated mound that also may have been used within the context of salt procurement. Other surveys in this management area have documented Mississippian components, but the identification of many of them appears to rest on the recovery of triangular projectile points from surface (e.g., Boisvert 1977:136; O'Malley et al. 1980).

In the early 1980s, Granger et al. (1981) noted that there were 29 Mississippian sites in this management area, based on an analysis of University of Louisville collections. Most of these sites were located in Jefferson County. By 2003, there were 51 sites in Jefferson County that had Mississippian components (Bader 2003). Based on a review of historic accounts, Bader (2003) identified a number of sites in Louisville that may have been stone box graves, and others that may have been Mississippian mounds. Based on the spatial distribution of these sites, she concluded that the Green Street site (15Jf95), located in downtown Louisville, may have been a large administrative center (Bader [2003] cites an unpublished paper by Granger).

In addition to Eva Bandman and Shippingport, which are discussed below, among the more notable documented Mississippian sites in this county are the Miles Rockshelter (15Jf671), Site 15Jf650, and Site 15Jf651. The Miles Rockshelter is a stratified overhang that yielded shell tempered pottery and triangular points (Bader 2003; Bader et al. 1998). Sites 15Jf650 and 15Jf651 are small open habitation sites that are located in the uplands (Bader 2003).

It has only been in the last ten years that any Mississippian sites in this management area have been excavated. In 2003, Munson et al. (2006) returned to Prather. They systematically shovel probed the entire site and excavated several units. Based on this work and calibrated radiocarbon dates, this regional administrative center dates to the early portion of the Mississippi period ca. A.D. 1080-1150 (Munson et al. 2006:157). Archaeologists from the University of Kentucky excavated a small portion of the Eva Bandman site (15Jf668) (Henderson 2004; Henderson and Pollack 2004). In addition to a 30 cm-thick midden, they documented eight burials within a 500 m² area. At the Shippingport site (15Jf702), French et al. (2006) excavated a much larger area. In all, they sampled portions of 15 structures, and excavated two burials. Both of these communities post-date the Prather site.

Important Mississippian sites identified in this management area are listed in Table 6.16.

Chronology

As with most of the Green River and Upper Cumberland management areas, a chronological sequence has yet to be developed for this management area. As more work is conducted in this region, in particular at the Prather site in Indiana, and as the results of the work at the later Eva Bandman and Shippingport sites are published, it may be possible to begin to develop a regional chronological sequence. At this point, all that can be said is that initial Mississippian developments in the Falls Region are contemporary with those in the lower Ohio Valley, and that Mississippian occupation of this area continued into the early 1400s. The remainder of this section summarizes the archaeological investigations conducted at Eva Bandman and Shippingport.

Table 6.16. Important Sites: Salt River Management Area.

Site No.	Site Name	Site Type	References
15Bu73		Open habitation w/o mounds	Kryst and Weinland 1980
15Bu74		Open habitation w/mound	Kryst and Weinland 1980
15Hd42		Open habitation w/o mounds	Boisvert 1977
15Jf671	Miles Rockshelter	Rockshelter	Granger et al. 1981
15Jf668	Eva Bandman	Open habitation w/o mounds	Henderson and Pollack 2004
15Jf702	Shippingport	Open habitation w/o mounds	French et al. 2006

The Eva Bandman site is situated on a terrace overlooking the Ohio River floodplain not too far east of downtown Louisville in Jefferson County. This site has been severely impacted by historic development, but a small portion of intact deposits

were investigated during the realignment of River Road. Because of the limited area investigated, the spatial extent of the site's Mississippian component could not be determined. The presence of midden deposits and a cemetery at Eva Bandman suggests that it may have been a hamlet or perhaps a small village. While the burials were not fully exposed, those that were partially exposed appear to have been interred in a flexed position. No evidence was found that any of these individuals were interred in stone boxes. The Mississippian component dates from ca. A.D. 1300 to perhaps as late as A.D. 1450 (Table 6.17) (Henderson and Pollack 2004).

Table 6.17. Chronometric Dates: Salt River Management Area.

Lab No.	Age (B.P.)	Calibrated Date (2-sigma)*	References
Eva Bandman (15Jf668)			
Beta-145638	580±40	AD 1297-1373, 1373-1422	Munson et al. 2006:155
Beta-145639	760±40	AD1189-1197, 1207-1294	Munson et al. 2006:155
Beta-184844	490±50	AD 1311-1359, 1387-1489, 1604-1608	Munson et al. 2006:155
Beta-184854	620±70	AD 1273-1428	Munson et al. 2006:155
Beta-184847	690±60	AD 1124-1399	Munson et al. 2006:155
Beta-185612	200±70	AD 1522-1574, 1584-1590, 1625-1953	Munson et al. 2006:155
Beta-185614	370±70	AD 1429-1652	Munson et al. 2006:155
Shippingport (15Jf702)			
Beta-190224	500±60	AD 1298-1371, 1378-1496, 1508-1510, 1601-1615	French et al. 2006:Table 4.4
Beta-215968	700±60	A.D. 1219-1333, 1336-1398	French et al. 2006:Table 4.4
Beta-210231	880±60	A.D. 1032-1256	French et al. 2006:Table 4.4
15Sp3*			
UGa-807	1450±60	AD 435-491, 508-518, 528-672	Turnbow 1981:72
UGa-808	1035±55	AD 888-1057, 1076-1154	Turnbow 1981:72
15Sp5*			
UGa-837	1215±55	AD 673-899, 918-953, 958-961	Turnbow 1981:73
UG-838	600±75	AD 1276-1437	Turnbow 1981:72
UGa-839	1020±60	AD 1269-1446	Turnbow 1981:73
*Though radiocarbon dates have been obtained from Sites 15Sp3 and 15Sp5, these sites have yet to be reported on in the archaeological literature.			

As at most Mississippian sites, Mississippi Plain accounts for most of the ceramics recovered from Eva Bandman. Other ceramic types that are well-represented include Bell Plain, Kimmswick Fabric Impressed, and Kimmswick Plain. Cordmarked pans, knot roughened sherds with a Mississippi paste, and net impressed sherds with a Bell paste account for less than one percent of the assemblage. In general, the ceramic types recovered from Eva Bandman represent what is to be expected in an Ohio Valley Mississippian ceramic assemblage dating to the fourteenth century (Henderson and Pollack 2005).

Jars, bowls, and pans, in that order, are all present in the assemblage. The few handles that were recovered are parallel or convergent-sided strap handles. Only a few other kinds of appendages, in the form of lugs and nodes, are present. In fact, the paucity of appendages is rather striking for a Mississippian collection. Of note are the large number of shallow bowls with outslanting walls and flat bottoms, some of which have

annular ring bases. Bottles and plates were not identified. The percentage of bowls in the Eva Bandman assemblage is similar to that observed at Andalex Village along the Green River in Kentucky and at Southwind in southern Indiana, but more pans were recovered from Eva Bandman (Henderson and Pollack 2005).

A little over one-fifth of the Eva Bandman ceramic collection was classified as Fort Ancient (Henderson and Pollack 2004; see Chapter 7). Designs associated with the Fort Ancient jars consisted of incised/trailed rectilinear, curvilinear, or recti-curvilinear guilloche, and line-filled triangles. These specimens most closely resemble Anderson Series ceramics (Henderson 2004; Henderson and Pollack 2004). Because Mississippian and Fort Ancient ceramics were recovered from the same midden and burial pit contexts, it can be inferred that 1) Fort Ancient potters or households lived at Eva Bandman, or 2) Mississippian inhabitants had direct, sustained contact with Fort Ancient groups that involved the exchange of ceramic vessels. The Eva Bandman botanical assemblage reflects a blending of Mississippian and Fort Ancient plant subsistence strategies (Henderson 2004; Henderson and Pollack 2004).

The Shippingport site has a very early and a later Mississippian component (French et al. 2006). The initial Mississippian component is represented by a small basin-shaped structure that measured about 3 m on a side. It had a central hearth and a few of interior posts that do not appear to have been set in a wall-trench. The only diagnostic artifacts recovered from this structure were smoothed-over cordmarked pottery. A charcoal sample from this structure yielded a calibrated radiocarbon date of A.D. 1032-1256 (Table 6.17).

The later Mississippian component is represented by fourteen structures. As with the earlier structure, many had a central hearth, but they were much larger: the more complete structures measured about 5 m on a side. Wall-trenches were associated with some, but not all, of the structures, and most had been set in shallow basins. Calibrated radiocarbon dates from these structures are suggestive of an occupation from ca. A.D. 1300-1450 (Table 6.17). These dates point to some degree of contemporaneity with the Mississippian component at Eva Bandman.

Chipped stone tools from Shippingport include Madison projectile points, drills, scrapers, knives, and a Dover chert adze. Among the groundstone artifacts were discoidals, pipes, and celts. The ceramic assemblage is dominated by Mississippian ceramics (e.g., Mississippi Plain, Bell Plain, Kimmswick Fabric Impressed, and Angel Negative Painted). Ceramic vessel forms included jars, bowls, pans, plates, and bottles. Handles are predominately thick or thin straps. And like the Eva Bandman assemblage, the Shippingport assemblage contains a substantial amount of Fort Ancient ceramics. These are represented only by cordmarked jars with plain necks, many of which exhibit recti- and curvilinear designs. As at Eva Bandman, the presence of a large amount of Fort Ancient ceramics within a Mississippian community not only reflects Mississippian-Fort Ancient interaction, but points to the presence of Fort Ancient potters and families within this settlement.

SITE DISTRIBUTION PATTERNS

The 163 Mississippian sites documented in this management area represent a five-fold increase in the number of sites recorded since 1987 (Table 6.1). This management area is characterized by low site type diversity relative to the other management areas: almost all are open habitation sites that lack mounds, and only a few rockshelter sites and two mound-related sites have been documented (Table 6.18). In part, this is reflected by the absence of an administrative mound center, but it also probably reflects the level of attention Mississippi period sites have received in this management area, relative to earlier sites.

Table 6.18. Salt River: Site Type.

Site Type	Total	Percent
Open Habitation Without Mounds	154	94.5
Rockshelter	3	1.8
Earth Mound	1	0.6
Mound Complex	1	0.6
Workshop	1	0.6
Cemetery	2	1.2
Other Special Activity Area	1	0.6
Total	163	100.0
Percent	100.0	

UPPER CUMBERLAND (MANAGEMENT AREA 4)

LAKE CUMBERLAND SECTION

Previous Archaeological Research

The first archaeological project in this section to generate significant information on local Mississippi period occupations was the University of Kentucky's survey and excavation of selected sites in the late 1940s prior to the flooding of Lake Cumberland (then called the Wolf Creek Reservoir). The survey of the 25,500 ha project area documented 36 sites (Haag 1947). Of these, two (Rowena [15Ru10] and Long [15Ru17]) were Mississippian administrative mound centers with at least one platform mound (Lewellyn 1964; Sulham 1993; Weinland 1980). Both sites were excavated between 1947 and 1949.

Only limited work was conducted on Mississippian sites in this management area between 1950 and 1987. A survey of the proposed project area of the now-defunct Celina Reservoir in Monroe and Cumberland counties found only one Mississippian site: Site 15Cu12 (Schwartz 1951). In the late 1970s, a survey conducted along the Rockcastle River documented at least five Mississippian sites in Pulaski County. Three were located on the floodplain of the Rockcastle River: Site 15Pu138, Site 15Pu140, and Whitaker (15Pu142) (SSI 1979). During that survey, Mississippian materials also were recovered from two rockshelters: sites 15Pu145 and 15Pu168. A Wolf Creek Check Stamped sherd (SSI 1979:2-135) was recovered from the former, and a shell tempered Kimmswick Fabric Impressed sherd was recovered from the latter (SSI 1979:2-148).

As part of a survey of the Cumberland River floodplain downstream from the Wolf Creek Dam, Autry and DuVall (1989) documented 29 sites, five of which had Mississippian components. One of them, Site 15Ru300, is a possible administrative mound center. Mississippian materials also were recovered from an adjacent site, Site 15Ru301, as well as from sites 15Ru62A, 15Ru63B, and 15Ru66 (Autry and DuVall 1989). Surveys since 1987 in Daniel Boone National Forest have documented Mississippian components at 19 rockshelters in McCreary County (Boedy 2001; Boedy and Sharp 1992; Boedy et al. 1999; O'Steen 1990).

In 2004, Site 15Cu110 was documented as part of a highway realignment project (French 2004; Jones 2006). In addition to Long and Rowena, it is one of the few open habitation sites that have been excavated in this section.

Important Mississippian sites recorded in this section are listed in Table 6.19.

Table 6.19. Important Sites: Lake Cumberland Section.

Site No.	Site Name	Site Type	References
15Cu110		Open habitation w/mounds	French 2004, Jones 2006
15Mcy414	Bare Bones	Rockshelter	Boedy and Sharp 1992
15Ru17	Long	Open habitation w/mounds	Lewellyn 1964
15Ru27	Rowena	Open habitation w/mounds	Weinland 1980
15Ru300		Open habitation w/mounds	Autry and DuVall 1989

Chronology

Though a chronological sequence has yet to be proposed for this section, the results of research conducted at Site 15Cu110, Long, and Rowena suggest some chronological trends for this section. Site 15Cu110 and Long may be contemporary, with Rowena being one of the latest Mississippian sites documented to date in this section. This discussion is followed by a description of some Mississippian sites in this section that have not been as intensively investigated, but none-the-less may contain important information on Mississippian developments in this section.

Site 15Cu110 consists of a habitation/residential area and associated stone box cemetery located on an alluvial floodplain and terrace of a tributary of the Cumberland River in Cumberland County (French 2004; Jones 2006). While structures have yet to be documented in the habitation area, limited investigations resulted in the excavation of several overlapping pit features, and delineated the spatial extent of the stone box cemetery. Cleaning-out and reuse of the pit features may reflect ritual feasting, and local informants reported that at least two of the stone box burials contained nonutilitarian artifacts indicative of higher status individuals (Jones 2006). One stone box is reported to have yielded two large bifacial knives, one of which was made from nonlocal Dover chert; and another, numerous shell beads.

The majority of the Mississippian ceramics from this site are shell tempered, but mixed shell/limestone, limestone, grit, and grog tempered sherds also are present. Almost equal amounts of Mississippi Plain and Wolf Creek Check Stamped were recovered. Bell Plain is the next most common type. Small amounts of cordmarked, brushed, and scraped ceramics also were recovered. Jars are the most common vessel type, but some bowls are associated with this assemblage. All of the handles are loops. Calibrated radiocarbon dates are suggestive of a twelfth through mid-thirteenth century Mississippian occupation (Table 6.20) (Jones 2006).

The Long site was a Mississippian mound center that, along with Rowena (see below), was excavated by Haag (1947) in the 1940s. The site consisted of a village and a platform mound. Unfortunately, the artifact assemblage recovered from this site has yet to be analyzed.

Excavation of the platform mound indicated that it was constructed over a large wall-trench structure (Sulham 1993). This structure measured 9 by 13.5 m and had a height of about 3 m. Four other wall-trench structures also were constructed on top of the mound, but their stratigraphic relationship has yet to be determined. Some were as large as the submound structure, while the smallest measured 7.5 by 11 m. Sulham (1993) suggested

that the mound was constructed in one stage, but it is also possible that years of plowing had deflated it, which may have resulted in the erosion of some of the mound stages.

Table 6.20. Chronometric Dates: Upper Cumberland Management Area.

Lab No.	Age (B.P.)	Calibrated Date (2-sigma)*	References
Lake Cumberland			
Site 15Cu110			
Beta-210620	790±60	AD 1048-1087, 1122-1138, 1150-1298,	Scott Jones, pers. comm. 2006
		1371-1378	
Beta-210621	840±60	AD 1042-1107, 1117-1276	Scott Jones, pers. comm. 2006
Beta-210622	790±50	AD 1058-1064, 1069-1071, 1155-1292	Jones 2006
Beta-210623	870±50	AD 1040-1112, 1115-1257	Jones 2006
Beta-210624	820±40	AD 1058-1072, 1155-1277	Jones 2006
Beta-210625	910±40	AD 1032-1210	Jones 2006
Beta-210626	850±40	AD 1046-1092, 1120-1140, 1148-1266	Jones 2006
Beta-210627	1140±50	AD 774-997, 1004-1012	Scott Jones, pers. comm. 2006
Bare Bones Shelter (15Mey414)			
Beta-28204	740±50	AD 1186-1202, 1205-1312, 1358-1387	Boedy and Sharp 1992:Appendix 4
Beta-33099	970±50	AD 984-1185	Boedy and Sharp 1992:Appendix 4
Long (15Ru17)			
Beta-48504	830±60	AD 1043-1279	Sulham 1993
Beta-48505	720±60	AD 1188-1330	Sulham 1993
Southeastern Mountains			
Mills (15BI80)			
Beta-52010	600±50	AD 1288-1417	Creasman 1995:Table12-1
Site 15HI304			
UGa-1139	605±120	AD 1165-1521, 1575-1583, 1590-1624	Schock 1977b
UGa-1140	595±90	AD 1229-1231, 1243-1246, 1252-1464	Schock 1977b
Croley-Evans (15Kx24)			
Beta-67660	520±50	AD 1303-1366, 1383-1453	Jefferies 1995:239
Beta-67661	730±50	AD 1209-1319, 1352-1390	Jefferies 1995:239
Beta-67662	690±60	AD 1224-1399	Jefferies 1995:239
Beta-76072	960±80	AD 898-920, 945-1227, 1233-1240, 1248-1251	Jefferies et al. 1996:9

A large single-set post structure (7.5 by 10.5 m) was documented adjacent to and north of the platform mound; and a smaller single-set post structure, postholes, pit features, and burials were documented east of it (Sulham 1993). All of the burials were initially thought to be associated with the Mississippian component (Lewellyn 1964; see Tinsley Hill discussion for the results of Lewellyn's study), but as noted previously, reanalysis of the skeletal remains (Lane 1993) and the radiocarbon dates (see Chapter 4:Table 26) obtained from these remains indicate that many of the burials date to the Archaic period. That Mississippian artifacts (e.g., triangular projectile points) were found in direct association with some of the burials is indicative of a temporally mixed burial population (Sulham 1993).

The large submound structure yielded a calibrated date of A.D. 1043-1279, which suggests that at least part of the Long site's Mississippian component is contemporary with Site 15Cu110. A second radiocarbon date, cal A.D. 1188-1330, was obtained from the large single-set post structure located adjacent to and north of the platform mound. This date is later than most of the dates from Site 15Cu110, suggesting that the Long site continued to be occupied after Site 15Cu110 had been abandoned.

Rowena represents a small regional administrative center located on the second terrace of the Cumberland River near a good river crossing in Russell County (Weinland 1980:134). The site consisted of three mounds and an associated village area. Only one of the three mounds was excavated in the late 1940s (Haag 1947). Investigations revealed three or possibly four construction episodes, each of which had been capped by a large building with walls measuring greater than 8 m on a side. Details of the layout of the village area are sketchy, due in part to the quality of the field notes and partly to the limited scope of the excavations.

More than half of the 5,868 classifiable sherds are Mississippi Plain, followed by cordmarked, McKee Island Cordmarked, Dallas Cordmarked, Dallas Decorated (which shares many general similarities with Matthews Incised, *var. Manly*), and Wolf Creek Check Stamped, in that order of frequency (Weinland 1980:97-117) (Table 6.21). That Dallas Decorated accounts for more than 5 percent of the site's ceramic assemblage and Wolf Creek Check Stamped only 2.8 percent distinguishes Rowena from other Mississippian sites in this management area, such as Site 15Cu110, and those in the neighboring Upper Green River Section (Table 6.14). For instance, at the Jewell site, incising is present on less than 0.3 percent of the sherds, but Wolf Creek Check Stamped accounts for almost 20 percent of the ceramics (Table 6.14).

Table 6.21. Upper Cumberland Management Area Site Ceramic Assemblages.

Ceramic Type	Rowena ¹		Croley-Evans ²	
	No.	Percent	No.	Percent
Mississippi Plain	3607	61.5	722	57.8
Bell Plain	**		**	31.8
Cordmarked [#]	1758	30.0	398	9.0
Wolf Creek Check Stamped	165	2.8	112	
Kimmswick Fabric Impressed	17	0.3	7	0.6
Kimmswick Plain	**		**	
Incised [@]	310	5.3		
Painted			11	0.9
Slipped	11	0.2		
Total	5868	100.0	1250	100.1
** All plain-surfaced sherds were grouped together;				
[#] McKee Island Cordmarked or Dallas Cordmarked;				
[@] Dallas Decorated.				
¹ Weinland 1980; ² Jefferies 1995, 1996.				

There are no absolute dates for the Mississippian component at Rowena, but from cross-dating and stratigraphic evidence, Weinland (1980:133) argued the Mississippi period component at this site post-dated A.D. 1300. Support for Weinland's interpretation

comes in the form of handle shape (most are straps, with some being of the wide thin variety [Weinland 1980:110, 114]), and bowl decoration (the presence of notched or beaded rim strips [Weinland 1980:115]). This site's close proximity to the earlier Long site may reflect the cycling of chiefly power in this area, with influence shifting from Long to Rowena over time.

Site 15Ru300, a possible administrative mound center, is located along the Cumberland River in Russell County downstream from Lake Cumberland. This site contains a 2 m-high mound that has a diameter of 11.5 m. The habitation area encompasses about 3 ha (Autry and DuVall 1989:32). Extensive midden deposits are present around and under the mound. Among the artifacts recovered were Mississippi Plain and Kimmswick Fabric Impressed sherds, a loop handle, and a lug. Informants reported finding pipes, celts, and a figurine pendant.

The Whitaker site is a hamlet or small village located in the floodplain of the Rockcastle River in Pulaski County (SSI 1979:2-203-208). Limited investigation of this site documented the presence of a possible structure.

Mississippian materials have been recovered from rockshelters in Pulaski and McCreary counties. In Pulaski County, a triangular point was recovered from Site 15Pu138; and two plain shell tempered body sherds, and an incised grog and shell tempered body sherd were recovered from Site 15Pu140. Though the design on the latter was described as being similar to a Fort Ancient curvilinear guilloche pattern, it could not be assigned a specific type name due to the small size of the sherd (SSI 1979:2-166).

A cluster of Mississippian sites was documented along the western cliffline of the north fork of Dolen Branch in McCreary County (O'Steen 1990). These sites probably represent short-term hunting camps, although it is possible that some represent winter camps. Most of these sites, as well as other rockshelter sites documented in McCreary County, produced Hamilton Triangular points, but shell tempered ceramics also were recovered from several rockshelters. Limited investigation of Site 15McY403 and Site 15McY409 also documented short-term Mississippian use of these shelters (Boedy 2001).

More intensive rockshelter utilization was documented at the Bare Bones Shelter (15McY414), which is also located in McCreary County (Boedy and Sharp 1992). At this site, the remains of at least one Mississippian burial were found (Boedy and Sharp 1992). Charcoal samples taken from the burial pit returned calibrated dates of A.D. 984-1185 and A.D. 1186-1387 (Table 6.20). Several Madison points and shell tempered plain and fabric/check stamped ceramics were recovered from this shelter. Possible Mississippian burials also have been reported at two other rockshelter sites in McCreary County: sites 15Mcy76 and 15Mcy1138) (Boedy et al. 1999).

SOUTHEASTERN MOUNTAINS

Previous Archaeological Research

Within this section, almost 70 sites with Mississippian components have been documented (DeLorenzo and Weinland 1980; Hockensmith 1980; Jefferies 2001:209; Jefferies and Flood 1996). Most are small habitation sites located on or near the Cumberland River floodplain. These sites probably represent farmsteads associated with one of the administrative mound centers or large villages located in this section.

Very little in the way of Mississippi period research took place in this section prior to the late 1970s. Hockensmith (1980) found at least nine Mississippian sites in his survey of central Knox County, and DeLorenzo and Weinland (1980) recorded four additional Mississippian sites. In the mid-1990s, Flood and Jefferies (1996) documented 12 sites with Mississippian components during their examination of the Cumberland River floodplain in Knox and Whitley counties.

Of the sites documented in this section, the largest is the Croley-Evans site (15Kx24), a regional administrative center with a single platform mound located on the west bank of the Cumberland River in Knox County (Jefferies 1995, 1996; Jefferies and Flood 1996; Jefferies et al. 1996, 2000). Investigations at this site in the 1990s sampled two of its three midden areas and documented the mound's stratigraphy.

Site 15Kx17 may represent another Knox County Mississippian administrative mound center (Jefferies 2001:212). Other important open habitation sites documented in Knox County include Site 15Kx10, Site 15Kx25, the Albert Bennett site (15Kx36), and Site 15Kx96 (Flood and Jefferies 1996; Hockensmith 1980; Jefferies 2001:21). In addition to these open habitation sites, five stone box grave sites (15Kx18-22) situated in diverse locales ("mountain terrace" locations as well as within a few hundred meters of the Cumberland River) were documented in Knox County (Hockensmith 1980:147-150). Each is represented by a single slab-lined mortuary facility without associated habitation debris. Site 15Kx9, a stone mound (Hockensmith 1980), was revisited in the early 1990s (Scarry et al. 1992). At that time, it measured 12 by 15 m and had a height of 1.5 m.

Mississippian sites documented in Whitley County include Site 15Wh31, Site 15Wh34, and Bowman (15Wh14). Sites 15Wh31 and 15Wh34 are rockshelters. Limestone and shell tempered plain and cordmarked ceramics were recovered from the former and shell tempered plain ceramics were recovered from the latter (SSI 1980).

Other possible administrative mound centers in this section include the Hodge Mound (15B15), Site 15H15, and Site 15H12 (Collins 1966; Dorwin 1970; Jefferies 2001; Foster and Schock 1972). Among the largest villages documented in this section is Site 15B114, which was located along a tributary of the Cumberland River near Middlesboro (Jefferies 2001; Schock and Weis 1976).

Two farmsteads also have been excavated in this section. Site 15H1304, which is located in Harlan County, was investigated in the mid-1970s (Schock 1977b), while the

Mills site (15B180), which is located in Bell County, was excavated in the early 1990s (Creasman 1995).

Important Mississippian sites recorded in this section are listed in Table 6.20.

Table 6.20. Important Sites: Southeastern Mountains Section.

Site No.	Site Name	Site Type	References
15B14		Open habitation w/o mounds	Schock and Weis 1976
15B180	Mills	Open habitation w/o mounds	Creasman 1995
15Kx9		Stone mound	Scarry et al. 1992
15Kx10		Open habitation w/o mounds	Hockensmith 1980; Jefferies 2001
15Kx17		Open habitation w/mounds	Jefferies 2001
15Kx24	Croley-Evans	Open habitation w/mound	Jefferies 1995, 1996; Railey 1985b
15Kx25		Open habitation w/o mounds	Flood and Jefferies 1996
15Kx36	Albert Bennett	Open habitation w/o mounds	Flood and Jefferies 1996
15Kx96		Open habitation w/o mounds	Jefferies 2001
15Wh4		Open habitation w/mounds	Jefferies 2001
15Wh14	Bowman	Open habitation w/mounds	Railey 1985c

Chronology

No chronological sequence has been developed for this region, but investigations at the Croley-Evans site have provided important information on Mississippian adaptations in this section. Information on Mississippian developments in this section also has been recovered from Bowman and several other possible administrative mound centers, and from villages and farmsteads. These sites are described below.

Croley-Evans

Croley-Evans encompasses over 5 ha and consists of a platform mound and three habitation areas that were situated between the mound and the nearby Cumberland River. No evidence of a plaza was documented. The habitation areas contained up to 65 cm of intact deposits, and during the course of the project, a single-set post structure that measured 4 by 5 m, several pit features, and a burial were documented (Jefferies et al. 1996). Based on calibrated radiocarbon dates obtained from the habitation area, the most intensive occupation of this site occurred between A.D. 1200 and A.D. 1450 (Jefferies et al. 1996:24) (Table 6.20).

The platform mound contained at least three construction phases. Wall-trench structures were associated with at least two stages (Jefferies et al. 1996:Figures 11 and 12). The mound may have been constructed as early as the eleventh century, based on a calibrated radiocarbon date (A.D. 898-1251) obtained from the earliest structure. If this was the case, then construction and use of the mound occurred very early in the history of this community.

The Croley-Evans ceramic assemblage is dominated by shell tempered plain or cordmarked ceramics, with Wolf Creek Check Stamped accounting for almost 10 percent of the ceramic assemblage (Table 6.21). Painted sherds account for almost one percent of the ceramic assemblage, and this distinguishes this site from others in this management area. Surprisingly, no incised sherds were recovered from Croley-Evans. Jars dominate the ceramic assemblage, and only a few bowl and pan rims are present. Handles are predominantly loops. One bowl has a series of nodes placed directly below the rim. It is similar to Dallas Noded, which was in use from A.D. 1300-1600 (Jefferies et al. 1996).

As with other Mississippian groups, the residents of this site primarily used locally available cherts in the manufacture of their chipped stone tools. Triangular points are more common at Croley-Evans, relative to western Kentucky Mississippian administrative centers. On the other hand, the absence of polished hoe flakes suggests that the residents of this community did not utilize chert hoes. Among the groundstone artifacts were abraders, fragments of smoking pipes, a possible chunky stone, and discoidals.

In addition to maize, native cultigens were an important component of the residents' diet (Jefferies et al. 1996). A very high nut shell density, however, distinguishes the Croley-Evans botanical assemblage from Mississippian sites in western Kentucky. If not a product of sampling (most of the samples were obtained from one unit), such a high nut shell density points to a much greater consumption of nuts at Croley-Evans than at other Kentucky Mississippian sites.

One of the more interesting artifacts recovered from Croley-Evans was an engraved shell gorget. The design consists of a central cross surrounded by three concentric ovals, and engraved lines radiate outward from the outer oval to the edge (Jefferies et al. 1996:19). This gorget appears to be variant of a scalloped triskele gorget, and resembles those found in the Nashville basin (Jon Muller personal communication 1993, as cited by Jefferies et al. 1996:19). Unfortunately, this style was in use for a long period of time. Nevertheless, Jefferies et al. (1996:19) suggest that the gorget may be associated with an A.D. 1350-1450 Mississippian occupation of the site, though they do acknowledge that it may have been used earlier in the site's occupational history.

Similar percentages of plain and cordmarked sherds were documented at Rowena (see Lake Cumberland Section) and Croley-Evans, but the latter assemblage contains slightly higher percentages of Wolf Creek Check Stamped (Table 6.19). Painted ceramics are present at Croley-Evans but absent at Rowena, while slipped and incised sherds are much more common at Rowena. Loop handles dominate the Croley-Evans assemblage, but at Rowena, handles tend to be straps. These differences suggest that Croley-Evans may have been occupied earlier in the Mississippian sequence than Rowena.

Bowman is an administrative center located about 60 km downstream from Croley-Evans (Guthe 1976; Jefferies 1996; Railey 1985c). It consists of a two-stage platform mound and a two-ha habitation area located on the floodplain of the Cumberland River. Materials recovered from the surface included shell tempered plain, cordmarked, fabric impressed, and check stamped sherds (Jefferies 1996:125). Also present are a few painted

sherds. That the handles recovered from this site are primarily of the loop variety suggests Bowman may be contemporary with Croley-Evans.

Other Administrative Mound Centers

The Hodge Mound was completely disturbed in 1970, but researchers were able to collect some information on its internal structure (Dorwin 1970). It had a diameter of 25 m and its initial stage reached a height of 1.5 m. With construction of the second stage, the mound had a height of at least 3 m. Based on similarities in the shell tempered pottery recovered from the mound, researchers suggested the second stage was constructed shortly after the initial stage. Oxidized soil at the interface between stages 1 and 2 indicates that the surface of Stage 1 and its contents were burned prior to the construction of Stage 2 (Dorwin 1970; Jefferies 1996:130). “Although little is known about the Hodge Mound, it is clear that it represents another example of a Mississippian multi-stage platform mound” (Jefferies 1996:130). Though no mention is made in the report of a habitation area, this area had probably been disturbed by construction activities before the mound was investigated by professional archaeologists.

In the mound at Site 15H15, a shell tempered vessel is reported to have been found in association with a burial (Collins 1966, cited in Jefferies 2001:212). Although the exact location of Site 15H15 is not known, it is possible that it was located near Site 15H12. Archaeological investigations conducted at the latter in the early 1970s recovered a shell tempered jar with strap handles, several engraved shell gorgets, shell beads, a shell ear pin, and a conch shell cup (Foster and Schock 1972:Plates 5 and 6, cited in Jefferies 2001:212)

Villages and Farmsteads

Site 15Kx10, Albert Bennett (15Kx36), Site 15Kx96, and Site 15B14 are good examples of large village sites located along the Cumberland River in Knox County. Site 15Kx10 contains intact subplowzone midden deposits. Of note is the recovery of a marine shell gorget from this site. Ceramic recovered from this site include equal amounts of shell tempered plain and cordmarked ceramics, and a small number of checkstamped sherds (Hockensmith 1980). The presence of both loop and strap handles at Site 15Kx10 is suggestive of an early to middle Mississippian component (A.D. 1100-1300) (Jefferies 2001:213). Materials recovered from the surface of the Albert Bennett site include small triangular projectile points, a fragment of a large chunky stone, and shell tempered ceramics (Flood and Jefferies 1996:161).

Among the largest villages documented in this section are Site 15Kx96 and Site 15B14. Both encompassed about 5,000 m². A dark midden stain was observed at Site 15Kx96, and hundreds of shell tempered sherds, small discoidals, and triangular points were recovered from the site's surface (Flood and Jefferies 1996:143). Site 15B14 contained as much as 45 cm of midden (Jefferies 2001; Schock and Weis 1976). Mississippi Plain as well as shell tempered cordroughened and stamped (check?) ceramics were recovered from this site.

Several farmsteads have been investigated in this section. Among them are Site 15Kx25, Mills, and Site 15H1304. Limited investigation of Site 15Kx25 recovered shell

tempered plain and cordmarked ceramics, triangular points, celt fragments, and animal bone from the site's surface (Flood and Jefferies 1996:159; Hockensmith 1980). Possible postholes were documented in a few shovel probes.

Though the Mills site is primarily known for its Woodland component (see Chapter 5), it also contains the remains of a fourteenth-century Mississippian farmstead. No structural remains were found, but a large storage pit was excavated, and it yielded a calibrated radiocarbon date of A.D. 1288-1417 (Table 6.20). The ceramic assemblage was dominated by Mississippi Plain jars, although a few shell tempered cordmarked sherds also were recovered. A small amount of maize constituted the only plant remains associated with the Mississippian component at this site. Faunal remains recovered include white-tail deer, box turtle, beaver, and unidentified bird bones (Creasman 1995:12-16).

In Harlan County, limited excavations documented the presence of a Pisgah phase component at Site 15HI304. This site is situated on a low knoll in the floodplain of a tributary of the Cumberland River (Schock 1977b). It was interpreted as a small Mississippian period farmstead that was possibly comprised of two houses. Excavation of one of the houses revealed a square structure that measured about 5 m on a side. It was set in a shallow basin and contained no identifiable interior features. This site yielded calibrated radiocarbon dates that are suggestive of a fourteenth-century occupation (Table 6.20).

SITE DISTRIBUTION PATTERNS

In 1987, there were only 13 documented Mississippian sites in this part of the state (Table 6.1). Since then, 250 new sites with Mississippian period components have been documented.

Of the 263 Mississippian sites in this management area, 62.7 percent are located in the Lake Cumberland Section and 37.3 percent are located in the Southeastern Mountains Section (Table 6.22). Within this management area, only 36.1 percent of the sites are open habitations without mounds, while rockshelters account for 55.1 percent of the sites. The low number of open habitation sites, coupled with the high number of rockshelters, reflects the more rugged terrain of this management area relative to the Purchase, Green River, and Salt River management areas.

With this management area, open habitation sites with associated mounds are equally divided between the two sections, although they account for a slightly higher percentage of the sites in the Southeastern Mountains Section than in the Lake Cumberland Section (Table 6.22). This site type accounts for 2.3 percent of the sites in this management area, which is consistent with what has been documented in the Green River Management area (Table 6.1).

Table 6.22. Upper Cumberland: Site Type by Management Section.

Site Types	Lake Cumberland		Southeastern Mountains		Total	Percent
	No.	Percent	No.	Percent		
Open Habitation Without Mounds	41	24.8	52	53.0	93	35.4
Rockshelter	111	67.3	34	34.7	145	55.1
Cave	3	1.8			3	1.1
Quarry	1	0.6			1	0.4
Stone Mound			2	2.0	2	0.8
Petroglyph/ Pictograph	1	.6			1	0.4
Workshop	2	1.2			2	0.8
Isolated Burial			6	6.1	6	2.3
Cemetery	2	1.2			2	0.8
Other Special Activity Area	1	0.6	1	1.0	2	0.8
Open Habitation With Mounds	3	1.8	3	3.1	6	2.3
Total	165	100.0	98	100.0	263	100.0
Percent	62.7		37.7		100.0	

MANAGEMENT AREA NEEDS

In this section, management area-specific needs are identified. Most focus on the need for more systematic surveys aimed at documenting Mississippian settlement patterns or large-scale excavation to gain a better handle on the spatial organization of administrative mound centers. There also is a need to analysis or reanalyze museum collections or to update reports on file at the University of Kentucky's Office of State Archaeology.

PURCHASE

A major research objective for the future in this management area should be the publication of monographs describing the results of the archaeological work conducted prior to the construction of Kentucky and Barkley lakes. In those instances for which there are existing published reports, such as Webb's (1952) monograph on the Jonathan Creek investigations, the materials should be reanalyzed and a new report prepared. Schroeder's (2006) research on the Jonathan Creek site has contributed greatly to our understanding of the growth and development of this large administrative center, but a monograph describing the site and the materials recovered is still needed. Other important site collections that need to be analyzed and reported on are Birmingham, Root, Goheen, and Rodgers. Clay (1963a) reported on the ceramics from Birmingham and Root, but the rest of the excavation results have yet to be analyzed. While Fryman (1966) produced a brief report on the Goheen site, most of the materials from this hamlet have never been analyzed. Other site collections that could benefit from a reanalysis and an updated report are those from Tinsley Hill (Clay 1963b, 1963c, 1963d) and Rodgers (Clay 1963e).

While limited investigations have been conducted at most of the regional administrative centers in this management area, block excavations have been undertaken at only a few of them. With the exception of Wesler's work at Wickliffe and the excavations conducted by this author at the Canton site, all of that work was undertaken more than 40 years ago.

Additional information also is needed on the McCleods Bluff site (15Hi1). Except for a brief report prepared by Webb (1933), little is known about this large Mississippian site. It needs to be mapped and excavated to collect a representative artifact assemblage, so that its relationship to other Mississippian sites in the Mississippi River Section can be determined.

Because research in this management area has tended to focus on large, highly visible regional centers, little is known about the distribution and internal organization of Mississippian farmsteads, hamlets, and villages. In order, for archaeologists to gain a better handle on the nature of the regional settlement systems in this management area, more systematic surveys aimed at documenting Mississippian sites in the vicinity of administrative mound centers are needed.

GREEN RIVER

Over the last 20 years, archaeologists have learned a great deal about Caborn-Welborn material culture, subsistence patterns, settlement patterns, and sociopolitical organization. In contrast, however, little is known about the distribution of Angel phase sites in this management area. And while Mississippian sites are known from the Ohio River II Section, few have been investigated by professional archaeologists.

As a result of projects undertaken at small regional centers and farmsteads in this management area, researchers have gained a better understanding of Mississippian settlement patterns in the Western Coalfield and Upper Green River sections, but little is known about Mississippian adaptations in the Pennyroyal Section. Regional surveys are needed in the Western Coalfield and Upper Green River sections, and additional excavations need to be undertaken at sites in both sections.

Research of any kind is needed at Mississippian sites in the Pennyroyal Section. In particular, additional work needs to be conducted at Page and Hadden. Though the Page site was excavated by Webb and Funkhouser (1930), they provided little detailed information on this large mound group. Page contains several concentrations of mounds, and additional work is needed to better understand the spatial relationships of these mounds, and to document the residential areas associated with this site. Likewise, additional work is needed at the poorly known Hadden site.

SALT RIVER

In the last 20 years, excavation of the Eva Bandman and Shippingport sites, as well as work conducted at the Prather site in Indiana, has generated new information on Mississippian adaptations in this management area. Work at these sites has documented interaction with the Angel polity in the form of Angel Negative Painted ceramics, but more importantly, it has documented interaction with Fort Ancient groups to the east. At both Eva Bandman and Shippingport, Fort Ancient ceramics have been recovered from Mississippian contexts. The presence of these ceramics points to some level of Mississippian-Fort Ancient interaction in this management area. Future research in the Falls Region promises to shed further light on the nature and extent of this interaction. More research also is needed at Mississippian sites located in the Salt River drainage.

UPPER CUMBERLAND

Research is needed that builds on Jefferies' (1995, 1996, 2001; Jefferies and Food 1996; Jefferies et al. 2000) work at Croley-Evans. His work focused on this regional center, but little is known about the other sites that comprised the Croley-Evans polity. Nor

is much known about other regional centers in this management area. In this regard, an effort should be made to analyze the materials recovered from the Long site, which was excavated in the late 1940s as part of the Wolf Creek Dam Reservoir (Lake Cumberland) archaeological project.

MISSISSIPPI PERIOD RESEARCH ISSUES

Research conducted at Mississippian sites in Kentucky has documented many interregional similarities. These polities are characterized by a hierarchical settlement system, the presence of a platform mound and plaza, and other forms of corporate architecture, often in the form of a palisade. Ceramic assemblages are marked by the use of shell to temper vessels, though prior to A.D. 1400, other materials, such as grog or limestone, also were used. These assemblages also are characterized by a variety of vessel forms (e.g., jars, bowls, plates, and bottles) and appendages (e.g., handles, lugs, and nodes). Plant subsistence strategies are characterized by a heavy reliance on maize, supplemented with nuts, native cultigens, and wild plants (Edging 1995; Rossen 1987; Rossen and Edging 1987). After 1400, beans were added to the Mississippian diet. Animal exploitation focused on deer, turkey, and an assortment of other mammals, birds, reptiles, and fish (Breitburg 1998).

But while there is much these regional polities hold in common, research also has identified interregional variation in the size of administrative centers and their associated settlement systems, material culture, and subsistence strategies. Archaeological investigations in Kentucky have documented variation in the size of administrative centers, mound platform size, and the number of mounds and palisades associated with Mississippian administrative centers. Within the larger river valleys (i.e., Ohio, lower Tennessee-Cumberland, and Mississippi [Purchase Management Area and Ohio River II section]), centers tend to be much bigger and contain more mounds than those found along smaller tributaries of the Ohio River (Tradewater, Green, and upper Cumberland rivers [Green River, Salt, and Upper Cumberland management areas]). Mississippian settlement systems associated with the latter drainages are characterized by administrative centers that contain only one, or at most two, mounds, and associated farmsteads and hamlets. Settlement systems associated with the larger administrative centers, in addition to farmsteads and hamlets, often include small or large villages, and also may include secondary mound centers. The largest centers would have attracted more families and probably would have had higher population densities.

Within smaller drainages, a more dispersed settlement system would have allowed Mississippian households to utilize the most productive agricultural soils. For instance, within the Green River and Upper Cumberland management areas, the most productive agricultural soils are located on the terraces and floodplains adjacent to the Green River and Cumberland rivers, respectively, and their tributaries, such as the Barren River. However, the floodplains of many of these tributaries are not very broad and could not have easily accommodated a large concentration of households. Thus, a dispersed settlement system, such as that documented for the Croley-Evans site in the Southeastern Mountain Section, the Annis Village Site Complex in the Western Coalfield Section, and the Peter Creek Complex in the Upper Green River Section, would have allowed households living in these regions to cultivate the best agricultural soils, while at the same time reducing, environmental stress on other local resources. That larger centers are associated with broader floodplains that have expansive agricultural soils may have allowed for higher population densities at and within close proximity to these administrative centers.

A comparison of ceramic assemblages from polities located throughout Kentucky points to social differences in the use of ceramic vessels that may reflect interregional variation in Mississippian political structure and adaptation. In general, regional administrative centers in smaller drainages (e.g., Upper Green River Section and Upper Cumberland Management Area) on the periphery of Mississippian developments are characterized by lower percentages of bowls relative to jars than those in larger rivers (e.g., Western Coal Field Section and Purchase Management Area). Since bowls were primarily used to prepare and serve food, and functioned as individual eating vessels (Hally 1986), the observed variation points to regional differences in how food was served and consumed, and perhaps, the social contexts within which those ceramic vessels were used (see Welch and Scarry 1995). Based on these intersite comparisons, there appears to have been a greater need for serving vessels and individual eating vessels at larger centers than at smaller centers.

Not surprisingly, variation in vessel form frequency of occurrence also has been observed between farmsteads, hamlets, villages, and administrative centers within a given management area or section (Lowthert et al. 1998; Pollack 2004; Pollack and Railey 1987). For instance, in the Purchase Management Area, plates were not as common at Chambers, a large village, relative to administrative mound centers, such as Adams, but pans were much more common (Pollack and Railey 1987). Likewise, within the Caborn-Welborn region of the Ohio River II Section, farmsteads and hamlets had different vessel form profiles than small and large villages, with Bell Plain bowls being much more common at the latter (Pollack 1998, 2004).

Regional variation also has been documented in plant and animal subsistence practices. Some of the plant variation may be tied to sampling, but in the Upper Cumberland Section, at sites such as Croley-Evans (Jefferies et al. 1996), there appears to have been a much greater dependence on nuts relative to maize than at administrative centers in the Purchase and Green River management areas. Not surprisingly, fish and waterfowl were not as important subsistence resources at Mississippian sites located in the interior and on minor tributaries in comparison to those located along the Ohio and Mississippi rivers (Breitburg 1998).

Variation in the size of Mississippian polities and in material culture assemblages, suggests that the elite of smaller polities may not have had as much prestige, power, and influence as those living at larger centers, such as Adams, Jonathan Creek, Angel, or Kincaid. Yet, despite the possibly less complex sociopolitical organization of the smaller polities, some degree of political centralization would be expected, as evidenced by the presence of corporate architecture in the form of a platform mound. The existence of a platform mound points to the presence of leaders who had some degree of influence/power over the local population. These individuals were able to organize and direct the labor needed to construct and maintain a platform mound and perhaps a palisade, and undertake other projects.

Over the last 20 years, archaeologists have learned a great deal about the Mississippian cultures that once lived in Kentucky. Variation documented in the organization of Mississippian polities throughout Kentucky reflects how regional populations chose to participate in the Mississippian interaction sphere and the degree to which they allowed some individuals to gain positions of power and prestige within their

respective societies. But there are still some areas of the state, such as the Pennyroyal Section, where we know little about the nature and extent of Mississippian adaptations. Even in those areas that have received more attention, there are major data gaps. In the remainder of this section, questions that cross-cut the management areas and sections are presented.

1. CLASSIFICATION AND CULTURE HISTORY

Though a great deal of progress has been made in the development of regional Mississippi period chronologies, there is still much work to be done. A fundamental priority of research in some sections, such as the Pennyroyal and Lake Cumberland sections, and in the Salt River Management Area, will continue to be the construction of regional chronological sequences. In others, such as the Western Coalfield, Green River, and Southeastern Mountains sections, where some sites have been well-dated and described in the literature, research is needed that fills in gaps in the regional sequence.

In other sections, research has moved beyond chronology. This is not to say that chronological sequences in these areas do not need refinement, but simply that chronology building should not be the primary concern of future research in these areas.

Some archaeologists argue that much of Kentucky and adjacent states was abandoned by native populations sometime after A.D. 1400, well before the earliest possible arrival of Euro-Americans or their diseases in the mid-continent (Butler and Cobb 2002; Williams 1990). Exceptions to this pattern are the large number of Caborn-Welborn sites documented in the Ohio River II Section and the protohistoric sites documented in the southwestern portion of the Mississippi River Section. Research needs to focus on issues relating to what led to the widespread collapse of regional polities ca. A.D. 1400, and how local populations responded.

- * Construct regional sequences for the Pennyroyal and Lake Cumberland sections, as well as the Salt River Management Area. Refine the chronological sequences documented in the Western Coalfield, Green River, and Southeastern Mountains sections. Phases/temporal units should be based on stratigraphic data and absolute chronometric dates from more than one component.
- * Determine when the initial regional administrative center was established within each management area section.
- * Determine when regional administrative centers ceased to be maintained or established within each management area section.
- * Determine the timing of the Late Woodland to Mississippian transition in each section and, in particular, when the Yankeetown to Angel transition occurred.

2. MATERIAL CULTURE AND TECHNOLOGY

To date, analysis of recovered artifacts has focused on describing and dating site assemblages. More studies are needed that focus on context of recovery and the spatial distribution of different artifact class/types within a community. Studies of this type can help determine if administrative centers contained elite residential areas; whether communities consisted of clusters of kin-related households; and identify activity areas. Differential access to materials or ceramic types, based on settlement type, also needs to be examined (cf., Pollack 1998, 2004; Pollack and Railey 1987).

- * Identify the factors that led to the increased diversity of vessel forms in Mississippian ceramic assemblages.
- * Determine if certain ceramic types or vessel forms are associated predominately with ritual or ceremonial contexts, and if these vessels tend to be larger than those associated with domestic contexts.
- * Determine if larger vessels and a greater variety of vessel forms are associated with regional centers relative to villages, and villages relative to hamlets and farmsteads.
- * Assess the extent to which chert usage and chipped stone tool assemblages differ between management areas and among different settlement types. Develop explanations to account for these differences.

3. SUBSISTENCE

Though Mississippian subsistence patterns have been well documented (Breitburg 1998; Edging 1985; Kreisa 1987; Kreisa and McDowell 1995; Rossen 1987, 1995, 1998; Rossen and Edging 1987), variation has been observed in the exploitation of animals at settlements situated along major waterways/flyways relative to those located in the interior. Plant use appears to be more consistent from region to region, though Mississippian plant use in the Upper Cumberland Management Area appears to have been somewhat different from what has been documented at other Kentucky Mississippian sites (Jefferies et al. 1996, 2000).

While a great deal is known about general Mississippian subsistence patterns, much less is known about differences in access to food resources within administrative centers or between these centers and their associated settlements (e.g., the extent to which local elites had access to better cuts of meats or to certain plants). The nature and extent of ritual feasting on or within the vicinity of platform mounds also has yet to be documented.

- * Identify the nature and timing of the adoption of and increased reliance on maize agriculture within each management area.

- * Rossen and Edging (1987) documented a pattern of western Kentucky Mississippian plant use that, in addition to maize, involved a continued reliance on native cultigens and wild plants, such as nuts. Determine the extent to which Mississippian adaptations in the Upper Cumberland Management Area conform to this strategy.
- * Examine differences in faunal exploitation between Mississippian polities situated along major rivers and polities located in the interior.
- * Determine if local elites living at regional administrative centers had access to better cuts of meat and other foodstuffs relative to others living at these centers; and determine if there are differences in food consumption patterns between residents of regional centers and those living at smaller settlements.
- * Reconstruct food storage patterns. Determine if harvests were stored communally or by individual households in above-ground storage facilities or in large underground silos similar to those documented at Caborn-Welborn sites, such as Slack Farm.

4. SETTLEMENT PATTERNS

More regional surveys aimed at documenting Mississippian settlement patterns are needed. These kinds of studies (e.g., Jefferies 1995, 1996; Pollack 1998, 2004) are an efficient, cost-effective approach to improve the scientific understanding of regional Mississippian settlement patterns and systems.

Much of the information on Mississippian adaptations in Kentucky has come from limited excavations undertaken at large regional administrative centers. While some large-scale investigations of Mississippian sites have been conducted in the last 20 years, more are needed, especially at the larger regional centers. These studies should focus on determining the spatial organization of these communities, identifying elite residential areas, and determining the full range of economic, political, and religious activities that took place there. Interregional examination of Mississippi period settlement systems also needs to be initiated.

Regional administrative mound centers, the largest and archaeologically most complex sites, are qualitatively different from villages, hamlets, and farmsteads. Over the course of the last 20 years, several hamlets and farmsteads have been excavated, but little is known about the internal organization of villages. The latter may have been home to persons who occupied statuses or roles of local importance and who were answerable ultimately to the leaders of a faction or lineage at a major regional center. It is not enough that archaeological control be achieved over both ends of the settlement system: intermediate-level communities also must be investigated.

In 1990, Lewis (1990a) noted that defensive fortifications, such as palisades, tended to be constructed episodically in western Kentucky, rather than being maintained as basic village components. The degree to which multiple stockade lines were the rule or exception has yet to be determined. Palisade lines have been found at several sites where

extensive horizontal areas have been exposed, such as Jonathan Creek, the Annis Village Site Complex, Andalex Village, and Jewell, with multiple lines being documented at both Jonathan Creek and the Annis Village Site Complex. That only limited excavations have been conducted at most administrative mound centers in Kentucky hampers efforts to determine if one or more stockades were present at a particular site.

- * Determine the range of settlement types present within regional settlement hierarchies and identify representative settlement types. Reconstruct the settlement system within which those settlements functioned. Investigate the extent to which the hierarchical nature of a settlement system is correlated with other aspects of the cultural adaptation.
- * Determine if the settlement system is nucleated (majority of population lived at the regional center and large villages) or dispersed (majority of population lived at small villages, hamlets, and farmsteads).
- * Determine the size of Mississippian polities, and the distance between these polities and their respective administrative mound centers (Hally 1993).
- * Reconstruct the major dimensions of community defensive tactics, and identify the temporal and spatial similarities and differences in palisades. Assess whether palisades were constructed for defensive purposes or as boundary markers.
- * Fortification of towns appears to have been episodic throughout the Mississippian period. Determine if there are clear instances of continuous defensive postures (e.g., instances in which a palisade was maintained as a permanent design feature of a regional center).
- * Determine if there is unequivocal evidence of a Mississippian community in Kentucky that was destroyed by warfare and not reoccupied. If so, identify the major archaeological differences between this community and the majority of other regional centers that appear to have been abandoned for other reasons.
- * Construct detailed topographic maps of towns and isolated earthworks that appear to be well-preserved.
- * Determine if the basic mound and plaza elements of Mississippian regional centers were fixed designs throughout the lifespan of a community or if they could be changed (e.g., the addition of a new major plaza or a reorientation of public space to a new alignment).
- * Determine the general “lifespan” of Mississippian administrative centers, and whether they were continuously occupied for decades, for centuries, or were periodically reoccupied.
- * Determine the extent to which elites organized community projects.

5. EXCHANGE AND INTERACTION

That Mississippian polities were engaged in long-distance exchange has been well-documented in the literature (Brown et al. 1990; Frankenstein and Rowlands 1978; Hammerstedt 2005a, 2005b; Pauketat and Emerson 1991; Peregrine 1992; Pollack 1998, 2004; Smith 1986; Steponaitis 1986; Welch 1991). The degree to which exchange relationships were controlled or regulated by local elites, however, is not known. Nor is it known to what extent the power and influence of these elites was tied to their relationships with neighboring elites through a prestige goods economy. Conversely, the effects that the disruption of such an economy would have had on local elites has yet to be fully explored. More information also is needed on the extent to which local elites had greater access to nonlocal goods than others living at regional administrative centers and those living at neighboring support communities.

- * Chert for large horticultural and woodworking tools was often procured from nonlocal sources. Identify to what extent those raw materials were procured by “down-the-line” trade rather than through the direct exploitation of source localities.
- * Determine the extent to which extraregional exchange was controlled or regulated by regional elites.
- * Determine if the elite and residents of regional administrative mound centers had greater access to nonlocal cherts than residents of smaller neighboring settlements.
- * Identify the factors that contributed to the increase in extraregional exchange during the Caborn-Welborn phase, relative to the earlier Angel phase.
- * Determine if craft specialization was present in Mississippian communities. If so, identify which crafts were so organized. If not, determine why the specialization of production did not emerge in Mississippian communities.
- * Lewis (1990b) noted that Mississippian communities in the Mississippi River Section appeared to have interacted more closely with the people of the Lower Tennessee-Cumberland Section than with contemporary groups in the Lower Mississippi Valley south of the Ohio-Mississippi River Confluence Region. Identify the factors that promoted and maintained these regional networks, and determine why the Mississippian communities of the Ohio-Mississippi River Confluence Region did not maintain closer ties with communities that lay farther to the south in the Lower Mississippi Valley.
- * Determine the nature and extent of Caborn-Welborn and Oneota interaction.
- * Determine the nature and extent of Mississippian contact and interaction with Euro-Americans.

6. BIOARCHAEOLOGY

Research on Mississippian skeletal remains from Kentucky sites has been limited in scope, as few well-preserved assemblages have been recovered. To date, studies have focused on issues relating to nutritional stress that results from a maize-based diet. Researchers also have examined issues relating to work-related pathologies and traumas, as well as injuries and deaths resulting from intergroup conflict.

- * Identify evidence of nutritional stress in burial populations in order to assess the relative health of Mississippian communities and possible temporal/spatial changes in health.
- * Assess the effects of contact(s) with European diseases on Caborn-Welborn and other late Mississippi period populations.
- * Examine skeletal indicators of biocultural adaptations (e.g., squatting facets, behavioral tooth modifications, or gender-specific work habits).
- * Examine the biological distance between populations using metric and nonmetric skeletal traits as indicators of genetic similarity (cf., Droessler 1981).
- * Conduct bone chemistry studies of Mississippi period skeletons from well-dated contexts in order to delineate 1) the timing of increased consumption of maize relative to other plant foods; and 2) interregional similarities and differences in C4 plant consumption patterns as well as temporal changes in those patterns.
- * Examine Mississippian burial populations' DNA in order to identify biological affinities and ethnic identities/diversity within Kentucky Mississippian groups through time and across space.

7. MORTUARY PRACTICES

While the location of Mississippian cemeteries within a particular community has been documented, little is known about their internal organization and who was interred within these cemeteries (e.g., all members of the community or elite vs. nonelite cemeteries). The extent to which the elite were treated differently at death than others within a particular polity, however, has yet to be determined.

Researchers have documented the reuse of stone box graves, variation in the size and shape of the boxes, and the presence of bundle burials (Clay 1984; Lane 1998b). Differences in where individuals were interred within communities and the presence of cemeteries spatially removed from a community also have been documented (Pollack 2004; Wesler 2001). This research has led to the recognition that some Mississippian groups engaged in a multi-stage mortuary program (Munson and Cook 2001; Lane 1998b). Understanding the temporal and regional patterns of these Mississippian mortuary program(s) will provide critical insights into Mississippian social and political organization, and belief systems. Towards this end, a synthetic study that examines

Kentucky Mississippian mortuary practices from a social, religious, and political context is needed.

- * Determine if and how elites were treated differently at death than other members of a regional polity.
- * Determine if patterns of mortuary ritual changed through time or differed among regions.
- * Assess whether infant and child burials in house floors or midden areas represent individuals who were not socially defined as “human,” and therefore were not eligible for burial treatment as village members.
- * Determine the distribution and timing of the introduction of stone box grave cemeteries in Kentucky.
- * Determine if some Mississippian groups had multistage mortuary practices, as has been documented for the Fort Ancient period (see Chapter 7).
- * Determine if an individual’s position within society was reflected by where they were buried or the types of goods that were interred with them.

8. SOCIAL AND POLITICAL ORGANIZATION

Mississippian polities were more hierarchically organized than earlier Woodland groups or contemporary Fort Ancient groups. They are often referred to as simple or complex chiefdoms, depending on the size of the administrative center and the number of secondary mound centers under its sphere of influence (Cobb 2003; Milner 2006; Pauketat 1994; Pollack 1998). The presence of corporate architecture, in the form of platform mounds and palisades, however, points to an elite who had some measure of power and influence over others living at the administrative center as well as in the associated villages, hamlets, and farmsteads. Having acknowledged the presence of an elite, however, it is important to ask how much power these local leaders had over members residing within their polity.

- * Determine the extent to which access to food and other resources was controlled or regulated by elites.
- * Determine how social, economic, and political activities played out within regional polities, and the extent to which elites of larger polities had more power, prestige, and influence within their respective regions than the elite of smaller polities.
- * Determine if social divisions within Mississippian society were ranked and how much power elites had over regional populations.

- * Investigate patterns of social differentiation inferable from the analysis of mortuary ritual.
- * Determine if Mississippian administrative centers contained elite residential areas and if ritual feasting took place in the vicinity of platform mounds.
- * Identify the minimal social unit of Mississippian households.
- * Following the post-A.D. 1400 widespread collapse of Mississippian polities in western Kentucky, determine how local populations reconstructed social and political relationships.

9. IDEOLOGY

Through an examination of community layout, mortuary patterns (i.e., body treatment, and patterns of grave good placement and association), and the persistent and recurrent patterns of symbols on ceramic vessels, shell ornaments, and pipes, insights can be gained into Mississippian ideology and belief system(s) (Knight 1986; Schroeder 2004). The widespread occurrence of Southeastern Ceremonial Cult motifs throughout the Mississippian region points to a shared ideology (Brown 1989). Hilgeman (1991, 2000) has suggested that the presence of these motifs on Angel Negative Painted plates reflects the Angel population's participation in the Green Corn Ceremony. Pauketat and Emerson (1991) have suggested that some ceramic types (e.g., Ramey Incised) were highly charged religious or cultural items that were used by the elite to validate their positions in society. The incorporation of Oneota motifs, such as the hawk or thunderbird, into Caborn-Welborn Decorated designs reflects Caborn-Welborn potters' use and perhaps reinterpretation of these motifs (Pollack 1998, 2004).

- * Identify stylistic patterns of decorative motifs on shell gorgets, pipes, and ceramics, and relate them to Mississippian cosmologies.
- * Assess the symbolic implications of space utilization, decorative motifs, burial ritual, and other cultural elements.
- * Explore the Woodland roots of Mississippian cosmology and ideology, as well as its links to the broader Eastern Woodlands culture area belief system.
- * Determine the extent to which Mississippian elites utilized a shared ideology to validate their positions within their respective polities.

MAJOR ACCOMPLISHMENTS

Since 1987, there have been a great many advances in Mississippi period archaeology. Though most work has focused on newly discovered sites, researchers continue to analyze and reanalyze existing collections and site records. Spatially, the most significant advances have been made in the Ohio River II, Western Coalfield, Green River, and the Southeastern Mountains sections. Prior to 1987, few Mississippian sites in these sections had been excavated and of those that had been, many of the recovered collections had not been analyzed. Archaeological projects undertaken in these sections during the last twenty years have contributed to our understanding of the spatial organization of Kentucky's small-scale regional administrative centers and platform mound construction stages. The relationship of hamlets and farmsteads has been examined, and excavation of several farmsteads and a few hamlets has generated important information on the material culture associated with these types of settlements.

Perhaps the most significant temporal accomplishments of the last 20 years has been the refinement of the Wickliffe chronological sequence, and the first systematic investigation of late Mississippian (post-A.D. 1400) sites in Kentucky. Refinement of the Wickliffe sequence allowed researchers to gain a better understanding of the establishment, growth, and abandonment of this important regional administrative center, and to compare and contrast these developments with those of nearby centers.

Until the late 1980s, few post-A.D. 1400 Mississippian sites had been investigated in Kentucky. The recovery of European trade goods from several Caborn-Welborn sites in Kentucky demonstrated that some Caborn-Welborn sites were occupied into the 1600s. This work also led to new insights into the spatial organization of large Caborn-Welborn villages, mortuary patterns, socio-political organization, and long-distance exchange relationships.

Archaeology is a cumulative science, with new research building upon earlier studies. Taken together, research conducted at Mississippian sites has demonstrated that throughout Kentucky, Mississippian polities are characterized by a hierarchical settlement system consisting of a regional administrative center and associated villages, hamlets, farmsteads, and cemeteries. Ceramic assemblages are marked by the use of shell to temper ceramic vessels, and a variety of vessel forms and appendages. Plant subsistence strategies reflect a heavy reliance on maize, supplemented by nuts, native cultigens, and wild plants. Animal exploitation focused on deer, turkey, and an assortment of other mammals, birds, reptiles, and fish.

But while this research has demonstrated that there is much that these polities had in common, it also has documented interregional and intersite variation in the spatial organization of these polities and in the material culture associated with settlements of varying functions within each settlement system. Archaeological investigations have documented variation in the size of administrative mound centers, mound platform size, and the number of mounds and palisades associated with Mississippian administrative centers. Within the broader river valleys of the Ohio, lower Tennessee-Cumberland, and Mississippi rivers (Purchase Management Area and Ohio River II Section), centers tend to be much bigger and contain more mounds than those found along smaller tributaries of

the Ohio River (Tradewater, Green, Salt, and Upper Cumberland rivers [Green River, Salt, and Upper Cumberland management areas]). Mississippian settlement systems associated with the latter drainages are characterized by administrative centers that contain only one, or at most two, mounds, and associated farmsteads and hamlets. Settlement systems associated with the larger administrative centers, in addition to farmsteads and hamlets, often include small or large villages, and also may include secondary mound centers. Within smaller drainages, settlements tend to be more dispersed, with a lower percentage of the population living at the administrative mound center and a higher percentage living at farmsteads and hamlets. Cemeteries are associated with most administrative mound centers and villages, but in some regions, the dead were interred in cemeteries removed from the community.

Intersite variation in ceramic vessel form composition points to social differences in the use of ceramic vessels that may reflect interregional differences in Mississippian political structure and adaptation. In general, ceramic assemblages recovered from regional administrative centers in smaller drainages (e.g., Upper Green River Section and Upper Cumberland Management Area) situated on the periphery of Mississippian developments are characterized by lower percentages of bowls relative to jars than those in larger rivers (e.g., Western Coal Field Section and Purchase Management Area). Not surprisingly, variation in vessel form frequency of occurrence also has been observed between farmsteads, hamlets, villages, and administrative centers within a given management area or section. For instance, in the Purchase Management Area, plates are more common at administrative mound centers relative to villages, with pans being more common at villages. Likewise, within the Caborn-Welborn region of the Ohio River II Section, lower percentages of bowls were recovered from farmsteads and hamlets relative to small and large villages. The observed differences in vessel form composition point to regional and inter-settlement differences in how food was served and consumed, and perhaps, the social contexts within which those ceramic vessels were used.

Variation in the size of Mississippian polities and in material culture assemblages suggests that the elite of smaller polities may not have had as much prestige, power, and influence as those living at larger centers, such as Adams, Wickliffe, or Jonathan Creek. Yet, despite the possibly less complex sociopolitical organization of the smaller polities, some degree of political centralization would be expected, as evidenced by the presence of corporate architecture in the form of a platform mound. The existence of a platform mound points to the presence of leaders who had some degree of influence/power over the local population. These individuals were able to organize and direct the labor needed to construct and maintain a platform mound and perhaps a palisade, and undertake other projects.

Through the identification and refinement of what is known about the spatial organization of Mississippian settlements and the distribution of settlements within a polity, Mississippian research in Kentucky has the potential to contribute to an understanding of Mississippian lifeways along major rivers and along minor tributaries. How aspiring elites were able to rise to leadership positions and hold onto power, and the degree to which smaller polities were more egalitarian or less hierarchically structured than larger polities are questions that Kentucky's diverse Mississippian archaeological record is well-suited to address. While we have learned a great deal about Mississippian cultures that once lived in Kentucky, there is still much that we do not know.

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CHAPTER 7: FORT ANCIENT PERIOD

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INTRODUCTION

“Fort Ancient” (Mills 1906) is the name archaeologists use to refer to the sedentary village farming peoples who lived in the middle Ohio River valley between A.D. 1000 and A.D. 1750. As traditionally conceived, the Fort Ancient culture area extends from above the Falls of the Ohio to just east of the mouth of the Muskingum River. Encompassing much environmental diversity (Drooker 1996:139-140; Essenpreis 1978:141-143), this area includes the southeastern edge of the present state of Indiana, the southern one-third of Ohio, the central and eastern portions of Kentucky, and western West Virginia (Carskadden and Morton 1977; Cowan 1986, 1987; Dunnell et al. 1971; Drooker 1997, 2000; Essenpreis 1978; Graybill 1981; Griffin 1943; Henderson 1992b; Hockensmith 1983b; Murphy 1975; Prufer and Shane 1970; Riggs 1986, 1998).

Not all researchers agree with these spatial boundaries. Some do not consider the village farming peoples of southeastern Kentucky (the Woodside Phase [Dunnell 1972]) or those of east-central Ohio (the Philo phase [Carskadden 1992; Carskadden and Morton 1977, 2000; Griffin 1992:54]) an expression of Fort Ancient culture (Drooker 1996; Graybill 1981:24). Recent research in central and south-central Indiana suggests that Oliver phase farming groups also should be considered Fort Ancient (McCullough 2000:64; Redmond and McCullough 2000:675-676). These differences of opinion have led some to argue that Fort Ancient is not a cohesive entity (Graybill 1981:23), but instead a “construct of archaeologists conceived in error, perpetuated by conceptual rigidity, and misinterpreted by some serious and some imaginative archaeologists” (Griffin 1992:53).

These statements suggest that regional variation within the Fort Ancient culture area somehow negates the validity of Fort Ancient as a viable cultural tradition, when in fact, diffuse boundaries and spatial vagaries are exactly what should be expected of a regional archaeological expression of tribal societies (see Rogers 1995). Conceiving of the Fort Ancient culture area as a region inhabited by related tribal peoples relieves the need for regional cohesion, since tribal groups are the least cohesive at the regional or tribal level (Sahlins 1968).

In Kentucky, Fort Ancient sites are found in roughly the eastern one-third of the state (Salt River, Bluegrass, Upper Kentucky/Licking, and Big Sandy management areas) (Figure 7.1). Over the past 35 years, several summaries and syntheses of the Kentucky Fort Ancient period have been written (Blakeman 1971; Dunnell 1972; Goodell 1971;

¹ Adapted from Sharp 1990

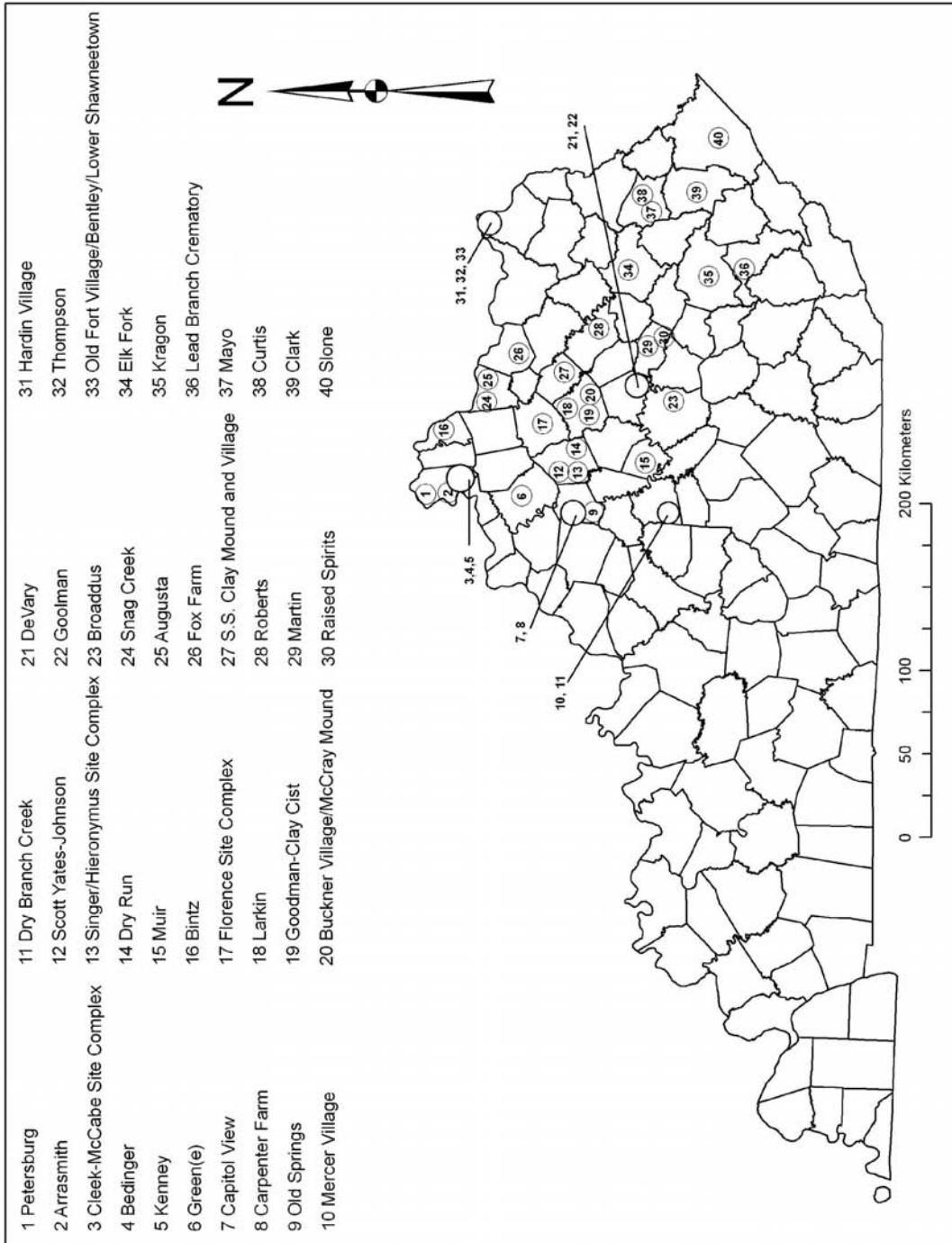


Figure 7.1. Location of important Kentucky Fort Ancient period sites.

Henderson 1992b; Henderson and Turnbow 1987; Pollack and Henderson 2000; Purrington 1967b; Sharp 1989b, 1990; Turnbow 1988a). Many ideas and concepts discussed in this chapter are based on research conducted by these and other scholars of Kentucky archaeology.

For the purposes of this document, the Fort Ancient period (A.D. 1000-1750) has been divided into three temporal units: early (A.D. 1000-1200), middle (A.D. 1200-1400), and late (A.D. 1400-1750). These units provide a framework for describing, ordering, and comparing Fort Ancient cultural expressions within and between the different management areas.

GENERAL DESCRIPTION

Based on research conducted in Kentucky and elsewhere, archaeologists have learned a great deal about Fort Ancient technology, subsistence practices, settlement patterns, health, economics, sociopolitical organization, and religion. The Middle to Late Fort Ancient transition (ca. A.D. 1400/1450) is a watershed in Fort Ancient prehistory: interregional variation in Fort Ancient material culture, especially in ceramics, exists prior to that time, and region-wide similarities are evidenced afterward. This transition also is marked by an increase in village size, changes in community organization, and an increase in long-distance exchange. The late A.D. 1600s are another watershed that usher in a period of population reduction and acculturation/assimilation, culminating with the destruction of indigenous culture and the removal of most of the region's Native American inhabitants by the late A.D. 1700s/early 1800s. The following description of Fort Ancient cultural characteristics is based mainly on Henderson and Pollack (2001).

TECHNOLOGY

Ceramics are the most common and diagnostic Fort Ancient artifact class. They distinguish Fort Ancient sites from their contemporaries and define regional divisions within the tradition prior to A.D. 1400. Ceramic vessels were made from locally available clays and are grit, limestone, sandstone, and/or shell tempered. Vessel rims and necks can be decorated with incising, punctations, or notching.

Early pottery vessels were primarily cordmarked conoidal jars that had straight or recurved rims. The overall shape of these jars is similar to that of preceding Woodland vessels, with the use of shell temper, the presence of handles, and greater use of incising to decorate vessel necks reflecting their Fort Ancient affiliation. Between A.D. 1200-1400, the use of shell temper increased and changes occurred in appendage styles, but regional ceramic stylistic traditions remained, and the vessel inventory continued to consist almost exclusively of jars. In some sections, the proportion of cordmarked to plain exteriors changed. Important minor exterior surface treatments consisted of check-stamping in the south and knot-roughened/net-impressing in the east. After A.D. 1400, new vessel forms were added to the inventory: bowls, pans, colanders, and globular, plain

surfaced jars with flared rims. Temper was exclusively shell, and there was a sharp decline in regional stylistic differences.

Using ceramic samples from three Kentucky Fort Ancient sites with pre- and post-A.D. 1400 components (Petersburg, Fox Farm, and Thompson) and potential clay source samples from around each site, Davidson (2003) and Davidson et al. (2002a, 2002b) sought to determine whether the introduction of new ceramic vessel forms ca. A.D. 1400 signaled a change in Fort Ancient clay selection strategies (see also Cook [2004:207-211; 305-307]; Matson [1940, 1989]; and Tankersley and Meinhardt [1982] for other Fort Ancient ceramic technology studies). This research demonstrated that the mineralogy of the potential clay source samples for each site locale was similar, despite variation in bedrock and soil series, and that the mineralogy of the sherds of different ages from each site was similar as well. Patterns in paste chemical composition indicated that only at Petersburg did the use of clay source(s) change over time.

An unanticipated discovery of Davidson's (2003) and Davidson et al.'s (2002a; 2002b) research was the identification of elevated phosphorous levels in each sherd in their sample. Additional analysis (Gerke et al. 2006; Gerke and Maynard 2006) determined that the concentrated phosphorous was localized to inclusions in the paste that petrographically resembled bone.

Fort Ancient chipped stone tools were made from locally available high- to medium-quality cherts. Research targeting the diachronic use of lithic raw material shows that, in comparison to earlier groups, Late Woodland/Fort Ancient people traveled the shortest mean distance to raw material sources (Evans 1996:247). Even when both poor- and high-quality materials were locally available and abundant within a site vicinity (i.e., within 20 km), Fort Ancient flint knappers rarely used those materials that were further away and therefore more costly to acquire, opting instead to use locally available, but lower quality, cherts (Evans 1996:250, 254-255).

Characteristic Fort Ancient projectile points are small, generally isosceles, triangles, although Nodena points (Justice 1987:230-232) can occur on some very Late Fort Ancient sites. Several researchers have developed Fort Ancient triangular projectile point typologies based on stylistic differences (Graybill 1981; Litfin et al. 1993; Railey 1990; 1992). Railey's (1990a, 1992) typology, based on specimens recovered from northeastern Kentucky Fort Ancient sites, has seen widespread application. His study relied on characterizing site assemblages, not dating a site's component based on a single point style.

Railey did not assign type names (i.e., Madison, Levanna, Hamilton Incurvate, Fort Ancient) to the fine triangular points in his sample, choosing instead to assign descriptive labels (Railey 1992:152). However, most (i.e., Type 2 Fine Triangular: Flared Base; Type 4 Fine Triangular: Short, Excurvate; Type 5 Fine Triangular: Straight Sided; Type 6 Fine Triangular: Concave Base) would be considered Madison Triangulars (Justice 1987:224-225, 227). Type 3 Fine Triangular: Coarsely Serrated points are good examples of Fort Ancient points (Justice 1987:225, 227-228), and Railey found no corollaries in the regional literature for examples of Type 7 Fine Triangular: Thick, Wide Base specimens. Type 1 Fine Triangular: Small, Tri-Incurvate specimens resemble Hamilton Incurvate points (Justice 1987:226, 229-230). Given the latter's middle and

eastern Tennessee distribution, Railey (1992:156) did not consider Type 1's diagnostic for Kentucky Fort Ancient sites. However, Hamilton Incurvates have been described for some Early Fort Ancient subperiod sites in the Big Sandy Management Area (see that discussion) and may be diagnostic for that region.

Subsequent research at Kentucky Fort Ancient sites has verified and replicated Railey's typology and refined his temporal sequence (Henderson 1998:140-141; Pollack and Henderson 2000; Miller 2001; Pollack and Hockensmith 1992; Sharp and Pollack 1992; Sharp 1988; Updike 1996). The earliest points tend to have flared (convex) bases (Type 2 Fine Triangular); some have basal ears (Type 2.1 Fine Triangular) or finely serrated lateral margins (Type 3.1 Fine Triangular). Type 3 Fine Triangular points (coarsely serrated lateral margins) are diagnostic of the Middle Fort Ancient subperiod. From the Early to Middle Fort Ancient subperiods, straight-sided Type 5 Fine Triangular points increase in popularity relative to Type 2's and Type 3's, and by the early Late Fort Ancient subperiod, Type 5's are the major point type. Type 4 Fine Triangular (small with excurvate lateral margins) and Type 8 Fine Triangular (long points with thin cross-sections and deeply concave bases) (Updike 1996:182) points also are characteristic of Late Fort Ancient components. The latest points have concave bases (Type 6 Fine Triangulars) and were produced into the historic period.

Bradbury and Richmond (2004) reanalyzed a sample (n=56) of the projectile points Railey (1990a, 1992) used to develop his fine triangular projectile point typology. Their goal was to determine if metric attributes could be used to quantitatively replicate Railey's types 2-6 (Bradbury and Richmond 2004:43). Though they documented a general progression from incurvate, thin specimens to excurvate, thicker forms over time, they could statistically replicate only types 2 and 3 (Bradbury and Richmond 2004:58). Their study highlights problems with attempting to define projectile point types solely on metric measurements. Such approaches do not take into account variation in projectile point size and shape resulting from production or use.

Other Fort Ancient chipped stone tools include drills, knives, and scrapers (Railey 1990, 1992). Bifacial teardrop-shaped endscrapers are particularly diagnostic of late assemblages. Groundstone tools include sandstone abraders, manos, or nutting stones. Smoking pipes were manufactured from clay, sandstone, Ohio pipestone, limestone, and catlinite, with the latter being restricted to the Late Fort Ancient subperiod. Chipped limestone disks are diagnostic of the Middle Fort Ancient subperiod, especially in the Bluegrass Management Area.

Fort Ancient tools also were manufactured from shell and bone. Among them are shell or bone spoons and hoes; and bone awls, needles, drifts, and beamers. Prehistoric ornaments, in the form of beads, plain or engraved gorgets, earrings, and bracelets, were made of animal teeth and bone, shell (both freshwater and marine), and cannel coal. Fresh water mussel shells and cannel coal were collected from nearby rivers and streams, while marine shell objects or unmodified marine shells were obtained through exchange relationships with groups outside the Fort Ancient area, particularly those living to the south and east. Use of ornaments made from the latter increased late in the Fort Ancient sequence, attesting to increased participation in interregional exchange networks (cf., Pollack et al. 2002a).

Protohistoric ornaments, such as brass/copper beads, clips, bracelets, and earrings, were made of metal scraps cut from kettles of European manufacture. Mid-eighteenth century artifacts included glass beads, brass/copper tinkling cones, silver armbands, brooches, and earrings, iron clasp knives, brass/copper and iron kettles, and flintlock guns.

SUBSISTENCE PRACTICES

Fort Ancient subsistence practices and their environmental focus appear to have developed early in the sequence and stabilized quickly, changing little over the course of 750 years (Breitburg 1992; Rossen 1992a; see also Rossen 2005:6.15). Given the increase in village size over time, however, practices may have undergone some intensification (Henderson 1998:527-528). Maize, beans, squash, and sunflower were staples of the Fort Ancient diet, but gourd and tobacco also were grown, and sumac was encouraged. Relative to earlier Late Woodland peoples and contemporary Mississippian groups, there was much less emphasis on starchy-oily seeded crops, such as chenopod, maygrass, and marshelder (Rossen 1992a; Rossen and Edging 1987). Nuts and the fruit of wild plants also were collected, although there was a decreased emphasis on nuts relative to earlier Late Woodland people and contemporary Mississippian groups.

Fort Ancient animal exploitation strategies appear to have been similar to those of the preceding Late Woodland period. Although a variety of small mammals, reptiles, fish, and freshwater mussels were exploited, Fort Ancient peoples depended on deer, bear, elk, and wild turkey for subsistence. There is evidence for domesticated dogs and possibly the keeping, but not domesticating, of turkey.

Based on stable isotope data ($^{13}\text{C}/^{12}\text{C}$), maize was by far the most important food consumed by Fort Ancient people, accounting for, by some estimates, as much as 65-75 percent of the Fort Ancient diet (Broida 1983, 1984; Schurr 1998:250-251). In comparison to Mississippian groups, however, Fort Ancient people may have consumed slightly less maize (Schurr and Schoeninger 1995:333; Schurr 1998:250-251). In addition, while maize was the single most important food for both groups, within the Ohio River valley, greater variability in maize consumption was documented among Fort Ancient sites relative to Mississippian sites in western Kentucky and Tennessee (Schurr 1998:251). Factors that may have contributed to this variability are population density, environmental productivity, and climatic limits (i.e., length of growing season) on maize productivity (Schurr 1998:248, 251).

Researchers assume, based on ethnohistoric descriptions, that Fort Ancient groups were swidden farmers. The women grew the crops and collected wild plant foods, while it was the men's responsibility to hunt. This division of labor is reflected in the Hardin Village skeletal assemblage, where musculoskeletal stress markers and patterns of osteoarthritis show that males engaged in activities that emphasized upper body actions and stance-related stability, while women were habitually involved in activities that required an upright but not fixed stance and upper body strength (Nagy 2000:203, 217, 230).

SETTLEMENT PATTERNS

Kentucky Fort Ancient settlements consisted of autonomous villages and small camps. Throughout much of the Fort Ancient culture area, settlements were located along floodplains or terraces of major streams or the Ohio River. In the Central Bluegrass Section, however, villages also were located on interior ridges near a variety of drainage types or springs.

Regardless of where they were situated on the landscape, Fort Ancient communities were associated with good agricultural soils, and ecozonal boundaries may have played a role in settlement location, too (Kennedy 2000:147-149; Henderson 1998). Cultural factors also influenced the location of Fort Ancient villages, and the importance of any single factor, natural or cultural, varied situationally from village to village (Henderson 1998:402-417). Among the natural factors that may have influenced village location were topography, proximity to an environmental boundary, soil type, and proximity to water. The size of group territories/territorial boundaries or perceived village spacing; the social decisions that resulted in village movement; and possibly, a concern for defense were cultural factors that may have influenced village site selection.

The earliest Fort Ancient settlements reflect *insitu* adaptational responses of local populations that were becoming increasingly dependent on agriculture and increasingly sedentary. These small, dispersed farming communities consisted of scattered households with associated activity areas. Stone mounds or ritual areas were situated away from habitations.

Post-A.D. 1200 Middle Fort Ancient settlements were more compact, and varied in shape and size. Though many were circular/elliptical, others were arc-shaped or consisted of a linear arrangement of structures along a ridge or terrace. Circular/elliptical villages exhibit distinct activity areas that encircle a central plaza: domestic/habitation, storage/trash disposal, and mortuary. The spatial arrangement of these areas relative to each other is not the same from village to village. In addition to mortuary areas surrounding a central plaza, some circular villages also contain a low burial mound. Mound location varies, although most are located along the edge of the plaza. The presence of a mound appears to be linked to a village's occupational history (multiple Fort Ancient occupations or a single occupation of a longer duration) and not to the existence of a regional settlement hierarchy (Henderson 1998; Pollack and Henderson 1992b). Palisades encircled some, but not all, circular villages.

The development of circular villages and the construction of burial mounds during the Middle Fort Ancient subperiod provide evidence for long-term group planning and socio-political cooperation, and the formalized expression of social inequality. It is assumed that Middle Fort Ancient arc-shaped or linear-shaped communities also contained distinct activity areas, but this has yet to be documented in the archaeological record.

Late Fort Ancient villages are larger, lack mounds, and appear to have been more intensive occupations. In the Fort Ancient region as a whole, there is an east-west variation in the form these larger villages take. In the west, they are comprised of clusters of households with associated cemeteries, while in the east, they tend to remain

circular and palisaded. There is some evidence, both archaeological and ethnohistorical, for communal/special activity structures within later Fort Ancient villages. A summer village/winter hunting camp pattern (Fitting and Cleland 1969) may date back to at least A.D. 1400. In this pattern, families lived in the villages for most of the year, but from the late fall to early spring, family groups moved to small hunting camps. These camps, smaller than the villages and represented as open sites or rockshelter occupations, were located in the headwaters of smaller streams.

Fort Ancient community size increased over time. Early villages may have been occupied by no more than 40 or 50 people, while villages occupied between A.D. 1200-1400 may have held as many as 90-300 people. The size of the larger, Late Fort Ancient villages is estimated at between 250 and 500 people, while estimates for the winter hunting camps suggest they were occupied by between 17 and 32 individuals (Henderson and Pollack 2001:175). It has been suggested that the overall regional population may have increased through time, although protohistorically, European-introduced diseases, which may have appeared in the late seventeenth century, would have decimated Fort Ancient populations.

Fort Ancient houses tend to be square to rectangular structures with rounded corners. Average house size increased over time from 10.5 to 133 m² (Henderson and Pollack 2001:175). Some earlier houses were constructed in shallow basins. Walls were made of single-set hardwood posts, though later they could be set in wall trenches. Limited evidence of wattle and daub walls exists; most were covered with bark, thatch, or mats. Communal/special activity structures were somewhat larger than dwellings, though constructed of the same materials. Domestic structures housed nuclear families until about A.D. 1400, after which larger house size implies occupation by extended or multiple families. Dwellings at open-air winter camps were small, oval-shaped structures. They were made of single-set hardwood posts and covered with bark. Communal structures at winter camps resemble village houses.

A post-A.D. 1400 increase in village and house size is associated with a more restricted spatial distribution of Fort Ancient communities, and fewer villages were located in the interior, especially to the north of the Ohio River. This coalescing of households into larger communities situated along major waterways may have occurred in response to climate change. At the start of the "Little Ice Age" (ca. A.D. 1450-1900), as the climate became cooler or moister and agricultural risk increased, Fort Ancient groups may have abandoned agriculturally marginal areas to the north of the Ohio River and concentrated their villages in areas with significantly higher soil fertility and with a longer growing season (Kennedy 2000:147-149). It is also possible that this settlement shift was stimulated by a need to increase access to intervillage exchange routes or it may have occurred in response to increased sociopolitical complexity.

HEALTH

Fort Ancient populations suffered from infections, bone tumors, arthritis, osteoporosis, and poor dental health in the form of cavities and abscessed teeth (Adkins

1988; Cassidy 1972, 1980, 1984). They also tended to have a lower life expectancy and higher toddler mortality (suggesting weaning stress) than earlier Archaic hunter-gatherers (Cassidy 1984:331). Many of these health problems may have stemmed from chronic protein malnutrition (Cassidy 1972:160-161). Many individuals experienced the non-venereal form of treponematosi, such as yaws or endemic syphilis. They may have contracted these diseases at an early age, and then experienced remissions and re-appearances throughout their lives (Garten 1997:112-113).

EXCHANGE AND INTERACTION

By modeling Fort Ancient economic organization on that of tribal societies (cf. Sahlins 1968), researchers infer that the basic Fort Ancient economic unit was the nuclear, and later the extended, family. However, Fort Ancient communities undoubtedly would have participated within larger economic spheres, and reciprocal trade and exchange of local goods probably took place among Fort Ancient communities within the Fort Ancient region throughout the entire sequence.

The appearance of shell temper, certain appendage styles, and tropical cultigens in the middle Ohio Valley ca. A.D. 1000 suggest that Fort Ancient communities also interacted with groups outside the region to some degree early in the sequence. This may have taken place earlier in the western part of the Fort Ancient culture area than in the east.

Pollack et al. (2002a) have reviewed the evidence for Fort Ancient interaction with Mississippians. They found that this interaction was limited prior to A.D. 1400, but that it increased significantly after that date. They suggested that domestic/household interaction may have occurred as a result of the adoption of new ideas about how to make pottery, serve food, or arrange local social relationships (Pollack et al. 2002a:217). They characterized Fort Ancient/Mississippian ritual exchange of nonlocal goods, such as marine shell objects (engraved rattlesnake and weeping eye gorgets) and catlinite disk pipes (Drooker 1997), as occurring within a regional prestige goods economy. These prestige items were derived from Mississippian and later, from Euro-American sources.

It is postulated that materials of European origin initially arrived along the same exchange routes that had existed prehistorically. But by the mid-eighteenth century, face-to-face trade with Europeans provided direct access to a diversity of manufactured goods or the raw materials needed for their manufacture.

SOCIAL AND POLITICAL ORGANIZATION

Pollack and Henderson (1992b) have proposed a model of Fort Ancient social and political organization, noting how social inequality became more formalized and how political organization became more complex over time. They based this model on an examination of artifact characteristics, settlement patterns, village organization, house size, mortuary practices, and exchange relationships, as well as ethnographic research on

tribal societies and ethnohistoric descriptions of groups potentially historically related to Fort Ancient groups. This model references Johnson and Earle's (1987) framework of cultural evolution, and privileges concepts that take into account the complex situational and heterarchical nature of tribal social and political relationships, ones that do not depend on permanent ranking for order (Chapman 1997; Crumley 1987; Ehrenreich et al. 1995; Helm 1968; Henderson 1998; Sahlins 1968).

Early Fort Ancient sociopolitical organization may have resembled what Johnson and Earle (1987:19-20) defined as a family/hamlet (Pollack and Henderson 1992b:283-284). Kinship was the organizing principal. Communities were made up of several related households, and leadership roles within these settlements were context specific and minimal. Although few Early Fort Ancient cemeteries or graves have been documented, it is difficult to conceive of Early Fort Ancient society as anything but egalitarian.

With the appearance of planned communities (circular villages) in the Middle Fort Ancient subperiod, the size and organization of Fort Ancient communities resembled Johnson and Earle's (1987:20) "acephalous local groups." Villages may have been created by the coalescence of two or more smaller kin-related groups (Pollack and Henderson (1992b:284-285). Evidence from some sites suggests that clans or lineage descent groups organized into possible moieties may have existed.

Like acephalous local groups elsewhere in the world (Johnson and Earle 1987), Middle Fort Ancient villages would have had very fragile political structures, tending towards factionalism and fragmentation. The circular village plan of some Middle Fort Ancient villages suggests the importance of group ceremonialism and ritual (Hayden 1995), which may have served to strengthen community ties in opposition to the forces of fragmentation. Middle Fort Ancient political leadership may have been an achieved position of status. Social mechanisms (generosity, reciprocity, and cooperation [see Trigger 1990:143]) may have existed that would have effectively limited and undermined the degree of political control that Middle Fort Ancient leaders had over their communities (Brumfiel 1994; Spencer 1994).

Formalized expression of social inequality begins in the Middle Fort Ancient subperiod (Henderson 1998): the erection of low earthen burial mounds in the Bluegrass Management Area is interpreted as recognizing an individual's or a corporate group's achieved status. In Middle Fort Ancient society, a person's social standing in the community was expressed mainly by where they were buried (e.g., in a mound, mortuary zone, or trash pit).

The increased size of Late Fort Ancient communities, as well as the participation by their inhabitants in extraregional exchange networks, points to the existence of villages with a more complex political organization, and a different kind of village leader, than those of earlier periods. Pollack and Henderson (1992b:286-291) considered that Late Fort Ancient communities resulted from the coalescence of two or more smaller villages. They described Late Fort Ancient sociopolitical organization as that of a "Big Man collectivity" (Johnson and Earle 1987), with communities containing multiple clan or lineage segments (but see Holmes [1994], who concluded that an acephalous local group-type of political organization continued into the Late Fort Ancient subperiod).

Johnson and Earle (1987:20) distinguished a Big Man collectivity from acephalous village-sized units by the fact that they represented “larger groups integrated by regional networks of exchange headed by Big Men.” Research at some sites suggests the presence of matrilineal descent groups and the presence of male sodalities.

Respected elder(s) capable of maintaining internal group cohesion would have led Late Fort Ancient communities, and the leaders of factions and/or the kin-based groups of the various communities that coalesced to form these new villages may have competed with each other for power and control of these villages (Brumfiel 1994). Factionalism and other social controls would have limited these leaders’ power.

Late Fort Ancient leaders do not appear to have been able to exert control or influence over households living in neighboring villages; or if they did so, it was not for very long. Likewise, they were unable to exclude or restrict others from obtaining local resources or nonlocal goods and information. The same social mechanisms at work in the preceding subperiods apparently also limited and undermined the degree of political control Late Fort Ancient leaders could exert (Brumfiel 1994; Spencer 1994; Trigger 1990). Leaders gained positions of power, only to lose them later. This prevented them from developing the political hierarchy and centralized authority that typified contemporary Mississippian chiefdoms.

Social inequality in the Late Fort Ancient subperiod continued, but a person's social standing was expressed more by the kinds of items they were buried with, such as engraved shell gorgets, pipes, and marine shell bead bracelets (Drooker 1997; Holmes 1994), than where they were buried (e.g., in a cemetery or under a house floor). These ornaments and objects were used to denote status, although this status may have reflected more on the corporate kin group than on the individual.

Leaders within Late Fort Ancient villages likely were the ones who established new extraregional exchange relationships with Mississippian societies located south of the Ohio Valley. Interaction with Mississippian elites would have provided Late Fort Ancient village leaders with information about the world that was not available to others, including possibly mystical or religious power (Earle 1991; Helms 1979). The region-wide integration of Late Fort Ancient culture may have developed out of competition or peer polity interaction (Renfrew 1987) among Late Fort Ancient village leaders for household allegiance and the acquisition of nonlocal goods and information.

Certain characteristics of Fort Ancient villages (palisades), the locations of particular villages (at the edge of an interior ridge or on a high bluff overlooking a river), and burial data (an arrow imbedded in a bone or scalping) suggest that conflict (internal village conflict or between-village conflict, and later, conflict with outsiders) did take place in Fort Ancient society. How common it was is unknown. Reasons for conflict, based on the ethnographic and ethnohistoric record, included, among other things, revenge, gaining prestige, and competition for resources.

RELIGION

The presence of Mississippian prestige goods (particularly engraved “weeping eye” motifs that may be linked to hawk or Thunderbird symbolism and reflect a warfare theme [Smith and Smith 1989], and rattlesnake motifs on shell gorgets) in Fort Ancient graves after A.D. 1400 points to a greater participation by Fort Ancient peoples in the “broader” Mississippian religious system. This suggests that Fort Ancient people may have used Mississippian iconography, fusing Southeastern Ceremonial Complex (“Southern Cult”) beliefs into their own belief system. The development of a regional Fort Ancient style of shell engraving suggests, perhaps, a reinterpretation of Mississippian iconography to suit Fort Ancient needs (Henderson and Pollack 2001:177).

Based on ethnohistoric analogy and the recovery of ritual paraphernalia from graves, it seems safe to say that individuals who knew how to perform rituals and ceremonies served as religious leaders or shamans. Throughout the Fort Ancient sequence in Kentucky, there is some evidence for a multi-step Fort Ancient mortuary program, involving *insitu* defleshing and the manipulation, and possibly curation, of selected bones before final burial; cremation; bundle burial; and the reuse of graves (Clay 1984; Holmes 1994; McDonald et al. 2006; Niquette et al. 1995; Pollack et al. 1987). After A.D. 1400, there is evidence for graveside ritual feasting and the use of offerings (maize and beans) (Pollack et al. 1987); and the ritual “killing” of vessels also has been documented. The appearance of disk (and perhaps vasiform) pipes within Fort Ancient villages after A.D. 1500 points to the spread of the Calumet Ceremony into the Fort Ancient region (Drooker 1997).

Given the high mortality rate of infants and young children and the fact that they were often buried in trash pits or midden refuse areas, concern for the afterlife doesn’t appear to have been as great for them as for adults.

It is unclear where Fort Ancient people buried their dead early in the sequence. Isolated mortuary sites and the lack of graves at habitation sites suggests that burial took place away from these settlements. However, after A.D. 1200, with the appearance of nucleated circular villages, and continuing on through the sequence, burial shifts to within or near living areas: in either cemetery areas and, for a limited time (primarily in the Central Bluegrass Section), in low earthen burial mounds. In the Eastern Mountains, burial of some individuals in stone boxes associated with stone mounds or located inside rockshelters continued throughout the sequence.

Adults were usually buried singly in pits (sometimes stone-lined or stone-covered), either in clusters near houses, under house floors, or around plazas, suggesting strong links to the living. Burial in mounds between A.D. 1200-1400 reflects an increase in social inequality. Belief in an afterlife also is reflected in the burial of personal objects with the dead.

PROTOHISTORY AND THE CONTACT PERIOD

Protohistoric and historic Fort Ancient occupations have been documented at a few sites in Kentucky. European trade items have been found at these sites in direct association with materials of indigenous manufacture. A few, like Lower Shawneetown, are mentioned in period documents or appear on period maps (Hanson 1963, 1966; Henderson 1999c; Henderson et al. 1986; Pollack and Henderson 1984).

The Fort Ancient archaeological culture probably embraced several different ethnic groups (Drooker 1997:105), some of which could have succumbed completely to European-introduced diseases long before recorded history. Groups suggested as possibly ethnically affiliated in some way with prehistoric Fort Ancient groups include the Shawnee (Clark 1974; Drooker 1997:103-105; Graybill 1988:30-31; Griffin 1937, 1943:28-35, 1978:557; Hanna 1911; Pollack and Henderson 1992b:277-278; Witthoft and Hunter 1955) and Yuchi or Eastern Siouan speakers like the Tutelo (Fuerst 2001; Griffin 1943:25-26, 35; Henderson et al. 1986; Maslowski 1984:161; Swanton 1943).

SALT RIVER (MANAGEMENT AREA 3)

Post-A.D. 1000 sites in the Salt River Management Area have the potential to be assigned to either the Fort Ancient or Mississippi periods, an assignment that often depends on the investigator's research orientation. Post-A.D. 1000 sites documented within counties on the eastern periphery of this management area and near its center (Anderson, Boyle, Bullitt, Mercer, Nelson, Oldham, Shelby, Spencer, and Washington) have the greatest likelihood to be Fort Ancient. Therefore, discussion in this chapter focuses on them. Mississippi period sites are discussed in Chapter 6.

ARCHAEOLOGICAL RESEARCH OVERVIEW

Compared to the other management areas, relatively little research has been conducted at Fort Ancient sites in this management area. While working on a geological survey of Boyle and Mercer counties, Linney (1881) documented the locations of several mounds and village sites that may date to the Fort Ancient period (Clay 1985).

In the 1960s, Carter (1961) investigated Mercer Village (15Me15), which Clay (1985:20) identified as Linney's Site A. Another Fort Ancient site investigated during this period is the Casey site (15Sh5) (Schwartz 1961). An opportunistic survey of Bullitt County recorded a few sites that produced shell tempered ceramics and triangular points near Bullitt's Lick, but these are likely Mississippi period sites (Kryst and Weinland 1980).

Numerous archaeological investigations have been undertaken in this management area in compliance with federal historic preservation law. Most have produced only limited information on the late prehistory of the area. The Taylorsville Lake investigations (Driskell et al. 1984; Robinson et al. 1979; Sorensen et al. 1980) represent the largest conducted in the management area.

Since 1987, only one important Fort Ancient site has been intensively investigated in this management area. The Dry Branch Creek site (15Me62), a village (Pope et al. 2005), was excavated in advance of a bridge replacement project.

Important Fort Ancient sites in this management area are listed in Table 7.1.

Table 7.1. Important Sites: Salt River Management Area.

Site No	Site Name	Site Type	References
15Me15	Mercer Village	Open habitation w/o mound(s)	Carter 1961; Goodell 1971; Henderson 1998
15Me37		Open habitation w/o mound(s)	Hockensmith 1983b
15Me62	Dry Branch Creek	Open habitation w/o mound(s)	Pope 2000; Pope et al. 2005
15Sh5	Casey	Open habitation w/o mound(s)	Goodell 1971; Schwartz 1961

CHRONOLOGY

It is not surprising, given the limited amount of Fort Ancient research conducted in this management area, that the basic groundwork for a regional sequence has not been established. Thus, no chronological synthesis will be attempted here. Instead, the management area's best-documented Fort Ancient sites, Dry Branch Creek, Mercer Village, and Casey, will be discussed in relative temporal order as suggested from Fort Ancient research in the adjacent Central Bluegrass Section (cf. Pollack and Henderson 2000; Turnbow 1988a). A review of the results of the Taylorsville Lake investigations conclude this section.

INDIVIDUAL SITES

The Dry Branch Creek site covers approximately 2 ha along both banks of Dry Branch Creek at its confluence with the Salt River in Mercer County. It is located directly south of and across the Salt River from Mercer Village (a pattern of repeated habitation of a particular locale has been identified throughout the Fort Ancient area in Kentucky [Henderson 1998; Pollack and Henderson 2000; Turnbow 1988a]). The site was occupied between A.D. 1100 and 1250, although the western side may have been occupied slightly earlier than the eastern side (Pope et al. 2005:3.58, 3.62-63) (Table 7.2).

Dry Branch Creek was a residential site. A variety of domestic activity areas were documented, including discrete processing areas where people informally congregated to engage in ordinary household tasks (i.e., animal and plant food processing and consumption; and craft activities), and areas where waste from food preparation, consumption, or stone tool manufacturing were disposed of (Pope et al. 2005:9.28-29). Year-round occupation was inferred, based on the faunal data (Breitburg 2005:7.7).

Table 7.2. Salt River Management Area: Chronometric Dates.

Lab No.	Age (B.P.)	Calibrated Date ¹ (2-sigma)	References
Dry Branch Creek (15Me62)			
Beta-148374	940±60	AD 995-1216	Pope et al. 2005:3.62
Beta-126978	840±80	AD 1030-1281	Pope et al. 2005:3.62
Beta-126975	840±60	AD 1042-1107, 1117-1276	Pope et al. 2005:3.62
Beta-148376	820±60	AD 1044-1100, 1119-1142, 1146-1283	Pope et al. 2005:3.62
Beta-126977	740±60	AD 1166-1319, 1351-1390	Pope et al. 2005:3.62
Beta-126976	720±70	AD 1177-1400	Pope et al. 2005:3.62
Beta-148375	670±60	AD 1252-1411	Pope et al. 2005:3.62
¹ Dates calibrated using Calib Revised Version 5.0.2 (Hughen et al. 2004; Reimer et al. 2004; Stuiver and Braziunas 1993; Stuiver et al. 1998).			

Intact subplowzone deposits consisted of a 30-40 cm-thick intact discontinuous sheet midden, large shallow pit features, a structure and isolated postholes, burials, and midden-filled gullies (Pope et al. 2005:2.5-11; 3.1-20). The structure, several pits, and a burial represent a cluster on the east side of the creek, while several pits, a possible house

basin, three intact vessels, sheet midden, and a burial represent a tight cluster on the west side that may have been associated with a structure.

Two features produced 80 percent of the Dry Branch Creek site artifacts (Pope 2000; Pope et al. 2005:3.63). One was a large basin-shaped pit (small house basin?) that had been filled with refuse. The other was an activity area where game animals and chipped stone hunting gear were processed, and where general domestic refuse was discarded. Other pits were interpreted as having been used: for refuse or storage; as a hearth for cooking, then for processing activities or as a refuse facility; for food processing or consumption; for animal resource processing or discard from waste generated by preparing or consuming animal food; or as a hearth clean-out (Pope et al. 2005:3.30-50).

The structure consisted of 27 postholes arranged in two intersecting lines, which suggests it was rectangular (Pope et al. 2005:3.20, 3.23-24). It measured 3.7 by 8 m. There was no evidence for internal features. This structure appears to be similar to the larger structure type documented at Capitol View in the Central Bluegrass Section (Pope et al. 2005:3.24), while the posts are larger than those documented for Muir (Turnbow and Sharp 1988) and Capitol View (Henderson 1992a).

The site's ceramic assemblage is primarily Jessamine Series, with minor amounts of McAfee Series (Henderson and Mills 2005). Sherds are mainly limestone tempered, although small amounts of mixed limestone and shell tempered specimens, and shell tempered specimens were recovered. Exteriors are mainly cordmarked, though plain and check-stamped examples are present. Vessels include jars, bowls, and pinch pots. Jars have mainly recurved or slightly flared rims. Decoration consists of cordmarked or fabric-impressed lips and incised guilloche designs. Appendages included riveted loop-strap handles, parallel/convergent-sided strap handles, and a donut-shaped lug.

The Dry Branch Creek lithic assemblage is the first Fort Ancient assemblage of any size to be examined in detail for raw material, reduction stage, and microwear (Pope et al. 2005:10.22). It contains examples of two distinct lithic industries: flakes used to make bifaces, triangular points, and unifacial tools; and unmodified expedient flake tools (Pope et al. 2005:5.50-51). Tools present include bifaces, unifaces, and hump-backed knives; utilized and retouched flakes; and drills, graters, and burins. Triangular projectile points are mainly Type 2 and Type 5 fine triangulars, but a few Type 3.1 and Type 6 fine triangulars were recovered (Pope et al. 2005:5.33-37). Chert types represented are mainly locally available Salvisa and Curdsville/Grier cherts (Pope et al. 2005:5.3, 5.48). Microwear analysis indicated that drills and graters were used on hide and bone/antler, and burins and scrapers were used on bone/antler and wood. Hump-backed knives were used in butchering and skinning activities, and retouched/unmodified flake tools were used on soft and woody plants as well as soft animal tissue (Pope et al. 2005:5.51).

Groundstone tools associated with plant food growing and processing, like pitted or nutting stones, grinding slabs, and abraders, were not well represented at Dry Branch Creek (Pope et al. 2005:5.47). Only a sandstone pipe bowl fragment and a fragment of polished hematite were recovered.

The site's botanical assemblage resembles the Fort Ancient botanical profile as defined from research elsewhere in Kentucky (Rossen 1992a; Rossen and Edging 1987),

with a few notable exceptions (Rossen 2005:6.14-15). The site produced maize, gourd, cultivated chenopod, maygrass, and marshelder; fleshy fruits, such as cherry, grape, persimmon; and hickory nut. The assemblage shows the typical Fort Ancient diminished use of nuts and intensified use of maize, relative to the Woodland period, and the continued use chenopod. Due to the site's comparatively early occupation, however, the assemblage also contains two native cultigens (maygrass and marshelder) that are not usually found at Fort Ancient sites. An important Fort Ancient staple, *Phaseolus* spp. beans, was not present at Dry Branch Creek.

Despite the small sample, the site's faunal profile also was similar to that defined for Fort Ancient sites elsewhere (Breitburg 1988, 1992). The inhabitants hunted large upland game animals (deer, bear, and elk), but also took small mammals, wild turkey, fish, and turtles (Breitburg 2005). Few modified bone tools were recovered.

The two adult burials were in a poor state of preservation and neither was buried with grave goods. The most complete individual was buried on his/her back with legs flexed (Herrmann 2005). Pathologies included severe dental disease and systemic infection; enamel hypoplasia showing nutritional stress in youth; osteoarthritis; and trauma (healed broken bones).

Mercer Village is a 1.8 ha site located on the floodplain in a bend in the Salt River. The site is roughly oval-shaped, with dark surface midden staining, definable areas of midden, and abundant artifactual debris (Railey 1985b). The presence of a plaza at this site has yet to be confirmed. A low mound-like feature in the northern portion of the site, investigated by Carter (1961), probably formed through midden accumulation (Railey 1985b). Thus, nothing in the archaeological record of Mercer Village suggests that a mound is present within its boundaries (*contra* Hockensmith 1983b:33).

Limited investigations at this site documented the presence of a 25-30 cm-thick midden and two structures of some kind, represented by three hearths (two of which were superimposed on one another), an earth floor, and a posthole (Carter 1961). Informants reported finding burials at this site (Carter 1961:11). No radiocarbon dates are available. Turnbow (1988b:169-172) concluded that both Early and Middle Fort Ancient components might be present, while Henderson (1998:315-318) concluded that Mercer Village was occupied only during the early Middle Fort Ancient subperiod.

Materials recovered from this site are very similar to those recovered from Fort Ancient sites in the Central Bluegrass Section. Ceramics from Mercer Village were assigned to the Jessamine Series (Henderson 1998). Sherds tempered with limestone or a mixture of shell and limestone comprise about three-quarters of the assemblage. Shell temper alone represents a little less than one-quarter of the assemblage. Most sherds are cordmarked; only about one-quarter are plain. Only jars are represented. Decoration is rare and occurs on lips, consisting of cordmarking or incising. Appendages are loop handles, or thick, parallel-sided strap handles. Type 5 Fine Triangulars occur most frequently (Henderson 1998:315-316).

The Casey site consists of an elliptical midden that encloses a central plaza (Goodell 1971; Schwartz 1961). The midden measures approximately 90 by 165 m. Limited investigations documented one pit feature. Materials recovered are very similar to those found at Middle Fort Ancient sites in the Bluegrass Management Area. They

include shell or shell and limestone tempered pottery, more sherds with plain than cordmarked exterior surfaces, and chipped limestone disks (Sharp 1990). No radiocarbon dates are available for the site.

Taylorville Lake Survey

Based on the recovery of triangular projectile points, intensive survey and limited investigations at sites in the proposed Taylorville Lake in Spencer, Nelson, and Anderson counties documented 39 sites with Late Woodland/Fort Ancient components (Driskell et al. 1984:273-275; see also Robinson et al. 1979; Sorensen et al. 1980). Few were single component sites, and most were multicomponent sites that produced only one triangular point. Points similar to types 3, 3.1, 4, and 5 fine triangulars were recovered.

Driskell et al. (1984) characterized these sites as specialized hunting and foraging camps. Relative to the preceding Woodland period, the area saw increased use after A.D. 900 (Sorensen et al. 1980:386). Adovasio (1982) similarly characterized Fort Ancient sites in the Paintsville Reservoir as hunting and foraging camps, and noted an increase in the use of the area during the Fort Ancient period (see discussion in the Upper Big Sandy Section of the Big Sandy Management Area). No permanent Fort Ancient settlements were documented in the Taylorville Lake survey area.

SITE DISTRIBUTION PATTERNS

The number of sites classified as Fort Ancient in the Salt River Management Area has increased ten-fold since 1987. Nearly all (97.8 percent) of the 90 Fort Ancient sites in this management area are open habitations without mounds (Table 7.3).

Table 7.3. Salt River Management Area Site Types.

Site Type	Total	Percent
Open Habitation Without Mound(s)	88	97.8
Earth Mound	1	1.1
Cemetery	1	1.1
Total	90	
Percent		100.0

BLUEGRASS (MANAGEMENT AREA 5)

The Bluegrass Management Area is divided into three sections: Central Bluegrass, Northern Bluegrass, and Eastern Bluegrass. The Central Bluegrass Section is associated mainly with the Inner Bluegrass physiographic region. The other two sections are associated with the Outer Bluegrass, the Eden Shale Hills, and the Knobs. The bulk of Fort Ancient period research in Kentucky has taken place in this management area.

CENTRAL BLUEGRASS SECTION

Archaeological Research Overview

The Central Bluegrass Section has been one of the more intensively investigated portions of the state, although, for the most part, past researchers have focused on its Woodland mounds and earthworks (see Chapter 5). Until the 1980s, information about the Fort Ancient period in this section was limited.

During the 1920s, Funkhouser and Webb (1928) examined Fort Ancient mounds at the W.S. Yates Mound (15Sc2) and Singer Village (15Sc3). In the 1930s, portions of the Buckner site (15Bb12) were excavated by the University of Kentucky under the auspices of the WPA, and a small surface collection was made at the Larkin site (15Bb13) (Griffin 1943). From then until the mid-1970s, the only published information about Fort Ancient sites in this section was Griffin's (1943) description of some of the materials collected from Buckner and Larkin, although University of Kentucky students described some Fort Ancient sites and assemblages in this section (Goodell 1971; Moody 1959) and offered suggestions about Fort Ancient temporal developments (Dunnell 1961).

After the mid-1970s, the number of Fort Ancient sites investigated in this section increased as a result of federally mandated cultural resource management studies; and the period from the 1980s to the early 1990s witnessed a surge in Fort Ancient research and site investigations that produced a great deal of new information. Site 15Js16 (Van Niewerburgh 1972) and the Muir site (15Js86) (Sharp and Turnbow 1987; Turnbow and Sharp 1988) were documented in advance of road construction. Surveys and/or limited investigations in advance of development documented sites 15Ma31 and 15Ma33 (Allen and Cowan 1975) and the DeGaris site (15Sc154) (Niquette 1990; Sharp and Jefferies 1986) (see also Allen 1975; Boisvert 1980; Sussenbach and Sharp 1987), and limited investigations were carried out at Larkin (Pollack et al. 1987).

Investigations conducted in the proposed J.K. Smith Power Plant site in Clark County documented Fort Ancient open sites (n=17) and stone mounds (n=12) (Turnbow and Jobe 1981); and led to the investigation of Site 15Ck127, a Fort Ancient lithic manufacturing station (Ison et al. 1982) and the excavation of two Fort Ancient hunting camps, the Goolman (15Ck146) and DeVary (15Ck147) sites (Turnbow et al. 1983; Turnbow and Jobe 1984).

Opportunistic surveys of Franklin (Sanders and Weinland 1976), Jessamine (Weinland and Fenwick 1979), and Clark (Gatus and Boisvert 1977) counties recorded several Fort Ancient sites, including the Old Springs site (15Fr20), Carpenter Farm (15Fr36A), and the Woods/Anderson site (15Js50). Field schools targeted Dungan Cemetery (15Bb38) and Goodman-Clay Cist (15Bb21) (Clay 1984); Guilfoil (15Fa176) (Fassler 1987); and portions of Buckner and Singer Village (Henderson 1998:260-261). Sites targeted by research projects or investigated due to other circumstances included Pauzer Rockshelter (Clay 1980; Robinson et al. 1981), Dry Run (15Sc10) (Sharp 1984), Scott Yates-Johnson (15Sc5 and 15Sc12) (Henderson 1998; Hockensmith 1984), and Goff Village (15Ck363) (Henderson 1998:295-301).

Since 1987, Fort Ancient research in this section has continued to take place with greater frequency than elsewhere in this management area, albeit with less intensity than before. Noteworthy Fort Ancient sites that were investigated during the course of cultural resource management projects include Old Springs (Miller and Bergman 2000; Striker et al. 1999); Capitol View (15Fr101) (Henderson 1992a); Site 15Ma93 (Fenton and Lozny 1995); Duncannon Road Mound (15Ma150) (Hand 1999); Broaddus (15Ma179) (Carmean 2003; Waite and Ensor 1996); Howard (15Ma427) (Stoner et al. 2008); Site 15Mm140 (Anderson 2003); Crouch/Kentuckiana (15Sc183) (Duerksen and Doershuk 1993; Picklesimer et al. 2004); Site 15Sc226 (Loughlin 2002; Richmond 2003); and Site 15Wd14 (Trader et al. 2003).

Research projects recorded a new Fort Ancient site at Boonesborough: Tobacco Warehouse-Hally (15Ma41 and 15Ma134) (Henderson 1998; O'Malley 1990). Henderson recorded 35 sites with Fort Ancient components, including Routt (15Js132), Shady Village (15Js133), Paddock 9 (15Wd84), and DuFont (15Wd86), and conducted limited investigations at the Singer-Hieronymus Site Complex (15Sc3 and 15Sc225) (Henderson 1997b, 1998, 1999a; Henderson and Pollack 2000). Eastern Kentucky University fieldschools in 1999 and 2002 focused on Broaddus (Carmean 2003). The Carpenter Farm site (Pollack and Hockensmith 1992; see also Sharp 1989a:16-23), the Florence Site Complex (15Hr21 and 15Hr22) (Sharp and Pollack 1992), New Field (15Bb45) (Henderson and Pollack 1996), and Woods/Anderson (Raymer 2007) also were investigated.

Table 7.4 presents a list of important Fort Ancient sites in this section.

Chronology

In 1961, Dunnell (1961) proposed the Yates focus to refer to the Early Fort Ancient occupation of the Central Bluegrass Section. Because the Yates focus was never fully described, subsequent researchers had difficulty assigning sites to it or incorporating it into local chronological sequences (Hockensmith 1983b, 1984; Sharp 1984, 1990).

Nearly thirty years later, Turnbow (1988a) proposed a Fort Ancient chronology for this section based on diachronic trends in material culture, settlement patterns, village plan, and burial practices. He also replaced the Yates focus with the Osborne phase. Investigators have adopted Turnbow's sequence, new information has refined it, and a

Table 7.4. Important Sites: Central Bluegrass Section.

Site No.	Site Name	Site Type	References
15Bb12	Buckner/McCray Mound	Open habitation w/mound(s)	Henderson 1998; Moody 1959
15Bb13	Larkin	Open habitation w/o mound(s)	Pollack et al. 1987
15Bb21	Goodman-Clay	Stone mound	Clay 1984
15Bb38	Dungan	Stone mound	Clay 1984
15Bb45	New Field	Open habitation w/o mound(s)	Henderson and Pollack 1996
15Ck127		Open habitation w/o mound(s)	Ison et al. 1982
15Ck146	Goolman	Open habitation w/o mound(s)	Turnbow et al. 1983; Turnbow and Jobe 1984
15Ck147	DeVary	Open habitation w/o mound(s)	Turnbow et al. 1983
15Ck363	Goff Village	Open habitation w/o mound(s)	Henderson 1998
15Fa176	Guilfoil	Open habitation w/o mound(s)	Fassler 1987; Henderson 1998
15Fr20	Old Springs	Open habitation w/o mound(s)	Miller and Bergman 2000
15Fr36A	Carpenter Farm	Open habitation w/o mound(s)	Pollack and Hockensmith 1992;
15Fr101	Capitol View	Open habitation w/o mound(s)	Henderson 1992a; Sharp 1989a
15Hr21/22	Florence	Open habitation w/mound(s)	Sharp and Pollack 1992
15Js16		Cemetery	Van Niewerburgh 1972
15Js50	Woods/Anderson	Open habitation w/o mound(s)	Raymer 2007; Weinland and Fenwick 1979
15Js86	Muir	Open habitation w/o mound(s)	Sharp and Turnbow 1987; Turnbow and Sharp 1988
15Js132	Rouff	Open habitation w/o mound(s)	Henderson 1998
15Js133	Shady Village	Open habitation w/o mound(s)	Henderson 1998
15Li94	Buffalo Hollow	Rockshelter	Clay 1995
15Ma23		Open habitation w/o mound(s)	Henderson et al. 1986
15Ma31		Open habitation w/o mound(s)	Allen and Cowan 1975
15Ma33		Open habitation w/o mound(s)	Allen and Cowan 1975
15Ma41, 134	Tobacco Warehouse-Halley	Open habitation w/o mound(s)	Henderson 1998; O'Malley 1990
15Ma93		Open habitation w/o mound(s)	Fenton and Lozny 1995
15Ma137	Helter Shelter	Rockshelter	Fenton 1986
15Ma144	Coy	Open habitation w/o mound(s)	Henderson 1998; O'Shaughnessy and Wilson 1990
15Ma150	Duncannon Road	Open habitation w/mound(s)	Hand 1999
15Ma179	Broaddus	Open habitation w/mound(s)	Carmean 2003; Henderson 1998; Waite and Ensor 1996
15Ma427	Howard	Open habitation w/o mound(s)	Stoner et al. 2008
15Mm140		Open habitation w/o mound(s)	Anderson 2003
15Sc3, 225	Singer-Hieronymus	Open habitation w/mound(s)	Henderson 1998; Henderson and Pollack 2000; Turnbow 1988a
15Sc5, 12	Scott Yates-Johnson	Open habitation w/mound(s)	Henderson 1998; Hockensmith 1983a, 1984
15Sc10	Dry Run	Open habitation w/o mound(s)	Sharp 1984
15Sc154	DeGaris	Open habitation w/o mound(s)	Henderson 1999a; Niquette 1990; Sharp and Jefferies 1986
15Sc183	Crouch/Kentuckiana	Open habitation w/o mound(s)	Duerksen and Doershuk 1993; Picklesimer et al. 2004
15Sc226		Open habitation w/o mound(s)	Loughlin 2002; Richmond 2003
15Wd14		Open habitation w/o mound(s)	Trader et al. 2003
15Wd61	Pauser	Rockshelter	Clay 1980; Robinson et al. 1981
15Wd 84	Paddock 9	Open habitation w/o mound(s)	Henderson 1997a, 1997b
15Wd86	DuFont	Open habitation w/o mound(s)	Henderson 1997a

phase name, Elkhorn, has been assigned to the Middle Fort Ancient subperiod (Sharp and Pollack 1992:189; Pollack and Henderson 2000).

In the late 1990s, researchers identified a new terminal Late Woodland/Early Fort Ancient cultural manifestation in this section based on data from sites in a restricted four-county area (Henderson 1997a, 1999a; Miller and Bergman 2000; Striker et al. 1999). Materials from these sites, especially the ceramics (which have been assigned to the Beals Run Series), are different in important ways from those recovered from Osborne phase sites. Because these site assemblages reflect local procurement of clays and chipped stone raw material, the Beals Run sites cannot be considered a site unit intrusion (Henderson 1999a:7). Instead, they contribute to the developing recognition of variation in Early Fort Ancient material culture assemblages (cf. Henderson 1999a, 1999b; Henderson and Mills 2005:4.38-4.50). Since a phase has not yet been developed to account for Beals Run sites, it would be premature to do so here.

Early Fort Ancient (A.D. 900/1000-1200)

In this section, Osborne phase sites are discussed first, beginning with habitation sites, and followed by a lithic manufacturing station and stone mounds. This section concludes with a discussion of sites that have produced Beals Run ceramics.

Osborne Phase

The best documented Osborne phase habitation site is Muir, an upland settlement situated along a ridge crest overlooking Jessamine Creek in Jessamine County (Turnbow and Sharp 1988). Calibrated radiocarbon dates indicate the site was occupied during the eleventh and twelfth centuries (Table 7.5).

A large artifact assemblage was recovered from Muir, and numerous features, including four structures, 44 pits, seven fired areas, and 16 unassociated postholes, were documented (Sharp 1988:43). Features generally occurred in clusters, often separated by relatively sterile areas. These clusters represent residential units, since they usually consist of a structure surrounded by pits and oxidized areas. The residential units do not appear to have been organized in a compact configuration around a central plaza. Rather, they are scattered along the low ridge crest.

Houses documented at Muir are small and square/rectangular, with single-set posts placed along the edges of a shallow basin. They ranged in size from 3.3 by 2.7 m to 4.1 by 4.2 m (Sharp 1988a:43-55). Internal features are restricted to small, central hearths, and in a single instance, interior posts that are suggestive of a bench or partition. There is very little evidence to suggest that these structures were used for anything other than sleeping or perhaps storage. After abandonment, some structure basins were used for refuse disposal.

Since none of the Muir ceramics could be assigned to existing Fort Ancient ceramic types, Turnbow (1988b) defined two new ceramic series, Jessamine and McAfee, to characterize the sherds recovered from Muir (Note: although Turnbow initially did not

Table 7.5. Chronometric Dates: Bluegrass Management Area.

Lab No.	Age (B.P.)	Calibrated Date ¹ (2-sigma)	References
Central Bluegrass			
Larkin (15Bb13)			
Beta-19068	370±80	AD 1414-1555, 1782-1797, 1949-1950	Pollack et al. 1987:192
Beta-19067	210±70	AD 1517-1594, 1618-1895, 1903-1953	Pollack et al. 1987:192
Goodman-Clay Cist (15Bb21)			
UGa-1267	855±65	AD 1038-1268	Clay 1984:136
Dungun Cemetery (15Bb38)			
UGa-1630	1005±160	AD 689-752, 761-1277	Clay 1984:132
New Field (15Bb45)			
Beta-60196	510±50	AD 1305-1364, 1384-1465	Henderson and Pollack 1996:215
Beta-60197	450±50	AD 1334-1336, 1398-1524, 1559-1564, 1570-1631	Henderson and Pollack 1996:215
15Ck127			
Beta-3867	890±60	AD 1027-1252	Ison et al. 1982:62
Goolman (15Ck146)			
DIC-2508	550±40	AD 1304-1365, 1384-1438	Turnbow et al. 1983:585
DIC-2338	210±100	AD 1492-1602, 1613-1953	Turnbow et al. 1983:585
DIC-2509	210±50	AD 1525-1557, 1631-1708, 1718-1827, 1831-1889, 1910-1953	Turnbow et al. 1983:585
DIC-2339	130±55	AD 1663-1782, 1797-1948, 1950-1953	Turnbow et al. 1983:585
Univ Missouri (TL date)		A.D.1400±100	Turnbow et al. 1983:585
Univ Missouri (TL date)		A.D.1450±60	Turnbow et al. 1983:585
Univ Missouri (TL date)		A.D.1450±55	Turnbow et al. 1983:585
Univ Missouri (TL date)		A.D.1550±50	Turnbow et al. 1983:585
Univ Missouri (TL date)		A.D.1600±40	Turnbow et al. 1983:585
DeVary (15Ck147)			
Univ Missouri (TL date)		A.D.1530±80	Turnbow et al. 1983:710
Univ Missouri (TL date)		A.D.1530±50	Turnbow et al. 1983:710
Univ Missouri (TL date)		A.D.1560±50	Turnbow et al. 1983:710
Univ Missouri (TL date)		A.D.1630±50	Turnbow et al. 1983:710
Univ Missouri (TL date)		A.D.1650±50	Turnbow et al. 1983:710
Goff Village (15Ck363)			
Beta-106283	600±50	AD 1288-1417	Henderson 1998:114
Beta-106282	520±50	AD 1303-1365, 1383-1453	Henderson 1998:114
Guilfoil (15Fa176)			
Beta-18186	770±50	AD 1047-1089, 1122-1139, 1149-1317, 1353-1390	Fassler 1987:158
Beta-18185	700±50	AD 1222-1325, 1344-1394	Fassler 1987:158
Old Springs (15Fr20)			
Beta-126642	1060±40 ²	AD 893-1026	Striker et al. 1999:7-88
Beta-126641	710±40 ²	AD 1224-1313, 1357-1388	Striker et al. 1999:7-88
Carpenter Farm (15Fr36A)			
Beta-46450	700±60	AD 1219-1333, 1336-1398	Pollack and Hockensmith 1992:159
Beta-46451	590±60	AD 1287-1428	Pollack and Hockensmith 1992:159
Beta-46452	540±60	AD 1297-1447	Pollack and Hockensmith 1992:159
Capitol View (15Fr101)			
Beta-42596	590±50	AD 1291-1422	Henderson 1992a:232
Beta-42598	570±60	AD 1293-1436	Henderson 1992a:232

Table 7.5. Continued.

Lab No.	Age (B.P.)	Calibrated Date¹ (2-sigma)	References
Beta-42595	550±50	AD 1299-1370, 1380-1441	Henderson 1992a:232
Beta-42597	480±60	AD 1306-1363, 1385-1521, 1574-1584, 1590-1624	Henderson 1992a:232
Florence Site Complex Site 15Hr21			
Beta-38925	600±60	AD 1284-1424	Sharp and Pollack 1992:190
Beta-38926	520±50	AD 1303-1365, 1383-1453	Sharp and Pollack 1992:190
Florence Site Complex Site 15Hr22			
Beta-38929	630±50	AD 1281-1407	Sharp and Pollack 1992:190
Beta-38928	600±50	AD 1288-1417	Sharp and Pollack 1992:190
Beta-38927	470±50	AD 1320-1350, 1391-1518, 1594-1618	Sharp and Pollack 1992:190
Muir (15Js86)			
Beta-14987	1010±80	AD 870-1217	Turnbow and Sharp 1988:94
Beta-14991	1010±60	AD 894-929, 932-1162	Turnbow and Sharp 1988:94
Beta-14988	980±60	AD 903-915, 968-1209	Turnbow and Sharp 1988:94
Beta-14989	890±70	AD 1023-1260	Turnbow and Sharp 1988:94
Beta-14990	790±60	AD 1048-1087, 1122-1138, 1150-1298, 1371-1378	Turnbow and Sharp 1988:94
Beta-13296	780±60	AD 1050-1082, 1125-1136, 1152-1302, 1366-1383	Turnbow and Sharp 1988:94
Broaddus (15Ma179)			
Beta-67073	1050±110	AD 716-744, 768-1216	Waite and Ensor 1996
Beta-139035	790±120	AD 1021-1401	Carmean 2003:Table 1.1
Beta-139034	710±130	AD 1039-1437	Carmean 2003:Table 1.1
Beta-139033	280±100	AD 1440-1706, 1719-1820, 1823-1825, 1832-1883, 1914-1952	Carmean 2003:Table 1.1
Howard (Site 15Ma427)			
Beta-218403	980±50	AD 973-1180	Stoner et al. 2008
Singer-Hieronymus Village C (formerly Singer Village 1 [15Sc3])			
Beta-114185	700±60	AD 1219-1333, 1336-1398	Henderson 1998:114
Beta-114186	670±70	AD 1226-1411	Henderson 1998:114
Beta-114187	640±70	AD 1262-1424	Henderson 1998:114
Singer-Hieronymus Village D (formerly Singer Village 1a [15Sc3])			
Beta-114188	360±60	AD 1443-1645	Henderson 1998:115
Dry Run (15Sc10)			
Beta-8800	860±60	AD 1039-1264	Sharp 1984:124
Univ Missouri (TL date)		A.D.1025±175	Sharp 1984:124
Univ Missouri (TL date)		A.D.1050±115	Sharp 1984:124
Univ Missouri (TL date)		A.D.1080±50	Sharp 1984:124
Univ Missouri (TL date)		A.D.1090±100	Sharp 1984:124
Univ Missouri (TL date)		A.D.1170±80	Sharp 1984:124
Scott Yates-Johnson (15Sc5 and 15Sc12)			
Univ Missouri (TL date)		A.D.925±200	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1000±50	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1180±120	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1350±85	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1400±75	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1415±90	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1450±90	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1465±140	Hockensmith 1984:102

Table 7.5. Continued.

Lab No.	Age (B.P.)	Calibrated Date¹ (2-sigma)	References
Univ Missouri (TL date)		A.D.1500±30	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1510±100	Hockensmith 1984:102
Univ Missouri (TL date) ³		A.D.1560±50	Hockensmith 1984:102
Univ Missouri (TL date)		A.D.1600±50	Hockensmith 1984:102
DeGaris (15Sc154)			
Beta-106284	1070±60	AD 780-791, 806-1046, 1091-1121, 1140-1148	Henderson 1999a:4
Northern Bluegrass			
Petersburg (15Be6)			
Beta-46935 ³	980±50	AD 973-1180	Henderson 1993:21
Beta-208294	960±70	AD 900-917, 966-1222	Stoner et al. 2008
Beta-208295	900±70	AD 1020-1258	Stoner et al. 2008
Beta-208293	900±60	AD 1023-1228, 1232-1242, 1247-1251	Stoner et al. 2008
Beta-46937	880±60	AD 1032-1256	Henderson 1993:21
Beta-208292	810±70	AD 1040-1110, 1116-1291	Stoner et al. 2008
Beta-46936	500±50	AD 1307-1362, 1385-1475	Henderson 1993:21
Cleek-McCabe Mound and Village Complex: McCabe Mound (15Be8)			
RL-216	1680±100	AD 128-578	Rafferty 1974:195
RL-217	1220±90	AD 657-985	Rafferty 1974:195
Cleek-McCabe Mound and Village Complex: Cleek Village (15Be22)			
RL-218	830±90	AD 1020-1298, 1371-1378	Rafferty 1974:195
Arrasmith (southern/lower village) (15Be36)			
Beta-192027	760±40	AD 1189- 1197, 1207- 1294	Donald A. Miller, pers. comm. 2006
Beta-192025	750±40	AD 1211- 1298, 1371- 1378	Donald A. Miller, pers. comm. 2006
Beta-192023	720±40	AD 1221- 1308, 1362- 1386	Donald A. Miller, pers. comm. 2006
Beta-192028	670±50	AD 1265- 1399	Donald A. Miller, pers. comm. 2006
Beta-192030	670±50	AD 1265- 1399	Donald A. Miller, pers. comm. 2006
Beta-192024	660±50	AD 1271- 1401	Donald A. Miller, pers. comm. 2006
Beta-192033	660±50	AD 1271- 1401	Donald A. Miller, pers. comm. 2006
Beta-192026	660±40	AD 1274- 1330, 1339- 1397	Donald A. Miller, pers. comm. 2006
UGa-5625	650±60	AD 1267-1411	Sharp 1989b:189
Beta-192029	630±70	AD 1268-1425	Donald A. Miller, pers. comm. 2006
Beta-192034	630±60	AD 1276-1415	Donald A. Miller, pers. comm. 2006
Beta-192031	580±60	AD 1290-1432	Donald A. Miller, pers. comm. 2006
Beta-192032	460±60	AD 1319-1351, 1390-1526, 1556-1632	Donald A. Miller, pers. comm. 2006
Arrasmith (northern/upper village) (15Be36)			
RL-800	650±100	AD 1182-1446	Turnbow 1981:8
RL-801	230±100	AD 1476-1893, 1906-1953	Turnbow 1981:8
Site 15Be269			
UGa-4291	530±105	AD 1272-1527, 1553-1633	Tankersley 1986:299
Beta-67833/ ETH-11604	120±55	AD 1669-1780, 1978-1945, 1950-1954	Miller and Duerksen 1995:151
Site 15Be485			
Beta-202158	440±40	AD 1410-1519, 1593-1619	Purtill et al. 2006
Beta-202599	290±40	AD 1483-1665, 1784-1795	Purtill et al. 2006
Beta-202600	240±40	AD 1520-1592, 1619-1685, 1732-1807, 1928-1952	Purtill et al. 2006

Table 7.5. Continued.

Lab No.	Age (B.P.)	Calibrated Date ¹ (2-sigma)	References
Bedinger (15Be486)			
Beta-206496	920 \pm 70	AD 997-1005, 1012-1255	Raymer 2008
Beta-206497	880 \pm 60	AD 1032-1256	Raymer 2008
Beta-200984	730 \pm 60	AD 1176-1324, 1345-1393	Raymer 2008
Kenney (15Be539)			
Beta-208291	1030 \pm 60	AD 890-1155	Raymer 2008
Beta-208290	880 \pm 60	AD 1032-1256	Raymer 2008
Beta-200985	830 \pm 50	AD 1046-1092, 1121-1140, 1148-1278	Raymer 2008
Eastern Bluegrass			
Snag Creek (15Bk2)			
Beta-13366	890 \pm 80	AD 1016-1272	Henderson and Turnbow 1987:209
Beta-11859	520 \pm 70	AD 1287-1493, 1602-1613	Henderson and Turnbow 1987:209
Beta-11858	360 \pm 70	AD 1432-1658	Henderson and Turnbow 1987:209
Augusta (15Bk200)			
Beta-11855	470 \pm 90	AD 1301-1367, 1382-1638	Henderson and Turnbow 1987:209
Beta-18183	470 \pm 70	AD 1306-1363, 1385-1528, 1553-1633	Henderson and Turnbow 1987:209
Beta-13365	210 \pm 60	AD 1522-1574, 1584-1590, 1625-1892	Henderson and Turnbow 1987:209
Fox Farm (15Ms1)			
Beta-13363	790 \pm 70	AD 1043-1104, 1118-1302, 1367-1382	Henderson and Turnbow 1987:209
Beta-13364	590 \pm 70	AD 1282-1435	Henderson and Turnbow 1987:209
Beta-11857	530 \pm 70	AD 1286-1481	Henderson and Turnbow 1987:209
Beta-11856	390 \pm 70	AD 1422-1645	Henderson and Turnbow 1987:209
Univ Missouri (TL date)		A.D.1035 \pm 40	Henderson and Turnbow 1987:209
Univ Missouri (TL date)		A.D.1375 \pm 40	Henderson and Turnbow 1987:209
¹ Dates calibrated by Calib Revised Version 5.0.2 (Hughen et al. 2004; Reimer et al. 2004; Stuiver and Braziunas 1993; Stuiver et al. 1998).			
² Confusion surrounds the correct BP date for these two samples. As reported from Beta Analytic, Inc and included in Appendix E, Beta-126642 is given first as BP 1060 \pm 40, and then as BP 1080 \pm 40; and Beta-126641 is given first as BP 710 \pm 40 and then as BP 700 \pm 40.			
³ Unacceptable date			

include exclusively shell tempered specimens in his Jessamine Cordmarked and Jessamine Plain types, the clear similarities between the shell tempered specimens and the limestone or mixed limestone and shell tempered examples led subsequent researchers to subsume shell tempered specimens within the Jessamine Series [cf. Henderson 1998; Sharp and Pollack 1992]).

Almost two-thirds of the Jessamine Series ceramics from Muir are limestone tempered; the remaining specimens are tempered with a mixture of limestone and shell, or shell (Turnbow 1988b). Most sherds have cordmarked exteriors, but smoothed and roughened exteriors also are present. The only vessel form is a jar that exhibits vertical, recurved, or slightly everted rims, and flattened, often cordmarked lips. Most shoulders are rounded, and angular examples have parallel-sided walls that are not thickened at the angle inflection point. Appendages include a unique handle form that exhibits a strongly angled profile (an “elbow”) associated with a pair of “ear-like” castellations directly above the handle, and thick parallel-sided strap handles. McAfee Series vessels, which do not contain any appreciable amounts of temper, are primarily small, plain surfaced,

molded, pinchpot bowls and jars. Other clay artifacts found at Muir include ear spoons, an elbow pipe, and a discoidal.

Triangular projectile points are long and narrow and often have exaggerated flared bases or "ears." A few are finely serrated (Sharp 1988b). They are similar to type 2, 2.1, and 3.1 fine triangulars. Local Lexington Limestone cherts, including a large amount of cobble chert from the Kentucky River, supplied most of the raw material for flaked stone tools (Sharp 1988b). Other chipped stone tools include bifaces, drills, and scrapers. Groundstone artifacts consist of hammerstones, pitted stones, grinding slab fragments, and sandstone pipe bowl fragments. Among the bone tools are numerous perforating and hide-working implements, such as beamers and awls, as well as fishhooks. Few decorative items were found. There is little evidence that the site inhabitants were involved in long-distance exchange networks. The only human remains recovered were two deciduous teeth (Turnbow and Sharp 1988:272).

The Muir site produced an abundance of faunal and floral remains. Deer, elk, and bear account for almost 90 percent of the meat consumed by the site's inhabitants. A variety of other mammals, including beaver, raccoon, gray fox, dog, gray squirrel, woodchuck, otter, bobcat, and opossum, were identified in the assemblage. Turkey accounts for almost all the bird remains. Fishing and freshwater mussel gathering apparently were only a minor activity for the Muir site population and contributed little to the diet (Breitburg 1988). The main focus of animal exploitation was within the forest edge and/or open forest habitats in the surrounding uplands.

Both cultivated and wild plant species were recovered from Muir (Rossen 1988). Maize was present in all flotation samples, although not usually in great quantities, and *Phaseolus* spp. beans were recovered from eight features. Though these cultigens were grown by the Muir site inhabitants, the overall contribution of these food sources is not presently known. In addition to tropical cultigens, the occurrence of erect knotweed and sunflower suggests that components of the native horticultural complex of the preceding Late Woodland subperiod persisted into the Early Fort Ancient (Rossen 1988). As with other Kentucky Fort Ancient sites, low densities of nut remains relative to the Late Woodland subperiod and contemporary Mississippian sites were recovered from Muir (Rossen 1988; Rossen and Edging 1987).

Another Osborne phase settlement is the Dry Run site, located in the uplands near Dry Run in Scott County. Limited investigations conducted in 1983 resulted in the excavation of a portion of an oval, basin-shaped trash pit or midden that measured 15 cm thick (Sharp 1984:124-126). A calibrated radiocarbon date and several thermoluminescence dates indicate the site was occupied during the latter part of the eleventh century/early part of the twelfth century (Sharp 1984:127), which makes it generally contemporary with Muir (Table 7.5).

Triangular points recovered from Dry Run are similar to those recovered from Muir, but the types and their proportions within the assemblage differ. Most resemble Type 5 Fine Triangulars, but a few resemble Type 2 Fine Triangulars and Crude Triangulars (Sharp 1984:107-110). Jessamine Series ceramics recovered from this site are almost exclusively limestone tempered; only a few specimens are mixed limestone and shell tempered, and none are exclusively shell tempered. Cordmarked and plain

surfaces are represented about equally. Jar forms with direct or recurved rims predominate. Shoulders are angular and either thicken at the angle inflection point or are parallel-sided; few are rounded. Decoration is not common, but when it occurs, it consists of cordmarking or dowel impressions on lips. Appendages are rare, represented by loop-strap or lug examples (Sharp 1984:119-120). This site produced limited subsistence information, and human remains consisted of a tentatively identified proximal radius fragment.

Limited investigations at Site 15Mm140 documented a residential locus represented by shallow basins, postholes, a refuse pit, and a large earth oven (Anderson 2003:74, 116). The earth oven was stratified and produced a few Jessamine Series limestone tempered cordmarked sherds, a Type 2 Fine Triangular, and botanical remains that included maize cupules, goosefoot, knotweed, and seeds of fleshy fruited plants (Anderson 2003:97). A calibrated radiocarbon date from this feature suggests the site was occupied during the Early Fort Ancient subperiod (Table 7.5).

An Early Fort Ancient earth oven also was documented at the DeGaris site (Niquette 1990; see also Sharp and Jefferies 1986). This over 75-cm wide, 1m-deep pit exhibited evidence of *insitu* burning and contained burned limestone. It had been subsequently filled with refuse consisting of mussel shell, ceramics, debitage, and faunal remains (Niquette 1990:21). Reanalysis of the sherds from this feature indicated that while quantitatively, they resemble Jessamine Series ceramics, they exhibit some anomalous characteristics (Henderson 1999a). The assemblage is made up of chert tempered, limestone tempered, and shell tempered sherds in about equal numbers, but the latter contain sand-sized grit, enigmatic “grey rock,” (see the following Beals Run ceramics description) and very little shell. The assemblage is almost exclusively cordmarked. Jar rims are either direct or slightly outflaring. The feature produced no appendages. Decoration consists of dowel-impressed or cordmarked lips, a rimfold, and incising. Charcoal recovered in 1990 was submitted for assay in 1997, and returned an Early Fort Ancient subperiod date (Table 7.5).

The Howard site is located on a ridge and bench near Harts Fork in Madison County (Stoner et al. 2008). Limited investigations there documented several artifact concentrations and three features, one of which was a large earth oven. A calibrated radiocarbon date from this feature is consistent with the dates from Muir (Table 7.5).

The site’s Early Fort Ancient ceramic assemblage can be assigned to the Jessamine Series and is very similar to that recovered from Muir. Slightly more than fifty percent of the sherds are tempered with limestone and shell or shell only; the remaining sherds are tempered with limestone. Most sherds have plain exterior surfaces, but about one-third are cordmarked. The remaining sherds have check-stamped or knot-roughened/net-impressed exteriors. Jar rims are primarily direct or incurvate. Jar shoulders tend to be rounded, but one is sharply angled. Appendages consist primarily of intermediate loop/strap handles or thick strap handles that were riveted to jar necks; one is sharply angled. Almost seven percent of the sherds are decorated. Decoration occurs on jar necks and consists primarily of incised designs, some of which may represent line-filled triangles. Notching is present on a few lips and one rim is castellated. Two of the handles have incised lines running the length of the handle. Type 2 Fine Triangular points are associated with this component. The Howard site’s Early Fort Ancient floral

and faunal profile is generally comparable to plant and animal remains recovered from other Fort Ancient sites, except for the fact that the botanical assemblage lacks *Phaseolus* spp. beans (Stoner et al. 2008).

Limited investigations at Site 15Ck127 documented an Early Fort Ancient lithic manufacturing station (Ison et al. 1982; see Table 7.5). At this site, concentrations of lithic debris, tools, and charred plant remains were recovered from 30 cm-thick deposits and amorphous pits. Diagnostics were limited to four triangular projectile point bases. Botanical remains consisted primarily of nuts. The prehistoric knappers went to Boyle chert outcrops along nearby ridges, tested the raw material, brought the material back to the site, and then reduced it to biface performs (Ison et al. 1982:71). The preforms were further reduced elsewhere.

Osborne phase habitation sites have produced very little in the way of human remains, suggesting that mortuary areas were kept separate from habitation areas, a practice with a long tradition in the Central Bluegrass Section (see Chapter 5). Some individuals were processed at/interred within stone mounds, such as the Dungan Cemetery and Goodman-Clay, which represent cemeteries or defleshing platforms (Clay 1984). Neither site yielded ceramics. No diagnostic chipped stone artifacts were recovered from Dungan, but three large serrated triangular projectile points (not illustrated or described in detail) were recovered from Goodman-Clay (Clay 1976, 1984). Calibrated radiocarbon dates from these sites point to their use during the Early Fort Ancient subperiod (Table 7.5).

Dungan represents the remains of a single mortuary event. It consisted of a stone platform that covered three or four burials; and a scatter of broken tools, flakes, and charcoal. One individual, a male, had been laid out in the flesh, in an extended position. The others had been buried as bundles. The presence of charcoal implied the use of graveside fires; the bundles suggested that the Fort Ancient mortuary program involved other steps (Clay 1984:133).

Goodman-Clay was a stone slab cist with a stone floor set in the middle of a shingled stone platform (see the description of the McCray Mound later in this section and the Arrasmith site in the Northern Bluegrass Section). It was used as an open container for the exposure of the dead (Clay 1984:136). Once defleshed, the major bones were removed and minor bones were left behind. Investigations documented the fragmented remains of an adult male, adult female, and a juvenile. The three individuals had not been buried simultaneously, but represent the sequential use of this mortuary facility. This site provides evidence for a multi-step Fort Ancient mortuary program that took place away from domestic sites (Clay 1984; see also discussion of Larkin later in this section and Hardin Village in the Big Sandy Management Area).

Beals Run Sites

To date, Beals Run artifact assemblages have been recovered from 15 sites in portions of four counties (northern Woodford County, eastern Franklin County, southwestern Scott County, and northwestern Fayette County) (Henderson 1999a:6). Paddock 9 is the type site for the Beals Run Ceramic Series and Type 3.1 Fine Triangular

points (Henderson 1997a, 1999a, 1999b:7.79). Work at Old Springs generated the largest sample of diagnostic Beals Run component artifacts, the only botanical and faunal sample, and confirmed these materials' chronological placement (Miller and Bergman 2000; Striker et al. 1999). Other important Beals Run sites are Couch/Kentuckiana, Site 15Sc226, Site 15Wd14, and DuFont (Table 7.4). The two most important sites, Paddock 9 and Old Springs, are discussed in this section.

Paddock 9 is situated along the crest of a low ridge in Woodford County (Henderson 1997b). Within its boundaries, two moderate to dense scatters of materials were documented. The first, measuring 80 by 320 m, is represented by a concentration of ceramics, tools, and debitage on the highest spot in the field; a dark soil stain that contained burnt clay, charcoal, and animal bone fragments; and two possible feature locations. The distribution of artifacts may be arc-shaped. The smaller area, measuring 60 by 90 m, consists of a light to moderate scatter of the same types of artifacts.

Diagnostic projectile points include Crude Triangulars, and Type 3.1, Type 5, and Type 2 fine triangular points (in that order of frequency) (Henderson 1997a). Ceramics are exclusively Beals Run Series (Henderson 1997a, 1999b, 2000). Beals Run ceramics are distinguished by a variety of rock materials (including "grey rock," an enigmatic opaque, noncalcareous aplastic) used alone or in combination as temper; a lack of shell temper; and large amounts of paste inclusions consisting of well-rounded hematite/manganese concretions and/or small fossils. At Paddock 9, temper is predominantly grit, alone or mixed with other rocks, and "grey rock," alone or mixed with other rocks. Minor tempers consist of limestone alone or mixed with other rocks, chert alone or mixed with other rocks, and hematite. Exterior surfaces are overwhelmingly cordmarked. Z-twist cordmarking predominates, a distinguishing attribute of Beals Run ceramics that contrasts with central Kentucky's tradition of S-twist cordage preference (Henderson 1998; Stoner and Henderson 2007; Turnbow 1988b). The only vessel forms are jars with slightly incurvate/recurved, direct, or flared rims. Appendages are not present. Characteristically, decoration is rare, and consists of cordmarking or notching on lips; small, deep punctations; or incised lines (Henderson 1997a).

Old Springs is a large site in extreme eastern Franklin County near the confluence of North Elkhorn and South Elkhorn creeks (Sanders and Weinland 1976). Investigations conducted at this site in 1998 and 1999 targeted the site's western portion, which is situated on a large level ridgetop (Miller and Bergman 2000; Striker et al. 1999:7.43-7.91). This work documented a hearth, an isolated posthole, the remains of a basin-shaped structure, and sheet midden remnants/concentrations of artifacts (Miller and Bergman 2000:70; Striker et al. 1999:7.90-7.91). The site contains the remains of a small village with a short-term occupation that was occupied during the Early Fort Ancient subperiod (Striker et al. 1999:7.91).

Of the two calibrated radiocarbon dates (Table 7.5), the earlier one appears to be the most acceptable, given the nature of the site's ceramic, lithic, and botanical assemblages (Striker et al. 1999:7.88 and Appendix E). This date is consistent with the earliest dates from Muir (Table 7.5). The later date extends the occupation of the Old Springs site well into the Middle Fort Ancient subperiod, which is not consistent with the types of artifacts recovered.

Projectile points are primarily Type 3.1, Type 5, and Type 2 fine triangulars, and Crude Triangulars (Miller and Bergman 2000:39-41; Striker et al. 1999:7.66). Other types of tools include bifaces/biface fragments, drills, hump-backed unifaces, trihedral wedges, cores, and debitage. All were made from locally available nodular, tabular, and secondary-source cherts, transported to the site in a semi-finished form or as raw materials that originally were small chunks (Striker et al. 1999:7.64). A fragment of a celt made from a granitic rock reflects nonlocal material (Miller and Bergman 2000:43).

Ceramics are exclusively Beals Run Series (Henderson 1999b; 2000). Grit temper occurred most frequently, alone or in combination with other materials. "Grey rock" temper or limestone temper, alone or in various combinations, occurred less often. Cordmarked surfaces predominated. Jars have direct, incurvate, or recurved rims, and two of the jars had rounded angular shoulders, which thickened at the interior inflection point. Decoration is not common, but when it does occur, it consists of cordmarking, notching, or possible castellations on lips; and small, deep punctations or incised lines below the lip or on jar necks, respectively. No appendages of any kind were recovered. A single fragment of a ceramic pipestem represents the only nonvessel clay object in the Old Springs site assemblage.

The faunal assemblage was very small and unrepresentative (Miller and Bergman 2000:58; Striker et al. 1999:7.87), and no human remains were recovered. The site did yield small amounts of carbonized nutshell and maize, as well as some fragments of gourd rind (Rossen 1999). The Old Springs site botanical assemblage more closely resembles Fort Ancient than Woodland assemblages, since it lacks any evidence of the native horticultural complex of the preceding Late Woodland subperiod. The absence of *Phaseolus* spp. beans suggests that the site was occupied on the cusp of Late Woodland and Early Fort Ancient plant food subsistence practices (Rossen 1999).

Some similarities exist between Beals Run and Osborne phase artifact assemblages (Henderson 1997a, 1999a; Miller and Bergman 2000; Striker et al. 1999; Turnbow and Sharp 1988). For example, Type 2 and Type 5 fine triangulars predominate, and finely serrated Type 3.1 Fine Triangulars are present; ceramics contain heavy paste inclusions, cordmarked jars with direct or recurved/inslanted rims predominate, and decoration is uncommon. However, important differences exist. Type 2.1 Fine Triangulars are associated only with Osborne phase sites, and Beals Run ceramics are very different from Jessamine Series ceramics (Henderson 1997a, 1999a; Turnbow 1988b).

Middle Fort Ancient (A.D. 1200-1400)

Sharp and Pollack (1992:189) proposed a name, Elkhorn phase, to distinguish Middle Fort Ancient central Kentucky materials from northeastern Kentucky Manion phase materials (Henderson et al. 1992). The name has not yet seen wide application.

Middle Fort Ancient sites in this section include small sites where limited or special activities may have been carried out (i.e., hunting or agriculture) and village sites (Henderson 1998:150-151). Some of the most important village sites are discussed in this section, in relative temporal order. They consist of Guilfoil (15Fa176), Carpenter

Farm (15Fr36A), Broaddus (15Ma179), the Florence Site Complex (15Hr21 and 15Hr22), Buckner Village 1 (15Bb12), and three of the four sites in the Singer-Hieronymus Site Complex (15Sc3 and 15Sc225).

The Guilfoil site is situated on an upland ridge crest north of the Kentucky River and east of Boone Creek in Fayette County. The site is represented by a sharply defined, dense midden stain and associated central plaza. The site measures 100 by 125 m (Fassler 1987), with the plaza area estimated at about 35-40 m in diameter. Some discrepancy exists regarding whether the midden forms a complete circle (Turnbow 1984) or if it is arc-shaped (Railey 1985a). Roughly circular concentrations of darker midden occur within the midden ring, representing house locations or refuse dumps, and there is evidence for hearths and trash pits. Calibrated radiocarbon dates from two features are suggestive of an early Middle Fort Ancient occupation, ca. A.D. 1250-1300 (Fassler 1987:158) (Table 7.5).

Limited excavations in one area on the site's southern periphery documented several pit features and part of a rectangular structure with rounded corners (Fassler 1987). The structure was built of single-set posts and was either constructed on the surface or in a very shallow basin. Length could not be determined for the structure, but width was estimated at about 4.5 m. There was no evidence of wall trenches or internal features (Fassler 1987:156).

Four features were located in the vicinity of the structure: three were shallow circular basin-shaped pits; the fourth was a large, rectangular basin-shaped pit. Most contained large quantities of cultural materials. Two other features were located some distance from the structure: a circular basin-shaped pit, and a filled-in erosional gully, both of which contained large quantities of cultural materials. Given the placement and size of the excavated area at Guilfoil, the internal organization of the village could not be defined. Human bone was found on the surface of the site, but no burials were investigated.

The stone artifact assemblage includes Type 2, Type 5, and Type 3 fine triangulars, other chert tools, groundstone artifacts (a discoidal, an elbow pipe, celt fragments, grooved abraders, and grinding slab fragments), crudely chipped limestone disks, and a drilled cannel coal pendant (Fassler 1987:161-164). Bone tools included awls, weaving implements, and projectile points (Tune 1987).

Guilfoil's Jessamine Series ceramic assemblage is tempered primarily with a mixture of shell and limestone, or with shell alone (Fassler 1987; Henderson 1998:290-291). Less than ten percent are tempered with limestone exclusively. Most sherds have cordmarked exteriors; the rest are plain or knot-roughened/net-impressed. Jars are the dominant vessel form, and handles are parallel-sided thick straps that are riveted to the body, or loop/loop-straps. Decoration is rare and consists of rimfolds and incising. In general, the Guilfoil ceramic assemblage is very similar to the ceramic assemblage recovered from the nearby Tobacco Warehouse-Halley site (15Ma41 and 15Ma134), even though environmental and topographic settings and village plans are completely different (Henderson 1998:289).

The site's subsistence remains reflect the continued Fort Ancient emphasis on cultivated plants (maize and *Phaseolus* spp. beans), nuts, and terrestrial animals. Unlike

earlier Osborne phase sites, native cultigens, such as erect knotweed and sunflower, are not present at Guilfoil (Rossen 1987) and most other Middle Fort Ancient sites. Deer accounts for almost half of the meat consumed at the site, followed by elk, bear, and turkey (Tune 1987). The faunal assemblage reflects year-round hunting and the exploitation of the interface of the interior uplands with the dissected terrain that borders the Kentucky River (Call 1987:185; Tune 1987:184).

Carpenter Farm is a small village that sits on an upland ridge located not too far north of an abandoned Kentucky River meander in Franklin County (Henderson 1998:193-200; Pollack and Hockensmith 1992:155; Sharp 1989a:15). It is one of a pair of arc-shaped villages in this locale. The other, occupied during the early Late Fort Ancient subperiod, is the nearby Capitol View site (Henderson 1992a).

The arch-shaped midden at Carpenter Farm measures 144 m long and from 30-40 m in width, with the interior of the arc measuring about 50-55 m in diameter (Henderson 1998:197; Sharp 1989a:15). Limited excavations documented the basal portions of two large trash pits and a portion of a house basin with a maximum size of 4 by 5 m (Pollack and Hockensmith 1992:156-158). Single-set posts were located along the basin edge. This structure lacked a central hearth, but the floor was very compact. Not enough information on village structure or plan is available to confirm or deny the presence of concentric activity zones at the site. Though a few human bones were recovered from a road cut in the late 1970s (Westover 1978:12-13), subsequent investigations at the site have not documented any evidence of graves (Henderson 1998:197). Pollack and Hockensmith (1992:159) suggested a mid-A.D. 1300s date for this site, based on three calibrated chronometric dates (Table 7.5) and a comparison to artifact assemblages from other central Kentucky Fort Ancient sites.

The site produced a typical Middle Fort Ancient period artifact assemblage. Jessamine Series ceramics were tempered mainly with shell and limestone, or exclusively with shell. Almost two-thirds of the assemblage had plain exterior surfaces. Only jars were identified, and they had loop, thick strap, or thin strap handles. As at Guilfoil, decoration was relatively rare, consisting of incising on jar necks and lips. Triangular points were mainly Type 5, Type 3, and Type 2 fine triangulars. Other chipped stone tools included bifaces and drills. A few chipped limestone disks also were recovered. Bone tools consisted of awls. Floral remains reflect a reliance on maize and *Phaseolus* spp. beans, supplemented by minor amounts of squash, chenopod, nuts, and fleshy fruits; and a heavy reliance on deer, bear, and elk (O'Shaughnessy and Tune 1992; Pollack and Hockensmith 1992:159-170; Rossen 1992b).

Broaddus is a circular village and mound site located on the southern edge of a broad upland slope overlooking the confluence of two streams at the Bluegrass Army Depot in Madison County (Carmean 2003; Waite and Ensor 1996). The village area encompasses 1.6 ha and measures 120 by 133 m. The plaza is oval, measuring 65 by 80 m. Midden width, like most central Kentucky circular villages, is 25-30 m (Carmean 2003:2). The mound is situated in the west/southwest section of the plaza. It stands about 70 cm high and measures about 25 m in diameter (Carmean 2003:1).

Limited investigations documented the general village plan and two pit features. No burials have been encountered, and details of internal site patterning are not known

(Carmean 2003). Using estimates from the Florence Site Complex (Sharp and Pollack 1992) as a guide, site occupation estimates for Broaddus range from 162-180 people (Carmean 2003:120). Some ambiguity exists in radiocarbon assays from the site, as the calibrated mound date is much earlier than those from the village (Table 7.5). Poor context of recovery for the former (Waite and Ensor 1996:137) may account for this discrepancy. The site occupation is considered to date ca. A.D. 1200-1250 (Carmean 2003:121).

Henderson (1998:324) assigned the assemblage she examined from this site to the Jessamine Series. Carmean's (2003) later report described the ceramics as being predominantly shell tempered, and only minor amounts of mixed limestone and shell tempered or limestone tempered examples were recovered. About equal amounts of plain and cordmarked exteriors were present, although a few check-stamped examples also were recovered (Carmean 2003:72; 89). Vessels were mainly jars, although a few bowls and pans were present (Carmean 2003:81). Handles were mainly loops, but a few straps were recovered (Carmean 2003:87). Decorated examples were not common, and consisted of cordmarked or notched lips, and incising (Carmean 2003:78-79). Diagnostic chipped stone artifacts included mainly Type 2 and Type 5 fine triangulars, with only a few Type 3's represented (Carmean 2003:48). Worked bone (a needle, awl, beads, drilled raccoon canine pendant); shell ornaments (barrel-shaped and disk beads); a center-hole shell gorget; and a polished and incised chlorite pendant (possibly from North Carolina) also were recovered (Carmean 2003:57-66). Botanical remains were not analyzed, but the faunal sample reflects the use of the same animals and freshwater mussels as those documented from contemporary Middle Fort Ancient sites (Carmean 2003:95-96, 110-111).

The Florence Site Complex consists of two circular midden stains situated on adjacent upland ridgetops in Harrison County: Site 15Hr21 is the smaller western village, and Site 15Hr22 is the larger eastern village (Sharp and Pollack 1992). They are located only about 45 m from one another.

Some of the best information about Middle Fort Ancient village organization, material culture, and subsistence in the Central Bluegrass Section was collected from the limited investigations at this site complex. The more intensive investigations at Site 15Hr22 resulted in the excavation of structures, trash pits, and burials, and generated information on the internal organization of Fort Ancient circular villages (Sharp and Pollack 1992:213-218). The two sites reflect sequential Fort Ancient occupations at this single locality, possibly by the same group occasioned by an increase in population (Henderson 1998:248).

Site 15Hr21 is small (.64 ha), with a diameter of about 80 m. Although no obvious dark midden stain was observed, artifacts and features were restricted to a band approximately 25-30 m wide that surrounded an area of about 25 m that produced fewer materials (Sharp and Pollack 1992:189). The site plan is interpreted as that of a circular village and plaza. Limited investigations documented two overlapping pits and an oxidized area (Sharp and Pollack 1992:198). Sharp and Pollack (1992:218) estimated the village population size at 90, based on an inferred number of 15 contemporaneously occupied structures.

Site 15Hr22 is a mid-sized circular village with a plaza that contains a low burial mound in its northwest quarter (Henderson 1998; Sharp and Pollack 1992:199). An elliptical dark stain, measuring 110 by 140 m and containing an abundance of cultural materials, surrounded a lighter, central plaza area that was devoid of artifacts. It measured 58 by 80 m. The midden ring measured 22-40 m, with an average width of about 30 m. The village plan consists of concentric rings of mortuary, habitation, and trash disposal activities around a central plaza (Sharp and Pollack 1992:218), which also contained a mortuary area (i.e., mound). No palisade was documented at the site. An estimated 25-30 structures would have housed a population of between 150-180 people (Sharp and Pollack 1992:218).

The burial mound was a low, conical mound of earth that measured 17 by 23 m. Undoubtedly much taller originally, the mound stood .4 to .5 m tall at the time of the investigations (Sharp and Pollack 1992:198).

Concentric rings of activity zones around a central plaza have been documented at two contemporary Fort Ancient sites for which internal village spatial organization is most complete: Slone along the Levisa Fork in Pike County (located in the Upper Big Sandy Section of the Big Sandy Management Area; see that discussion) (Dunnell et al. 1971) and SunWatch/Incinerator along the Great Miami River in southwestern Ohio (Cook 2004, Heilman et al. 1988; Nass 1989; Nass and Yerkes 1995) (Figure 7.2). These three sites reflect variation on the circular village theme.

Florence's internal configuration is most like that of SunWatch/Incinerator: at both sites, the mortuary zone is situated immediately adjacent to the plaza. This contrasts with Slone, where the mortuary zone is located behind the residential zone. There are important differences, however, between Florence and SunWatch/Incinerator. Unlike Florence, SunWatch/Incinerator lacks a mound within its plaza, and unlike SunWatch/Incinerator, Florence lacks a palisade and a central post (although this could be due to the limited nature of investigations at Florence) (Henderson and Pollack 2004). At Florence, the residential zone is adjacent to the mortuary zone, while at SunWatch/Incinerator, a storage/refuse disposal zone occurs between the mortuary zone and the residential zone. Refuse disposal at Florence is located behind the residential zone. Variation in the organization of these villages may reflect interregional cultural/ethnic traditions, site setting/topographic context, or each site's unique occupational history (Henderson and Pollack 2004).

Three structures were documented at Site 15Hr22, but only one was completely excavated. Structure 1 measured approximately 4 by 5 m, with the long axis oriented parallel to the plaza. It was set in a basin, and individually-set posts lined the basin edge. The house lacked an internal hearth, large internal support posts, and any evidence of daub. The remains of what was interpreted as a wall section suggests the use of cane/reed or broad-leaf grass interwoven with larger twigs (Sharp and Pollack 1992:214). No evidence of pits or burials was documented inside the house. Structure 2 was similar to Structure 1. It measured 4.2+ m long, was built in a basin, and lacked internal features. Unlike the other structures, Structure 3's posts had been set in a trench.

Pit features that served for trash disposal tended to be found between the houses and the outer edge of the dark midden stain. Most were large shallow basins. Oxidized

areas of soil, interpreted as surface fired areas or shallow hearths, were found adjacent to the central plaza (Sharp and Pollack 1992:213).

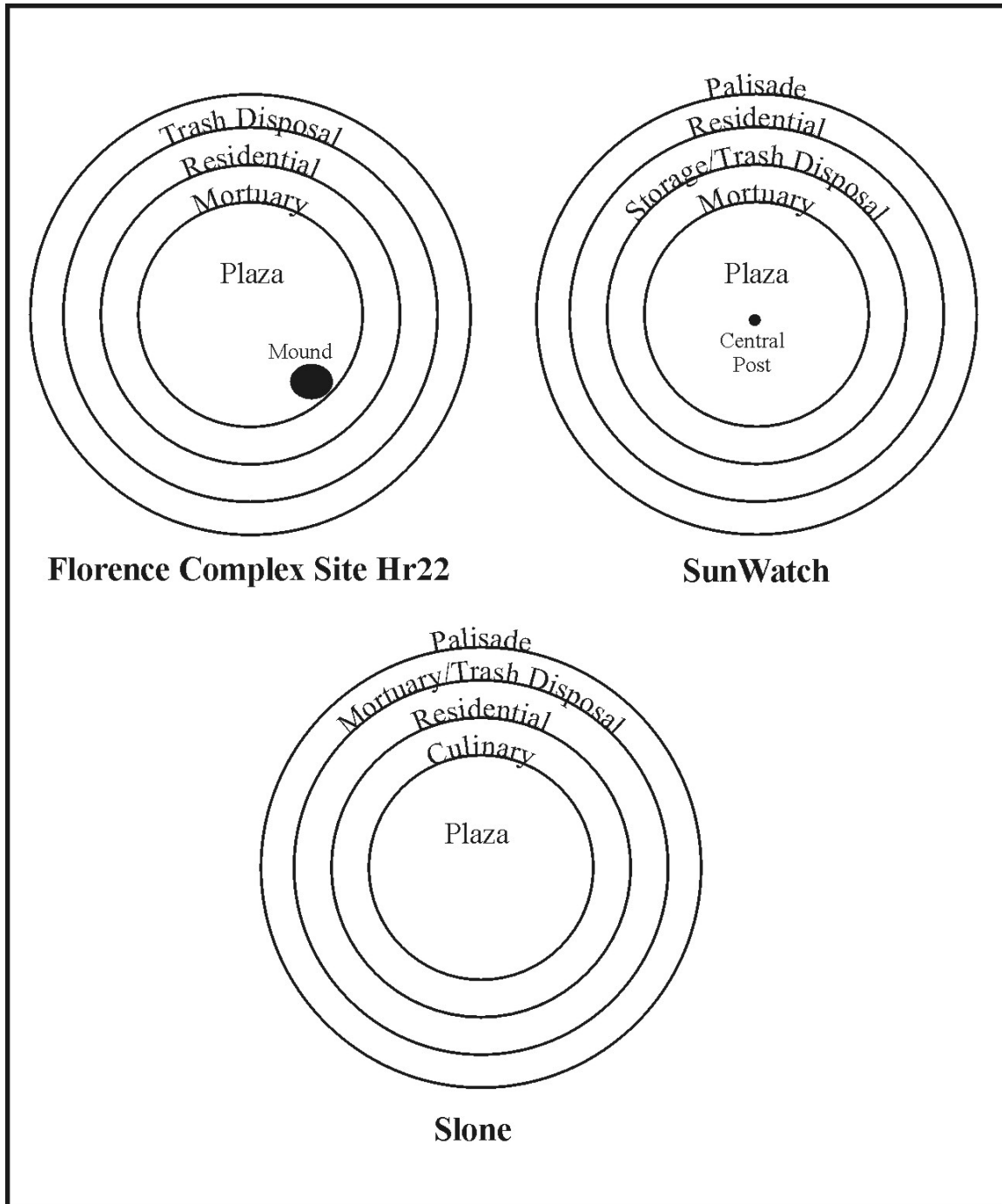


Figure 7.2. Schematic internal village plans for three circular Fort Ancient villages (after Henderson and Pollack 2004).

Infants and very young children were interred in or near trash pits, with the remainder of the dead interred in the mortuary zone surrounding the plaza or in the low burial mound within the plaza. Three burials were excavated. An infant was found in the upper portion of a trash pit. Grave goods associated with this individual consisted of several marine shell beads. The grave of a child was found in a small basin-shaped pit adjacent to a concentration of trash pits. It was buried in a fetal position without any grave goods. An adult, buried in the area between the houses and the plaza edge, was interred in a pit, extended on his/her back. The burial lacked grave goods. Several limestone slabs had been placed over the chest, and a lens of ash and carbonized wood occurred directly above the slabs, possible evidence of feasting and mortuary ritual activities (Sharp and Pollack 1992:216). The burial mound was not excavated. Floral and faunal remains from both Florence villages reflected the standard Fort Ancient subsistence pattern documented elsewhere (Sharp and Pollack 1992:195-197, 204, 209-212).

Jessamine Series ceramics were recovered from both sites, but differed somewhat in terms of their temper and exterior surface treatment profile (Sharp and Pollack 1992:190-191). Over three-quarters of the ceramics from Site 15Hr21 were tempered with mixed shell and limestone, while the assemblage from Site 15Hr22 had about equal amounts of mixed shell and limestone tempered and shell tempered specimens. Cordmarked exteriors predominated at each site, but Site 15Hr22 had more plain and less knot-roughened/net-impressed compared to Site 15Hr21. They differed, too, in the amount of decoration: Site 15Hr22 had twice as much as Site 15Hr21. Only incising was noted for the latter, while cordmarking on lips, applied rimstrips, eared castellations, and incising were noted for the former. Strap handles predominated at both sites, and most were mainly triangular, although Site 15Hr22 also produced parallel-sided loop handles and a U-shaped lug.

Few other diagnostics were recovered from Site 15Hr21. The fine triangular projectile point assemblage from this site was comprised of Type 2 and Type 3 examples. Diagnostics from Site 15Hr22 included Type 5 Fine Triangulars, drills, chipped limestone disks, and a siltstone elbow pipe. Worked bone included antler points, awls, and beads; drilled animal teeth; and a flute. Worked shell objects consisted of marginella shell beads and a plain, circular shell gorget (Sharp and Pollack 1992:211).

Radiocarbon dates from the two sites and the characteristics of their artifact assemblages date their occupation to the mid- to late A.D. 1300s, or during the latter part of the Middle Fort Ancient subperiod (Sharp and Pollack 1992:190) (Table 7.5). Based on a comparison of diagnostic artifacts, however, Site 15Hr21 was occupied somewhat earlier and for a shorter period of time than Site 15Hr22 (Sharp and Pollack 1992:220). Site 15Hr22 may have been occupied toward the end of the Middle Fort Ancient subperiod and the beginning of the early Late Fort Ancient subperiod (Sharp and Pollack 1992:220).

Buckner is a large (approximately 8 ha), complex, Fort Ancient site located west of Stoner Creek in Bourbon County (Clay 1984, Dunnell 1961; Goodell 1971; Griffin 1943; Henderson 1998:255-283; Milner and Smith 1986; Moody 1959; Turnbow 1988a,

1988b). It sits on higher spots in the floodplain and extends up onto the base of the slope of a broad, low, rolling upland ridge located adjacent to the site on the east.

The site consists of two circular villages with plazas; the McCray Mound; discontinuous, amorphous midden areas; and scattered artifacts unassociated with the dark soil stains (Henderson 1998:256, 258). The two villages represent temporally separate occupations, although the length of time between the village occupations may not have been great. The larger village, referred to as Buckner Village 1 by Turnbow (1988b:168), may date to the latter portion of the Middle Fort Ancient subperiod, while the smaller village, Buckner Village 2, and the McCray Mound probably date to the early Madisonville horizon (Henderson 1998:280-281; Turnbow 1988b). Buckner Village 1 is discussed here.

Buckner Village 1 sits on the highest spot in the floodplain. It consists of a circular midden ring (175 by 182 m) surrounding a central plaza that measured 64 by 76.2 m (Henderson 1998:281-283). Based on surface artifact distributions, midden width measured between 25-30 m (Duncan 1996). In places, the midden extends to a depth of 30 cm below the base of the plowzone. Areas of denser lithic debris within the midden ring may correspond to the locations of pits or structures. Also documented were fragments of human bone and an amorphous feature, consisting of a dense scatter of charcoal and limestone, and interpreted as a possible burial location (Henderson 1998:278-279).

The ceramic assemblage recovered from the site during the 1987 University of Kentucky field school is dominated by the Jessamine Series (Henderson 1998:274-275, 277, 283). Slightly over half of the sherds are tempered with shell, another one-quarter are tempered with limestone, and about one-fifth are tempered with a mixture of shell and limestone. Over three-quarters of the assemblage is plain, followed distantly by cordmarking. Vessels are mainly jars, but a few bowls also are present. Appendages are strap handles, loops, or lugs. Decoration is well represented and includes cordmarked or notched lips; rimfolds; and incising. Fine triangular projectile points include mainly types 2, 3, and 5.

Four villages make up the Singer-Hieronymus Site Complex (15Sc3 and 15Sc225) (Henderson 1998:221-234; Henderson and Pollack 2000). They are scattered across two ridge lobes overlooking a bend in North Elkhorn Creek in Scott County. These villages represent either the sequential movement of one Fort Ancient community upslope and northward across the ridge, or the repeated occupation and abandonment of this locale by more than one group (Henderson and Pollack 2000:1). Community size apparently increased over time, then decreased, before the locale was abandoned, as indicated by the villages' relative sizes. Given the attributes of material culture and a few radiocarbon dates, three of the sites (villages A, B, and C) date to the Middle Fort Ancient subperiod, while Village D dates to the early Late Fort Ancient subperiod (Henderson 1998). Although the features of their environment and topography are very different, the Singer-Hieronymus Site Complex resembles Buckner in that the smaller circular village is the most recent (Henderson 1998:223).

Of the three Middle Fort Ancient villages, Singer-Hieronymus Village C (formerly the Singer Village site/Singer Village 1) is the best documented and the largest

of the four, at 1.8 ha. Located slightly off the crest of the western lobe, this circular village measures about 130 m in diameter (Henderson 1998:230). Midden width, like most Middle Fort Ancient circular villages, is 30 m, and plaza diameter is 60 m. Limited excavations at the site documented 35-40 cm of intact midden deposits, several primary refuse pits containing large amounts of ash and a well-preserved artifact assemblage, and two human burials (Henderson 1998:230-231; Henderson and Pollack 2000).

Two mounds were once present at the site. The one situated on the village's southwestern perimeter was completely excavated (Funkhouser and Webb 1928:230). The other mound is located about 50 m northeast of the first, on the northern edge of the plaza. During the 1998 investigations, it stood about 60 cm to 1.5 m tall and was no more than 20 m in diameter.

Village C was occupied during the Middle Fort Ancient subperiod (Table 7.5). The dates could be interpreted as evidence for a long period of occupation of the village, which is supported by the presence of two mounds and by the dark midden stain. Alternatively, the village could have been occupied only during the late Middle Fort Ancient subperiod.

The site produced Jessamine Series ceramics. Shell tempered and mixed limestone and shell tempered ceramics occur in about equal amounts, followed by limestone tempered sherds. Cordmarked specimens slightly outnumber plain specimens. Jars are the most common vessel form. Appendages consist of loop/strap handles and thick, parallel-sided strap handles riveted to the vessel body. Decoration is not common and consists mainly of cordmarking or castellations on lips, rimfolds, and incised lines.

The most common triangular points (recovered mainly from Village C) are Crude Triangulars and Type 2 Fine Triangulars, followed by Type 3, Type 2.1, Type 3.1, and Type 5 fine triangulars (in that order of frequency) (Henderson 1998:225-226; Miller 2001). Bifacial and uniface tools also are present. Localized procurement strategies are reflected by the fact that Cane Run chert, locally available and procured from primary and secondary sources, was most frequently used (Miller 2001). Analysis of the enigmatic, but diagnostic, chipped limestone disks shows they were shaped from circular preforms using percussion flaking (Miller 2001). They show significant variability in raw material (limestone or sandstone) and evidence of heat alteration, but their function is unknown.

Both Singer-Hieronymus Village A and Singer-Hieronymus Village B (formerly Singer Village 2) are located on the southern lobe of the ridge, with the former located near the lobe's end (Henderson 1998:234; Henderson and Pollack 2000). Limited investigations documented a circular configuration for Village A measuring about 120 m in diameter. It had a 50-60 m wide plaza and a 30 m wide midden zone. Three trash-filled pits were documented (Henderson and Pollack 2000:5). Limited investigations at Village B, located north of Village A, could not conclusively identify its shape and plan. It measures 120-140 m in length and may be arc-shaped. Pit features or perhaps intact midden or house basins, and a burial were documented at this village.

Late Fort Ancient/Madisonville Horizon (A.D. 1400-1750)

Early Late Fort Ancient (A.D. 1400-1550)

Sites discussed here are presented in relative temporal order: Capitol View, Scott Yates-Johnson, Buckner Village 2 and the McCray Mound, New Field, and Singer-Hieronymus Village D.

Capitol View is a small village situated on a north-south trending ridge not far from the Kentucky River in Franklin County (Henderson 1992a). It encompasses an area that measures 100 by 120 m and consists of a loosely formed, arc-shaped distribution of eight structures, 16 features (pits, earth ovens, a surface fired area, soil stains, and a sheet midden), and 10 burials around a 90 m-wide open area (Henderson 1992a:223, 232-233). It was occupied for perhaps less than ten years by anywhere from 30 to 70 people (Henderson 1992a:236, 238). Calibrated radiocarbon dates suggest the site was occupied during the early decades of the fifteenth century (Henderson 1992a:232) (Table 7.5).

Structures were square to rectangular in shape with rounded corners. They ranged in size from 3.1 by 4.7 m to 6.1 by 7.3 m (Henderson 1992a:234). At least four were constructed in house basins; the rest were represented by thin stains surrounded by postholes. Sections of floors were preserved within house basins, and central hearths were present in both types of structures. Earth ovens were deep, circular pits (approximately 1 m in diameter) that exhibited evidence of intensive heating of walls and floors. In the bottom was a layer of charcoal beneath a layer of flat burned limestone rocks (Henderson 1992a:234).

Graves were simple pits dug into the ground. Adults and adolescents, both males and females, were present. All but one individual was buried in a semi-flexed position. No limestone slabs covered these individuals, and there was no evidence for selective removal of bones (cf. Pollack et al. 1987). Only one person appears to have been buried with any grave goods: a fragment of high-quality cannel coal that functioned as a palette (Henderson 1992a:231).

Most of the ceramics are assignable to the Madisonville Series, although a few Todd Plain, *var. Fox Farm* (pan) and McAfee Series (pinch pot) sherds also were recovered. The assemblage is tempered almost exclusively with shell. Cordmarked and plain examples are represented about equally, although a few check-stamped or net-impressed examples also are present. Vessels are mainly jars, and appendages consist of parallel-sided or triangular strap handles. Other forms include pinch pots, and a few bowls and pans. Almost one-fifth of the assemblage is decorated, which is represented almost exclusively by incised designs. Triangular points are mainly Type 5 Fine Triangulars and Crude Triangulars. Other chipped stone tools include bifaces and drills, a celt, a pitted stone, and a siltstone pipe. Unlike the nearby Carpenter Farm site, no chipped stone disks were recovered from Capitol View. Subsistence remains are similar to other central Kentucky Fort Ancient sites (Henderson 1992a:224-231).

Clearly definable concentric activity zones, like those at Florence Site Complex Site Hr22 (Sharp and Pollack 1992) and Slone in the Big Sandy Management Area (Dunnell et al. 1971), are not apparent at Capitol View, although this does not mean it

lacks activity zones. The site does exhibit a sort of “plaza,” and burials are generally located closer to the “plaza’s” outside edge/“in front” of the houses. Residential and storage/refuse disposal zones, however, appear to have merged. This site plan may be a product of the site’s brief existence, or it may represent the beginning of a trend in which Fort Ancient settlement plans are arranged as clusters of houses and activity areas and not in concentric zones (cf. New Field [Henderson and Pollack 1996] and Larkin [Pollack et al. 1987]).

By conceptualizing Capitol View in an alternative way, however, two segments can be identified in this arc-shaped community (Henderson 1992a:238-239). Although the same range of domestic activities apparently was carried out in each segment, domestic space was organized somewhat differently. In the southern segment, large structures are paired with smaller ones, and features and structures create two clusters. In the northern segment, individual structures are widely separated, as are features, which sometimes are located near the houses and sometimes not. Each segment has an associated earth oven. This suggests that some sort of social duality (e.g., moieties) may have been present within this community (Henderson 1992a:238).

The Scott Yates-Johnson site is situated on a ridge crest west of North Elkhorn Creek in Scott County. This linear site consists of a habitation area (Johnson [15Sc12]) and an earth mound(s) (Scott Yates Mounds [15Sc5]) located southwest of the habitation site. The site measures 100 by 250 m (Henderson 1998:208). Pit and basin features (some of which were hearths or storage facilities) have been documented at Johnson (Hockensmith 1976, 1983a, 1984). Although 216 postholes were found, no structural patterns could be delineated, and community organization could not be determined from the distribution of surface materials (Hockensmith 1984:100-101).

The Johnson site ceramic assemblage is mainly shell tempered or mixed shell and limestone tempered, although it does contain some limestone tempered specimens. Most sherds have plain exteriors (Hockensmith 1984:85-95). Jars are the predominant vessel form, but pans also are present. Appendages consist of thick, parallel-sided or triangular strap handles, and thin triangular strap handles. The very low number of decorated specimens distinguishes this site assemblage from other central Kentucky early Late Fort Ancient assemblages, such as New Field (Henderson and Pollack 1996) and Capitol View (Henderson 1992a). Like them, however, the Johnson assemblage contains very few bowls. Diagnostic projectile points resemble Type 5 and Type 2 fine triangulars (Hockensmith 1984:95-98). While not analyzed in detail, the floral and faunal assemblage is comparable to inventories from other Fort Ancient sites (Hockensmith 1984:100).

The three calibrated radiocarbon dates from Johnson are not useful, since they are Early and Middle Woodland in age. Thermoluminescence dates secured on limestone, shell and limestone, and shell tempered ceramics span much of the Fort Ancient period (Table 7.5) (Hockensmith 1984:101-103). This led Hockensmith to suggest that Johnson’s Fort Ancient occupation began by at least A.D. 1000 and continued periodically through A.D. 1300, but occurred primarily during the 1300s and 1400s. He rejected the A.D. 1500 and 1600 dates, arguing that the artifact assemblage could not corroborate them. Based on this line of reasoning, the major occupation of the site

occurred during the late Middle Fort Ancient subperiod and extended into the early Late Fort Ancient subperiod (Table 7.5).

Central Bluegrass Section sites with high percentages of shell tempered plain ceramics postdate A.D. 1400 (Pollack and Henderson 2000; Turnbow 1988b:173; Turnbow and Henderson 1992a:129). Given the other characteristics of the Scott Yates-Johnson site ceramic assemblage, such as the predominance of strap handles and the presence of pans, this portion of the site likely was occupied in the early Late Fort Ancient subperiod.

The Scott Yates Mound(s) is a low conical earth mound(s) (Hockensmith 1984:101). Until 1998, researchers considered this the section of the Scott Yates-Johnson site that provided the materials for Dunnell's (1961) Yates focus. It is now recognized that the W.S. Yates Mound (15Sc2), and not the Scott Yates Mound(s), provided the materials Dunnell used (Henderson 1998:204-206).

The mound(s) are situated beyond the southwestern edge of the Johnson site, but their size and height is not known. There is no record of any professional work ever having been conducted at these mounds, and materials recovered from the surface of the Johnson site in the vicinity of the Scott Yates Mound(s) have never been described (Hockensmith 1984:84). The presence of this mound(s) provides tantalizing evidence for a Middle Fort Ancient occupation at this site (Henderson 1998:212), but without more work, this cannot be confirmed.

A small circular village and a mound consisting of a pavement of stones, referred to as Buckner Village 2 and the McCray Mound, respectively, represent the later component at this large and complex site (Henderson 1998:255-283). Buckner Village 2 is circular, measuring 91.4 by 114.3 m with a central plaza that measures 73.2 by 61 m (Henderson 1998:276). In 1939, two structures and 28 burials were excavated in the midden ring (Goodell 1971; Henderson 1998:267-268). Positioned next to one another and situated along the outside of the midden ring, both structures were rectangular (6.1 by 10.4 m and 4.1 by 5.6 m) (Moody 1959) and exhibited wall-trench construction, although one had single-set posts along one wall. One structure had a shallow hearth in the center, and charred cane was documented on the floor. There was no evidence of structure rebuilding.

Pits and burials appear to have been scattered in front of the structures, suggesting some degree of internal community organization. No trash disposal area was observed behind or between the structures, but this may be due to the fact that these areas were not sampled. The remaining features consisted of an isolated rectangular fire basin/prepared hearth located in front of and between the structures, and a large isolated posthole lined with limestone slabs documented at an unspecified location within the village.

The 28 burials contained the remains of at least 33 individuals (Henderson 1998:268-269; Moody 1959; Powell and Picklesimer 1987). For those that were complete enough, method of burial could be identified: 11 were bundle burials, five were partially flexed, and two were extended. Limestone slabs covered several graves. Fourteen individuals were buried with grave goods that included ornaments of bone, shell, cannel coal, and stone (beads, pendants, gorgets) or items of everyday use (fragments of vessels, awls, projectile points, and a hammerstone).

The human remains recovered from Buckner are mainly those of adults, with individuals ages 20-40 and over 40 represented (Powell and Picklesimer 1987). Only a few infants and children were recovered, and males outnumbered females. In general, the Buckner population appears to have had a "high" incidence of infection, disease, and trauma (Robbins 1971:2), including osteoarthritis, periostitis, and tuberculosis. One individual exhibited evidence of trephination. Older individuals displayed frontal-occipital deformation (flattening) typical of Fort Ancient populations (Robbins 1968). Relative to earlier Archiac populations, the Buckner individuals exhibited less tooth wear and a much higher incidence of caries. This is consistent with a diet that contains less grit but more sugar (Adkins 1988:100-102).

The bulk of the materials collected from Buckner Village 2 represent an early Late Fort Ancient occupation. Most of the projectile points resemble Type 5 Fine Triangulars (Griffin 1943:Plate XCVI). The ceramic assemblage consists of Madisonville and Todd series ceramics (Turnbow 1988a:281, 1988b:168). The assemblage is almost exclusively shell tempered, and plain and cordmarked exteriors occur in about equal amounts (Henderson 1998:277). Vessel forms represented include jar, bowls, and pans; and appendages are primarily parallel-sided strap handles or lugs (Griffin 1943:182-183; Henderson 1998:277; McBride 1995). A large amount of check-stamped ceramics recovered from the site points to some level of interaction with Mississippian groups to the south and west, where check-stamped ceramics are quite common (Griffin 1943:182-183; Henderson 1998:280; McBride 1995) (see Chapter 6). This interaction also is reflected by the recovery of two negative painted sherds from this site.

It is unknown when the McCray Mound was built, but it is clear that its last use was contemporary with Buckner Village 2. The exact position of this mound relative to the village is not known, but it may have been located on a north-facing ridge slope (it was probably not located on the floodplain near the village [Henderson 1998:260]; see also Collins [1847:194-195]). The mound consisted of a large pavement of stones, estimated as measuring 8.5 by 13 m (Goodell 1971:6A), and three associated graves containing at least four individuals. Three were bundle burials, and one was fragmentary. Grave goods were the same as those associated with individuals buried in the village: ornaments of bone or shell, and everyday-use items.

Given the poor descriptions of the 1939 investigations, it is difficult to say with certainty how the stone pavement at the McCray Mound functioned, but it was undoubtedly involved in some way with mortuary rituals (Clay 1984:137-139). Perhaps it functioned as a charnel structure for the defleshing phase of a multi-step mortuary program, where the dead were laid on a stone platform, perhaps within a perishable superstructure built over the platform (Clay 1984:138). The dead may have been buried, exhumed, and then reburied, or buried only after defleshing.

Materials that can be assigned conclusively to the McCray Mound include a limestone disk and a few sherds. Most of the latter are assignable to the Madisonville Series, although a few are Todd Plain, *var. Fox Farm* (Henderson 1998:270-271). Check-stamping predominates, but sherds with plain exterior surfaces also are present. Vessels are jars or pans, and appendages are mainly lugs. Decoration is not common, and occurs primarily on lips.

New Field is a 16 ha oval village located on an undulating sink hole-dotted terrace and adjacent floodplain of Stoner Creek in Bourbon County (Henderson and Pollack 1996:169). It is a good example of a Central Bluegrass Section early Madisonville horizon Fort Ancient site (Henderson and Pollack 1996:222).

The New Field community measured 150 by 180 m and, like Capitol View, the site plan presents no clear concentric activity zones. Instead, it consists of five residential areas, groups of structures and associated trash disposal areas, surrounding an open area generally devoid of features and artifacts (Henderson and Pollack 1996:220-222). Among the 37 features identified were several pits, a burned area, a structure, and five graves (Henderson and Pollack 1996:214). This suggests that the village may have had a plaza (Henderson and Pollack 1996:220). Pit features were either large, deep, stratified trash pits that contained high artifact densities, or were somewhat smaller and produced low quantities of artifacts. The structure was a rectangular stain of dark soil mottled with charcoal. It measured 4.9 by 7.7 m. The dead tended to be buried around the central open area and are somewhat spatially removed from the residential areas. Two of the five graves were associated with limestone slabs (Wilson 1996). None were excavated.

The New Field ceramic assemblage consists of Madisonville Series ceramics, with most sherds having a plain exterior surface (Lacy 1996:172-174). Most vessels are jars; the ceramic assemblage contained fewer bowls than expected and no pans. Parallel-sided strap handles and triangular strap handles occur in about equal amounts. Decorated sherds make up over one-fifth of the assemblage. Although some lips are notched or punctuated, most decoration consists of incising on jar necks. Other clay artifacts consist of beads, disks, and fragments of pipes (Lacy 1996:179). Most triangular points are Type 5 Fine Triangulars, followed distantly by types 6, 7 and 8 fine triangulars (Updike 1996:181-182). A bifacial teardrop-shaped endscraper also was recovered.

Fragments of two different shell gorgets were found on the site surface. One had four scallops; the other had the figure of a bird (its feet, tail, body, wings, and neck) engraved on the inside (concave) surface framed by an engraved border line. A series of drilled pits fill the space around the figure (Henderson and Pollack 1996:187-189). This atypical zoomorphic figure may represent a local Fort Ancient iconographic tradition (see Hoffman 1997:19, who illustrates a unique lizard/reptile from the Man site in western West Virginia where drilled pits similarly filled the space around the figure). The New Field botanical (Rossen 1996) and faunal (Breitburg 1996) assemblages are typical of Central Bluegrass Section Fort Ancient sites.

Calibrated dates suggest New Field was occupied ca. A.D. 1450-1550 (Henderson and Pollack 1996:214), making it contemporary with Capitol View. However, New Field's ceramic assemblage has notched lips, more plain surfaced specimens, and a larger percentage of decorated sherds than Capitol View. It also has more decorated sherds but a lower percentage of plain surfaced sherds than the later Larkin site (see below). Type 5, 6, and 7 fine triangulars make up a greater percentage of the New Field assemblage than they do at Capitol View (Henderson and Pollack 1996:214). Based on these comparisons, New Field appears to post-date Capitol View, but to have been occupied earlier than Larkin.

Singer-Hieronymus Village D (formerly Singer Village Site 1a) is the smallest (.5 ha) circular village in the Singer-Hieronymus Site Complex (Henderson 1998:232; Henderson and Pollack 2000). This circular village with a plaza is situated downslope and north of Village C, which it slightly overlaps (Henderson 1998:232). Among the diagnostics recovered from this site are ceramics that are mainly plain surfaced Madisonville Series, and Todd Series, var. *Fox Farm* (pans). A calibrated radiocarbon date of A.D. 1443-1645 (Table 7.5) supports an early Late Fort Ancient assignment (Henderson 1998:232-233; Henderson and Pollack 2000:5).

The presence of this later village explains the recovery of shell beads from Fort Ancient burials documented at Singer-Hieronymus Village C (Henderson 1998), and a shell gorget engraved with a spider recovered from the site in the mid-1920s (Singer 1976:38; see also photograph on file, Office of State Archeology, University of Kentucky, Lexington).

Late Late Fort Ancient (A.D. 1550-1750)

The most important examples of late Madisonville horizon components in this section consist of villages (Larkin and Howard), cemeteries (Site 15Js16), and hunting camps (Goolman and DeVary). They are discussed in that order.

The Larkin site covers approximately 7.7 ha and is located near Stoner Creek in Bourbon County. Unlike earlier settlements, there is no evidence of a circular village configuration at Larkin. Rafinesque's map of the site, published by Squier and Davis (1848:Plate XIII), shows several clusters of rectangular structures, and local collectors have described the site as containing several small midden areas scattered throughout a karst bottom (Henderson et al. 1986:114-115; Pollack et al. 1987:188). It is possible that these small midden areas correspond to the clusters of structures noted by Rafinesque.

Investigations in a small area in the site's northern portion documented nine graves, two postholes (one was rock-chinked), a surface hearth, a shallow pit, a refuse disposal area, and a shallow pit that may represent a house basin (Pollack et al. 1987:190). The burials clustered in three groups, and within a group, burials had a similar orientation. Most individuals were extended, but for three individuals, the pits were too short, and so their knees were drawn up. Large limestone slabs were associated with all of the graves, with considerable variation in the number and placement of slabs (Pollack et al. 1987:200). Though the lower layer was laid relatively flat, the upper layer was often set at sloping angles or set on end near the pit wall.

The nine graves contained ten individuals: seven adults between the ages of 30 and 50 (including one woman and a fetus); an infant; and a young child under the age of three. Five of the seven adults were missing major skeletal elements: long bones from the left side of the body, the whole skull, or the cranium (Pollack et al. 1987:201). One of the two individuals exhibiting evidence of traumatic death was not missing any bones (Pollack et al. 1987:194). This individual, a male, also had been scalped.

Concentrations of carbonized maize kernels and *Phaseolus* spp. beans were found above the chest of several individuals, and intentionally broken ceramic vessels (large jars, a colander, and a shallow bowl) were recovered from the grave shafts. These data,

like the burial data from other sites in this section, indicate that a multi-step mortuary program was conducted at Larkin: a person was buried in the flesh, and then, once their body was reduced to bones, the grave was reopened, selected bones were removed, a ritual meal or offering was prepared, and then the grave was closed and a ceramic vessel was broken on top of the grave (Pollack et al. 1987:201-202).

The most frequently observed pathologies were nonspecific activity-related traumas, age-associated bone degeneration, tooth caries and abscesses, and enamel hypoplasia (Zibert and Wilson 1996). Evidence for infectious disease was surprisingly absent. Much higher frequencies of infection have been reported for Hardin Village and Buckner, respectively (Cassidy 1972; Robbins 1971). With respect to enamel hypoplasia, Larkin is more similar to Hardin Village than Capitol View (Haskins et al. 1995) or New Field (Wilson 1996). This variation is probably due to sample size and not to cultural differences.

The Larkin site ceramic assemblage is typical of the late Madisonville horizon, consisting almost exclusively of plain-surfaced Madisonville or Todd series vessels (Griffin 1943; Pollack et al. 1987). Jars predominate, and flared to slightly flared rims are most common. Jar decoration consists of broad, shallow (trailed) lines, punctation, and lip notching, but it is not common. Jar appendages are parallel-sided or triangular strap handles. Bowls have lugs and notched lips. Pans and a few colander sherds also are represented. Nonlocal sherds include some possible Bell Plain bowl fragments, and a few Parker Festooned (Lee 1958) specimens. The former is a common ceramic type on Mississippian sites (see Chapter 5), while the latter is a distinctive ceramic type that apparently has a wide distribution around Lake Erie, where it is often found in minor amounts from very late prehistoric contexts (Brose 1978:580; Fitting and Zurel 1976; McKenzie and Blank 1976). Two of the Parker Festooned rims from Larkin have small crude effigies located just below the lip that resemble faces (Griffin 1943:Plate XCIII Figure 22, Plate XCIV Figure 7).

Most projectile points are Type 6 Fine Triangulars, although some Type 5 examples are present (Stokes 1996). Other chipped stone artifacts include utilized flakes, drills, and bifaces. Groundstone artifacts include a slate celt and a fragment of worked cannel coal. Botanical remains from trash disposal areas consisted of nuts and maize cupules (Pollack et al. 1987:202).

Burial goods were associated with some of the individuals. These items included a copper tube bead, a shell bead, a cannel coal pendant, and several drilled dog canines (Pollack et al. 1987:200-201). Weeping eye shell mask gorgets and an engraved "dancing figure" shell gorget also have been reportedly found with burials at Larkin (Foley and Lipscombe 1981; Henderson et al. 1986:114). Shell mask gorgets with weeping eye designs are commonly found in east Tennessee, northeast Arkansas, and the middle Ohio Valley on sites dating to the Protohistoric period or just prior to it (Drooker 1997:294, 297, 301; Smith and Smith 1989). Calibrated radiocarbon dates support a late Madisonville horizon occupation for the site (Table 7.5).

The Howard site's Late Fort Ancient component also yielded an indigenous artifact assemblage that included a few historic trade goods. The component was

documented in several artifact concentrations, including three pit features and a possible posthole (Stoner et al. 2008).

Madisonville Series ceramics dominate this site's Late Fort Ancient assemblage. Almost all of the exteriors are plain; cordmarked exteriors are rare. Jars predominate, although a bowl rim and a bottle rim were recovered (pans were lacking). Jars tend to have slightly ouflaring rims. Slightly more than 14 percent of the sherds are decorated. Decoration on jar necks consists primarily of trailed or incised designs, some of which may represent rectilinear guilloche. Many of the trailed lines often bound a single line of punctations. Lip notching is present, as is an example of an applied horizontal notched rimstrip. Appendages consist primarily of thin strap handles attached below the lip. Other Late Fort Ancient subperiod diagnostics include type 4, 5, and 6 fine triangulars; bifacial teardrop-shaped endscrapers; and two gunflints made from local chert. Artifacts of Euro-American manufacture consist of a blue glass bead and a copper bead. Except for a higher than expected nutshell density, the botanical assemblage (e.g., maize, beans [*Phaseolus* spp.], gourd, and squash) and the faunal assemblage are consistent with those documented at other Kentucky Fort Ancient sites (Stoner et al. 2008).

Site 15Js16 is a late Madisonville horizon cemetery located on a hill overlooking Hickman Creek in Jessamine County. Bone preservation at the site was poor (Van Niewerburgh 1972). All six of the identified individuals were buried in an extended position, in a pit, and adults, both male and female, were documented.

Associated with a 25-27 year-old male were seven strands of beads: four composed of large disc shell beads, and three made of rolled copper beads interspersed with small disk shell beads and tubular shell beads. Two engraved conch shell gorgets were attached to the latter three strands. They were placed directly below and slightly to the right and left of the cervical area of the individual. One gorget exhibited an engraved rattlesnake design, but the design engraved on the other gorget could not be determined. A single copper earspool and several scraps of leather had been preserved by the copper salts. The latter bore evidence of having had marginella shell beads sewn in lines on it. A rolled copper bead also was found at the left wrist of this individual. Vandals stole both gorgets and an unknown quantity of beads before the burials were completely excavated. Several Fort Ancient habitation sites (Site 15Js14 and Site 15Js60), located south of Site 15Js16 in the narrow creek bottom, may be associated with this cemetery.

The Goolman and DeVary sites represent late Madisonville horizon winter hunting camps located in small stream valleys in eastern Clark County (Turnbow et al. 1983; Turnbow and Jobe 1984). Both were covered by a 60 cm-deep overburden of colluvial and alluvial deposits that had accumulated in these valleys since the beginning of historic land clearing. They are the only documented Kentucky Fort Ancient winter hunting camps that are not associated with rockshelters (see the Gorge Section in the Upper Kentucky/Licking Management Area for Late Fort Ancient rockshelter occupations).

The Goolman site produced the best information of the two. It measured 21 by 36 m and was particularly well preserved. The types of structures found at this site are smaller and not as well constructed as those associated with villages (Turnbow and Jobe 1984:40). The first type, consisting of two oblong or oval structures, was represented by

small postholes spaced at 60 to 80 cm intervals. Although neither structure was completely excavated, they were estimated to have measured ca. 2.5-3 m in width and 4-5 m in length. Central hearths were present in each structure, and few artifacts were found inside. The second type of structure was represented by a series of large and deeply set postholes placed at approximately 1 m intervals to form a rectangular pattern. Measuring 4 by 5 m, the interior of this structure had an occupational surface and hearth area that produced an abundance of lithics, ceramics, and food refuse, suggesting that it had been the locus of intense activity. The smaller structures may have been sleeping quarters, with the larger structure serving a communal function (Turnbow and Jobe 1984:42). Other features included rock clusters (probably chinking for posts), postholes, and a nut-processing local. From 17 to 32 people may have lived at this site during the winter months (Turnbow and Jobe 1984:43).

Hunting and hide-processing tools dominated the material culture assemblage (Turnbow and Jobe 1984:32-36, 44-45). These included a large number of Type 6 Fine Triangulars, knives, and steeply beveled, bifacial teardrop-shaped endscrapers. Most were made from Boyle chert. Other lithic tools included drills, bifaces, unifacial tools, and hammerstones. Groundstone tools included a grinding slab, pitted stones, abraders, and vasiform pipe fragments.

Ceramics were Madisonville Series. Sherds with plain surfaces slightly outnumbered cordmarked examples. All were derived from jars, and the only appendages associated with these vessels were thin triangular or parallel-sided strap handles. Decoration was restricted to a single example: a notched applied clay strip on a strap handle (Turnbow and Jobe 1984:28). Other ceramic objects were a pipestem and sherds used as scraping tools. A bear tooth ornament also was recovered from the site (Turnbow and Jobe 1984:36).

The Goolman faunal assemblage is comparable to other Fort Ancient faunal assemblages (see Breitburg 1992). Remains were mainly deer, but also present were bear and small mammals, turkey, and turtle. The site's botanical assemblage differed substantially from what has been found at Fort Ancient villages (see Rossen 1992a; Rossen and Edging 1987). It consisted of large quantities of nut, some wild plant seeds, and only a little maize (Turnbow and Jobe 1984:37).

Inhabited during the late fall to early spring (Turnbow and Jobe 1984:47), Goolman (and also DeVary) provides evidence for a summer village-winter hunting camp settlement pattern documented historically for native groups in the Midwest (Fitting and Cleland 1969). Several thermoluminescence and radiocarbon dates indicate an A.D. 1400-1645 temporal range for the site's occupation (Turnbow and Jobe 1984:40) (Table 7.5).

Trade goods, most commonly glass beads, have been reported from a few sites in this section (Henderson et al. 1986:127, 128, 154). Historic Indian campsites also have been described for this section, like the one near Bryan's Station occupied by Simon Girty and 600 Indian warriors in 1782 (Henderson et al. 1986:129). The enigmatic Eskippakithiki/Blue Lick Town/Little Pict Town, described in county histories, folklore, and early pioneers' depositions, was allegedly located in the vicinity of Indian Old Fields in eastern Clark County during the mid-1700s. To date, however, attempts by

archaeologists to document a Contact period village or campsite at Indian Old Fields have been inconclusive (Henderson et al. 1986:69-102).

NORTHERN BLUEGRASS SECTION

Archaeological Research Overview

The Cleek-McCabe Site Complex (15Be8, 15Be22, and 15Be23) was the first Fort Ancient site investigated in this section. The University of Kentucky, under the auspices of the WPA, conducted large-scale excavations there in 1939. The McCabe Mound (15Be8) was completely excavated; limited work was done at Cleek Village (15Be22); and the Cleek Mound (15Be23) was not investigated. A report describing this work has never been published, although researchers have examined or analyzed some of the recovered materials (e.g., Goodell 1971; Rafferty 1974).

Little or no Fort Ancient research was conducted in this section until the early 1950s, when the Kentucky Archaeological Society investigated the Bintz site (15Cp1) in Campbell County (Griffin 1953; MacCord 1953). During the following decade, archaeological work along a 52 km-stretch of Eagle Creek in Grant and Owen counties, conducted in advance of a proposed reservoir, produced information on Fort Ancient use of the interior part of this section (Allen 1973; Purrington and Smith 1966; Rolingson 1968). Of the nine sites with documented Fort Ancient components, the most important were the Altman site (15Gr36), the major type site for the Eagle Creek Ceramic Series; and the Green(e) site (15On28) (Allen 1973; Henderson 1998:187-193; Purrington and Smith 1966; Rolingson 1968). At around the same time, a graduate student in education, whose methods of data recovery and documentation were comparable to that of professionals of the time, conducted limited investigations at the Bedinger (15Be486) and Kenney (15Be539) sites. He reported his results on the latter (Schneider 1966; see also Raymer 2006, 2008).

Limited investigations at the Arrasmith site (15Be36) in Boone County were carried out in the late 1970s and throughout the 1980s by Northern Kentucky University field schools, mainly in the southern, “lower” village (Carstens 1977; Thiel 1992; Turnbow 1983). Fort Ancient sites also were documented at Big Bone Lick (Hopgood 1975; Lowthert 1998:54-55; Tankersley 1986:295). An opportunistic survey of Boone County, which focused on Ohio River floodplain and terrace locations, recorded two Fort Ancient sites: McVille Village (15Be231) and Petersburg (15Be6) (Fenwick and Weinland 1978).

Since 1987, several important Fort Ancient sites in this section have been recorded or revisited (Henderson 1995; French et al. 2001; Purtill et al. 2006; Schlarb et al. 2004). Excavations have been undertaken at Petersburg (Breetzke 2006; Henderson 1993, 2006b; Pollack and Henderson 2005a, 2005b) and Site 15Be485 (Purtill et al. 2006). The Northern Kentucky University field school has turned its attention to Dunn Village/Mentor (15Cp40), although the results of that work have not been reported on to date (Donald A. Miller, personal communication 2006).

Several projects have been carried out at Big Bone Lick State Park in Boone County. One of the more significant ones was a systematic survey undertaken by Stokes and Lowthert (1998), during which they revisited/documented ten Fort Ancient sites, including Buffalo Meadows (15Be266), Site 15Be269, and Upson Downs (15Be442). Lowthert (1998) undertook limited investigations at the latter two. At Site 15Be269, Miller and Duerksen (1995) investigated a Late Woodland/Late Fort Ancient thermal feature that was eroding from the bank of Big Bone Creek.

Important Fort Ancient sites identified in this section are listed in Table 7.6.

Chronology

Since 1987, our understanding of Fort Ancient temporal trends in this section has improved immensely, given the research carried out at such diverse sites as Ronald Watson Gravel (Trader 2003; see Chapter 5) and Petersburg (Henderson 1993, 2006b; Pollack and Henderson 2005a, 2005b); at Big Bone Lick State Park (Lowthert 1998); and from the analysis of the Bedinger, Kenney, Arrasmith, and Cleek-McCabe artifact collections and records (Pollack et al. 2008; Raymer 2008). This statement is true, however, only for Boone County. The details of Fort Ancient cultural developments are poorly understood for most of this section and, in particular, its interior.

While the basic outline of a formal phase sequence for this section is emerging, it has not been finalized at this time, and it would be premature to do so here. Therefore, the chronological framework used to structure the presentation of this section's data mirrors those used in the Bluegrass Management Area's other sections and in the other management areas discussed in this chapter (see Henderson et al. 1992; Pollack and Henderson 2000; Turnbow 1988a).

Early Fort Ancient (A.D. 950/1000-1200)

In this section, discussion of the Altman site, which may date very early in the Early Fort Ancient subperiod, is presented first. It is followed by a description of the Bedinger site, which was occupied during the latter part of this subperiod.

The Altman site is a long, narrow (61 by 335 m) site, represented by a light distribution of cultural materials in the floodplain of Three Forks Creek in Grant County. Limited investigations recovered materials exclusively from the plowzone and documented no subsurface features (Allen 1973:7-12).

Rolingson (1968:85-87) defined the Eagle Creek Ceramic Series mainly from the sherds recovered from Altman. Specimens were characterized as hematite and quartz tempered wares with plain or cordmarked exteriors. She considered them Woodland period ceramics. Allen's (1973:46-47) later work at the site questioned Rolingson's temporal assignment for the series, given that the specimens had come from sites with projectile point assemblages that were made up primarily of triangular points. Allen (1973:47) suggested that the materials probably dated to around A.D. 800-1000.

Table 7.6. Important Sites: Northern Bluegrass Section.

Site No.	Site Name	Site Type	References
15Be6	Petersburg	Open habitation w/o mound(s)	Henderson 1993, 2006b; Pollack and Henderson 2005a, 2005b
15Be8/22/23	Cleek-McCabe	Open habitation w/mound(s)	Pollack 1983; Rafferty 1974
15Be36	Arrasmith	Open habitation w/o mound(s)	Carstens 1977; Thiel 1992; Turnbow 1983
15Be50/51	Ogden-Moore	Open habitation w/mound(s)	French et al. 2001
15Be266 (originally 15Be101A)	Buffalo Meadows	Open habitation w/o mound(s)	Hockensmith 1983b; Lowthert 1998
15Be103	Doolin II	Open habitation w/o mound(s)	Hockensmith 1983b
15Be231	McVile Village	Open habitation w/o mound(s)	Fenwick and Weinland 1978; Henderson 1995
15Be269		Special activity area	Miller and Duerksen 1995; Tankersley 1986, 1992
15Be442	Upson Downs	Open habitation w/o mound(s)	Lowthert 1998
15Be476	Combs-Beach Liberty Hill	Open habitation w/o mound(s)	Maley 1997
15Be485		Open habitation w/o mound(s)	Purtill et al. 2006
15Be486	Bedinger	Open habitation w/o mound(s)	Pollack and Stackelbeck 1999; Raymer 2006, 2008
15Be539	Kenney	Open habitation w/o mound(s)	Raymer 2006, 2008; Schneider 1966
15C116		Open habitation w/o mound(s)	Hockensmith 1983b
15Cp1	Bintz	Open habitation w/o mound(s)	Griffin 1953; MacCord 1953
15Cp40	Dunn/Mentor	Open habitation w/o mound(s)	Henderson et al. 1986
15Ga4		Open habitation w/o mound(s)	Hockensmith 1983b
15Gr36	Altman	Open habitation w/o mound(s)	Allen 1973; Purrington and Smith 1966; Rolingson 1968
15Hy2		Open habitation w/o mound(s)	Hockensmith 1983b
15Hy3		Open habitation w/o mound(s)	Henderson et al. 1986
15On28	Green(e)	Open habitation w/o mound(s)	Henderson 1998; Purrington and Smith 1966
15On46	Monterey	Rockshelter	Railey 1985c
15On91		Open habitation w/o mound(s)	Schlarb et al. 2004

Miller and Henderson's (2002) reanalysis of the Altman site's ceramic and triangular projectile point assemblage has revealed important similarities between Altman and diagnostic materials recovered from the Beals Run sites of Paddock 9, DuFont, and Old Springs (Henderson 1997a, 1999a; Miller and Bergman 2000; Striker et al. 1999) in the Central Bluegrass Section. Three equally represented temper types are present in Altman's ceramic assemblage (n=62): limestone alone or with other rock; hematite alone or with other rock; and "grey rock" alone or with other rock (Miller and Henderson 2002). The paste of all specimens contains varying amounts of hematite/manganese inclusions, alone or in combination with tiny fossils. Exteriors are mainly Z-twist cordmarked, though plain surfaces do occur. The sherds were too fragmentary to determine vessel form, but it is presumed that they all derived from jars.

The Altman ceramic assemblage clearly does not resemble Jessamine Series ceramics (Turnbow 1988b), and it does not contain any evidence for the use of shell temper. Instead, these sherds resemble Beals Run Series ceramics in many ways (see previous discussion in the Central Bluegrass Section) (Miller and Henderson 2002). The assemblage does differ somewhat with respect to temper preference: exclusively hematite tempered examples are present at Altman, but are rare within other Beals Run ceramic assemblages; and grit temper and grit mixed with other rock generally occur most frequently within Beals Run ceramic assemblages, but are not present at Altman.

Altman's triangular projectile point assemblage consists mainly of Type 5 and Type 2 fine triangulars, including a few with basal ears (Type 2.1 Fine Triangulars) (Miller and Henderson 2002). Finely serrated examples (Type 3.1 Fine Triangulars) also are present. The Altman triangular point assemblage thus shares important similarities with the Early Fort Ancient Muir assemblage (Sharp 1988:190-197): most examples are Type 2/2.1 and Type 3.1 fine triangulars, but some Type 5 Fine Triangulars are present. It also shares similarities with the triangular projectile point assemblages from Old Springs and Paddock 9, which produced Beals Run ceramics (see previous discussion in the Central Bluegrass Section).

It is tempting to consider that the differences between the Altman site's material culture assemblage and those recovered from Paddock 9 and Old Springs are related simply to sample size and geography. If so, Altman may have been occupied during the very late terminal Late Woodland/very Early Fort Ancient subperiod. This finding would corroborate Allen's (1973:47) suggestion over thirty years ago that was based on very little conclusive information.

Bedinger is a roughly oval-shaped, approximately 1.6 ha village site that sits on an upland ridge in southern Boone County. Limited excavation of this site in the 1960s documented the presence of intact subplowzone deposits extending 20-30 cm below the plowzone, and several pits. Large, dark, circular surface stains are still scattered throughout the site area and several ash pits are present, but there is no evidence of a plaza (Pollack and Stackelbeck 1999). No burials have been reported for the site.

Ceramics are Anderson Series (Essenpreis 1982; Griffin 1943). Slightly more than one-third are tempered with shell only, and about 50 percent are tempered with shell and limestone. The remaining sherds are tempered with limestone. Plain exteriors predominate (Raymer 2006, 2008). Vessels are mainly jars. Direct and incurvate rims occur only slightly more frequently than flaring rims. Appendages consist of parallel-sided and triangular-shaped, thick strap handles, and a few lugs (bifurcated). Decoration consists mainly of fine-line (incised) rectilinear designs: only a few examples of trailed curvilinear designs are present (Raymer 2006, 2008). Triangular points are mainly Type 2 and Type 5 fine triangulars. Other artifacts collected from the site include chipped limestone disks, sandstone discoidals, chunky stones, abraders, bone tools, and sandstone pipe fragments (Pollack and Stackelbeck 1999; Raymer 2006). While the diagnostic attributes of the Bedinger site's artifact assemblage (i.e., limited amount of incising, presence of lug handles, and extensive use of limestone temper) are suggestive of an Early Fort Ancient component, calibrated radiocarbon dates from feature contexts place the occupation late in the Early Fort Ancient subperiod or very early in the Middle Fort Ancient subperiod (Table 7.5).

Middle Fort Ancient (A.D. 1200-1400)

Middle Fort Ancient components in this section have been identified in the Ohio Valley and in the interior. Sites with calibrated chronometric dates located in the former are discussed first (Petersburg, Kenney, Cleek-McCabe Site Complex, and Arrasmith), followed by two sites at Big Bone Lick. A description of the Green(e) site, located in the interior, concludes this subperiod discussion.

The Petersburg site is located on a floodplain terrace overlooking the Ohio River in Boone County. The site's Middle Fort Ancient occupation is significantly smaller than that of the later Fort Ancient village(s). The exact site plan for this component is unknown, but midden deposits and features, including a deep, bell-shaped pit, extend in a heart-shaped area away from the river bank for 250 m and for 250 m along the river (Henderson 1993:91; Pollack and Henderson 2005b). Burial locations have been noted within this area, but given the fact that the later village(s) also were situated in this spot, it is impossible to determine without more research whether any of these cemeteries are related to this earlier Fort Ancient occupation.

The Middle Fort Ancient ceramic assemblage consists of Anderson Series ceramics. Temper is exclusively shell, and only slightly more sherds have plain than cordmarked exterior surfaces (Henderson 1993:30). Vessel forms are almost exclusively jars, and only a few bowls are present. Characteristic Anderson Series rim thickening/rim strips/rim folds are present on most jar rims. Appendages consist of four kinds of strap handles (parallel-sided; triangular; thick parallel-sided; and thick triangular) as well as a few double vertical and tongue-shaped lugs (Henderson 1993:33). Decoration consists mainly of incised/trailed rectilinear and curvilinear guilloche designs on vessel necks. Though the ceramic assemblage is consistent with other Middle Fort Ancient sites, some of the calibrated radiocarbon dates from this site are suggestive of the presence of a somewhat earlier component at this site that has yet to be verified in the archaeological record (Table 7.5).

A few decorated specimens (i.e., those exhibiting vertical stick impressions or cordwrapped dowel impressions) resemble contemporary Oliver phase ceramics from sites like Cox's Woods and Clampitt in south-central Indiana (Redmond and McClough 2000:662-676). Similar examples also have been found at nearby sites in southeastern Indiana and southwestern Ohio, such as Bratfish (Anslinger 1993) and Haag (Reidhead and Limp 1974), respectively.

Locally available river rocks provided the raw material for chipped stone tools (Flood 1993:44). Type 5 and Type 2 fine triangular projectile points predominate (Flood 1993:48). Other chipped stone tools include drills and scrapers. Groundstone artifacts include chipped limestone disks, a grinding stone, and pestle. Plant food remains reflect a heavy reliance on cultivated plants, primarily maize, supplemented by nuts and other wild plant foods similar to the Fort Ancient pattern defined elsewhere (Rossen 1993:59). Animals exploited include deer and turkey; fish and aquatic turtles; freshwater mussels; land turtles; and small mammals (Call 1993; Colburn and White 1993). Though this village is located directly adjacent to the Ohio River, the faunal assemblage contains a

paucity of aquatic fauna. Seasonality data indicated a year-round occupation (Colburn and White 1993:82, 85-86).

The Kenney site is a 4 ha Fort Ancient village situated on an upland ridge in southern Boone County. In the early 1960s, limited excavations documented the presence of over 20 cm of intact deposits below the plowzone and three postholes (Schneider 1966:59). Concentrations of cultural materials are present in the site's northeastern corner and west-central section. These may represent house clusters, but no evidence for a plaza area is present (Pollack et al. 2002b). No burials have been reported for the site. Given Kenney's proximity to Bedinger, and the differences in their respective ceramic assemblages, these two Fort Ancient villages appear to represent an example of village abandonment (Bedinger), followed by the establishment of a new village (Kenney) after at least a 50-year hiatus (Raymer 2005, 2006, 2008).

Ceramics are Anderson Series. The assemblage is mainly plain surfaced and shell tempered (Raymer 2006, 2008). Jars predominate. Appendages consist almost exclusively of thick, parallel-sided or triangular strap handles, with the latter form predominating (Raymer 2008). Decoration consists mainly of trailed curvilinear designs. Several examples of cordwrapped dowell-impressed and obliquely incised thickened rim bands resemble decorations common on Oliver phase ceramics (Redmond and McCullough 2000:662-676).

Relative to the nearby Bedinger site, more sherds are shell tempered in the Kenney site ceramic assemblage and it has more decorated vessel necks and rims. The Kenney assemblage is very similar to the Middle Fort Ancient subperiod ceramic assemblage at Petersburg (Henderson 1993). As with Petersburg, some of the calibrated radiocarbon dates from Kenney are suggestive of the presence of a somewhat earlier component, one that has yet to be verified in the archaeological record (Table 7.5).

Chipped stone tools include triangular projectile points, mainly Type 2 and Type 5 fine triangulars (Raymer 2006) and drills. Other artifacts recovered include chipped limestone disks and sandstone discoidals, celts, sandstone pipes, a cannel coal disk, bone tools (awls, needles, and beamers), animal tooth ornaments, a flute, a few shell beads, shell fragments crudely shaped into a square or rectangle, shell scrapers, and a tapered galena cylinder (Schneider 1966). Food remains recovered included charred maize cobs, fish bones, deer, elk, rabbit, box turtle, beaver, squirrel, raccoon, wild turkey (Raymer 2006; Schneider 1966:57-59).

The Cleek-McCabe Site Complex is located in Boone County on Mud Lick Creek, approximately 11 km from the Ohio River. The site consists of a village midden (Cleek Village [15Be22]) and two low burial mounds (McCabe Mound [Site 15Be8] and Cleek Mound [15Be23]). The three site numbers refer to sections of a single site. Photographs taken after the entire site had been plowed indicate a circular midden pattern with a central plaza (Pollack 1983). The two mounds are located on the eastern (Cleek Mound) and western (McCabe Mound) sides of a 50-60 m wide plaza and are situated within the midden ring.

Limited excavations within the midden ring at Cleek Village documented features that included burned areas, a group of charred logs that undoubtedly represented the remains of a structure, and a single burial (Rafferty 1974:131, 161). This individual was

buried in a flexed to fully flexed position with a broken grooved axe and a projectile point (Cleek Village records on file, William S. Webb Museum of Anthropology). A calibrated radiocarbon date (RL218) from this site on bone collagen yielded the only acceptable date for this site complex (Table 7.5). This date is contemporary with some of the later dates from Petersburg and Kenney, and is suggestive of a thirteenth century site occupation.

The McCabe Mound, completely excavated by the WPA, is the best-documented Fort Ancient burial mound in Kentucky. Cultivated for 50 years, it stood about 1 m high with a diameter of about 30 m at the time it was excavated (Rafferty 1974:116). The size of the Cleek Mound was comparable: it stood about 2 m tall and measured 24 m in diameter (Pollack 1983). The McCabe Mound had been constructed over an earlier village midden, its fill consisting of limestone slabs, village midden, and sterile clay. Rafferty (1974:154-156) noted that the ceramic collections from the mound fill and from the submound midden contained the same pottery types, in approximately the same percentages. Based upon this comparison, she suggested that the mound was built in a short period of time.

Documented within the mound were the remains of 21 individuals and a number of features, consisting of limestone slab platforms/rock pavements/rock concentrations, an area covered with charred twigs, bark, and grass, and a rectangular fire basin. The burials were found within the mound fill or directly above the village midden deposits; plowing had disturbed many of the former. Most of the burials were flexed or semi-flexed, but a few were extended (*contra* Rafferty [1974:159], there were no bundle burials described in the site documents and burial forms [McCabe Mound records on file, William S. Webb Museum of Anthropology]). Only three of the 21 individuals were buried with any items, and a single individual was buried with most of them. Grave goods included chert and antler projectile points, a limestone celt, and drilled animal teeth (McCabe Mound records on file, William S. Webb Museum of Anthropology). Bone collagen radiocarbon samples (RL216 and RL217) taken from two individuals buried in the mound produced unacceptable dates (Table 7.5).

Beneath the mound, investigators documented a rectangular posthole pattern. It represents either a double-walled structure/enclosure or two separate structures/enclosures of single-set post construction (Figure 7.3). The outer pattern measures 17 by 29 m and the inner pattern measures 12 by 24 m. A circular posthole pattern that measures 13 m in diameter was symmetrically situated within the rectangular structures/enclosures. Rafferty (1974) suggested that the circular example predated the rectangular ones. Features located within the rectangular structures/enclosures consisted of fired areas/ash concentrations, a circular prepared clay hearth, and several large pits.

There was no evidence for the presence of domestic structures that would have predated the mound in this section of the village ring. The size of the submound structures/enclosures and the limited feature diversity suggest that specialized activities may always have been carried out in this section of the village. Because the Cleek Mound was not excavated, however, there is no way to know whether the same pattern holds true for the eastern part of the village. Similarly, there is no way to know whether the two mounds were used simultaneously or sequentially.

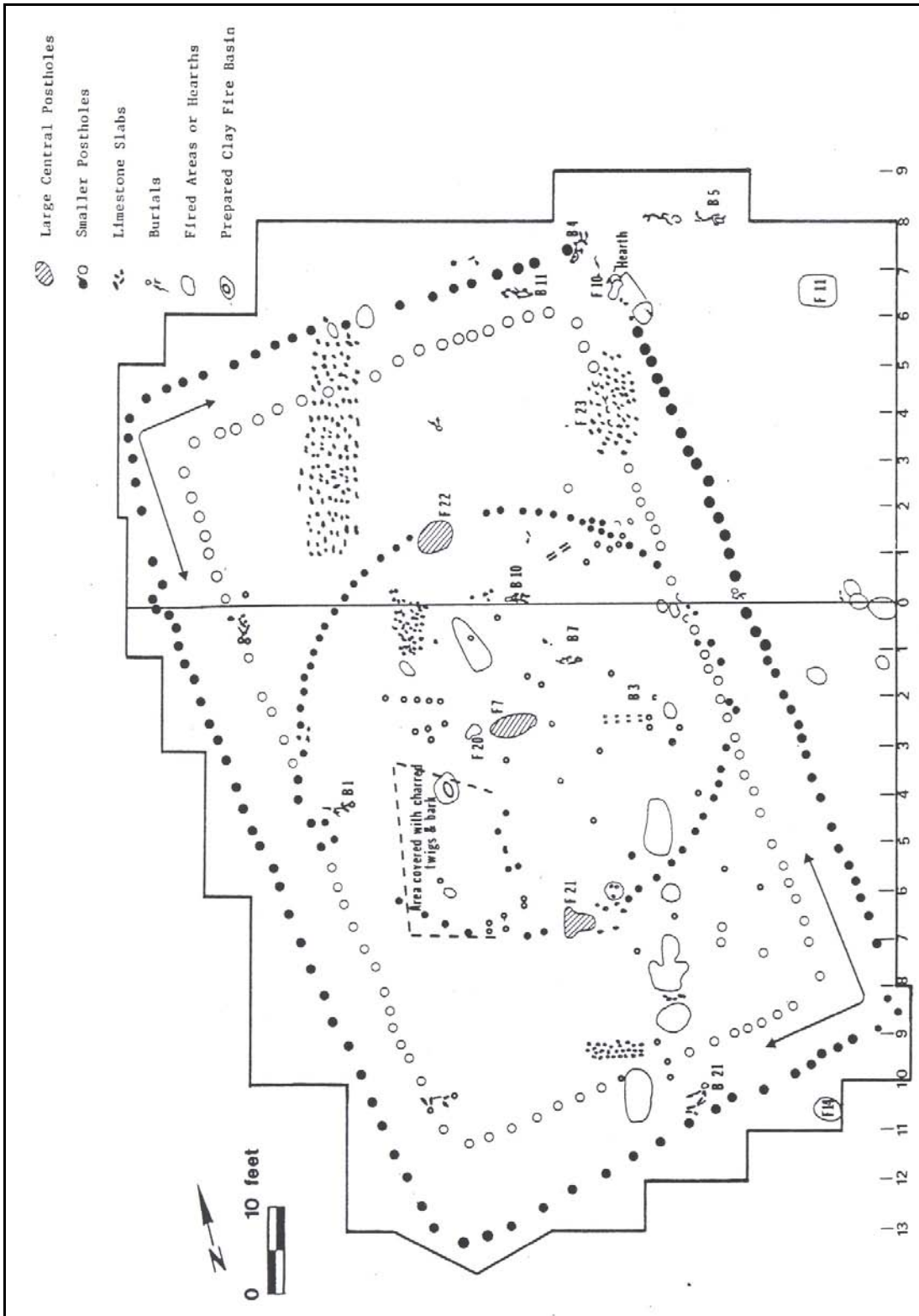


Figure 7.3. Submound structures/enclosures below the McCabe Mound (Rafferty 1974:122).

Like the Petersburg and Kenney ceramic assemblages, the one from Cleek-McCabe is dominated by Anderson Series ceramics. Most have plain exteriors; fewer than one-third of specimen exteriors are cordmarked (Sharp 1990). Other artifacts recovered from the site (but not associated with the burials) include triangular points, drills, discoidals, celts, and axes; ceramic, limestone, and sandstone pipes; and bone awls and drifts (Rafferty 1974).

The Arrasmith site is located in Boone County on a level terrace in the Gunpowder Creek Valley, less than 4 km from the Ohio River (Carstens 1977; Henderson et al. 1986; Thiel 1992; Turnbow 1983). The Fort Ancient occupation of the site is represented by two roughly circular villages with central plazas that sit immediately adjacent to one another on the terrace (Turnbow 1983). The southern “lower” village was occupied earlier than the “upper” northern one.

The southern “lower” village measures 125 m in diameter and exhibits a central plaza that measures approximately 70 m in diameter (Turnbow 1983). A large stone-lined basin surrounded by wall-trench structures was associated with this village (Thiel 1992). This 2.8 m long and 1.4 m wide basin contained two layers of large to medium-sized limestone slabs. An off-center posthole, 20 by 24 cm in diameter, extended through the stone layer into the subsoil. Two fire pits east of the basin were filled with ash and heated/unheated limestone rocks. The structures surrounding the basin suggest rebuilding; the outer one measured 6 by 7 m. The basin is located in the center of both structures. This basin and the structures that surrounded it may have served some sort of ritual purpose, perhaps functioning as a sweat lodge (Thiel 1992:269).

Thiel (1992:269) initially suggested that this feature dated to the early Late Woodland Newtown phase, given the characteristics of some of the diagnostics immediately associated with it, but she acknowledged that the structures more closely resembled Fort Ancient examples. Calibrated radiocarbon dates from this feature and the recovery of Anderson Series-like ceramics from the site suggest that it likely dates to the Middle Fort Ancient subperiod (Table 7.5: all BETA dates). Several burials were found in close proximity to this feature. It is possible that this feature and the burials are associated with a small, low-lying mound.

Recent investigations within the vicinity of the saline springs at Big Bone Lick have demonstrated that the locale was occupied periodically throughout the Fort Ancient period and that Fort Ancient people used the area for a variety of purposes (Lowthert 1998:148-149; Miller and Duerksen 1995; Tankersley 1986). (Note: these sites are not, as Tankersley [1992:107-112] has suggested, either all contemporary or all protohistoric. His functional designations for sites 15Be440 and 15Be265 [Tankersley 1992:110] are similarly incorrect).

Two large, possibly Middle Fort Ancient habitation sites, Buffalo Meadows and Upson Downs, are located on the terraces and floodplains away from the springs (Lowthert 1998:169). Buffalo Meadows may represent a large village (Hopgood and Wagner 1977; Lowthert 1998:154; Stokes and Lowthert 1998; Tankersley 1981). Anderson Series ceramics from this site are mainly shell tempered, although about one-

quarter of the sherds are tempered with shell and grit (Lowthert 1998:73-79). Cordmarked exteriors and plain exteriors occur about equally. Appendages are thick straps, and about 16 percent of the assemblage is decorated with incised designs (Lowthert 1998:76-78). Based on a high percentage of shell tempered ceramics, thick strap handles, incised decoration, and the presence of Type 2 and Type 3 fine triangular projectile points, Lowthert (1998:108, 151-152, 154) dated this site to the Middle Fort Ancient subperiod.

Upton Downs is located across Big Bone Creek from Buffalo Meadows (Lowthert 1998:93-94; Stokes and Lowthert 1998) and could be part of the same site. The midden deposit at this unplowed site is roughly circular, and the density of artifacts recovered from the 10-15 cm-thick midden are suggestive of a household refuse discard area (Lowthert 1998:100, 107). Given the size of the midden, it may represent a small, intensive occupation, but not a village (Lowthert 1998:151). Diagnostic materials recovered include a Type 2 Fine Triangular point and ceramics that are primarily shell and grit tempered, although some are exclusively shell tempered. Plain exterior surfaces predominate. Appendages are thin strap handles. Three decorated sherds were recovered (Lowthert 1998:76, 102, 105). Based on these characteristics, this site was assigned to the Early or Middle Fort Ancient subperiods (Lowthert 1998:151).

The best indication of Fort Ancient occupation in this section outside Boone County comes from the Green(e) site, situated on a floodplain terrace along Eagle Creek in Owen County (Henderson 1998:187; Purrington and Smith 1966). It consists of an 80 by 100 m elliptical midden ring of dark soil and heavy artifact concentration surrounding a circular, slightly depressed plaza area devoid of any materials measuring about 27 m in diameter. No burial mound was observed or documented in association with this village.

Henderson (1998:190-192) analyzed/reanalyzed the extant collections from Green(e) recovered in 1966 and 1992. The projectile point assemblage is primarily comprised of Type 2 Fine Triangulars, but examples of Type 2.1 and Type 5 fine triangulars also are present (Henderson 1998:191). Specimens tempered with shell or a combination of shell and limestone occur about equally, but a few are tempered only with limestone. Plain exteriors only slightly outnumber cordmarked exteriors. Jars were the only vessel form identified, and no appendages were recovered. Decoration includes punctuation on lips, rimstrips, and incising on vessel necks. The site also produced well-preserved human and animal bone, and shell (Henderson 1998; Purrington and Smith 1966).

Although small, the Green(e) site's ceramic sample stylistically appears to more closely resemble Jessamine Series (Central Bluegrass Section) than Anderson Series ceramics. This contrasts with the assemblages from other sites in this section. No chronometric dates are available for this site, but diagnostic characteristics of the artifact assemblage (the percentages of shell tempered, and mixed shell and limestone tempered specimens; and the percentages of cordmarked and plain exterior surfaces) led Henderson (1998:192) to assign its occupation to early in the Middle Fort Ancient subperiod.

Late Fort Ancient/Madisonville Horizon (A.D. 1400-1750)

Sites in this section with Madisonville horizon components have only been documented along or near the Ohio River.

Early Late Fort Ancient (A.D. 1400-1550)

Petersburg's Late Fort Ancient component(s) extend along the riverbank for 540 m and away from the river for 250 m (Henderson 1993:91). Relative to the Middle Fort Ancient occupation, this represents a slight expansion downriver and a significant expansion upriver that almost doubles the site area to encompass 17 ha. As with the earlier village, nothing is known of the later village's internal plan. Given the new data provided by the 2004 investigations (Henderson 2006b; Pollack and Henderson 2005a, 2005b), even the site's post-A.D. 1400 history of occupation is unclear (see following section). Midden deposits, a pit feature, and a hearth have been assigned to the early Late Fort Ancient component. Burial areas may be affiliated with this village, but without further investigation, their age cannot be determined.

Madisonville and Todd series sherds comprise the early Late Fort Ancient ceramic assemblage from Petersburg (Henderson 1993:24-30; 34). Temper is exclusively shell. Madisonville ceramics are cordmarked or plain-surfaced in about equal amounts, although one grooved paddled sherd was recovered. Jar and bowl forms are represented, and some have rimstrips/rimfolds. Appendages on jars are mainly triangular strap handles, and bowls have tab lugs. Decoration consists almost exclusively of incised trailed designs on jar necks (Henderson 1993:29). Most identifiable designs consist of rectilinear guilloche. Aside from the single, Kenton Fabric-Imprinted example, all of the pan specimens are Todd Plain. Of the plain pans that could be assigned to a variety, most are Todd Plain, *var. Fox Farm*.

Most of the triangular projectile points recovered from early Madisonville horizon contexts are Type 5 Fine Triangular points (Flood 1993:48). As with the Middle Fort Ancient occupation, locally available river rocks were used for the manufacture of chipped stone tools (Flood 1993:44). Scrapers, particularly bifacial examples, and drills are assignable to this occupation as well. Subsistence remains are the same as those recovered from the Middle Fort Ancient deposits, and year-round occupation is indicated (Call 1993; Colburn and White 1993:85; Rossen 1993:59). The predominance of Madisonville and Todd series ceramics, the large number of bowls and pans, and the predominance of Type 5 Fine Triangular points, along with calibrated radiocarbon dates (Table 7.5), place this occupation during the early Late Fort Ancient subperiod (A.D. 1400-1550).

The later "upper" village at Arrasmith is located at the northern end of the terrace. Although it is about the same size as the earlier village, measuring 115 by 125 m, it has an oblong plaza (Turnbow 1983). Since the midden is darker and the artifact distribution is denser, it may have been more intensively occupied than the earlier village (Turnbow 1983). Like the two villages at the Florence Site Complex and at Buckner in the Central Bluegrass Section, it is not known whether there is continuity in site occupation at

Arrasmith, or if the site was abandoned for some period of time prior to the later Madisonville horizon occupation. Madisonville series ceramics and chipped stone tools that are similar to those from early Madisonville horizon (A.D. 1400-1550) sites in southwestern Ohio and northern Kentucky have been recovered from this site (Turnbow 1983). These materials, along with two calibrated radiocarbon dates (*contra* Turnbow [1981:8], these dates are separate samples [cf. Sharp 1989:189]), are suggestive of an early Late Fort Ancient period of occupation (Henderson et al. 1986:109; Turnbow 1981) (Table 7.5).

The Bintz site is located on the Ohio River in Campbell County. It consists of two separate midden deposits: one (the “upper village”) is on the first terrace; the other (the “lower village”), which is covered by 50-60 cm of silt, lies next to the river (MacCord 1953). Based on the similarity of the artifact assemblages from the two midden areas, MacCord (1953) interpreted them as being contemporary. However, given their close proximity, it also is possible that these midden areas represent the sequential occupation of a single community, as has been documented at other sites in this section (e.g., Arrasmith) and in the Central Bluegrass Section.

Excavation of approximately 0.8 ha of the upper village documented a midden that ranged in thickness from 25-60 cm, unaligned postholes, hearths, pits, and burials. Interments included two infant burials (one extended and one covered with limestone slabs) and one disarticulated adult burial. Possibly due to historic land modification, no community pattern was recognized.

The Bintz site ceramic assemblage exhibits a great deal of similarity to Madisonville series ceramics and in particular, materials recovered from the later occupation(s) at Fox Farm (Griffin 1943; MacCord 1953). The presence of a large numbers of bowls and pans suggests that the Fort Ancient occupation of this site may date to the early Late Fort Ancient subperiod. Items of personal adornment recovered from Bintz include cannel coal pendants, bone and shell beads, perforated animal teeth, and a single rolled copper bead.

Site 15Be269 at Big Bone Lick, given its proximity (50 m) to the largest currently active spring there, has seen a complex history of human use and occupation (Lowthert 1998:61, 79-92, 152-153; Miller and Duerksen 1995; Tankersley 1986, 1992). The Late Fort Ancient component at the site, represented by a bison kill/butchering feature (Tankersley 1986, 1992) and a thermal feature (Miller and Duerksen 1995) document Fort Ancient people’s use of the salt springs’ mineral resources and also that they hunted in this locale (Table 7.5).

Tankersley (1986:295) documented a disarticulated adult bison at a depth of between 3.08 and 3.38 m below surface at this site. Cut marks were clearly present on some of the bones, and retouched flakes, a basalt scraper, and two shell tempered cordmarked sherds were recovered (Tankersley 1986:295-297). A radiocarbon date (Table 7.5) and the identity of the sherds led Tankersley (1986:295) to infer that Fort Ancient hunters had killed the bison, and he later (Tankersley 1992) assigned a protohistoric date to the bison kill/butchering feature.

Tankersley (1992) also assigned a protohistoric date to all the other sites at Big Bone Lick with Fort Ancient components. This assignment is not supported by

subsequent research at Big Bone Lick, which shows that human occupation and use of the locality spans much of the Fort Ancient period (Lowthert 1998). Nevertheless, the site types that Tankersley (1992:108) hypothesized should be associated with bison hunting (kill and butchering sites; small temporary habitations, and large villages) may have some merit for guiding future research targeting Fort Ancient hunting practices.

The thermal feature documented by Miller and Duerksen (1995) had been impacted by stream bank erosion. In profile, it consisted of a basin-shaped band of burned soil that measured 1.6 m in diameter. A layer of flat limestone rocks lay on the reddened soil, clearly burned and cracked by intense heat. Materials collected from the feature included types 2, 4, and 5 fine triangular points, a Raccoon Notched point, debitage, faunal remains, and ceramics (thin shell tempered plain specimens and thin limestone tempered cordmarked specimens), but no pan fragments (Miller and Duerksen 1995:147-156).

The fact that no pans were associated with this feature is not very surprising: no pans have been recovered from any of the Fort Ancient sites in the Big Bone Lick locale. In fact, archaeologists have found little evidence for prehistoric salt making at salt licks and springs in the Fort Ancient region in general (Boisvert 1984:31-33). This despite the fact that central, northern, and eastern Kentucky is a region with an exceptionally high number of salt licks/springs (Brown 1980:11-17). A few early, second-hand historical accounts describe the recovery of prehistoric pans from the salt springs near Goose Creek in Clay County (in the Interior Mountains Section of the Upper Kentucky/Licking Management Area) (Boisvert 1984:33), but Boisvert's (1984) survey of salt licks in eastern Kentucky failed to document any pans.

Examples of pans have been recovered from Fort Ancient village sites in the Bluegrass and Salt River management areas. Indeed, pans are a diagnostic component of post-A.D. 1400 Fort Ancient ceramic assemblages (Henderson et al. 1992). The appearance of pans at this time may reflect a change in the way Fort Ancient groups processed salt. The use of pans may have increased the amount of salt they could produce, enabling them to exchange salt with outsiders and still retain enough for their own use. Noting the high concentration of salt licks in Kentucky, Pollack and Henderson (1992a:92-95) hypothesized that salt might have been a commodity that Late Fort Ancient people exchanged with Mississippian groups for marine shell gorgets, beads, and ritual knowledge.

The appearance of pans in Fort Ancient village assemblages still begs the question, however: Why aren't pans found at salt springs in the Fort Ancient area? Apparently, Fort Ancient groups processed salt differently than their Mississippian counterparts, for the use of pans in salt production at saline springs in Mississippian areas has been well documented. It takes the form of thousands of fragments of pans, and broad areas of fire-reddened soil, ashy deposits, and charred wood fragments (Brown 1980, 1999; Muller 1984). Perhaps in Fort Ancient domestic contexts, pans served some other function.

Late Late Fort Ancient (A.D. 1550-1750)

Site 15Be485 is a large (5.5 ha.) site located on a broad terrace overlooking the Ohio River in Boone County (Purtill et al. 2006). Three discontinuous patches of intact midden, measuring 8-25 cm thick, were documented in low areas at the site (Purtill et al. 2006:256, 262-263). The midden did not produce any diagnostic Fort Ancient artifacts, and it did not contain large quantities of botanical remains: the only evidence for cultigens was two squash seeds (Purtill et al. 2006:277). However, three calibrated radiocarbon dates, two obtained from wood and one from soil, point to the development of this midden during the late Late Fort Ancient subperiod (Table 7.5). Given the dearth of Fort Ancient artifacts it produced, Purtill et al. (2006:277-278) suggested the midden might have developed as a result of late prehistoric/protohistoric land clearing activities carried out through controlled burning.

Excavation of a protohistoric cemetery at Petersburg in 2004 documented 29 graves that contained 32 individuals (Henderson 2006b; Pollack and Henderson 2005a, 2005b). Most of the graves were oriented perpendicular to the river and appear to have been arranged in rows. Most individuals were buried in oval pits dug into the ground, although a few were buried in stone-lined graves and covered with a stone cap. Most were laid-out singly, on their back, in an extended position in the grave. The exceptions were two bundle burials, and two graves that contained two individuals each. There was no evidence for selective removal of long bones, like that documented at Larkin (Pollack et al. 1987). Comparisons to other Ohio Valley protohistoric components, such as Madisonville (Drooker 1997; Hooton and Willoughby 1920) and Hardin Village (Hanson 1966; Holmes 1994), coupled with the recovery of copper ornaments from the Petersburg graves, indicate that this cemetery was used sometime during the early A.D. 1600s (Pollack and Henderson 2005b).

The Petersburg cemetery differs from other protohistoric Fort Ancient cemeteries, like those at Madisonville and Hardin Village, in that males predominate (75 percent); no children are present (i.e., individuals under the age of 12); and most individuals were 20 to 35 years old when they died (Pollack and Henderson 2005a). This suggests that a restricted segment of the village was buried in this cemetery or that it was some sort of special burial locale (Pollack and Henderson 2005a).

Grave goods (either ornaments worn by the individuals or items placed with them in the grave) were found with 48 percent of the complete individuals. They included bone and shell (disc and marginella) beads, a shell pendant, whole ceramic jars, triangular projectile points, celts, an abrader, stone pipes (vasiform, zoomorphic, and elbow), and animal parts like a raven wing and beak, and a wolf jaw pendant. Five individuals were buried with copper ornaments consisting of rolled tube beads, clips, a tinkling cone, a rolled hair ornament, and a barred pendant. Based on the kinds of grave goods and their location in the grave (cf. Drooker 1997:272-280), it can be inferred that some of these individuals held positions of political and/or religious authority within the Petersburg settlement, as well as within the Ohio Valley at-large (Henderson 2006b, Pollack and Henderson 2005a).

Historic documents describe indigenous salt making at Big Bone Lick and camps in its vicinity in the mid-1700s (Henderson et al. 1986:107-108). Blue faceted glass beads similar to ones that date to the late 1700s-early 1800s have been recovered from the surface at Arrasmith (although exactly where at the site these artifacts came from is unknown). Their presence may indicate that this site saw some kind of indigenous occupation during the Contact period (Henderson et al. 1986:109).

EASTERN BLUEGRASS SECTION

Archaeological Research Overview

Investigations at the Fox Farm site (15Ms1) were carried out in 1895 by the American Museum of Natural History under the direction of Harlan I. Smith. They are the earliest directed investigations at a Fort Ancient site in Kentucky. During the three months Smith spent at the site, he excavated five mounds and a large number of burials. Smith's (1910) report was written more as an ethnography than as an archaeological study. It does not contain a site map nor is artifact provenience information provided. An attempt to locate Smith's field notes at the American Museum of Natural History was unsuccessful (Sharp 1990:490).

During the 1920s, Funkhouser and Webb investigated several Fort Ancient sites in this section, including Fox Farm (Funkhouser and Webb 1928, 1932:21-22; Webb 1927) and the S.S. Clay Mound (15Ni1) (Funkhouser and Webb 1928:85-91, 1932:21-22). Few professional investigations of Fort Ancient sites occurred between the 1930s and 1940s, but during this period, Griffin (1943) analyzed and described some of the Fox Farm materials recovered by Smith, and Funkhouser and Webb, and some of the S. S. Clay Mound materials recovered by Funkhouser and Webb. Griffin (1943:167-179) established seven Fort Ancient ceramic types based on his analysis of the Fox Farm material.

A few Fort Ancient sites were investigated during the 1950s and 1960s. Snag Creek (15Bk2) (Clay and Galloway 1960) was recorded as part of a research project, while work was conducted at Augusta (15Bk4, 15Bk9, and 15Bk200) (Webb 1955; Woodbury 1955) due to the inadvertent discovery of burials by local residents.

Compliance projects carried out during the 1970s and 1980s generated important new information on Fort Ancient sites in the Eastern Bluegrass Section. Construction of a sewage treatment system in the Town of Augusta (15Bk200) resulted in additional investigation at this Fort Ancient village (Granger and DiBlasi 1983; Hale 1981; Hockensmith 1981), and work in advance of the proposed Carrs Power Plant locale in Lewis County documented two Fort Ancient sites (15Lw34 [309A] and 15Lw119 [335]) (Schock and Langford 1980; Schock and Weis 1978). In 1979, an opportunistic survey of Fleming County recorded four Fort Ancient sites, the most significant being Site 15Fl19A (Fenwick 1979:93-96).

In the mid-1980s, four Fort Ancient sites in this section were investigated as part of the Kentucky Fort Ancient Research Project: Fox Farm, Augusta, Snag Creek, and Laughlin (15Lw13) (Henderson 1992b; Henderson and Turnbow 1987; Henderson et al. 1986). Two sites (Thompson [15Gp27] and Bentley [15Gp15] in the Lower Big Sandy Section also were investigated as part of this project. Since the Laughlin site is located near Thompson and Bentley, it is discussed in the Lower Big Sandy Section.

Very little Fort Ancient research of any significance has been carried out in this section since 1987. Surveys documented two Fort Ancient sites: Site 15Lw190, a village and cemetery in Lewis County (Sussenbach 1991); and Indian Bend (15Ni49), an open site in Nicholas County with intact subsurface Fort Ancient deposits (Schlarb 2001). No further work has been conducted at either site.

Important Fort Ancient sites identified in this section are listed in Table 7.7.

Table 7.7. Important Sites: Eastern Bluegrass Section.

Site No.	Site Name	Site Type	References
15Bh17 ¹	Roberts	Open habitation w/o mound(s)	Purrington and Smith 1967; Rolingson and Rodeffer 1968
15Bh56 (257)	Richards	Open habitation w/o mound(s)	Henderson et al. 1986; Mañosa and Mattox 1998
15Bk2	Snag Creek	Open habitation w/o mound(s)	Pollack and Jobe 1992
15Bk3		Open habitation w/o mound(s)	Hockensmith 1983b
15Bk13	Turtle Creek	Open habitation w/o mound(s)	Henderson 1985b; Henderson et al. 1986
15Bk4/9/200	Augusta	Open habitation w/o mound(s)	Granger and DiBlasi 1983; Hale 1981; Jobe and Turnbow 1992a;
15F119A		Open habitation w/o mound(s)	Fenwick 1979
15Lw13 ²	Laughlin	Open habitation w/o mound(s)	Henderson and Pollack 1992a; Henderson and Turnbow 1987
15Lw34 (309A)		Open habitation w/o mound(s)	Schock and Langford 1980; Schock and Weis 1978
15Lw190		Open habitation w/o mound(s)	Sussenbach 1991
15Ms1	Fox Farm	Open habitation w/mound(s)	Griffin 1943; Smith 1910; Turnbow 1992
15Ms3	Henry Pyles	Open habitation w/o mound(s)	Henderson et al. 1986
15Ms52	Van Meter	Open habitation w/o mound(s)	Railey 1985d
15Ni1	S.S. Clay	Open habitation w/mound(s)	Funkhouser and Webb 1928; Griffin 1943; Henderson 1998
15Ni49	Indian Bend	Open habitation w/o mound(s)	Schlarb 2001
¹ Discussed in the Gorge Section of the Upper Kentucky/Licking Management Area due to the closer physiographic and cultural affiliation with that section.			
² Discussed in the Lower Big Sandy Section of the Big Sandy Management Area due to the closer cultural affiliation with that section.			

Chronology

A four-phase Fort Ancient chronological sequence was developed for this section in the late 1980s (Henderson and Turnbow 1987; Henderson et al. 1992). The earliest

phase, Croghan (A.D. 1000-1200), was defined from research conducted at the Thompson site in the Lower Big Sandy Section of the Big Sandy Management Area. The Croghan phase will be discussed in that section. The Manion phase (A.D. 1200-1400) was defined exclusively from research carried out at Fox Farm. Investigations conducted at Fox Farm, Snag Creek, and Augusta were used to define the Madisonville horizon, which was divided into two phases, Gist (A.D. 1400-1550) and Montour (A.D. 1550-1750).

Early Fort Ancient (A.D. 1000-1200)

To date, no Early Fort Ancient sites have been documented in this section. This absence is almost certainly due to a lack of investigation rather than to an absence of Early Fort Ancient components. As more work is conducted, Croghan phase materials likely will be recovered from sites in the eastern half of this section, given its proximity to the Lower Big Sandy Section. Likewise, Eagle Creek-like/Anderson-like materials should be found in the central and western parts of this section, given their proximity to the Northern Bluegrass Section.

Middle Fort Ancient (A.D. 1200-1400)

Sites assignable to two different Middle Fort Ancient phases have been documented in this section: Manion and Elkhorn.

Manion Phase

Fox Farm is situated on a broad, gently rolling ridgetop located south of the North Fork of the Licking River in Mason County. Estimates of the site's size range from 10 to 16 ha. Smith (1910:227-228) reported five low earthen mounds, two altars (fire basins filled with ash) and 208 burials at this site, but no maps are available to indicate exactly where he worked, and it is impossible to determine the age of the deposits and features he encountered.

In the late 1980s, additional work at this site documented three Fort Ancient components at this site (Turnbow 1992). The Middle Fort Ancient occupation is represented by a 40 cm-thick midden, an ash pit, and a basin-shaped pit (Turnbow 1992). Calibrated radiocarbon dates indicate that this occupation took place between A.D. 1200 and 1400 (Table 7.5) (Turnbow 1992:67).

Ceramics recovered from the midden deposits include mainly Fox Farm Cordmarked (Griffin 1943), along with moderate quantities of Lees Plain (a diagnostic Manion phase ceramic type) and a few Fox Farm Net-Impressed sherds (Turnbow 1992:60). While Griffin described Fox Farm Cordmarked as being tempered with coarse shell particles, in the Manion phase deposits at Fox Farm, almost one-fifth of the sherds are tempered with a combination of shell and limestone or with limestone only. Over half of the sherds are cordmarked (Turnbow and Henderson 1992a:118-119). Vessels are almost exclusively jars that have direct or slightly flaring rims and flattened lips (Turnbow and Henderson 1992a:120). The most common appendages are double vertical

lugs, although thickened parallel-sided strap handles are present. Decoration is not particularly common and primarily consists of wide line incising (trailed) and/or punctations on jar necks, and burnishing or punctations on vessel lips (Turnbow 1992:6; Turnbow and Henderson 1992a:124-125).

In terms of the lithic assemblage, Type 3 Fine Triangular projectile points occur most frequently, followed by Type 4 and Type 5 fine triangulars. Other kinds of stone tools include spike drills, sandstone discoidals, and pipe fragments (Turnbow 1992:61, 65).

Archaeobotanical remains recovered from the Manion phase deposits at Fox Farm reflect a heavy reliance on maize and *Phaseolus* spp. beans (Rossen 1992a; Wagner 1984:55-60). No evidence of tobacco was found at the site (*contra* Wagner 1987:106). Like other Kentucky Fort Ancient sites, the density of nutshell is rather low (Rossen 1988, 1992a; Rossen and Edging 1987). Similar to other Kentucky Fort Ancient sites, faunal remains indicate a reliance on large mammals (deer, elk, and bear) (Breitburg 1992). Worked bone artifacts include awls, beads, and elk tooth pendants, and worked shell includes a disk bead and a pendant (Turnbow 1992:66).

The Van Meter site (15Ms52), situated on the floodplain at the confluence of two branches of Flat Creek, is located near Fox Farm. It may represent another Manion phase settlement in Mason County. This site measures at least 150 by 370 m and does not appear to have a central plaza (Railey 1985d). A burial mound is located at its southern end.

Elkhorn Phase

The S. S. Clay Mound and Village site in Nicholas County sits on a narrow upland ridgetop near its crest and extends slightly southwest and downslope (Henderson 1998:248-254). Site size can be estimated at 120 by 130 m (Henderson 1998:252).

Very little information is available about the village. Funkhouser and Webb (1928:85) noted that mussel shell, animal bone, and “considerable” amounts of pottery were present in the field around the mound, and they collected some limestone disks, which were described as characteristic and very abundant (Funkhouser and Webb 1928:91). These materials document the presence of a village of unknown size in association with the mound. It is not known if the mound was located within the midden ring, as at the Cleek-McCabe Site Complex (see Northern Bluegrass Section), or within the plaza, as at Florence Site Complex Site 15Hr22 (see Central Bluegrass Section).

More is known about the mound. The Clay Mound measured ca. 18 m in diameter and stood 1.5 m tall, though plowing undoubtedly had reduced its height. Built directly on the subsoil, which may have been prepared as a platform, a layer of ash and flat limestone rocks underlay the dark mound matrix, which contained human and animal bone, mussel shell, sherds, some chert, and shell and bone artifacts. The rock was most abundant in a rough circle around the outer part of the mound (Funkhouser and Webb 1928:86).

The 15 individuals interred in this mound had been buried in a variety of positions: flexed (n=4); extended (n=3); or sitting/standing/slanting (n=3); or as a bundle (n=1) (Funkhouser and Webb’s [1928:87-89] age and sex data may not be reliable). Rocks were

associated with some graves, placed under or over the body, but it is unclear if this was intentional. Artifacts associated with the burials were primarily bone and shell ornaments (gorgets, pendants, and beads) (Griffin 1943:Plate XCVII, Plate XCVIII). Items of everyday use (chipped stone tools, a bone awl, bone needles, and antler points) had been placed in many graves. A few ritual items (hawk skull headdress, sandstone pipe, and sandstone discoidal) were found with two individuals.

The shell gorgets were mainly plain with central or perimeter holes. The two largest ones had scalloped edges and appeared to be decorated with geometric designs filled with drilled dots (the drilled dots are similar to those on the New Field gorget; see the Central Bluegrass Section). Although the most complete was described as a “rattlesnake design” (Funkhouser and Webb 1928:196), it looks more like a spiral. The perforated circular shell gorgets are identical to a specimen recovered from the Florence Site Complex Site 15Hr22 (Sharp and Pollack 1992:207), while the triangular shell pendants are identical to those found at Fox Farm (Jobe and Turnbow 1992b). Also recovered from the mound, but not in association with any burials, were sandstone disks and discoidals, antler fragments from which the tips had been removed, and antler points (Funkhouser and Webb 1928:91).

Ceramics are Jessamine Series (Henderson (1998:248-254), which led to the assignment of this site to the Elkhorn phase. Mixed shell and limestone tempered, and shell tempered sherds occurred in about equal amounts. Exteriors are mainly cordmarked, and jars are the exclusive vessel form. Decoration consists of a lip node, rimfolds, and incised lines on vessel necks (Henderson 1998:253-254). Triangular projectile points include Type 2, Type 3/3.1, and Type 5 fine triangulars. Characteristics of the ceramic and triangular projectile point assemblage, coupled with the recovery of chipped limestone disks, indicate that the village, and probably the mound, date to the Middle Fort Ancient subperiod, with an estimate of relative age suggesting an early Middle Fort Ancient occupation (Henderson 1998:252).

Late Fort Ancient/Madisonville Horizon (A.D. 1400-1750)

Early Late Fort Ancient Gist Phase (A.D. 1400-1550)

Gist phase components in this section have been identified at Snag Creek and Fox Farm, and may be present at Turtle Creek (15Bk13). The Snag Creek site is located on a terrace overlooking the Ohio River floodplain in Bracken County. It covers approximately 6.7 ha (Pollack and Jobe 1992). Little is known about its internal organization. Limited excavations at this site documented intact midden deposits that averaged 10-20 cm thick, and several features, consisting of basin-shaped pits, shallow pits, and burials (Pollack and Jobe 1992:71-75). One of the burials was excavated. The individual was an adult male, buried in an extended position on his back. He was covered with limestone slabs shingled from the center to the sides of the grave (Fouts 1992:185). No grave goods were observed. Based on the characteristics of the site’s artifact assemblage and calibrated radiocarbon dates, Pollack and Jobe (1992:75) determined that the site was occupied between A.D. 1400 and 1500.

The Snag Creek ceramic assemblage is dominated by Madisonville and Todd series ceramics. Plain and cordmarked exterior surfaces occur in nearly equal amounts (Turnbow and Henderson 1992a:119). Jars are globular in shape and exhibit flaring rims. Jar appendages consist mostly of thin, triangular or parallel-sided strap handles. Decoration is common. On jars, it takes the form of incised decoration on the neck, with both curvilinear and rectilinear guilloche motifs present (Turnbow and Henderson 1992a:124). Very few lips are decorated (Turnbow and Henderson 1992a:124). Bowls are hemispherical and usually plain surfaced. Some are decorated with a horizontal notched or “beaded” strip of clay added just below the rim. Tabs and possibly effigy “rim riders” also are attached to bowls. Pans have either plain (Todd Plain, *var. Fox Farm*) or fabric-impressed (Kenton Fabric-Imprinted) exteriors and most have thickened rims.

Triangular projectile points are mainly Type 5 Fine Triangulars, followed by Type 2 and Type 6 fine triangulars. Groundstone artifacts include an abraded, manos, and pitted stones. Worked bone artifacts include awls and a drilled dog canine; and shell artifacts include a disk bead, a marginella shell bead, and a shell pendant (Pollack and Jobe 1992:78-81). Subsistence information from Snag Creek is the same as that documented for other Fort Ancient sites in this section (Breitburg 1992; Rossen 1992a).

Gist phase midden deposits at Fox Farm are represented by a 10-20 cm-thick midden and an ash-filled, basin-shaped pit (Turnbow 1992:59). Funkhouser and Webb (1928:101-103) excavated 25 stone box graves at Fox Farm. Given their salient characteristics (the boxes usually contained multiple individuals, with one in anatomical order and the other disarticulated and badly fragmented), they also may date after A.D. 1400. Based on the characteristics of this component’s artifact assemblage and calibrated radiocarbon dates (Table 7.5), Turnbow (1992:67) assigned this component to the Gist phase.

The Fox Farm Gist phase ceramic assemblage consists mainly of Madisonville and Todd series ceramics, although small quantities of McAfee Series ceramics also were recovered (Turnbow 1992:66). Slightly more sherds with cordmarked than plain exteriors are present, and minor amounts of check-stamped specimens also were recovered. Globular jars, bowls, and pans (Todd Plain, *var. Fox Farm*) are present in the assemblage. Decoration is not common; when present, it consists of lip notching, incised designs on jar necks, and beading or nodes on hemispherical bowls (Turnbow 1992:66-67). Other clay objects consist of clay beads and ceramic disks. Diagnostic lithics include Type 4, Type 5, and Type 6 fine triangular points, t- and y-shaped drills, grinding slabs, a stone palette or tablet, and pipe fragments. Worked bone awls and beads also were recovered (Turnbow 1992:67). The subsistence remains recovered from this component are similar to those recovered from the Manion phase deposits.

Late Late Fort Ancient Montour Phase (A.D. 1550-1750)

The Augusta site in Bracken County is a good example of a Montour phase community. Like Petersburg, this village is situated on a terrace adjacent to the Ohio River.

The archaeological site of Augusta has been known since the early 1800s, due in large part to the dense concentrations of graves associated with this Fort Ancient village (Collins 1847; Hale 1981:70-85; 87; Rafinesque 1824; Jobe and Turnbow 1992a:84). Snow and Woodbury (Webb 1955) excavated five burials at the site and recovered a polished argillite disk pipe and two weeping eye shell mask gorgets. Hale (1981) investigated five burials in the western portion of the site (two men, two women, and an infant). The graves were in various stages of disturbance, but limestone slabs covered or were associated with most of the adults. Each individual was laid out in an extended position. Grave goods included a drilled slate pendant, projectile points, and a Madisonville Plain jar (placed near the head). The infant was buried with a Madisonville Cordmarked jar that had a shell spoon inside it (Hale 1981:81).

Based on his excavations, Hale (1981:198-201) suggested that two Fort Ancient occupations were present at Augusta, while Granger and DiBlasi (1983) suggested that the site contained one Late Fort Ancient component. Excavations conducted in 1984 confirmed that the site contained one Montour phase occupation (Jobe and Turnbow 1992a:97). This work documented 65 cm of deposits. The midden was stratified, with 15 cm of nearly sterile soil separating two zones. Several features also were documented: postholes, a basin-shaped pit, and a burial, which was not excavated (Jobe and Turnbow 1992a:92). Based on the artifacts recovered and the calibrated dates, Jobe and Turnbow (1992a:89-95) suggested that Augusta had been occupied between A.D. 1550 and 1650.

The Augusta Montour phase ceramic assemblage is composed exclusively of Madisonville and Todd series ceramics (Jobe and Turnbow 1992a:94). Sherds with plain or cordmarked exterior surfaces occur in about equal amounts and dominate the assemblage, but examples of net-impressed and grooved paddled sherds also are present. Jar rims are flared, and thin, triangular strap handles, often accompanied with lip notching above the handle, are common. Incised decoration on the neck area of jars is not common (Turnbow and Henderson 1992a:124). Indeed, the Augusta assemblage is distinctive for its high percentage of lip notching and infrequent use of incising. Bowls make up almost half of the assemblage, and lip notching is common. Todd Plain, *var. Augusta* pans, which have a more bowl-like shape and lack the thickened rim of Todd Plain, *var. Fox Farm* pans, are more common. However, Todd Plain, *var. Fox Farm* and Kenton Fabric-Imprinted pans with thickened lips also are present. Other ceramic objects include ceramic disks and pipe bowl fragments (Jobe and Turnbow 1992a:94).

Most of the triangular projectile points from Augusta are Type 5 and Type 6 fine triangulars, although a few Type 4 examples were recovered (Jobe and Turnbow 1992a:94). Also present are bifacial teardrop-shaped endscrapers; celts, abraders, manos, and metates; a shell hoe; bone awls and a beamer; a “claw-shaped” cannel coal pendant; and a bear tooth pendant, bone beads, and antler drifts (Granger and DiBlasi 1983; Hale 1981; Hockensmith 1981; Jobe and Turnbow 1992a). The site produced limited subsistence information, but what was recovered was comparable to other Fort Ancient sites (Breitburg 1992; Rossen 1992a).

Although no Euro-American trade items have been recovered from Augusta by professional archaeologists, collectors report finding rolled copper beads, a small copper mask pendant, a copper snake pendant, and glass trade beads (Henderson et al. 1986:117; Jobe and Turnbow 1992a:96).

A Montour phase component also may be present at Fox Farm (Turnbow 1992). Griffin (1943) reports Webb's recovery of copper/brass artifacts and shell mask gorgets, and collectors also report finding metal artifacts at Fox Farm, mostly with burials in a restricted area (west side) of the site (Henderson et al. 1986:157). These include copper or brass tube beads or pendants, and a barred copper pendant like those recovered from Madisonville, Hardin Village, and Petersburg (Drooker 1997:274-275; Henderson 2006b; Henderson et al. 1986:137, 157). The recovery of engraved rattlesnake and weeping eye shell mask gorgets, and a possible disk pipe also are suggestive of a protohistoric component at Fox Farm (Henderson et al. 1986:157).

European trade goods also have been reported from a few other sites in this section. Collectors found a copper tinkling cone, a rattlesnake gorget, and catlinite artifacts in association with extended burials covered with shingled rock slabs at the Henry Pyles site (15Ms3); and a metal and shell necklace or bracelet at Turtle Creek (Henderson et al. 1986:118, 158). A tinkling cone reportedly came from the surface of Snag Creek, which may have been the locus of a 1791 Native American camp (Henderson et al. 1986:122).

SITE DISTRIBUTION PATTERNS

The Bluegrass Management Area contains the greatest number of Fort Ancient sites in the state (n=523) (Table 7.8). This represents an over five-fold increase in the number of Fort Ancient sites since 1987, and is a reflection of both the management area's size (29 counties) and the intensity of investigations that have been conducted within its borders.

Table 7.8. Bluegrass: Site Type by Management Area Section.

Site Type	Central	North	Eastern	Total	Percent
Open Habitation Without Mound(s)	339	88	49	476	91.0
Rockshelter	6	1	0	7	1.3
Stone Mound	6	0	0	6	1.2
Earth Mound	1	0	0	1	0.2
Workshop	2	0	1	3	0.6
Isolated Burial	3	0	2	5	0.9
Cemetery	6	0	5	11	2.1
Specialized Activity Site	1	1	0	2	0.4
Open Habitation With Mound(s)	7	2	3	12	2.3
Total	371	92	60	523	
Percent	70.9	17.6	11.5		100.0

Almost three-quarters of the Fort Ancient sites in this management area are located in the Central Bluegrass Section (Table 7.8). The Northern Bluegrass Section is second, and the Eastern Bluegrass Section has the lowest number of sites in the management area. Only the Upper Big Sandy Section, with its two counties, has fewer recorded Fort Ancient sites than the Eastern Bluegrass Section.

The distribution of Fort Ancient sites in the Bluegrass Management Area is undoubtedly a reflection of the intensity of archaeological investigations conducted in each section, rather than a reflection of prehistoric demography. For example, Fox Farm is one of the largest and most intensively occupied Fort Ancient sites in Kentucky; however, it is located in the Eastern Bluegrass Section, which has the lowest number of Fort Ancient sites in this management area. The Central Bluegrass Section has the greatest diversity of Fort Ancient site types in the Bluegrass Management Area, and for all the other management areas as well.

Open habitations without mounds comprise the majority of Fort Ancient site types in this management area (91 percent), followed distantly by open habitations with mounds, and cemeteries (Table 7.8). A few other site types occur in low numbers. Rockshelter sites are present in two of the three sections, but this kind of site does not occur as frequently as it does in other management areas, particularly the Gorge Section of the Upper Kentucky/Licking Management Area. This is not surprising, however, since the physiography of the Bluegrass Management Area is not conducive to the development of rockshelters.

Some differences in site types exist among the three sections (Table 7.8). Workshop sites, isolated burials, and cemeteries are documented for only the Central Bluegrass and Eastern Bluegrass sections, while stone mounds and earth mounds are recorded only for the Central Bluegrass Section. Rockshelters and specialized activity areas are recorded only for the Central Bluegrass and Northern Bluegrass sections.

UPPER KENTUCKY/LICKING (MANAGEMENT AREA 6)

The Upper Kentucky/Licking Management Area is divided into two sections: the Gorge and the Interior Mountains. It is largely contained within the mountainous Cumberland Plateaus Physiographic Region.

Because of its location and mountainous terrain, some investigators (Sharp 1990:511) have questioned whether post-A.D. 1000 sites in this management area should be considered Fort Ancient. While the high percentage of knot-roughened/net-impressed sherds in some site ceramic assemblages (Cowan 1975, 1976; Purrington 1967b:138) may reflect a degree of interaction/affiliation with groups located to the south and east (i.e., the Intermontane Culture [MacCord 1989; see also Egloff 1992; Graybill 1988]), this single material culture trait, in and of itself, does not provide a convincing enough argument to assign these sites to another cultural manifestation. Thus, for the purposes of this chapter, all sites with post-A.D. 1000 components located in this management area have been classified as Fort Ancient.

Given this management area's proximity to the upper reaches of the Cumberland River, evidence for interaction on a limited scale with Mississippian groups or other tribal societies would not be surprising, either. Post-A.D. 1000 sites documented within counties on the southern periphery of this management area within the Cumberland River drainage (Clay, Jackson, Leslie, Letcher, Perry, and Rockcastle) have the potential to be assigned to either the Fort Ancient or Mississippian periods. This assignment often depends on the investigator's research orientation.

GORGE SECTION

Archaeological Research Overview

Due to the unique preservation potential of rockshelter environments, these types of sites have long been a major focus of archaeological investigation in this section, irrespective of their period of occupation. In the late 1920s and early 1930s, Webb and Funkhouser (1936; see also Funkhouser and Webb 1929, 1930) conducted excavations at dry rockshelters in Lee, Menifee, Powell, and Wolfe counties. The recovery of perishable materials that are rarely preserved in most archaeological contexts, such as cordage and textiles, provided archaeologists with new insights into prehistoric Native American material culture. Jones' (1936) study of the botanical remains from Newt Kash Hollow (15Mf1) constitutes one of the earliest studies of plant remains from archaeological contexts in eastern North America.

Most of the deposits in these rockshelters dated to the Woodland or Archaic periods, but the upper levels of some, like Red Eye Hollow (15Le1), Steven DeHart (15Po1), John Malone (15Wo12), and Green Gentry (15Wo14) (Funkhouser and Webb

1930; Funkhouser and Webb 1932; Webb and Funkhouser 1936), yielded shell tempered ceramics, triangular projectile points, and/or maize remains.

Hanson's survey of the Cave Run Reservoir in 1964 marked the next phase of research in this section. The area slated for inundation included parts of Bath, Menifee, Morgan, and Rowan counties (Hanson 1964). Four sites produced Fort Ancient materials, but only one, the Roberts site (15Bh17), yielded evidence of an intensive Fort Ancient occupation. Over 100 m² were excavated at this site in six areas (Purrington and Smith 1967; Rolingson and Rodeffer 1968).

The most detailed information on Fort Ancient sites in the Gorge Section was generated between 1966 and 1977 by research carried out in the proposed Red River Lake area/Red River Gorge Geological Area (Turnbow 1976; Wyss and Wyss 1977). Surveys of the North Fork of the Red River Valley in Menifee, Powell, and Wolfe counties provided information on site distribution and densities (Cowan 1974a, 1975; Cowan and Wilson 1977; Fryman 1967; Turnbow 1976; Wyss and Wyss 1977). Several single component Fort Ancient sites were documented, including rockshelters and open habitation sites (Wyss and Wyss 1977:200-211; cf., Site 15Mf151). An opportunistic survey of Powell County, focused on open areas along the Red River and its tributaries, documented two sites that produced single examples of triangular points (Weinland and Sanders 1977).

Limited excavation of selected sites in the Red River Gorge area helped clarify the prehistoric cultural sequence in this portion of the Gorge Section (Cowan 1975, 1976). Fort Ancient period sites that were investigated include Martin (15Po42) (Cowan 1975, 1976), Anderson (15Po31), and Shepard (15Po46) (Cowan 1976). Often investigators went far beyond the scope of work required, and whenever possible, they recorded sites or initiated volunteer work at important sites, some of which were located outside the project area boundaries. For example, under professional supervision, students from the University of Kentucky and members of the Red River Historical Society excavated the William S. Webb Memorial Rockshelter (15Mf32) (Cowan 1975:101-102). After the late 1970s, few Fort Ancient sites were documented or investigated in this section.

Since 1987, only a few Fort Ancient sites have been recorded and investigated. Some were targeted as a result of federal cultural resource management legislation. Limited investigations were carried out at Lindon Fork Rockshelter (15Wo107) (Niquette and Hughes 1992), and the Elk Fork site (15Mo140) was excavated (Herndon 2008b; Martin 2002). Three undisturbed rockshelters with Fort Ancient occupations were recorded as a result of state-funded projects: Raised Spirits (15Po331) (Shields 1998), and Twin Branch (15Wo232) and Daytona Radial Stag (15Wo233) (Schlarb 2006). Limited excavations were conducted at Raised Spirits and Twin Branch (Pollack and Schlarb 2004; Schlarb et al. 2002; Eric Schlarb, personal communication 2006).

Table 7.9 lists important Fort Ancient sites identified in the Gorge Section.

Table 7.9. Important Sites: Gorge Section.

Site No.	Site Name	Site Type	References
15Mf32	William S. Webb Memorial	Rockshelter	Cowan 1974b, 1975
15Mf144		Rockshelter	Wyss and Wyss 1977
15Mf147		Rockshelter	Wyss and Wyss 1977
15Mf151		Rockshelter	Wyss and Wyss 1977
15Mo140	Elk Fork	Open habitation w/o mound(s)	Herndon 2008b
15Po1	Steven DeHart	Rockshelter	Funkhouser and Webb 1930
15Po31	Anderson	Open habitation w/o mound(s)	Cowan 1975, 1976
15Po42	Martin	Open habitation w/o mound(s)	Cowan 1975, 1976
15Po46	Shepard	Open habitation w/o mound(s)	Cowan 1974a, 1975, 1976
15Po331	Raised Spirits	Rockshelter	Pollack and Schlarb 2004
15Po425	Dangerous Dan	Rockshelter	Ison and Faulkner 1994
15Wo12	John Malone	Rockshelter	Funkhouser and Webb 1930
15Wo107	Lindon Fork	Rockshelter	Niquette and Hughes 1992
15Wo232	Twin Branch	Rockshelter	Schlarb 2006
15Wo233	Daytona Radial Stag	Rockshelter	Schlarb 2006

CHRONOLOGY

No regional sequence has been developed for the Fort Ancient period in the Gorge Section as a whole. Cowan (1976:125), however, did propose a ceramic chronology for the Red River Gorge area. The part of this chronology relevant to the Fort Ancient period is as follows:

Transitional Wares (after A.D. 900)

- Shell and sandstone tempered cordmarked
- Shell and limestone tempered cordmarked
- Shell and limestone tempered roughened (i.e., knot-roughened/net-impressed)
- Limestone tempered roughened (i.e., knot-roughened/net-impressed)

Fort Ancient Wares (after A.D. 1200)

- Shell tempered plain
- Shell tempered cordmarked
- Shell tempered roughened (i.e., knot-roughened/net-impressed)

While Wyss and Wyss (1977:88-91, 239) agreed with most of Cowan's ceramic chronology, they argued that mixed tempered and limestone tempered ceramics continued to be produced well into the Fort Ancient period. Ceramic assemblages recovered from Early and Middle Fort Ancient sites in the Central Bluegrass Section (see previous section) support their position.

The following discussion presumes that mixed tempered ceramics in the Red River Gorge area continued to be manufactured until A.D. 1400, and that entirely shell

tempered assemblages post-date A.D. 1400. Given the data at hand, it is thus possible to distinguish Late Fort Ancient sites in the Gorge Section from Early and Middle Fort Ancient sites, but not early from middle components. Therefore, Early and Middle Fort Ancient sites are discussed together on the following pages.

Early/Middle Fort Ancient (A.D. 1000-1400)

Elk Fork (15Mo140), Martin (15Po42), Roberts (15Bh17), and Lindon Fork Rockshelter (15Wo107) are good examples of Early/Middle Fort Ancient components in this section. Roberts is discussed here, even though Bath County is part of the Eastern Bluegrass Section, because: 1) physiographically and geologically, the portion of Bath County within which this site is located resembles the Gorge Section more than the Eastern Bluegrass Section; and 2) the materials recovered from this site are more similar to those recovered from sites located in the Gorge Section and further east in the Upper Big Sandy Section than the Eastern Bluegrass Section (Sharp 1990:512). These sites are discussed by general site type, with the open habitation sites presented first, in relative temporal order, followed by Lindon Fork Rockshelter.

Open Sites

The Elk Fork site is located on three floodplain terraces near the Licking River in Morgan County (Herndon 2008b; Martin 2002). The Fort Ancient component is located close to the river and covers 1600 m² (Herndon 2008b:3). Investigations at this site mark the first large-scale excavation of a terminal Late Woodland/Early Fort Ancient site in this section (Herndon 2008b:297).

The Fort Ancient component was represented by one structure and 56 features, consisting of pit hearths, a few rock concentrations, storage pits, processing/refuse pits, and small, shallow areas of sheet midden (Herndon 2008b:299). The structure, subrectangular in shape and made of single-set posts, measured 3 by 3.5 m. It lacked internal features, and there was no evidence for a house basin (Herndon 2008b:135-137). Eleven associated features (less than 5 m away) included external storage pits, hearths, and various ephemeral pits (Herndon 2008b:140). Discrete activity areas were documented within the household cluster (structure and associated features): a general refuse disposal area was located east of the structure, while a task-specific area where late-stage chipped stone tool production and maintenance occurred, was located south of the structure (Herndon 2008b:295). Investigations also identified a plant processing area located well away from the structure, and closer to the river.

Herndon (2008b:313) believed that, due to the lack of superimposed features, the clustering of the calibrated radiocarbon dates (Table 7.10), and the results of the archaeobotanical analysis, Elk Fork represented a single, short- to moderate-term fall or winter occupation. However, Ericksen (2008:252), based on the botanical profile, suggested it was primarily occupied during the summer and fall.

Table 7.10. Upper Kentucky/Licking Management Area: Chronometric Dates.

Lab No.	Age (B.P.)	Calibrated Date ¹ (2-sigma)	References
Gorge			
Elk Fork (15Mo140)			
Beta-192110	930 \pm 50	AD 1021-1210	Herndon 2008b:80
Beta-192113	930 \pm 50	AD 1021-1210	Herndon 2008b:80
Beta-192111	880 \pm 60	AD 1032-1256	Herndon 2008b:80
Lindon Fork Rockshelter (15Wo107)			
Beta-54862	760 \pm 50	AD 1168-1299, 1369-1380	Niquette and Hughes 1992:13
Interior Mountains			
Kragon (15Br9) (see Chapter 5:Table 5.32)			
Beta-24806	840 \pm 50	AD 1044-1098, 1119-1142, 1147-1274	McIlhany 1991:36
Lead Branch Crematory (15Pe126)			
Beta-61576	460 \pm 50	AD 1325-1344, 1393-1522, 1574-1584, 1590-1624	Hand and Niquette 1993; Niquette et al. 1995:144
Beta-61577	290 \pm 60	AD 1450-1680, 1740-1742, 1763-1801, 1938-1951	Hand and Niquette 1993; Niquette et al. 1995:144
¹ Dates calibrated by Calib Revised Version 5.0.2 (Hughen et al. 2004; Reimer et al. 2004; Stuiver and Braziunas 1993; Stuiver et al. 1998).			

The Elk Fork ceramic assemblage is mostly sandstone tempered, but minor amounts of limestone, shell, quartzite, grog, and sand temper are present (Herndon 2008a, 2008b:306). Z-twist cordmarked exteriors predominate, although a few plain surfaced sherds are present. Jars with direct rims are the major vessel form. Decoration is not common and consists of incised lines over cordmarking and a few cordmarked lips. The assemblage lacks any evidence for handles or lugs, rimstrips, or incised guilloche designs. In general, the ceramic assemblage from Elk Fork shares many characteristics with the ceramics recovered from the contemporary Curtis site (15Jo75) (Lower Big Sandy Section) (Henderson 2006a:84-85).

The chipped stone tool assemblage shows an emphasis on tool finishing and maintenance (Cooper 2008:211). A variety of local and nonlocal cherts were used (mainly Neuman, Boyle, and Breathitt), but there was a strong preference for Neuman (Cooper 2008:153). Triangular projectile points are mainly Type 2 Fine Triangulans (Cooper 2008:210). The site also yielded sandstone nutting stones, abraders, and anvils. Herndon (2008b:307) inferred, based on the site's chert type profile and the fact that most of the chipped stone tool assemblage arrived partially processed, that some type of exchange network funneled fairly high-quality cherts to the site, which were then processed into bifaces. Microwear analysis documented a variety of activities (cutting/sawing, drilling/boring, wedging, and scraping/planing) conducted on a diversity of materials (Bradbury 2008:218).

Subsistence remains include primarily nuts (hickory, acorn, black walnut, and hazelnut in that order), but also seeds of wild plants/fleshy fruits (bedstraw, knotweed, blueberry, and strawberry); starchy-oily seeded domesticates (marshelder, little barley, and maygrass); and low quantities of maize (cupules and kernels) and squash rind. The wood profile pointed to human environmental impact, reflected by a decrease in taxon

diversity and a prevalence of fire-tolerant species (Ericksen 2008). The site did not produce any diagnostic faunal remains assignable to this component. It is assumed that mammals, birds, and freshwater mollusks contributed to the diet, with deer representing the species of greatest economic importance.

Calibrated radiocarbon dates and the presence of Type 2 Fine Triangular projectile points indicate an Early Fort Ancient affiliation (A.D. 1000-1200) for this component (Table 7.10). However, the recovery of low quantities of maize, high quantities of nuts, and some starchy-oily seeded plants, coupled with the low quantities of shell tempered pottery and the lack of appendages, suggest a terminal Late Woodland age for the component (Herndon 2008b:306). These seeming contradictions suggest that the site occupation is transitional. For these reasons, Herndon (2008b:311) did not assign the Elk Fork site's Fort Ancient occupation to any existing phases.

The Martin site is an open site located on a terrace overlooking the North Fork of the Red River in Powell County. It is known only from surface collections and very limited excavations (5 m²), the latter of which documented midden deposits (about 45 cm thick) but no features (Cowan 1975, 1976). Cowan (1975:83-84) characterized the site as a large camp or village. Lithic artifacts include a spokeshave, modified flakes, and debitage, but no diagnostic tools.

The Martin site ceramic assemblage was small. Shell tempered specimens or mixed limestone and shell tempered specimens make up over half of it; limestone tempered sherds comprised about one-third of the collection; and the remainder were tempered with sand, chert, quartz, or sandstone (Cowan 1975:83-84, 1976:76-78). Cordmarking occurs most frequently, followed almost equally by knot-roughened/net-impressed sherds or examples with plain exteriors. Also collected from the site were a small cylindrical shell tempered lug and fragments of two, thick, shell tempered loop handles. Given the distribution of the site's shell tempered ceramics, Cowan (1975:85-90) suggested that the site contained two Fort Ancient components. Today, researchers would consider Martin a single component site occupied during either the Early or Middle Fort Ancient.

The numbers of knot-roughened/net-impressed sherds recovered from Martin (and from Roberts and Kragon, see below) are comparable to those recovered from sites in the Upper Big Sandy Section, such as Mayo and Slone (sites in Harrison, Madison, and Jessamine counties in the Central Bluegrass Section also have produced knot roughened/net-impressed sherds, but in much smaller quantities). This suggests some sort of interaction may have taken place between these sections. Only in the Upper Big Sandy Section, however, did this surface treatment continue to be produced after A.D. 1400 (Henderson and Pollack 2007).

The Roberts site is situated in a large meander bend of the Licking River in Bath County, surrounded by steep mountainous terrain. Identified features include midden zones, fired clay areas, post alignments, structures, and pits (Purrington and Smith 1967). There was no discernable pattern in the spatial distribution of midden zones and features; most were separated by relatively sterile areas. Some midden zones extended as much as 50 cm below the surface and in at least one case, postholes were identified on the edge of a midden depression. Excavations at the Muir site (see the Central Bluegrass Section)

identified similar depressions, which were interpreted as house basins (Turnbow and Sharp 1988). Based upon the evidence from Muir, it is possible that some of the midden zones and scattered postholes at Roberts are the remains of superimposed house basins.

The only structure completely exposed was rectangular, measuring 1.8 by 2.7 m. The floor of the structure was encountered 30 cm below the surface. A small fire hearth, measuring approximately 40 cm in diameter, was located in the center of the floor. A line of postholes diagonally bisected this structure, suggesting that it had been rebuilt at least once. Interrupted posthole alignments in other parts of the site also suggested rebuilding of structures.

Almost three-quarters of the ceramic assemblage is shell tempered, the remainder is tempered with a mixture of shell and grit (sandstone, quartz, clay, or limestone). Exterior surface treatments are knot-roughened (about half), followed by cordmarked, and plain (Purrington and Smith 1967:38-43). The large amount of knot-roughened sherds from Roberts is noteworthy, as this surface treatment is characteristic of some assemblages in the Big Sandy Management Area, and further east in western West Virginia and southwestern Virginia (Purrington 1967b). Rims range from slightly everted to straight or inverted: none are strongly outflaring. On most rims, cordmarking or roughening extends to the lip. Lips are often flattened and also tend to be cordmarked or roughened. One loop handle and two loop handle fragments were recovered. The complete handle is associated with a small, single node or castellation, and two rows of small punctations surround the node. Very little other decoration is present, and it consists of fine line incising. The projectile points are overwhelmingly of the flared base variety (similar to Type 2 Fine Triangular points) (Purrington and Smith 1967:47). Bone preservation at the site was variable, and botanical samples were not collected.

No radiocarbon dates are available from Roberts. However, the amount of shell tempered and mixed tempered ceramics from the site, the presence of riveted loop handles, and the morphology of the triangular projectile points (assemblages dominated by flared base points elsewhere predominately date between A.D. 1000 and 1200) (Railey 1992) suggest that Roberts was occupied during the Middle Fort Ancient subperiod.

Rockshelters

Lindon Fork Rockshelter was located along a south-facing bluff overlooking Rock Horse Fork in Wolfe County (Niquette and Hughes 1992). It is a small, dry, undisturbed shelter (3.5 m wide by 11 m long) with a low ceiling (1.25 m) and a floor area measuring 38.5 m². Deposits extended to 35 cm below the surface. Features consisted of four large, very shallow charcoal concentrations that probably represent hearth-cleaning debris/hearths. One was encircled by decomposing sandstone rocks.

Materials recovered include debitage, bifaces, and four triangular points, one of which resembles a Type 5 Fine Triangular (Niquette and Hughes 1992:11). Most of the chert recovered from the site is Neuman (from Carter County) or Boyle (from the Bluegrass). No ceramics were recovered. Dried segments of 10-row and 12-row maize cob fragments were recovered, with cob morphology and cupule size indicating they were prehistoric (Niquette and Hughes 1992:12). One calibrated radiocarbon date

suggests the site was occupied ca. A.D. 1200-1300 (Table 7.10). Niquette and Hughes (1992) considered the site a short-term use campsite.

Late Fort Ancient (A.D. 1400-1750)

As mentioned previously, large, intensively occupied Fort Ancient villages, like those identified in other sections, have not been documented in the Gorge Section. Other than the sites discussed above, open habitation sites in this section generally contain very limited deposits, their Fort Ancient period assignment based solely on the presence of triangular points, the temporal developments for which have not yet been defined for this section.

Sites producing mainly shell tempered ceramics (Madisonville Series) are generally rockshelters. Several rockshelter sites in the Gorge Section have produced what researchers now recognize as very Late Fort Ancient/protohistoric ceramics, characterized by outflaring jar rims, thin strap handles, thickened rims, notched rimstrips, and trailed designs (wide, shallow incised lines) on plain necks (Pollack and Schlarb 2004; Schlarb et al. 2002). These sites include the William S. Webb Memorial Rockshelter and Raised Spirits (discussed below); Twin Branch (Schlarb 2006); Steven DeHart and John Malone (Funkhouser and Webb 1930:276-278, 293-294); and Dangerous Dan (15Po425) (Ison and Faulkner 1994). If these sites represent hunting camps, perhaps they are one part of the archaeological manifestation of Fitting and Cleland's (1969) historic Miami-Potawatomi settlement pattern, which they defined as consisting of summer villages and late fall/winter hunting camps.

The William S. Webb Memorial Rockshelter is a good example of a Late Fort Ancient occupation in this section (Cowan 1974b, 1975). This small, dry Menifee County shelter was used only during the Fort Ancient period. Deposits measured 10-15 cm thick. A compact living floor and the remains of several hearths and pits were documented at this site.

Materials recovered include fragments of at least one Madisonville Cordmarked flared-rim vessel (Henderson 2005). Equal amounts of cordmarked and plain exteriors are present, and S-twist cordmarking predominates. Decoration is limited to a small castellation and shallow, wide (trailed) lines. Also recovered were small triangular projectile points, flake tools, debitage, and a grinding slab; and normally perishable items, such as fiber cordage, cut cane, and cultivated plants represented by several husks and kernels of maize (Cowan 1974b). This site may have been infrequently occupied by a small group of individuals (Cowan 1974b, 1975).

Raised Spirits Rockshelter is an undisturbed, east-facing rockshelter located in Powell County (Pollack and Schlarb 2004; Schlarb et al. 2002; Shields 1998). The site covers approximately 138 m² and consists of a central room and a small alcove. Ceiling height ranges from 4 m in the central room to 1 m in the alcove. Limited excavations documented 45-50 cm of intact deposits in the southern part of the shelter that thinned to 10 cm in the northern part of the shelter. The upper 20 cm yielded Fort Ancient materials. Features associated with this occupation consisted of a small pit and a surface hearth (Pollack and Schlarb 2004)

The lithic assemblage indicates local resource procurement from outcrops, with local Haney chert preferred. Initial reduction did not regularly occur. Three Type 6 Fine Triangulars were recovered.

The bulk of the ceramics are Madisonville Series. Most are Z-twist cordmarked; only a few are plain. Thin vessel walls, the presence of a notched applied rim strip, the stub of a thin strap handle, and trailed lines suggestive of a rectilinear guilloche motif all point to a very Late Fort Ancient age of manufacture for these specimens. It is possible that this assemblage represents the fragments of a single, Madisonville Cordmarked flaring rim jar with a decorated, plain neck and cordmarked body (Pollack and Schlarb 2004; Schlarb et al. 2002).

Among the animals exploited were deer, elk, bear, small mammals, birds, such as turkey and prairie chicken, and turtles. Bone tools are mainly awls or flaking tools. Botanical remains consisted of hickory, acorn, and black walnut, and wild plant seeds of blackberry/raspberry, but no cultigens. Animal remains indicate a springtime utilization of the shelter, and plant remains suggest use during the summer (Breitburg 2001; Rossen 2002).

No absolute dates are available for the Fort Ancient occupation at Raised Spirits, but attributes of the material culture assemblage, particularly the ceramics, suggest that it was occupied sometime between A.D. 1550 and A.D. 1750. This occupation was apparently of short duration, given the thinness of the deposits, but relatively intensive, given the quantity of lithic and faunal materials recovered. Pollack and Schlarb (2004) (see also Schlarb et al. 2002) have interpreted it as a hunting camp.

Henderson et al. (1986:165) describe a Contact period burial in Powell County. The individual had been buried in an extended position wearing a necklace of metal and shell beads.

INTERIOR MOUNTAINS SECTION

Archaeological Research Overview

Despite the fact that Funkhouser and Webb (1932) recorded sites in most of the counties in this section, it is difficult to determine if any contained Fort Ancient components. Certainly no professional investigations were conducted at Fort Ancient sites in the 1930s and 1940s.

Fort Ancient research in this section really began in the late 1960s with the commencement of federally mandated cultural resource management projects. Two reservoir surveys documented several sites with Fort Ancient components. During a survey of the proposed Ulvah Reservoir on the North Fork of the Kentucky River in Letcher County, Fryman et al. (1967) recorded two large Fort Ancient villages (sites 15Lr13 and 15Lr17) and four Fort Ancient campsites (three open habitation sites [sites 15Lr7, 15Lr8, 15Lr14] and one rockshelter [Site 15Lr12]). A stone mound, Site 15Lr15, was tentatively assigned to the Fort Ancient period. Purrington (1966, 1967a)

documented five sites with Fort Ancient components during his investigations of the proposed Carr Fork Reservoir on the North Fork of the Kentucky River in Knott County: four open habitation sites produced triangular points (Combs [15Kt6], Cornett [15Kt7], and sites 15Kt11 and 15Kt12); and Craft Rockshelter (15Kt14) produced evidence of Fort Ancient occupation in its upper levels. Site 15Kt17, a stone circle, also was considered to date to the Fort Ancient period.

Very little work conducted between the late 1960s and the late 1980s in this section documented Fort Ancient sites. During an opportunistic county-wide survey of Perry County, Gatus and Sanders (1978) collected shell tempered ceramics from four rockshelters (Hall Shelter [15Pe8] [Gatus 1981], and sites 15Pe15, 15Pe18, and 15Pe29), and noted triangular projectile points within local residents' collections from two open sites: sites 15Pe10 and 15Pe23. Kragon (15Br9), documented in advance of coal mining, is the only extensively excavated Fort Ancient site in this section (McIlhany 1986, 1991). Continued looting at Cornett Woods Rockshelter (15Lr23) in the late 1980s prompted a damage assessment and limited investigations, which revealed minor use during the Fort Ancient period (Miday 1996).

Since 1987, several Fort Ancient sites have been documented in this section under the auspices of federal cultural resource management legislation (e.g., Site 15Cy204 [Tune 1991]), and limited excavations have been conducted at a few: White Oak (15Br140) and Will Guy Combs (15Br141) (Fiegel et al. 1992); and Lead Branch Crematory (15Pe126) (Hand and Niquette 1993; Niquette et al. 1995). As part of an archaeology education project, limited investigations conducted at Gambler's Cliff (15Ls158) revealed that it had been used most intensively during the Fort Ancient period (Gray 2007).

Table 7.11 presents important Fort Ancient sites identified in the Interior Mountains Section.

CHRONOLOGY

Since a regional chronology has yet to be worked out for this section, important sites will be discussed by site type. Open sites are considered first, followed by rockshelters. They are presented in estimated relative temporal order based on chronologies developed for the Bluegrass and the Big Sandy management areas.

Open Habitation Sites

White Oak and Will Guy Combs are open habitation sites located in Breathitt County (Fiegel et al. 1992). The former was located on a terrace above Laurel Fork. It measured 450 m². Investigations documented 30-40 cm-thick deposits containing large amounts of tool manufacturing debris (mainly of Breathitt chert), Hamilton Incurvate projectile points, and biface fragments. Plant remains consisted of wood charcoal and wild plant seeds (Ericksen 1992). The site was a single component Late Woodland/Early Fort Ancient hunting camp (Fiegel et al. 1992:34).

Table 7.11. Important Sites: Interior Mountains Section¹.

Site No.	Site Name	Site Type	References
15Br9	Kragon	Open habitation w/o mound(s)	McIlhany 1986, 1991
15Br140	White Oak	Open habitation w/o mound(s)	Fiegel et al. 1992
15Br141	Will Guy Combs	Open habitation w/o mound(s)	Fiegel et al. 1992
15Cy204		Open habitation w/o mound(s)	Tune 1991
15Kt6	Combs	Open habitation w/o mound(s)	Purrington 1966, 1967a
15Kt14	Craft	Rockshelter	Purrington 1967a
15Lr2	Crase	Open habitation w/o mound(s)	Purrington 1967b
15Lr12		Rockshelter	Fryman et al. 1967
15Lr13		Open habitation w/o mound(s)	Fryman et al. 1967
15Lr14		Open habitation w/o mound(s)	Fryman et al. 1967
15Lr17		Open habitation w/o mound(s)	Fryman et al. 1967
15Lr23	Cornett Woods	Rockshelter	Miday 1996
15Ls158	Gambler's Cliff	Rockshelter	Gray 2007
15Pe126	Lead Branch Crematory	Rockshelter	Hand and Niquette 1993; Niquette et al. 1995
¹ Only sites on the upper reaches of the Kentucky River in Clay, Jackson, Leslie, Letcher, Perry, and Rockcastle counties are considered Fort Ancient.			

Will Guy Combs was located on a bench overlooking Laurel Fork. It measured 5 by 8 m in size, and prehistoric materials were recovered to depths ranging from 38 to 60 cm below the surface. Like White Oak, Will Guy Combs yielded Hamilton Incurvate points, bifaces, edge-modified flakes, and debitage, but no datable charcoal. Plant remains consisted of wood charcoal and raspberry seeds (Ericksen 1992). It represents a single component Late Woodland/Early Fort Ancient late-stage lithic reduction activity area (Fiegel et al. 1992:46).

Site 15Cy204 is located on a terrace that overlooks the floodplain of the Red Bird River in Clay County (Tune 1991). Limited investigations documented intact subsurface materials ranging from 17 to 70 cm below the surface. Abundant remains of lithic debitage, ceramics, animal bone, mussel shell, and wood and nut charcoal were documented within a 100 by 120 m area. Diagnostics included a Type 2 Fine Triangular point and predominantly shell tempered cordmarked ceramics. This site may represent a small to medium-sized village (Tune 1991:12).

The Kragon site is a Fort Ancient village situated on a floodplain terrace within a sharp bend in the North Fork of the Kentucky River in Breathitt County (McIlhany 1986, 1991). The site covers approximately 3500 m². A structure, 17 features, and two burials were documented within a 451 m² area (McIlhany 1991:14). The structure, which consisted of 111 single-set postholes, was roughly square, measuring 5.9 by 6.1 m. There was no evidence for a floor. Although no *insitu* artifacts were found within the structure, four circular or oval pits/basins were documented inside it. A lean-to may have abutted the structure's east wall. Inner posts suggest repair or replacement, or they may have served as supports for interior furnishings. Some located toward the center of the structure may have been roof supports (McIlhany 1991:42-45). Several features represent the basal portions of refuse pits. These originally may have been cooking or storage pits, and those with reddened pit walls may have served as ovens (McIlhany 1991:24-42). One large bell-shaped pit was excavated.

A variety of materials was recovered from the pits. Most ceramics are sandstone tempered. These are mainly cordmarked, although some are plain, simple stamped, or brushed. Some shell tempered ceramics also were recovered. These are mainly cordmarked, but plain and knot-roughened/net-impressed examples also are present (McIlhany 1991:70). All of the vessels are jars. Most have direct rims, although some are eared. A few rimfolds are decorated with diagonal or vertical linear incisions along the lower edge of the fold. Most triangular projectile points resemble Type 5 Fine Triangulars, although a few are similar to Type 3.1 Fine Triangulars (McIlhany 1991:63). Other artifacts recovered include lithic debitage, groundstone abraders, fire-cracked rock, charcoal, animal bone, and mussel shell. Botanical remains include maize (cupules, kernels, and cobs), beans, and nuts.

Regarding the two burials, both individuals were flexed. One had a sandstone slab laid over top of the grave. Grave goods, in the form of ornaments, were found with the burial covered by the stone slab. They consist of disk and tubular shell beads, marginella beads, bird and mammal bone beads, perforated turkey digits, and two cannel coal beads.

McIlhany (1991:2) noted a number of similarities between Kragon and the Woodside component at Slone (see Upper Big Sandy Section). The single acceptable calibrated radiocarbon date suggests that the site was occupied sometime between A.D. 1050 and 1275 (Table 7.10).

Site 15Lr13, a large Fort Ancient village site, produced the most substantial Fort Ancient artifact assemblage in the proposed Ulvah Reservoir area (Fryman et al. 1967:81). This site was located on the floodplain of the North Fork of the Kentucky River in Letcher County. It measured 152 by 183 m in size. A surface collection yielded a triangular point tip, other lithic tools and debitage, sandstone disks, and animal bone. The small ceramic assemblage consists primarily of shell tempered cordmarked sherds. A few examples of cordmarked sherds tempered with finely crushed shell and sandstone tempered knot-roughened/net-impressed ceramics also were recovered. Site 15Lr14, located directly across the river from Site 15Lr13, may have been a related contemporary campsite, although exactly when either site was occupied is unknown (Fryman et al. 1967:61-63).

The Crase site (15Lr2) is located on the narrow first terrace along a tributary of the North Fork of the Kentucky River in Letcher County (Purrington 1967b:89-92). The small ceramic assemblage recovered from the surface of this large site consists primarily of shell tempered cordmarked sherds; some shell tempered plain and knot-roughened/net-impressed specimens; and a few shell tempered grooved paddled sherds (Purrington 1967b:Table 10). Two shell tempered strap handles, and a few shell and grit tempered cordmarked sherds also are present. Significantly, five shell tempered interior red painted sherds were recovered. Minor tempers consist of quartz-sand, limestone, and sandstone. Vessels represented are wide-mouthed globular jars with straight, or less often, everted rims. Lithics include small triangular points (the morphology of which was not described), knives, celts, sandstone disks, worked cannel coal objects, and shell and animal bone beads. The site yielded large quantities of animal bone and shell. The relative age of the site is unknown, but the predominance of shell temper and the presence of grooved paddled ceramics is suggestive of a post-A.D 1400s component

Rockshelters

Craft Rockshelter is a small (6 by 14 m) shelter located above the head of Red Oak Creek in Knott County (Purrington 1967a:31-45). Investigations documented several ash-filled pits, a refuse pit, a fire pit, and a few postholes. The upper 10 cm of the 40 cm-thick deposits yielded shell tempered ceramics and triangular projectile points (Purrington 1967a:115-116). A little over half of the shell tempered sherds are cordmarked, and almost two-thirds of the triangular points have concave bases (resembling Type 6 Fine Triangulars). Characteristics of this site's artifact assemblage suggest it was occupied post-A.D. 1400. Perhaps rockshelters in this section, like those in the Gorge Section, were used mainly during the Late Fort Ancient subperiod.

Limited investigations at three other rockshelter sites in this section also produced Fort Ancient artifact assemblages, although when they were occupied during the period is difficult to determine due to small artifact assemblages and a lack of chronometric dates. At Gamblers Cliff, the largest of the three, located in the Red Bird River watershed in Leslie County, the upper levels of the site's over 70 cm-thick deposits produced a limited sample of Fort Ancient materials (Gray 2007). At the smaller Cornett Woods Rockshelter in Letcher County, two small pit features and a midden that ranged in thickness from 8-34 cm produced small amounts of Fort Ancient period materials (Miday 1996). A surface collection at Site 15Lr12, also a small Letcher County rockshelter, produced some Fort Ancient period materials (Fryman et al. 1967). Diagnostic Fort Ancient period artifacts from these sites consist of shell tempered, mixed shell and other rock tempered, and limestone tempered cordmarked or plain sherds; a variety of triangular point types; and/or maize and squash (Fryman et al. 1967; Gray 2007; Miday 1996). All are interpreted as short-term Fort Ancient camps.

The Lead Branch Crematory is situated below a slight overhang at the base of a massive cliffline overlooking Lead Branch in Perry County. It represents a new kind of Fort Ancient mortuary site, consisting of a 4 by 6 m rectangular enclosure formed by a low rock wall that was built directly on top of bedrock (Hand and Niquette 1993; Niquette et al. 1995:144-145; see also Purrington [1967a:25-30; 135], who described a stone box burial containing heavily charred human and deer bone at Little Dove Rockshelter [15Kt13]). The base of the back wall of the cliff and the base of the rock wall showed evidence of having been burned. The bones of two individuals, one adult male and one possible adult male, were recovered from this site. These remains were mainly calcined, though some pieces were smoked. It is clear that the bone was burned after the body had decomposed. Most of the bones from the two individuals were present, but some long bones were not fully represented, indicating that not all of the skeletal material was transferred to this site (Niquette et al. 1995:147-148).

Animal bone was buried with these individuals. It consisted only of the metacarpals and metatarsals of a large canid, similar to a timber wolf. The animal bones exhibit evidence of having been scraped with a stone tool and were burned along with the men at time of their cremation (Niquette et al. 1995:148).

Other cultural materials recovered included charcoal, shell of freshwater bivalves, oxidized sandstone, two chert flakes, and a Chesser Notched-like projectile point

(Niquette et al. 1995:144). Also recovered were the bones of partially digested rabbit and squirrel, and other bones of mammals, rodents, and deer. Most of the latter were burned, and many were modified (Niquette et al. 1995:162-163). Recovered plant remains included hickory and acorn nutshell, and the seeds of dogwood and black gum (Niquette et al. 1995:148-149). Calibrated radiocarbon dates on wood charcoal suggest the individuals were buried sometime between A.D. 1440-1532 (Niquette et al. 1995:144) (Table 7.10). Because these two individuals, whether by social position or circumstance of death, were treated in a different way than their contemporaries, they may have been particularly powerful men or shamans (Niquette et al. 1995:151).

Cremation is not a common Fort Ancient burial practice in Kentucky, but other forms of multi-stage Fort Ancient mortuary practices have been documented in the Bluegrass and Big Sandy management areas (see those discussions). MacDonald et al. (2006) documented very similar Fort Ancient mortuary activities at Clark Rockshelter (15F110), situated northeast of Lead Branch in the Big Sandy Management Area (see the Upper Big Sandy Section for a discussion).

SITE DISTRIBUTION PATTERNS

The 222 Fort Ancient sites documented for the Upper Kentucky/Licking Management Area represent a nearly six-fold increase in the number of sites reported since 1987. But, as shown previously (Sharp 1990), sites in the Gorge Section outnumber those recorded for the Interior Mountains Section (Table 7.12). This is probably due to the fact that more large-scale surveys have been conducted in the former section. Also, the large number of rockshelters in the Gorge Section probably has led to the identification of more sites there.

Most of the sites recorded for this management area are rockshelters (69.4 percent); open habitation sites without mounds (27.4 percent) are decidedly less numerous. A few other types of sites have been recorded, but they occur in frequencies of less than four in both sections (Table 7.12).

Table 7.12. Upper Kentucky/Licking Management Area: Site Type by Section.

Site Type	Gorge	Interior Mountains ¹	Total	Percent
Open Habitation Without Mound(s)	34	27	61	27.4
Rockshelter	103	51	154	69.4
Stone Mound	0	3	3	1.4
Cemetery	2	1	3	1.4
Open Habitation With Mound(s)	0	1	1	0.4
Total	139	83	222	
Percent	62.6	37.4		100.0

¹Only sites on the upper reaches of the Kentucky River in Clay, Jackson, Leslie, Letcher, Perry, and Rockcastle counties are considered Fort Ancient.

BIG SANDY (MANAGEMENT AREA 7)

The Big Sandy Management Area is divided into two sections: the Lower Big Sandy and the Upper Big Sandy. The former, which is the largest and includes most of the counties, is bounded on the north by the Ohio River. The latter consists only of Pike and Floyd counties and is largely contained within the mountainous Cumberland Plateaus Physiographic Region.

As in the Upper Kentucky/Licking Management Area, some researchers have questioned the Fort Ancient assignment of some post-A.D. 1000 sites in this management area, particularly those located in the Upper Big Sandy Section (Sharp 1990:511). This is due to the section's location and mountainous terrain, and to characteristics of the sites (village configuration, and burial practices) and their artifact assemblages (the uses of certain grave goods, and the presence of knot-roughened/net-impressed ceramics) that reflect some degree of interaction/affiliation with groups located to the south and east, like the Intermontane Culture (Egloff 1992; MacCord 1989). Whether or not these attributes make these sites different enough not to assign them to the Fort Ancient culture warrants more focused study, but for the purposes of this chapter, all post-A.D. 1000 sites in this management area are considered Fort Ancient. Given the Upper Big Sandy Section's proximity to the upper reaches of the Cumberland River, and Powell and Clinch rivers (cf. Barber and Barfield 2000; Egloff 1987, 1992; Jefferies 2001; Meyers 2002), evidence of interaction with Mississippian groups living along these rivers also may be present.

Fort Ancient materials recovered from sites in the interior, irrespective of section, tend to be similar to each other (and to materials from the Upper Kentucky/Licking Management Area), while Fort Ancient materials recovered from sites along the Ohio River tend to have more in common with materials from sites located downstream in the Eastern Bluegrass Section. Therefore, in the following section discussions only, the Lower Big Sandy Section will consider sites just in Boyd and Greenup counties, while the Upper Big Sandy Section will consider all remaining sites in this management area (i.e., those in Carter, Elliott, Floyd, Johnson, Lawrence, Martin, and Pike counties).

LOWER BIG SANDY SECTION (BOYD AND GREENUP COUNTIES)

Archaeological Research Overview

The presence of Woodland mounds and earthworks on both sides of the Ohio River near the mouth of the Scioto River contributed to an early interest in the archaeology of this section (Squier and Davis 1848), as did the investigation of the Feurt site in southern Ohio (Mills 1917). The earliest recorded excavation of a Fort Ancient site on the Kentucky side of the Ohio River in this section was conducted at Fullerton Field (15Gp3), which was impacted in the 1920s by road and other construction activities (Beckner 1927; Funkhouser and Webb 1928; Webb 1928).

During the WPA era, the University of Kentucky conducted extensive investigations at the Old Fort Earthworks (15Gp1), Old Fort Village (later renamed the Bentley site) (15Gp15), and Hardin Village (15Gp22), and also conducted limited investigations at the Shepard Shelter (15Gp20). Ten percent of Hardin (Hanson 1966) and nine percent of Bentley (Pollack and Henderson 1983, 1984) was excavated during these projects. However, the Fort Ancient materials recovered from these sites were not analyzed and reported on until decades later (Hanson 1963, 1966; Pollack and Henderson 1983, 1984); the Fort Ancient materials from Shepard Shelter and Old Fort Earthworks have not been adequately analyzed or reported (Henderson et al. 1986:139-140).

In the 1970s, White's Creek I (15Bd11), an isolated stone-lined grave of possible Fort Ancient affiliation, was recorded in advance of road relocation (Brisbin 1986). Maynard and Gatus (1979) documented 18 new Fort Ancient sites during an opportunistic county-wide survey of Greenup County, which focused on the Ohio River floodplain. Most were represented by a few triangular points; only five produced a few shell tempered sherds.

In the 1980s, University of Kentucky archaeologists and volunteers from the William S. Webb Archaeological Society conducted a controlled surface collection of Bentley. As part of the multi-year Kentucky Fort Ancient Research Project, limited investigations were conducted at the Thompson site (15Gp27), the Laughlin site (15Lw13) (located physically in the Eastern Bluegrass Section, but discussed here), and Bentley (Henderson 1992b; Henderson and Turnbow 1987; Henderson and Pollack 1990, 1992a, 1992b).

Since 1987, few Fort Ancient sites have been investigated in this section. As part of an archaeology education project, systematic survey and limited excavation was conducted in the extreme eastern portion of the Forest Home site (15Gp28), which is a contemporary of and located adjacent to Bentley (Cropper 1996).

Table 7.13 presents a list of important Fort Ancient sites in this section.

CHRONOLOGY

The chronological sequence for this section is based on the analysis of materials excavated during the 1930s (Hanson 1966; Pollack and Henderson 1983, 1984) and on investigations reported in Henderson and Turnbow (1987) and Henderson (1992b). It is similar to that developed for the Eastern Bluegrass Section (see previous discussion). The Early Fort Ancient subperiod (Croghan phase) and Late Fort Ancient subperiod (Gist and Montour phases) have been fairly well defined, but additional work is needed at sites dating to the Middle Fort Ancient subperiod, which, by default, has been designated the Manion phase.

Early Fort Ancient Croghan Phase (A.D. 1000-1200)

Materials from the Thompson site provided the basis upon which the Croghan phase was defined (Henderson and Turnbow 1987; Henderson et al. 1992:255-262).

Table 7.13. Important Sites: Lower Big Sandy Section¹.

Site No.	Site Name	Site Type	References
15Bd11	White's Creek I	Isolated burials	Aument 1985, 1986
15Cr100	Horton Hollow/ Horton Farm	Open habitation w/o mound(s)	Maley 1992
15Gp1	Old Fort Earthworks	Isolated burials	Henderson et al. 1986
15Gp3	Fullerton Field	Open habitation w/mound(s)	Beckner 1927; Funkhouser and Griffin 1943; Webb 1928
15Gp15	Old Fort Village/ Bentley/Lower Shawneetown	Open habitation w/o mound(s)	Henderson and Pollack 1990; Pollack and Henderson 1984
15Gp20	Shepard	Rockshelter	Henderson et al. 1986; Milner and Smith 1986
15Gp22	Hardin Village	Open habitation w/o mound(s)	Hanson 1963, 1966; Holmes 1994
15Gp27	Thompson	Open habitation w/o mound(s)	Henderson and Pollack 1992b
15Gp28	Forest Home	Open habitation w/o mound(s)	Cropper 1996
15Jo14	Mayo	Open habitation w/o mound(s)	Dunnell 1983
15Jo23A	Dameron	Rockshelter	Adovasio 1982
15Jo75	Curtis	Open habitation w/o mound(s)	Burdin and Pollack 2006
15Jo79	Thompson	Rockshelter	MacDonald et al. 2006
15La302A		Open habitation w/o mound(s)	Schock 1975

¹Only those sites located in Boyd and Greenup counties are considered in the Lower Big Sandy Section discussion.

Thompson is situated on a long, low rise in the Ohio River floodplain in Greenup County. Investigations documented multiple Fort Ancient occupations (it also contains a Gist phase component; see below) at this 2 ha site (Henderson and Pollack 1992b). The earliest deposits at the base of a 40-50 cm-thick stratified midden date sometime between A.D. 1000-1200 (Henderson and Pollack 1992b:46) (Table 7.14). All of the features assigned to this component consisted of thin, amorphous scatters of charred floral remains (maize, cane, nut, and wood) (Henderson and Pollack 1992b:35).

The Baum Ceramic Series characterizes this component's ceramic assemblage (Henderson and Pollack 1992b:46; Henderson et al. 1992: 258-259; Turnbow and Henderson 1992b:303-310). These materials, which are similar to those recovered from Baum phase sites in the central Scioto River Valley (Griffin 1943:36-69; 73-78; Pruffer and Shane 1970; Ullman 1985), are primarily tempered with grit (crushed quartz and feldspar), although some are tempered with shell alone or mixed with grit. Cordmarking is the predominant surface treatment, though sherds with plain exterior surfaces are present. The only vessel forms are jars with vertical, incurvate, or slightly flared rims. Occasionally triangular incised designs are present on vessel necks, and lips are often cordmarked or dowel-impressed. Characteristic Baum Series rim strips, wedge-shaped in profile and vertically cordmarked to the lip, are commonly applied to flared rims. Appendages consist of semi-circular lugs, and a few thick strap or loop handles (Henderson and Pollack 1992b:46; Henderson et al. 1992:258-259; Turnbow and Henderson 1992b:305-310).

Table 7.14. Big Sandy Management Area: Chronometric Dates¹.

Lab No.	Age (B.P.)	Calibrated Date ² (2-sigma)	References
Lower Big Sandy			
Whites Creek I (15Bd11)			
DIC-2846	560±50	AD 1298-1372, 1378-1437	Aument 1985:81, 1986:16
Bentley (15Gp15)			
Beta-18182	230±50	AD 1513-1601, 1616-1697, 1725-1815, 1835-1878, 1917-1952	Henderson and Pollack 1990:A136
Thompson (15Gp27)			
Beta-13368	920±100	AD 899-919, 952-958, 961-1278	Henderson and Turnbow 1987:209
Beta-13367	810±60	AD 1045-1095, 1119-1141, 1147-1288	Henderson and Turnbow 1987:209
Beta-11852	490±60	AD 1301-1367, 1382-1517, 1595-1618	Henderson and Turnbow 1987:209
Beta-11853	400±70	AD 1418-1643	Henderson and Turnbow 1987:209
Beta-11851	110±60	AD 1669-1780, 1798-1944, 1950-1954	Henderson and Turnbow 1987:209
Univ Missouri (TL date)	850±60		Henderson and Turnbow 1987:209
Univ Missouri (TL date)	1090±80		Henderson and Turnbow 1987:209
Univ Missouri (TL date)	1200±40		Henderson and Turnbow 1987:209
Univ Missouri (TL date)	1490±40		Henderson and Turnbow 1987:209
Dameron Rockshelter (15Jo23A) (see Chapter 5)			
SI-3680	560±100	AD 1258-1522, 1574-1584, 1590-1625	Adovasio 1982:60
SI-3684	155±85	AD 1528-1552, 1633-1955	Adovasio 1982:60
Mayo³ (15Jo14)			
RL-322 ⁴	1060±90	AD 726-737, 771-1176	Dunnell 1983:112
RL-311	800±100	AD 1023-1318, 1352-1390	Dunnell 1983:112
Curtis (15Jo75)			
Beta-200563	880±70	AD 1026-1262	Burdin and Pollack 2006:159
Beta-200564	850±60	AD 1040-1110, 1115-1271	Burdin and Pollack 2006:159
Thompson Rockshelter (15Jo79)			
Beta-217495	890±40	AD 1035-1219	MacDonald et al. 2006:59
15La302A			
UGa-707	685±150	AD 1019-1498, 1505-1511, 1601-1616	Foster 1975:24
UGa-1137	680±135	AD 1030-1463	Turnbow 1981:48
UGa-1138	545±85	AD 1274-1498, 1505-1511, 1601-1616	Turnbow 1981:48
Upper Big Sandy			
Clark Rockshelter (15Fd110)			
Beta-217359	1120±50	AD 780-792, 805-1016	MacDonald et al. 2006:121
Beta-218426	960±40	AD 996-1006, 1012-1166	MacDonald et al. 2006:121
Beta-218427	660±40	AD 1274-1330, 1339-1397	MacDonald et al. 2006:121
Beta-217360	580±40	AD 1297-1373, 1377-1422	MacDonald et al. 2006:121
Millard School (15Pi10/15Pi307A)			
CWR-160	850±170	AD 783-787, 819-842, 860-1424	Turnbow 1981:64
CWR-159	780±120	AD 1024-1402	Turnbow 1981:64
Slone (15Pi11)			
I-0000	464±125	AD 1273-1669, 1780-1798, 1945-1950	Dunnell 1972:92
Woodside (15Pi13)			
Y-1805	710±60	AD 1213-1333, 1336-1398	Dunnell 1972:92
Y-1803	580±60	AD 1290-1432	Dunnell 1972:92

Table 7.14. Continued.

Lab No.	Age (B.P.)	Calibrated Date ² (2-sigma)	References
Hughes (15Pi313A)			
CWR-161	850±130	AD 899-919, 950-1327, 1342-1394	Shock and Foster 1976:24; Turnbow 1981:65
CWR-174	720±160	AD 976-1494, 1602-1615	Shock and Foster 1976:24; Turnbow 1981:65
15Pi315A			
CWR-168	860±150	AD 887-1406	Shock and Foster 1976:36; Turnbow 1981:65
¹ Only those sites located in Boyd and Greenup counties are considered in the Lower Big Sandy Section discussion. Sites in Carter, Elliott, Floyd, Lawrence, Johnson, Martin, and Pike counties are considered in the Upper Big Sandy section discussion.			
² Dates calibrated by Calib Revised Version 5.0.2 (Hughen et al. 2004; Reimer et al. 2004; Stuiver and Braziunas 1993; Stuiver et al. 1998).			
³ See Herndon (2008b:298), who notes that Dunnell now considers that these dates were from a Pike County site.			
⁴ Unacceptable date			

Diagnostic lithic artifacts include Type 2 Fine Triangulars, pitted stones, and net sinkers (Henderson and Pollack 1992b:46-47; Henderson et al. 1992:259). Other artifacts include worked bone tools and bone beads. Floral remains consist of maize, squash, nutshell, and seeds from wild plants. Animal remains represented (deer, bear, elk, turkey, raccoon, squirrel, turtle, fish, and freshwater mussels) indicate that the site inhabitants focused on forest edge and open forest environments, and exploited the adjacent Ohio River (Henderson and Pollack 1992b:46-47).

Middle Fort Ancient (A.D. 1200-1400)

Manion Phase

The best information about the Manion phase comes from the type site: the lower deposits at Fox Farm (Turnbow 1992) in the Eastern Bluegrass Section (see that section for more information). In this section, Middle Fort Ancient components have been documented at Fullerton Field and Hardin Village.

Fullerton Field, located in Greenup County on Tygarts Creek not far from its junction with the Ohio River, was a large village (at least 2.8 ha) that consisted of deep midden deposits and two burial mounds (Beckner 1927; Funkhouser and Webb 1928:106-119; Webb 1928). The mounds stood 1 to 2 m tall and measured about 30.5 m in diameter (Funkhouser and Webb 1928:108). There was no mention of posthole patterns that would indicate the presence of houses, but a circular pavement of burnt sandstone and hearths/ash concentrations were noted (Beckner 1927).

Burials were found in both mound and nonmound contexts. They were flexed, semiflexed, and extended, and some of the latter were placed in stone-lined graves. Flexed burials tended to be associated with Mound 1, while extended burials were found in the vicinity of Mound 2 (Funkhouser and Webb 1928:119). Only the latter contained grave offerings, represented by a whole vessel, bone beads, a bear skull gorget, a gorget made from a section of human skull, a headdress of cut wolf jaws, and a hematite celt.

Cordmarked Fox Farm Series ceramics predominate at Fullerton Field (plain exteriors also are present, as are shell and limestone tempered specimens). A small quantity of Todd Series (plain and fabric-impressed pans) and Madisonville Series (cordmarked) ceramics also were recovered (Griffin 1943:82, Plates XXV-XXX; Henderson et al. 1992:262, 264). Other artifacts from the site consist of chipped stone triangular projectile points, knives, drills and celts; crude stone disks and discoidals; stone hoes; and bone (awls, turtle shell rattles, and beads) and shell (hoes, scrapers, spoons, and ornaments) objects (Griffin 1943:81). Wagner (1984:52) describes maize remains from the site.

The Fox Farm Series dates to between A.D. 1200-1400, and the Madisonville and Todd series to after A.D. 1400 (Turnbow and Henderson 1992a:116). Thus, based on the characteristics of the site's artifact assemblage, and the presence of burial mounds, the major occupation at Fullerton Field can be inferred to have taken place during the Middle Fort Ancient Manion phase. The presence of Madisonville and Todd series ceramics points to the presence of a poorly defined Late Fort Ancient Gist phase component at this site (see below).

Hardin Village was primarily occupied during the Late Fort Ancient Montour phase (see below). The recovery of semi-circular and U-shaped lugs, a few chipped stone disks (although they are not limestone), and Type 2 and Type 3 fine triangulars (Hanson 1966) from this 4.5 ha site indicates that it also was occupied during the Middle Fort Ancient subperiod (Henderson et al. 1992:263).

Given the dates for the Manion phase and the proximity of the Feurt site to this section, it would be reasonable to assume that Feurt Incised pottery (Griffin 1943:343), instead of Fox Farm Series ceramics, would be diagnostic for this time period in this section (Henderson et al. 1992:255, 263-264). However, this is not the case. It is possible that two contemporary, but different, ceramic traditions were being produced in this part of the Ohio River Valley during the Middle Fort Ancient subperiod. On both sides of the Ohio River in this region, however, components dating to this subperiod are not well documented.

Unassigned Sites

A calibrated radiocarbon date from a stone box grave at the Whites Creek I site, which overlooks the Big Sandy River in Boyd County (Table 7.14), suggests it was used late in the Middle Fort Ancient subperiod. No diagnostic artifacts were recovered to corroborate the date, however.

Due to the disturbance the site suffered, the investigator was unable to determine whether the grave had been part of a mound (Brisbin 1986). The contents of the grave

included two adult skulls (male and female?) and a bone pile containing adult and infant bones. The only associated artifacts were a conch shell necklace placed on top of the bone pile, a two-sided anvil, and four flakes. There was no evidence of burning (Brisbin 1986). This site may reflect some aspect of the Fort Ancient practice of isolated burial documented at other sites in this section (e.g., Clark Rockshelter) and in the Interior Mountains Section of the Upper Kentucky/Licking Management Area (e.g., Lead Branch Crematory).

Late Fort Ancient/Madisonville Horizon (A.D. 1400-1750)

Early Late Fort Ancient Gist Phase (A.D. 1400-1550)

Both Thompson and Fullerton Field contain Gist phase components (see the Eastern Bluegrass Section for more discussion of this phase). The Gist phase component at Thompson consisted of midden deposits and three features: two hearths and a deep pit possibly used for storage (Henderson and Pollack 1992b). Ceramics from this component are exclusively Madisonville Series. They are mainly cordmarked, although plain-surfaced examples also are present (Henderson and Pollack 1992b:48-49). Vessels include globular jars with flaring rims and parallel-sided strap handles, and hemispherical bowls. Jar decoration consists mainly of lip notching, but also trailed lines. Hemispherical bowls have horizontal lugs. Diagnostic chipped stone tools include type 4, 5, and 6 fine triangulars, and unifaces. Other artifacts include a bone bead, a grinding slab, and a fragment of ground hematite. Plant and animal remains are similar to those recovered from the earlier Croghan phase component, reflecting continuity in subsistence strategies from Early to Late Fort Ancient times. This component dates to A.D. 1400-1500 (Henderson and Pollack 1992b:48) (Table 7.14).

Applying what is now known about Gist phase occupations at other Fort Ancient sites in this section and the adjacent Eastern Bluegrass Section, the Gist phase at Fullerton Field can be considered to be represented by Madisonville and Todd series ceramics; triangular points, and probably the extended burials (see previous discussion). The location of this occupation at the site, relative to the earlier Manion phase occupation, is unknown.

Late Late Fort Ancient Montour Phase (A.D. 1550-1750)

The latest Madisonville horizon sites in this section have been assigned to the Montour phase (Henderson and Turnbow 1987; Henderson et al. 1992) (see Eastern Bluegrass Section for more discussion of this phase). Hardin Village can be considered protohistoric (Hanson 1966; Henderson et al. 1992; Pollack and Henderson 1983). Historic documents, the types of historic trade goods recovered, characteristics of the Fort Ancient artifact assemblage, and the radiocarbon date obtained from a feature at Bentley (Table 7.14) show that the sites in the Lower Shawneetown Archaeological District (Bentley, Forest Home, Old Fort Earthworks, Thompson, and Laughlin) represent the archaeological remains of the historically documented eighteenth-century Shawnee village of Lower Shawneetown (Henderson 1985a, 1999c; Henderson and Turnbow

1987; Henderson et al. 1986; Pollack and Henderson 1984). In this section, Hardin Village will be discussed first, followed by sites in the Lower Shawneetown Archaeological District.

Hardin Village is situated on the first terrace above the Ohio River in northeastern Greenup County (Hanson 1966). The site covers about 4.5 ha (Henderson et al. 1992:271). Excavation of this site in the late 1930s documented the remains of several structures, as well as pits, hearths, midden piles, surface fired areas, piles of charred logs or maize cobs, midden-filled erosional gullies next to the river, and 301 burials. Four lines of posts found along the river presented equivocal evidence for palisades.

Almost 10 percent of this site was excavated, but the internal organization of this community is not clear. However, it appears that houses were not arranged in a circle around a central plaza like they were at the contemporary Buffalo site in western West Virginia (Hanson 1975). Houses at Hardin appear to be arranged in clusters, but this could simply be a reflection of rebuilding at the site, for which there is much evidence (Hanson 1966:7-13). Burials are located outside the houses, in separate areas (but not in rows, as depicted on the site map [Holmes 1994:56]), and pits appear within and outside the houses.

The outlines of eight structures were exposed at Hardin. They are large, rectangular, single-set post buildings with rounded corners that ranged in size from 5.5 by 16.8 m to 9.1 by 21.5 m. They average 132.9 m² in size. The absence of daub suggests the walls may have been made of bark, thatch, or skins (Hanson 1966:7). Doors were situated on the river side of houses, indicated by a gap in the wall set off by slightly larger posts. Some structures have central posts, pits, and fired areas.

In size and length, Hardin Village domestic structures are comparable to some Iroquoian-type "longhouses" (Holmes 1994:55): they are smaller than the largest examples and half the size of Huron longhouses, but the largest Hardin Village house is larger than the average Mohawk structure (Fenton [1978:303] described houses that averaged 7.6 m wide by 25 m long, although they could be much longer). Similar structures have been documented at the nearby Bentley site (Pollack and Henderson 1984) and at Buffalo (Hanson 1975).

Although the Fort Ancient ceramic typology has been revised since Hanson's research (Turnbow and Henderson 1992b), descriptions of the Hardin Village assemblage must still reference the older typology (Hanson 1963, 1966). The ceramic assemblage is dominated by Madisonville-Fox Farm Cordmarked and Madisonville Plain: over three-quarters of specimens are cordmarked. Minor ceramic types include Fox Farm Salt Pan, and Fox Farm Bowl, Madisonville Grooved Paddled, Madisonville Net-Impressed, and Fox Farm Check Stamped. Other ceramic artifacts found at the site include pottery disks, sherds with smoothed edges (scrapers), pestles, pipes, effigies, anvils, balls, rattles, spoons, pendants, and ear plugs.

A variety of lithic, bone, and shell tools, decorative items of bone and shell, and a small number of objects that are of Euro-American origin also were recovered from Hardin Village. Distinctive artifact classes include small triangular projectile points (that resemble Type 2 and Type 3, and types 4 through 6 fine triangulars) and bifacial teardrop-shaped endscrapers; disk pipe fragments and vasiform pipes; utilitarian bone

tools like awls, chisels, beamers, fishhooks, and pins; bone and shell (both freshwater and marine) beads; and shell gorgets and pendants. The shell gorgets consist of round, rectangular, and diamond-shaped, unengraved styles, as well as engraved (Citico-style rattlesnake, cross, wood duck, and undetermined design) and mask style gorgets (Hanson 1966; Holmes 1994). Items of Euro-American origin consist entirely of pieces of metal, either copper or brass, that have been modified from their original form into objects of personal adornment like beads, bracelets, tubes, coils, and a pendant (Table 7.15). These items undoubtedly were not obtained directly from Euro-Americans, but instead were acquired secondhand through native intermediaries (Hanson 1966).

Table 7.15. Identifiable Historic Objects Recovered from Hardin Village and Bentley (Pollack and Henderson 1983).

Function Group	Bentley	Function Group	Hardin Village
<i>Firearms and Ammunition</i>			
Gunflint	13		
Lead shot	3		
Brass sideplate	1		
Brass rampipes	2		
Iron breechplug/receiver	1		
Iron mainspring	1		
Total	21		
<u>Domestic/Utilitarian</u>			
Iron nails	8		
Iron spike	1		
Iron chisel head	1		
Iron hook	1		
Brass fish hook (?)	1		
Awl (?)	5		
Iron cutlery (blade and handle frags)	5		
Iron key	1		
Iron scissor fragments	2		
Kettle fragments (iron or brass/copper)	6		
Iron ax fragment	1		
Conical rolled brass/copper object (awl?)	1		
Reworked jews harp fragment	3		
Total	38		
<i>Personal Use and Adornment</i>		<i>Personal Use and Adornment</i>	
Jews harp and fragments	5	Rolled copper bead	120 (8)
Brass/copper tinkling cones and blanks	10	Flattened copper bead	4
Shell button	1	Copper bracelet	2
Silver earbob	1	Copper pendant	1
Silver ring	1	Copper tube	9
Iron buckle	1	Rolled brass bead	28 (9)
Pipe fragments (kaolin and stone)	2	Flattened brass bead	22
Glass beads	730 (7)	Brass bracelet	1
Brass/copper tube/bead	2	Brass coil (ear ornament?)	9
Glass and wire bead bracelet	10 (1)	Brass ring (?)	1
Brass/copper pendant	3	Brass tube	4
Brass/copper small bent object (flattened bead?)	2		
Total	768 (36)		201 (70)

Few food remains were recovered. Wagner (1984:52-55; see also Hanson 1966:169) described the maize and red cedar recovered from the site. Animal food remains were not analyzed, although animals represented from the worked bone inventory include deer, elk, bear, dog/wolf, mountain lion, raccoon, beaver, turkey, and turtle, as well as freshwater mussel (Hanson 1966:141-155).

Burials at Hardin Village were typically single, extended, fleshed inhumations laid in simple oval pits located outside the house in proximity to others (Hanson 1966; Holmes 1994:98-110; 197). Slightly over one-fifth of the individuals for which body position could be identified were partially or fully flexed. The remaining ten percent for which body position could be identified were parts of individuals disturbed by later prehistoric digging, and secondary reburials/bundle burials (ranging from largely complete individuals to single skulls, both of which occurred with in-flesh burials or separately). Double burials and graves with stone slabs were rare. Holmes (1994:103, 141) attributed the presence of bundle burials mainly to prehistoric disturbance, but did note that some reflected secondary mortuary manipulation. Clay (1984:135, 138-139), on the other hand, considered the presence of bone bundles as unquestionable evidence for multi-stage Fort Ancient mortuary ritual.

Using the Hardin Village mortuary data, Holmes (1994) assessed the community's level of political organization. He found that infants 0-1 years old were least likely to be buried with grave goods, and that children aged 1-4 years old and adults over 50 were buried with the most items or the most nonlocal grave goods, such as rattlesnake gorgets (Holmes 1994:146-149). Possible objects that served as male markers consisted of metal objects, hematite, and incised/engraved shell ornaments. There were no conclusive female markers (Holmes 1994:150-152; 154). From the results of his study, Holmes (1994:146-147) inferred that the presence of grave goods with children reflected Fort Ancient religious ideas, not the conspicuous consumption that characterizes some Big Man societies, and that there was no evidence for ascribed social status. Holmes (1994:170) concluded that there was "very limited evidence for strong corporate networks necessary" for a Big Man form of political organization. He felt that an acephalous local group form of political organization (cf. Johnson and Earle 1987) offered the best explanation for the settlement's political structure. This contrasts with Pollack and Henderson's (1992b) suggestion that Late Fort Ancient groups may have been Big Man societies (see previous discussion).

Several researchers have analyzed human bone from Hardin Village. It is, by far, the largest Kentucky Fort Ancient human burial population. Depending on how this is measured, it numbered anywhere from 301 (Hanson 1966:24) to 350 (Garten 1997:79) to 445 (Cassidy 1972) individuals. Comparison of the Hardin Village skeletal population with the Archaic Indian Knoll population showed that Fort Ancient groups were not particularly healthy. They suffered from a number ailments reflecting their agricultural lifestyle: higher incidences of dental caries, infectious arthritis, severe enamel hypoplasia, anemia, and non-specific infections, as well as lower life expectancy and higher toddler mortality (suggesting weaning stress) (Cassidy 1972, 1980, 1984:331). These problems stemmed from chronic protein malnutrition (Cassidy 1972:160-161).

Only a few people exhibited evidence of tuberculosis, but many individuals suffered the nonvenereal form of treponematosi, such as yaws or endemic syphilis. They may have acquired this disease at an early age, and then experienced remissions and reappearances throughout their lives (Garten 1997:112-113).

Based on musculoskeletal stress markers and patterns of osteoarthritis, it appears that there was sexual division of labor in the Hardin Village community (Nagy 2000). Males were more mobile than females and engaged in activities that emphasized upper body actions like paddling canoes or carrying heavy loads. Men had an emphasis on stance-related stability (hunting with spears or bow and arrow, or throwing nets or fishing lines, or downward chopping), while women were habitually involved in activities that required an upright but not fixed stance (standing while pounding maize, hoeing crops, and processing hides) and upper body strength (lifting or carrying heavy objects) (Nagy 2000:203, 217, 230). While some evidence for variability in individual behavior is apparent in the types of grave goods placed with different individuals, there is no evidence for ascribed status or social ranking within the Hardin Village burial population based on musculoskeletal stress variation in type or intensity of habitual activities (Nagy 2000:iii-iv, 265-271).

No radiocarbon assays exist for Hardin Village. Hanson (1966:172-175) suggested that the site was occupied from A.D. 1500±50 to 1675±5. Researchers today generally agree that Hardin Village probably was abandoned by around 1625 (Drooker 1997:96; Drooker and Cowan 2001:101; Graybill 1981; Pollack and Henderson 1983). They base this on the diagnostic aboriginal materials recovered from the site; the types of Euro-American items found at the site and their similarity to metal trade items recovered from other protohistoric sites (see Ehrhardt 2005); and a comparison to sites in the middle Ohio Valley that have yielded similar artifact assemblages, some of which have chronometric dates. As such, Hardin Village would have been deserted many years prior to the hypothesized date of the arrival of smallpox in the greater Southeast, ca. A.D. 1696-1700 (Kelton 2002; Milner 1980).

Five sites make up the Lower Shawneetown Archaeological District, located in northwestern Greenup County and northeastern Lewis County. Three are on the Ohio River's second terrace (Bentley, Forest Home, and Old Fort Earthworks) and two are on the floodplain (Thompson and Laughlin) (Henderson 1985a). All have produced Montour phase material culture assemblages that include mid-eighteenth-century Euro-American trade goods.

Lower Shawneetown was a major Indian village from the mid-1730s to 1758. Depicted on maps of the period on one or both sides of the Ohio River at its confluence with the Scioto River, it was the primary village of the Shawnee (Henderson 1999c:30, 37; Henderson et al. 1986). In 1751, it was estimated to have had a population of ca. 1,200 people (Callender 1978:625-626). Along with the Shawnee, other residents included the Five Nations Iroquois and Canadian Iroquois from near Montreal, as well as Loups (Delaware), and Indians of undesignated tribal affiliation from the upper country in Canada (Lambing 1920). In addition, some French and English traders were full or part-time residents. Trading houses or posts were built by the English in the late 1740s, and the town was a major economic hub or "factory" serving as the western terminus for the southern trading route the Pennsylvania traders used in the deerskin trade (Henderson

1999c:39). In the late 1740s and early 1750s, Lower Shawneetown also served as an international diplomatic center for indigenous peoples, and a mid-level diplomatic center between Europeans (French and English) and Indian groups (Henderson 1999c:30, 37; Henderson et al. 1986). After the abandonment of Lower Shawneetown in 1758, the Scioto-Ohio River confluence area continued to be the scene of Indian activity (i.e., Indian ambushes of pioneers traveling down the Ohio River) off and on until 1794 (Henderson et al. 1986: 135-137).

Historical research on the Shawnee indicates that they had a somewhat dispersed village settlement pattern (Clark 1977). The village configuration of Lower Shawneetown is unknown, but the size of the population and the historic accounts suggest that the village probably encompassed a fairly large area. It was located on both sides of the Ohio River, but the section on the Kentucky side was significantly smaller than that on the Ohio, where the council house stood (Mulkearn 1954:16-17). In the discussion that follows, the sites located on the terrace are described first, followed by the floodplain sites.

The Bentley site, also referred to in the literature as the Old Fort Village and Lower Shawneetown, covers 1.2 ha (Henderson and Pollack 1990:A122-123; Pollack and Henderson 1983, 1984). Features excavated at this site include carbonized maize-filled pits or “smudge pits,” rock piles, postholes, and pits. In addition, the remains of 23 individuals were recovered from 16 graves. A rectangular arrangement of pebble-lined posts formed the outline of a structure that measured at least 9 by 15 m (Pollack and Henderson 1984:19). As mentioned previously, the structure is similar in size and shape to those identified at Hardin Village.

The “smudge pits” often occur in clusters (Pollack and Henderson 1984). So, too, do the graves, tending to occur in clusters of two to three individuals. A few graves exhibited evidence of burial structures in the form of associated posts and wall trenches. Infants or juveniles are mainly represented, although four adults over the age of 20 were documented. Most were buried singly; one grave contained two individuals and one contained at least three (Auerbach 1999). All but one individual was laid out in an extended position. A few people were buried with offerings, which included triangular projectile points, a grooved paddled vessel, elk teeth beads, glass trade beads, and a brass pendant (Pollack and Henderson 1984:19). Bioarchaeological analysis of these individuals showed enamel hypoplasia (nutritional stress at weaning), caries, abscesses, and lost teeth, as well as evidence for arthritis, healed fractures, and anemia (Auerbach 1999).

As with other Late Fort Ancient sites, the Bentley site’s ceramic assemblage is dominated by Madisonville Series ceramics. Almost exclusively shell tempered, over half of the assemblage is cordmarked; one-third is plain; and the remainder is grooved paddled (Pollack and Henderson 1984). Vessel forms include globular jars with outflaring rims, hemispherical bowls, and a pinchpot, but pans are lacking. Appendages consist of triangular strap handles on jars and tongue-shaped horizontal lugs or small circular knobs on bowls and jars. Decoration is largely confined to notching on the lip or applied clay strips just below the lip. Where lip notching occurs on jars with handles, the notching is usually confined to the area above the handles. No incised curvilinear or

rectilinear guilloche designs, which are common on earlier Fort Ancient jars, are present on the ceramics recovered from Bentley (Pollack and Henderson 1984:9).

Other material remains that can be assigned confidently to the Fort Ancient component include Type 5 and Type 6 fine triangulars, bifacial teardrop-shaped endscrapers, catlinite or Ohio pipestone disk pipe fragments, and a vasiform pipe. Only a few bone tools and bone or shell ornaments were recovered from the site. From the worked bone tools curated, animals exploited include deer, bear, elk, opossum, turtle, and catfish (Pollack and Henderson 1984:17). Plant remains recovered include charred maize, hickory nut, and wood (Henderson and Pollack 1990; Wagner 1984:50-51).

Euro-American trade goods were contextually associated with Fort Ancient materials at Bentley in features, burials, and the general midden. These trade items represent a broad spectrum of artifact classes, including weaponry, domestic or utilitarian items, and items of personal adornment (Table 7.15) (Pollack and Henderson 1984:13-17). Based upon a comparison of the Bentley site's historic artifacts with materials recovered from sites such as Fort Michilimacinac (Stone 1974), Tunica (Brain 1979), and Guebert (Good 1972), these materials date to the mid-eighteenth century (Pollack and Henderson 1984). A calibrated radiocarbon date obtained from a "smudge pit" also supports an eighteenth-century date for the site's Fort Ancient occupation (Henderson and Pollack 1990:A124) (Table 7.14).

The Forest Home site is a narrow (120 by 365 m) site that is situated on the same topographic feature as the Bentley site, but immediately adjacent to and downstream from it. One Type 6 Fine Triangular and a few shell tempered sherds were recovered from plowzone and surface contexts at this site, as were diagnostic artifacts of Euro-American manufacture. The latter (a glass trade bead, kaolin pipe stem fragment, brass jews harp, spall gunflints, and fragments of a flintlock gun) are identical to those recovered from Bentley (Cropper 1996).

The Old Fort Earthworks is a major Middle Woodland period earthworks (see Chapter 5), designated "Group A" of the Portsmouth Earthworks by Squier and Davis (1848:80). It is located adjacent to Forest Home and Bentley, on the same Ohio River terrace formation. Information about its Contact period component comes mainly from antiquarians of the 1800s, who describe a variety of eighteenth-century trade goods that were removed from the earthwork's enclosure walls and places near them: iron pickaxes, shovels and gunbarrels, buckles, silver crosses and brooches, jews harps, glass beads, clasp knives, coins, and brass kettles (Henderson et al. 1986:132-134). WPA investigations at the site also recovered a few trade items, such as an iron tinkling cone and lead shot (Henderson et al. 1986:134).

Laughlin and Thompson are located on the floodplain below Bentley, Forest Home, and the Old Fort Earthworks. Limited excavations conducted at Laughlin identified a 13-19 cm-thick Montour phase midden and one amorphous feature of unknown function (Henderson and Pollack 1992a). Madisonville Series ceramics from the site are mainly plain, but cordmarked and grooved paddled examples are present. Bifacial teardrop-shaped endscrapers, Type 5 and 6 fine triangulars, a shell pendant, spall gunflints, and kaolin pipe stems also were recovered from this site (Henderson and Pollack 1992a). Subsistence information was meager, although maize, squash, and

hickory nut remains were recovered. At Thompson, bifacial teardrop-shaped endscrapers, Type 6 Fine Triangulans, and a spall gunflint were recovered from the surface (Henderson and Pollack 1992b).

To explore the effects of Euro-American contact on indigenous groups over time, Pollack and Henderson (1983) compared and contrasted the artifact assemblages from the protohistoric Hardin Village (indirect contact) and historic Bentley (direct contact) sites. A primary concern of this study was to identify the way in which trade goods had been integrated into indigenous material cultural assemblages.

At Hardin Village, nearly all the trade items were recovered from burial contexts and consisted of modified scraps of metal used for personal adornment or decoration (Table 7.15). Pollack and Henderson (1983) suggested that these items had little utilitarian value, representing instead indirectly acquired historic trade materials that functioned mainly within the realm of status distinction. Such an interpretation is supported by the continued manufacture of utilitarian bone and shell tools at Hardin Village.

In contrast, at Bentley, trade goods were recovered from domestic features, midden deposits, and burials. Many of the recovered objects were domestic/utilitarian tools, such as scissors, kettle fragments, and an ax fragment, or were related to firearms (Table 7.15). Although aboriginal ceramics and chipped stone tools continued to be used by the Bentley site inhabitants, there appears to have been a reduction in the number of bone tools, decorative shell items, and pans at Bentley relative to Hardin Village (Pollack and Henderson 1983). Pollack and Henderson attributed this to the replacement of items of native manufacture by Euro-American goods. Their study also points to the enduring quality of aboriginal material culture traditions after sustained, direct contact with Euro-Americans.

UPPER BIG SANDY SECTION (CARTER, ELLIOTT, FLOYD, LAWRENCE, JOHNSON, MARTIN, AND PIKE COUNTIES)

Archaeological Research Overview

Relative to the previous section, comparatively little is known about the archaeology of this section (which in this discussion, encompasses the seven counties in the interior of the Big Sandy Management Area). The University of Kentucky, under the auspices of the WPA, excavated a least one-third of the Mayo site (15Jo14) in the 1930s. Although researchers have used materials from this site in various studies (Dunnell 1961, 1983; Purrington 1967b), the materials have never been thoroughly analyzed and described.

Archaeological investigations initiated in 1964, prior to the construction of Fishtrap Reservoir, recorded 11 Fort Ancient sites and identified two types of Fort Ancient settlements: villages and camps. Dunnell (1972:46) distinguished these sites on the basis of artifact density and configuration, classifying eight as villages (Site 15Pi8,

Millard School [15Pi10], Slone [15Pi11], Woodside [15Pi13], Site 15Pi15, Site 15Pi23, Site 15Pi26, Site 15Pi30, and Site 15Pi38) and two as camps (Site 15Pi7 and Site 15Pi34). Limited investigation of a few of these sites and the excavation of the Slone site generated important information on Fort Ancient material culture and settlement patterns (Dunnell 1972; Dunnell et al. 1971).

In the late 1970s, Foster (1975) documented Site 15Pi307A-B (also known as the Millard School site), and Schock and Foster (1976) investigated Site 15Pi313A and Site 15Pi315A-B, two Fort Ancient village sites in Pike County, in conjunction with highway relocation projects. Schock (1975) documented Site 15La302A, an open site, during a survey for a bridge relocation. During an opportunistic county-wide survey in Floyd County, Sanders and Gatus (1977) recorded seven open sites that produced triangular points and/or shell tempered pottery (e.g., Site 15Fd6) and four stone graves/stone mounds that were tentatively assigned to the Fort Ancient period.

Investigations conducted in advance of the construction of the Paintsville Reservoir in Johnson and Morgan counties (the latter is in the Gorge Section of the Upper Kentucky/Licking Management Area) (Adovasio 1982; Dexter 1974, Sanders 1976) generated information on Fort Ancient period settlement patterns in this section. Intensive survey of the project area identified 57 sites with Fort Ancient components. These Fort Ancient sites were primarily rockshelters: only 35 percent were located in lowland settings (Adovasio 1982:961; see Dameron Rockshelter [15Jo23A]).

Since 1987, very little work has been conducted at Fort Ancient sites located in this section. However, the work that has been carried out (in advance of development) at the Curtis site (15Jo75) (Burdin and Pollack 2006), and the Thompson Rockshelter (15Jo79) and the Clark Rockshelter (15Fd110) (MacDonald et al. 2006), has generated very important information on the development of Fort Ancient culture in this region, Early Fort Ancient use of rockshelters, and Fort Ancient mortuary practices.

Table 7.16 presents a list of important Fort Ancient sites in this section.

Table 7.16. Important Sites: Upper Big Sandy Section¹.

Site No.	Site Name	Site Type	References
15Fd6		Open habitation w/o mound(s)	Sanders and Gatus 1977
15Fd110	Clark	Rockshelter	MacDonald et al. 2006
15Pi10/Pi307A	Millard School	Open habitation w/o mound(s)	Dunnell 1972; Foster 1975
15Pi11	Slone	Open habitation w/o mound(s)	Dunnell et al. 1971
15Pi13	Woodside	Open habitation w/o mound(s)	Dunnell 1972
15Pi313A	Hughes	Open habitation w/o mound(s)	Foster 1975; Schock and Foster 1976
15Pi315A-B		Open habitation w/o mound(s)	Schock and Foster 1976
¹ Important sites located in Carter, Elliott, Floyd, Lawrence, Johnson, Martin, and Pike counties discussed in this section are listed in Table 7.13.			

CHRONOLOGY

Chronological control for this section as a whole is not good. The criteria used to distinguish Early, Middle, and Late Fort Ancient occupations in the adjacent Eastern Bluegrass Section of the Bluegrass Management Area and Lower Big Sandy Section of this management area do not appear to be entirely applicable here.

Work conducted in the Fishtrap Reservoir in Pike County generated a relative dating sequence based primarily on ceramic and projectile point trends (Dunnell 1972; Dunnell et al. 1971) that is unique and may be applicable only to that area. Within this sequence, all post-A.D. 1000 components were assigned to the Woodside “phase” (A.D. 1200-1600) (Dunnell 1972:61). Like Purrington (1967b:73, 149), Dunnell (1972:72) could not demonstrate continuity between the village farmers of the area and the preceding cultural manifestations. Both thought the Fort Ancient components represented a movement of people into the area. Purrington (1967b:149) suggested this movement was upriver along the Levisa Fork or overland from Line Fork.

Dunnell (1983) researched the materials recovered during the Depression from the Mayo site (15Jo14), located downstream from Fishtrap, in an attempt to identify the origins of the Woodside “phase” (Dunnell 1983:112). Calibrated radiocarbon dates from Mayo (Table 7.14) suggest the possibility of a time-transgressive sequence in the Big Sandy drainage, with Woodside in Pike County an up-river intrusion from further downstream on the Levisa drainage (Dunnell 1983:110, 112) (Table 7.14). From his Mayo site research, Dunnell (1983:110) concluded that Woodside was an admixture of Fort Ancient and Appalachian (read Radford/Intermontane Culture [cf., MacCord 1989]) traits, with pronounced Fort Ancient parallels. Graybill (1988:60-61), on the other hand, has argued that Woodside represents an *insitu*, local development. He, too, recognized the Radford/Intermontane Culture characteristics within Woodside artifact assemblages, but he considered the parallels to Fort Ancient culture the result of contemporaneity and geographic proximity, not in-migration.

Henderson and Pollack (2007) agree with Graybill’s *insitu* development interpretation. They suggest that Woodside is comparable to other regional pre-Madisonville horizon Fort Ancient manifestations, like Anderson, Baum, Osborne, and Croghan. Since no post-A.D. 1400 Fort Ancient components have been archaeologically documented in the Levisa Fork drainage, they suggested that researchers restrict the use of the term “Woodside” to sites and site assemblages dating between A.D. 1200 and A.D. 1400. Until more work is conducted at Fort Ancient sites in this section, these chronological issues will remain unresolved.

For this section, descriptions of sites in the Paintsville Reservoir region (Curtis, Mayo, Site 15La302A, and the Paintsville Reservoir rockshelters) are presented together, since these sites are located within close geographical proximity to one another. This is followed by a discussion of the Fishtrap Reservoir area investigations, and a brief consideration of the entire section’s protohistoric and historic Indian resources. How the Fort Ancient occupations in the Paintsville Reservoir region are related to those in the Fishtrap Reservoir region remains to be determined.

Paintsville Reservoir Region and Environs

Information on site occupations in this region is presented in relative chronological order, since Curtis, in terms of material culture and radiocarbon dates, predates Mayo and Site 15La302A. This is followed by a discussion of the area's rockshelter components.

Open Sites

The Curtis site is a small (.14 ha) settlement situated on a high terrace overlooking the Levisa Fork of the Big Sandy River in Johnson County (Burdin and Pollack 2006). Features excavated at this site consisted of 21 postholes, eight shallow pit basins, and one large pit. Although no regular post pattern of structure walls was discernible, it is likely that one or more structures once stood at this site. The distribution of posts and pits points to the separation of residential and food preparation/disposal activities. No evidence of burials was discovered.

A concomitant low density of artifacts accompanied the low feature density. Few tools were recovered. No triangular points were found, and debitage indicates that tools of Haney and Paoli cherts were produced at the site from prepared blanks or preforms transported to the site.

One feature produced most of the ceramics. They are mainly cordmarked. About three-quarters are tempered with sandstone alone, although about one-fifth are tempered with sandstone and minor amounts of shell. Specimens tempered with other kinds of rock or fired clay comprise the rest of the assemblage. Most vessels are jars with incurvate/recurved rims. A few rims exhibit pseudo-rimfolds. Vessel walls are relatively thick (mean=8.6 mm). Ten percent of the assemblage is decorated, consisting of incised/trailed lines, and short notches and cordmarking on lips. No appendages were recovered.

The ceramic assemblage from Curtis is very different from the Baum Series sherds recovered from the Croghan phase deposits at Thompson. Curtis ceramics do, however, share several important characteristics with the ceramics recovered from the contemporary Elk Fork site in the Gorge Section (Henderson 2006a:83-85) (see previous discussion). This may indicate that an as-yet-to-be-defined Fort Ancient ceramic series was manufactured in the mountains at this time.

The botanical assemblage from Curtis consists of maize, nuts, and native cultigens (goosefoot, marshelder, and erect knotweed). It is interpreted as a Fort Ancient assemblage that retained aspects of Woodland period plant use that had been abandoned after A.D. 1000 in other parts of the Fort Ancient area (Rossen 1992a, 2006). Curtis' plant profile is comparable to Elk Fork's, suggesting that Early Fort Ancient groups in this management area combined maize with native cultigens and a continued reliance on nuts, in contrast to those who lived in the other management areas (Rossen 1992a, 2006:103-104; Rossen and Edging 1987).

Calibrated radiocarbon dates place the Curtis site occupation sometime in the A.D. 1100s, consistent with those obtained from Elk Fork (Table 7.14). As such, Curtis is the first Early Fort Ancient site documented in the Big Sandy drainage. Its discovery points to interaction with groups living in the Gorge Section and provides support for an *insitu* development of Fort Ancient culture in this area (Burdin and Pollack 2006). As exemplified by Curtis, Early Fort Ancient components may be poorly represented in this management area not because they do not exist, but because temporally diagnostic artifact signatures have yet to be identified; because they are small settlements that were not occupied for extended periods of time; or because site reoccupation has obscured or destroyed these earlier occupations.

The Mayo site, a circular, unpalisaded village with a central plaza, dates about a century later than Curtis (Dunnell 1983:112; Henderson and Pollack 2007). It is located on a high terrace next to Paint Creek in Johnson County. Over 50 features (hearths, pits, or midden areas), three burials, five complete house patterns, two partial house patterns, and numerous scattered postholes were documented at this site (Figure 7.4). Concentric activity areas (refuse zone, domestic activity/dwelling zone, culinary zone, and plaza) are present (Dunnell 1983:159). The structures, which were built with single-set posts, are rectangular with an average size of 5.6 by 8.5 m. Each may have had an associated portico (covered open area) attached near one of the corners facing the plaza (Dunnell 1983:132). The dead were buried partially flexed in simple pits; one may have been covered with stone. Grave goods include bone beads and red ochre (Purrington 1967b:69).

Diagnostic stone artifacts include triangular points (point types were not quantified), knives; drills; scrapers; manos and metates; a discoidal and ground sandstone discs; a pipe bowl; celts; and bar atlatl weights (Dunnell 1983:68; Purrington 1967b:69; note that the bone and shell artifacts from the site remain uncatalogued [Purrington 1967b:62]). Purrington (1967b:Figure 18) illustrates examples of a Crude Triangular and a Type 1, a Type 2, and a Type 5 fine triangular from the site.

The ceramics from Mayo are primarily shell tempered, although some “grit” tempered sherds recovered from the site may be a part of the site’s Fort Ancient ceramic assemblage (Dunnell 1961:72-82, 1983:109, 112, 126). Based on Purrington’s (1967b:69, Table 5) assessment of a sample of the sherds from Mayo, cordmarked examples slightly outnumber knot-roughened/net-impressed specimens, and some plain sherds are present. Minor surface treatments include simple- and check-stamping. Vessels are constricted-neck jars with straight or slightly everted rims, globular bodies, and wide mouths. Identified appendages consist of parallel-sided strap handles that are characteristically cordmarked or knot-roughened/net-impressed. Large single or small double castellations can occur on lips above the handle. Decoration consists of wide (trailed) lines and punctuation. Two “stylistic precincts” with relatively sharp boundaries are evident in the ceramic assemblage: cordmarked ceramics predominate in the northern part of the village, and knot-roughened/net-impressed exteriors predominate in the southern part (Dunnell 1983:159; Johnson 1982:818).

Of the two available calibrated radiocarbon dates (Table 7.14), only the more recent one is considered acceptable, given the site’s circular configuration. Attributes of the artifact assemblage (e.g., mainly shell tempered but also grit tempered ceramics, parallel-

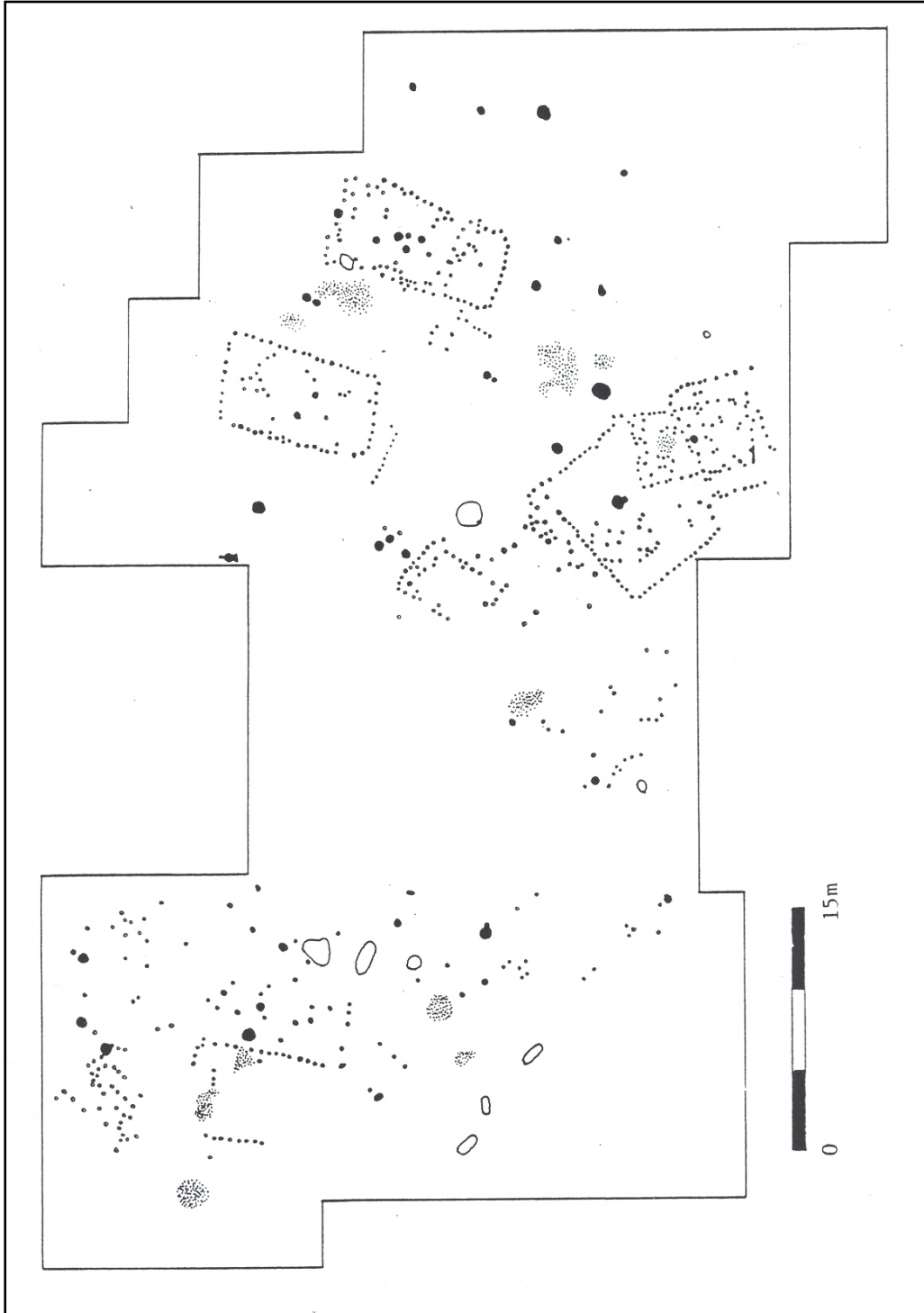


Figure 7.4. Woodside Phase village at the Mayo site (Dunnell 1983:Figure 8). Solid areas denote hearths; stippled areas are surface features (sheet midden and surface hearths); and open areas denote all other pits (rectangular examples are graves and circular examples are storage pits).

sided strap handles, and ground sandstone discs) are suggestive of a Middle Fort Ancient occupation.

Site 15La302A is located in Lawrence County (Shock 1975). Limited investigations documented an extensive artifact scatter on the surface, a shallow refuse pit, and 23 postholes. Investigators concluded that one or more houses were present. Materials recovered included triangular points, ceramics (mainly fabric-impressed or cordmarked), sandstone discoidals, a ceramic pipe fragment, and animal bone. Calibrated radiocarbon dates suggest this site's Fort Ancient occupation occurred before A.D. 1400 (Table 7.14).

Rockshelters

The Thompson Rockshelter is located in Johnson County along a tributary of the Levisa Fork (MacDonald et al. 2006:40-62). This undisturbed south-facing rockshelter measures 18 m wide by 4 m deep by 3 m tall. Fort Ancient materials were recovered from the upper 20-30 cm. A small hearth and possible posthole were the only features identified.

Fort Ancient materials are represented by triangular projectile points, with Type 2 Fine Triangulares predominating. The low diversity and density of debitage suggests that finished tools manufactured from local cherts were retouched at the site (MacDonald et al. 2006:53, 62). The small ceramic assemblage is tempered with sandstone (no examples of shell tempered or mixed shell and sandstone tempered examples were recovered), and had cordmarked or plain exterior surfaces, with the latter predominating (MacDonald et al. 2006:55-56). The botanical assemblage was limited, represented by nutshell.

This site may represent a short-term fall hunting or nut-harvesting camp that saw multiple visits, with the Fort Ancient period of use the most intensive. A calibrated radiocarbon date is suggestive of an Early Fort Ancient occupation for this site (Table 7.14).

The Paintsville Reservoir area is situated on Paint Creek in Johnson and Morgan counties. Six rockshelter sites produced triangular points and small quantities of shell tempered ceramics (Adovasio 1982:602-603, 609, 615-619; Johnson 1982:813-819). Points include Madison, Fort Ancient, Guntersville, Hamilton Incurvate, or Levanna-like examples. Exterior surfaces of shell tempered ceramics are almost exclusively "cordage" impressed (which includes cordmarked and textile impressed sherds). Only a few have knot-roughened/net-impressed or plain exteriors. No mixed shell and rock tempered examples were recovered from these sites. Over time, there was an increase in plain surfaces. Shell tempered sherds from Paintsville share characteristics with Woodside and Bluestone ceramics (Johnson 1982:816-818). On this basis, Adovasio (1982:996) assigned these site occupations to the Woodside phase, noting possible cultural ties with sites in the upper Tennessee drainage and a strong affiliation to other Appalachian Fort Ancient manifestations, like Bluestone.

These sites may be specialized, short-term, possibly seasonally used activity loci representing forays into the uplands by hunting parties whose villages may have been

located outside the Paintsville Reservoir study area (perhaps Mayo?) (Adovasio 1982:968, 984, 996). They also could represent winter hunting camps of longer duration (Henderson and Pollack 2007). Three of these rockshelter sites produced a few examples of Midwestern-12 Row and Northern Flint (10-row) maize cob fragments, particularly Sparks Rockshelter (15Jo19) (Adovasio 1982:922-926).

Dameron Rockshelter, a gentle overhang situated along the east bank of Paint Creek, is a good example of a Paintsville Reservoir Fort Ancient rockshelter site (Adovasio 1982:80-97). It measures 9 m long by 2.5 m deep, and has a maximum ceiling height of 2.3 m. A total of 35m² was excavated at the site, with deposits extending to a depth of 65-80 cm. Fort Ancient materials were recovered mainly from the upper levels of the site, the surface, and from two shallow irregular pit features.

The site produced limited numbers of shell tempered “cordage” impressed sherds, and Madison and Hamilton Incurvate triangular projectile points (Adovasio 1982:602-603, 615-616, 814-818). Botanical remains also were limited: the site yielded no maize, beans or squash, but nuts and seeds of wild plants and fleshy fruits were recovered. Faunal remains included deer, small mammals, box turtle, and turkey (Adovasio 1982:887-888). Inferred to be a campsite, seasonality data suggest it was used in the late summer and fall, in the spring, and sporadically in the summer (Adovasio 1982:929). Calibrated radiocarbon dates suggest a post-A.D. 1400 occupation (Table 7.14).

Although the number of sites within the Paintsville Reservoir area attributable to the Fort Ancient period declined in comparison to the preceding Archaic and Woodland periods, relative to the Woodland period, there was an increase in the absolute numbers of diagnostic Fort Ancient period artifacts (Adovasio 1982:962, 967, 984). If this in any way reflects human population, then more individuals used the Paintsville Reservoir area during the Fort Ancient period than during any of the preceding periods, even though there is little evidence for intensively or permanently occupied Fort Ancient villages in the reservoir area. The documented sites may represent special activity loci that were visited intermittently (Adovasio 1982).

The undisturbed Clark Rockshelter is located on an east-southeast-facing slope on a ridgetop peak in the Middle Creek drainage in Floyd County. A very unique and significant site, it provides evidence for an isolated, Fort Ancient secondary cremation mortuary event/multi-step burial ritual, similar to that documented at the Lead Branch Crematory (Niquette et al. 1995) in the Interior Mountains Section.

Investigation of the Clark Rockshelter documented an oval basin, which measured 1.9 by 2.1 m, surrounded by a semi-circular rock wall that had been formed by small sandstone slabs stacked two to three slabs high. The basin extended 46-51 cm below the surface and had steeply tapering sidewalls (MacDonald 2006:112). Feature fill consisted of dark soil that contained sandstone, fire-cracked rock, charcoal (diverse species of nut, wood, seeds of miscellaneous plants, but no domesticates), abundant small fragments of animal bone, and cremated human remains. Other items consisted of five to ten cut and unburned mica books that had broken apart; four beads (three disc bone or shell beads and one marginella shell bead); scarce lithic debris (of local chert types); two triangular projectile points; and sandstone tempered cordmarked and plain sherds (MacDonald et al. 2006). The feature exhibited no evidence for *insitu* burning. Although some flake debris

and faunal remains showed evidence of having been burned, the grave goods were not: they apparently had been offered after the cremations. There was no semblance of order to any of the cultural remains in the basin.

The human bone represents the remains of two individuals: an adult and an subadult (approximately 6 years old). Half of the adult's bones and most of the subadult's bones had been burned, and very little of each individual (4-7 percent) was present. Cut marks on skull fragments show that the bodies had been defleshed and dismembered first before being cremated, and that cremation had occurred elsewhere. Then the cremated remains had been bundled together and transported to Clark Rockshelter as a single mortuary event, the final step in a multi-step mortuary program (McDonald et al. 2006:143-144). Three of the four calibrated radiocarbon dates indicate that the burial event occurred sometime between A.D. 1100-1300 (MacDonald et al. 2006:122) (Table 7.14).

The presence of a subadult at Clark Rockshelter suggests that this special mortuary treatment was not reserved exclusively for adults or religious leaders. The recovery of a marine shell bead and mica with the remains suggests that the individuals (or the groups to which they belonged/which they represented) held important social positions. The recovery of these objects also points to some sort of social or economic linkages to groups further east, the mica in particular suggesting links to contemporary Pisgah phase groups living in the western North Carolina Piedmont and Blue Ridge (MacDonald et al. 2006:144).

Clark Rockshelter exhibits several similarities to Lead Branch Crematory (Niquette et al. 1995; MacDonald et al. 2006:144-145). Both are rockshelters located in remote upland ridgetop settings that contain only Fort Ancient secondary cremation burials placed within pits demarcated by small rock walls. In both instances, the individuals had been defleshed before being cremated, and all of the bones associated with each individual had not been transported to the site. Differences include the presence of cut marks on some of the human remains from the Clark Rockshelter; the presence of a child and an adult at Clark Rockshelter versus only adults at Lead Branch Crematory; and the presence of more grave goods at Clark Rockshelter. Because these two sites are not contemporary, they reflect mortuary continuity in the Interior Mountains and the Upper Big Sandy sections over a period of several centuries. And as with the Curtis and Elk Fork sites, these two rockshelters point to interaction between Fort Ancient groups living in the Big Sandy Management Area and those living in the Upper Kentucky/Licking Management Area.

Fishtrap Reservoir Region

The Fort Ancient period in the Fishtrap area is represented by Woodside phase villages and camps (Dunnell (1972). Good examples of Woodside villages are Woodside and Slone, while Site 15Pi7 and Site 15Pi34 are representative of the types of camps found in this area (Dunnell 1972:45-72; Dunnell et al. 1971). Other Woodside phase village sites documented in Pike County include sites 15Pi313A, 15Pi315A-B, and Millard School (Foster 1975; Schock and Foster 1976). Acceptable calibrated

radiocarbon dates (Table 7.14) are suggestive of a date range for this phase of ca. A.D. 1200-1400.

Woodside phase villages were year-round settlements that were occupied by people who relied primarily on slash-and-burn maize agriculture supplemented by hunting, fishing, and the gathering of wild plants. All Woodside site types are located on the main valley floor and all are associated with good agricultural soils (Dunnell 1972:45). Some villages appear to have been abandoned and reoccupied periodically by the same group of people (Dunnell 1972:51). Diagnostic artifacts found on Woodside phase sites consist of shell tempered pottery, Type I and II(a-d) triangular projectile points (which appear to subsume most of Railey's [1992] fine triangular types; cf. Dunnell [1972:87-88]), t-shaped drills, and stone disks (the latter were not found at the camps) (Dunnell 1972:47).

Based on a seriation of projectile point types and exterior surface treatments, Dunnell (1972:57-58) established a relative chronology for temporally ordering sites. The triangular projectile point seriation indicates that early styles tend to have been relatively thick (6.9 to 7.2 mm) in relation to their length and width (Dunnell 1972:58, 87-88). Thinner specimens (less than 3.6 mm) had concave bases and either concave or convex sides. The latter points are somewhat similar in shape to either Hamilton Incurvate (Cambron and Hulse 1964; Kneberg 1956) or Levanna (Ritchie 1961) points, respectively. Through time, these points give way to examples with straight or concave bases and straight or excurvate sides (Railey's [1992] type 4, 5, and 6 fine triangulars).

The seriation of exterior surface treatments indicated an increase through time in plain surfaces. Knot-roughened/net-impressed surfaces, initially the most popular, decreased through time, while the percentage of sherds exhibiting cordmarked exterior surfaces increased in popularity, but then also declined (Dunnell 1972:57).

The Slone site is the type site for the Woodside phase. It is located on the Levisa Fork in Pike County. Like Mayo, it is a circular village. Unlike it, however, Slone was surrounded by a palisade that had been rebuilt three times (Dunnell et al. 1971:8). It was either repeatedly occupied or grew during the occupation. The diameter of the site, as measured by the palisade, varied from 62.5 to 75.5 m, and thus Slone was larger than Mayo. "Gates" consisted of overlapping segments of the wall.

The palisade encloses a minimum of 12 rectangular, single-post structures, some of which exhibit evidence of rebuilding. Structures ranged in size from 5.6 by 7.0 m to 6.8 by 12.3 m. Most have centrally located hearths, and many have small, attached or free-standing "porticoes" or covered cooking areas on the plaza side of the structure (Dunnell et al. 1971:11-12). Features, such as surface hearths, basins, pits, and earth ovens, are located near the houses. Storage pits are either rock-lined or contain the remains of large ceramic vessels that had been placed in the pit as a liner. Burials are located in the trash disposal zone on the village periphery between the structures and the palisade wall. Individuals were placed, either extended or partially/fully flexed, in simple pits or in compound pits, where stone slabs were placed over the body (Dunnell et al. 1971:35, 42). Almost half were buried with grave goods consisting of ornaments, such as marginella shell beads and conch shell ear plugs (Dunnell et al. 1971:33).

Dunnell et al. (1971:42) identified concentric activity areas (refuse zone, domestic activity/dwelling zone, culinary zone, and plaza) at Slone. Spatial variation in the distribution of different pottery types within the site may reflect village growth over time and/or intracommunity cultural differences (Dunnell et al. 1971:72, Table 14, 74-80).

As discussed previously in the Central Bluegrass Section, Slone's internal configuration shares certain similarities with two other contemporary Fort Ancient sites: SunWatch/Incinerator (Cook 2004; Heilman et al. 1988; Nass 1989; Nass and Yerkes 1995) and Florence Site Complex Site Hr22 (Sharp and Pollack 1992) (Figure 7.2). For example, while Slone is the smallest of the three, both Slone and SunWatch/Incinerator present clear evidence for *insitu* village growth and site expansion, represented by overlapping/reconstruction of houses; multiple palisade lines or increasingly larger circumference, and superposition of houses and palisade lines.

Yet Slone's configuration also exhibits very important differences (Henderson and Pollack 2004). Unlike SunWatch/Incinerator, there is no evidence for a central post at Slone (although this could be due to the lack of excavation in the plaza); and unlike Florence, there is no burial mound within Slone's plaza. The arrangement of internal village activity zones at Slone also is different from Florence and SunWatch/Incinerator, particularly with respect to the location of the mortuary zone. At Slone, it is behind the houses, near the palisade, and far away from the plaza, while at the other two sites, the mortuary zone surrounds the plaza. These differences in inter-village community organization may reflect different cultural/ethnic traditions, the communities' setting/topographic context, or the settlements' own unique occupational histories (Henderson and Pollack 2004).

All the ceramics recovered from the Slone site are shell tempered (Dunnell et al. 1971:67-72). Over half of the sherds have plain exteriors, while cordmarked or knot-roughened/net-impressed sherds each account for about one-fifth of the assemblage. The remaining sherds have simple- or check-stamped and "true" net impressed exteriors. Except for a few pan rims (no bowls were recovered), most of the vessels are jars with short, slightly constricted necks, flared or vertical rims, and subconoidal bases. The only appendages associated with these vessels are parallel-sided strap handles. Notable was the fact that many of the handles have cordmarked or knot-roughened/net-impressed exterior surfaces (Dunnell et al. 1971:69-70). Decoration is rare and consists of incising (in a zig-zag motif), punctation, and nodes. The Slone assemblage includes a small number of specimens (i.e., small jars with flat lips and strap handles) that appear not to be locally produced, given their finely crushed shell temper and/or painted surfaces.

Other artifacts recovered from Slone include small equilateral (Levanna or Clarksville Small Triangular) or isosceles (Madison, Dallas, and Hamilton Incurvate) varieties (similar to Railey's [1992] type 4, 5, and 6 fine triangulars) (Dunnell et al. 1971:49-53). Other lithic artifacts include scrapers and stone disks; cannel coal pendants and beads; and elbow pipes (Dunnell et al. 1971). Bone and antler artifacts include antler tine projectile points and flakers, fishhooks, awls, and beads (barrel-shaped and turkey digit), and turtle shell spoons, while shell items include marine shell beads, earplugs, and gorgets (Dunnell et al. 1971).

The major animals exploited, based on the number of bones represented, were deer and black bear, followed by smaller mammals. Turkey and box turtle also were important. Noteworthy was the presence of porcupine, which no longer lives in the area, and the absence of rabbit (Dunnell et al. 1971:92-93). The excavations at Slone were conducted before flotation became standard practice, so no analysis of plant remains was presented, however, several soil samples were collected. They were processed and examined at the University of Washington in the late 1980s (Sharp 1990:526), but no report of these findings is available. Stable carbon ($^{12}\text{C}/^{13}\text{C}$) isotope analysis of human bone from Slone shows that maize cultivation was a significant subsistence pursuit, and that maize was consumed in large quantities (Broida 1984:81-82).

The single calibrated radiocarbon date from Slone (Table 7.14) is not particularly helpful for assigning a date to the site occupation, given its large standard deviation. Attributes of the site's ceramic and lithic assemblages suggest the site was occupied toward the end of the Middle Fort Ancient subperiod and the beginning of the Late Fort Ancient subperiod.

Woodside phase camps at Fishtrap are open habitation sites that consist of somewhat uniform scatters of artifacts over an irregularly shaped area (Dunnell 1972:45-49, 52). Waste material from tool production (mainly debitage), points, and cutting and scraping tools occur in greater relative frequencies at camps than do containers (pottery) and food waste (animal bone and shell). In addition, stone disks are not associated with camps. Excavation of one camp, Site 15Pi7, failed to locate any features (Dunnell 1972:49).

The Upper Big Sandy Section After A.D. 1550

Archaeological evidence for protohistoric occupations in this section is limited (Henderson et al. 1986:142). Documentary sources report Indian trails and the locations of historic Indian villages/settlements just prior to European settlement (i.e., the late 1700s) in Johnson, Floyd, and Pike counties, but the locations of these villages have never been confirmed (Henderson et al. 1986:130, 142-148, 163-164). These sources credit Siouan-speaking Tutelo or Algonquian-speaking Shawnee as the region's native occupants.

SITE DISTRIBUTION PATTERNS

This management area contains a total of 116 Fort Ancient sites (Table 7.17). As in 1987, the overwhelming majority (81.8 percent) of these are located in the Lower Big Sandy Section (Sharp 1990). Indeed, of all the sections considered in this chapter, the Upper Big Sandy Section has the fewest recorded Fort Ancient sites. The low number is probably due, in part, to the small size of this section (only two counties), its rugged terrain, and a general lack of large-scale survey projects and intensive investigations of Fort Ancient sites.

Table 7.17. Big Sandy Management Area: Site Type by Section.

Site Type	Lower	Upper	Total	Percent
Open Habitation Without Mound(s)	64	20	84	72.4
Rockshelter	28	1	29	25.0
Isolated Burial	2	0	2	1.7
Open Habitation With Mound(s)	1	0	1	.9
Total	95	21	116	
Percent	81.8	18.2		100.0

Open habitations without mounds account for the largest percentage of Fort Ancient sites in this management area, and rockshelters, which are the second most frequently occurring site type, are found almost exclusively in the Lower Big Sandy Section (Table 7.17). The low number of rockshelter sites in the Upper Big Sandy Section may reflect geological factors that inhibited rockshelter formation in the region as well as poor survey coverage.

MANAGEMENT AREA NEEDS

Discussion in this section focuses on specific research needs for each management area/section.

SALT RIVER MANAGEMENT AREA

The Salt River Management Area is one of the best places in the state to study issues related to Fort Ancient-Mississippian interaction, and interaction between Fort Ancient groups living in different management areas. Unfortunately, only limited Fort Ancient period research has been undertaken in this region, and the issues outlined in 1990 remain the same today (see Sharp 1990:476-477).

The most basic research requirements - the development of a local chronology for sites in the nine counties considered in this chapter and the identification of local material culture characteristics - have not been met. Hypotheses concerning cultural developments derived from the adjacent Bluegrass Management Area may be applicable here, but systematic surveys need to document more Fort Ancient sites in the Salt River Management Area and more sites need to be intensively investigated before this can be confirmed. Current ideas about boundaries have been made *ad hoc*, based on assumptions of what to expect or on site location, and not on tangible identifiable differences in ceramics, triangular projectile points, or other cultural characteristics. Researchers need to identify the attributes that distinguish Salt River Fort Ancient groups from their Mississippian and Bluegrass Fort Ancient counterparts before they can truly identify/assess the cultural boundaries and the nature of interregional cultural interaction.

BLUEGRASS MANAGEMENT AREA

Archaeologists know more about Fort Ancient culture in this management area than in any of the others. This is due to the fact that more Fort Ancient sites have been examined and more targeted intensive site investigations have been conducted in this area. The richness and diversity of inquiries that have used data from sites in this management area demonstrate the kinds of research questions that can be considered, once the basic groundwork has been laid. It is easy to view this management area as the norm against which to compare all the others.

This image of the Bluegrass Management Area is misleading, however, for “hot spots” tend to mask its data deficiencies. There are actually large parts of this management area about which little is known, and there are many research issues that have not been considered. Also, given the geographical variability researchers have documented within Kentucky Fort Ancient, the Bluegrass Management Area may not be

a particularly good yardstick to use in the other management areas. The following discussion illustrates this.

Central Bluegrass Section

More Fort Ancient sites have been documented in this section than any other, with an average of 31 sites per county. As a result, this section is in the best shape, comparatively, with respect to the basics: building a chronology, understanding subsistence, and identifying diagnostic material culture characteristics.

However, broader survey coverage is needed. The range of site types needs to be systematically evaluated, and each type needs to be examined in detail. More information also is needed on the internal organization of village sites, and the nature and extent of interaction with Mississippian groups living south of this section. Given the features of the Bluegrass' natural environment, this section holds particular potential for examining Fort Ancient salt manufacture and researching the impact Fort Ancient agricultural practices (e.g., the use of fire) may have had on the natural environment. Was the landscape that Boone and others encountered during their trips to Kentucky a product of past Fort Ancient farming practices?

Northern Bluegrass Section

Great strides in Fort Ancient research have occurred in this section since Sharp (1990). It is now clear that Early and Middle Fort Ancient subperiod materials from sites along the Ohio River are similar to Anderson phase materials recovered from Fort Ancient sites in southwestern Ohio. Interior sites, however, have produced artifact assemblages that bear more resemblance to Central Bluegrass Section Osborne/Elkhorn phase materials. Thus, future research in this section (and in the Eastern Bluegrass Section as well) has the potential to generate important comparative data with respect to Fort Ancient cultural developments north of the Ohio River and to provide insights into differences between a riverine and interior Fort Ancient adaptation.

However, these strengths are overshadowed by the fact that comparatively fewer sites have been recorded for this section (an average of nine or fewer Fort Ancient sites have been recorded per county). These sites are disproportionately clustered in Boone County (n=37 out of 92; the remaining 54 are from the other nine counties). Thus, while archaeologists know a good deal about one county, they know virtually nothing about anywhere else in this section. This lack of knowledge is particularly apparent in the counties that extend along the Ohio River downstream from Boone County and those in the interior.

Systematic surveys are needed to help determine the nature and extent of Fort Ancient use and occupation in this section. Sites like Green(e), the Ogden-Moore Mound Village, and McVillie Village need to be excavated and dated, and materials from Bintz need to be described in detail. Broader geographical coverage would document intraregional variability and would facilitate the development of a regional chronology. Although the Ohio River serves as a boundary today, in the past it did not. Our

understanding of Fort Ancient culture as a whole would benefit greatly if researchers considered the northern Kentucky and southwestern Ohio data as a single data set.

Eastern Bluegrass Section

Some of the earliest Fort Ancient research conducted anywhere in Kentucky was carried out at sites in this section. Researchers developed a local chronology, recovered subsistence information, and explored Fort Ancient burial practices years before they did so for other sections that had significantly more recorded sites (only the Upper Big Sandy Section has fewer recorded sites than this section, though with respect to sites per county, the Upper Big Sandy Section has more). Since Sharp (1990), however, research in this section has fallen behind the others, and directed extensive work has been conducted at only a few key sites.

Before a complete picture of Fort Ancient culture in this section can emerge, more systematic intensive surveys aimed at recording Fort Ancient settlements in both upland and floodplain areas along the Ohio and Licking rivers need to be conducted. This research also should emphasize refinement of the local chronological sequence. Early Fort Ancient sites contemporary with those in the Lower Big Sandy Section (Croghan phase) and Central Bluegrass Section (Osborne phase; Beals Run components) need to be identified and investigated. Research at these sites would provide much needed information on the transition from Late Woodland to Fort Ancient. More focused site investigations also are required at sites such as Henry Pyles, Turtle Creek, S.S. Clay Mound and Village, Van Meter, and Site 15Lw34.

UPPER KENTUCKY/LICKING MANAGEMENT AREA

Fort Ancient culture appears to have developed somewhat differently here, relative to the Bluegrass Management Area, illustrating the danger in relying on data from other sections to interpret local developments. This management area includes the unique Gorge Section with its miles of clifflines. Surveys conducted by the USDA Forest Service have documented a large number of rockshelters in this section (Table 7.18). Albeit distantly, the Gorge Section is second only to the Central Bluegrass Section in the total number of Fort Ancient sites recorded per county (n=17), and the Upper Kentucky/Licking Management Area has the second-highest number of recorded Fort Ancient sites (n=222) (Table 7.12).

Gorge Section

Given their special preservation environments, the rockshelters documented in this section contain data on Fort Ancient perishable technologies and foodways that are not available anywhere else. Threats to rockshelter preservation and the impacts they endure, however, mean that undisturbed and intact Fort Ancient deposits/components are exceedingly rare and significant. When intact Fort Ancient occupations are identified, they need to be examined and/or protected.

Settlement pattern trends in this section appear to differ from those in the adjacent Bluegrass Management Area. Early/Middle Fort Ancient occupations tend to be open habitation sites, while Late Fort Ancient occupations, interpreted as temporary or seasonal camps, tend to occur more commonly in rockshelters. In fact, Late Fort Ancient villages have yet to be identified in this section.

Table 7.18. Major Site Types by Management Area/Section.

Site Type	Salt	Bluegrass			Upper Kentucky/ Licking		Big Sandy		Total	Pct.
	Salt River	Central Bluegrass	Northern Bluegrass	Eastern Bluegrass	Gorge	Interior Mnts.	Lower Big Sandy	Upper Big Sandy		
Open Habitation Without Mound(s)	88	339	88	49	34	27	64	20	709	74.4
Rockshelter	0	6	1	0	103	51	28	1	190	19.9
Stone/Earth Mound or Mound Complex	1	7	7	0	0	3	0	0	18	1.9
Isolated Burial/ Cemetery	1	9	0	7	2	1	2	0	22	2.3
Open Habitation With Mound(s)	0	7	2	3	0	1	1	0	14	1.5
Total	90	368	98	59	139	83	95	21	953	
Percent	9.4	38.6	10.3	6.2	14.9	8.7	9.7	2.2		100.0

Researchers (Drooker 1997; Graybill 1981; Kennedy 2000) have suggested that, over time, Fort Ancient population contracted: earlier groups lived in more dispersed settlements on the landscape, and later populations gradually coalesced into larger villages in more restricted and somewhat more favorable geographical regions. This may explain the absence of Late Fort Ancient villages in this section. After A.D. 1400, the rugged Gorge Section may have served as a hunting territory for groups living elsewhere, or as a buffer zone. Much more work, however, is needed to determine whether the observed absence of these villages actually reflects Fort Ancient use of this region or is due to survey biases, which have been directed toward upland areas. Documenting linkages between Late Fort Ancient hunting camps in this section and villages located outside the section, and determining how far back in time this summer village-winter hunting camp settlement system might extend, also is an important research domain.

With the acquisition of more data, it has now become clear that Fort Ancient potters continued the Woodland period tradition of using locally available sandstone in the manufacture of ceramics. More research needs to be conducted in this section, however, to identify the salient characteristics of the section's ceramic assemblages. Indeed, more intensive surveys need to be conducted and more sites need to be individually investigated in this section. This will permit the development of a local

chronology and the characterization of the salient characteristics of this section's entire Fort Ancient material culture assemblage.

Interior Mountains

Few Fort Ancient sites have been excavated in this section. This has resulted in a general lack of data, which precludes the formulation of any interpretations of Fort Ancient developments within it, either temporally or spatially. More systematic surveys and intensive site investigations are needed in this section, and a regional chronology needs to be developed. The discovery of a new Fort Ancient mortuary site type in this section (secondary burial inside an isolated rockshelter) and in the Upper Big Sandy Management Area underscores how much more there is to learn about Fort Ancient culture in Kentucky.

It is likely that Fort Ancient cultural developments in this section are related in some way to the Woodside phase of the Upper Big Sandy Section, but this observation needs to be verified. Like the Upper Big Sandy Section, the Interior Mountains Section is situated at the southeastern-most edge of the Fort Ancient culture area as currently defined. Thus, Fort Ancient sites in this section are situated near a boundary with non-Fort Ancient groups (in this case, Mississippians and the Intermontane Culture groups). Research in the Interior Mountains Section has the potential to address questions relating to Fort Ancient interaction with these different, but contemporary, groups.

BIG SANDY MANAGEMENT AREA

Despite its size, investigations in this management area have made important contributions to Fort Ancient research in the past, in terms of improved understanding of cultural developments, bioarchaeology and burial practices, and protohistoric and historic Fort Ancient cultural expressions. The contrast between riverine and interior Fort Ancient cultural expressions is perhaps more sharply drawn in this management area than in any of the others and why this is so is an important avenue for future research.

However, despite the research opportunities this management area offers, much more research of a very basic nature remains to be conducted. Concerted effort needs to be made to conduct systematic surveys and focused site investigations. Researchers in eastern Kentucky and western West Virginia need to treat the Big Sandy River valley as a unit.

Lower Big Sandy Section

Like the adjacent Eastern Bluegrass Section, some of the earliest investigations of Fort Ancient sites were undertaken in this section. Since the late 1930s, however, few sites have been extensively excavated here. Regional surveys and intensive investigations of village sites are needed and a local chronology needs to be developed. Materials from Hardin Village should be reanalyzed and reinterpreted using current

models and classificatory schemes, and other collections that have never been adequately analyzed, like Mayo, need to be examined and reported on. It is apparent that the developments in the Ohio Valley counties in this section, particularly with regards to the Early Fort Ancient subperiod, are not very closely linked to those upstream on the Big Sandy River or downstream on the Ohio River. Some sort of cultural boundary may have existed in this section, and research targeting this issue needs to be conducted.

Some of the best evidence for protohistoric and historic Fort Ancient components anywhere in Kentucky has been recovered from sites in this section. The direct association of Fort Ancient materials with Euro-American trade items at sites in this section, coupled with documentary evidence, suggests there may be a cultural link between some late Madisonville horizon Fort Ancient archaeological sites and the Shawnee. Researchers need to further explore this possibility.

Upper Big Sandy Section

Aside from the research conducted in the Fishtrap Reservoir, very little work has been carried out in these two counties. Basic data are lacking, and systematic surveys and focused investigations at particular sites are needed. Materials from the Fishtrap Reservoir sites, particularly Slone, need to be reanalyzed, assessed, and compared to site assemblages located in other sections, and to sites in the adjacent states of West Virginia and Virginia.

The interior regions in this management area, due to elements of the natural environment and factors of isolation and proximity to other cultural expressions in the Appalachian mountains (i.e., the Intermontane Culture), may hold the greatest potential for helping to define Fort Ancient culture. Like other archaeological expressions on the edges of the Fort Ancient culture area (i.e., the Philo phase, the Oliver phase, and the Bluestone phase), questions have been raised concerning whether to classify the farming peoples in this part of Kentucky as Fort Ancient. The old question from decades past - Is Fort Ancient an *insitu* or intrusive manifestation? - still requires consideration in this section.

It is likely that Fort Ancient cultural developments in this section were influenced in some way by interaction with groups in adjacent regions, such as the Bluestone phase (Applegarth et al. 1978; Johnson et al. 1983) and the Radford/Intermontane Culture (Egloff 1987, 1992; Evans 1955; Holland 1970; MacCord 1989) in western Virginia and southern and western West Virginia; and Mississippian (Dorwin 1970; Weinland 1980) and Pisgah phase groups (Schock 1977) (see Chapter 6) to the south in the Cumberland River Valley and upper Tennessee drainage. Future research needs to address questions relating to this potential interaction.

FUTURE RESEARCH GOALS AND OBJECTIVES

Fort Ancient research has made many advances since 1990, particularly in the realms of subsistence and chronology-building. Investigators now recognize regional variability in Fort Ancient cultural developments both within and between management areas. They also have gained greater confidence in the accuracy of models proposed for Fort Ancient settlement, subsistence, and sociopolitical development.

But there is still much to be learned. Investigators need to continue to generate new data by documenting new sites and by reanalyzing curated collections from sites investigated decades ago. For many management area sections, regional culture historical frameworks need to be defined; and in those sections where frameworks have been developed, they may need to be refined as more sites are excavated. Current models of Fort Ancient subsistence (using botanical and faunal data) need to be revised to account for intraregional variation. The explanatory power of current models of Fort Ancient cultural development need to be periodically revisited to determine how well they account for new discoveries and the extent to which they need to be revised based on new data.

This section identifies research issues and presents topical objectives for the Fort Ancient period. It is hoped that these objectives, as well as the previously discussed management area needs, will help to direct future Kentucky Fort Ancient research. It is acknowledged, however, that this section does not present the full range of relevant research issues or objectives that can be addressed at Fort Ancient sites in Kentucky.

1. CLASSIFICATION AND CULTURE HISTORY

Prior to the mid-1980s, only the barest of chronological outlines were available for the Fort Ancient culture area at-large (Graybill 1981; Griffin 1978), never mind for Kentucky (Dunnell 1961). Back then, relevant research topics included identifying the roots of Fort Ancient lifeways (*insitu* or intrusive, see Prufer and Shane 1970; Rafferty 1974) and considering whether there was a Fort Ancient settlement hierarchy (Essenpreis 1978; Graybill 1981), despite the fact that temporal control over the data was virtually nonexistent. Researchers noted that chronometric dates had only been obtained from a few Fort Ancient sites and that there was a paucity of materials from well-excavated, stratigraphic contexts (Brose et al. 1979:195; Griffin 1978:557).

In the mid- to late-1980s, regional Fort Ancient research projects were initiated. Many of these investigations focused on fine-grained stratigraphic excavation, radiocarbon dating different contexts, and recovering flotation samples (Drooker and Cowan 2001:85). Research targeted the analysis of ceramic and lithic (mainly triangular projectile points) assemblages and the description of their salient characteristics. Aided by radiocarbon dates from stratified and unstratified contexts, researchers defined changes in artifact assemblages over time. In Kentucky, Henderson and Turnbow (1987) outlined a local sequence for northeastern Kentucky based mainly on sites in the Ohio

River Trench, and a year later, Turnbow (1988a) proposed a local sequence focused exclusively on central Kentucky sites (see also Henderson et al. 1992; Pollack and Henderson 1992b, 2000a; Turnbow 1991). These sequences outlined changes in Fort Ancient site size, village organization and house size, and burial practices, and researchers also hypothesized what these changes might imply for Fort Ancient sociopolitical organization and complexity, trade and exchange, settlement patterns, and religion.

Since 1990, investigations conducted at Fort Ancient sites have, in most cases, confirmed the sequences' basic outlines. They also have filled-in gaps in the sequences: in the Central Bluegrass Section, for example, research carried out at Newfield, Capitol View, and the Singer-Hieronimus Site Complex has provided new information on the early Late Fort Ancient subperiod. This work also has led to the recognition of regional differences in the timing of certain developments (like the use of shell temper and the appearance of certain cultigens), and variation in mortuary treatment.

Despite the great strides made in Fort Ancient period research, especially within the Bluegrass Management Area, more work is needed. Local chronologies still need to be developed for most sections, gaps in the existing sequences need to be filled-in, and existing phases need to be evaluated. This will require the investigation of additional sites and the reanalysis of museum collections, the securing of additional chronometric dates, and the publication of results. The development of local sequences will facilitate the investigation of more complex research questions related to topics such as Fort Ancient social and political organization and economy, and how they did or did not change through time.

- * Refine existing regional cultural-chronological sequences; develop regional cultural-chronological sequences where needed; compare the sequences among regions.
- * Document regional and temporal Fort Ancient variation within Kentucky.
- * Document regional variation in the shift from Late Woodland to Fort Ancient.
- * Assess the validity of the Fort Ancient concept, and determine the necessary and sufficient characteristics that characterize the Fort Ancient cultural expression in Kentucky.
- * Determine whether the Middle Ohio Valley was abandoned by the late A.D. 1600s.
- * Identify the relationship of Kentucky Fort Ancient culture to contemporary adjacent cultures: Mississippian cultures and the Intermontane Culture.
- * Identify the factors that led to the Madisonville horizon, ca. A.D. 1400/1450, and explain the processes involved in its development.

2. MATERIAL CULTURE AND TECHNOLOGY

In the 1980s, a great deal of attention was paid to characterizing Fort Ancient material culture and how it varied spatially and temporally throughout Kentucky and the Ohio Valley. This kind of work continues, but since 1990, attention also has been directed toward addressing questions related to raw material type, sourcing and procurement; how objects were manufactured; and the role of style in Fort Ancient society. Investigators are starting to conduct lithic use-wear studies, trace element analysis (of ceramics and metal ornaments), and other “high tech” specialized studies with varying results. All of these efforts have the potential to contribute to a deeper understanding of Fort Ancient lifeways and interregional interaction networks.

- * Identify the complete material culture inventory for each culture unit; compare and contrast these regional inventories.
- * Identify Fort Ancient lithic manufacturing and utilization patterns, and raw material selection/procurement.
- * Explain why triangular projectile point morphology changes over time; explain the appearance of bifacial teardrop-shaped endscrapers.
- * Describe the function of Middle Fort Ancient chipped stone disks.
- * Document Fort Ancient ceramic stylistic variation and production techniques.
- * Investigate functional ceramic attributes and assess their potential for inter- and intrasite studies.
- * Document and assess the reliability of cordage twist direction on cordmarked ceramics as a temporal and cultural/ethnic indicator.
- * Determine if the increase in Fort Ancient ceramic vessel diversity through time is correlated with changes in cooking or processing patterns, or ceramic technology.
- * Identify Fort Ancient decorative/ornamental objects and their symbols/design motifs.
- * Investigate the temporal and spatial dimensions of knot-roughened/net-impressed ceramics and assess the implications for extra-regional cultural interaction.

3. SUBSISTENCE

Like the development of local chronologies, the normative range of plant and animal resources exploited by Kentucky Fort Ancient groups in general was identified in the mid- to late 1980s (Breitburg 1992; Rossen 1992a; Rossen and Edging 1987; Wagner 1984). Fort Ancient plant subsistence strategies appear to have been adopted quickly and to have remained relatively constant throughout the sequence. Fort Ancient animal exploitation patterns appear to represent a continuation of preceding Woodland patterns.

Specific information is still needed on how Fort Ancient subsistence practices developed, however. Research has documented variation from village to village, village to camp, and section to section, but it is not known whether this variation reflects intrasite, intraregional, or interregional cultural differences; response to different physiographic zones; or response to cultural and natural environmental stress. The current perspective, that Fort Ancient subsistence practices were fairly stable through time, also has yet to be empirically confirmed.

- * Identify regional and temporal variation in Fort Ancient subsistence patterns.
- * Identify differences in subsistence remains between the various Fort Ancient site types.
- * Identify differences in terrestrial animal and aquatic resource procurement patterns between physiographic zones, and differences in animal exploitation strategies between the preceding Woodland period and the Fort Ancient period.
- * Determine whether the amount of maize in the Fort Ancient diet varies regionally and/or temporally.
- * Identify the types of agricultural production practices employed by Fort Ancient populations (e.g., long fallow slash-and-burn versus permanent field).
- * Determine if differences in Fort Ancient and Mississippi period subsistence strategies reflect environmental constraints or alternative decision-making processes.
- * Determine the importance of domesticated beans in the diet. Determine when beans first appear and whether they underwent any genetic changes through time.
- * Document changes in the way plant foods were stored during the Fort Ancient period, and if there were different storage methods employed in different regions.
- * Explain the retention of goosefoot and sunflower (examples of starchy and oily seeded plants, respectively, of the Eastern Agricultural Complex) in Fort Ancient subsistence systems.
- * Identify the steps in the development of the Fort Ancient plant food profile, its timing, and how it varied among management areas.
- * Examine the production, distribution, and consumption of salt by Fort Ancient groups spatially and temporally.
- * Pans are only found on Late Fort Ancient sites. Determine if pans are indicative of increased salt production by Late Fort Ancient populations.

4. SETTLEMENT PATTERNS

Research has now identified the basic building blocks of the nonhierarchically organized Fort Ancient settlement system. Domestic sites (hamlets/villages) occur within

a restricted range of sizes and plans, and small, special activity sites (camps located in the open or in rockshelters) also were used. Ritual sites, where primarily or exclusively mortuary ritual events occurred, include low earthen burial mounds associated with circular villages, isolated stone mounds, and rockshelters.

Though a large number of Fort Ancient villages have been recorded, variation has been documented: in the internal spatial configuration of circular villages, and in basic site plan (some communities were arc-shaped or linear). Diachronic changes have been noted for house size and construction. There also appears to be an association between burial mounds and late Middle Fort Ancient/very early Late Fort Ancient villages.

But much more remains to be examined relative to the villages. The factors that led to variation in village plan and why burial mounds are constructed at certain communities and not at others need to be identified. The apparent tendency for Fort Ancient groups to return again and again to particular locales needs to be explored. Fort Ancient household archaeology has barely begun. Very little is known about the use of space and the kinds of activities that occurred inside and outside of structures.

In order to gain a better understanding of the Fort Ancient settlement system, it is also critical that other types of Fort Ancient sites be examined as intensively and extensively as the large villages, and be compared temporally and spatially. Small, single-component sites hold the greatest potential in this regard.

- * Document the settlement patterns of each Fort Ancient temporal unit; compare and contrast them between and among the management area sections.
- * Document changes in domestic structure forms temporally and spatially.
- * Identify intrasite patterns and document their temporal and regional similarities and differences.
- * Investigate the relationship between sociopolitical organization and changes in the way Fort Ancient groups are distributed across the landscape.
- * Investigate intrasite artifact and feature distributions as a means of determining group size.
- * Identify the factors that caused people to congregate in circular/arc-shaped villages. Determine if there is a certain population threshold beyond which these village forms are impractical.
- * Determine the spatial/temporal parameters of the summer village/winter hunting camp settlement system identified for the Madisonville horizon in the Central Bluegrass Section.
- * Investigate site catchment areas to assess environmental factors in site location and length of occupation.
- * Many Fort Ancient sites contain two temporally distinct villages. Determine how long a locality was abandoned before it was reoccupied.
- * Identify differences in construction materials used in different areas.

- * Assess the impact Fort Ancient farming practices (the use of fire and other swidden farming practices) and village movement had on the natural environment. Is there any evidence for environmental management?
- * Reconstruct the natural environment during the Fort Ancient period and how it changed over time.
- * Assess the role environmental factors (e.g., climate and soil type) played in Fort Ancient settlement pattern changes over time.

5. EXCHANGE AND INTERACTION

Fort Ancient exchange appears to have increased over time (Drooker 1997; Pollack et al. 2002a), as suggested by greater quantities of nonlocal marine shell ornaments in post-A.D. 1400 site assemblages. The economic and sociopolitical processes that prompted this change are unknown, however, and require additional research. Additional research is needed to determine what kinds of items were exchanged among Kentucky Fort Ancient groups, and with groups outside Kentucky; whether locally available raw materials and locally made objects, such as chipped stone tools or ceramic vessels, were exchanged; and how the mechanisms for this exchange compared to that of nonlocal ritual items. Pursuing research in this domain has the potential for greatly improving our understanding of Fort Ancient social and political dynamics.

As more is learned about Fort Ancient society and culture, research related to the structure and nature of interaction among Kentucky Fort Ancient groups, and their interaction with contemporary societies outside the area, takes on more relevance. Kentucky Fort Ancient presents researchers interested in exploring the dynamics of boundary, frontier, and periphery situations with an excellent case study, for Mississippian chiefdoms existed along the western, southwestern, and southern boundary, and tribal societies (Bluestone Phase and Radford/Intermontane Culture) lived to the southeast and east in western Virginia, and western and southern West Virginia. Archaeologists will need to identify the attributes that distinguish Fort Ancient artifacts/site assemblages (ceramics, triangular points, and any other commonly recovered items) from their Mississippian and Intermontane Culture counterparts, and not depend on *ad hoc* determinations of cultural affiliation based exclusively on location.

- * Determine the nature and extent of interaction among and between sections within the Fort Ancient culture area.
- * Identify source areas of nonlocal raw material.
- * As a means of investigating interregional social ties, document the differential distribution of nonlocal materials and artifacts throughout the Fort Ancient region in Kentucky.

- * Examine the boundary/periphery/frontier dynamics of interaction and exchange between different Fort Ancient groups and between Fort Ancient and non-Fort Ancient groups (e.g., Mississippian, Bluestone phase, and Radford/Intermontane Culture) and how and why it changed over time.
- * Identify site unit intrusions within the Fort Ancient culture area or the presence of nonlocal households within Fort Ancient communities.

6. BIOARCHAEOLOGY

Studies in Kentucky Fort Ancient bioarchaeology have documented several aspects of Fort Ancient health and disease. The large and well-preserved Hardin Village burial population has been the focus of much of this research.

This research has found that the overall health of Fort Ancient farmers closely parallels that of modern peoples who depend on a diet of maize and beans. Researchers estimate that maize made up as much as 65 to 75 percent of the Fort Ancient diet (Broida 1984). Fort Ancient people did not live very long, and many children died during weaning, suggesting that some kind of nutritional deficiency, possibly associated with infections, occurred during this period. Health stress was life-long, and people suffered from broken bones, chronic infections, arthritis, tuberculosis, cavities, abscesses, and tooth loss.

There is still much to be learned. The future development of nondestructive analyses holds great potential, and human DNA studies will help researchers investigate biological affiliation. Studies focused on or incorporating curated museum collections have an important role to play in future Fort Ancient research, and perhaps nowhere else is it as significant as within the realm of Fort Ancient bioarchaeological studies.

- * Identify the biological characteristics of different Fort Ancient cultural units.
- * Document the incidence of disease and trauma in Fort Ancient burial populations.
- * Assess the overall health status of Fort Ancient burial populations.
- * Document mortality rates for Fort Ancient burial populations.
- * Assess the dental health of Fort Ancient burial populations.
- * Document Fort Ancient dietary changes using ^{12}C - ^{13}C ratio measurements.
- * Investigate the relationship between changes in social organization and the kinds of diseases represented in Fort Ancient skeletal series.
- * Compare the health of regional Fort Ancient populations to that of earlier Woodland populations, other regional Fort Ancient groups, and contemporary groups (e.g., Mississippian, Intermontane Culture, and Monongahela).

- * Examine Fort Ancient burial populations' DNA in order to identify biological affinities and ethnic identities/diversity within Kentucky Fort Ancient through time and across space.

7. MORTUARY PRACTICES

Researchers have documented a great deal of variation (spatially, temporally, and within communities) in how Fort Ancient groups treated the dead (e.g., location, grave goods, orientation, position of the body, and the use of stone). Of note is the recognition of a multi-stage Fort Ancient mortuary program, which has been documented at several sites (e.g., Larkin, Goodman-Clay Cist, Petersburg, Hardin Village, and Clark Rockshelter). A synthetic consideration of Kentucky Fort Ancient mortuary practices, however, that considers burial treatment from a social, religious, and political context, has yet to be undertaken. Understanding the temporal and regional patterns of Fort Ancient mortuary program(s) will provide critical insights into Fort Ancient social and political organization, and belief systems.

- * Identify changes in preferred locations for mortuary areas/cemeteries during the Fort Ancient period.
- * Examine patterns of interregional variation in mortuary practices through time.
- * Document activities related to graveside ritual, such as the removal of specific skeletal elements, cremations, food offerings, or the use of grave offerings.
- * Investigate the relationship between social organization and mortuary practices in an attempt to better understand the organization of Fort Ancient society.
- * Explain Fort Ancient moundbuilding: its duration, mechanics, function, and decline.
- * Determine the extent to which the Fort Ancient multi-stage mortuary program was influenced by earlier Adena multi-stage mortuary practices.

8. SOCIAL AND POLITICAL ORGANIZATION

Researchers have tended to privilege tribal society analogues as explanatory models for Fort Ancient sociopolitical organization. Fort Ancient leadership has been characterized as an achieved position of status. Because of multiple and overlapping kinship obligations, political power in Fort Ancient communities probably was factionalized, shifting among individuals depending on the situation. Some communities may have been socially organized according to moieties, but more research is needed to confirm this suggestion. With the formation of larger villages occupied for longer periods of time, social inequality becomes formally expressed, but only heterarchically: there is no evidence for formal, permanent social ranking in Fort Ancient society.

Data from a variety of sources (from new sites and from previously recorded and curated site collections) needs to be collected and evaluated, and analogues in worldwide anthropological literature that consider the nature and structure of tribal peoples need to be consulted in order to refine models of Fort Ancient sociopolitical organization and to identify and explain intraregional differences.

- * Reconstruct the social organization of cultural systems represented by Fort Ancient cultural units.
- * Develop relevant explanatory analogues for Fort Ancient society and culture by consulting descriptions of historically documented tribal farming peoples of the Eastern Woodlands and Ohio Valley, and by exploring more critically the concepts of “middle range” and “transegalitarian” societies and “tribe” (Gregg 1991; Hayden 1995; Upham 1987).
- * Explore site data to assess the presence of Fort Ancient moieties.
- * Investigate the distribution of features and artifacts at Fort Ancient sites to determine the size and composition of residential unit(s).
- * Document evidence of intra- and interregional variation in Fort Ancient social organization.
- * Identify the factors that led to the development of the Fort Ancient cultural expression.
- * Develop/refine models of Fort Ancient cultural development for each management area/section; compare and contrast them to models developed for tribal societies in other parts of the world.
- * Document male/female activity areas.
- * The transition from the Middle Fort Ancient to the Madisonville horizon is reflected in an increased variety of material items. Determine what kinds of corresponding changes in social organization and leadership, if any, accompany this transition.
- * Determine if the large number of grave goods associated with certain individuals within Late Fort Ancient communities is an indication of increased status differentiation.
- * Identify the nature of political leadership and social inequality within Fort Ancient society.
- * Assess how Fort Ancient leadership along the boundary/frontier/periphery compares to Fort Ancient leadership away from it.

9. IDEOLOGY

Fort Ancient ideology and belief system(s) are poorly understood. Certain elements of Mississippian iconography, like weeping eyes, rattlesnakes, spiders, and

cross-and-circle motifs etched on marine shell appear within Madisonville horizon site assemblages, but it is unknown how Fort Ancient people used these objects (in ways similar to Mississippians or in their own way[s]) and how they interpreted the symbols. Through an examination of village layout, mortuary patterns (i.e., body treatment, and patterns of grave good placement and association), and the persistent and recurrent patterns of symbols on ceramics, ornaments, and pipes, insights can be gained into Fort Ancient rituals and ideology.

- * Identify stylistic patterns of decorative motifs on shell gorgets, pipes, and ceramics, and relate them to other farming peoples' cosmologies.
- * Assess the symbolic implications of space utilization, decorative motifs, burial ritual, and other cultural elements.
- * Explore the Woodland roots of Fort Ancient cosmology and ideology, as well as its links to broader Eastern Woodlands culture area belief systems.
- * Identify the symbols Fort Ancient groups selected from Mississippian cosmology after A.D. 1400 and explain why they chose them.

10. PROTOHISTORY/CONTACT PERIOD

Most of the documented Kentucky sites with unequivocal Contact period components are located along the Ohio River. Nevertheless, a few are known from the Central Bluegrass Section and other sites undoubtedly remain to be documented.

Archaeological data are the only source of information that can conclusively address what role northeastern tribal peoples may have played in Ohio River Valley protohistory. Other issues that need to be addressed are the structure of protohistoric exchange networks, the appearance and timing of pandemics, and how Fort Ancient groups may be related to historically documented groups.

- * Examine the effects contact with Euro-Americans had on indigenous material culture.
- * Investigate the consequences and effect Euro-American trade had on Late Fort Ancient populations.
- * Examine the impact of Indian-European contact, both indirect and direct, on Fort Ancient groups living in Kentucky.
- * Identify the possible ethnic affiliations of Kentucky's Fort Ancient groups to historically documented tribes.
- * Identify the cultural attributes of likely ethnically linked/related groups.
- * Determine to what extent protohistoric Fort Ancient groups were involved in the fur trade.

MAJOR ACCOMPLISHMENTS

Looking back twenty years, it is indeed hard to believe how little archaeologists knew about Kentucky's Fort Ancient period. They did not have the basic information they needed to characterize Fort Ancient lifeways. They did not know the full range of plant and animal foods Fort Ancient peoples ate nor what they favored. Little was known about village arrangement, village distribution across the landscape, or regional settlement systems. Virtually no attempt had been made to consider Fort Ancient political, economic, or social organization, or religious beliefs.

Major advances have occurred in the past twenty years. Today, archaeologists have a much better picture of Fort Ancient culture and its development. The most significant advances have come within the realms of chronology building and subsistence.

The formal development of regional chronologies for central and northeastern Kentucky, supported by chronometric dates, stratigraphy, and the findings from subsequently investigated sites, has led to the recognition of temporal trends in Fort Ancient material culture. This has made it easier to hypothesize about cultural developments in regions where chronology building has not yet occurred.

Armed with an historical framework, archaeologists have begun to explore questions that they rarely asked two decades ago. They have begun to construct explanatory models to account for Fort Ancient culture change, the characteristics of Fort Ancient sociopolitical organization, and the lack of permanently ranked social complexity.

The systematic recovery of subsistence remains through flotation has helped researchers identify the major elements of the Fort Ancient subsistence system and the broad timing of the appearance of those elements. Findings have been replicated across all the management areas. Now attention can turn to assessing whether there is variability in the timing of the appearance of that system and/or its expression within and across the various management areas.

Gaining a perspective on a Fort Ancient "norm" has provided researchers with an opportunity to investigate the characteristics of that "norm," and to identify what distinguishes Fort Ancient groups from adjacent contemporary groups. Intraregional variability within Kentucky Fort Ancient itself also has been documented, which speaks to human agency: different rates of adoption of new ideas, resistance to change, and group decision-making.

Advances in other arenas have been made in the past twenty years, too. These include the identification of site types and settlement patterns; recognition of regional expressions of material culture characteristics, and the diversity of internal village plans and burial practices; and the identification of some of the elements of inter- and intra-regional exchange and interaction.

Several tribal societies may have lived within the Fort Ancient culture area, and for that matter, within Kentucky. They would have shared common traditions, but

expressed them in their own way. The cultural processes at work in Kentucky during the Fort Ancient period are issues of general anthropological interest, and Kentucky's archaeological record provides ample research potential for testing any number of hypotheses related to the study of tribal societies.

The net result over the past twenty years has been an improvement in our understanding of Fort Ancient culture and society and heightened expectations of the kinds of research questions archaeologists can legitimately ask and answer. Much work remains to be done.

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CHAPTER 8: HISTORIC PERIOD

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INTRODUCTION

This chapter is an overview of previous historical archaeology studies undertaken in Kentucky. As such, it provides a framework within which existing information can be assessed, avenues for future research can be identified, and sites can be evaluated. The chapter begins with a general discussion of the development of historical archaeology in Kentucky. Additional perspectives on the development of historical archaeology in Kentucky are presented in O'Malley and McBride 2007. Then a cultural history of developments in Kentucky from 1775-1945 is presented. The next section summarizes the existing database of historical archaeological sites in Kentucky, followed by a more detailed review of significant historic archaeological investigations undertaken within each of Kentucky's five cultural landscapes (Jackson Purchase, Pennyrile, Ohio Valley Urban Centers, Bluegrass, and Appalachian Mountains; see Chapter 1) and discussion of middle-range theoretical and methodological studies. This is followed by a review of research topics that can be addressed at historic archaeological sites. Finally some of the trends in Kentucky historic archaeology that have occurred over the last 20 years are highlighted and some of the more significant findings are noted.

DEVELOPMENT OF HISTORICAL ARCHAEOLOGY IN KENTUCKY

With a few exceptions, Historic period sites were not investigated by Kentucky archaeologists until the late 1960s. The earliest investigation of an historical archaeological site in Kentucky was undertaken by William S. Webb. In 1936, Webb and William D. Funkhouser described nitre (saltpeter) mining features and artifacts they had discovered during their investigation of rockshelter sites in Menifee County (Webb and Funkhouser 1936). In the report of these excavations, they provided a brief history of nitre mining in the area and described how it was extracted and processed from these shelters.

¹ Contributions by M. Jay Stottman (Ohio Valley Urban Centers, pp. 1005-1013; and Alexandra D. Bybee (Mortuary Practices, pp. 1058-1061)

It was not until the late 1960s that the attention of archaeologists again turned to historical archaeological sites. Most historical archaeological projects undertaken in Kentucky from the late 1960s to late 1970s were conducted at large urban residences or plantation houses. These studies were oriented toward aiding architectural and landscaping reconstruction or renovation. Projects of this type included investigations carried out at Locust Grove, Farmington, the Eight-Mile House, and Liberty Hall (DuVall 1977; Fay 1986; Fenwick 1980; Granger 1985; Granger and Mocas 1970; Wilson 1975). A few Civil War fortifications and a mill also were investigated during the 1970s, again to provide information that could be used to reconstruct these sites (Janzen 1981; Schock 1978a, 1978b).

The prevalence of reconstruction-oriented studies in the early years of Kentucky historical archaeology is not unique. These types of investigations dominated historical archaeology in most states during the 1950s and 1960s, and were undoubtedly influenced by the archaeological work conducted in conjunction with the reconstruction and restoration of sites like Williamsburg, Virginia. Work at Williamsburg began in the 1950s and continues to this day, although its goals have broadened over the years.

By the late 1970s, archaeologists in Kentucky were beginning to develop a greater sensitivity for and interest in historical archaeology. As a result, more historical archaeological sites were recorded, although they still were not consistently documented during the course of field surveys. Clay (1981:72) noted in 1980 that it was “only in the past five years that historic archaeological sites have been recorded systematically in the state survey.” Few of these sites were excavated, and those that were tended to be associated with wealthy individuals (Granger 1983). The reports of intensively investigated sites were descriptive, for the most part, with little emphasis placed on examining and interpreting broad or even specific cultural historical questions. In general, research designs emphasized description of artifacts and features.

In the early to mid-1980s, there was an increase in the number and variety of historical archaeological projects conducted in Kentucky. Reconstruction-oriented projects continued as before, but several research-oriented projects (Carstens 1984; Granger 1983; 1984a, 1984b; Genheimer et al. 1986; O'Malley et al. 1980, 1983) were undertaken. The latter were particularly important, since the historical contexts developed and the research issues addressed have provided the foundation for future investigations.

More synthetic and methodological studies also were conducted in the 1980s. These included refinement of artifact identification and analytical methodologies, and investigations of artifact patterning (e.g., Ball 1982, 1984a; Carstens 1986, 1987; Deiss 1985; O'Malley 1984; Wesler 1984a, 1984b). Papers offering explicit critiques of the treatment of historical archaeological sites in Kentucky and support for new levels of respect for and attention to historical archaeological sites also were published (Ball 1983; Granger 1983, 1986; Hemberger 1983; O'Malley 1984).

Although historical archaeology research increased during the 1980s, it was not until the late-1980s that there was a significant increase in the number of large-scale excavations conducted in Kentucky. This work resulted in a greater variety of sites being investigated, including industrial (Genheimer 1987, 1988a, 1988b) and coal mining sites

(Schenian 1987, 1988a). During this period there also was an increase in the development and implementation of detailed problem-oriented research designs aimed at investigating historical archaeological sites. These studies generated information on a variety of research topics, including socioeconomic variation, spatial organization, household formation, ethnicity, and economic development (Fiegel 1988, 1989; Granger 1984a, 1984b; Hockensmith and Pollack 1985; O'Malley 1987b; Schenian 1988a).

In the past 20 years, historical archaeology has increased on the national and state level, and the discipline has even seen the publication of a text book (Orser and Fagan 1995) and an Encyclopedia (Orser 2002). What has happened in Kentucky? The trend of more attention to historic sites, evident in 1987, continued throughout the 1990s and into the twenty-first century. In addition to describing the features found and the materials recovered, historic archaeologists have undertaken more focused artifact studies. Many of these have examined the relationship between the types of ceramics found at a site and the residents' socioeconomic status or wealth. Along these lines, several researchers have examined whether the ceramic type and vessel form assemblages can be related to the transmission of socially meaningful knowledge and its signaling, and the degree to which acquisition of these goods was related to economic and geographical factors, such as transportation and access to markets (Andrews et al. 2004; Andrews and Sandefur 2002; Barber 2005; Day 2004; Day and Clay 2002; Esarey 1993; S. McBride et al. 2003; O'Malley 1995; Pullins 2005; Rotman and Thomason 2003).

Researchers have worked to refine methodologies, such as the use of window glass thickness to date a building's construction or repair episodes, and nail size and types to determine how a building was constructed, (Day 2004; Day and Clay 2002; Fiegel 1989, 19991; McBride and Sharp 1991; Young 1994a; Young and Carr 1993). They also have addressed artifact classification and curation issues (Ball 1998a; 2006a; Hockensmith 1998a; Rotman 2006; Stricker 2007; Wilson and Maples 1998). Faunal remains and plant remains have been analyzed to determine what households ate; if status differences are reflected by the cuts of meat and plants they ate; the degree to which rural households relied on wild game; and the degree to which households incorporated local plants into their diet (Allgood 2004, 2005; Bonzani 2005; Haskins 1998; Martin 1987; Rossen 1992, 1995a, 1995b; Scarry 1993). Since 2000, several researchers have examined the spatial organization of cemeteries and treatment of the dead (Bybee 2003b, 2004; Bybee and Richmond 2003; Bybee et al. 2003, 2004; Favret 2005, 2006; Killoran et al. 2003; Linebaugh 2003; Linebaugh and Phillips 2001; Miller 2007; Ross-Stallings 1996).

A final trend that should be noted is that Kentucky archaeologists have increased their efforts to include the public in their archaeological investigations at historic sites. They have developed educational programming for school children, developed curriculum materials, and prepared public-oriented reports (Henderson and Levstik 2004; Levstik et al. 2004; Stahlgren and Stottman 2007).

CULTURE HISTORY

INTRODUCTION

The initial step in evaluating the significance of an historical archaeological site is to determine when it was occupied and its level of integrity. The second step is to identify the nature and types of research issues that further investigation of a site or a group of sites can address. This chapter presents a culture history for the Historic period and is divided into six subperiods (Pre-Settlement Exploration, Early Settlement, Antebellum, Civil War, Postbellum, and Consolidation and Industrialization). Some historical trends or developments discussed in this chapter overlap these subperiods. For the most part, each trend or topic is discussed primarily within the subperiod when it first achieved major importance.

PRE-SETTLEMENT EXPLORATION: ? - 1775

It probably will never be known exactly when the first Europeans explored what is now Kentucky. Some early candidates, such as De Soto or Moscoso de Alvarado in the sixteenth century, may have passed through the state, although this cannot be documented with any certainty. It is known, however, that by the late-seventeenth century, some parts of Kentucky had been viewed by Marquette and Jolliet on their 1673 trip down the Mississippi River, and La Salle also may have visited the Ohio Valley. At about the same time, the British discovered westward-flowing rivers, such as the New and the Holston, and soon after, received stories of the land beyond the mountains from a released Shawnee captive, Gabriel Arthur. Thus, the long struggle between the French, the British, and the Indians for control over Kentucky and the Ohio Valley was initiated (Alvord 1920).

The French in the Middle Mississippi Valley

When the French attempted to establish a trading base in the Illinois country in the 1680s, much of the Ohio Valley was apparently abandoned, at least of large permanent villages (Hunter 1978:588), but small dispersed groups may have still been living within Kentucky. By this time, many Ohio Valley tribes had become dependents of the Iroquois and were living in the northeastern U.S. The Ohio Valley fur trade was largely controlled by the Iroquois, who traded with the British at Albany (Alvord 1920:78). The Cumberland and Tennessee Valleys were largely controlled by the Chickasaw and Cherokee, who also were beginning to establish trading relationships with the British (Alvord 1920:78).

The first French post south of the great Lakes was Fort Crevecoeur on the Illinois River. Here, La Salle and Tonti attempted to establish trading relations with such groups as the Peoria, Kaskaskia, Cahokia, and Wea. This was detrimental to the Iroquois, who

had acted as middlemen between these tribes and the British, so they destroyed the French post a few months after it was established (Alvord 1920:82). However, the French were not easily discouraged. They built another fort, Fort St. Louis, on the Illinois River in 1682, and over the following twenty years, extended their influence into the middle Mississippi Valley with the establishment of posts and missions at Cahokia (1698) and Kaskaskia (1701). They established trading relations with the Illinois and western Indiana tribes, as well as those living up the Missouri Valley, but except for the Miami, they were largely unsuccessful in extending their trading sphere to the east and southeast.

In 1702, a tannery was established on the Ohio River near present day Mound City, Illinois, by a Frenchmen named Deny. This venture was unsuccessful because of malaria and lasted only one year (Fortier 1969:57). While not actually located in Kentucky, some activities related to this tannery may have taken place on the Kentucky side of the river.

By the second and third decades of the eighteenth century, the French were expanding their operations. On the Mississippi River, Fort de Chartres was built and the village of St. Genevieve was established. Forts Ouiatenon and Vincennes were established by 1720 and 1731, respectively (Alvord 1920:166). Also, during this period, French farmers began settling in the middle Mississippi Valley, especially around Kaskaskia.

Although French traders undoubtedly entered the Ohio Valley and Kentucky, there is no evidence of the establishment of a post or fort during the first half of the eighteenth century within the state. However, small private posts may have been established within Kentucky's borders, especially in western Kentucky. The possibility that a small French trading post may have been established in the vicinity of present-day Nashville, Tennessee in 1714 (Henry 1976) indicates that others also may have existed.

The British in the Ohio Valley

By the late 1720s, the cultural landscape of the Ohio Valley was changing again. Various Indian groups, such as the Shawnee and Delaware, were moving into or returning to the valley (Hunter 1978:591). While initially these Indians continued to trade through the Iroquois and the British posts to the east, by the 1740s, Pennsylvania traders had begun moving into the Ohio Valley and establishing trading houses in the Indian villages (Alvord 1920:87; Rice 1975:3).

By at least 1749, British traders were at Lower Shawneetown, located at the mouth of the Scioto River in present-day Ohio. It is unclear at this time whether the trading houses were on the Ohio or Kentucky side of the river or both. By 1752-54, though, at least one trading house, that of George Croghan and William Trent, was present on the Kentucky side of the Ohio River (Henderson 1999; Henderson et al. 1986:50). There also was another trading house in Lower Shawneetown at this time, but its exact location is less certain. Traders also may have been living at other villages within Kentucky as well.

Another development related to Kentucky that occurred at this time was the beginning of land speculation west of the Allegheny ridge. At the Treaty of Lancaster in 1744, the Iroquois ceded their claim to land south of the Ohio River (Rice 1975:7). Two land companies that received grants of this new land were the Loyal Company and the Ohio Company. These types of companies were largely formed to support and organize settlement, both for their own profit and for the Crown, which saw settlement as part of the larger colonial strategy. Both the Ohio and the Loyal companies soon sent agents to explore the new territory. The representative of the Loyal Company, Dr. Thomas Walker, entered Kentucky through the Cumberland Gap in the spring of 1749. Some of Walker's men built a cabin and planted corn near present day Barbourville, while Walker and others explored Appalachia (Rice 1975:11). Christopher Gist, who represented the Ohio Company, entered Kentucky from the Ohio River. He ventured down the Kentucky and Licking Rivers between 1750-51 and explored the surrounding countryside.

French and Indian War

In 1749, an expedition under Celoron de Blainville explored the Ohio Valley (including Lower Shawneetown, which Christopher Gist later visited) and warned the British traders to leave (Alvord 1920:227). Tensions continued to rise until 1752, when a French and Indian force destroyed Pickawillany, a trading center and Miami village, and captured or killed the resident traders (Alvord 1920:230). This was, in a sense, the beginning of the French and Indian War.

During this period, the Indians living in the Ohio Valley asked the colonies of Virginia and Pennsylvania to protect them, but neither was able to do so. In 1753, the French moved into the forks of the Ohio, and by 1754, when Fort Duquesne was completed, the Pennsylvania traders had abandoned the entire Ohio Valley, and most of the Indians, including the Shawnee, had joined the French (Hunter 1978:592; Rice 1975:13). The British had somewhat better success with the Cherokee, who were initially reassured by the construction of Fort Loudon in their territory in 1756. However, they too had turned against the British by 1760, and a major military campaign mounted in the spring of 1761 was needed to subdue them.

During the French and Indian War, there was little military activity within Kentucky, the central Ohio Valley, and most of the lower Ohio Valley. One French fort, Fort Ascension, later Massiac (Massac), was constructed in the lower Ohio Valley. Built in 1757, it was located on the north side of the Ohio (in present day Illinois) a few miles below the mouth of the Tennessee River. This fort was garrisoned by about 150 Frenchmen and 100 Indians (Fortier 1969:61). It was apparently never attacked, and troops remained there until at least December 1763. When the British finally reached the lower Ohio River Valley in 1765, it had been abandoned (Fortier 1969:68). Whether soldiers were ever encamped on the Kentucky side of the river is not known.

Between 1754 and 1758, the French controlled the trade in the Ohio Valley and visited several villages, including Lower Shawneetown (Henderson et al. 1986:52). Another of these villages may have been Eskippakithiki, possibly located near present-day Winchester, Kentucky (Henderson et al. 1986). It is not known how long the traders stayed or if they constructed any trading or habitation structures at any of these villages.

After Fort Duquesne fell in 1758, the French abandoned the upper and much of the central Ohio Valley. Many Indian villages that were allied with the French, including Lower Shawneetown, also were abandoned at this time. The only area within Kentucky where the French may have retained settlements after 1758 is the western portion of the state, but no definite evidence exists that supports this suggestion.

After the Treaty of Paris in 1763, Great Britain obtained possession of the lands east of the Mississippi River, and Spain, in compensation for the loss of Florida, was given the lands to the west. Most of the French traders and settlers along the Mississippi moved to the western side of the river (Bannon 1974:12). St. Louis, Missouri was founded at this time and soon became the center of the trans-Mississippi trade. In fact, during the entire Spanish period (1763-1804), very few Spaniards entered the Mississippi Valley. Businessmen and settlers of French origin or descent continued to dominate the ethnic makeup of Euro-Americans in the Mississippi Valley throughout the late-eighteenth century (Bannon 1974:11).

After the French traders left the eastern side of the Mississippi River, several British or British-American firms moved in and established offices in such towns as Kaskaskia, Illinois and Vincennes, Indiana. Merchandise was shipped down the Ohio River from Fort Pitt, and furs and skins were shipped up the Ohio or down the Mississippi to New Orleans (Alvord 1920:275).

Again, it appears that much trading activity and settlement occurred around Kentucky's borders. All that can be said at present is that French trappers probably entered western Kentucky on occasion and that at times, Pennsylvania and Virginia riverboatmen probably docked and camped on the Kentucky side of the Ohio River.

The Long Hunters and Land Speculators

As soon as the French and Indian War ended, land speculators and settlers began moving into the Trans-Appalachian lands. Temporarily stopped by the Proclamation of 1763 and Pontiac's Uprising of 1763-1765, speculators immediately began putting pressure on British and Colonial officials to shift the Proclamation line westward. Their efforts were soon rewarded. In 1768, British officials negotiated the Treaty of Hard Labor, in which the Cherokee relinquished their claim to lands east of the Kanawha-New River, and the Treaty of Fort Stanwix, in which the Iroquois ceded all of their lands south of the Ohio River.

The speculators were still unsatisfied and they persuaded the Superintendent of the Southern Department, John Stuart, to renegotiate with the Cherokee. After the Treaty of Lochaber in 1770 and the acceptance of the Donelson Line in 1771, the western boundary was established at the Kentucky River (Rice 1975:34). Soon after, surveyors from various land companies and the Colony of Virginia began entering Kentucky. The aggressive stance of the Virginia government, and the for-profit land companies, rapidly spurred exploration and settlement (Hammon and Taylor 2002).

By the late 1760s, hunters from the east were entering Kentucky for fairly lengthy periods of time. These "Long Hunters," hailing from Virginia, Pennsylvania, and North Carolina, entered Kentucky through the Cumberland Gap or from the Ohio River. They

would stay in Kentucky for months or even years at a time, moving from camp to camp. They explored many river valleys, including the Kentucky, Licking, Cumberland, and Green, and used many Indian and buffalo trails. Some of the more famous hunters include Elisha Walden, Benjamin Cutbird, Simon Kenton, James Harrod, Kasper Manslar, Squire Boone, and Daniel Boone (Belue 1996; Hammon and Taylor 2002; Rice 1975).

The activities of the Long Hunters, especially their exploration and trail blazing, were very important to the later settlement of Kentucky. Many of the hunters also examined land conditions for themselves or others, including land speculators, in the anticipation of future settlement. The information they reported back to land companies or speculators encouraged settlers to move to Kentucky.

EARLY SETTLEMENT/FRONTIER: 1775-1820/1830

If there is any state that is famous for its frontier settlement, it is Kentucky. The exploits of Daniel Boone, James Harrod, and Simon Kenton are nationally known. Settlers passing through the Cumberland Gap or fighting off Indian assaults at their “stations” are images that have entered our national folklore. In fact, there is so much romance associated with the “Dark and Bloody Ground” legend that one has to be careful to separate fact from fiction in historical research. In this section, a brief narrative of the early settlement period of Kentucky will focus on issues that have archaeological relevance or at least provide a context within which to address archaeological issues.

Before proceeding, it should be noted that an exact ending date for the Early Settlement or Frontier period is difficult to identify and therefore somewhat arbitrary. Since the entire state was not settled at the same time, conditions and population density within and between regions was highly variable. Some have suggested that a date of 1795 is appropriate, since this marked the end of Indian hostilities in most of the state. However, settlement did not begin until about 1790 in many localities, especially in parts of the Appalachian Mountains and Pennyrile cultural landscapes. For this chapter, a date of 1820 was chosen for most of Kentucky, since this corresponds to the approximate date of regular steamboat travel on the Ohio River. This development greatly improved communication and trade with the eastern states and Europe and allowed for more commercialization, industrialization, and material goods consumption within Kentucky. Since the Jackson Purchase Cultural Landscape was not open for settlement until 1818, its Early Settlement period is extended to 1830. The Early Settlement period could perhaps be extended until even 1840 in this area, but since this cultural landscape was settled fairly rapidly and was susceptible to the same national and international developments as the rest of the state, post-1830 developments that took place in this area will be discussed in the next section.

Early Settlement and Revolutionary War, 1775-1783

The earliest historic settlements in Kentucky are located in the Bluegrass Cultural Landscape. Following the battle of Point Pleasant (1774) and the Treaty of Pittsburgh

(1775), Lord Dunmore approved settlement south of the Ohio River. Settlers and speculators quickly moved into the Bluegrass region, which was known from the accounts of the Long Hunters. They entered the Bluegrass from the southeast through the mountains, primarily by way of Cumberland Gap and Pound Gap, or from the northeast down the Ohio and Kentucky rivers. The river route was more expensive, and most could not afford it. Settlers from the Piedmont and western North Carolina and from western Virginia entered primarily through the gaps, while those from Pennsylvania, western Maryland, and western Virginia generally came down the Ohio River.

The first settlements occurred at Harrodstown (March 1775, now Harrodsburg) by people who came down the Ohio River, and at Boonesborough (April 1775) by individuals who passed through the Cumberland Gap. Harrodstown was actually laid out the year before, but the surveying party returned east afterward. Hammon and Taylor (2002) provide a detailed account of the early surveying parties. Their account suggests that many of the initial surveys were fairly accurate. This is interesting since Kentucky became famous for its series of overlapping land claims and resulting boom in legal cases and lawyers. By 1780, there were three clusters of settlements in Kentucky, one at the Falls and Beargrass Creek, one north of the Kentucky River, which included the Lexington area and the southern fork of the Licking River, and one south of the Kentucky River, which included the Harrodstown, Danville, and Logan's Fort areas (Rice 1975:120).

Early settlers were well aware of Indian dangers and initially settled in or around forts or stations. The degree of variation in stations is remarkable (see O'Malley 1987b, 1999a). They ranged from a single fortified cabin or blockhouse to what was almost a fortified town, with multiple cabins within a stockade, such as Bryan, Ruddles, or Strode station. The larger stations seemed to have been inhabited by multiple families, especially during the warmer months when Indian raiding parties were a problem. Some authors suggest that some settlers lived in cabins outside the stations during periods of lessened warfare (Chinn 1975:101; Ellis et al. 1985:5-7; O'Malley 1987b, 1999a; Perkins 1998; Rohrbaugh 1978:29). At a minimum, the settlers planted corn and built cabins to establish their claims. The extent to which these isolated cabins were occupied during the first few years of settlement, however, is unclear, and many claims by speculators likely had only very crude structures, sometimes as little as four poles laid on the ground in a square as an improvement, and probably not occupied (Aron 1993, 1996).

The early Kentuckians picked an unfortunate time to start their settlement. The Revolutionary War was beginning and the Ohio Valley Indians, particularly the Shawnee, were generally allied with the British. This gave the Shawnee extra incentive to attack the new American settlements. Indian-Euro-American warfare in the Bluegrass Cultural Landscape was particularly violent in 1777, the year of "the terrible sevens," and resulted in the abandonment of many Euro-American settlements in Kentucky. Settlement and resettlement continued the next year, but at a less rapid pace. In fact, settlement remained slow until the end of the Revolutionary War, in 1783, when warfare subsided.

Early Economic Development

When the Revolutionary War ended, Kentucky had a relatively low population (in 1782, Kentucky had only about 8,000 people [Rohrbaugh 1978:25]). Because of warfare and other uncertainties, agriculture was probably limited to very basic crops (Chinn 1975; Cotterill 1917; Rice 1975), and many families were forced to cultivate common lots surrounding stations (Rohrbaugh 1978:29). A wide variety of wild game was very important as a source of food in the early settlement years, but over-exploitation led to quick shortages and subsequent emphasis on farming (Belue 1996; Friend 1999b; O'Malley 1999a). The primary crop was corn (with tremendous yields of up to 60 bushels an acre initially reported, see Friend 1999b), but tobacco, hemp, flax, and wheat also were grown. Hogs, cattle, and horses were kept, and wild game was undoubtedly an important part of the diet, even if less so than the first years of settlement (Aron 1996; Cotterill 1917:246).

Some trade did take place during this period. Furs, livestock, and surplus crops were carried east overland, especially across the Wilderness Trail (Gronert 1919:313), and local exchanges of goods were probably common. To handle this exchange, stores or trading houses were set up in stations and forts. Richard Henderson established such a store at Boonesborough soon after its establishment. Also, itinerant peddlers carried colonial American and European items into the frontier. Since currency was scarce, storekeepers accepted a variety of items as barter, including crops, whiskey, homespun cloth, livestock, furs, and ginseng (Perkins 1991, 1998). Lexington quickly became a commercial center with widespread availability of goods (Aron 1993, 1999). There are many stereotypes and even some period accounts that stress the harshness of life and scarcity of goods on the Kentucky frontier. Yet some accounts also emphasize the rich nature of the land, characterizing Kentucky as a “good poor man’s country” where huge crop yields would assure success and the standard of living was very high (Aron 1996).

Early industry generally consisted of grist mills, which ground grain for the personal use of farmers, small salt works, potteries, and blacksmith shops. Home production, including weaving, tanning, sewing, and distilling, also occurred during the initial settlement period (Cotterill 1917:248).

One Revolutionary War site that deserves special mention is Fort Jefferson, which was a military fort established by George Rogers Clark in present-day Ballard County. It was occupied by a large number of troops from 1780 to 1781 (Carstens 1984, 2004a; Fraser 1983).

Post-Revolutionary Period, 1783-1800

After the Revolution, the population of the Bluegrass Cultural Landscape increased dramatically, to the extent that many eastern residents wondered what the “buzzel” was about Kentucky (Friend 1999a). Hammon and Taylor (2002) suggest that depleted soils in eastern and piedmont Virginia was one major push factor. The role of land speculators and promoters such as John Filson, who made Daniel Boone into a legend (see Faragher 1992; Smith 1999), should not be discounted, nor the role of the land grant for military service system (Hammon and Taylor 2002). By 1784, the settlers

had reached 30,000, an increase of nearly four-fold since 1782 (Rohrbaugh 1978:25). By this time, settlers had established farmsteads away from the stations and forts, and some stations were becoming real towns, such as Georgetown, Danville, Stanford, and Lexington. Some stations were still being established, such as Morgan's in Bath County in 1789 (Enoch 1997).

Immigrants from the east at this time were not restricted to the lower and middle classes, as some gentry or sons of gentry also settled in the region. These early gentry came primarily from the piedmont and valley of Virginia, although some came from Maryland and North Carolina (Abernethy 1962:67; Barnhart 1941:19-22; Coleman 1940:15; Fischer and Kelly 2000; Jordan and Kaups 1989; Koons and Hofsttra 2000). This gentry, as well as some successful early settlers, established large agricultural plantations that incorporated slave labor, first in the Bluegrass Cultural Landscape and later in portions of the Pennyryle Cultural Landscape. For the purposes of this chapter, a plantation is defined as a large agricultural unit (about 500 acres or more) that focused on the production of one or two cash crops and utilized a slave labor force.

By 1790, there were already over 12,000 slaves in Kentucky. Tobacco, hemp, grains, and livestock were grown on both the small and large farms (Cotterill 1917:235). Tobacco was chosen not only because it grew well in Kentucky soils, but because it had a favorable relationship between bulk and value, and a low rate of spoilage (see Earle and Hoffman 1976). These were important factors, given the limited transportation routes in Kentucky.

The family names of early settlers indicate that most were of English background, but a large number were of Scottish or Scotch-Irish descent and some were of German descent (see Sanderlin 1987). Fischer (1989) and Fischer and Kelly (2000) argue that the Kentucky region of Virginia was heavily settled by families from the border area of northern England/southern Scotland, and Northern Ireland, which had developed a distinctive border culture that was particularly pre-adapted to the political and environmental situation of Kentucky. For example, they credit the spread of the log cabin to this tradition rather than the German/Swedish influence with which it is more often connected (Fisher and Kelly 2000:122). While many of these settlers were undoubtedly born in America, they may have retained some distinctive beliefs and behavioral traits associated with their national (ethnic) background. For example, Fischer and Kelly (2000) note that contemporaries criticized some Virginia German settlers for not supporting the local economy by putting their wealth into consumption of household goods.

After the Revolution, settlement in Kentucky also spread into the Pennyryle Cultural Landscape. The areas around Elizabethtown, Greensburg, and Russellville, in particular, became early population centers. Settlers came from Virginia and North Carolina as well as the Bluegrass Cultural Landscape and the Nashville Basin. Since Indian raids continued in these newer and less densely populated areas, settlement was still somewhat clustered around forts or stations. The earliest settlements occurred where major trails crossed a major river (Sauer 1927:136). Timber and timber-barren edge land were favored initially. The pure barrens were avoided because of lack of timber, which was needed for firewood, housing, and fences, and because this land was of questionable fertility (Ramage 1977:172; Sauer 1927:135).

By the late 1780s, settlement was well under way along the upper and middle Green River, in the Barrens, and in the Southern Plains, which includes present-day Logan and Christian counties, of the Pennyryle Cultural Landscape. Settlement had even reached as far as the mouth of the Cumberland River by 1791. The first three county seats established outside the Bluegrass Cultural Landscape were founded in 1792 in Logan, Hardin, and Green counties. Generally, the same crops and livestock were raised in the Pennyryle Cultural Landscape as in the Bluegrass Cultural Landscape. Some tobacco plantations also were established in some of the richer soil zones of the Pennyryle by the late 1790s (Martin 1988; Sauer 1927). Historical study of early settlement of the Green River drainage suggests it started off in a more democratic way, with attempts to equalize land distribution, but eventually succumbed to centralizing forces such as land speculation and control by banks (Aron 1996; Waldrep 1999).

By the late 1780s and early 1790s, settlers also had begun moving into the Appalachian Mountain Cultural Landscape. While some of these settlers came from the Bluegrass Cultural Landscape, most entered the Kentucky from the east through the mountain gaps, especially Cumberland and Pound, and then progressed down the larger rivers, particularly the Kentucky, the Cumberland, and the Big Sandy (McClure 1933; Scalf 1966). The first settlements or stations in this region are Harmon's Station (1788) near the confluence of John's Creek and the Big Sandy, and Vancouver's Station or Trading Post (1789) near the site of present day Louisa. Although both stations were at least temporarily abandoned because of Indian raids, they did signal the beginning of settlement in this cultural landscape. Other early settlements include Preston's Station, the Sellards Settlement on Buffalo Creek, the Leslie Settlements on Pond and later Sycamore Creek, and Paint Lick Station (see Crowe-Carraco 1979; McClure 1933; Scalf 1966).

These mountain settlements tended to be fairly clustered and situated off the main trails, since Indian incursions continued somewhat later in the mountains than in the Bluegrass Cultural Landscape, at least in the latter's more settled regions (McClure 1933:88). Agriculture remained at a subsistence level longer in the Appalachian Mountains Cultural Landscape than in the rest of Kentucky. Some tobacco and grains, as well as furs, hides, and ginseng, were produced or obtained for trade with people living in Virginia and the Bluegrass Cultural Landscape (Crowe-Carraco 1979:23).

The rate of settlement was relatively low in the Appalachian Mountains Cultural Landscape in comparison to that of the Bluegrass and Pennyryle cultural landscapes (McClure 1933; Scalf 1966). The lateness in settlement and sparse population is reflected in the fact that it was not until 1799-1800 that the first counties, Knox and Floyd, were founded in the Appalachian Mountains Cultural Landscape.

One question that is often asked is why people settled in the mountains when superior lands were available to the west? First, much of the best land, in the Bluegrass Cultural Landscape at least, had been taken up by grants or claims, or had been set aside as military warrants and were fairly expensive to purchase (Aron 1993, 1996, 1999; Friend 1999b; Hammon 1986; Ramage 1977; Rohrbaugh 1978:32). It also should be noted that most early settlement in the Appalachian Mountains Cultural Landscape was on river or creek bottom land, which was better suited for agriculture. It was not until later, as the population grew, that people turned to the less productive slopes and ridge

tops. Also, because rivers, as well as foot or bridal paths, were the major means of transportation in all regions, the Appalachian Mountains Cultural Landscape was relatively less isolated than it would become later.

Demographic and Economic Development to 1792

By 1790, when the first U.S. census was taken, Kentucky had a population of 73,677. This included 61,133 Euro-Americans, 12,430 slaves, and 114 free African Americans. Population density for both Euro-Americans and African Americans was greatest in the Bluegrass Cultural Landscape, especially the Inner Bluegrass Section. Exact figures by landscapes are difficult to obtain, since at that time, most counties were large and cross-cut cultural landscapes. The population of the southern and eastern Pennyrile Cultural Landscape, however, has been estimated at about 5,000 in 1790 (Sauer 1927:13). The population of the Appalachian Mountains Cultural Landscape must have been much lower.

The social structure of the state, especially in the Bluegrass Cultural Landscape, became more complex throughout the 1780s, especially as Lexington was established as a center of commerce and culture. Aron (1999) argues that the Kentucky elite tried to recreate social hierarchies found in eastern and piedmont Virginia, and that a very stratified social and economic structure was quickly established, such that by 1792, only one-third of white males owned land (Aron 1996; 1999, see also Arnow 1960 for an early treatment of land concentration in the Bluegrass Cultural Landscape, or Eslinger 1999; Friend 1999a, 1999b). By 1800, more had gained land, but still less than half were land owners (Friend 1999b). Winship (1999) and Terry (1992) show how several groups of interrelated elite families, such as the Breckinridges and Prestons, came to strongly influence land ownership and settlement patterns in Kentucky.

The presence of planters, farmers, merchants, tradesmen, and slaves denotes a more complex social arrangement than was found a decade earlier. Slaves in Kentucky were often rented out when farm needs were low, a necessity if slavery was to remain economically viable in the mixed farming economy of Kentucky. This created a situation where slaves were often directly competing with white wage labor, and established early tensions between the two groups (Aron 1996, 1999).

During the late 1780s, more agricultural surplus was produced and shipped down the Ohio River. The first large load of Kentucky produce was floated down the river to New Orleans in 1787. Flatboats from Kentucky were so common that they began to be called Kentucky boats (Grier 2001). While New Orleans continued to be a somewhat unreliable port until the Louisiana Purchase in 1803, this trip did signal a new period of trade. An increased demand for tobacco after the war encouraged greater production of this crop (Smith 1950:4). During this period, trade developed that involved 1) sending Kentucky goods to New Orleans; 2) sending these goods, or receipts for their value (since currency was scarce), to Eastern ports; and then 3) transporting Eastern or European manufactured goods to Kentucky via Pittsburgh (Wade 1959:42).

Improvements also were made in the road network, which consisted of widening some roads for wagons and creating new roads, such as the New Road to Kanawha in 1792 (Cotterill 1917:231). With statehood came the beginnings of state-funded or

authorized transportation improvements. Notable early developments include road authorizations, such as for a wagon road from Frankfort to Cincinnati in 1793, or the first act to regulate public roads in 1797. Still, most early transportation improvements were private, such as the early line of packet boats from Cincinnati to Maysville in 1793, or authorization of the first turnpike in Kentucky in 1797 on the Crab Orchard to Cumberland Gap road. In 1799, passenger boats begin to ply the Ohio River (Hepner and Wayne 1992). These improvements made travel within the state and to Virginia, North Carolina, and the Nashville Basin easier and quicker. Ferries across rivers or larger creeks became central to the transportation network, and were regulated by the state (Ellis 2000; Grier 2001).

The surpluses in tobacco during this period rose at such a rate that quality control was necessary. By the early 1780s, tobacco inspection stations were established on the Kentucky River and at the Falls of the Ohio (Smith 1950:41). Later, many more inspection stations were established along the Ohio River and along rivers and trails in the Bluegrass and Pennyroyal cultural landscapes. Inspection stations for other products, especially hemp, soon followed (Hopkins 1938). The inspection stations or warehouses tended to have a centralizing effect, and other structures, such as stores and inns, often were established nearby (Smith 1950:41). Inspection stations established in previously existing towns aided in the growth of these towns.

The somewhat improved transportation system and the increase in surplus production led to greater consumption of non-local goods. Analysis of store accounts and newspaper advertisements indicate that by the 1790s, Kentucky stores were stocking many fancy imported items and Kentuckians were purchasing them, or at least bartering goods for them. These items included European ceramics, pewter, and cloth, as well as Chinese cloth (Perkins 1991, 1998). Lexington residents were noted for their lavish living as early as 1789 (Aron 1996; Coleman 1940:16).

While Kentucky was mostly rural in population distribution in 1790, some urbanization had occurred by this time. Lexington had reached a population of 834 persons and contained about twenty mercantile establishments by 1792 (Perkins 1991, 1998; Share 1982:9). Other large towns included Washington (462 persons), Bardstown (216 persons), Louisville (200 persons), and Danville (150 persons) (Cotterill 1917:244). All towns of any size were, or soon would be, county seats. Numerous smaller towns and crossroads hamlets also had been established by this time. According to the prominent social historian Darrett B. Rutman (1994), town formation is one of the most essential processes of historical settlement, but has been neglected in scholarship of areas where agriculture dominated the economy (as is true of Kentucky and the south).

Throughout this period, industry became somewhat more diversified. Besides the grist mills and home manufacturers, new factories that produced hemp products (rope, bagging, and cloth) and tobacco products (snuff, cigars, and twists) were established in some towns and rural areas, and as early as 1791, or possibly earlier, an iron foundry was in operation on Slate Creek in Bath County, which had an associated blockhouse for protection (Enoch 1997, see also Eubank 1927:9; Hopkins 1938:61; Wade 1959). This furnace supplied cannonballs for the War of 1812 (Enoch 1997). Salt works also were established at licks and other locations. The unfavorable balance and cost of trade that

resulted from poor transportation encouraged local industrial growth (Gronert 1919:317; Share 1982:31).

Statehood and the End of Indian Hostilities

By 1791, Kentucky had attained enough population and sense of independence to apply for statehood. This required permission from Virginia, the parent state, and the Federal Government. Statehood was granted in 1792, and Kentucky became the 15th state. In 1793, the first line of Ohio Packet boats was established at Cincinnati and a few roads were authorized by the state, such as the 1794 Cumberland Gap to Hazel Patch and Crab Orchard (Hepner and Whyne 1992).

The next important date in Kentucky's settlement history was 1795. This marked the Treaty of Greenville, which followed General Anthony Wayne's victory at Fallen Timbers. In this treaty, Ohio Valley and Midwestern Indians relinquished all claims to Kentucky. This soon removed the Indian threat in the state, although some attacks continued into 1796 (Enoch 1997). Threats continued in the Jackson Purchase Cultural Landscape, which was controlled by the Chickasaws. The lessening of danger resulted in greatly increased migration to Kentucky. Between 1790 and 1800, the population of the state rose from 73,677 to 220,955, and the number of slaves increased from just over 12,000 to 40,433. Many new farms and even some plantations were established, and many in the older established regions, particularly the Bluegrass Cultural Landscape, began to take on an air of permanence. A total of 41 counties had been formed by 1800.

Lexington was by far the largest city in the state in 1800, with a population of 1,795, which included 461 African Americans, and a functional position as commercial, industrial, and intellectual center of the state. It contained two newspapers, a paper mill, a tobacco factory, a gunpowder mill, a pottery, and a tannery (Davis 1927:167). Lexington also had a college, Transylvania Seminary, which had moved there from Danville in 1787.

DEMOGRAPHIC AND ECONOMIC DEVELOPMENTS, 1800-1820

By 1800, many towns in Kentucky, such as Lexington, were beginning to look more like towns further to the east. In Lexington, log structures were being replaced by brick and frame ones, and class lines were being drawn, with merchants occupying the top rung (Wade 1959:102-107). Lexington's rapid growth resulted from its advantageous position on the cross-roads of many important overland trails. It not only became the service and industrial center for the rich Inner Bluegrass Section, but it also functioned as the supply center and stopover point for settlers moving west (Wade 1959:8). In effect, Lexington was Kentucky's "Frontier Town," to use the terminology of Kenneth Lewis (1976, 1984). It had many of the same services found in many larger cities to the east.

Louisville, with its strategic position at the Falls of the Ohio, still had a population of only 359 in 1800. Among these individuals were 77 African Americans (Share 1982:5). Its growth was hampered by its unhealthy location near numerous swamps. In

fact, Louisville was known as “the Graveyard of the Ohio” because of these problems (Wade 1959:17). Frankfort, which had been designated the State Capital in 1792, had a population of 628 in 1800, which made it the second largest city in the state. All other towns of any size were county seats, with the largest including Washington, Paris, Georgetown, and Shelbyville, all located in the Bluegrass Cultural Landscape. New towns of growing importance included Newport (106 people), Russellville (117 people), and Henderson (205 people).

By 1800, several other schools or academies, such as Transylvania in Lexington, Salem Academy in Bardstown (1788), Kentucky Academy in Pisgah (1794), Bethel Academy in Jessamine County (1795), and Franklin Academy in Washington (1795), had been founded. Most were boarding schools. Numerous churches also were established at this time and in the first decade of the nineteenth century the Shakers established two communities: Pleasant Hill in Mercer County and South Union in Logan County (Clark and Ham 1968; Stein 1992).

Between 1800 and 1820, much of Kentucky went through a maturing process in terms of settlement patterns, agricultural practices, social and economic structure, and political organization. By 1810, the population of Kentucky had increased to 406,511, which included 80,561 slaves. Most of these slaves were centered in the Bluegrass Cultural Landscape, where they accounted for up to 40 percent of the population in some counties (Davis 1927:195). The Plains and Eastern sections of the Pennyrile Cultural Landscape also had significant numbers of slaves.

The 1800s and 1810s were a period of growth and speculation in Kentucky. The economic boom in the 1810s, in particular, led to high prices for agricultural products, including tobacco, hemp, flour, and livestock. This encouraged increased commercialization of farming and a growth in slave plantations. Farmers and planters prospered, and finer homes were built, especially in the Inner and Outer Bluegrass sections of the Bluegrass Cultural Landscape (Davis 1927:123). Increased agricultural production led to the establishment of more inspection stations for tobacco, hemp, and other crops. By 1810, there were 42 inspection stations on the Kentucky River alone (Smith 1950:23).

Large farms and plantations occurred primarily in the Inner and Outer Bluegrass sections of the Bluegrass Cultural Landscape, while the Eden Shale and Knobs regions of the Outer Bluegrass Section primarily contained small farms. Variation in types of farms by landform and soil type within each cultural landscape should be investigated (Raitz and O’Malley 1985). Information also is needed on architecture characteristics of residences and outbuildings, farm size and layout, socioeconomic variation, and access to and consumption of material goods.

The Pennyrile Cultural Landscape also grew throughout the 1810s. The population of this area was about 100,000 by 1810 and had reached nearly 200,000 by 1820 (Sauer 1927:132). The commercialization of farms in this area, especially those with slaves, led to the clustering of plantations in areas of higher soil quality. By 1820, the main slave counties of this cultural landscape were Logan, Christian, Barren, Warren, Green, and Henderson (Martin 1988:209). As noted previously, a similar clustering of plantations had occurred 20 years earlier in the Bluegrass Cultural Landscape.

The Appalachian Mountains Cultural Landscape also experienced growth at this time, although it was not as dramatic as in the rest of the state. The population of this cultural landscape increased from 20,297 in 1810 to 34,602 in 1820. By 1820, there were eight counties in the Appalachian Mountains Cultural Landscape. Although agriculture in this cultural landscape was not as commercialized as in the other cultural landscapes, grains, livestock, hides, and furs were traded to the Ohio Valley, the Bluegrass Cultural Landscape, and western Virginia.

Urban centers and many industries experienced a great deal of growth between 1800 and 1820. By 1810, Lexington was by far the largest city in Kentucky, with a population of 4,326, including 1,594 African Americans. Louisville, which had taken advantage of the increased use of the rivers after 1803, was the second largest city, with a population of 1,357, including 500 African Americans. Frankfort ranked third, with 1,099 people. In the Pennyryle Cultural Landscape, Russellville was the largest city, with 532 people in 1810, followed by Henderson, with 160, Bowling Green with 154, and Greenville with 75 people. Towns in the Appalachian Mountains Cultural Landscape remained very small throughout the early settlement period. The largest towns in the state also were county seats. They generally had a similar layout, with a courthouse square surrounded by a commercial area, which in turn was surrounded by residences.

The economic boom of the 1810s also led to a great deal of town speculation, especially in western Kentucky and along the Ohio River. Many of these towns did not survive or get beyond the planning stage, but some, such as Covington (1815) and Owensboro (1819), did survive and later flourished (Sprague 1974:339).

The supply demands of the War of 1812 led to an industrial boom in Kentucky. The war stimulated demand for gunpowder, 90 percent of which came from Kentucky. By the mid-1810s, there were six gunpowder mills in Lexington and nitre production was at its peak in Mammoth Cave in the Pennyryle Cultural Landscape and in the Appalachian Mountains Cultural Landscape (Coy et al. 1984; Fig and Knudsen 1984). The war-time demand for rope led to an increase in hemp factories, especially in Lexington and Louisville. The iron industry also grew at this time.

After the war, the demand for gunpowder lessened, which hurt the powder industry and the nitre mines. In contrast to the decreased demand for gunpowder, there was increased demand for hemp products, and the iron industry continued to grow. The great migration and expansion of cotton culture into the deep South after 1815 (Wade 1959:164) resulted in an increased demand for bagging and rope, which stimulated more farmers to grow hemp (Clark 1929).

As the iron industry grew, furnaces were established in the eastern portion of the Bluegrass Cultural Landscape (Bath County), and in the western and northern edges of the Appalachian Mountains Cultural Landscape (Estill and Greenup counties, respectively) (Eubank 1927:14). Also, foundries were operating in Lexington and Louisville in the 1810s (Wade 1959:52). Other industries that grew in the early-nineteenth century include nail factories, potteries, cotton mills, woolen mills, saw mills, large stationary distilleries, and boat yards (see Martin 1988:69; Ramage 1977:189; Share 1982:6; Wade 1959:51, 65, 71). It should be noted that much of the labor force for these early industries, particularly in the cities, consisted of slaves (Wade 1959:52).

Because of the increased river trade, Louisville grew at a faster pace than Lexington. This was especially apparent after the arrival of the steamboat “New Orleans” in 1815. The overall impact of the steamboat is difficult to imagine today, but it was dramatic and completely reoriented trade. Although the age of the steamboat on the Ohio did not really arrive until the 1820s, the advantage to river towns was already apparent by ca. 1815, and Lexington was beginning to feel the strain. When the Panic of 1819 occurred, Lexington, because of its unfavorable location, was affected to a greater extent than other communities.

The Panic, which began a recession that lasted into the middle 1820s, lowered demand and prices for agricultural and industrial products throughout the state. Hemp, and Kentucky in general, was especially hard hit. The price of hemp hit rock bottom during the early 1820s because of its symbiotic relationship with cotton, which was over produced. Of the eight hemp factories operating in 1819, only one was extant in 1820 (Aron 1996; Wade 1959:107). Many merchants, planters, and bankers who were involved in land and town speculation, were devastated.

By 1820, the end of the early settlement period, Kentucky had a population of 564,317 people, including 126,732 slaves. Lexington was still the largest city, with a population of 5,279, but Louisville, with a population of 4,012, was closing the gap. The effects of river transport, and especially the steamboat, can be gauged in the growth of Cincinnati, which was smaller than Lexington in 1810 but over twice its size in 1820. After 1820, Lexington was reduced to a local distribution and production center. Only its college, Transylvania, and its political leaders gave it prominence beyond its own hinterland.

Transportation improvements continued in this time period. In 1801, the Kentucky River Company was authorized to clean up the river and charge tolls. Turnpike companies provided similar services on roads, such as the Lexington and Louisville or Maysville and Lexington companies (organized in 1817), or the Georgetown and Cincinnati Turnpike Company (1819). In 1803, the first stage service was available from Lexington to Olympia Springs, with service from Louisville to Wheeling, West Virginia in 1817 and from Lexington to Cincinnati in 1818. An important development was the 1818 charter for construction of a canal at the Falls of the Ohio. State-supported funding came both from the state treasury, such as the \$38,133 drawn in 1818 for river improvements, and from special fundraising efforts, such as the 1811 lotteries, to raise funds for both road and river improvements (Hepner and Whyne 1992).

Jackson Purchase Cultural Landscape

The decade of the 1810s also saw the opening of the last unsettled section of Kentucky: the Jackson Purchase Cultural Landscape. This land, which lies between the Tennessee and Mississippi rivers, was acquired from the Chickasaws in a treaty signed October 19, 1818. Since this date came one year before an economic recession (the Panic of 1819), and settlement was delayed until the completion of the U.S. Government survey, initial growth was slow. By the mid- to late 1820s, settlement had begun to pick-up. The first county formed in this cultural landscape was Hickman (1821), with its

seat at Columbus. By 1824, there were four counties: Hickman, Calloway (1822), Graves (1823), and McCracken (1824). This number of counties would persist until the 1840s.

Since the Jackson Purchase Cultural Landscape was situated near previously settled areas and there were no hostile Indians, its early settlement took on a much different form than the frontiers of the rest of the state. In general, settlement here was more rapid and the frontier period was much shorter. The land quality in the Jackson Purchase Cultural Landscape was highly variable, which resulted in a very dispersed settlement system. There were no defensive stations and larger planters came in from the start. The loess uplands were the first lands settled, followed by the Barrens and Flatwoods (Davis 1923:172). The primary towns were all county seats, and most of these were small. Columbus, which was the only county seat on a major river, was the only town of any size before 1830. It was not until the 1830s, when Paducah developed, that a real city was established.

Besides farms and towns, the Jackson Purchase Cultural Landscape contained many crossroads hamlets, isolated stores, and river landings. In fact, in the early twentieth century, it still contained the greatest density of hamlets in the state (Davis 1923:141). These were necessary, since poor transportation limited the distance farmers could travel to buy merchandise and sell produce. In 1820, the Jackson Purchase Cultural Landscape was not enumerated separately, so no population figures are available. By 1830, the population was 14,163.

ANTEBELLUM: 1820-1861

By 1820, regular steamboat traffic was occurring on the Ohio River. This breakthrough in transportation greatly improved the cultural and economic ties of Kentucky with the East Coast, the deep South, and Western Europe. It also led to increased complexity in social, cultural, political, and economic institutions within the state, a process that had begun as early as 1800 in the Bluegrass Cultural Landscape and a decade later in much of the rest of Kentucky. The Antebellum, therefore, can be viewed as a time during which the processes of increased complexity begun in the later years of the Early Settlement subperiod were completed. As a result, the institutional organization and behavioral patterning of the state became similar to that of most Eastern states. Changes that occurred during the Antebellum tended to occur at a slower rate than those of the previous subperiod. Also, as transportation and communication systems were improved, Kentuckians were more immediately affected by broader national and international developments, such as increased industrialization. In other words, Kentucky became increasingly incorporated within the “World System” (see Wallerstein 1980).

Economic And Transportation Developments

When the 1820s began, Kentucky, like the rest of the nation, was in the middle of a depression, which affected many merchants, industrialists, and agriculturalists. Many

industries, particularly those in Lexington, were severely affected by this depression (Share 1982; Wade 1959). Several towns begun in the “boom” times of the 1810s also failed (Sprague 1974). As a result of this depression, economic growth, town development, and immigration was not great at the beginning of the Antebellum.

By the mid-1820s, Kentucky and most of the nation began to recover from the depression. The price of agricultural and manufactured goods improved and commerce was again on the rise. With the economic recovery and the presence of the steamboat on the Ohio and its tributaries, especially the Cumberland, Green, Kentucky, and Licking rivers, many new landings were established (see Crocker 1976:15; Sauer 1927:209). Some of these landings evolved into towns.

The early part of the Antebellum was truly the age of the river town, or city, in Kentucky. While the Bluegrass Cultural Landscape still had the largest number of sizeable towns, many river towns across the state were experiencing exceptional growth. By 1830, Louisville had a population of over 10,000, far outdistancing its early rival, Lexington, which had a population of only 6,087. Maysville had increased from several hundred to over 2,000 people, and Covington and Newport had grown from landings to cities with a combined population of over 1,400. Other river towns, including Henderson, Owensboro, Carrollton, Bowling Green, Columbus, and the new town of Paducah, also showed signs of substantial growth by the 1830s.

The economic prosperity of the late 1820s and 1830s and the success of the steamboat brought on cries for river improvements. While many schemes were discussed, the most notable projects occurred on the Green and Barren rivers, the Kentucky River, and at the Falls of the Ohio. On the Green and Barren rivers, a series of locks were constructed to increase navigability, especially during dry seasons. By 1842, the locks were completed to Bowling Green, an event that greatly enhanced the position of this town (Crocker 1976:14, 22). Locks also were constructed on the Kentucky River, and by 1843, they were completed to Frankfort (Clark 1960:178).

Probably the most notable river improvement at this time was the construction of the Portland Canal around the Falls of the Ohio. The canal was incorporated in 1825. Although Louisville residents initially fought this improvement, soon after its opening in December 1830, it became apparent that the canal would bring greater commercial prosperity to the city. Opening of the canal resulted in increased trade on the river and, with the increase in steamboat size to a point larger than the canal would accept, the transshipment business of the city was retained (Hepner and Whayne 1992; Kramer 1986:441; Share 1982:36; Wade 1959). Other notable river developments at this time include navigation on the Green and Barren Rivers by 1828, and state appropriations for river improvements on the Green, Cumberland, Muddy, Rockcastle, Tradewater, Big Sandy, Nolin, Blood, Licking, Big Barren, and Kentucky Rivers in 1834, the same year that the first lock and dam was built on the Green and Barren River system. In 1835, construction was approved for five locks and dams, and in 1836, the Board of Internal Improvements recommended locks on the Kentucky on Kentucky rivers, with Locks 1, 5 completed by 1842. These improvements not only allowed for more traffic, but for more commercially oriented traffic, such as barges. The Licking River began to be used to transport coal from Morgan County to Claysville in 1848 and to Lower Blue Licks in 1849 (Hepner and Whayne 1992).

Other transportation improvements also occurred during the early years of the Antebellum subperiod. Kentucky established a separate transportation department in 1835. Though short lived, being abolished in the 1850s, this was one of the first such departments in the country (Collins et al. 1996). New roads were constructed and older ones were widened and some even surfaced (macadamized or corduroyed) after about 1830. One important development that occurred after 1818 was the shift from state to private control of many major roads or highways, such as those connecting Lexington and Maysville, Lexington and Louisville, and Louisville and Nashville (Clark 1960:181). These became turnpikes or toll roads. The first of these to become macadamized was the Maysville to Lexington Turnpike in 1829, which received a stone surface between 1831 and 1835. Stagecoach service increased, and by 1834, over twelve lines were running through Lexington (Hepner and Whyne 1992). As road travel increased, taverns and way-stations continued to be located along these roads.

One stretch of railroad was constructed between Lexington and Frankfort in the early part of the Antebellum. This railroad, which was chartered in 1830 and completed to Frankfort in 1834, was supposed to extend to Louisville and give Lexington a long desired connection to the Ohio River, but the Louisville to Frankfort connection was delayed and not completed for nearly twenty years, too late for Lexington to regain its state and regional prominence. The first steam engine built in the U.S. was designed by Thomas H. Barlow and built by Joseph Bruen, both of Lexington, in 1834, with the first steam locomotive train traveling 2 hours and 22 minutes from Lexington to Frankfort in 1835 (Hepner and Whyne 1992). Another major rail development was the Louisville and Nashville line, which first ran in 1839. In 1845, a line was chartered from Lexington to Maysville, through Paris, opening in 1853. Many other lines were organized or expanded during this time, including extension of the Lexington and Frankfort line to Louisville in 1852, the organization of the Henderson and Nashville line in 1852, reorganization of a line between Louisville and Covington in 1852, and groundbreaking for the Lexington and Big Sandy in 1853 (Hepner and Whyne 1992).

The Appalachian Mountains Cultural Landscape is one of the few regions in the state that did not benefit from transportation improvements and as a result remained relatively isolated. The only real improvement in this region was the presence of small steamboats on the Big Sandy after 1837. The area was neglected in terms of road construction (Collins et al. 1996; Scalf 1966:354). It was during this subperiod that a distinct Appalachian subculture began to evolve (Eller 1982:37).

Another national trend that occurred during this portion of the nineteenth century was the increased industrialization and technological improvements of the factories located in the Northeast and in England, which allow them to greatly increase the output and variety of products they produced, including textiles, ceramics, furniture, and arms (Larkin 1988). This had the effect of not only increasing the quantity and variety of products available, but also of lowering their cost. This also led to an increase in material variation by socioeconomic class. In other words, as the quantity of available goods increased, the upper and middle classes were in a much better position to acquire them (Larkin 1988:148).

A number of new products became available to consumers in the 1820s and 1830s. Two of the most significant for the average person were the iron cookstove and

the oil lamp (Larkin 1988:140-142). The cookstove not only made cooking more efficient, but also allowed for a greater variety of cooking techniques and better heating of foods (Larkin 1988:51-52). Gas lighting came to the state in 1853, first in Lexington (Hepner and Whyne 1992).

The improved transportation of the Antebellum subperiod also was associated with increased agricultural commercialization throughout most of Kentucky. Plantation-type agriculture and commercially oriented farms expanded in the Bluegrass Cultural Landscape, parts of the Pennyriple Cultural Landscape, and in the western section of the Jackson Purchase Cultural Landscape. The number of slaves in the state increased to 165,213 in 1830, when they made up 24.7 percent of the total state population. By the end of the Antebellum, the number of slaves had increased to 225,483, at which time they constituted 19.5 percent of the population. Although some individuals in Kentucky owned large numbers of slaves, most slaveholders owned five or fewer slaves (Coleman 1940:45).

The major crops and livestock produced in the state continued to be the same as in the earlier subperiod. However, there was more variation in the major crops grown and types of livestock raised between the cultural landscapes. Because of a combination of factors, including low tobacco prices and the expansion of cotton production in the lower South, residents of many Inner Bluegrass Section counties and some Outer Bluegrass Section counties turned to hemp as their major cash crop after 1820 (Axton 1975:46-48; Smith 1950:28). The labor-intensive nature of hemp harvesting and processing encouraged the maintenance of the slave-based agricultural system that was already in place.

Since Kentucky hemp was closely associated with Southern cotton, the price of the former tended to fluctuate with that of the latter (Axton 1975:47; Clark 1929). The 1830s were a boom time for cotton, with high prices and more western expansion, and hemp did very well during most of this decade. The early and mid-1840s were a time of depression in the cotton industry as well as the economy of most of the nation and Western Europe. Although hemp prices were low at this time, many farmers still thought it the most profitable crop they could grow on their land. The period from the late 1840s to the Civil War was a time of relatively high prices for both cotton and hemp, and planters and farmers did well (Hopkins 1938). The effect of these economic cycles should be examined archaeologically, particularly since the depression of the 1840s was probably the most severe economic downturn experienced by this country until the Great Depression of the 1930s.

Hemp was, of course, not the only profitable crop grown in the Bluegrass Cultural Landscape. Tobacco was still grown in the Ohio Valley counties, and wheat, rye, and corn continued to be grown in large quantities. Livestock production also increased greatly in this region. Although it had long been known for its livestock production, the Bluegrass Cultural Landscape's reputation for well-bred cattle, horses, and sheep blossomed during the Antebellum (Raitz 1987:8). Hog and mule production also increased during this subperiod.

The Pennyriple became the major tobacco producing cultural landscape in Kentucky during this subperiod (Axton 1975:49). Production was centered in the Plain

Section, in the Eastern Section, and in the Ohio Valley counties of the Western Coalfield Section. The discovery of the fertility of the Barrens region of the Eastern Section after 1820 resulted in an increase in tobacco production in this section (Sauer 1927:139). The counties with the richest soil and, therefore, the highest level of tobacco production, also had the largest plantations and the most slaves. Throughout the Antebellum subperiod, these included Christian, Logan, Todd, Warren, Barren, Henderson, and Daviess counties (Martin 1988). Grains and livestock also were important in this cultural landscape, and cotton was produced in the Pennyryle Plain Section. In the less productive regions, such as the Eastern Section, livestock, not tobacco, was the major commercial product. Many of farms in the less productive areas were not as commercially oriented as the tobacco, hemp, or cotton farms.

For its small size, the Jackson Purchase Cultural Landscape is a highly varied area in terms of soil quality (Davis 1923). Soils in the eastern counties are generally poorer than in the rest of this cultural landscape, and smaller, more subsistence-oriented farms dominated this area. Along the Mississippi River, in parts of Graves County, and along the Ohio, richer lands were available and large farms and plantations were present. Like the Pennyryle Cultural Landscape, tobacco was the major cash crop of the richer soil zones in the Jackson Purchase Cultural Landscape, although cotton also was produced.

The Appalachian Mountains Cultural Landscape continued to have a frontier level of agriculture (Eller 1982). A large proportion of crops were produced for home consumption, either for humans or animals. Livestock, particularly hogs but also cattle, was the major commercial product of these farms. Timber was harvested and sold at an increasing rate throughout this subperiod (Eller 1982:14, 18, 21).

Rural Slavery

Hudson (2002:18), following the work of historian Ira Berlin, noted that Kentucky was a society with slaves, but not a slave society since slavery was not central to the economy or social structure. While the Bluegrass Cultural Landscape contained the most slaves throughout the early Antebellum subperiod, by 1860, the greatest number of large slave holdings (over 50 slaves) has shifted westward where cotton production had developed. The highest incidence of slaveholders having over 50 slaves was in Christian County, with 14 slaveholders, followed by Henderson County at 8 slaveholders and Todd at 4 slaveholders (Historical Census Browser 2004). Martin (1988:302) has suggested that slavery was harshest in the southwestern portion of the Pennyryle cultural landscape where the slaveholding were larger. Characterizations of slavery in Kentucky as “milder” (Coleman 1940) than in the deep South have been challenged by several researchers (e.g., Eslinger 1994; Lucas 1997).

Hudson (2002), who has pioneered research on the Underground Railroad, has noted that conditions in Kentucky were so unappealing that many slaves risked the dangers of trying to escape. The fact that larger slave holdings were less viable in the Kentucky economy compared to more southern states also meant a greater incidence of families being separated (“sold down the river”), one of the greatest fears of slaves (Smartz 1999), and perhaps as important a concern as material conditions. Smaller slave holdings also resulted in more contact between the slaves and slaves owners in Kentucky,

creating increased opportunities for sexual exploitation and harassment if an owner was inclined to such behaviors. A forced sexual relationship may explain the behavior of Margaret Garner, a northern Kentucky slave who attempted to kill her children rather than see them taken back into slavery during a failed escape attempt (Weisenberger 1998).

Urban Development and Urban Slavery

As was mentioned previously, by 1830, Lexington had lost its position as the largest city in the state to Louisville. By 1860, Lexington was reduced to only the fourth largest city, with a population of 9,521 (Share 1982:27). Covington and Newport had populations of 16,471 and 10,046, respectively, and Louisville contained 68,033 people (Share 1982:37). Lexington still maintained its position as the center of the Inner Bluegrass Section of the Bluegrass Cultural Landscape. Its commerce and industry, particularly hemp but also flour and powder mills, did well during the Antebellum (Share 1982:26). Even after the arrival of a rail connection to the Ohio River in 1852, however, Lexington only experienced a slow rate of growth.

The most striking commercial, industrial, and demographic growth of this subperiod, by far, occurred in Louisville, and secondly in “the Point” cities of Covington and Newport. As was noted previously, these cities took advantage of their positions on the Ohio River to participate in the great amount of commerce that was conducted on this river. Also, by 1860, these three cities were connected by railroad lines with Lexington, and Louisville also had connections with Nashville and Memphis. While the industry of these cities was still related to processing of agricultural products, non-agriculturally related industries, such as iron foundries and glasshouses, were growing in importance. The industrial growth of Louisville was so great that by 1860, it had become the twelfth largest manufacturing center in the country and the largest in the South (Share 1982:33).

Other successful Antebellum river towns were Frankfort, Henderson, Owensboro, Bowling Green, and Paducah. Paducah recorded a phenomenal increase from 105 people in 1830 to 4,590 in 1860 (Collins 1874:264). This made it, by far, the largest city in the Jackson Purchase Cultural Landscape. Bowling Green also experienced rapid growth during the Antebellum subperiod, increasing from 815 people in 1830 to 4,574 in 1860 (Collins 1874:265). Its growth was related to both improvements on the Green and Barren rivers in the 1830s and its position as the major junction on the Louisville and Nashville Railroad by 1859-1860.

Another Antebellum development that led to an increase in the population of river cities, and in particular those located along the Ohio River, was a large influx of foreign immigrants, especially Germans and Irish, during the 1840s (Davis 1923:165). Louisville received so many immigrants that by 1850, they comprised 34 percent of the Euro-American population (U.S. Census 1854).

Historical studies suggest that as the Antebellum progressed, urban slavery was seen as less viable and increasingly problematic. This was due, in part, to uneasy feelings experienced by members of the Euro-American population as the number of urban slaves grew and their autonomy increased. The position of free African Americans also became more tenuous, and they were generally treated more harshly as time went on (Wade

1964:244). Another factor related to these changes was the increased segregation of African Americans, both slave and free, from Euro-Americans as the Antebellum drew to a close (Wade 1964:275-276).

Lexington and Frankfort, in the Bluegrass Cultural Landscape, maintained a much higher percentage of slaves than did the cities in the Ohio Valley Urban Centers Cultural Landscape. Hudson (2002) suggests that slavery was much more central to daily life in Lexington compared to Louisville, which had a lower percentage of slaves and a more diverse economy. The system of slave policing was stronger in the Bluegrass, which, together with the increased distance from the Ohio River, made escapes more difficult there.

Industrial Development

Industries associated with small towns and hamlets were usually agriculturally related and included flour and grist mills, tobacco factories, hemp factories, leather (mostly shoes and saddles) shops or factories, woolen mills, and distilleries. Not surprisingly, hemp and tobacco factories tended to be located in areas where these crops were most heavily cultivated (see preceding agricultural discussion). The larger distilleries tended to be clustered in the Inner and Outer Bluegrass sections of the Bluegrass Cultural Landscape and in the Eastern Section of the Pennyrile Cultural Landscape. In 1860, Nelson and Larue counties contained the most distilleries.

Other important industries of this subperiod included those associated with the extraction and processing of iron, salt, and coal. Iron furnaces were centered in both the Appalachian Mountains Cultural Landscape (especially Boyd, Carter, and Estill counties) and in the Lower Tennessee Cumberland Section of the Pennyrile Cultural landscape (Crittenden, Livingston, Lyon, Muhlenburg, and Trigg counties) (Eubank 1927). While some salt was produced in the Bluegrass and Pennyrile cultural landscapes during the early part of the Antebellum, the Goose Creek Salt Works in Clay County was the only significant producer for the entire subperiod. Improved transportation brought in cheaper salt and made the working of most Kentucky licks unprofitable (Boisvert 1984:59). Slaves and immigrants often worked at industrial sites in Kentucky (Coleman 1940; Eubank 1927; Henry 1976:50).

Another class of sites related to salt and mineral springs are resorts. Some resorts were established in the Bluegrass Cultural Landscape as early as the 1790s, but it wasn't until the 1820s and 1830s that that some located in the Bluegrass, Pennyrile, and Appalachian Mountains cultural landscapes became large operations with luxury hotels. While most resorts initially stressed the medicinal qualities of their water, later emphasis was more on lavish entertainment (Boisvert 1984:62).

The final industry that deserves mention is coal mining, an industry that was to have a great impact on later developments in Kentucky. The first commercial coal mine in Kentucky is often cited as having begun operation in 1820 and to have been located in Muhlenburg County, although coal was shipped out of Kentucky as early as the late-eighteenth century. By the 1820s, several small commercial coal mines were operating in the Western Coalfield Section of the Pennyrile Cultural Landscape, and by 1840, some

were located in the Appalachian Mountains Cultural Landscape (Crowe-Carraco 1979:78-79).

In 1845, the first large-scale, nearly modern coal community was established in the Appalachian Mountains Cultural Landscape. This town, Peach Orchard, was to be the forerunner of hundreds of similar communities. Here, coal owners constructed 40 dwellings, a store, a gristmill, and a sawmill (Crowe-Carroco 1979:80). Other mining communities followed in the late 1840s and the 1850s (see Scalf 1966:200-204). Although most of these operations were shut down during the Civil War, they laid the foundation for the mining communities of the future.

CIVIL WAR: 1861-1865

This section focuses on the Civil War and is organized differently than the other subperiod discussions. Specifically, greater emphasis is placed on site types. This is largely because the Civil War can be thought of as a discreet event, or a series of discreet events, more easily than the other subperiods.

When the Civil War began on April 12, 1861, Kentucky found itself in an awkward position. It was a slave state that did not support secession, and it was divided on whether to support military action against the seceding states. Initially, Kentucky's political leaders, especially Governor Beriah Magoffin, attempted to keep the state neutral. Magoffin asked both Presidents Lincoln and Davis to respect this neutrality and keep their armies out of Kentucky. He even threatened to use the state militia to enforce this position.

Given the divided sentiments within Kentucky and its strategic position, neutrality was untenable and did not last long. As early as May 1861, the rift in the state militia had become so great that two separate state organizations were in place, the pro-Confederate State Guard and the pro-Union Home Guard (Stone 1977:66). These two organizations competed for men and arms and complicated the neutrality status for the governor until the fall of 1861, when the State Guard was disbanded after many of its members joined the Confederate Army.

Although both Confederate and Union armies initially stayed out of Kentucky, by July 1861, both were actively recruiting Kentucky residents from camps just across the Ohio River in Ohio, Indiana, and Illinois, and from south of the state line in Tennessee. Finally, in August 1861, the state's neutrality was officially breached when General William Nelson established a Union recruitment and training camp (Camp Dick Robinson) in Garrard County in the Bluegrass Cultural Landscape (Coulter 1966). This was, of course, greatly protested by Governor Magoffin, but to no avail.

Within a month after the establishment of Camp Dick Robinson, Kentucky's neutrality was further eroded as troops from both armies began moving into the state. The final blow came in the fall of 1861, when a decidedly pro-Union legislature was seated. By the end of 1861, Kentucky found itself in a very uncomfortable position. Federal troops occupied the northern half of the state and Confederate troops controlled

the southern half. The state also had a pro-Union but pro-slavery legislature, and a split populace. This legislature overturned Magoffin's neutralist policy and finally forced him to resign in August 1862.

Early Occupation And Engagements

The first Confederate bases or forts to be established in Kentucky were at Hickman and Columbus in the Jackson Purchase Cultural Landscape. Troops moved into both communities on September 4, 1861, and they were placed under the command of General Gideon Pillow and General Leonidas Polk, respectively. These generals had been maneuvering around southeastern Missouri and northwestern Tennessee for several months and had been waiting for the opportunity to establish Mississippi River forts in Kentucky. They used a minor Union engagement with a riverboat at Paducah as an excuse to enter the state (Mullen 1966:215). Within a few months, they had established forts at Columbus and Hickman. Other Confederate forts were established at Hopkinsville, Bowling Green, Glasgow, Monticello, and Somerset. These positions, along with Forts Henry and Donelson in Tennessee, formed the Confederacy's northern defensive line. This line was under the command of General Albert Sidney Johnston, who established his headquarters at Bowling Green. Of these positions, Bowling Green and Columbus contained the most impressive fortifications, with the latter often referred to as the "Gibraltar of the West." A Confederate recruitment and training camp, named Camp Beauregard, was established in Graves County during the fall of 1861. By December 1861, there were 48,000 Confederate soldiers spread across this line (Harrison 1975:17).

The Federal Army established bases of operation immediately after the Confederates moved into Kentucky. A day or two after Columbus and Hickman were occupied, General Ulysses S. Grant and his troops moved into Paducah and established a base there, as well as at Smithland, Wickliffe (Fort Jefferson), and across from Cairo, Illinois (Fort Holt). Forts or camps also were established at Maysville, Louisville, and Covington in the Bluegrass and Urban Centers cultural landscapes. Union headquarters for Kentucky was established at Louisville. Most of Kentucky was placed under the jurisdiction of the Army of the Ohio, which by November 1861 was commanded by General Don Carlos Buell. The Jackson Purchase Cultural Landscape was under the jurisdiction of the Army of the Mississippi. By January 1862, there were about 70,000 Federal troops in Kentucky (Kerr 1936:78).

In the first few months of occupation, only a few small engagements occurred. Two of the more significant ones include the battles of Wildcat Mountain (Camp Wildcat, Rockcastle Hill), Laurel County (October 1861) and Ivy Mountain, Floyd County (November 1861), both of which are located in the Appalachian Mountains Cultural Landscape. In both battles, the Confederate forces were repulsed and pushed southward (Hafendorfer 2003; Matthews 2005). The Confederate fort at Columbus was involved in the November 1861 Battle of Belmont, Missouri just across the Mississippi River. The first moderate engagement occurred on January 17, 1862 at Mill Springs, where 4,000 Confederates under General Felix Zollicoffer were repulsed by about 4,000 to 6,000 Federals under General George H. Thomas (Hafendorfer 2001; Harrison 1975:27). The Confederates suffered 529 total casualties, including 125 fatalities, and

retreated across the Cumberland River and into Tennessee. The Union forces had 352 casualties, including 40 killed (Hafendorfer 2001; Harrison 1975:27).

The Fort Henry and Fort Donelson Campaign

The most significant early engagements relative to Kentucky, and perhaps to even the entire western campaign, did not take place in Kentucky, but at Fort Henry and Fort Donelson in Tennessee. In a bold move, Grant decided to take 17,000 of his Paducah area troops around Columbus and strike the more weakly fortified Tennessee forts. It was reasoned that a victory here would make the Columbus position untenable. Simultaneously, Buell was supposed to move toward Bowling Green from Calhoun and Louisville.

The engagement began on February 6, 1862, when Fort Henry was bombed into submission by Union gunboats on the Tennessee River. Only a small force was surrendered at Fort Henry, however, as most of the Confederate defenders had previously been removed to Fort Donelson.

On February 13, after the gunboats were given time to descend the Tennessee River and ascend the Cumberland River, Grant and 15,000 of his troops arrived at Fort Donelson (Harrison 1975:29; Nevin 1983:82). Here the fighting was much more fierce than at Fort Henry and the gunboats were not as effective. The battle persisted through February 14, when Grant received 10,000 additional troops so that he outnumbered the Confederates. On the night of February 15th, the Confederate generals, who had been hampered by a confused policy and chain of command, decided that the fort should be surrendered in the morning. That night, generals Floyd and Pillow made their escape. General Nathan Bedford Forrest, who had been disgusted with the surrender plan, also left with his entire cavalry. On the morning of February 16, 1862, General Simon B. Buckner and 12,000 remaining Confederate troops surrendered to Grant.

The significance of these two battles cannot be overemphasized. The fall of the two forts led to the abandonment of Confederate positions in central and western Kentucky. Bowling Green was abandoned on February 12, partly to reinforce Donelson and partly because of Buell's impending attack, and Columbus was abandoned on March 2 (Harrison 1975:34; Mullen 1966:224). The fall of forts Henry and Donelson also resulted in the abandonment of the supply center at Nashville, which the Confederates felt was indefensible after the loss of the Cumberland River. The Tennessee capital was soon occupied by General Buell and 45,000 troops of the Army of the Ohio (Nevin 1983:97). The only major remaining Confederate forces left in Kentucky after the winter of 1862 were in the Cumberland Gap, which was abandoned by June 1862 (Harrison 1975:34).

During the five or six months following the fall of Fort Donelson, no significant engagements occurred in Kentucky. A few skirmishes and raids did take place, but none were notable, except perhaps John Hunt Morgan's raid of July 1862 that took him from Tompkinsville to Cynthiana, which defeated a small Union force under Lt. Col. John Landrum (Penn 1995). Of course, a major Union occupation did continue at a number of forts and camps, including the abandoned Confederate positions.

Perryville and its Aftermath

The last major military campaign to occur on Kentucky soil began on August 18, 1862, when General Kirby Smith and 12,000 Confederates entered Barboursville (Clark 1960:325; Harrison 1975:42; McDonough 1994; Noe 2001). On August 24, Smith drove back a small force of Federals at Big Hill, south of Richmond, and then on August 30, Smith's whole force met a Federal force of 6,500 under General William Nelson on the Old State Road near Mt. Zion church (Noe 2001). Again, the Confederates prevailed; in addition, they captured 4,300 Union troops (Harrison 1975:42; Lambert 1996; Street 1985:44). Smith and his troops then moved freely into Lexington.

In the meantime, General Braxton Bragg, then commander of the Army of Tennessee, began moving toward Kentucky from Chattanooga. On September 14, he entered Glasgow with about 27,000 men (Harrison 1975:42; Street 1985:43). Concurrently, Bragg decided to unite with Smith and move toward Louisville and its valuable supplies. At Munfordville, however, one of Bragg's units engaged 4,000 entrenched Federals under Colonel John Wilder. The Union forces eventually surrendered, but it caused a delay of four days (September 13-17) (Harrison 1975:46). This delay allowed General Don Carlos Buell and his army, which also was coming up from Tennessee, to pass Bragg and beat him to Louisville. Buell reached Louisville on September 25 and once there, he was able to increase his troop strength to 60,000 men.

Bragg, seemingly at a loss about what to do next, decided to leave most of his army scattered throughout the Inner Bluegrass Section of the Bluegrass Cultural Landscape and go to Frankfort with a small force and establish a Confederate government in Kentucky. His reasons for doing this were not at all fanciful. He hoped that by installing a government, he could stimulate recruitment or even enact a draft (Harrison 1975:49; Street 1985:57). On October 4, a Confederate governor was inaugurated. This turned out to be a hollow gesture, since only hours after the inauguration, a forward detachment of Buell's army entered Frankfort and forced Bragg and the new government to retreat (Harrison 1975:49).

As Buell and his 60,000 men moved south, Bragg tried to regroup his widely scattered forces. He was too indecisive and was confused by a Union diversion toward Versailles (Street 1985:58). On October 7, 1862, a force of 15,000 to 16,000 Confederates stumbled upon Buell's army of 60,000 at Perryville, initiating the largest Civil War engagement in Kentucky. The battle started as a skirmish, but by October 8, it was a full-scale battle. Neither commander was aware of the mismatch in troop strengths and the outcome of fighting was indecisive (Street 1985:62). On the night of October 8, Bragg became aware of the size of Buell's army and began a withdrawal of his scattered troops toward Tennessee. Buell's troops pursued Bragg for some time, but were never able to catch him. As a result of the Battle of Perryville, 845 Union soldiers were killed and 2851 were wounded, while 510 Confederate soldiers were killed and 2635 were wounded (Harrison 1975:53). Thus ended the last significant Confederate action in Kentucky.

For the remainder of the Civil War, the only engagements in Kentucky consisted of raids and guerrilla activities. Guerrilla attacks and bushwhacking were a severe

problem, especially in the Appalachian Mountains Cultural Landscape, and the occupation forces went to extreme measures to curtail these activities, including the enactment of martial law after July 1863 (Cooling 1997; Harrison 1975:77; McKnight 2006; Sensing 1942).

The most famous raids were undoubtedly those of Colonel (later General) John Hunt Morgan and his cavalry. He entered central Kentucky four separate times after Bragg's retreat and managed to inflict substantial damage to railroads and Union depots, and acquire supplies for the Confederates (Ramage 1986). He left Kentucky for the last time on June 12, 1864, when his men were engaged at Cynthiana and forced to retreat into western Virginia by the Union troops of General Stephen Burbridge (Harrison 1975:74; Penn 1995). Morgan was killed in Tennessee three months later.

Another notable Confederate cavalry leader and raider also entered Kentucky late in the war. In March 1865, General Nathan Bedford Forrest and 2800 men entered Kentucky and moved toward Paducah. The main reason for the raid was to obtain horses. At Paducah, Forrest captured horses and supplies and burned cotton, a steamboat, and a dry dock, but he was unable to overrun Fort Anderson (Allen 1961; Harrison 1975:71). Forrest also was involved in a cavalry skirmish at Sacramento, McLean County in December 1861.

Union Occupation of Kentucky

The Union occupation of Kentucky during the Civil War was critical to the Union victory, since it helped hold Kentucky for the Union; helped secure much needed supplies and protect the transportation arteries to move them; and provided safe bases for the recruitment of large numbers of Union soldiers, including after March 1864, African-American troops. In fact, the Union military occupation of Kentucky was the beginning of the end of slavery in Kentucky. Previous to the recruitment, slaves entered Union bases as runaways and as impressed laborers. Over 20,000 African-American men were then legally freed through enlistment, and following the March 1865 Federal Act, the wives and children of these soldiers also were legally freed. By the passage of the 13th Amendment in December 1865, it has been estimated that approximately 70 percent of Kentucky's slaves were already freed through military participation or other federal measures (Lucas 1992).

The Union military occupation of Kentucky began in the summer of 1861, and the northern two-thirds of the state was soon in Union hands. This occupation continued throughout the War. Only during the August-October 1862, Bragg-Kirby Smith invasion of Kentucky was this occupation severely threatened. Following this invasion and John Hunt Morgan's Christmas raid (Dec. 1862 - Jan. 1863), there was a concerted effort by the Union command to strengthen Kentucky's defenses, particularly those around vital transportation routes, supply depots, and other vital centers. Rings of fortifications were constructed or improved around a number of Ohio River urban centers, including Louisville, Covington, Owensboro, and Paducah. Fortifications also were strengthened at the Louisville and Nashville Railroad and Kentucky Central Railroad bridges and at important centers along these railroads, such as Bowling Green, Munfordville, Glasgow, and Paris, and at the capital, in Frankfort. These forts included earthen lunettes, redans

and redoubts, and wooden blockhouses. They were built to more easily defend these points against Confederate raiders and pro-Confederate guerrillas. Fortification improvements normally included larger garrisons. As both the Army of the Cumberland and the Army of the Ohio were supplied through Kentucky during their movements through Tennessee, Alabama, and Georgia, it was vital to keep Kentucky's main transportation routes open.

The Union army also improved its supply system by creating an efficiently organized hierarchy of regional depots. This system utilized both previous depots and newly created ones, such as Camp Nelson. Larger depots were usually located at or near large- to medium-sized cities on important transportation routes, such as Louisville and Bowling Green, but this was not always the case. Camp Nelson was established in a rural area along a rather rough road. Louisa also became a moderate-size center for extreme eastern Kentucky. Smaller subsidiary depots were established at smaller towns, such as Munfordville, London, and Mt. Sterling, or at strategic rural points such as Point Isabel (Camp Burnside) and Cumberland Gap (McBride et al. 2003; Sears 2002). Camp Nelson was the highest order (largest) depot in central and eastern Kentucky and supplied subsidiary depots at Lexington, Crab Orchard, Camp Burnside, and Cumberland Gap. Kentucky's system of depots and their adjacent transportation arteries, whether railroads, roads, or rivers, supplied numerous campaigns and garrisoned troops in Tennessee and the lower South. Camp Nelson, for instance, supplied Maj. General Ambrose Burnside's Knoxville, Tennessee campaign of August-November 1863, and Maj. Brig. Gen. Stephen Burbridge's and Maj. Gen. George Stoneman's Southwestern Virginia campaigns of October 1864 and December 1864, respectively. Louisville and other depots along the Louisville and Nashville Railroad supplied the Army of the Cumberland in their campaigns between Nashville and Atlanta and for their occupation of Tennessee.

Numerous Union recruitment camps were established across the Commonwealth, with the first being at Camp Dick Robinson, Garrard County. Recruitment and training facilities were established at most of the large and moderate-sized depots and here recruits from within Kentucky and pro-Union East Tennessee were trained. While most of these soldiers were sent to frontline action in the Western Theater, thousands stayed within Kentucky and joined other Union troops, primarily from the Midwest, to perform garrison and defensive duty.

Besides protecting depots and transportation networks, these occupation forces also pursued raiders and guerrillas who threatened strategic points and stability. They also attempted to enforce military orders regarding citizen loyalty and interstate commerce. The enactment of these orders sometimes led to tension between the Union Army and civilian population.

The Union Army presence, including a strong system of garrisons, forts, and depots also was necessary for the successful recruitment of African-American troops, one of the most significant aspects of the Civil War in Kentucky. Without the strong presence of the Federal Army, including recruiters and secure garrisons, it is unlikely that large-scale African-American recruitment and enlistment could have occurred, given the strong opposition from local whites. In fact, this opposition delayed the recruitment of African-American troops until February 1864, a year after active recruitment had begun in most other states. First, General Burbridge tried to compensate owners and enlist only

slaves who had their owner's permission, but by June, the Army overturned this policy and began taking all able-bodied men who showed up at the recruitment stations (Berlin 1982:193; Lucas 1992; Sears 2002). By July 1864, 15 U.S. Colored Troops (U.S.C.T.) regiments had been organized and 16,000 men had volunteered. In all, 23,703 Kentucky African Americans served in the Union Army, the second greatest number of African-American soldiers from any state (Berlin 1982). These U.S.C.T. were recruited and trained in heavily fortified recruitment camps at Paducah, Columbus, Owensboro, Bowling Green, Lebanon, Louisville, Covington, Camp Nelson, and Louisa (Lucas 1992). Upon enlistment, these men attained their freedom and were given a chance to fight for the freedom of others. Kentucky's U.S.C.T. fought battles and skirmishes in Virginia, Tennessee, and Kentucky and performed garrison duty at numerous strategic points in Kentucky (Butler 1997; Lucas 1992; Mulligan 1997).

When the African-American soldiers entered the Union camp life, they sometimes brought their families, for whom they were seeking refuge and possibly freedom. Initially, the Union Army did not want these refugees within their encampments, but by late 1864, they changed their policy and accepted these refugees within encampments (Butler 1997; Lucas 1992; Sears 1987, 2002). Finally, the March 1865 Congressional Act extended freedom to the wives and children of U.S.C.T. The recruitment of African-American men and the emancipation of their families, was the beginning of the end of slavery in Kentucky. The use of military recruitment as a means to end slavery in Kentucky was made explicit by Maj. Gen. John Palmer, commander of the District of Kentucky.

Effects on the Civilian Population

Compared to other Southern states, Kentucky survived the Civil War in good shape. Since few major campaigns or large battles took place within the state, it did not experience great physical devastation (Harrison 1975:80). However, many people in the state were greatly affected by the war.

Early in the war, farmers and merchants were hurt by the curtailment of trade with the South. This was particularly hard on hemp and livestock producers, whose primary customers were the planters of the deep South (Alexander 1976). There also were disruptions to regional transportation systems due to war damage or Union Army control. This was particularly true of railroads, but some rivers, such as the Green River, also were effectively shut down during the Civil War (Crocker 1976:76; Harrison 1975:95). Other problems during the early years of the war included a shortage of money, limited credit, and low prices for land, slaves, and livestock (Alexander 1976:232-235).

By 1863, economic conditions had improved as United States Army contracts and northern customers increased demand and prices for Kentucky products. Grain and livestock prices in particular rose, as these were in great demand by the Army. Hemp prices also improved, since it became more widely used in clothing, given the shortage of cotton (Alexander 1976:263). Conditions also improved for merchants, but because of Army restrictions and a corrupt permit system, they continued to suffer hardships (Harrison 1975:99-100).

The wartime condition of Kentucky agriculture, mining, and other industries varied depending on their type and location. For instance, nitre was in demand for gunpowder, particularly in the South, and it was mined heavily in the Appalachian Mountains Cultural Landscape during the Civil War (Fig and Knudsen 1984:68). It was generally extracted by locals, who would sell it to either side. Mammoth Cave, which was in a strategically exposed position, was not mined during the Civil War (Faust 1967:336).

Other industries, such as iron and salt, experienced a boom during the Civil War. Iron furnaces, including Buffalo in Greenup County (Appalachian Mountains Cultural Landscape) and Nelson in Nelson County (Bluegrass Cultural Landscape), were Union suppliers. In other areas, such as the Green River (Pennyryle Cultural Landscape) and the Land Between the Rivers (now Lakes) (Jackson Purchase Cultural Landscape), transportation difficulties inhibited the iron industry (Henry 1976:51). Also, the loss of men and slaves slowed some industries, especially coal mining (Scalf 1966:282).

The loss of the labor force, both free and slave, that occurred during the Civil War was probably the largest single factor in the deterioration of Kentucky's agriculture and industry. In terms of the free population, about 100,000 Kentucky men entered the Union Army and 25,000 to 40,000 entered the Confederate Army during the war. Of these, roughly one-third died of wounds or disease (Harrison 1975:95). By the end of the Civil War, agricultural losses included a 4,000,000-acre decrease in improved acreage and a 25 percent loss of livestock (Harrison 1975:101).

The number of slaves that escaped during the early years of the war is difficult to estimate, but by the end of 1863, many were crossing the Ohio and Mississippi rivers and the Tennessee border to enlist in the Union Army. By this time, the Federal Government was offering freedom to any male slave who enlisted. Recruitment was occurring everywhere at this time, except in Kentucky (Berlin 1982:191).

As noted above, by February 1864, the Federal Government grew tired of giving Kentucky special treatment and began recruiting slaves there as well (Berlin 1982:193). Kentucky slaves eventually enlisted in great numbers and by the summer of 1865, nearly 24,000 had enlisted and been freed (Berlin 1982:194). Also, as noted above, thousands of African-American women and children also entered Union camps and after the March 1865 Congressional Act, they were emancipated as well. These events obviously began the abolition of slavery in Kentucky.

There also were a number of other disruptions. Besides physical destruction and theft caused by both armies, the occupying Federal forces also influenced and disrupted political and social activities. Fearing a growth in power of the so-called "Peace Democrats," the Army virtually controlled the elections of 1862 and 1863 by intimidation (Harrison 1975:82). Also, as previously mentioned, in a step to control bushwhacking and to aid Confederates, martial law was declared in Kentucky in July 1863 (Harrison 1975:84). Bushwhacking continued, however, especially in the Appalachian Mountains Cultural Landscape, where it contributed to long-term animosities and violence (McKnight 2006; Sensing 1942). As Caudill (1979:290) stated, "the war divided the people across every conceivable line and gave rise to hatreds that, in turn, generated ghastly and prolonged feuds." The Civil War ended on April 9, 1865.

POSTBELLUM: READJUSTMENT AND INDUSTRIALIZATION, 1865-1914

During the period from 1865 to 1914, old social and economic systems became obsolete and new ones were introduced that greatly affected Kentucky. The following discussion highlights the major trends documented for this subperiod.

One of these trends was the state's struggle to deal with the emancipation of African Americans and their role in Postbellum society. Other trends, such as those in agriculture, were more gradual, although the introduction of white burley tobacco in the Bluegrass Cultural Landscape and the general popularity of tobacco resulted in important agricultural changes. The traditional agricultural system reached a peak near the end of this subperiod, after which it began to decline, forcing many farmers to turn to industry or migrate to other areas. The Postbellum subperiod also was one of tremendous developments in communication, transportation, production, and consumption, coupled with growth in industry and commerce. New systems of transportation, especially the railroad, resulted in a reorientation of trade patterns, and with increased road construction, the various regions of the state were brought closer together. While these new transportation systems increased communication between the cultural landscapes during this subperiod, regional cultural and economic differences became more pronounced.

At the end of this section, a more detailed treatment of the timber and coal industries will be presented. These industries are discussed separately because of the tremendous economic and cultural effects they have had and continue to have on the environment, lifeways, and culture of many areas of the state.

Demographic Developments

Kentucky's population increased from 1,648,690 in 1870 to 2,289,905 in 1910, an increase of 39 percent in 40 years. Several important demographic trends that occurred during this subperiod are discussed below.

The Postbellum was a period of urbanization throughout most of the United States. In Kentucky, urbanization occurred at a much slower rate than in other parts of the country. Satellite cities developed around the large urban centers, like Louisville and the Covington-Newport area, and many towns and cities grew in size. Initially, urban growth was heavily influenced by the migration of African Americans to cities, but increased opportunities for jobs in manufacturing and commerce drew Euro-Americans to the cities as well. This pattern is reflected by the fact that the population of the state's rural areas increased by only 8.7 percent from 1860 to 1870, while the urban population increased by 62.4 percent. Growth during the 1870s slowed somewhat in the cities and increased in rural areas to the point that both areas had similar growth rates, 27.6 and 24.3 percent, respectively.

Urbanization probably slowed somewhat during the 1870s due to the Panic of 1873. However, it resumed in the following decade, when the urban population increased

by 42 percent. The rural population increased by only 7.4 percent. This trend continued, although at a slightly more gradual rate, throughout this subperiod (and into the next). The rural population grew by only 11.8 percent in the 1890s and by only 3.3 percent in the 1900s, while the urban population increased by 31.1 percent in the last decade of the nineteenth century and by 18.8 percent in the first decade of the twentieth century (U.S. Census 1943).

Increased urbanization led to the growth of residential suburbs in many towns and cities. It also resulted in crowding and a decline in housing conditions in some cities. Tenement houses became more common as large, single family structures were converted to rental units (Ellis 1981; Kemp 1909). These dwellings often housed many families. One tenement in Louisville is reported to have contained 41 rooms that were occupied by 40 families (Kemp 1909).

During the Postbellum, average family size decreased at a faster rate than did the average number of persons that occupied a dwelling. This suggests that throughout this subperiod, increased numbers of non-family members, probably boarders, became members of households. This was especially true in industrial centers, such as those in the Ohio Valley Urban Centers Cultural Landscape. This trend can be illustrated by comparing the difference between the average size of a household and the average size of a family from the 1890 census for Muhlenberg County, a mining area in the Pennyrile Cultural Landscape, and Anderson County, a rural area, and Fayette County (which includes Lexington) in the Bluegrass Cultural Landscape, with that of heavily urbanized Jefferson County. The first three counties had .23, .13, and .26 more persons per household than per family, respectively, while Jefferson County had 1.34 more persons per household than per family, which is more than five times the amounts for the other three counties (U.S. Census 1892). In 1900 and 1910, the average number of persons per dwelling was 1.2 to 1.4 more than the average number of persons per family in the industrial centers of Covington and Newport, but only .4 more in the smaller city of Lexington (U.S. Census 1923).

The Postbellum was a time of change, or potential change, in the areas of sanitation, water procurement, and other municipal services. Kemp (1909), in her survey of tenement houses in Louisville in 1909, found that some families lacked a water source and had to beg water from houses with water, while others used polluted cisterns. The most common source of toilet facilities was a privy vault (86 percent), often shared by many families. Only 8 percent of families had their own privy vault or water closet, and 30 percent of the families shared sanitary facilities with seven or more apartments. Kemp's data illustrate the lack of a simple one-to-one correspondence between a dwelling and a specific household or family.

The unsanitary and unpleasant conditions associated with rapid urban growth led to some legislative reform. For instance, House Bill 398, which went into effect June 15, 1910, outlawed cellar apartments, privy vaults, and cisterns. Works Progress Administration surveys conducted in the late 1930s suggest that these laws were not very effective, especially in lower-income neighborhoods (Ellis 1981).

In addition to new legislation, private organizations were formed to improve living conditions in cities. One example is the Lexington Civic League, which was most

active in the first decade of the twentieth century. Besides efforts to improve education and provide parks and other amenities, the League worked to improve housing conditions and get water hydrants installed in poorer neighborhoods, some of which lacked a reliable water source (Hay 1988). Generally, although cities and larger towns began to establish municipal services during the Postbellum, many households continued to rely on old facilities like wells, cisterns and privies, usually located in the yard not far from a dwelling.

Unlike the tenements Kemp had studied in New York and other East Coast cities, Louisville tenements usually had yards, perhaps because they were often converted single family houses rather than having been specifically built as tenement houses. A photograph from Kemp's (1909:51) survey shows a goat in a yard, documenting that some animals were still kept, and she mentions some craft activity by immigrants in these yards. Kemp noted that some yards contained piles of garbage, although municipal collection was supposedly available three times a week.

Besides a general increase in the size of urban populations, the ethnic composition of the state's population changed during this subperiod. The percentage of the state's population that was African American decreased from 16.8 percent in 1870 to 11.4 percent in 1910, as did the percent of the population that was foreign-born. In 1890, 4 percent of the state's population was foreign-born. This percentage had decreased to 1.7 percent in 1910 (U.S. Census 1892, 1913).

Advertisements and personal representatives were sent to immigration agencies in the U.S. and abroad just after the Civil War, with the hope of bringing in foreign labor and their wealth. Societies such as the Kentucky Industrial and Immigration Association, incorporated in Louisville in 1867, also were established. However, these efforts resulted in the immigration of only 3,500 persons (Traughber 1942). Part of the failure may be blamed on the lack of a strong state bureau of immigration to encourage immigration to Kentucky. Many Kentuckians were not totally committed to large-scale immigration and expressed fears of radicalism, the dangers of polluting their pure "English stock," and other objections in scathing editorials to the newspapers. While the percentage of foreign-born individuals living in the U.S. increased by 20 percent between 1860 and 1870, it declined by 6 percent in Kentucky, a trend that continued throughout the remainder of the nineteenth century (Traughber 1942).

There were important differences by cultural landscapes, with some foreign-born immigrants coming to areas where mines were in operation or railroads were being built. For example, the number of foreign-born increased by 1,158 in the Appalachian Mountains Cultural Landscape, and by 620 in the Knobs region of the Bluegrass Cultural Landscape from 1880 to 1890, while it decreased in all other areas of the state. While there was a general population loss in the Western Coalfield Section of the Pennyryle Cultural Landscape from 1880 to 1890, the foreign-born population of Edmonson, Grayson, McLean, Ohio, and especially Muhlenberg counties increased. In contrast to all other regions, the Western Coalfield Section experienced a small general increase in its foreign-born population between 1870 and 1880, especially in the mining counties of Hopkins and Daviess counties (Traughber 1942).

Several immigrant communities were established during this subperiod. A state immigration board was created in 1880, although it disbanded in 1887 due to a lack of funds. The board and later governmental efforts emphasized the establishment of colonies of immigrant farmers, mostly Swiss or German, but they did not encourage general immigration to the state. Although a greater majority of immigrants did continue to come as individuals, several agricultural communities were established in the 1880s and early 1890s. These include Bernstadt, East Bernstadt, Strassburg, and Langnau in Laurel County; Saaner, Lutherheim, and Highland in Lincoln County; New Austria in Boyle County; Templar Springs in Edmonson County; and other smaller colonies in Christian and Lyon counties (Traugher 1942).

Other immigrants were attracted to jobs in manufacturing in the Ohio Valley Urban Centers (i.e., Louisville and the Covington-Newport area), where Germans comprised about half the foreign-born population. By 1890, 16.5 percent of those employed in manufacturing were foreign-born, even though immigrants comprised only 4 percent of the state's population (U.S. Census 1892). Martin (1988) has suggested that the movement of immigrants into an area may have had a greater effect on a community than the actual numbers of immigrants living in urban contexts would suggest, especially since many were craftsmen and builders. The debates and divisions of the Civil War created animosities between many residents of Kentucky, and although the state had not seen extensive destruction from battles, it had been militarily occupied and a great deal of property had been lost to guerilla bands, appropriation by armies, or neglect.

Relations between slaves and their masters had frequently been disrupted in the early 1860s, when some slave owners began paying wages to their slaves to keep them on plantations (Howard 1983). Many slaves left their owners during the war. Slaves of Confederates were freed if they enrolled in labor battalions, which also extended freedom to their wives and children (Coulter 1966). At least 20,000 Kentucky slaves joined the Union Army (Tapp and Klotter 1977), thereby securing their freedom. This freedom also was extended to their wives and children in March 1865, which increased the number of Kentucky slaves freed by this means to nearly 100,000. Efforts at enlisting slaves were especially strong late in the war, and continued heavily in Kentucky even after the war was over, which was resented by the slave-holding population. President Andrew Johnson estimated that out of the 230,000 Kentucky slaves in 1860, only about 65,000 had not been freed by the fall of 1865 through enlistment or the automatic freeing of slaves of Confederate soldiers. Any remaining slaves were freed in December 1865, when the 13th Amendment was ratified without Kentucky's support.

Kentucky did not undergo Reconstruction, but the Federal government would not seat several elected Congressmen from Kentucky, and the state was included in the activities of the Freedmen's Bureau in December 1865, the only non-Confederate state to receive such attention. Freedmen's Bureau offices were established in Lexington, Maysville, Covington, and Louisville, with smaller offices scattered across the state (Coulter 1966). The Freedmen's Bureau offices in most of Kentucky remained in operation until 1869 and until 1872 in Louisville.

The Bureau created much controversy, especially in its more political operations. However, it did not have to deal with confiscated lands, as it did in Confederate states. Thus, more time and effort could be directed toward providing food and clothing, setting

up schools, and helping to organize labor. By 1869, the Bureau had set up 391 schools for freed slaves. It was less successful in obtaining labor contracts, which were generally negotiated on the local level and were quite variable. Howard (1983) suggests that labor contracts were most successfully implemented on plantations or farms that slaves had not left during the war; securing the return of laborers who had left proved more difficult. Despite labor shortages, wages were generally low for African Americans, which did little to encourage a return to agriculture. The Bureau tried to enforce the payment of back wages to the wives and children of ex-slaves who had enlisted in the Union Army, but these efforts were not very successful and created much hostility from former slave-owners.

Many slaves left the farms of Kentucky for towns and cities, especially Lexington and Louisville, during and just after the Civil War. Some who went to Louisville during the War sought the protection of the Federal Army, and many were issued passes to cross the Ohio River. However, ship captains and the railroads would not always honor these passes without the additional permission of the owner or former owner (Coulter 1966). Others were looking for work away from the plantation, which was not always easy to find, in part because of threats of censure or violence against those who hired African Americans. Despite these problems, the migration to the cities continued, especially when a truly radical reconstruction program, which would have redistributed land to ex-slaves, was not pursued. The years following the Civil War were full of difficult transitions (Lucas 1993).

In the 23 Kentucky cities or towns examined by Traughber (1942), the African-American population increased dramatically between 1860 and 1870, while the Euro-American population grew more slowly, or in some communities, decreased. For example, Lexington's African-American population increased from 3280 in 1860 to 10,745 in 1868, whereas the Euro-American population of Lexington, which was nearly double that of the African-American population in 1860, by 1868 was only 458 persons larger than the African-American population. Similarly, Louisville's African-American population increased by 119 percent and Covington's increased by 304 percent during this time, while the Euro-American populations of these communities increased by 40 and 44 percent, respectively (Traughber 1942:8).

The movement of African Americans from rural settings to towns and cities or out of the state created extreme labor shortages on farms. By 1870, the African-American population of Kentucky was 6 percent less than it had been in 1860. This is in contrast with the states of Indiana and Illinois, whose African-American population more than doubled during this decade (Traughber 1942). Many Kentucky cities initially passed vagrant laws and other "slave codes" or "black codes" to regulate their growing African-American population, and negative impacts also were felt by the established free black community (Thomas 1973). These codes often stipulated that African Americans with no proof of employment could be arrested or forced into farming contracts. By 1872, these codes had largely been overturned.

It is unlikely that many African Americans had much in the way of material goods or savings as they began their new lives. For example, in 1870, only 11 percent of the African Americans in Kentucky had personal property worth \$100.00. Although African

Americans comprised 45 percent of the population of Kentucky, they owned only 6 percent of Kentucky's wealth (Tapp and Klotter 1977).

The readjustment of labor arrangements in the South after the war usually involved much experimentation. A real labor shortage, plus the failure to establish a labor system for African Americans, led many landowners to call for foreign labor. These efforts were not very successful, as discussed previously. Also, many African Americans, themselves anxious to secure employment, began to resolve their own labor situation. In Fayette County, for example, local African Americans formed the Intelligence Office, an organization that secured over 3,000 labor contracts in 1869 (Smith 1972). By this time, many African Americans in other parts of the state had resumed work on farms, which reduced calls for foreign labor (Howard 1983).

In much of the South, the usual sequence of labor organization was from wage labor, first in gangs and then more individually, to sharecropping, renting, and other labor arrangements during the late 1860s and early 1870s. Sharecropping by individual households became the norm in many areas of the South, because it satisfied the desires of African Americans for increased autonomy despite a lack of resources, and the desires of landowners to share agricultural risks. Intermediate between wage labor and individual sharecropping was the squad system of production, in which a group of households, often related by kinship, contracted and worked a certain area of land together. The individual sharecropping arrangement usually involved moving formerly clustered slave houses to more dispersed locations or constructing new houses (Prunty 1955). In contrast, the squad system and wage labor was more conducive to continued occupation of the existing clustered slave houses.

Whether a region was a cotton producer or had an agricultural economy based on hemp and tobacco may be an important factor in the nature of the labor arrangements worked out by exslaves. In this regard, Howard (1983:97) has suggested that, unlike much of the South, sharecropping arrangements were not popular in Kentucky, where most exslaves worked for wages. Yet he (1983:128) also has suggested that, like other areas of the South, most exslaves in Kentucky preferred to work and live as individual families, in their own houses on their farms.

In contrast to the pattern of residential dispersal assumed for most of the South, special rural hamlets to house exslaves were constructed on many farms in the Inner Bluegrass Section of the Bluegrass Cultural Landscape (Alvey 1992; Smith 1972). At least 30 of these hamlets were studied by Smith (1972). All were densely nucleated, constructed of a series of contiguous lots, usually long and narrow, with enough room for a garden and some animals, although not large enough for complete subsistence. These lots were usually sold, although they were occasionally given, to African Americans by a landowner/employer. Less frequently, the land was turned over to a developer, who then sold it to the occupants. These hamlets were generally more isolated and had less access to other communities than small hamlets occupied by Euro-Americans (Smith 1972). The nucleated black communities were more similar to the clustered pattern of the earlier slave quarters than to a series of dispersed farm houses, although hamlets were significantly different from the old quarters in that the occupants usually owned the property they lived on and enjoyed a tremendous increase in privacy and autonomy. The clustered hamlets depended on their relationship with the large farms, which needed

many employees in one area, and would perhaps be less viable where landholdings were smaller or agriculture was less intensive.

Other types of African-American communities were founded. One such community is Coe Ridge, located in the foothills of the Cumberland Mountains in Cumberland County. Coe Ridge was settled by newly freed African Americans, on land deeded to them by their former master. It remained somewhat isolated from Euro-American society until the 1950s (Montell 1970).

Cities and towns in Kentucky during the Antebellum subperiod were not very segregated, since most slaves lived in or near the houses of their Euro-American owners (Kellogg 1982; Wright 1985, 1992). After the war, African Americans became concentrated in the lower-rent and less desirable (often low, poorly drained, or semi-industrial) areas of towns. Kemp's survey of tenement houses in Louisville found that approximately 50 percent of these substandard housing units were occupied by African Americans, much higher than the percentage of African Americans in the total population (Kemp 1909). As long as there also were Euro-American families living in these areas (as there were in Louisville and elsewhere), this in itself did not guarantee segregation, although it contributed toward it. Most African Americans may not have desired to move into Euro-American neighborhoods, especially if there were established African-American neighborhoods in the community with good access to work, and higher and drier elevations.

Over time, the size of the African-American population, coupled with uncertainties about economic and social relationships, led to heightened tensions and fears that expressed themselves in informal and formal discrimination in housing. By the turn of the century, separate housing areas for African Americans had developed in most cities (Groves and Muller 1975; Hayes 1918; Kellogg 1982; Taeuber and Taeuber 1965), and formal segregation ordinances were common after 1910 (Rice 1968). In Lexington, as early as 1868, advertisements for newly developed lots specifically stated that the lots would not be sold to African Americans, while other lots were advertised as specifically for the African-American population (Kellogg 1982). In Louisville, Wright (1985, 1992) described a pattern of interspersed clusters of African-American and Euro-American houses between 1880 and 1910. He suggested that total residential segregation was not necessary, since segregation was well-established in most economic and social arenas (Wright 1985:107), a pattern shared by other urban centers as well (Kellogg 1982; Share 1982). However, some African Americans achieved a measure of economic and occupational gain, even accumulating enough wealth to move into better furnished neighborhoods after the turn of the century, which created ambiguities in the social order. The response to these ambiguities was a segregationist ordinance in 1914, which not only forbade African Americans to move into Euro-American neighborhoods, but also forbade Euro-Americans to move into African-American areas. Although this ordinance was overturned by the U.S. Supreme Court in 1917, largely through the efforts of the NAACP, informal sanctions continued, including harassment, and residential segregation increased throughout the Postbellum subperiod (Wright 1985:121, 232). The growing trend of moving away from the center of cities, especially by wealthier Euro-Americans, also tended to increase residential segregation.

Developments in Agriculture

Despite the tremendous amount of readjustment occasioned by emancipation, agriculture in the state generally recovered rapidly after the Civil War. The lesser amount of damage suffered in Kentucky, compared to Virginia and North Carolina, and the fact that the state had an important rail line already in place before the war commenced, the Louisville and Nashville, contributed to its overtaking these states in tobacco production by 1870. By 1870, Kentucky also was first in hemp production, third in the production of mules, fifth in the production of swine, and eighth in the production of corn, wheat, and flax (Axton 1975; Tapp and Klotter 1977). By 1900, the value of farm products produced in Kentucky was \$123,000,000, the highest in the South except for Texas (Tapp and Klotter 1977).

Many ex-slaves that lived in Kentucky had spent much of their lives growing and processing hemp, especially in the Bluegrass Cultural Landscape. After the Civil War, with the rapid resumption of cotton planting in the South, the demand for hemp was very high. The high labor needs of the new crop were largely met by free African Americans, although many now lived in town and worked seasonally on the hemp crop. But the demand for hemp declined during the Postbellum subperiod, due to its replacement by iron ties to bale cotton, the reduction in the number of sailing ships that used hemp rope as rigging, and competition from foreign fibers such as jute.

Just as hemp was declining, a new form of tobacco, white burley tobacco, was gaining popularity in the Inner Bluegrass Section of the Bluegrass Cultural Landscape. The origin of this form of tobacco is uncertain, although it may have originated as a mutation in Brown County, Ohio, in 1864 (Axton 1975:68.). Shortly thereafter, it was introduced into Kentucky and other surrounding states (Axton 1975; Clark 1960; Tapp and Klotter 1977). This new form of tobacco, which grew particularly well in the soils of the Bluegrass Cultural Landscape, was milder and more easily flavored than the dark-fired type, making it especially suited for the growing U.S. plug market. Tobacco production in Kentucky increased more than 70 percent from 1870 to 1900, especially in the Bluegrass Cultural Landscape and parts of the Pennyryle and the Jackson Purchase cultural landscapes (Tapp and Klotter 1977).

Other than the introduction of Euro-American burley tobacco and its spread in the Bluegrass Cultural Landscape, there were few other changes in the types of agriculture practiced in the state during this subperiod. Livestock continued to be important for export and home use, although hogs declined in relative importance and sheep declined in both relative importance and in numbers, due to problems with wild dogs (Burroughs 1926; Davis 1927) and a decreased demand for wool. With improvements in transportation during this subperiod, most farms, especially those near a railroad, increasingly participated in production for export. Wheat was an important commercial crop in parts of the Pennyryle Cultural Landscape during this subperiod (Martin 1988). The increased possibilities for commercial agriculture created by the railroad may have resulted in greater differences between farms based on access to transportation networks.

Less fertile areas of the state, such as the Appalachian Mountains Cultural Landscape, the Hilly Eastern Section of the Pennyryle Cultural Landscape, and the eastern

hills of the Jackson Purchase Cultural Landscape, were not dependent on tobacco and probably remained more oriented toward subsistence crops, especially corn and livestock (Burroughs 1924; Davis 1927; Martin 1988). Corn was one of the most important crops grown in Kentucky because of its versatility for human and animal consumption, ease of cultivation and storage, and tolerance of a variety of soil types. Higher than average concentration on corn and sorghum marked the less commercially oriented farms during this subperiod (Davis 1923; Martin 1988). Farming methods probably did not change much during this subperiod. Louisville was a major manufacturer of agricultural implements, which should have ensured a ready supply of tools.

One of the more important Postbellum agricultural developments was soil depletion. Martin (1988) has noted that by 1890, yields were beginning to decline in the Pennyryle Cultural Landscape as lands began to wear out. In some areas, this decline did not become a significant problem until the turn of the century (Burroughs 1924, 1926; Davis 1923, 1927; Sauer 1927). Farm tenancy and farm mortgages increased during this subperiod. Tenancy increased from 26.5 percent of farm operators in 1880 to 33.9 percent in 1900. During this period, the relative frequency of cash renting declined, while share-renting and share cropping increased (U.S. Census 1913). As mentioned above, tenancy was one way to make use of freed slaves that had knowledge and expertise in agriculture but no land and little means of acquiring it. Increased tenancy between 1870 and 1900 was, at least in Kentucky, also attributable to the economics of tobacco production, in which high prices coupled with high labor demands and high land prices often made renting and working small acreage a profitable way to farm. This probably created a very different form of tenancy than in the cotton South.

There were differences between tenant farms and owner-operated farms in Kentucky, as elsewhere. The value and size of owner-occupied farms were much larger than those occupied by tenants. Within each ownership class, there also were consistent differences by ethnicity, with Euro-American farms being worth more than African-American farms. For example, in 1910, the average size of a Euro-American owner-operated farm was 104.7 acres, with an average value of land and buildings of \$2,507. The corresponding figures for the average Euro-American tenant farm were about 50 percent less than that of the owner-operated farms (51.5 acres and \$1,782, respectively). African-American owner-operated farms were, on average, 43.1 acres, smaller even than the average Euro-American tenant farm, and valued at \$1,207 (with buildings), also less than the Euro-American tenant farm. The average African-American tenant farm was 31.4 acres in size and valued at \$1,302 (with buildings). African-American tenant farms may have had a higher average value than African-American owner-operated farms, since they would have included buildings and other improvements made by and belonging to a landlord. Based on his research on the Pennyryle Cultural Landscape, Martin (1988:266) suggested that African-American farmers had a better chance of becoming autonomous cash renters, as opposed to share-croppers, when they farmed less desirable and probably less commercial farms, such as those located in the Eastern Section of the Pennyryle Cultural Landscape.

Agricultural deterioration was especially marked during the latter decade of this subperiod in the Appalachian Mountains Cultural Landscape and the Western Coalfield Section of the Pennyryle Cultural Landscape. To some degree, many local persons

refused to participate in the lumber and coal industries, and continued farming much as before. More frequently, farming practices were greatly affected by the extractive industries. For instance, those who had sold timber rights, or whose neighbors had done so, often experienced extreme erosion and loss of fertility on their land. The coal towns themselves often took up much of the flatter, more valuable farm land. Many farmers engaged in part-time employment in the timber and coal industries, and farms suffered from the resulting loss of labor. Also, the large number of individuals who came into these cultural landscapes to survey, negotiate with landowners, and extract coal and timber required food. Although some of this food was brought in by the coal and timber companies, much of it, especially in the early years of these industries, was provided by mountain farmers who altered their farming strategies and sold surpluses that they previously had stored for their own use (Caudill 1963; C. Jones 1985). Increased corn production also was needed for the oxen and other animals sometimes used to haul out the logs (Caudill 1963).

This increased demand for food, coupled with soil erosion from lumbering, caused farmers to increasingly cultivate less fertile land, often on slopes. These soils provided low yields and were worn-out in only one or two years. Livestock in the Appalachian Mountains Cultural Landscape had declined to only 39 percent of its 1880 level by 1930 (Kirby 1987), creating a greater dependence on wage labor and the production of goods, for sale, such as whiskey. Some farmers used money from coal and timber rights to acquire land from other farmers. This resulted in a large number of landless farmers, many of whom became sharecroppers, and increased social stratification in this cultural landscape. Loss of land to other local farmers and sales to timber and coal buyers resulted in a tenancy rate of nearly one-third of all farmers in the Appalachian Mountains Cultural Landscape by 1910, similar to the rest of the state (Caudill 1963).

Besides the introduction of white burley during the Postbellum subperiod, the marketing of tobacco underwent several changes. The system in use throughout most of the nineteenth century was one of direct buying by manufacturers or agents in the barns of farmers. The tobacco was then shipped in hogsheads to marketing agents, most of whom were located in Louisville. This produced a dispersed economic network (much like the earlier factorage systems) but with strong control by Louisville.

In 1890, J. B. Duke began the formation of an international buyers trust under the American Tobacco Company that, through price wars and other means, had assumed monopolistic control over at least 250 manufacturers by 1902 (Axton 1975; Channing 1977). Lower prices, partly due to overproduction and partly because of the trust's control, led to strained economic conditions. This led to much hostility and violence in the early years of the twentieth century, especially in the Jackson Purchase Cultural Landscape and the Plains Section of the Pennyryle Cultural Landscape (Axton 1975; Campbell 1993; Martin 1988). Violence died down by 1908, partly due to public reaction and partly because tobacco prices were rising. Also, the American Tobacco Company trust had been challenged under the Sherman Anti-Trust Law in 1908 and was dismantled in 1911 (Axton 1975). Campbell (1993) argues that more attention is needed to understand the dynamics of burley growers' resistance in the Bluegrass area, which has been overshadowed by the violence experienced in western Kentucky. His study makes

many comparisons to the debt peonage of the deeper, cotton producing regions where widespread tenancy and an exploitive mercantile supply system was in place.

Meanwhile, loose leaf tobacco warehouses, the first of which was established in Lexington in 1904 (Axton 1975; Channing 1977; Clark 1960), began to grow and encourage competitive pricing. Lexington grew as a tobacco marketing center during this subperiod, although most county seats in tobacco-growing counties also built warehouses and experienced growth. Good prices for tobacco, especially in the 1910s, and the introduction of the popular blended cigarette in 1913 (Axton 1975) led to increased production and much profit during these years.

Developments in Commerce and Manufacturing

Like agriculture, commerce and manufacturing also increased after the Civil War. General manufacturing and commercial developments in the state will be discussed first. As noted above, because of the effects lumbering and coal mining had on Kentucky, these industries are discussed in more detail in the following subsection.

Following the end of the Civil War, many persons in Kentucky were anxious to resume businesses and establish new economic links with the rest of the nation. Kentucky's economy, oriented generally to the South, had been heavily disrupted during the war. Following the war, the poverty of the South, its lack of credit and currency, and the rise of new marketing systems to replace the old factorage system meant that Kentucky businesses had to adjust to new conditions. Louisville, which had established itself as the manufacturing center of the South before the war, sent many drummers and traders into the South to protect its trade, especially from Northern businesses that attempted to establish new relations with Southern storekeepers (Clark 1960). Louisville did manage to hold on to its position of prominence in Southern trade, despite its failure to block the Cincinnati to Knoxville rail line. In fact, by 1900, Louisville was the top Southern manufacturing city and the second largest population center in the South (Ellis 1981).

Mass production and a growing desire for consumer goods stimulated retail trade and the growth of most towns and cities during this subperiod. Wage labor increased the purchasing power of most individuals and stimulated industry to produce more goods, especially in the latter part of this subperiod. Coal mining especially stimulated retail trade, although some of this money went directly through the company stores to out-of-state owners or to centers like Lexington and Louisville. The county seats, especially those where agriculture was more commercially oriented, grew in population and retail business during this subperiod. The rural furnishing merchant was an essential part of farm tenancy in the cotton-producing regions of the deep South, initially for African-American tenants but toward the end of the century for Euro-American tenants as well (Ransom and Sutch 1977; Weiner 1985).

City or town dwellers may have had more opportunities to purchase mass-produced goods compared to rural persons, and may have had better access to the latest technological innovations, styles, and new merchandise of the late-nineteenth and early-twentieth century. Yet mail order from companies such as Sears or Montgomery Ward was a major equalizer in terms of access to goods (Schlereth 1980).

In Kentucky at this time, there also was a great deal of interest in increasing manufacturing, improving transportation, diversifying the population, and attracting new wealth to the state. The legislature encouraged such activities by freely granting charters for new operations, and by offering tax exemptions and other favors to new corporations. Kentucky representatives were sent to exhibitions, and brochures that extolled the natural resources of Kentucky were prepared and distributed around the country and abroad. The Geologic Survey of Kentucky was established in 1873 as part of these promotional activities. Increased supplies of coal, plus access to new power sources such as electricity, first used industrially in the 1880s, greatly facilitated manufacturing during this subperiod.

Throughout this subperiod, a sizeable portion of goods manufactured in Kentucky were made from wood or cloth (Martin 1988), as hemp-related manufacturing declined. By 1870, there were only 11 hemp bagging factories in Kentucky, and most of these were in Fayette and Jefferson counties. By 1900, these had all disappeared, although six twine mills were still in operation (Hopkins 1938). In general, Kentucky's record in manufacturing during this subperiod was more representative of a Southern than a Northern state. Most of the factories located in Kentucky were concentrated in the Ohio River counties, and especially in the urban areas like Paducah, Henderson, Owensboro, Louisville, and the Newport-Covington area, which all increased in population and wealth during this subperiod. The three largest manufacturing centers in 1880 were Louisville, with 17,484 hands; Covington, with 2,925 hands; and Newport, with 1,748 hands (U.S. Census 1883). Of the 37,391 individuals who had manufacturing-related jobs in 1880, 60 percent lived in these three cities, with Louisville alone accounting for 47 percent.

By 1910, the total number of people in the state employed in manufacturing had risen to 65,400 persons, up 74 percent from the 1880 level. The three most important products manufactured in Louisville at this time were, in order of value produced, tobacco, distilled liquor, and materials made or repaired by foundries and machine shops, primarily for the railroad industry. Although tobacco-stemming factories grew in the latter part of the nineteenth century in cities such as Owensboro and Henderson, Kentucky continued to specialize in the growing and shipping of tobacco (Axton 1975). In 1910, 19 percent of manufacturing jobs in Kentucky were in lumber-related industries (U.S. Census 1913). Other important Kentucky industries during this subperiod were foundries, printing (especially of newspapers), brick and tile manufacturing, and carriage making, all of which employed over 1,400 persons by 1890 (U.S. Census 1892).

Although industrial activity in Kentucky was concentrated in the Ohio Valley Urban Centers Cultural Landscape, some rural industries continued to thrive during this subperiod. Important rural industries included the timber industry and iron smelting or iron furnaces. These furnaces needed huge quantities of wood for charcoal and were thus usually located in rural areas. Together with coal, iron ore could have contributed to an integrated iron and steel industry in the state. However, problems with low-grade iron ore, the sulphur and ash content of Kentucky coal, low local demand for iron and steel, and slow economic growth during the 1870s hindered the development of this industry at the coal source (Vann Woodward 1951). In the second half of the nineteenth century, the development of Lake Superior iron ore, which was a much higher grade than Kentucky

ore, further reduced the chances for a competitive iron industry in the state. Iron furnaces were much more common in Kentucky before the Civil War; Eubank's (1927) study listed 36 that were founded before 1865 and only nine that were founded after that date.

These later foundries were mostly located in the Red River Valley in Powell County, the Hanging Rock area in Estill County, or the Cumberland River area in Trigg County. The latter two counties were the most prominent iron ore centers. In 1880, there were 22 iron furnaces operating in the state; by 1890, there were only six (U.S. Census 1892).

Some of these works were quite large. The Red River Iron Works was one of the largest of its kind in the 1870s, and over 1,000 workers from the foundry lived in the nearby town of Fitchburg (Burroughs 1926). Some interesting changes in technology were introduced at the Red River Iron Works, where, in 1869, stone-coal furnaces constructed of cast iron and other metals began to replace those of brick and masonry construction.

Major iron works also were constructed in other areas of the state during this subperiod, although they relied on imported materials. In the Ohio Valley Urban Centers Cultural Landscape, the Newport Rolling Mill Co. was organized in 1890 and the Andrews Steel Company was organized in Newport in 1908. Foundries also were a major industrial resource in Louisville, as mentioned previously. In the Appalachian Mountains Cultural Landscape, the American Rolling Mill Company, organized in Ashland in 1869 as the American Rolling Mill Blast Furnace, evolved into a major producer of steel by the early-twentieth century. At least 45 coke ovens were in operation in the Western Coalfield Section of the Pennyryle Cultural Landscape by 1880. However, the coal in this region was even less suitable for coking than coal from the Appalachian Mountains Cultural Landscape, and by 1887, only one of these furnaces was still operating (Burroughs 1924).

In addition to its overall growth, manufacturing changed in other ways during the Postbellum subperiod. Small-scale local manufacturing decreased, because local industries could not compete with the more efficient large-scale commercial manufacturing operations. Because large-scale commercial industries were not that common in Kentucky, this trend had the effect of increasing the number of goods coming into the state. Exceptions to this pattern may be found in the Appalachian Mountains Cultural Landscape and other areas, where transportation problems resulted in a longer continuation of some home and local manufacturing. Thus, local industries in these areas, such as blacksmithing and milling, remained important during this subperiod. For example, there were 341 flour and other grain mills in the state in 1899, and by 1910 the number of mills had increased to 440 (U.S. Census 1913).

Related to the decrease in local industries was an increase in the consolidation of small manufacturing operations. This was part of the larger process by which large corporations were formed during the Postbellum subperiod. Also, the decline of local industries stimulated rural to urban migration. Consolidation may have resulted in a reduction in the diversity of businesses located in small towns and rural areas, and perhaps regional socio-economic variation as well. Consolidation also may have decreased the diversity in manufactured goods produced in small towns and rural areas.

Developments in Communication and Transportation

Many important new inventions promoted communication. Telephones were received enthusiastically in the United States, where over 10 million had been installed by 1914 (Kern 1983). Telephone service was established in Louisville by 1879 and in Lexington by 1882 (Tapp and Klotter 1977). Long-distance telephone was available by 1892 (Kern 1983). These developments may have resulted in a reduction of regional differences and an increase in the spread of new ideas.

Many of the developments in commerce and manufacturing discussed previously were related to changes in transportation, as this subperiod sees the introduction of motorized vehicles (the first Kentucky-owned car was in Harlan in 1899 [Hepner and Whayne 1992]). These changes directly affected a community's access to goods from outside regions and heavily influenced the growth of industry, commerce, and agriculture. Transportation improvements encouraged some communities to grow at a faster rate than others, which may have increased differences between communities. Especially toward the end of this subperiod, improvements in transportation may have extended the hinterlands of some towns and cities, causing cross-roads hamlets to decline. In fact, the continued existence of small hamlets may serve as a ready indicator of relatively underdeveloped transportation networks, compared to areas in which hamlets declined.

Distance was not only reduced by inventions like the telephone, which were especially used in the urban setting, but by developments in transportation. Improvements in long-distance travel and transportation were just as important as local changes. On the local level, mule or horse-drawn street cars on iron rails provided transportation by the 1870s and 1880s. Several lines, such as in Louisville and Covington, were initiated as early as 1864 (Hepner and Whayne 1992). These "horse-car" and later electric tracks usually followed main roads and provided access to newly developing suburban neighborhoods. Cable cars were not important in most cities except for a few years in the late the 1870s and early 1880s. Mule-drawn cars were replaced by the electric streetcar, which was invented in the middle 1880s, perfected in 1888, and spread rapidly in the 1890s (Jackson 1985; Stilgoe 1983). In Kentucky, electric street cars could take passengers on a 18-mile route in Lexington or a 40-mile route in Louisville (Tapp and Klotter 1977). Lines were established in Lexington and Louisville in 1890, the latter being one of the first to operate on electricity in the U.S. (Hepner and Whayne 1992). The electric technology also encouraged the growth of interurban lines, such as between Lexington and Georgetown in 1901 (the first in the state) and soon after to Versailles, and extending out from Louisville (Hepner and Whayne 1992). These lines were important in centralizing retail trade, decreasing the isolation of rural areas, and promoting rural-urban interaction. In fact, some rural residents worried that these lines would bring vices such as "urban consumerism" into the rural areas (Stilgoe 1983:307), which they perhaps did.

The poor condition of Kentucky's roads was not conducive to bicycle travel, although Kentucky did experience the "bicycle craze" around the turn of the century (Harrison 1984). Bicycles cost as much as \$150 in 1893, when they were still new, but declined in price to between \$3 and \$5 by 1902. Whereas the expense of a horse, or a horse and wagon or buggy, denied long-distance transportation to many citizens, the

cheapness of bicycles by the turn of the century earned them a place as “social levellers” (Kern 1983). Bicycles increased the amount of distance a person without a horse could travel per day (from 2 to 3 miles to 10 to 20 miles) and expanded the social mobility of these persons. Bicycles were especially useful within towns and cities and permitted travel between small towns in the flatter parts of the state. The increased interest is demonstrated by the 1894 publication of a map of the best roads for bicycles (Hepener and Whyne 1992). It is unlikely, however, that they ever played a major role in transporting goods within the state.

Communication and transportation improvements led to the growth of residential suburbs and increased the ease by which people could commute to cities from the suburbs. This resulted in the growth of many cities in the early-twentieth century. Whereas cities previously had been “walking” settlements, with the most desirable residential location near the city center, interurban lines and streetcars made movement toward the edges of cities and towns more desirable. The response to this new option was an enthusiasm for suburbs not matched in Europe or any other developed society (Jackson 1985). Suburbs were seen as combining the best aspects of rural life, especially lack of crowding and the opportunity to have a garden and lawn, with the amenities of urban life (Jackson 1985; Kern 1983).

Railroads

After the Civil War, there was an increase in railroad chartering and construction. Railroad building had been underway since the 1830s, but except for the Louisville and Nashville and feeders from the Ohio River to Lexington, few important lines had been completed when railroad building was interrupted by the Civil War. Following the Civil War, construction continued with increased enthusiasm and at a faster pace. Many of these developments are laid out in the transportation chronology constructed by Hepner and Whyne (1992). The state encouraged railroad construction by readily granting charters and by low taxation; over 210 charters had been granted by 1886 (Martin 1988). The power of the larger rail companies, especially the Louisville and Nashville, occasioned some protests of monopoly and abuse.

An 1878 bill that raised taxes on railroads was not well-enforced (Tapp and Klotter 1977) and a Railroad Commission was established in 1880. The Interstate Commerce Commission, established in the late 1880s, standardized gauge sizes. This improved transferability between lines and greatly aided transportation (Clark 1960). Between 1870 and 1900, the mileage of railroad track in Kentucky tripled, bringing markets closer and making goods cheaper, shipping of manufactured goods and raw materials easier, and personal mobility less of an ordeal (Channing 1977; Tapp and Klotter 1977).

Railroads had major effects upon regional/local settlement patterns, economic development, access to material goods, and trade networks. They created entirely new sets of features on the landscape. These “metropolitan corridors,” in the terminology of Stilgoe (1983), had their own trackside ecosystem of weedy growth, ditches, embankments, gravel-laid track, and sometimes, hobo jungles. Tracks often were used to string the first telegraph and telephone lines and so influenced access to modern

communication. They also frequently were used as convenient, if dangerous, walkways (Stilgoe 1983).

The construction of a railroad frequently heightened the relative commercial advantage that one community might have over another. Although before the railroads, some communities were more favored by their location adjacent to water or at the intersection of major roads, the poor quality of most Kentucky roads tended to lessen competitive advantages. With the introduction of railroads, towns located on or with access to a rail line may have enjoyed benefits over those that were passed by. This process was well-understood by citizens and by business leaders especially, who lobbied long and hard for railroads, frequently donated land and right-of-ways, issued bonds to fund construction, and in other ways contributed to the building of railroads. For example, citizens of Owensboro and Russellville, who desired a line and connections to Nashville, paid bonds and persisted in support through over fifteen years of failure and reorganizations before seeing their line completed (Dew 1978). In 1870 the Louisville and Nashville began to open routes to eastern Kentucky for coal transportation (Hepner and Whyne 1992).

Railroads also increased the possibilities of leisure travel, especially on the luxury liners. Locally, they also stimulated business at several Kentucky mineral spring resorts. Even when the improved transportation was not sufficient to revive local spas, the easy transportation offered by the railroads provided the spas with an added means to distribute bottled mineral water, as was done at Blue Licks, Crab Orchard, and Drennon Springs (Boisvert 1984). One of the biggest battles in railroad building was between the cities of Louisville and Cincinnati concerning a line between Cincinnati and Knoxville (Channing 1977; Clark 1960; Curry 1969). This competition was especially heated as the two vied for the marketing and handling of the increasing amounts of tobacco produced in the Bluegrass Cultural Landscape during this subperiod (Axton 1975). Before the completion of this line, goods from Cincinnati going south went through Louisville. Therefore, the line between Cincinnati and Knoxville also was desired by business concerns in Lexington and other cities in the Bluegrass Cultural Landscape, who saw themselves in a competitive situation with Louisville and the Louisville and Nashville line. Louisville was initially able to block the charter Cincinnati needed to construct the line, but with federal intervention and persistence, Cincinnati prevailed. The completion of this line in 1880 greatly increased the market connections of the Inner Bluegrass Section of the Bluegrass Cultural Landscape and provided the entire state with improved transportation to the north and east, although its completion lessened the importance of the Lexington to Maysville line. The Inner Bluegrass Section came to have a very dense network of rail connections, although Davis (1927) has suggested that this was largely due to its central location rather than the need to provide transportation for products manufactured or grown in this region.

Other important rail lines that were constructed during this subperiod were the lines connecting the Inner Bluegrass Section with the Appalachian Mountains Cultural Landscape. One of these, the Chesapeake and Ohio Railroad (C & O), took in many smaller lines, such as the Lexington and Big Sandy. Although some areas of the Appalachian Mountains Cultural Landscape had railroads as early as the 1870s, and Ashland and Louisa had rail connection by the early 1880s (Scalf 1966), construction of

the Chesapeake and Ohio was important in opening up this cultural landscape, especially after 1887 (Eller 1982; Thomas 1971). The Louisville and Nashville Railroad also completed rail lines into the Appalachian Mountains Cultural Landscape, reaching Jellico in 1883. By 1888, the railroads had reached Pineville, in Bell County (Eller 1982). Railroad building continued in this cultural landscape well into the twentieth century, as more companies became involved in coal mining and needed railroad lines to bring in supplies and bring out the coal from isolated locales.

Rail lines also increased other connections between cultural landscapes. For example, Paducah was connected to Elizabethtown in the 1870s (Wesler 1984c). The central portion of the Pennyryle Cultural Landscape continued to be an important transportation corridor, as it had previously been via roads (Sauer 1927). Bowling Green especially benefited from its position on the Louisville and Nashville line. Unlike the Appalachian Mountains Cultural Landscape, most of the major lines into the Pennyryle Cultural Landscape were in place by 1880 (Sauer 1927). Besides Louisville, all the major cities located on the Ohio River also were provided with railroads during this subperiod, connecting their agricultural hinterlands with northern manufacturing.

Certain areas of the state were not connected by railroads, and these areas provide comparative settings from which to view the influence of railroads on a community. One such area is located between the Cumberland and Tennessee rivers in the Jackson Purchase Cultural Landscape. Most of the rail lines in this part of Kentucky were feeder lines to the rivers (Davis 1923). Paducah, located not far from this region, did develop into an important rail center, with connections to the Midwest and the South. It is likely that Paducah participated in Midwestern trade networks to a much greater extent than any other Kentucky city. In the Appalachian Mountains Cultural Landscape, many early settlements had been situated along the valley bottoms, where most of the better roads were located. In contrast, many railroads cut over plateaus to reach rich coal seams. In so doing, they provided new connections to some areas and left formerly well-connected valleys somewhat isolated, especially as river traffic declined in importance.

In the Western Coalfield Section of the Pennyryle Cultural Landscape, the number of hamlets (defined as nucleated settlements with over 20 persons and under 151 persons), towns, or cities located along a railroad increased by just over 100 percent during the early-twentieth century, while the number of nucleated settlements along roads or streams increased at a much slower rate (Pickard 1969). As with the Appalachian Mountains Cultural Landscape, many of these settlements were located along rail lines because of their connection to coal. Entirely new communities were often established at important railroad junctions (and were sometimes called “junctions”) to provide necessary maintenance for the railroad.

Towns at the intersections of different rail carriers also grew because of the administrative jobs needed for the transfer of freight from one line to another (Martin 1988). For example, in the Inner Bluegrass Section, Lexington, with the Southern, Louisville and Nashville, and Chesapeake and Ohio lines, and Winchester, with the Louisville and Nashville and Chesapeake and Ohio, grew particularly fast (Davis 1927). Business districts within towns that had been oriented to a river or road were often reoriented toward a new rail line. Martin (1988) has suggested that since railroads often avoided the center of towns because of high land prices, a second business center

sometimes developed around a new depot, which in turn became a major center for distributing and handling freight, mail, and passengers. “Shanty towns” often grew up around railroad depots and tracks, mainly to house railroad workers. These towns were often composed of closely spaced and poorly constructed houses, some purposely constructed so they could easily be moved (Stilgoe 1983).

Railroads also changed settlement patterns in that they contributed to the movement of many heavy industries away from the center of the city to its periphery, where concentrated industrial zones often developed. This is in contrast to the Antebellum subperiod, in which industries, often nothing more than “shops,” were scattered throughout towns. This settlement pattern was occasioned by absolute economic growth; the need to expand industrial production; the increased usage of coal (often for generating electricity), which polluted the air and required storage; the need for access to good transportation; the increased use of electricity; and a need to locate factories in one story structures that were less prone to fire. These single-function industrial zones were a new part of the landscape and received a great deal of attention from writers and artists of the day (Stilgoe 1983:99-101).

Rivers

The attention given to the development and maintenance of railroads during this subperiod led to the relative neglect of Kentucky’s roads and rivers. River towns, such as Smithland in Livingston County and Glasgow in Barren County, experienced a relative decline in terms of their position in the trade and transportation networks during this subperiod. This pattern was not unique to Kentucky. A study conducted in the early 1930s concluded that “traffic on inland rivers and canals largely disappeared between 1870 and 1900” (Nourse 1934:340).

Money that was invested in river transportation was primarily spent on large barges that were towed by stern wheel paddle boats and fast packets, although the bigger steamboats continued to be used as well. Ironically, rivers were used to transport the materials to construct the rail lines, which then often took business away from the river communities. Even when rail service was more expensive, the railroad’s speed and lack of seasonal disruptions gave them a tremendous advantage over water transportation. Initially, most river transportation during this subperiod was controlled by private companies chartered by the Kentucky legislature that were supposed to provide service and maintain the river. For example, the Green River was leased to the Green and Barren River Navigation Company from 1868 to 1888. This company built its own boats for commercial use and operated a series of locks and dams on the Green River, charging a toll to non-company vessels. The company shipped tobacco and other agricultural commodities, including timber and rock asphalt, held a U.S. mail franchise, and provided transportation of passengers and incoming freight.

Increased dissatisfaction with the Green and Barren River Navigation Company’s monopolistic control over the transportation of goods led to the Federal purchase of navigation rights for both rivers when the Navigation Company’s lease expired in 1886. The Federal government (U.S. Army Corps of Engineers) had taken over the Kentucky River in 1879 from the Kentucky River Navigation Company, which had provided

service since 1869 under a lease agreement. In 1879, the Federal government set aside \$100,000 for maintenance of the Kentucky River, with an additional \$130,000 in 1880. In 1881, Congress set aside \$325,000 for the Kentucky, \$55,000 for the Big Sandy, \$37,000 for the Cumberland, \$5,000 for the Tradewater rivers, and a small sum for the Licking River, never a major transportation route (Tapp and Klotter 1977).

Federal commitments to the Green River were more extensive, especially since it was one of the most important, if not the most important source of transportation in the larger Green River Valley area. New lock construction in the late nineteenth century extended navigation on the Green River to Mammoth Cave, on the Barren River to Bowling Green, and allowed navigation on the Rough River (Crocker 1976; Hepner and Whyne 1992). Private boat owners plied the river, often using boats they bought from the old navigation company.

Crocker (1976) has suggested that from 1889 to 1906, shipping on the Green River increased from 193,475 to 342,495 tons. Much of this tonnage was rock asphalt and lumber, but some livestock and tobacco also was shipped. Pickard (1969) cites much higher tonnage: 907,146 tons in 1890, and 591,000 tons in 1928. The river even provided the means for trees to be cut, as boats were rigged as sawmills. Other specialty boats included grocery boats, tinshops, a floating photography studio, mail boats, and passenger and theater boats that often served meals. Passenger travel peaked in the 1920s, with 22,000 passengers in 1922, but had declined to 1,000 passengers by 1932 because of automobiles and improvements to roads (Crocker 1976). Shipping also declined during this subperiod, especially when improved roads made for better connections to rail lines. Anthony (1985) has noted that traffic on the Cumberland River declined in the late 1880s and early 1890s, until only one packet line was running in 1913. Navigation of the Cumberland was improved somewhat in 1892, but mostly south of Kentucky. A dam was completed 26 miles below Burnside in 1911, giving Burnside year-round navigation and connections to rail lines (Martin 1988).

In contrast to the Green River, which benefited from a series of locks and dams, the Big Sandy River received less improvement, despite the pleas of the Big Sandy Valley Improvement Association. Close to \$100,000 were appropriated between 1865 and 1871 for the Big Sandy, but the depression of 1873 ended hopes of an extensive lock and dam system on this river. Although a report in 1874-1878 called for a \$2,000,000 system of 22 locks and dams to aid in shipping coal and timber on the Big Sandy, all that resulted from this proposal was a moveable needle dam constructed at Louisa in 1897 (Crowe-Carraco 1979). Two new locks were completed on the Big Sandy in 1905 (Hepner and Whyne 1992), Steamboats, flatboats, and barges frequented the Big Sandy during the last quarter of the nineteenth century, as did many log rafts and loose logs. A unique type of sternwheeler, called a "batwings," which could run on only 30 inches of water, was popular on the Big Sandy River (Crowe-Carraco 1979). As on other rivers, packet lines were organized to carry mail, passengers, and freight, but economic competition, the hazards of the river's many snags, and loose floating timbers from lumbering meant that many boats were short-lived. Thus, transportation on the Big Sandy was less reliable than on the Green River.

Despite these problems, traffic related to lumbering remained heavy on the Big Sandy throughout the late-nineteenth and into the twentieth century. Logs were floated

down creeks and tributaries, usually loose or in rafts, with the aid of a series of splash dams. These dams were constructed of loose timbers piled together and filled with stone and mud, and were dynamited when enough logs had accumulated behind them, sending a large and violent flood of timbers downstream. Remains of these splash dams, testimony to commercial lumbering, are still observable on many streams (Tom Sussenbach, personal communication 1988). Once the logs reached the Big Sandy, or sometimes not until they reached the Ohio River, they were usually made into rafts. Large strings of rafts often left the mouth of the Big Sandy at Catlettsburg to float to the sawmills at Cincinnati and Louisville on the Ohio. For example, on May 11, 1903, over 1,000 timber rafts assembled at Catlettsburg. Passenger travel and shipping on the Big Sandy grew throughout the subperiod, until the Chesapeake and Ohio reached Pikeville in 1905. In 1900, 28,750 passengers, 200,000 tons of timber, and 300,000 total tons of shipping were transported on the Big Sandy. Only 1,000 passengers, 123,000 tons of timber, and 148,000 tons of shipping were transported in 1905 (Crowe-Carraco 1979:73). Due to the decline in shipping Catlettsburg, and other towns on the Big Sandy may have experienced a decline in population at this time.

The Kentucky River continued to be of major importance, and the administration and supervision of the locks was discussed above. One additional lock was built in 1909. Because of damage to the locks and dams, “loose” timber was prohibited on the Kentucky River in 1910. A final lock was built on the Kentucky in 1912 (Hepner and Whyne 1992).

Despite the general decline in river traffic, the Ohio River continued to be a major source of transportation during this subperiod. The Ohio River received additional federal protection with the 1910 establishment of the River and Harbor Act, which provided modern navigation facilities (Hepner and Whyne 1992). Coal and timber from the Appalachian Mountains Cultural Landscape was frequently shipped down the Ohio for local use, processing, or was transferred to rail connections at Cincinnati or Louisville. The Ohio River Urban Centers of Louisville and Covington-Newport and river cities such as Henderson, Owensboro, Paducah, and Maysville also continued to grow, both because of their role in transportation and because of the industry that grew up along the rivers.

Roads

Roads in Kentucky were perhaps even more neglected than rivers after the Civil War. Sauer (1927) noted that there were few changes in the road networks of the Pennyrile Cultural Landscape from 1820 to 1920, and the same probably could be said for most of the state. The majority of Kentucky roads during this subperiod were private toll roads, maintained by companies that collected tolls from travelers. Most of the major roads were built during the Antebellum subperiod. Kentucky roads suffered during the Civil War and did not receive the repairs they needed after the war because of the diversion of attention to railroads (Allen 1954). Because most roads had only a dirt surface, at best improved with crushed rock (usually limestone or sometimes chert), travel was especially difficult during the wetter months of the year. Most roads were on ridges or in valley floors. Crossing between valleys continued to be a problem, especially in poorly drained areas or areas having soils with high clay content where roads frequently became very slick or washed out. Roads also quickly eroded down to

limestone or shale in many areas, which made for a very bumpy and, in the case of shale, unstable surface. Because of a lack of bridges, many rivers and creeks could not be crossed during times of high water, which added to the difficulty of travel in rural areas. Ferries remained essential to the crossing of the larger creeks and rivers throughout the Postbellum subperiod and into the next subperiod.

Despite poor surfaces and seasonal uncertainties, most parts of the state had road connections to their county seats or important trade centers. These roads were used as they had been in previous subperiods: to drive stock to towns, to haul goods in wagons or on sleds, and for foot or horse travel. Roads were essential to the drummers who connected many rural stores to wholesalers, especially those located in Louisville or Cincinnati. Peddlers also used these roads, often to bring goods directly to houses. Wilhelm (1977) has suggested that peddlers were especially important for distributing goods and news from 1870 to 1930, when many farmers were too poor to maintain accounts at local stores.

Sauer (1927:223) has suggested that the lack of intensive commercial agriculture in the state led to a “tolerance of indifferent roads” and acted as “somewhat of a check to the building of better local lines of transportation.” The most important commercial agricultural products in Kentucky at this time, livestock and tobacco, were relatively easy to transport, which probably did not encourage road improvements. In contrast, roads in areas involved in dairy farming, such as in Jefferson County, needed to be smoother, since dairy products were very difficult to transport. Certain parts of the state, especially the more rugged sections of the Appalachian Mountains Cultural Landscape, parts of the Jackson Purchase Cultural Landscape, and the Western Coalfield Section of the Pennyrile Cultural Landscape, consistently lacked good road connections during the Postbellum subperiod (Collins et al. 1996). Because most goods had to be hauled by wagons, terrain was often a restrictive factor. Teamsters, with their large wagons and strong teams of draft mules or horses, were extremely important to the transportation system of the Appalachian Mountains Cultural Landscape. Even with these strong animals, transportation could be cut off in the worst winter weather, and an entire community could depend on the deliveries of several teams (C. Jones 1985). Sleds often replaced wagons in poorer sections of the state, at least for local transportation (Burroughs 1926; Davis 1923).

By 1889, there were 6,910 miles of hard-surfaced roads in Kentucky, of which 5,441 were toll-roads (Harrison 1984). Increased dissatisfaction with road conditions and control by private companies led to cries for “free roads, free markets” in the late 1880s. Violence against the toll gates and houses, which protested rising tolls amidst falling agricultural prices, peaked in 1896 (Hepner and Whyne 1992), greatly reduced the value of the toll companies and contributed toward their purchase by counties. Beginning in 1892, cities were empowered to buy roads within their limits. In 1894, a special tax was levied to help counties assume control of some sections of roads, and in 1896, legislation was enacted that allowed for further control and purchase of roads by counties. The Kentucky Office of Public Roads was formed in 1905, and 1908 legislation encouraged state road building and repair (Hepner and Whyne 1992). By 1913, only 300.5 miles of toll roads existed (Harrison 1984). Counties pursued some improvements in roads, but the fact that only counties, and not the state, could assume control of roads hampered

attempts to build new roads. In 1914, a 5 cent gasoline and automobile license tax was imposed to build roads to connect county seats, and a tax was imposed on property for general road work (Hepner and Whayne 1992).

The introduction of mechanical rock crushers around 1905 led to improved road conditions (Harrison 1984). Asphaltic rock had been in use as early as 1889, and road materials were seen as important enough to justify creation of a road materials testing lab at the University of Kentucky in 1914 (Hepner and Whayer 1992). However, many landowners would not allow roads through their property to be more than 16 feet wide, which hindered the use of some roads (Davis 1923). The use of oil also improved some roads in the early years of the twentieth century, and some cement roads had been built by the 1910s (Harrison 1984). An important innovation during the later years of this subperiod was increased attention to drainage, including the laying of drain culverts, and landscaping and grading with horse-drawn scoops (C. Jones 1985; Pickard 1969).

In 1912, state control of highways was established with the creation of the Kentucky Department of Public Roads, with funds allocated a few years later. By 1914, standards were being set for road construction (Collins et al. 1996; Hepner and Whayne 1992). These monies, coupled with the establishment of Rural Free Delivery in the mid-1890s and Parcel Post in 1913, allowed for increased communication and trade, especially in the mail-order business (Schlereth 1980).

Appalachian Mountains Cultural Landscape: Isolation and Discovery

Because the degree of isolation of this cultural landscape region has been debated by many scholars, advances in transportation need to be taken into consideration when doing research in the Appalachian Mountains Cultural Landscape. Wilhelm (1977) has suggested that the physical isolation of the Appalachian Mountains Cultural Landscape has been exaggerated. Expecting relative isolation compared to other regions, Wilhelm downplayed the role of geography and instead suggested that many mountain farmers rejected participation in extra-local affairs.

Whatever the degree of earlier isolation, areas with timber and coal resources experienced “discovery” during the Postbellum subperiod. On the one hand, industrialists and capitalists involved in the large-scale extraction of timber and coal became increasingly aware of the rich resources in Kentucky (Dunaway 1996; Pudup et al. 1995; Salstrom 1991, 1994). The influx of people into the Appalachian Mountains Cultural Landscape because of these resources occasioned a “discovery” of another sort: the cultural distinctiveness of this region. Between 1870 and 1900, at least 125 short stories and 90 literary sketches of life in the Appalachian Mountains Cultural Landscape were published, largely for outside readers (Batteau 1990; Shapiro 1977, see Horning 2000, 2002 for an archaeologist's treatment of this topic). A variety of interpretations of this cultural landscape were presented, although many alluded to an untouched ancestry or surviving past free from the ills of modern society.

Most people who came to live in and offer assistance to residents of this cultural landscape were from northern cities or, in Kentucky, from the Inner Bluegrass Section. Most were from monied, or at least professional, classes, and many directed their efforts to the Appalachian Mountains Cultural Landscape as part of a retreat from missionary

efforts among Southern African Americans (Cabbell 1985; Klotter 1985; Turner 1985). They frequently emphasized cultural holdovers and concentrated on building “community,” collecting ballads, encouraging mountain crafts, and introducing urban Victorian ideas about domestic life. Some narratives and descriptions created by persons involved in these ventures provide direct, although not infrequently biased, observations of the Appalachian Mountains Cultural Landscape during the late-nineteenth and early-twentieth centuries (see Whisnant 1983 for many such sources; also Campbell 1969).

Some of the largest supporters of the settlement schools that were started at this time were coal and timber companies, for whom the attention to “culture” provided a useful screen that directed attention away from the exploitative nature of their relationship with the inhabitants of this region (Whisnant 1983). Unlike the settlement houses of the northern cities, many of the settlement schools in Kentucky had little lasting effect on an area, other than the commercialization of local arts and crafts (Shapiro 1977; Whisnant 1983).

Lumber and Coal Industry in Kentucky

As mentioned previously, one of the biggest changes that occurred in Kentucky during the Postbellum subperiod was the beginning of large-scale lumbering and coal mining. For this reason, and because they have created unique archaeological sites (e.g., mines and associated coal towns) these industries are treated in greater detail in this section.

Lumbering

Local timber had always been an important resource for the residents of Kentucky for building houses and for fuel. It also had been an important source of occasional cash for farmers. Early lumbering activity was on an individual level and small-scale, but beginning in the mid-1870s, persons with an interest in Kentucky timber as a large capital investment began to come into the state and buy timber rights, especially in the Appalachian Mountains Cultural Landscape. Some investors hired Lexington or Ashland businessmen or lawyers, or local county lawyers or officials, to scout-out the best stands of timber and make arrangements with the owners (Caudill 1963). Many out-of-state investors were drawn to Kentucky by exhibits and advertisements, although the timber they bought was often purchased from people who had little interest in promoting the state’s economic development. Many initial investors in Kentucky timber were from England. Since American capitalists were pre-occupied with mergers and consolidations of smaller companies in the northern part of the country, they entered the field somewhat late. Sales were often structured around a certain price per tree, generally from .25 to \$1.00, which allowed the purchaser to pick the choicest specimens, or sometimes were conducted by a given acreage. Usually it was timber rights that were sold, not the entire property. Many purchases were negotiated years before the trees were removed, and often the tract was not logged until railroads were completed. This meant that many persons sold their timber rights without knowledge of the scale of deforestation or erosion that would take place. By 1890, over 986,286 acres were cumulatively owned by

lumber companies, at an estimated value of \$11,921,833 (U.S. Census 1892), and by 1900, some companies owned as many as 95,000 acres (Caudill 1963).

The growth of the timber and coal industries created many changes in Kentucky, besides those that resulted from the removal of these resources. Although lumbering was a fairly simple process, numerous sawmills were needed to shape and prepare the wood for shipment. Initially the logs were floated to mills located at the mouths of streams. By the end of this subperiod, portable steam-powered sawmills were often taken to the trees. By 1910, there were over 30 sawmills in Knox County alone (Eller 1982). Numerous sections of railroad track, often of varying gauges, were laid to carry out the coal and trees, and many splash dams were built on streams. The mines required the building of several industrial features, such as shafts, tipples, sorting and storage facilities, and dump areas (Francaviglia 1988; Hardesty 1988; Reno 1988; Schenian 1987, 1988a; Wallace 1981).

Besides the selling of timber rights and lumbering by those who had bought them, the increase in lumbering meant that many individual owners also stepped-up their efforts to cut and sell their own lumber, usually to the larger companies that had moved into the area. This practice was especially prevalent before railroads were established, with locals cutting the trees and floating them down the creeks and rivers. Lumbering, along with milling, was largely seasonal, dependant not only on river water levels but on rhythms of farming. Ultimately, this system was too irregular and slow to sustain the investments of large capitalists. Once railroads were available, the companies more frequently took control of the logging operations, which led to a tremendous increase in the pace of lumber extraction (Eller 1982) and the establishment of more sawmills and lumber camps or towns. After steady growth through the late 1870s and 1880s, the logging industry witnessed a big boom from the mid-1880s to 1910, much of this company controlled. These developments drew many persons into wage labor and increased the amount of cash available to local residents. The number of persons engaged in “forest industries” in the state rose from 2,497 in 1870 to 8,257 in 1890, when there were at least 595 sawmills, lumber yards, or other forest-related establishments (U.S. Census 1892). Wages at this time were reported by the Census Bureau as averaging 35 dollars a month at a planing mill, 31 dollars a month at other mills, and 35 dollars a month in transporting lumber. This compares with an average wage for Kentucky coal miners of 28 dollars a month at this time (U.S. Census 1892).

Coal Mining

While timber was an important element in the economic development and industrialization of the United States, coal was even more crucial. The mining of coal in the United States has generally been a regional operation, in which several companies in one area share infrastructure facilities (like railroads), form regionally-based associations, and generally act together as one concern regarding prices and disputes with labor or transportation. Also, the nature of coal deposits is such that some variations existed from one coalfield to another. Initially in Kentucky, most of the timber operations were not connected to coal interests. However, at the same time that timber was being harvested in the Appalachian Mountains Cultural Landscape, coal lands were being surveyed. Often in Kentucky, one large company would control several mines in a region.

Coal deposits in Kentucky continued to be mined for local and regional use during the early part of the Postbellum subperiod. In the mid-1860s, mines in the Western Coalfield Section of the Pennyryle Cultural Landscape produced over 100,000 tons, while those in the Appalachian Mountains Cultural Landscape produced less than 50,000 tons (Currens and Smith 1977). At the same time that out-of-state capitalists began to harvest Kentucky timber, the attention of many investors began to focus on the coal deposits in the Appalachian Mountains Cultural Landscape. Although there had been some interest and promotion of this resource earlier in the century, it was not until the mid-1880s that investors began to purchase large tracts of coal lands in the Appalachian Mountains Cultural Landscape. This occurred after railroads had established routes into the region and several years after the coalfields of West Virginia and the Pennyryle Cultural Landscape had been opened.

Small locally owned mines, often called wagon mines, were important in the Western Coalfield Section of the Pennyryle Cultural Landscape. In 1886, there were 43 mines in the Western Coalfield Section and 32 mines in the Appalachian Mountains Cultural Landscape. Small mines existed well into the twentieth century, especially in the Western Coalfield Section.

It was not until 1889 that the tonnage of coal mined in the Appalachian Mountains Cultural Landscape surpassed that of the Western Coalfield Section of the Pennyryle Cultural Landscape. The two Coalfields fluctuated back and forth, on a yearly basis, for the leadership in tonnage until 1913, when mines in the Appalachian Mountains Cultural Landscape took a solid lead. By 1913, mining operations in the Western Coalfield Section were producing over 8.5 million tons, while those in the Appalachian Mountains Cultural Landscape were producing nearly 11 million tons.

The focus of the coal industry in Kentucky was almost exclusively extraction for export, largely by northern firms. Eller (1982:202), in a survey of 140 coal operators from 1880 to 1930, found that only 22 percent were from the Appalachian Mountains Cultural Landscape. The coal from this cultural landscape was well-suited to home use and as an industrial power source. A large percentage of the Pennyryle Cultural Landscape coal also was used for home and commercial fuel. In 1899, only .7 percent of the coal mined in Kentucky was manufactured into coke; nine percent was used for local trade, and 88 percent was exported (U.S. Census 1892). Some authors have suggested that Kentucky coal was primarily marketed to the South, although other studies suggest that the importance of Midwestern markets, especially for western Kentucky coal, have been underestimated (Burroughs 1924). Eastern and Northeastern markets were less important because of competition from West Virginia and Pennsylvania coal. No matter the destination, exportation, along with a lack of local governmental control and low levels of taxation of the mining companies, meant that much of the wealth was transported out of the state. The principal beneficiaries, other than the coal companies, were transportation companies, primarily rail lines (Thomas 1971).

Coal was usually purchased in the form of mineral rights, so that the buyers did not have to pay property taxes, although some larger companies also bought large tracts of land outright. This was especially the case with the so-called "captive" mines, owned and operated by large companies that mined the coal partly for their steel mills or other industrial facilities and intended to set up company towns. These purchases, along with

timber purchases, occasioned the need for many surveys, especially since land titles in the Appalachian Mountains Cultural Landscape were sometimes unclear. Most of the early coal land was sold in the late-nineteenth century for .50 to \$1.00 an acre, although the price did rise to near \$5.00 an acre in some areas by the 1920s (Caudill 1963).

By 1892, more than 60 percent of Harlan, Leslie, Letcher, and Rowan counties, and 80 percent of Bell County had been purchased by coal interests (Eller 1982). By 1906, Consolidated Coal had purchased more than 100,000 acres in Knott, Letcher, and Pike counties, and a few years later, several Pennsylvania firms purchased 175,000 acres in Knott, Letcher, and Magoffin counties (Whisnant 1983). By 1907, John C. C. Mayo, the largest local buyer, held rights to over 700,000 acres (Eller 1982). Caudill (1963) has estimated that by 1910, 75 percent of the remaining timber and at least 85 percent of all minerals in the Appalachian Mountains Cultural Landscape were owned by out-of-state companies.

Coal and Timber Towns

The number of people needed to survey the land, record titles, and begin the physical work of getting out the timber and coal resulted in the growth of some small towns, hamlets, and county seats. The number of hotels, restaurants, and boarding houses increased in many of these communities. As these activities drew many local persons into wage labor, the number of retail establishments also grew. The number of banks increased, largely to serve the needs of the lumber buyers, coal companies, and the growing numbers of local wage earners. In 1889, there were slightly over 5,000 persons working in Kentucky's coal mines. Average wages per day varied from \$0.70 for boys under 16 years of age working underground to \$1.56 for laborers to \$1.75 for miners to \$2.44 for foremen or overseers (U.S. Census 1892). Caudill (1963:111) has suggested that a miner's wages largely were spent on "household furnishings, clothing, food, and a few personal effects."

The most obvious change during the Postbellum subperiod was the creation of "timber towns" (Eller 1982:122-3) and coal mining communities. Some existing communities, if they were close to coal reserves or important rail junctions, grew rapidly during this subperiod. The most dramatic example is probably the small town of Cumberland Gap. In the late 1880s, due to the infusion of English capital and the arrival of a Louisville and Nashville branch line, Cumberland Gap grew in several years from a small center of about 60 families and one store into the town of Middlesboro, complete with half a dozen churches, a public library, an opera house, a golf course, and a hotel. Unfortunately, a fire in 1890 and the Depression of 1893, which ruined many English banks, turned the boom into a bust by October 1893. By 1900, its population, which some investors claimed had reached 17,000 (Share 1982), had declined to just over 4,000 persons.

Much of the state's best timber and coal was located in the Appalachian Mountains and Pennyryle cultural landscapes in areas without nucleated settlements, which necessitated the construction of entire communities. There is less known about the timber settlements than the coal towns. Eller (1982) has suggested that the former were similar to the latter, although they were generally smaller and had less substantial

structures. They also may have been organized in a more haphazard manner. Their occupation was probably shorter than that of the coal towns. Although the following discussion focuses on coal towns, many of the issues discussed are also relevant to those studying timber towns.

The labor-intensive nature of coal mining at this time, coupled with the poorly developed transportation networks of the Appalachian Mountains Cultural Landscape and the Western Coalfield Section of the Pennyrile Cultural Landscape, meant that on-site housing at the mine was as crucial as the tippie or other industrial components. Although coal company towns had existed in the Antebellum subperiod, an example from the Appalachian Mountains Cultural Landscape being Peach Orchard, founded in the mid-1840s (see previous section) (Tapp and Klotter 1977), it was not until the coal boom of the late-nineteenth and early-twentieth century that most company mines and towns were founded in this cultural landscape. Eller (1982) has estimated that over 600 coal towns were founded in the Appalachian Mountains Cultural Landscape during this and the next subperiod and that they out-numbered noncoal communities by at least five to one. Many towns that had existed previously, perhaps as a county seat or regional trade center, grew because of mining, then diminished in size once a mine was shut down or moved.

The creation of small coal towns in the Western Coalfield Section of the Pennyrile Cultural Landscape and the Appalachian Mountains Cultural Landscape greatly affected traditional settlement patterns and generally intensified the settlement of the areas where mining was undertaken. Thus, areas that once had been sparsely populated became regional centers, although their population often was dispersed in many small towns and hamlets. Pickard (1969) found that mining towns in the Western Coalfield Section were spaced 2 to 4 miles apart, while nonmining towns were usually 8 to 10 miles apart. The advent of large-scale commercial mining caused many small hamlets and nearby towns to expand.

Other communities were not strictly coal towns but provided services to coal towns and coal companies. Examples of these kinds of support towns in the Appalachian Mountains Cultural Landscape include Neon, Blackey, Hellier, and Jeff (Caudill 1963). Caudill (1963) has noted that houses in these towns, as well in rural areas, often copied the architecture of the coal camps and thus may resemble them. In the Western Coalfield Section of the Pennyrile Cultural Landscape, towns such as Central City, Madisonville, and Morganfield increased in population from 122 to 149 percent between 1890 and 1910 (Martin 1988).

Many coal towns were constructed in less than a year. Sometimes local timber was used without adequate drying, resulting in houses that quickly bowed and sagged. Because the coal companies needed railroads to transport the coal to market, many waited to bring in building materials for the town until rail lines were completed. Generally the earliest towns and those built by the largest and better capitalized companies provided the best housing. Large coal towns include Lynch, Jenkins, Hemphill, Fleming, Benham, and Wheelwright (Caudill 1963; Eller 1982). Because these towns were seen as model communities by their builders, large companies like U.S. Coal and Coke, a subsidiary of U.S. Steel, or the Wisconsin Steel Company, a subsidiary of International Harvester, efforts were sometimes made to document their sequences of construction. For Lynch and Benham, this resulted in over 4,000 photographs being taken of these communities

(curated at Southeast Community College, Cumberland, Kentucky). Tent camps also were not uncommon in the early stages of mining. The coal boom continued into the early-twentieth century, but many small companies could not afford to build housing comparable to that built by the larger companies.

Many authors have commented on the variation that existed between coal company towns, although most also have stressed the “monotonous sameness” that each exhibited. The essential components of a coal town included a railroad line, mine entrance, tipple, gob piles, dump areas, sorting sheds, mine office, small frame houses for the miners, larger frame houses for the mine managers and other officials, at least one store, and a blacksmith shop. Other components that were sometimes, but not always, present included a bank, service shops for the railroad, a doctor’s office, a boarding house or hotel for the visiting company officials, wash houses, and in the large towns, a community building or theater, and a school or church. Since the towns were dominated by the coal company, community functions that were often present in the smallest nonmining hamlets were sometimes absent in mining communities of the same size. For example, Corbin (1985) has noted that mining towns with sizable African-American populations often did not have a church for these residents. One definitive feature of mining towns was the lack of a municipal government, city council, and a low number of retail outlets per capita (Pickard 1969).

The company store, a well-known component of the coal town, varied considerably in its operation. It could be built and operated solely by the company, built by the company and leased to an independent operator who paid rent and royalties to the company, or built by an independent operator given sanction by the company. Sometimes, independent stores were built just outside the limits of the company’s property, perhaps offering some competition to the company store. A survey of several company and independent stores in West Virginia in the 1910s suggested that they did not usually charge higher than average prices for their goods. However, lack of access to other stores and company policies of issuing script or extending credit through most of the month, and paying cash wages only once or sometimes twice a month, gave many miners few options other than to patronize the company store (Hinrichs 1923). Although a 1898 law made it illegal for companies to force miners to use a company store, the passage of this law suggests that this practice had occurred (Jillson 1922). As noted previously, these stores resulted in less commercial development, or a lower ratio of retail outlets per capita in mining towns, since they drained capital away from local areas.

Laing’s (1985) study of period documentary and oral historical records suggests that there may have been some variation by ethnic group in money going back to the stores versus into savings or sent to relatives. From a study of miners in West Virginia, he estimated that the greatest percentage of wages going back to the company store was 72 percent for African-American miners, compared to 51 percent for native-born Euro-Americans and 33 percent for foreign-born Euro-Americans. Boyd’s (1992, 1993, 1994) study of company towns in southern West Virginia (similar to eastern Kentucky coal towns) showed that higher prices and lower wages characterized these towns, compared to noncompany towns.

The size of mining towns varied, but usually it was related to the size of the mining operation. Typical mine towns of this subperiod ranged from 700 to 1,400

persons, although some towns built by the largest companies had populations of over 10,000 persons. The towns were usually composed of miners and their families. Although more single men, or married men without their families, were employed in the initial stages of town development, such as for railroad construction or building the houses, coal companies generally preferred miners who were married and had families, because they were less likely to move (Thomas 1971). The populations of the towns and mining regions fluctuated tremendously, depending on the price of coal, access to transportation, and the physical condition of the mines at any given time (Clark 1960). This often led to the frequent abandonment and reoccupation of sites.

The houses in the coal company towns were almost exclusively of frame construction. They usually had one story and four or five rooms. Duplexes were common in some towns. Although there was considerable diversity between towns, several or sometimes only one floor plan dominated a given company town. The cheapest houses often were constructed of vertical planks with thin strips of wood to cover the cracks between the planks. Insulation in these structures was very poor. Almost all were heated by coal, first in fireplaces and later in stoves, and coal sheds or piles were usually located in the yards. Most houses had small yards for gardens or a few animals, although yard space may have been restricted if the mining population was large in relation to the size of the valley floor. Barns were conspicuously absent compared to other rural residences (Pickard 1969). Most houses did not have indoor plumbing but rather wells, cisterns, and privies. Some large companies installed water hydrants that were shared by the residents of the town.

Since electricity was needed to operate most mines, coal company houses often did have electricity (and electric appliances) before non-mining houses. In this regard, company houses were superior to most houses in non-coal towns or on farms, which was sometimes important in recruiting miners. Many houses in the better company towns also were superior to some non-mine houses in other regards, especially when the nonmine houses were of the plank or “Kentucky box” style (Burroughs 1924; Caudill 1963; Eller 1982).

Rents were generally low and considered by the company as a necessary subsidy to attract labor to the mine (Hinrichs 1923). Rent was an important source of steady income for the coal companies, especially needed when coal prices were low or when strikes or other disputes held up production. Company housing also provided the coal company with an additional sphere of control over the miners. The extent to which miners used company housing versus private housing during this subperiod has yet to be fully examined. Studies that have compared mines in West Virginia and Pennsylvania have found a much higher incidence of living at the mine in West Virginia (79 percent), compared to Pennsylvania (51 percent) (Kirby 1987:87). Kirby (1987:87) has described miners as America’s last self-sufficient folk to become “footloose and dependent.”

The life expectancy of a coal mine operation gradually decreased over time, partly in response to the increasing scale and technical efficiency of mining. For example, the average duration of a mine started in 1900 was 30 to 40 years, compared to an average of 25 years for one started in 1940 (Pickard 1969:130). Mining towns usually did not outlive the mines themselves, although a strong relationship with or service provided to another community or rural region might enable a mining town to readjust.

Alternatively, a large company might dismantle and reuse the materials from its mining town, or the buildings might be abandoned, with some materials salvaged and reused privately.

Most company towns were located on a rail line near the mine itself. A certain amount of flat land was needed to construct the railroad, industrial components of the mine, and the houses, so terraces and floodplains were common locations for company towns, especially in the Appalachian Mountains Cultural Landscape. The closeness of the housing to the mining operation was often unescapable because of a limited amount of flat land, although this standard arrangement also provided improved supervision and control of miners, less time lost in commuting, assurance of customers for the company store, and assurance of rent from company houses. This feature is integral to all mining communities, not just those in Kentucky, before the spread of the automobile.

In a survey of mining towns in Hopkins and Muhlenberg counties in the Western Coalfield Section of the Pennyryle Cultural Landscape, four general types of intrasite settlement patterns were observed. These were 1) orderly (31 percent), laid out in regular blocks in a grid-like fashion; 2) natural (17 percent), having blocks but following topography; 3) road oriented (51.5 percent), being arranged in a linear fashion along roads (and tracks) rather than in blocks; and 4) fragmented (5 percent), with residential structures located in different areas of town (Pickard 1969). The residential areas usually were located further “down the railroad” from the mine itself, which was usually further up the valley (Pickard 1969:124). Reno (1988), in a study of mining camps in Nevada, found when mining camps and towns were initially set up, they were characterized by a random spatial distribution of structures, but that they became increasingly orderly as all elements of the mine were completed.

As mentioned previously, sometimes a preexisting town was used by a coal company, if it was located near a coal source. This resulted in what Pickard (1969) has called the appended settlement form. These towns, which were more common than newly constructed company towns in Muhlenberg and Hopkins counties, usually had new sections in which the company built a series of houses. Company houses that were built in pre-existing towns are often recognizable because they were built following the same plan and laid out in a more regular pattern than the older residential areas, which had grown more slowly and with less planning. The company also frequently would build its own company store near the company housing. It is generally thought that the mine superintendents or managers, owners (when present), and other mine officials lived in separate areas, often higher up the slopes and away from the railroad and the mine itself. Their houses were thought to be larger and more lavishly appointed than those of most miners.

Several studies have noted that the edges of mining towns often contained the houses, sometimes company built, sometime privately built, of persons only partially articulated with the mine. This group included widows and orphans of miners killed in accidents, miners who had been injured to the extent that they could no longer work in the mines and their families, and retired miners and their families. In general, these people tended to be poorer than the families of active miners (Burroughs 1924; Caudill 1963). Over time, increasing numbers of coal company officials chose not to reside permanently in the coal towns, but to live in nearby urban centers (such as Lexington)

and visit the mines as necessary (Caudill 1963; Eller 1982; Thomas 1971). This trend would reduce the socio-economic variation observed within a coal town and perhaps lead to increased neglect of residential structures.

Many southern African Americans and European immigrants came to live and work in the mining towns of Kentucky, especially those in the Appalachian Mountains Cultural Landscape. This situation is in direct contrast to the rest of the state, where the percentage of the population that was either African American or foreign-born Euro-American decreased over the last quarter of the nineteenth century. While local farmers were drawn to work in the mines, the amount of labor needed to extract the coal far exceeded that of the local population, many of whom did not unanimously embrace mine work.

Mine managers and specialists were not infrequently from Europe, often England or Wales, where they had previous experience in mining. Some accounts stress that mine managers and owners often complained about the unreliability of the local population, many of whom treated mining as a part-time occupation and second to the needs of their farms.

Some mine companies had a policy of mixing different ethnic groups, on the theory that a “judicious mixture” would divide the laboring population and hinder Union organization (Lewis 1987). In the Western Coalfield Section of the Pennyryle Cultural Landscape, part-time local miners were an important labor source. Therefore, large numbers of African Americans were not brought into this region until the strike of 1870 (Pickard 1969). Large numbers of African Americans were not brought into the mines located in the Appalachian Mountains Cultural Landscape until about twenty years later, when many came initially to work on the railroads and stayed to work in the mines. The percentage of miners in Kentucky that were African American was 19.2 percent in 1890, 23.7 percent in 1900, 21.3 percent in 1910, 16.7 percent in 1920, 13.3 percent in 1930, and 10.0 percent in 1940 (Northrup 1985).

Foreign-born immigrants came largely from Europe, especially Germany, Italy, and Eastern Europe. Many of these immigrants were recruited in Europe and given transportation directly from a port city, such as New York, to the mine camps. Most spoke little or no English (Caudill 1963; Eller 1982; Thomas 1971).

Historical studies have suggested that coal towns contained ethnically separate residential areas (Caudill 1963; Corbin 1985), while others have stressed high levels of integration of different ethnic groups (Lewis 1987). Caudill (1963:105) has suggested that many companies provided schools only for Euro-American children. Thomas (1971) has suggested that there was a hierarchy of jobs and wages, with foreign immigrants at the bottom. However, Italians are known to have been employed in housing and mine construction because of their building skills, and Germans seem to have risen to safer and better-paying jobs more quickly than Eastern Europeans, perhaps partly because of their greater fluency in English (Thomas 1971). Lewis (1987) has noted that while African Americans usually were not excluded from any specializations within mining except that of supervisors, more African Americans seemed to have preferred to work underground, where they had greater autonomy and where they were freer to work longer hours and thereby increase their wages (see also Laing 1985).

INDUSTRIAL AND COMMERCIAL CONSOLIDATION: 1915-1945

The period from the beginning of World War I to the end of World War II was marked by a continuation of many trends that had been initiated in the Postbellum subperiod. The following narrative highlights some of these trends. They include mechanization of agriculture and the general decline in farming as a way of living; continued urbanization and an increase in tenement and apartment buildings; major improvements in roads and a decline in river traffic; increases in stores and access to consumer goods; and the continued extraction of natural resources such as timber and coal resources. During this subperiod, wage labor became more common, due partly to the mass production and the economic expansion associated with the World Wars and the fact that more women had entered the work force.

Demographic and Settlement Trends

The state's total population increased during this subperiod, but at a slower rate than the rest of the Southeast. For example, the population of Kentucky increased by 5.5 percent during the 1910s, while the population of the entire Southeast increased by 10 percent. Kentucky's population increased by 8.2 percent during the 1920s, which was still less than the 11.8 percent increase in population recorded for the entire Southeast (Odum 1936:466). Kentucky's slow rate of growth was not due to a lower birth rate than that of other areas. In 1930, the birth rate of rural Euro-Americans in the state was 24.2 births per 1,000 persons, compared to 18.7 for the rural population nationwide. The birth rate for urban Euro-Americans in Kentucky was 20.3, which was very close to the national rate of 19.1. However, birth rates for the small African-American population in Kentucky were low (14.3 for urban African Americans and 15.4 for rural African Americans) (Odum 1936:470). This low birth rate was probably a result of infertility and family limitation (McFalls and Masnick 1981; Wright and Pirie 1984). The low birth rate of African Americans, coupled with out-migration, led to a decrease in the number of African Americans living in the state during this subperiod and slowed the growth of the state's population.

The rural population grew more slowly than the urban population after World War I, as increasing numbers of people left the farm and moved to towns and cities. Population increased only 2.8 percent from 1910 to 1920 in the rural sector, while it increased by 14.1 percent in the urban sector for the same time period. Similarly, population increased by 1.8 percent from 1920 to 1930 in the rural areas, compared to a tremendous increase of 26.1 percent in the urban sector. These trends reversed in the 1930s, partly because of the return of persons who had left rural areas to work in urban jobs and had been laid off. Rural population increased during the 1930s by 10 percent, compared to a slower growth rate for the urban population of 6.3 percent (U.S. Census 1943).

Besides immigrating to cities and towns within the state, many rural Kentuckians left the state during this subperiod to work in other industries, like the automotive

factories in Michigan and Ohio, where they often settled together, creating “little Kentuckies” (Kirby 1987). The combined rates of out-migration from Kentucky and West Virginia during this subperiod were 6 percent of the total population during the 1910s, 7 percent during the 1920s, 4 percent during the 1930s, 11 percent during the 1940s, and 15 percent during the 1950s (Kirby 1987:319).

Because of increased urbanization and improvements in transportation, suburban neighborhoods continued to expand around cities and towns. In the Postbellum subperiod, urban growth was generally accompanied by annexation and expansion of city boundaries and service areas. By the 1930s, many municipal systems could not expand fast enough to provide services to the new residential areas, and small independently-incorporated suburban communities near the boundaries of cities became common. In some cases, this caused the largest centers, like Lexington and Louisville, to decline in size or experience only slow growth, while the surrounding suburban population grew at a faster pace (Share 1982). It is likely that this fragmentation increased the variation in land values, zoning, building codes, and access to basic sanitary and other public services within communities or between cities and their suburbs.

The trend established in the preceding subperiod of large houses being converted to multi-family dwellings continued during this subperiod. New apartment buildings also were built, especially in urban environments. Thus by 1940, 25 percent of urban residences housed multiple families. Not surprisingly, this trend was not as pronounced outside the urban environment. Only 10 percent of rural nonfarm residences and 2 percent of rural farm residences were multi-family dwellings (calculated from U.S. Census 1943). Most of these multi-family dwellings were rented, and the general proportions of residential structures that were rented increased during this subperiod.

From 1930 to 1940, owner-occupied dwellings decreased from 44 percent to 38 percent in the urban setting, from 43 percent to 41 percent in the rural non-farm setting, and from 62 percent to 61 percent in the rural farm setting. The lowest incidence of owner occupancy was among the population of urban African Americans in the large industrial cities. Only 19 percent of dwellings occupied by African Americans in Covington and 18 percent in Louisville were owner occupied (U.S. Census 1943). Increasing home ownership was an important goal of the Federal government during this subperiod, and the Federal Housing Authority (FHA), created in 1934, had a major impact. This assistance, plus new types of inexpensive housing, also aided in home ownership. African Americans, however, continued to be excluded from this trend (Jackson 1985:132).

Despite problems of crowding, lack of municipal standardization, and substandard housing in some urban areas, cities continued to lead in providing basic services. For example, there were over 700 miles of electric lines in Louisville, serving over 64,000 electric meters, by 1925 (Burroughs 1927). At that time there were about 50,000 households living in Louisville. That there were 14,000 more meters than households, suggests that by the mid-1920s most houses and businesses had access to electricity. In contrast, only 2.2 percent of farms in 1920 and 4.3 percent of farms in 1930 had electricity. Indoor plumbing was present in less than 5 percent of rural Kentucky houses in 1939 (Schacter 1949), compared to 80 percent of the houses in Lexington (WPA 1939).

During this subperiod, many cities increased their efforts to provide modern sewage and sanitation systems to as many residents as possible. Lexington installed an up-to-date sanitation system in 1917 (Bell and Watkins 1954) and by the mid-1920s, Louisville had completed water mains to all parts of the city and was extending its sewer system (Burroughs 1927). However, many smaller towns and cities in Kentucky did not modernize sanitation facilities until after World War II (Schacter 1949).

While the total population of the state gradually increased during this subperiod, the African-American population declined from 235,938 in 1920 to 214,031 in 1940. In 1920, African Americans made up 9.8 percent of Kentucky's population. However, they accounted for a much lower percentage of the population of many counties. This is a reduction of more than 6 percent from 1870, when African Americans accounted for 16 percent of the population. The heaviest concentrations of African-American occupation during the Industrial and Commercial Consolidation subperiod were in those areas most heavily involved in commercial production of tobacco. Thus, in 1920, African Americans constituted over one-quarter of the population of Fayette, Bourbon, and Woodford counties in the Bluegrass Cultural Landscape and Christian and Todd counties in the Pennyryle Cultural Landscape was African American (U.S. Census 1923). Seventeen percent of the African-American population of the state lived in Louisville (U.S. Census 1923, 1943).

During the 1930s, much of the African-American mining population left the state, so that by 1940, African Americans made up only 7.4 percent of Kentucky's population. Although the African-American population declined during this subperiod, the trend of increased segregation by ethnicity, discussed in more detail in the preceding subperiod, continued and even increased during this subperiod. This increase in segregation is partially attributable to the flight of upper and middle class Euro-Americans from the city centers to suburban neighborhoods. The foreign-born population living in Kentucky also decreased during this subperiod, from slightly over 40,000 in 1910 to 15,631 in 1940, when foreign-born persons accounted for only 0.5 percent of the state's population (U.S. Census 1943). As discussed in detail in the previous subperiod, efforts to encourage immigration to Kentucky largely had failed. Some larger coal companies did continue to bring foreign-born immigrants into their mining towns after World War I, but not in significant numbers. Most of these persons left the coal mines before, if not during, the Depression. There was a decline in the flow of immigrants into most parts of the country after the outbreak of World War I. A 1921 Immigration Law passed by Congress further reduced their numbers (Caudill 1963). This decrease in immigration not only affected the rate of immigrants to Kentucky but also meant that northern industries now recruited more heavily in the South, stimulating the emigration of native-born Kentuckians.

Developments in Agriculture

In the late 1910s, markets for agricultural products were readily available because of World War I and the food shortages in Europe. As a result, Kentucky agriculture continued to commercialize whenever possible. Studies made by the Kentucky Geological Survey in the early to mid-1920s (Burroughs 1924, 1926; Davis 1923, 1927; Sauer 1927) suggest that the peak efficiency of farming in most of the cultural landscapes

had been reached sometime around the turn of the twentieth century, and that by the 1920s, many farmers were feeling the effects of worn-out land. In some of the less fertile regions, such as the Eden Shale Region of the Outer Bluegrass Section of the Bluegrass Cultural Landscape, much of the Appalachian Mountains Cultural Landscape, and sections of the Pennyryle and Jackson Purchase cultural landscapes, agricultural production had pushed into marginal lands. These lands contained poor agricultural soils that produced low yields. By the mid-1920s, many of these fields had been abandoned and were marked by the secondary-growth of sassafras, persimmon, and other small shrubs (Davis 1927).

While less fertile land was being farmed for the first time in many areas, higher-quality agricultural lands also were being created by draining swamps and low-lying areas. This was especially the case in the Jackson Purchase Cultural Landscape and in Jefferson County in the Bluegrass Cultural Landscape (Burroughs 1926; Davis 1923). For instance, a levee built in Fulton County in 1908 greatly increased agricultural productivity along the Mississippi River. Average farm size for the entire state declined from 85.6 acres in 1910 to 70.8 acres in 1923 and was even smaller by 1940 (Clark 1960). An extensive survey of agriculture in the early 1930s classified farms according to specialization, e.g., cotton, tobacco, dairy, or self-subsistence. Almost 29 percent of the farms in Kentucky were classified as self-subsistence, 26.6 percent were classified as tobacco farms, and 19.1 percent were classified as general farms or farms with some commercial orientation (Odum 1936:170).

Cultivation, generally without adequate rotation, led to decreased crop yields in many areas. As a result, a great deal of variation developed, both within and between cultural landscapes, in terms of the percentage of land in cultivation, the types of crops grown, yields per acre, and the economic well-being of farmers. Sauer (1927) noted that this variation had developed over time due to the inherent limits of some soils. A reliance on corn continued to mark the less commercially oriented farms, and tobacco (cotton in the Jackson Purchase Cultural Landscape) was raised by the more commercially oriented farms. Contrasts of wealth were most marked within the more commercially oriented regions; for example, between large landowners and tenant farmers, especially where tobacco or cotton dominated.

Generally, the largest percentage of improved land was in the Bluegrass Cultural Landscape, followed by the Jackson Purchase Cultural Landscape, and the Plains and Western Coalfield sections of the Pennyryle Cultural Landscape. In these landscapes, at least one-half of the land was improved in the mid-1920s, and in the Bluegrass Cultural landscape, over three-quarters of the land was improved. These areas contrast with the Appalachian Mountains Cultural Landscape, where between one-quarter and one-third of the land was improved (Sauer 1927:145).

Farm variation within the Bluegrass Cultural Landscape consisted of alternating rings of greater prosperity and more commercially oriented agriculture, with the Inner Bluegrass Section being the most commercial and the Eden Shale Belt region of the Outer Bluegrass Section being less commercial. Farms in Jefferson and Oldham counties that supplied Louisville with food also continued to have a higher level of commercial production of vegetables, fruit, and dairy products (Davis 1923). Some farms were more specialized in livestock production, such as the beef cattle farms in Bourbon, Clark and

Madison counties or the horse farms in Fayette. These farms often can be distinguished by larger and more numerous barns or sheds, although Davis (1927) noted that in the mid-1920s, agricultural outbuildings were relatively rare in Kentucky compared to farms in the North.

The Jackson Purchase Cultural Landscape was especially marked by strong contrasts, often within short distances, due to a more than average variation in soil types (Davis 1923). Thus research in this cultural landscape has the potential to produce information on the relationship between soil types and farm production (see Raitz and O'Malley 1985 on this issue in the Bluegrass Cultural Landscape). A distinctive physiographic region of the Jackson Purchase Cultural Landscape is what Davis (1923:69) called the Big Bottoms of the Ohio and Mississippi rivers, which "stood out distinctly as an area of different opportunity and distinctive response." African Americans especially were concentrated in the Big Bottoms, frequently on tenant farms that specialized in cotton. Beginning in the Postbellum subperiod and continuing into this subperiod, cotton production in Kentucky became increasingly concentrated in the Mississippi River counties of the Jackson Purchase Cultural Landscape. Cotton had been grown in 37 Kentucky counties in 1880. In 1909, Fulton County produced 97.7 percent of the state's cotton (Davis 1923). A special report of the Census Bureau identified 669 farms in Fulton County, 583 in Hickman County, 478 in Calloway County, 197 in Marshall County, 150 in Graves County, 100 in Carlisle County, two in McCracken County, and one in Ballard County that were growing cotton in 1940. Of these, only Fulton County had a large number of farms that produced over five bales of cotton, suggesting a higher degree of specialization in cotton for farms in this county than in the other counties in Kentucky.

In contrast to the productive soil of the bottoms, which supported a very commercialized agricultural system, less than 30 percent of the acreage of a given farm was worth cultivating in eastern Marshall and Calloway counties. Davis (1923) noted that this area was the poorest, most isolated, and most sparsely populated of the region.

Both Sauer (1927) and Martin (1988) have noted that it is difficult to characterize the Pennyrile Cultural Landscape, since it contains so much variation. The Eastern Section of this cultural landscape is characterized by less commercial agriculture and poor transportation, while high levels of tobacco production and tenancy characterized the Plains Section (Martin 1988; Sauer 1927). In the Western Coalfield Section, mining and lumbering increased the commercial potential of agriculture but also contributed to over-production and poor land management.

Conditions in the Western Coalfield Section were further aggravated by the return of migrants during the Depression. Some of those who returned may have hoped to work in the mines, but the mines were not hiring and most were forced to become sharecroppers or to farm with relatives. Returning immigrants, as well as those laid-off by the local mining and timber industries, often attempted to cultivate worn-out and marginal soils. This situation, coupled with the already poor state of agriculture at the time, created conditions of extreme poverty and malnutrition (Caudill 1963).

Some areas of the Western Coalfield Section, such as along the Ohio River in Henderson and Union counties, contained very fertile soils that were used to grow

commercial crops like wheat or to raise hogs for market (Burroughs 1924). Farms in these areas were much larger than farms that specialized in tobacco or cotton, and they represent a different type of commercial agriculture. For example, these farms probably participated in mechanization before farms in other areas of the state.

Tobacco

Blended cigarettes were introduced just before World War I and gained tremendous popularity, both at home and abroad, during the war (Axton 1975). As a result, tobacco prices were very high from 1915 until 1919, which encouraged more farmers to plant tobacco, especially white burley. Sauer (1927) noted that during this subperiod, crop choice had less to do with topography and soil type than market access, especially with respect to tobacco. In 1919, when the price of white burley was 34 cents a pound (an increase of more than 21 cents from 1916), tobacco accounted for almost one-third of the state's total crop income (Axton 1975:101).

The high prices meant that small tobacco plots still would return profits, which did little to discourage the subdivision of farms. Subdivision was held in check somewhat in the Inner Bluegrass Section of the Bluegrass Cultural Landscape because of the efforts of wealthy farmers to keep large estates intact. This occurred despite the fact that land prices rose by 269 percent in the Inner Bluegrass Section from 1915 to 1919 (Davis 1927:63). Property values rose in most tobacco producing areas at a similar rate. Some properties increased in value, not because they contained good farm land, but because they had good access to roads and tobacco markets (Davis 1923). High prices increased the value of tobacco lands to the point where many persons could not afford to own the property they farmed. Given the high prices paid for tobacco, renters as well as owners made money on tobacco during this subperiod.

The tobacco boom of the 1910s ended in 1920 due to bad weather and over-production. As a result, many farms failed. In 1921, the Burley Association was formed to try to stabilize tobacco production and by 1926, the market again improved (Axton 1975). However, the Depression of 1929 brought traumatic declines in prices for leaf tobacco. The Depression not only hurt tobacco farmers but all farmers who were commercially oriented. For example, farm income in the Pennyryle Cultural Landscape dropped to one-third of its 1929 level by 1932 (Martin 1988). The commercialization of agriculture during this and the preceding subperiod also took its toll during the Depression. A survey by Lewis Gray (1933) in the early 1930s reported that three-fifths of the population in the Appalachian Mountains Cultural Landscape was employed off the farm. A federal survey in the 1930s by the Farm Security Administration revealed that over one-half of Kentucky counties relied heavily on imported foods at a time when cash was very scarce (Clark 1960).

New Deal Policies and Increasing Wage Labor

New Deal policies of the 1930s, such as the Agricultural Adjustment Act, brought some relief but also introduced important changes. This act, often called the "AAA," was the first Federal regulation or allotment for tobacco, cotton, and other produce, including hogs, which were still very important to Kentucky agriculture (Clark 1960). The AAA

provided payments to farmers for taking acreage out of cultivation or reducing stock, thereby attempting to ease pressures on land and increase prices. It also had the effect of creating large-scale evictions of tenant farmers, most of whom did not share in the distribution of subsidies. According to Kirby (1987), there is some evidence that evictions were not as common in tobacco areas, since tobacco was more labor intensive than cotton, and landholdings were generally much smaller. "Therefore tobacco farmers and planters were much more inclined to share subsidies to keep reliable tenants" (Kirby 1987:65). The first tobacco allotments were in 1934 and were small, usually ranging from .5 to 5 acres (Kirby 1987:344). Tobacco acreage in Kentucky was reduced by one-third or more by the AAA (Axton 1975).

Some progress was made in agricultural improvements in the 1930s due to these Federal programs, especially with regards to diversifying and rebuilding livestock herds. By 1940, the Depression and the poor state of the coal and timber industry and agriculture combined to make the average income in Kentucky only 59 percent of the average U.S. income. The value of goods produced by more than one-half of Kentucky farms was less than 400 dollars (Schacter 1949). Major agricultural gains were made during World War II, as farm income rose from an average of 640 dollars per family in 1940 to 1,860 dollars per family in 1946. However, the resurgence of the mining industry interrupted agricultural improvements, especially in the Appalachian Mountains Cultural Landscape, where Caudill (1963) noted that agricultural gains made in livestock production were quickly lost as many farmers returned to wage labor in the mines.

Other changes also led to a reduction in the number of persons engaged in farming in Kentucky, which declined from 70 percent of the population in 1920 to 55 percent in 1940 (Kirby 1987). One of these changes was mechanization. Agricultural mechanization was not a major force in the South until after World War II, although some mechanization took place in the late 1930s and early 1940s. Kentucky farmers were slow to participate in this trend, partly because tobacco proved particularly resistive to mechanization, partly because the terrain in some parts of the state did not lend itself to use of machines, and partly because farmers in some areas totally lacked the necessary capital. For example, in Johnson County in the Appalachian Mountains Cultural Landscape, there was not one tractor in use in 1940, and farming continued to be on a subsistence level (Kirby 1987).

Tractors were usually the first major mechanized items to be introduced on Kentucky farms. In 1920, 0.7 percent of the farms in the state had a tractor. The number of farms with tractors rose to 1.9 percent in 1925, 2.8 percent in 1930, and 4.4 percent in 1940. Farm owners were almost twice as likely to have a tractor than tenant farmers in 1920. By 1930, 3.4 percent of tenant farmers, compared to 4.8 percent of owners, had tractors. The reduction in the difference between the two groups perhaps reflects the changing nature of tenancy by the end of this subperiod (see following subsection). Farms run by managers, not an owner or a tenant, were especially likely to have a tractor. In 1930, 23.5 percent of manager-run farms had at least one tractor and by 1940, 39.5 percent of manager-run farms had at least one tractor (U.S. Census 1943).

A trend that occurred toward the end of this subperiod was that large numbers of farmers became involved in wage labor. The percentage of farmers who worked off their farm for wages or income had reached 36 percent by 1929, with an average of 99 days of

labor being spent off the farm. Although the percentage of operators working off the farms had declined to 31 percent by 1940, the average number of days of off-farm work had climbed to 134 (U.S. Census 1943). The proportion of those doing off-farm work was especially high for cash renters (55.9 percent). It also was generally higher for all tenants (36 percent) than owners (28 percent). Wage labor probably increased the volume and variety of material goods that came into rural sites, both in terms of increased cash and in terms of increased exposure to new goods in the work place.

Changes in Tenancy

As discussed above, tenancy became a very common arrangement during the Postbellum subperiod, stimulated by the lack of land owned by African Americans and by the high prices for tobacco, which drove up land values. Tenancy continued to increase during the Industrial and Commercial Consolidation subperiod, from 33 percent in 1920 to 38 percent of all farms by 1940 (U.S. Census 1943). These rates are low compared to rates of 56 percent for the Southeast in general and 72 percent for a cotton state like Mississippi in 1930 (Odum 1936:382). As before, many African Americans were tenant farmers. Thirty-two percent of Euro-American farmers in Kentucky were tenants in 1920, compared to 57.6 percent of African-American farmers. The percentage of Euro-American farmers that were tenants had risen to 35.1 percent in 1930, while the percentage of African-American farmers had declined to 51.9 percent (calculated from the U.S. Census 1923, 1933). As noted in the Postbellum subperiod, the hierarchy of farm value, as recorded in the census, was from Euro-American owners to Euro-American tenants to African-American tenants to African-American owners.

There are some indications that, by the end of this subperiod, tenancy was changing in several ways. As more farm owners became wage laborers, often on a part-time basis, there was an increased demand for tenants. However, the industrial growth that attracted farm owners to wage labor also attracted tenant farmers. This, and the high prices for tobacco, suggests that tenants often had more resources and were less dependant on landlords than they had been in earlier subperiods. For example, while the percentage of tenants that rented for cash was 10 percent and 11 percent in 1920 and 1930, respectively, it had doubled to 24 percent by 1940 (U.S. Census 1933, 1943). These cash tenants often did not live on their rented land, as most tenants had in the past, but instead rented scattered parcels of land to supplement other plots, some of which they might own (Sundquist 1953). Thus, the close relationship between a landlord and tenant, sometimes described as benevolent paternalism and sometimes more in terms of exploitative debt peonage (Ransom and Sutch 1977), was in a state of change, with farm land rented more frequently as a straight commodity.

Trends in Industry and Commerce

The manufacturing of local non-mass produced goods declined during this subperiod, largely because of the inability of local companies to compete with mass-produced goods. Improvements in transportation allowed manufacturers of mass-produced products to reach a much greater market. One important example is flour

and grist mills, which declined from 533 in the state in 1919 to only 163 by 1927, a decline of 70 percent in 8 years (U.S. Census 1933).

Clays were mined in several areas of the state for use in local brick and pipe making: the Western Coalfield Section of the Pennyryle Cultural Landscape, portions of the Knobs in the Outer Bluegrass Section of the Bluegrass Cultural Landscape, and portions of the Jackson Purchase Cultural Landscape. Because of competition from foreign clays, only those clay deposits located near a railroad could be profitably mined (Davis 1923). Some local potteries continued during this subperiod, although their numbers generally declined; the only large-scale pottery in operation by 1923 was located in Paducah (Davis 1923). Thus, local ceramics probably diminished in importance during this subperiod, as did many other local products.

In contrast to the general decline in home manufacturing, one local industry, home-distilling, increased its production. Small-scale whiskey-making had long been an established activity in rural areas. Just before Prohibition, whiskey distilling led all other industries in Kentucky in cash returns (Clark 1960). Prohibition meant the loss of from 6,000 to 8,000 jobs in Louisville alone (Wesler 1984c). Some distilleries had closed earlier as well, because of local county options on alcohol, which began in 1912. By 1919, when Prohibition was established nationally, many Kentucky counties were already dry.

Whiskey-making did not completely cease in the dry areas or in the rest of the state in 1919, and in fact, home-production increased. The response of home-producers to Prohibition can be seen in the average size of stills confiscated in the South, which increased from 3.7 gallons in 1920, to 10 gallons in 1921, to 15 gallons in 1923, to 20 gallons in 1924, and to 50 gallons in 1929. Not surprisingly, still size had declined to 14.3 gallons by 1942, nine years after the end of Prohibition (Kirby 1987:210). Home whiskey-making was especially prominent in the Appalachian Mountains Cultural Landscape (Pace and Gardner 1985), which supplied both local needs and produced small sums of cash, although whiskey frequently was traded. The mining population also created a larger-than-average market for home-made whiskey in the Appalachian Mountains Cultural Landscape and in the Western Coalfield Section of the Pennyryle Cultural Landscape. Sauer (1927) noted large numbers of stills in the less commercially oriented areas of the Pennyryle Cultural Landscape in the mid-1920s.

Caudill (1963) has suggested that the Depression, coupled with the poor state of agriculture in the Appalachian Mountains Cultural Landscape, led to a situation where some farmers depended on whiskey-making for subsistence, not just additional cash. This pressured these farmers into making larger quantities of whiskey with less corn, which caused them to rely on the addition of sugar and other methods to increase yields, especially as corn yields per acre decreased. The result was cheaper and more dangerous grades of home-made whiskey and an increase in battles to protect stills from law enforcement agents. Between 20 and 50 stills per 100,000 inhabitants were recovered by federal agents in Kentucky by 1930, with higher levels found only in Tennessee, Georgia, South Carolina, North Carolina, and Virginia (Kirby 1987; Odum 1936:568). A great deal of violence was engendered by the attempts of law enforcement personnel to stop the home production of whiskey (Channing 1977; Clark 1960).

By 1935 Prohibition had ended in Kentucky, two years after it had ended nationally, enabling commercial distilleries to resume their trade. However, the local county option continued, and by 1950, 90 out of 120 counties in Kentucky were dry (Clark 1960). Thus, markets for home-made whiskey were maintained in the dry counties. Continued poverty and a depressed agricultural economy also encouraged the continuation of home production.

Pace and Gardner (1985) have suggested that the most important factor in the location of private stills was access to roads or other transportation arteries and not seclusion, although secluded spots were preferred if they also were accessible. Seclusion may have become more important during Prohibition, when many rural farmers responded to the shutdown of the large distilleries by expanding their own operations.

Manufacturing and Industrial Production

The increased potential for farmers to engage in wage labor was made possible by industrial and commercial growth. The trend of industrial consolidation that started in the Postbellum subperiod continued during this subperiod. For example, the number of persons employed in manufacturing increased from 37,391 in 1880 to 70,718 in 1940, and the value of the goods produced increased from ca. 75 million to ca. 481 million dollars. At the same time, the number of establishments declined from 5,328 to 2,188. Consolidation was even more extreme than this decline suggests, since these 2,188 establishments were owned by only 1,371 firms (U.S. Census 1883 and 1933). The Depression contributed to this process, as many smaller companies could not survive such a disruption. Martin (1988) estimated a 50 percent reduction in the number of establishments in the Pennyryle Cultural Landscape because of the Depression.

Industrial production in the state during this subperiod continued to be concentrated in the Ohio Valley Urban Centers Cultural Landscape, especially Louisville. The Louisville Industrial Foundation was established in 1916 to promote industrial growth, which in the healthy post-World War I economy grew from 152 establishments in 1922 to 892 establishments in 1926 (Burroughs 1927; Share 1982). The major industries in Louisville during this subperiod continued to be tobacco manufacturers, slaughtering houses and meat packing plants, liquor distilleries, leather tanneries, clothing factories, foundries, and machine shops (U.S. Census Bureau 1883 and 1923). Nationwide, cigarette consumption jumped 75 percent between 1939 and 1945, largely due to World War II. As a result, the Kentucky tobacco manufacturing industry, already healthy in 1939, experienced tremendous growth.

An abundance of coal for fuel, along with access to good river and rail transportation, allowed Owensboro to become the second largest manufacturing center in the state by the mid-1920s. Its population went from 3,437 in 1870 to 17,424 in 1920, and industries located in Owensboro included tobacco processing factories, packing houses, assorted mills, machine shops, carriage industries, and related forges. Henderson also was a manufacturing center, but to a smaller degree than Owensboro (Burroughs 1924). No other towns in the state experienced industrial growth comparable to these cities. Sauer (1927) noted that other towns in the Pennyryle Cultural Landscape grew at a much slower rate at this time, which suggests that they were nearing their commercial

potential, although Hopkinsville and Bowling Green continued to prosper. Border towns, like Campbellsville, which had access to trade from the Bluegrass Cultural Landscape, also tended to experience greater prosperity than other communities during this subperiod (Sauer 1927). Towns in the Appalachian Mountains Cultural Landscape continued to lack industrial and economic diversification, largely because of the control of primary resources by outside capitalists whose main interest was extraction and not local development (Caudill 1963; Eller 1982:228; Thomas 1971).

By 1940, the 70,718 persons employed in manufacturing statewide produced over 480 million dollars worth of goods. However, 584, or about one-third of the state's manufacturing establishments, were located in Jefferson County (550 were in Louisville proper). The only other localities with over 50 establishments were Kenton County, with 80 establishments (69 of which were in Covington), and Fayette County, with 58 establishments (32 of which were in Lexington). Jefferson County's (primarily Louisville's) manufacturing facilities employed 44 percent of Kentuckians who worked in manufacturing, compared to Kenton County's 3 percent and Fayette County's 1 percent. Also, while Louisville contained nearly one-third of the manufacturing establishments and employed 44 percent of the people who worked in these establishments, it produced 63 percent of the industrial value of the state (U.S. Census 1943).

Owensboro was still an important manufacturing center in 1940, with 48 manufacturing establishments, as was Paducah with 43, Newport with 26, and Ashland with 24. The percentage of the population in manufacturing for cities with over 10,000 people (the only class of settlement for which this information is available) (U.S. Census 1943) was the following:

Ashland	11.0 percent	Lexington	0.6 percent
Bowling Green	2.0 percent	Louisville	9.2 percent
Covington	2.4 percent	Middlesboro	5.7 percent
Frankfort	10.4 percent	Newport	3.5 percent
Henderson	6.3 percent	Owensboro	8.5 percent
Hopkinsville	3.1 percent	Paducah	7.3 percent

Ashland had some manufacturing establishments; the percentage of its population involved in manufacturing was 11 percent, which was the highest percentage of any city in the state. In contrast to Ashland, only 0.6 percent of Lexington's population was involved in manufacturing, even though Lexington contained a large number of manufacturing establishments.

Another important trend during this subperiod was the increase in the participation of women in manufacturing and other industries, which involved work outside of the home. Although women had worked as wage laborers for some time, especially in nursing, teaching, domestic services, and some professional services, the manufacturing sector will be highlighted in this discussion because it is one that grew rapidly during this subperiod. This increase in wage labor by women was an important

change in the household, both in terms of bringing in additional money and in altering household routines and organization.

The percentage of the manufacturing labor force that was female rose from 9.4 percent in 1880, to 14.5 percent in 1915, to 21 percent in 1930, to 26 percent in 1940 (calculated from U.S. Census Bureau 1883, 1933, and 1943). Most of these jobs were in cities. In 1910 in those areas of the state with populations of over 10,000, women comprised 19 percent of the manufacturing labor force compared to 7.6 percent in the rest of the state (U.S. Census 1913). Women not only participated in manufacturing but also in the retail sector. Thus, by 1940, 26 percent of wholesale and retail jobs were occupied by women.

Not only did greater numbers of women work in manufacturing in urban rather than in rural settings, women also worked more commonly in all occupations in the urban setting. For example, in 1920 when 16.3 percent of women in the state were in the labor force, 35 percent of the women living in Louisville worked outside the home. In 1940, 17.6 percent of women statewide were in the labor force, compared to 32.3 percent of women in Louisville.

The highest percentage (45.7 percent) of women in Louisville who worked were African American women. There is evidence to suggest that the pattern of increased participation by women in the labor force during this subperiod (and the Postbellum as well) mostly affected Euro-American women, and that large numbers of African-American women had worked outside the home all along. For example, Woodman (1977), in a study of wage labor in seven southern cities in 1870 and 1880, found that in 1880, 73 percent of single African-American women were in the labor force compared to 24 percent of single Euro-American women. The same trend existed for married women, although the percentages in the labor force were lower (35 percent of African-American married women compared to 7.3 percent of Euro-American married women). Overall, regardless of marital status, 55 percent of African-American women and 18 percent of Euro-American women were in the labor force. Thus, there may have been important long-standing differences in the organization and operation of African-American and Euro-American households.

Burroughs (1924) noted that a higher than average number of women were employed in the cigar factories in Madisonville when agricultural prices or coal prices were down. This suggests that this work was intended to supplement the family wage economy (Tilly and Scott 1976) when male earnings were lower than normal. From 1880 to 1940, the percentage of married women who were employed in gainful occupations only increased from 4 to 6 percent (U.S. Census 1923 and 1943). Wages in the South remained well below wages in other parts of the country, despite some increases in the early 1930s in association with the National Industry Recovery Act. Minimum wage provisions were instituted in 1938, at a base level of 25 cents an hour, which had more of an effect on industries in the South than on other parts of the country (Wright 1986).

Growth of Retail Trade and Consumer Goods

Because of developments in manufacturing, such as improvements in making and using plastics and other synthetic materials, and in the retailing of manufactured goods,

more mass-produced goods were acquired by Kentuckians. Nationwide, per-capita outlays for new stores and warehouses grew rapidly during the 1920s. The number of persons employed in retailing nearly doubled between 1910 and 1930, rising 2.5 times faster than most production indexes of the period (Nourse 1934:378-388). More research on the growth of the retail trade in Kentucky is needed. Martin's (1988) research on the Pennyrile Cultural Landscape suggests that despite the Depression, stores increased by one-third during the 1930s in this cultural landscape. Although many of these were small general stores located in small towns and cross-roads hamlets, the number of specialty stores also increased.

Another development that occurred during this subperiod was the introduction of the large chain store. Chain stores were an outgrowth of the large department store, which had grown during the Postbellum subperiod partly because of increased access to customers using streetcars (Jackson 1985). Department stores continued to grow during this subperiod as well. Martin (1988) has suggested that the presence of chain stores in an area is a good indication of its retail market, since these large businesses were very selective in their location. In the Pennyrile Cultural Landscape, there were tremendous differences in the number of chain stores by county and the proportion they represented of all stores. These differences reflect the level of commercial activity and cash income available for retail sales in a particular area. For example, in 1940, Daviess County had 32 chain stores, which made up one-twelfth of the total number of stores in the county. In contrast, Ohio County had only one chain store, out of a total of 212 (Martin 1988:121). Besides increasing the volume of goods available to consumers, chain stores may have increased the number of goods available to local residents from distant manufacturers. However, to the extent that these stores centralized and monopolized consumption, they may have contributed to a decrease in the diversity of available material goods.

Nationally, per-capita income rose from under 300 dollars per year to almost 400 dollars between 1910 and 1930, after adjustments for price levels. Farmers participated less in this increase than any other group, because of low prices for their goods during the 1920s (Levan et al. 1934:17, 29). Levan et al.'s (1934) study of income in the early 1930s found that farmers tended to save and reinvest larger portions of their income than nonfarmers, and spent less on consumer items.

Spending on consumer items was not as closely correlated with income for farmers as it was for nonfarmers, which suggests that there was less variation in consumption patterns for farmers (Levan et al. 1934). Kentucky's income in 1929 ranked 43 out of 48 states for the farm population and 41 out of 49 states for the nonfarm population. Kentucky ranked high in savings and low in spending in the "other living" category (Levan et al. 1934:75). Overall, Levan et al.'s study found great inequality in spending patterns, with the wealthiest 10 percent of the population spending 30 percent of all outlays and 50 percent of all money in the "other living" category.

Communication and Transportation

Access to mass communication continued to increase during this subperiod. Many of the New Deal programs, like the Works Progress Administration (WPA)

projects or Civilian Conservation Corps (CCC) camps, resulted in improved communication between different parts of the state. Although the use of telephones continued to increase during this subperiod, there was a great deal of variation in the degree of access to telephone service enjoyed by residents of each of the five cultural landscapes. The ratio of inhabitants per telephone in 1933 ranged from 13.9 in the Bluegrass Cultural Landscape and 17.1 in the Pennyryle Cultural Landscape, to 54.3 in the Appalachian Mountains Cultural Landscape (Odum 1936:366). Cities were especially well-provided with these new inventions. For instance, by 1925, there was a telephone for every six persons in Louisville (calculated from Burroughs 1927). In 1940, the percentage of farms with telephones in the entire state was 15.8 percent, which was down from 25 percent in 1930. This decrease is probably due to the proliferation of small tenant farms during this subperiod. Although data on telephones by farm tenure is not available for 1930, it is for 1940, when 19.1 percent of owners, compared to 8.8 percent of tenant farmers, had a telephone. The highest incidence of telephones on farms was for farm managers, 59 percent of whom had a telephone (U.S. Census 1943). This may be due to their position as an administrator for a farm owner, which encouraged the need for better communication.

Public transportation also improved dramatically during this subperiod. By the late 1920s, Louisville had 10 interurban electric trolley car lines and several bus lines (Burroughs 1927). By the end of the subperiod, most electric trolley lines had been abandoned and often paved over because of the growth of the automobile and expanded taxi and bus service. City streets continued to be improved and sometimes paved. Even small cities like Danville, or some of the better-supported mining towns, had poured concrete streets by the early 1920s (Harrison 1984; Share 1982). However, many small towns, including many county seats, saw little improvement in their streets until after World War II.

Railroad growth during this subperiod was not spectacular, since most of the lines had been laid in the earlier subperiod. New lines continued to be built in the Appalachian Mountains Cultural Landscape, as coal mining penetrated further into the mountains. Railroads continued to be the most important source of shipping freight, and cities at the intersection of major lines (e.g., Lexington), or major lines and rivers (e.g., Covington-Newport area, Bowling Green, or Paducah) continued to grow. Interurban rail and bus service that radiated out from cities did much to stimulate and extend the hinterlands of regional retail centers like Lexington (Davis 1927). Although automotive travel and transportation of freight by trucks grew in importance, it was not until well after World War II and the development of interstate highways that rail connections lost their dominance in long-distance shipping of freight.

The most dramatic change during this subperiod is the growth of automobile and truck traffic, and with it, improvements in roads. Although automobiles had been available during the previous subperiod, the automobile did not become a major force in transportation until assembly line production and increased incomes enabled large numbers of people to buy them. By the early 1930s, there was one car for every 6.9 persons in the Bluegrass Cultural Landscape, one car for every 11.3 persons in the Pennyryle Cultural Landscape and one car for every 20.4 persons in the Appalachian Mountains Cultural Landscape (Odum 1936:366). The spread of cars led to an increase

in touring and in tourist-related growth by the end of this subperiod, beginning the growth in the service industry that accelerated after World War II.

In 1916, Congress passed the Federal Road Aid Act, which became the basis of federal/state partnerships in road construction. This required the identification of seven percent of roads to be federally funded. In Kentucky, the Agriculture Roads Agency merged with the Office of Public Roads to create a new department to handle this and other road-related tasks. In 1920, the legislature began to tax gasoline and horsepower, and created a Highway Commission. The Department of State Roads and Highways designated a 4,000 mile-primary road system (Collins et al. 1996).

Kentucky roads in 1918 totaled 57,916 miles, only 13,900 miles of which had any surface (Clark 1960). Davis (1923:141) estimated that small hamlets were generally located every 3.5 to 4 miles in the Jackson Purchase Cultural Landscape, closer than in the other cultural landscapes, because of the poor roads there. In 1920, the Kentucky Road Law established a system of projected highways connecting county seats and enabled the state to receive Federal aid. The increase in traffic associated with the spread of the automobile in the 1920s resulted in a much faster rate of road wear, so that new surfaces were needed (Sauer 1927). Construction of all-weather (paved) roads increased in the 1920s, although progress was slow. The new roads, which together with automobiles provided a true leap in transportation and convenience, reduced provincialism and regional differences, although Clark (1960) notes that they also made it easier for people to leave the state. Road building was not evenly distributed across the state, but highly concentrated in the area often called the Golden Triangle, between Lexington, Louisville, and the Covington-Cincinnati area, with drastically reduced efforts in the more rugged Appalachian region and more distant western Kentucky (Collins et al. 1996). Overall, Kentucky was slow to build roads compared to neighboring states, having in 1944 only 61 miles of high-type surface roads per square miles, compared to 117 for West Virginia, 77 for Tennessee, or 267 for Ohio (Collins et al. 1996:4).

Many people, especially older individuals, moved to be closer to new roads. As Sauer (1927:145) has noted, while in many states large numbers of people migrated from farms to towns and cities, in rural Kentucky, many chose to move from farms “to the pike.” They could still have a garden and a few animals on several acres, but also could use the improved roads to commute to outside jobs or take advantage of the services and stores in nearby towns and cities. Thus, small farms and rural residences began to proliferate along roads.

Automobiles also affected settlement patterns in urban areas. Streetcar suburbs usually were built in finger-like patterns, with houses clustered within one-half to one mile of the streetcar lines. With automobiles, the space left between these suburban communities could be filled-in. Freedom from the streetcar line also resulted in an increase in lot size and a decrease in population density. The use of trucks for the transportation of local freight freed businesses from the center city or peripheral industrial zones and prompted the relocation of many businesses near the new residential suburbs. Thus, most suburbanites no longer found it necessary to commute into the city center (Jackson 1985).

The flurry of road-building activity not only stimulated economic growth by improving transportation, but it created many jobs in mining and shipping rock asphalt (some out-of-state) and gravel, and in road construction (Channing 1977). The use of these roads and trucks to haul tobacco resulted in increased business for loose-leaf warehouses (Axton 1975). Later, in the late 1940s, the expansion of the “farm to market” roads also increased the communication and accessibility of many rural areas and greatly spurred economic growth and wage labor.

River traffic declined tremendously during this subperiod, often adding the final blow to small river towns that had declined somewhat during the Postbellum subperiod, especially those that lacked rail service. A new lock was completed on the Cumberland River in 1916, an area that still relied heavily on river travel and transportation. Mail service continued on the Cumberland until 1934, and the gasoline-powered boats used in this service also delivered small amounts of freight to stores and individuals, large amounts of parcel post from mail-order catalogs, and provided informal passenger service. The Ohio Valley Urban Centers Cultural Landscape continued to benefit by having both rail and water transportation during this subperiod, both in trade and in manufacturing. Paducah also developed into an important center for building barges, and at least 50 gasoline powered packets operated out of Paducah in the 1920s (Davis 1923). In general, river traffic never recovered from the Depression, and since the 1930s, there has been little in the way of federal or state efforts to improve river navigation in Kentucky.

Lumbering and Coal Mining

The lumbering and mining industries remained very important during this subperiod. Although much of the best timber had already been removed by 1910, the post-World War I housing boom occasioned more buying and cutting. For example, a subsidiary of Ford Motor Company bought over one-half of Leslie County between 1915 and 1924 because of its timber (Caudill 1963). Lumbering methods also became more mechanized, with the use of overhead cables, giant handsaws, and shay locomotives. These new methods increased the destruction of the local landscape, and whole mountain sides were often cleared and left to erode (Eller 1982:103).

It was during this subperiod that public reaction to the level of destruction of forests began to grow. In response, several National Forests were established in the East in the 1910s (Eller 1982:119). The E. O. Robinson Mountain Fund was established in the early 1920s to promote reforestation in Kentucky. In 1923, approximately 15,000 acres in Breathitt, Knott, and Perry counties were conveyed by this fund to the University of Kentucky for agricultural experiment work, teaching, and practical demonstration of reforestation (Overstreet 1984). The Cumberland National Forest, now called the Daniel Boone National Forest, was founded in the mid-1930s. Its boundaries have changed and grown considerably since then. The creation of these forests usually meant the abandonment and sometimes demolition of farms and houses. Selective lumbering and other forest activities often continued. These forests also introduced a host of new management-related activities, and many new buildings for office, storage, and recreational use were constructed. The New Deal programs such as the WPA or CCC often participated in the building of these structures and sites.

Despite the World War I housing boom, the timber industry generally declined in Kentucky, partly because most of the best trees had already been cut. As a result, many lumber camps were abandoned and fewer new lumbering sites were established. Also, towns that had grown up around the lumber industry, such as Catlettsburg, probably declined in population. Perhaps by this time, many persons had either become so accustomed to wage labor or had experienced such a level of deterioration in their farm land that they could not completely return to farming, and thus provided a ready labor source for the developing mines.

The period from the mid-1910s through the mid-1920s was a time of prosperity for both coal companies and miners in Kentucky. By the 1920s, there were at least 33 coal camps or towns in Letcher County, 37 in Perry County, 40 in Pike County, and 25 in Harlan County (Caudill 1963). Shifflett (1991) estimates that by 1925, there were over 500 coal towns throughout Appalachia. One important change in many mining town homes was an increase in labor-saving devices, such as electric washing machines and ice-boxes. Living conditions had improved dramatically by the 1920s, when surveys of union versus nonunion towns found little difference between the two (Hinrichs 1923). Also, some of the larger coal communities discussed in the Postbellum section, like Benham and Jenkins, were founded during the first part of this subperiod. These towns included very up-to-date residences and gave greater attention to public facilities like theaters or schools.

The prosperity of the 1910s and 1920s ended in 1927, however, when there was a sharp drop in the price of coal. Coal mining also was severely hurt by the Depression of 1929, and many small mines failed. Production declined by 10 million tons between 1929 and 1930 and continued to decline for the next several years (Currens and Smith 1977:33). Many small mines and mining towns may have been abandoned or taken over by larger companies. This suggestion is supported by the fact that the number of mines in the state declined from 742 in 1919 to 478 by 1939, while total persons engaged in mining stayed about the same: 43,347 in 1919 compared to 49,072 in 1939. In 1929, before the Depression, the number of persons involved in mining had been even higher at 57,912 (U.S. Census 1943).

Many large coal companies, hopeful of rapid economic recovery, extended credit at the company stores to help miners stay in the company towns and wait for resumption of mining. Over time, these extensions further hurt many coal companies, causing additional failures. Also, some coal companies failed because they had distributed a large percentage of their profits to shareholders, leaving insufficient reserves for weathering an extended economic depression (Caudill 1963). One result of this situation was frustration and hostility between the miners and the coal companies, which encouraged unionization. Attempts at unionizing previously had been unsuccessful in the Kentucky mines (Hinrichs 1923). Although wages were somewhat low in Kentucky compared to other mines, the mine companies often argued that they had no choice but to pay low wages because of the high costs of transporting coal out of the region. The tight control of the companies and the increase in the standard of living in most mining towns from the late 1910s through 1927 had hindered efforts to unionize Kentucky coal miners. During the Depression, however, lay-offs, lower wages, the use of a piecework system under conditions of low prices, and the increased dangers that resulted from cutbacks on

maintenance, all encouraged miners in Kentucky to unionize (Caudill 1963; Eller 1982; Hinrichs 1923; Thomas 1971).

By the end of the 1930s, mining began to resume in the Appalachian Mountains Cultural Landscape, where it was spurred by the oncoming war. A need for rifles also caused a flurry of timbering in the early 1940s (Caudill 1963). However, the stable labor force of the 1920s had largely dispersed, and coal companies increasingly turned to mechanization. The duckbill loader, introduced in 1937 (Caudill 1963), was very efficient and an important step toward automation. The new roads built by the WPA, CCC, and the state, and the availability of motor trucks, also greatly changed the nature of mining. These operations, which depended on new equipment like the duckbill loader and electric drills for mining coal and trucks for transporting it, resulted in a new and different kind of mining. Before, mines had been tied to the location of railroads and the location of miner's housing had been tied to the mines. Now mines could be dispersed to reach coal seams that were previously inaccessible or too small to be considered workable. The improvements in transportation and lower labor demands also meant that housing could be much more dispersed than in the previous subperiod, and scattered rural houses (but not farms) increased rapidly in mining areas (Caudill 1963; Pickard 1969).

The frenzy of new mining and new money also resulted in town growth during the 1940s, although these new patterns of mining were not much more successful than the earlier company towns in terms of returns to local city and county governments, support of school and social services, and taxation (Caudill 1963). These changes also had an effect on the organization of mining. While many large companies continued their production, the technological changes also made it more feasible for small operators to develop mines, often for as little as a 1,500 dollar investment (Caudill 1963). Many of these small mines were family operations that relied on the participation of female family members (Kirby 1987), who worked beside hired nonfamily personnel as needed.

This subperiod saw the introduction of large scale strip-mining, which greatly altered both the way that mining was conducted and the physical landscape. Strip mining using steam shovels and other heavy equipment was underway in the Western Coalfield Section of the Pennyrile Cultural Landscape by 1922, when figures for tonnage by types of mining were first kept. In that year, 98,164 tons of coal had been surface mined, compared to 8,118,385 tons from underground mines. By 1930, the surface tonnage in the Western Coalfield Section had tripled to 309,454 tons. The first recorded surface mining in the Appalachian Mountains Cultural Landscape was in 1928, when 18,100 tons were mined in this manner, compared to the 45,670,645 that were mined underground (Currens and Smith 1977:33). Surface mining continued to grow in the Western Coalfield Section and the Appalachian Mountains Cultural Landscape, although by 1975, the tonnage from surface mining was only 342,923,574, a small amount compared to the 2,147,737,048 tons mined underground. The largest strip-mining operations in the Western Coalfield Section were in Muhlenberg, Hopkins, and Ohio counties. The largest strip-mining operations in the Appalachian Mountains Cultural Landscape were in Pike, Perry, and Breathitt counties (Currens and Smith 1977:8-10).

Not only were fewer miners needed, but strip-mining operations were more dispersed on the landscape than underground mines. These trends, coupled with the growth of the automobile, which allowed miners to commute to the mines, contributed to

the decline of the nucleated company town. Company towns also declined because mining companies became less and less interested in providing housing and other facilities for miners, especially as mining became less labor intensive.

As they came to rely more heavy equipment, coal companies frequently located in larger towns and urban centers where they could more easily buy and repair equipment, which further contributed to the decline of smaller communities. Railroad junctions also declined as new repair techniques reduced the need for maintenance (Pickard 1969). One counterbalancing trend was that as mine companies gave up company housing, many miners were given the opportunity to buy the houses that they had rented for years. This process was facilitated in the 1940s and 1950s as welfare payments, disability payments, and pensions gave miners additional sources of cash.

RECORDED HISTORICAL ARCHAEOLOGICAL SITES

This section presents a review of the number and types of historical archaeological sites documented in Kentucky (Table 8.1). It should be noted that Table 8.2 does not include numbers of sites within the Ohio Valley Urban Centers Cultural Landscape. This is because the archaeological site inventory does not include the variable “cultural landscape” as it is used in this chapter, but information is provided on the number of sites recorded in the corresponding county. Thus, all sites in Jefferson County are considered part of the Louisville Ohio Valley Urban Center, and all sites in Kenton, Campbell, and Boone counties are considered within the Northern Kentucky Ohio Valley Urban Center subset.

Prior to 1987, there were only 2,485 historic archaeological sites documented in Kentucky. Since 1987, 3,571 historic archaeological sites have been recorded, this represents almost a 150 percent increase in the number of historic sites documented in Kentucky in the last 20 years. The most dramatic increase in site recordation occurred in the Eastern Pennyryle Section where only five historic archaeological sites had been documented in 1987. This section now contains 253 sites. But the greatest absolute gains were in the Appalachian Mountains Cultural Landscape with 1,044 and 894 sites added to the site inventory in Coalfields and Foothills Sections, respectively, since 1987. A large number of historic archaeological sites also were documented in the Western Coalfields Section (n=900) during this time period.

With a caveat that the size of the cultural landscapes and sections are not constant, so that one might expect larger ones (more or larger counties) to have more recorded sites, one can make some observations about the distribution of recorded sites by cultural landscape. The Appalachian Mountains Cultural Landscape continues to contain the most historical archaeological sites (Table 8.1), with the Ohio Valley Urban Centers containing the fewest (n=121 sites in Louisville [Jefferson County] and n=177 in Northern Kentucky [Kenton, Campbell, and Boone counties]). An argument can be made that these are just four counties, and so why expect as many sites as the large multi-county cultural landscapes? But, in terms of the proportion of the population of the state that historically resided in these counties, and numbers of sites that this population density would have created, the number of recorded sites seems relatively low.

Except for Eastern Section of the Pennyryle Cultural Landscape, industrial (or expanded industrial) and residential sites account for at least 50 percent of the recorded sites in each cultural landscape. Within the Eastern Section the percentages of these two site types have declined relative to 1987, as more different types of sites have been recognized and recorded by professional archaeologists. While cemeteries made up less than 1 percent of the recorded sites in 1987, they now account for from 3 to 7 percent of the sites within each cultural landscape (Table 8.1). There also has been a sharp increase in the number of military sites recorded. The number of military sites increased from 3 to 46; Louisville is the only area where no military sites have been recorded.

As in 1987, the Inner Bluegrass Section has a low percentage of sites in the residential category and a higher percentage of sites in nonresidential categories, relative to the other cultural landscapes, indicating greater diversity of recorded sites in this

Table 8.1. Site Types by Cultural Landscape.

	Purchase		Pennyrile				Ohio Valley Urban				Bluegrass				Appalachian				Total		
	Jackson		W. Coalfield		Plain		Eastern		Louisville		N. Ky		Inner		Outer		Coalfields			Foothills	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		N	%
Open Habitation w/out mound(s)	100	22.9	243	22	106	24	100	39.5	23	19.0	32	18.1	171	28.7	113	19.7	79	7.1	107	8.7	1074
Isolated Find	1	0.2	7	0.6	2	0.5							1	0.2	1	0.2			1	0.1	13
Rockshelter			17	1.5			6	2.4	1	0.8				0		0	135	12.1	239	19.4	398
Cave			6	0.5	5	1.1							1	0.2	1	0.2	1	0.1	4	.32	18
Quarry			1	0.1									2	0.3	1	0.2	1	0.1	10	.81	15
Stone Mound			2	0.2							1	0.6	3	0.5	2	0.3	1	0.1	4	.32	13
Earth Mound	1	0.2	2	0.2							1	0.6	1	0.2	2	0.3	2	0.2			9
Mound Complex	1	0.2													1	0.2			2	0.2	4
Petroglyph/Pictograph	1	0.2	3	0.3		0	1	0.4							1	0.2	1	0.1	1	0.1	8
Non-Mound Earthwork					1	0.2							1	0.2					2	0.2	4
Workshop					1	0.2							1	0.2	2	0.3	1	0.1	1	0.1	6
Isolated Burial													2	0.3			4	0.4	2	0.2	8
Cemetery	15	3.4	54	4.9	18	4.1	11	4.4	8	6.6	11	6.2	10	1.7	19	3.3	67	6.0	39	3.2	252
Specialized Activity Site	2	0.5	6	0.5	12	2.7	1	0.4	2	1.7	4	2.3	5	0.8	2	0.3	25	2.2	38	3.1	97
Open Habitation w/ Mound(s)	3	0.7	1	0.1			1	0.4			1	0.6	3	0.5	1	0.2	1	0.1	1	0.1	12
Historic																					
Farm/Residence	242	55.4	613	55.4	236	53	107	42.3	74	61.2	92	52.0	286	48.0	348	60.5	660	59.1	603	49.0	3261
Industrial	6	1.4	19	1.7	13	2.9	9	3.6	5	4.1	1	0.6	27	4.5	27	4.7	46	4.1	96	7.8	249
Military	4	0.9	3	0.3	2	0.5	5	2.0			11	6.2	13	2.2	3	0.5	3	0.3	2	0.2	46
Other	61	14.0	130	11.7	47	10.6	12	4.7	8	6.6	23	13.0	69	11.6	51	8.9	89	8.0	79	6.4	569
Total	437	100.0	1107	100.0	443	100.0	253	100.0	121	100.0	177	100.0	596	100.0	575	100.0	1116	100.0	1231	100.0	6056
Since 1987	143		207		179		5		na		na		124		207		72		377		

Table 8.2. Detailed breakout of Sites with Site Type of Rockshelter, Military, Industrial, and Other.

	Jackson	Pennyrile			Ohio Valley Urban		Bluegrass		Appalachian		Total
	Purchase	Western Coalfield	Plain	Eastern	Louisville	N Kentucky	Inner	Outer	Coalfields	Foothills	
Revolutionary War	1						16	1			18
Civil War	3	2	4	3		10	14		9	2	47
Farm/Residence	26	21	15	8	1	2	17	22	38	40	190
Tavern/Hotel		1	1				1		2		5
Church	1	3	4		1			2	2	1	14
Cemetery				2			1		1	3	7
Stone Wall							2			1	3
Winery								1			1
Store		1	1		1		1				4
Blacksmith Shop					1		3	1		1	6
Fire Tower										1	1
Tar Kiln				1				2		17	20
Brick Kiln or Feature	3	1						1	1	1	7
Lime Kiln		3	1	2			1				7
Iron Furnace								20		2	22
Logging Site		2							6	18	26
Coal Mine	1	4		4				1	26	10	46
Silver Mine								1	1		2
Gin, Mill/ Water Work	1	2	5	2	1	1	11	1	4	1	29
Nitre Mining Site				1					14	110	125
Quarry							2		2	2	6
Still		6							53	64	123
Distillery			1		1		1				3
Water Collection		1								1	2
Oil/Gas		3						3	1	9	16
Charcoal Kiln										16	16
Canal									1		1
Vehicle Storage									1		1
Boat		1									1
Bridge/Culvert		1	2	1			1	1	1	3	10
Railroad Related		1		2			6		1	2	12
Government/Service		3	2	1	1		1	1	1		10
Urban Community/Residence					1		3	1		1	6
Education	1	3	1				3	3	4	3	18
Play Area/Recreation/Picnic	1								3	1	5
Industrial Storage									1	1	2
Rural Community			2				1	2			5
Unknown	3								5		8
Campsite				1					12	21	34
Pictograph, Petroglyph	1		1						3	1	6
Total	48	79	42	29	14	20	98	67	250	364	1011

region (Table 8.1). This pattern of greater site type diversity also has been documented in the Outer Bluegrass Section, the Coalfields and Foothills sections of the Appalachian Mountains Cultural Landscape

As in 1987, during the past 20 years, few industrial sites (n=17) have been documented in the Western Coalfield Section of the Pennyrile Cultural Landscape (< 1 percent). This is somewhat surprising, given that this region should contain many coal-related resources.

Table 8.2 shows sites that had been classified as rockshelters, military, industrial, and other types. Not surprisingly, many of the rockshelter sites contained the remains of stills and nitre mining. Moreover, tar kilns, charcoal ricks, and logging and coal mining sites have been identified in the Appalachian Cultural Landscape, and several iron furnaces have been reported for the Outer Bluegrass Section. Military sites tend to be pioneer stations and Civil War sites, especially in the Inner Bluegrass Section. Table 8.2 also demonstrates that archaeologists have documented a wide range of historic sites, from landscape features, such as stone fences and railroad beds, to recreation areas, fire towers, and abandoned rural communities.

JACKSON PURCHASE CULTURAL LANDSCAPE

Several projects have been undertaken in Livingston County within the city limits of Smithland. They include the Gower House (15Lv178), the Bush-Dahlem House (15Lv218), and Fort Smith/Fort Starr (15Lv207). The Gower House is an early nineteenth century tavern/residential site (Carstens 1989, 1993; Carstens et al. 1997; Quertermous 2001; Rivers 1998, 2000, 2004). Investigation of the Gower House has focused on the middens in the side and back yard, and has identified the location of a detached kitchen. The large number of oyster shells recovered from the midden is indicative of some of the fare served by the tavern. Not far from the Gower House is the Bush-Dahlem House. Excavations at this site have been limited, but they have provided information on the stratigraphy and distribution of deposits in the yard (Livingston Central High School Archaeology Class 2002).

The Civil War site of Fort Smith and Fort Starr, a Federal gun emplacement in Smithland, have been the focus of several projects (Ball 2004a; Carstens 1998; Quertermous 1999). These investigations have provided information on the construction and layout of both forts.

Limited investigations also have been conducted at Columbus-Belmont State Battlefield Park (15Hi173) (Sussenbach and McBride 1991). This site was a Confederate fortification and encampment. The project did not locate significant Civil War deposits, but did document the presence of a late nineteenth to early twentieth century African-American residential occupation.

In the early to mid-1980s, Wesler (1982, 1983, 1984a, 1984b, 1984c, 1987) conducted archaeological investigations at Whitehaven (15McN65), an upper class residence in McCracken County built during the Civil War and occupied into the mid-twentieth century, and the Moore House (15Ba108), a mid-nineteenth century to present-day domestic residence in Ballard County. Wesler's work on artifact patterning at both sites has contributed to studies of socioeconomic status, functional pattern recognition and use, and the spatial distribution of material culture. Wesler (1993) also undertook limited excavations at the Tilghman House in Paducah. In comparison to Whitehaven and Moore, the Tilghman House artifact assemblage contained more personal items, such as buttons.

Carstens' research on Fort Jefferson, George Rogers Clark's 1780-1781 fort, has been ongoing since 1980. The short occupation span of this military and civilian fort, and its importance in American history make it an extremely valuable archaeological site. A significant library of archival materials, consisting of over 5,000 primary documents, contains data on a variety of topics, such as the size and composition of the fort's population, the role of the fort in the American Revolution, activities conducted at the fort, subsistence patterns, social status and military discipline, and material culture items sent to the fort (Carstens 2004a, 2004b). Efforts to locate Fort Jefferson, including remote sensing, environmental reconstruction, map scaling, and magnetometer survey, have been inconclusive. The documents that have been assembled on this site, however, provide a context for the study of early American forts throughout the Ohio Valley (Carstens 1984,

1986, 1987, 1990, 1995, 2004a, 2004b; Carstens and Carstens 2004; Carstens and Dowdy 1996; Kellie et al. 2004; Lucy and Carstens 1998; Potter and Carstens 1986; Stein et al. 1983).

Other projects that have generated information on historical archaeological sites in this cultural landscape include Schock and Langford's (1978) investigation of a nineteenth century domestic site at Sassafras Ridge in Fulton County. A pit feature was documented that may have been used to smoke meat; it may also have been used for refuse disposal.

Three studies have generated information on small nineteenth century communities in this cultural landscape. The first is Dickson and Campbell's (1979) survey of the Reelfoot Lake National Wildlife Refuge and Lake Isom National Wildlife Refuge. Although only two historical sites were documented, one of these is the extinct community of Bondurant (15Fu304B). This small railroad community, which included seven houses, a former cotton gin site, a sawmill site, and three other sites of unknown function, dates from the late nineteenth century to about 1930. The second is Schenian's (1985) study of a portion of the Bayou de Chien drainage during which she collected archival and secondary historical information on three small nineteenth century communities. Two of these towns, Hickman and Moscow, were established in the 1820s as river transport centers. The third, Water Valley, was established in the 1870s on the Illinois Central Railroad line. Finally, in their survey of the Mississippi River bottoms and bluffs, Fitting et al. (1976) recovered historic materials that may be associated with the original town of Columbus. A study of churches in the Jackson Purchase has been undertaken by Wesler (2007), with students documenting Catholic (South-Price 2007) as well as Baptist church sites (Gibson 2007; Parrish-Lamb 2007).

Historical research and reconnaissance, as well as limited excavation, have expanded our knowledge of two industries in the Jackson Purchase Cultural Landscape. Hockensmith (1996a, 1999, 2004c, 2004d) documented the Rudd lime kiln complex, which was located along upper and lower sites on the banks of the Cumberland River in Livingston County, and Hockensmith and Black (1998, 2004a, 2004b; also Hockensmith 2004b, 2005b, 2007b) have researched the Paducah brick industry.

PENNYRILE CULTURAL LANDSCAPE

WESTERN COALFIELD SECTION

Some the earliest historic archaeology in this section took place at Fort William (15Bn48), a Civil War site in Glasgow (Barren County) (Schock 1978a, 1978b). Fieldwork at this site focused upon locating the magazine and associated tunnel entrances and provided information regarding the construction of walls and placement of guns.

Rural farmsteads are one of the more common site types in this section (Table 8.1). Among those that have been investigated are sites 15Ha327 and 15Ha328 (Schock and Alexander's 1981), Site 15He656 (Fiegel 1988), Hazelwood Homestead (15He748), and Bill Monroe Family Homestead (15Oh224) (Prybylski 2001). Extensive historical archaeological work also was carried out at a nineteenth century farm residence in Meade County (Otto and Gilbert 1982, 1984). One of the major conclusions of this study was that although the documentary record demonstrated that the site occupants grew increasingly wealthy over time, the archaeological record suggested that they did not invest their wealth in material culture items.

The Brown site (15He683) in Henderson County is one the most intensively excavated farmsteads in this section, and one of the first African-American sites to be investigated. Archaeological work conducted at this site indicates that this African-American farmstead was occupied from the mid-1870s to the mid-1910s (Wagner 1995; Wagner et al. 1992). Its owner was a Civil war veteran who was listed in the 1870 census as a farm laborer, but was able to buy 39.66 acres of land in 1878. There was nothing in the archaeological record, however, to indicate that this site was ever occupied by African-Americans, and the site is more similar to farmsteads occupied by lower status whites than to those occupied by slaves. The faunal remains revealed a dominance of pork, which is consistent with the Upland South dietary pattern.

Architectural features and artifacts (primarily nails) were analyzed to determine the layout of the house (one to two rooms expanded over time with a porch). Based on this research, it was suggested that the house was of frame construction. Socio-economic status indicators, such as a ceramic cost index, were fairly low, suggesting that the family that occupied this residence was relatively poor. This suggestion is supported by archival data (census records, suits, and deeds showing a second mortgage). The documents indicated that while the family was prosperous in the 1880s, their fortunes declined over time. The decline may have been related to the late nineteenth century tobacco wars, which resulted in the blacklisting of many African-American farmers who then had difficulty selling their crops (see discussion of tobacco wars in Culture History section) (Wagner 1995; Wagner et al. 1992).

Examination of the Priest site (15He873) in Henderson County may have documented the presence of an African-American slave cabin, represented by a small outbuilding or structure with a pit cellar located near the main house (Versluis 2004). Census research indicated that Priest had four slave houses. A variety of domestic artifacts were recovered from the pit cellar. Though the site appears to have been

occupied into the Postbellum period, the mean ceramic date for the pit cellar was 1840. The presence of a clamp or scove brick kiln (15He873) on Priest's property, suggests that bricks were most likely made for on-site use (Versluis 2004).

Though no cemeteries have been excavated in this section, several located on the Wendell Fort Regional Training Center have been mapped (Mabelitini 2007; Stahlgren 2005b).

PLAINS SECTION

Some of the earliest historic archaeological work in this section took place at the Shaker Community of South Union (15Lo321) in Logan County. Schendera's (1974) study of this community included a discussion of surface collections from five different areas around the Center House complex, and Mansberger and Deiss (1990) delineated a large limestone privy, pits, postholes, a shallow trench, and brick and stone drainage features. The most extensive work at this site was conducted between 1991 and 1995 (Fiegel 1995). This study, which included documentary research, survey, and limited excavation, recorded numerous buildings or activity areas within the Shaker complex. Information on a number of structures that once were present at this site was obtained from a review of Shaker journals. Data derived from this research was used to determine the spatial extent of this community (Fiegel 1995).

Another early historic archaeological project undertaken in this section was Schock and Lanford's (1985) investigations of the Moose Miller site, a residential (15Ht111) and barn (15Ht112) site in Horse Cave (Hart County). This study determined that the barn, which had been built in the early twentieth century, had been constructed with wooden pegs, and had a prepared clay floor. Other site-specific studies include monitoring of construction for a pipeline at the Floyd Collins site (15Ed11) in Mammoth Cave National Park (Edmonson County), which identified the location of a nineteenth century house site (DiBlasi 1988); and an ethnographic study of a late nineteenth century to present farm house in Logan County (Janzen 1986a, 1986b).

A mid-nineteenth to early twentieth century farm complex (15Ch569) within the confines of Fort Campbell, Christian County, was investigated. Foundation piers from several residences and other structures were documented (McNutt 2004).

A rural site in Logan County, the John Arnold Farmstead (15Lo168) was owned by a prosperous slave owning farmer, John Arnold, from the 1790s to 1840s (Andrews et al. 2004). The main house was likely a log dog-trot structure, with stick and mud chimneys. A second structure, interpreted as a detached kitchen/possible slave quarter, had a more substantial chimney, likely of brick, with a stone foundation. Midden deposits and features were documented. Analyses of the artifacts showed extensive purchasing of up-to-date ceramics, supporting a conclusion that the occupants in this frontier setting were not isolated from national markets. The calculation of ceramic cost index values suggests they kept up with national consumer trends, such as buying expensive tea wares, possibly to signal their participation in the more genteel dining patterns of the early nineteenth century. High quality furnishings and clothing also are

suggested by the assemblage. Faunal and ethnobotanical analysis (Coughlin 2004; Rossen 1995a) showed a rich and varied diet, with some decline in the use of wild game over time.

Taverns were an important component of most rural communities. Investigation of the Baber Hotel (15Mc1137) in McLean County documented intact midden deposits, refuse pits or cellars, wells, and posts (McBride and Fenton 1996). The artifact assemblage from this mid-nineteenth century tavern was especially rich in early to mid-nineteenth century decorated ceramics. The presence of smoking pipes and drinking vessels reflects the tavern's role as a social and civic center, where important meetings were held. Analysis of the ethnobotanical remains (Rossen 1995b) revealed the presence of a number of typical fruit trees or shrubs and species, such as Osage orange and American holly, which are not typical to the area. The presence of these plants is suggestive of extensive landscaping of the yard around the hotel building.

In addition to the Baber Hotel, limited excavations have been conducted at Bell's Tavern (15Bn109) in Park City. This study identified intact deposits and outbuildings associated with this mid-nineteenth century tavern (Seiter and Stottman 2007; Stottman 1999b).

The only major project undertaken within a large urban context in this section or the entire Pennryle Cultural Landscape consisted of an investigation of five lots along Center Street in Bowling Green (15Wa116 and 15Wa117) (Stottman and Stahlgren 2006). Analysis of the recovered artifacts and the spatial distribution of documented features (privies, cellars, trash pits, postholes, and foundations) focused on understanding changes in lot use over time, and the relationship of the Center Street area to the development of Bowling Green. In the early nineteenth century, as Bowling Green grew, the area along Center Street was platted into lots. Residential development in the area, however, was slow, and it remained quite rural into the 1840s, being comprised of several urban farmsteads. Although only around ten acres in size, the farmstead investigated during the course of this study was laid out much like larger plantations, consisting of a main house with domestic outbuildings in close proximity and slave/servant quarters located beyond that.

By the 1870s, land speculators began buying urban farmsteads in the Center Street area, as there was renewed interest in residential expansion in Bowling Green. Several of the middle and working class families that lived along Center Street were employed at the nearby Louisville and Nashville Railroad facility. During this time, smaller urban house lots became more defined on the landscape, as evidenced by fence posts, trash pits, and privies documented at sites 15Wa116 and 15Wa117. With the development of the Shake Rag African-American neighborhood, the Center Street area primarily became African American rental property, as middle and working class families moved up in status and to other neighborhoods. In the late nineteenth and early twentieth centuries, property owners subdivided their land into smaller lots, with one lot having as many as six houses. Sites 15Wa116 and 15Wa117 represent good examples of the research potential of urban deposits, even when the function of the house lots has changed through time, as they contain a record of these changes.

The only project in this section that has contributed to the study of African-American slave life was the limited investigation of the Forest Home site (15Wa103) in Warren County. This work documented the remains of a pit cellar and other deposits that may be the remains of one and perhaps two slave quarters (Stottman 1996a).

Industrial sites documented in this section include lime kilns in Logan County (Hockensmith 2007a), and a lithographic stone quarry in Meade County (Hockensmith and Coy 1995). This section is not well-represented in terms of cemetery studies. The McCutchen-Downy cemetery in Simpson County is the only mortuary site that has been investigated. It was mapped and two of the graves were excavated (Best and Applegate 2004; Davis et al. 2005).

EASTERN

Of the three sections that comprise the Pennyrile Cultural Landscape, the Eastern Section contains the fewest sites (Table 8.1). Not surprisingly, there also have not been a large number of historic archaeological sites investigated in this section, with almost all of this work being conducted since 1987). Some of the earliest work undertaken in this section was Fiegel's (1989, 1991; Fiegel and Henderson 1987) investigation of the Luther-Richards Farm (15Ru12 and 15Ru43) in Russell County. This project combined oral historical, archaeological, and architectural information to interpret a late-nineteenth farm complex that contained 16 standing outbuildings. Through an examination of the spatial distribution of artifacts, it was possible to delineate several activity areas (Fiegel 1989, 1991). The relationship between nail size and construction method also was explored, and it was suggested that greater rates of deterioration of smaller nails compared to larger ones, and different nail size requirements according to hardness of the wood, need to be considered when using nail data to interpret construction methods.

Other rural historic residence sites investigated in this section include Site 15Ad77 in Adair County (Bradbury 1996), the Abe Carter Farmstead (15Da33) in Daviess County (Creasman 1993), and the Cowan Farmstead (15Pu234) in Pulaski County (Huser and Lynch 2005). Investigation of Site 15Ad77 suggested that it contained the foundation remains of an early to mid-nineteenth century log cabin and possibly an associated outbuilding. The Abe Carter site contained the remains of an outbuilding that may have been used as a smokehouse. The artifacts, which dated from ca. 1840 to 1940, suggested a lower to middle socioeconomic status for the family that lived at this site (Creasman 1993). The Cowan Farmstead (15Pu234) contained a nineteenth century domestic residence, with only a few associated features, and a cemetery with six grave shafts: Robert Cowan and five unmarked graves (Huser and Lynch 2005).

Mill Springs Battlefield (15Wn2, 15Wn24, 15Wn73, and 15Pu131) is the only Civil War-related site investigated in this section (Miller and Walsh 1993). Two areas within the battlefield were metal detected to locate ammunition and other materials that could be used to interpret troop movements during the battle (Miller 1994). The results point to some relationship between the recovered remains and the location of battle lines

or positioning of troops. Miller notes, however, that these conclusions should not be considered definitive, since only one area was surveyed completely and another was only sampled.

A few industrial sites have been documented in this section. They include lime kilns recorded in Green County (Hockensmith 2004a); an early-twentieth century mill and wheel abutment in Pulaski County (Deiss 1987); and steam engine repair shop operated by the Cincinnati, New Orleans, and Texas Pacific Railroad in Pulaski County (Barrier and Haag 2005; Beverly 2005).

The only cemetery study that has been undertaken in this section was conducted in the mid-1990s at a small family or community cemetery in Metcalf County (Nancy Ross-Stallings 1996). Of the 18 grave shafts identified, only three were excavated. Analysis of the remains suggested a diet low in sugar but high in gritty materials. The organization of this cemetery was similar to that of the Upland South Folk cemetery pattern, with possible influence of Scotch-Irish traditions.

OHIO VALLEY URBAN CENTERS

By
M. Jay Stottman

LOUISVILLE

Historical archaeology in the Louisville area has largely been focused on plantations, farmsteads, and urban neighborhoods. Historic plantation sites that have been investigated include Locust Grove (15Jf541), Farmington (15Jf574), and Riverside (15Jf531). In the 1960s and 1970s, three different institutions (University of Louisville [Granger 1986; Granger and Mocas 1970; McGraw 1971], the Louisville Baptist Seminary [DuVall 1977], and Center College [DuVall 1977]) worked at Locust Grove. All of these projects were geared toward aiding the restoration or reconstruction of outbuildings, such as the springhouse (Granger 1986; Granger and Mocas 1970; McGraw 1971), ice house (DuVall 1977), or kitchen (DuVall 1977). Subsequent work also focused on outbuilding identification and reconstruction, but expanded to examine the lives of the slaves who lived at Locust Grove. From the mid-1980s to late 1990s, the University of Louisville excavated three slave cabins (Young 1995), a barn (DiBlasi 1997), and small outbuildings (DiBlasi 1997; Tillett 1998).

Amy L. Young's (1995a, 1995b, also Young et al. 1995, 1998) work focused on slavery at Locust Grove, and it represents the first extensive investigations of slavery in this cultural landscape. Young's research was conducted within the context of the Upper South Plantation model, which distinguishes the mixed farming economy, and smaller land and slave holdings of Kentucky plantations from those commonly found in the Deep South. Utilization of this model resulted in a more nuanced understanding of the condition of slaves who worked and lived at Locust Grove (Young 1995b). Slaves living in Kentucky and elsewhere appear to have developed their own culture and community, which helped reduce risk through the supplementation of the minimal housing, food, and health care provided by slave owners. Slaves were able to raise their own livestock and gardens, and store surplus food in pit cellars. The slaves at Locust Grove strengthened their community bonds by maintaining close ties to African traditions and religion as evidenced by the presence of charms and other religious artifacts (Young 1995a, 1995b; Young et al. 1995, 1998). Research conducted at Locust Grove has provided a solid foundation for slave studies in Kentucky, which has been augmented by research at other plantations (e.g., Farmington and Riverside). Taken together, this research points to the presence of a broader slave community beyond individual plantations in the Upper South.

In 1975, another restoration project of a former plantation estate, Farmington, provided the impetus for archaeological work, this time, a survey. Like the earlier work at Locust Grove, this study focused upon the identification of outbuildings (Wilson 1975). In addition to the survey, examination of a variety of historic documents was used to develop a detailed description of Farmington as a nineteenth century hemp plantation (Ottesen 1985). Ottesen's (1985) reconstruction of Farmington provides information on the numerous outbuildings that were once present at this site and agricultural activities

that took place there. These studies helped guide subsequent investigations of the summer kitchen and a slave cabin (McBride and Bellhorn 1992; Slider 1998; Stahlgren and Stottman 2007).

Investigation of a small cabin on the periphery of the domestic outbuilding complex at Farmington led to a better understanding of slave housing architecture on plantations in Jefferson County and the transition of such buildings from initial use by plantation owner, to a slave quarter, to a tenant house (Slider 1998). Artifacts recovered from the slave quarter, such as a pierced coin marked with an “x”, suggest that the Farmington slaves, like those at Locust Grove, participated in a distinct African-American subculture that involved interaction with other slaves and freed African-Americans (Stahlgren and Stottman 2007). Furthermore, archaeological research at Farmington has been conducted within the context of present-day politics of race relations and the interpretation of slavery for the public at this site (Stahlgren and Stottman 2007).

Excavations undertaken at Riverside, the Farnsley-Moremey Landing, a small Antebellum plantation and large Postbellum farm, have assisted in the identification and reconstruction of outbuildings including the detached kitchen, wash house, slave/tenant house, and barn (W. McBride and K. McBride 1989; Stottman and Watt-Roy 2000; Stottman and Prybylski 2005). This research also has examined changes in the spatial arrangement of domestic outbuildings from the 1830s to 1930s, as their placement shifted from the front of the house facing the Ohio River to the rear of the house, which had better vehicular access. Excavation of the detached kitchen found that the building was a timber-framed structure situated on a wood post foundation. This architectural style was likely used on many Upper South plantations, but few, if any, standing examples are known to exist in Kentucky (Stottman and Watts-Roy 2000). Artifacts recovered from the detached kitchen and the slave/tenant house, such as an “x” marked spoon handle and pierced George Washington commemorative token, suggest that at Riverside, like at Farmington, slaves participated in a distinct subculture that involved interaction with other slaves and freed African-Americans.

The ca. 1880-1930 washhouse represents one of the few archaeologically investigated buildings of this type in Kentucky (Stottman and Prybylski 2005). An extensive drainage system, a cistern, an outdoor kettle hearth, and a cesspool are among the features associated with this structure. Though primarily constructed to protect a water cistern, it is quite likely that a variety of work activities were undertaken within this structure. Most washing and soapmaking activities took place in the yard adjacent to the building.

All of the archaeological research at Riverside was conducted within the context of public archaeology, where the general public had the opportunity to participate in the research through a variety of public events and a field trip program for school children. Archaeology has become a central part of Riverside’s identity as a museum, which has helped make the site a symbol of pride for the surrounding community (Stahlgren and Stottman 2007).

The enslavement of African Americans was the focus of an archaeological investigation of slave houses at another well-known Louisville area plantation, Oxmoor

(15Jf647) (Young 1997). This study demonstrated that the site has the potential to add to the large body of data on plantations and slavery in the Louisville area.

Historic archaeological research associated with this cultural landscape also has been conducted at farmsteads. The farmsteads of the wealthy, as well as the emerging middle class of the mid- to late nineteenth century, have been the subject of historic archaeological research in the Louisville area. Extensive surveys were conducted at the Stony Brook house (15Jf676) (Stallings and Ross-Stallings 1999) and at Romara Place (15Jf709) (Stottman 2004), and limited excavations were conducted at a slave cabin at the Vulcan Rudy House (15Jf685) (Stottman 2001). Excavation of the Conrad/Dravo farmstead (15Jf676) focused on the lives of slaves owned by a middle class farmer and potter (Bader 1997). This farmstead was the home of Valentine Conrad, a redware potter in the small community of Jeffersontown (Bader 1997). The highly decorative redware ceramics and wasters recovered from this site demonstrate that highly styled redwares more common at Atlantic coast sites were produced and sold in Kentucky during the early nineteenth century. These investigations revealed much about the structure and spatial layout of wealthy and middle class farmsteads, which appear to have replicated their larger plantation counterparts. They likely represent the demise of the plantation system in the area, as plantations were divided up into individual farmsteads for heirs after the 1850s.

At the Johnson Bates Farmstead (15Jf538), an extensive investigation of several outbuildings was conducted (O'Malley 1987a). This work focused on the lives and consumption patterns of middle class farmers who lived on the periphery of a large city. Another rural farmstead house that has been investigated is the Villier site (15Jf110) in Jefferson County (Robinson and Smith 1979). Excavation of this site documented several features, including a cistern, a well, and two trash pits, and resulted in the recovery of a large artifact assemblage.

Rural residences, such the Hall-Standiford site (15Jf571), a late nineteenth century tenant house located on the property of Railroad magnet E. D. Standiford, have been examined archaeologically in the Louisville area (Stottman et al. 1992). Examination of this site provided important information on the lives of tenant families that were often part of large Postbellum farms owned by prominent businessmen. Analysis of the recovered artifacts suggested that tenant families were relatively poor compared to others living in the Louisville area.

An extensive survey of the Walton House (15Jf696), an early twentieth century suburban residence in the community of Anchorage, contributed to research on early twentieth century technological changes and suburban developments that took place along Jefferson County's interurban rail lines (Stottman et al. 2004).

Another major thrust of historical archaeological research in Louisville was the identification of historical archaeological sites located within the city park system (Granger 1983, 1984a; Stottman and Granger 1992). This program identified a variety of archaeological resources preserved within Louisville's urban parks, including George Rogers Clark Park, the location of Mulberry Hill, the Clark family home; Eva Bandman Park, where the remains of an urban houselot were found; and Thurston Park, the location of the Point Neighborhood (15Jf592-599). None of the resources identified were

assigned archaeological site numbers at the time, but the projects demonstrated that Louisville's urban environment had the potential for archaeological research, as several of the parks (e.g., the Point Neighborhood) later became the subject of more extensive archaeological excavations (see below).

Urban archaeology projects conducted in Louisville have been undertaken at a variety of sites, such as residential sites and neighborhoods, commercial districts, industrial sites, and religious sites. During the 1980s, initial attempts at urban archaeology suggested that Louisville's central commercial district had a low potential to contain intact archaeological deposits. These projects included limited excavations and monitoring at the Galleria, Louisville Science Museum, and the Jefferson County Court House (Granger 1983; Otto and Granger 1982). Based on this work, it was thought that most evidence of Louisville's earliest settlement and waterfront/commercial district had been destroyed by years of development. Extensive excavation of the Louisville Convention Center site (15Jf646) in 1995 and more limited excavation of the Muhammad Ali Center site (15Jf697) in 2003, however, have shown that in some areas, intact significant historic features are preserved below considerable demolition debris and overburden (Bader 2003; Stottman 1995a, 1998, 2000a).

Three residential lots that contained brick and wood-lined privies and a cesspool feature were examined at the Convention Center site (Stottman 1995a, 2000a). Analysis of the artifacts discarded by the residents of three different households shows that their historically documented economic status match the index values of their respective ceramics. Faunal and botanical remains also point to economic disparity among these three households, such as the lower class preference for pork and wild game compared to the middle class household preference for beef. Chicken and other fowl were eaten in large quantities by all late nineteenth century households, and the presence of purple cherry and tomato demonstrates the increasing popularity of these plants.

There were, however, some inconsistencies in the Convention Center data. For instance, the wealthiest household had relatively low ceramic index values compared to other wealthy household index values in Kentucky and nationally. Also, the lower class households had purchased some upper class type items, such as teawares. The middle class household preferred the latest fashion in ceramics, while the wealthier household did not. These inconsistencies demonstrate some of the problems with economic scaling and indicate that a variety of factors need to be considered when interpreting economic indexes, including curated dishes, household make-up, and personal preference. Also, increased access to goods could make some high status items more available to lower classes through the sale of damaged goods (scratch and dent). The data from the Convention Center site led to a better understanding of consumerism in urban areas, where a variety of factors need to be considered beyond economic capabilities. Residents of cities likely had better access to goods and to a greater variety of markets, such as cast-off dishes from wholesalers, than those living in more rural areas. As such, economic indices may make them appear to have had a higher standard of living than they actually did. Recognition of differences that the urban and rural poor had in regard to access to goods has the potential to contribute to regional and interregional studies of consumer patterns.

At the Muhammad Ali Center site (15Jf697), several early wood-lined privies and a brick-lined privy associated with a mid- to late nineteenth century wholesale pharmacy were found (Bader 2003). Data from the pharmacy privy provided insights into Louisville's prominence as a regional wholesale drug supplier during the late nineteenth to early twentieth century. Analysis of whole bottles recovered from the privy documented the variety and quantity of pharmaceuticals produced by the company. Coupled with the discovery of an original formulary book from the company, the bottle assemblage provides a glimpse at the types of treatments that drug companies marketed to the public for the wide range of ailments that inflicted nineteenth-century America. The archival and archaeological data also show how the wholesale drug distribution system worked, with regional companies, like the Robinson Pharmacy, distributing ingredients to local druggists who used formulary books to make the drugs. In some cases, wholesale druggists produced specific patented products, as evidenced by some bottles recovered from the Robinson privy.

The archaeological investigations of Louisville's historic neighborhoods have focused on understanding residential and commercial lots (McBride 1993; Stottman 1995b; Stottman and Granger 1993; Stottman and Watts-Roy 1995). A neighborhood scale of analysis provided data on a cross-section of Louisville's nineteenth century population with regards to a variety of research topics, including sanitation, socio-economic status, consumerism, race, ethnicity, and health. Research at 15 lots in Highland Park (15Jf607-623, a late nineteenth to early twentieth century neighborhood, found distinct racial and class differences with respect to privy vault construction (Stottman 1995b; Stottman and Granger 1993). The construction of privy vaults in the Highland Park neighborhood was unregulated, which led to a high degree of variability. Vaults identified in the African-American section of the neighborhood were poorly constructed, shallower, and typically made with salvaged materials, while those constructed in the white section tended to be better constructed, deeper, and conformed more to the standards of construction used within the city limits of Louisville. This study points to the presence of distinct socioeconomic differences based on race during the late nineteenth to early twentieth century, a time of intense racial segregation in Louisville (Stottman 1995b).

Research at 10 lots in Russell (15Jf600-606 and 15Jf624-626), a mid-nineteenth to early twentieth century neighborhood, examined issues related to identity through religious motifs, ethnic markers, and socioeconomic status (McBride 1993a; Stottman and Watts-Roy 1995). Excavation of a lot owned by an Irish Catholic widow produced artifacts indicative of her background, including items with religious motifs. A lot that contained a drug store owned by German immigrants produced many ethnic related artifacts, such as German porcelain and decorative motifs. It also yielded a set of a set of dishes featuring a swastika. These ceramics were found in a 1930s context and it is possible that they were discarded since the meaning of the swastika and its desirability for consumers, particularly German immigrants, changed during the course of World War II. Socioeconomic status was examined by comparing the material remains of a wealthy widow with those associated with a middle-class family. The disparity between these two families reflected in the historic documents was much greater than that indicated by the archaeological record. It is possible that the middle-class family was able to live beyond their economic capability by renting small houses on the back of their lot to

African-Americans (Stottman and Watts-Roy 1995). Numerous beverage and medicine bottles recovered from the project area reflected late nineteenth to early twentieth century changes in consumer demand from local to national brands.

Data from privies excavated at the Convention Center, Highland Park, and Russell was used to examine sanitation through privy vault deposition, vault architecture, and associated artifacts (Stottman 1996b, 2000b). It was found that privies became the place to not only dispose of waste, but also any unwanted items. Other privy deposits, such as extensive cinder and ash layers that date to the early 1900s, are related to broader sanitation initiatives by the city of Louisville. These deposits were likely related to Louisville's trash separation policy, which left the disposal of cinder and ash up to the property owner. Abandoned privies and cisterns became convenient places to dispose of these materials.

Privy vault architecture was examined in the context of sanitary perceptions of the time and the extent to which it conformed to laws that regulated privy construction. It was found that Louisville's privy construction laws were based on an out of sight-out of mind philosophy. The archaeological record showed that most property owners conformed to these laws by constructing their privies to the city's specifications. It also showed that some privy vault builders took liberties with the law, such as with the requirement to brick the sides and bottom of the vault, as some builders used loose bonding and no floor, which allowed privy contents to wash into the water table. As would be expected, residents of communities lying outside of the Louisville's jurisdiction were not required to construct privies that conformed to these specifications. But surprisingly, since they were not as deep, these privies were often more sanitary than those constructed within the Louisville city limits. Artifacts recovered from privies throughout Jefferson County reflected the focus on sanitation at the time, which emphasized the color white. This corresponded to the rise in popularity of undecorated white granite at the end of the nineteenth century.

Eight city blocks were examined in the Point Neighborhood (15Jf592-599), which was occupied from the late 1700s to late 1800s. Extensive investigation of this neighborhood documented well-preserved residential, commercial, and industrial sites (Esarey 1992; McKelway 1995). A wide range of features were identified, including privies, wells, cisterns, foundations, walkways, fence posts, and trash pits. Limited excavations also were conducted at a single house lot in Parkland (15Jf572), a late nineteenth to early twentieth century neighborhood located in southern Louisville (Stottman et al. 1991). A privy and a cistern were investigated in association with this project, and a large amount of artifacts were recovered. These artifacts represent three distinct periods of the lot's history: its development (1870s to 1910s); main period of occupation (1910s to 1950s); and its demolition (late 1900s).

Other urban communities studied archaeologically included former river towns that have since become neighborhoods of Louisville. A survey of the Portland Wharf site (15Jf418) encompassed six city blocks and the wharf from the original town of Portland, founded in 1811 (Stottman and Prybylski 2004). The survey documented intact house foundations, privies, cisterns, roads, and sidewalks. Across the Portland Canal from Portland, excavations conducted at the former town of Shippingport (15Jf702),

established in 1806, documented building foundations, privies, cisterns, and trash middens dating from the early to late nineteenth century (Bader and French 2004).

Other types of properties that have been investigated in Louisville include industrial, religious, commercial and military sites, and cemeteries. Excavation of the Thomas Pottery (15Jf599) (Esarey 1992; McKelway 1995) and the Lewis Pottery (15Jf658) (Stradling et al. 1998; Stradling and Stradling 2001) have provided a glimpse of Louisville's nineteenth-century pottery industry. On the outskirts of Louisville, the excavation of Ward's Mill contributed to our understanding of core/periphery relationships within the local economy (Granger 1984a). McBride et al. (1988) conducted survey and background research on Fisher's Mill (15Jf551), a nineteenth and early-twentieth century grist mill in Jefferson County.

Extensive excavations conducted underneath the Cathedral of the Assumption in central Louisville produced important information about life at the church in the mid-nineteenth century (Mansberger 1990, 1995). Excavations at the Old Stone Bank (15Bu537), an early nineteenth century bank building in the nearby town of Shepherdsville, identified intact deposits from the town's early settlement (Stottman 1999a).

Historic archaeological research was conducted at Fort Duffield (15Hd465), a Civil War fortification located near the community of Westpoint, just southwest of Louisville in Hardin County (O'Malley 1999b). This study examined the earthworks and soldier's huts, which were part of a series of fortifications built by the Union to defend Louisville. Investigations undertaken by the University of Louisville at Greenwood, Eastern, and Western cemeteries provided important information about cemetery layout, operations, and the reuse of graves (DiBlasi 1995; DiBlasi and Urban 1993).

A considerable amount of historical archaeological research has been conducted at the Fort Knox Military Reservation located just southwest of Louisville in Hardin and Meade Counties. Most of the work at Fort Knox has focused on identifying sites at the survey level. However, several more intensive research projects have been conducted. A documentary and archaeological investigation of the former town of Pitts Point, founded in the 1830s, represents one of the few attempts to examine an entire nineteenth century rural town (O'Malley 1996a). A number of lots were investigated, which included some above-ground structural remains.

Significant research also has been conducted at mill sites located within the boundaries of Fort Knox. This research included an extensive review of the documentary record and an archaeological survey of the milling industry (Holmberg 1991; O'Malley 1996b). Much of this research focused on Garnet's Mill (15Md185) and Owenton's Mill (15Md164) (see also Wheaton 1987 for limited testing at Garnettsville). This research provided a detailed summary of the milling industry in the region, including grist, saw, and textile mills.

NORTHERN KENTUCKY

The number of historical archaeological sites identified in the Covington-Newport and Northern Kentucky area has increased greatly over the last 15 years due to cultural resource management projects associated with airport expansion and road improvements. While a large number of historical sites have been identified, few have been extensively investigated and only a few projects have generated significant data to address research questions. Historical archaeological projects that have been conducted in the Covington-Newport area primarily focused on rural farmsteads and plantations, Civil War fortifications and urban centers.

Rural habitation sites that have been excavated in this region include the William Rouse site (15Be499), a mid-nineteenth century farmstead with a log house (Breetzke and Warminski 2001); Site 15Cp56, an early to mid nineteenth century log house; the Orth Family farmstead (15Cp57), a late nineteenth to early twentieth century farmstead (Purtill et al. 2001; Weed et al. 2005); Sites 15Be310 and 15BE311, mid-nineteenth century African-American house sites (Edging 1987); and the Dinsmore Homestead (15Be345), a nineteenth century farmstead (McBride 1991; McBride and McBride 1994). The latter contains the remains of early to late nineteenth century features, midden, and a tenant house (McBride 1991; McBride and McBride 1994). Investigation of these sites has contributed to the growing body of data on the development of farmsteads and rural residences from the early nineteenth to early twentieth centuries. In particular, Site 15Cp56, one of the few early nineteenth century residences investigated in the Northern Kentucky area, demonstrates that many of these sites are rather ephemeral archaeologically and thus difficult to locate.

Maplewood (15Be483) is the ca. 1850 plantation of Archibald Gaines (McBride and Stottman 2007). Maplewood has gained some notoriety because of its association with the Margaret Garner story, made famous in the book *Beloved* by Toni Morrison and subsequent motion picture. Garner was likely a slave at Maplewood prior to her escape and subsequent capture in Cincinnati. Investigation of this site documented features associated with Antebellum domestic outbuildings, possibly slave houses and a kitchen, and foundations of the Gaines house.

Several projects have focused on the system of forts and batteries that were constructed to protect Cincinnati during the Civil War. The first investigation of these fortifications was conducted by the Behringer-Crawford Museum, which examined Civil War earthworks in Covington's Devou Park (Harper et al. 1981). This study was designed to collect information on site structure and verify information from period diaries and other sources about site use and a nearby military road. In 1994, the museum conducted an extensive survey of the entire fortification system, examining 28 fort and battery locations. Of these, nine contained intact archaeological remains, such as earthworks, rifle trenches, and powder magazines that warranted the assignment of a site number. They include Battery Coombs (15Ke116), Battery Bates (15Ke102), Battery Perry (15Ke123), Battery Hooper (15Ke120), Battery Hatch (15Ke124), McCrae Battery (15Ke122), Fort Whittlesey (15Cp55), Battery Holt (15Cp49), and Battery Shaler

(15Cp50) (Kreinbrink 1981, 1996). Additional work conducted at Battery Hooper in 2005 focused on excavation of the powder magazine (Kreinbrink 2006).

Several urban archaeological projects have been conducted in the Covington-Newport area. Limited excavations at the site of the U.S. Courthouse in Covington documented several features, such as wells and cisterns (Joseph and Yallop 1998). Kreinbrink (1993) conducted limited excavations at the Kenton County Courthouse in Independence, Kentucky. A foundation and cellar and midden deposits were located.

In 1986, investigation of industrial, commercial, and residential lots within a three-block area adjacent to the Ohio River resulted in the excavation of a large number of features, and generated important information on the development of the Queensgate area of Covington (Genheimer 1987). The primary focus of this study was use of this neighborhood from the late 1820s to the mid-twentieth century. Of the 80 features documented at this site, at least 26 were classified as residential or commercial privies or cisterns. Others consisted of industrial features associated with the Covington Pottery and Hemingray Glass factory. Analysis of the recovered botanical (Gremillion 1987) and faunal (Murphy 1987a) remains indicated that a wide variety of species had been utilized by the inhabitants of this area, while remains collected from the industrial components generated information on glass and ceramic production in northern Kentucky.

To the south of the Queensgate research area, Genheimer (1993) excavated a mid-nineteenth century upper middle class houseslot (118 East 11th Street). A stone-lined privy that contained deposits dating from 1850-1864 was documented at this site.

The data collected from these projects was used to examine several urban research topics, such as privy depositional patterns, sanitation, consumerism, and pottery manufacturing (Genheimer 1988b, 1995, 2000, 2003). As part of this research, Genheimer (1995) used artifact functional patterning to examine privy vault deposition. In northern Kentucky, he found that privy deposits, as with other sealed refuse deposits or urban domestic artifact middens, were dominated by kitchen-related artifacts. However, the Ohio Valley Urban Privy Pattern exhibited significantly lower percentages of architecture group artifacts than most other domestic contexts. While the observed patterns are closely tied to local context, the methodology employed should be applicable in other urban settings. Genheimer (2000) also examined consumerism on a city scale of analysis rather than on an individual site or neighborhood scale of analysis. Through an examination of the geographical origin of artifacts recovered from privies, such as bottles and ceramic vessels, he attempted to understand Covington's historical identity as a southern city with northern consumption habits.

There have not been many cemetery projects in this section. Bybee (2003a) excavated a cemetery in Campbell County. Though the skeletal remains from the 15 interments were too fragmentary to contribute to our understanding of nineteenth century health, analysis of the coffin hardware and personal items helped date the burials to ca. 1830 to 1900. The layout of this cemetery conforms to the typical Upland South folk pattern. Aside from the work mentioned above in Covington, little industrial archaeology has been conducted. Kreinbrink (1998) has provided an overview of the rise and decline of the mill industry, which was very important in the rural and regional economy.

BLUEGRASS

INNER BLUEGRASS

Pioneer stations are an important site type in this section, since the Bluegrass Cultural Landscape was the locus of the earliest Euro-American settlement in Kentucky. These types of sites are somewhat more common the Inner Bluegrass Section than the Outer Bluegrass Section. O'Malley's (1985, 1987b) study of historic stations was one of the first to systematically examine these types of sites. While they are generally individual residences, they also consist of clusters of households who banded together for protection from Native American raids. Through extensive documentary research, she identified 158 stations, and conducted fieldwork at 61 of them. Based on the results of this study, O'Malley (1987b) provided detailed description of the location, structure, size, and composition of stations, and assigned them to chronological periods that are similar to Hudson's (1969) colonization stages. Since this publication, O'Malley has undertaken more intensive investigations at Todd's Station (15Fa167) and Boone's Station (15Fa218) in Fayette County; Grant's Station (15Bb76) in Bourbon County; and at McGary's Station (15Me48) in Mercer County (O'Malley 1999a, 2002b; O'Malley and Hudson 1993). She also developed an historic context for (O'Malley 2002a, 2006) for McConnell Springs (15Fa237) another important early settlement site in Lexington. This work has provided additional information on the spatial organization of stations and resulted in the recovery of frontier period artifacts.

Station or fort sites that have been more intensively investigated are Logan's Fort (15Lo168), Fort Boonesborough (15Ma123), and Constant's Station (15Ck461). Limited excavations at Logan's Fort (McBride and McBride 2000a) in Lincoln County resulted in the recovery of late eighteenth century artifacts and documentation of a cellar feature. Recovery of the skeletal remains of William Hudson helped verify that the cellar was located within the fort. Documentary accounts of the attack on the fort detail the death of Hudson. He had been scalped (cut marks were observed on his skull), and his body buried under the floor of one of the fort cabins.

Fort Boonesborough, which is located in Madison County, is probably the most famous of all Kentucky pioneer sites. Supplemented by detailed archival research, a survey and limited excavations were conducted during the fall of 1987 (O'Malley 1989a) in an effort to find the remains of the fort. This investigation resulted in the collection of eighteenth century artifacts and the identification of several features, including large postholes, at least one limestone chimney base, and a hearth containing a great deal of faunal remains. Several other historical archaeological sites associated with the settlement at Boonesborough, such as scattered residences, a tobacco barn, a stagecoach stop, a historic station, a sulphur well, and a freshwater spring, also were investigated during this project (O'Malley 1989a).

Kreinbrink has conducted excavations at a site in Clark County that is most likely Constant's Station (Hutchinson and Kreinbrink 2005). Late eighteenth century artifacts were recovered and archaeological remains include piers and a chimney base from the

main house. This matches historical accounts that the house was on piers, since during an attack by Native Americans, some of the settlers reached safety only by coming into the house through an opening in the floor.

Farmsteads and plantation sites are the single most common category of sites investigated in this section, as they are in most sections. An unusually large amount of work has been conducted in association with the widening of U.S. 27/68 (Paris Pike) between Lexington and Paris, Kentucky, and other highway projects. Since so many projects have been conducted, this discussion will be arranged by county.

Beginning in northern Bourbon County, a number of historic farmsteads or farm residences were investigated in association with the realignment of U.S. 68 north of Paris. Of these, Neal's Old House (15Bb131), Current's Inn (15Bb133), T. Champ's Inn (15Bb137), and Site 15Bb132 contained intact deposits with beginning dates ranging from the 1810s to 1830s (Bundy 2006). The T. Champ's Inn site, in particular, yielded an especially rich artifact assemblage, with areas of stratified deposits, and several early nineteenth century features.

Not far south of Paris, along Paris Pike, the Wright House (15Bb127) site was investigated as part of the widening and realignment of this historic road (Barber 2005). The extensive changes to the 1840s house that took place in the 1880s were linked with an important household event: the remarriage of the owner at that time. The project generated information concerning several outbuildings, walkways, and activity areas (attesting to the heavy use of the yard), and recovered a rich assemblage of domestic artifacts and faunal remains. The high proportion of flatware ceramic vessels corresponded with the high proportion of high value meat cuts, with little wild game present. The botanical assemblage was especially interesting, showing a high level of diversity and the presence of many fruits, herbs and spices, and ornamentals.

Further south along Paris Pike was the site of William McConnell's Homestead (15Bb75). This site was an early homestead, rather than a "station" in any defensive sense, even though it may have been called this (Day and Clay 2002; Day 2007). The excavations focused on the main house, and comparisons were made to the architecture of several standing structures. The interior layout of this house compared favorably to those located in southeast Pennsylvania and to those with northern Irish architecture influences. Outbuilding foundations also were investigated. The artifact assemblage was most similar to domestic sites, not to tavern sites, which typically have higher ratios of smoking pipes and drinking glasses. The dominance of pig bones in the faunal assemblage was related to the Upland South dietary pattern. Surprisingly, deer was not present within the wild game component of the faunal assemblage. The ceramic analysis indicated a fairly high status assemblage, with many flatware vessels, adherence to the latest trends, and high market participation. Overall, this site contributes to our understanding of the transition from frontier settlement to mid-nineteenth century middle class farm life.

Ready access to consumer goods and active participation in commercial consumer markets also was documented at the Martin House (15Ck478). This site is located within the Lower Howard's Creek Nature Preserve in Clark County, and is probably more remote and removed from the transportation routes today than it was when settled and

tied in to river-oriented commerce and transportation. The house is part of a complex of early industrial sites (mill and bourbon factory) that were surveyed (Thomason and Barber 2006), but only the house received more intensive investigations (Rotman and Thomason 2003). The faunal assemblage showed a substantial contribution from wild game compared to the Wright site, but as with many sites, pork was a strong contributor to the diet.

The Armstrong Farmstead (15Fa185) contained remains of at least two houses, a spring house, and several midden areas (Barber 2005). The layout of the domestic complex was unusual, with two houses that may have overlapped in time. The house occupied by the site owners may have been the smaller of the two structures. Detailed documentary research revealed complex household composition, with boarders present at some times. The family also owned slaves. While the slaves may have occupied the second structure, it is also possible that the slave quarters were located outside the project area. Analysis of the materials recovered from a trash pit and the midden situated between the two structures pointed to a variety of domestic activities including children's play, sewing, and smoking. The sewing related artifacts were especially interesting since the documentary research indicated that Mary Armstrong was a tailor. This area also may have contained some sort of shed building, though no definite structural remains were located.

The documentary research on the Armstrong Farmstead also helped illuminate the farming strategy of the family, which focused more on raising swine than many neighboring farms that focused on cattle. This site, like all the others investigated along Paris Pike, showed the influence of being on a major highway, with ready market access to consumer goods. Interestingly, there was little difference in the material culture found at the two structures. Much of the family meat was likely purchased, as suggested by analysis of the faunal remains. Most of the ceramic forms found were flatware, which also suggests preparation of cuts, such as roasts or steaks, in contrast to stews or soups. As has been documented at several other sites, pork accounted for a larger portion of the diet than beef. The presence of corn, wheat, oats, and rye in the botanical assemblage points to local processing versus purchase of milled flours (Bonzani 2005). The botanical assemblage also contained Old World weeds (Bonzani 2005).

Another site examined in advance of a highway project in Fayette County is Site 15Fa228, which was located along U.S. 25 north of Lexington (Picklesimer et al. 2004). This site, which may be associated with the James McNeil family in the 1830s, was found to contain midden deposits and foundation remains that may date from the early nineteenth century. Ceramics, nails, and other artifacts yielded a mean date of 1834). A similarly short occupation was documented at Site 15Fa280, a domestic residence that may have been occupied by the J. H. Williams family in the 1840s to 1870s (Wampler et al. 2005).

Late nineteenth to early twentieth century rural farmstead deposits also were documented at the Barker site (15Fa220) (O'Malley and Hudson 1993). Another domestic site to receive limited excavation is the Degaris site (15Sc154) in Scott County (Sharp and Jefferies 1986).

Limited investigation of the Keene family estate (15Fa287) in Fayette County documented midden deposits around the Keene house and an artifact concentration spanning the early nineteenth to twentieth century. The latter contained a large amount of kitchen artifacts dating from the 1820s to 1860s (Madsen et al. 2004). Work also was conducted at the Elijah Foley House (15Fa231), a nineteenth century historic farm residence situated on the southern end of Fayette County (Stottman and Hockensmith 1998).

Several farmsteads have been excavated in Franklin County. The Parrent site (15Fr138) is a mid- to late nineteenth century site occupied by Charles Parrent (likely a schoolteacher) and his family. Limited excavation documented intact midden but no features, such as foundations, trash pits, or privies. Analysis of the domestic artifacts suggested a fairly frugal household economy (Stallings 2003). Yet the presence of more expensive tea wares, suggested participation in the genteel dining and tea-taking rituals popular in the nineteenth century.

Much more extensive excavations were conducted at the Lemuel Taylor farmstead (15Fr96) north of Frankfort (Andrews 1997). The site dates from the 1870s to the 1930s. The farmstead consisted of a house with a barn/blacksmith shop to the north and a stock barn to the south. Analysis of the artifacts associated with the shop pointed to general blacksmithing activities, such as tool repair, horseshoeing, wagon repair, tinkering, and the manufacturing of architectural hardware. The hilly nature of the farm was mitigated by a complex system of rock walls, dams and terraces, which helped create more usable land. Like the assemblage from the Parrent site, the artifact assemblage from the Taylor farmstead is suggestive of frugality and unpretentiousness. It was composed mostly of undecorated ceramics, with no sets represented, and a very low proportion of serving vessels (which typically correspond to higher status assemblages). Glass vessels were scarce, with few fancy tablewares and a low number of bottles (typically frequent on late nineteenth century sites). The faunal assemblage was composed largely of cheaper cuts of pork, supplemented by wild game. In contrast to the artifact assemblage, the agricultural census indicated that the Taylors' productivity was higher than most neighboring farms.

Investigation of the Joel Frazer house (15Hr42) in Harrison County documented that it was occupied from ca. 1815 to 1850, and was used as a hospital and for storage during the Civil War (Allgood 2004; Mabelitini 2008). Intact remains of the foundation of a six-room brick house, two cellars, and midden deposits were found at this site. Based on changes in ceramic decorative styles and types, Frazer's socioeconomic fortunes improved from the early to mid-nineteenth century. The earlier deposits contained less expensive wares, such as undecorated creamware. Most of the vessels were shell-edge decorated wares, which were the cheapest decorative tableware for most of the nineteenth century. The mid-nineteenth century assemblage exhibited an overall increase in vessel forms. This assemblage also contained more expensive wares, such as matched sets of overglaze painted English porcelain teawares and tablewares. The domestic occupation of the house ended between 1848 and 1850 when Dr. Frazer purchased the much fancier Joel Frazer house that still stands nearby. The house later functioned as the Union Army hospital associated with Camp Frazer from December 2, 1861 to July 17, 1862, when it was burned by Confederate General John Hunt Morgan's

troops during the First Battle of Cynthiana. A portion of the house may have remained standing and was used for storage by the Quartermaster of the 45th Ohio Volunteer Infantry, who burned it on September 2, 1862).

The William Whitley House (15Li55) in Lincoln County is an important early farm residence. Investigations conducted at this site have documented a number of architectural and landscape features, such as scaffolding posts and a cart path, and an ashy midden (O'Malley 2000; Linebaugh and Loughlin 2003; Winter and Henry 2006). The latter likely dates from the late nineteenth century and points to use of the basement fireplace at this time. Units excavated below the floor of the gift shop identified intact midden deposits from the 1830s.

Also located in Lincoln County, the Vardeman House (15Li188) was a late eighteenth to mid-nineteenth century farmstead (Madsen et al. 2005; Sussenbach 2000). The site contained an intact sheet midden, subsurface features (many posts and seven trash pits) associated with the John, Morgan, and Jeremiah Vardeman families. Even though no structural features associated with the main house were located, the distribution of artifacts (especially window glass and nails) and soil chemistry, along with some fence posts, was used to hypothesize the house's location, its eastern orientation, and the boundaries of the house yard. The material culture assemblage, combined with documentary data, confirmed the family's high socio-economic position within Lincoln County. Analysis of the ceramics highlighted their ability to acquire locally produced and imported commercial goods, which reflected their participation in the Georgian consumer movement (Deetz 1977). The high percentage of pig bones in the site faunal assemblage was related to the Upland South Pattern.

One of the more famous plantations in Fayette County is Ashland (15Fa206), which was owned by Henry Clay. Originally over 500 acres in size, today it consists of 19 acres managed and interpreted by the Henry Clay Memorial Foundation. The site includes the main house and several outbuildings. Surveys of this property in the early 1990s and early 2000s documented rich midden deposits in the back yard, the original ground surface and brick skirting around the front of the house, and a limestone-lined below-ground storage structure, much like a nearby standing ice house (McBride and McBride 1991b; McBride and Miller 2003). The remains of several nineteenth century barns also were documented. Two horse burials (one pre-term and the other about one year old at the time of death) were associated with one of the barns. The location of the barns not far from the house, and to the side and front of the house, is unusual. The lack of outbuildings located to the rear of the house is very interesting and unusual compared to typical plantations in the South, and may relate to Henry Clay's ideas about English landscapes. Family correspondence includes mention that the area behind the house was not to be used for farming; it was seen as a pleasure ground.

Among the features excavated at this site were two privies: one was a 16 foot deep privy vault with a standing brick privy structure; the other was an earlier stone-lined privy that was abandoned when the main house was rebuilt in the 1850s. The ceramic assemblage from the later privy included many European porcelains and a wide range of specialized serving vessels that are typically related to large dinners and social events, and very formalized dining. Analysis of a sample of these artifacts indicated that the assemblage contained a variety of expensive ceramics (ceramic cost index values of 3.49

or 3.29) for the earliest levels (McBride 1993b; McBride and Esarey 1995). The stone-lined privy vault contained a very dense assemblage of artifacts that may relate to housecleaning in preparation for the rebuilding of the house, or the turnover of ownership to Henry Clay's son James Brown Clay following Henry Clay's death in 1852. Like the assemblage from the later privy, the assemblage from this privy is composed of very expensive ceramics, glassware, and personal artifacts (McBride and Miller 2003).

The storage tank and repair access chamber of the Springfield gas works in the front yard was documented in the late 1990s (Linebaugh et al. 2000; O'Malley et al. 1999). Excavation of this feature and historical research provided insight into the introduction of gas lighting, as Ashland was one of the first houses in Lexington to have this modern convenience.

Henry Clay and his heirs owned between 50 and 60 slaves, and the 1860 slave census indicated Ashland included six slave houses. Their location had not been known until the archaeological survey located remains near the present formal garden. Only a small portion of these houses have survived due to impacts from installation of this garden in the 1950s. Although no intact foundation walls or piers have survived, several shallow storage cellars, such as were common underneath slave structures, have been excavated and a wide range of artifacts recovered (McBride and Miller 2003).

Waveland (15Fa177) is another mid-nineteenth century plantation site that has been documented in Fayette County. The project resulted in the excavation of several trash pits and a midden area located between the slave quarters and the smokehouse. This midden contained a large amount dietary remains, especially faunal remains. The predominance of ribs and pig knuckles suggests that the slaves consumed poorer cuts of meat (Pollack and Hockensmith 1985; Walters 1985). A comparative analysis of the ceramics from Waveland and Liberty Hall (see below) resulted in a lower status assignment for the Waveland assemblage, which was largely recovered from the vicinity of the slave quarters (Henderson 1985).

Another high-status nineteenth century site, Chaumiere Du Prairie (Fayette County), was excavated by Livingston (1983a). These excavations located several early nineteenth century structures and resulted in a collection of over 10,000 artifacts. The lavish consumption recorded historically for the residents of this site makes this collection a particularly important one.

Kinkeadtown (15Fa214) was a Postbellum neighborhood in Lexington developed by George Kinkead in 1868 for African-American families (O'Malley 1990a, 1996c, 2003). In its first decades, the neighborhood was occupied by working class families who typically owned their homes. As Lexington grew, this semi-rural neighborhood became fully urbanized, many of the lots were subdivided, and more houses were occupied as rentals. Excavation of 12 house lots focused on backyard middens and features, such as trash pits and privies. The high number of decorated ceramics, with some evidence of matching sets, and large quantity of fancier glasswares, was interpreted as reflecting the household aspirations. The acquisition of these goods by working class Kinkeadtown households indicates that they strove to obtain many of the same things as their middle class neighbors.

Another Postbellum Lexington neighborhood that has received archaeological attention is Davis Bottoms (15Fa284) (Haney 2004; Faberson 2006). Although the neighborhood is predominantly white today, its 1867 roots indicate that it originated as a largely African-American neighborhood. Documentary research shows a similar trend to that documented at Kinkeadtown, with a shift away from home ownership to house rental by the early twentieth century.

Other projects undertaken in Lexington include the excavation of six residential lots that were occupied from the 1790s to the mid-twentieth century (K. McBride and W. S. McBride 1989; O'Malley 1987c; Rossen 1992). The six lots were private residences for a variety of persons, including a free black woman, local craftsmen and their families, and physicians and their families in the late eighteenth and nineteenth century. By the twentieth century, these properties had become boarding houses and office buildings.

Only a few blocks away from these urban lots was the 17 acre urban estate of U.S. Senator John Pope (15Fa205). In 1810, Pope commissioned architect Benjamin Henry Latrobe, often called the first professional architect of the U.S., to design his Lexington home. Latrobe designed many famous buildings, including the U.S. Capitol. The Pope Villa is one of only three Latrobe residences extant in the U.S. Archaeological investigations undertaken at this site generated information on how the original portico was constructed (McBride 1992a; McBride and McBride 1991a). It also provided important information about many other architectural aspects of the house, and documented a sequence of changes at the Villa. One of the more interesting findings was how, over time, the Pope Villa was altered to resemble more typical Kentucky houses, and to move away from Pope's classical influenced design. For example, stew pots and a large bake oven shown in Latrobe's plans were not built. Instead, the house was initially fitted with a large cooking fireplace, and eventually a detached kitchen.

Another urban residence investigated within this section is Liberty Hall (15Fr369), a house museum located in downtown Frankfort (Franklin County). Investigation of Liberty Hall, built in 1796, yielded information on a number of outbuildings and architectural features, and resulted in the collection of over 31,000 artifacts (Fay 1983, 1986; Hockensmith 2007b).

Several public or institutional buildings have been investigated in Franklin and other counties in this section. Deiss's (1988) investigation of the Frankfort Public Square (15Fr140) resulted in the excavation of a late-eighteenth to mid-nineteenth century jail. The jail had been partly converted in the mid-nineteenth century to a privy. Over 34,000 artifacts were recovered, and they, along with the excavated features, were used to examine the changing scale and focus of this governmental site during the nineteenth and twentieth centuries. Another, but more limited investigation of a jail site in Frankfort, is DiBlasi's (1983) work at the Frankfort Workhouse (15Fr83), which was constructed on top of a portion of the Old Frankfort Cemetery (15Fr154) (see below).

Another institutional site investigated archaeologically is Bethel Academy (Jessamine County), a 1790s to 1820 school (Livingston 1983b). This research not only generated information about the structure of the building, including a nearby brick kiln thought to have been used to fire the bricks for the structure, but produced a large quantity of artifacts.

Commercial buildings investigated in this section include taverns and hotels. Higbee Tavern (15Fa222), is an early nineteenth-century tavern that was intensively investigated in southern Fayette County, not far from Lexington (Day 2004). The main tavern building and several outbuildings, including a possible slave quarter, were delineated, and several domestic features were recorded. The large archaeological assemblage provided insights into the cuisine consumed by tavern guests, tavern material culture, and tavern life. Among the more interesting findings, data indicated that while guests consumed a lot of pork, as was expected, they also ate a wide array of wild game. Moreover, based on the presence of many sewing artifacts, clothing repair may have been a service provided by taverns (Day 2004). Not surprisingly, the artifact assemblage contained a large number of smoking pipes and drinking vessels. Limited excavations also were conducted at the Young-Brown Hotel (15Bb128) in North Middleton, Bourbon County (Miller 2004), the Crab Orchard Hotel in Lincoln County (Miller and Henderson 2004), and the Russell Tavern (15Js144) in Jessamine County (Bybee 1998).

Shaker Village at Pleasant Hill (15Me55-59) is an important rural site in Kentucky that represents more of a complete community than a farm or plantation site. This settlement and South Union Shaker Village (see Pennyrile Section) represent the Shaker presence in Kentucky. The Pleasant Hill community, which was founded in 1805 and closed in 1923, was the third largest Shaker village in the United States, with a peak population near 500 in the mid-nineteenth century. Archaeological investigations of this community have included surveys of outlying fields and sections of the main village, and more complete excavation of several buildings. This work has shown that the main village contains a high density of building remains, but the midden deposits located near the major existing buildings have relatively low artifact densities. This is most likely due to the Shakers' emphasis on cleanliness and order (McBride 1995). This focus on order also can be seen in the way the village was laid out in rows of buildings that correspond to the cardinal directions, and in the manner that the Shakers built separate buildings for most activities or to house every species of farm animal.

This research also shed light on the Shakers' pioneering spirit. For example, a wash house (for laundry in the West Lot) contained a series of innovative features. The building was situated in such a way as to facilitate water flowing into it from a nearby spring, and out through a stone-lined drain. The presence of a "wash mill shed" likely represents the Shakers' attempts to develop labor-saving devices to ease the tedious process of washing clothes for large numbers of people (New England Shakers patented a mechanical commercial washing machine in 1858). The wash house also contained the bottom course of a series of "arches" or "furnaces" built around the central fireplace. These furnaces may be related to the use of the wash house as a sort of light industrial production center, where products such as candles, preserves, and perhaps smoking pipes were manufactured (McBride 1995). Archaeological research also relocated the remains of the oval fence that demarcated the outdoor worship area, Holy Sinai's Plain.

Several historic cemeteries have been investigated within the Inner Bluegrass Section. At the Eastern State Hospital site (15Fa289) in Lexington, 11 interments were recovered (Favret 2006). Of these, 10 individuals were buried in a mass grave and one person was in a single grave. They likely date from 1840 to 1869). Clothing items suggest that they were buried in personal clothing rather than institutional uniforms.

Skeletal analysis suggested that several had performed much physical labor, and one person had suffered from rickets. A high number of caries were evident in the teeth.

During investigations at the State Military Monument in the Frankfort Cemetery, five veterans of the Mexican-American War were relocated and exhumed (Stottman and Pollack 2006). The variety of coffin and casket types that were identified provided information about nineteenth century burial practices from the late 1840s to 1880s. Analysis of the human remains led to some insights into the lives of soldiers during the nineteenth century. For example, some of the soldiers dealt with multiple bouts of malnutrition and disease, and they undertook heavy labor.

The largest cemetery studies in the Bluegrass, and in the entire state, were conducted at the Old Frankfort Cemetery (15Fr154) in Franklin County (Favret 2005; Killoran et al. 2003; Miller 2007; Pollack and Killoran 2006; Wetzel 2007), and the Holmes-Vardeman-Stephenson Cemetery in Lincoln County (15Li106) (Linebaugh 2003; Linebaugh and Phillips 2001). Though there is not a great deal of archival information on the Old Frankfort Cemetery, what records there are suggest that it was primarily used by poor and lower middle class Euro-Americans and African Americans as a neighborhood cemetery. Subsequent development of the cemetery area, beginning in the 1870s and continuing into the twentieth century, effectively removed it from the landscape and public memory. With little documentary data, coffin hardware and personal items found in the graves were key to its dating. Based on the artifacts recovered, the 242 interments documented at this site date from ca. 1815 to about 1860. Almost two-thirds of the individuals interred within this cemetery were of African American heritage and one-third were of Euro-American heritage.

While all of the individuals were interred in wooden boxes, intrasite differences were observed in the construction of the stone-lined vaults within which the boxes were placed, as well as coffin hardware and the types of artifacts interred with the dead. These differences reflect the socioeconomic status of these individuals within Frankfort. Within this cemetery, large limestone slabs were used to line about one-quarter of the graves. The use of stone ranged from just one or two slabs to a grave being completely lined and covered with stone. Sometimes the upper portion of the coffin was laid on stone or brick. Use of stone to create burial vaults reflects a greater investment of labor in the construction of the graves of some individuals, which may reflect that individual's socioeconomic status.

Socioeconomic differences also may be reflected by the presence of coffins that were lined with fabric, as evidenced by the presence of tacks; other coffin hardware, such as handles; and the recovery of jewelry, such as rings. Surprisingly, the use of tacks and the presence of a ring appears to have been more common among African-Americans than Euro-Americans, with two-thirds of the tacks and rings being recovered from African-American graves. Perhaps these individuals represent freed African-Americans who were somewhat better off than other African-Americans living in Frankfort.

Skeletal remains exhibited a number of pathologies, suggesting many of the persons lived under stressful conditions. Analysis of both teeth and skeletal remains suggest that many of the children were structurally small for their age, and had experienced periods of stress during their maturation.

The Holmes-Vardeman-Stephenson Cemetery was much smaller but still substantial; it served as a family cemetery from the 1830s to the 1940s. Analysis of the skeletal remains of 69 individuals revealed high infant and child mortality, relatively brief life duration and high death rates for women in childbearing years, shorter stature and higher dental caries for women, and a moderate prevalence of disease (Linebaugh 2003; Linebaugh and Phillips 2001).

Industrial sites have been investigated in this landscape. A pottery kiln was excavated by Genheimer (1988a) in Frankfort, where he documented the presence of a distinctive pumpkin-colored redware. In the mid 1980s, O'Malley (1986b, 1987a) investigated the early-nineteenth Ingels Pottery (15Bb102) in Bourbon County. James Ingels, who acquired Grant's Station in the late eighteenth century, operated a redware pottery from 1810 (or earlier) to at least 1820. O'Malley's study has provided important data on the types of vessels manufactured by local redware potters and the range of variation that might be expected.

Mills were a crucial component of nineteenth century communities, and provided a range of services beyond processing of raw materials: they were often community centers. Amos and O'Malley (1991) documented several mills in Fayette County. Early milling and other industrial sites have been documented in Lower Howard's Creek (15Ck478) in Clark County (Barber 2004; Thomason and Barber 2006). Janzen (1981) excavated five early nineteenth century mills at the Shaker Village of Pleasant Hill (15Me55-59) in Mercer County. Other mills documented in this section include the Kentucky Mills site (15Js115), a gristmill located in downtown Nicholasville (Stallings and Ross-Stallings 1992); Evans Mill (15Fa103) on Raven's Run in Fayette County (O'Malley 1999c); a very large commercial hemp mill in Frankfort, known as the Kentucky River Mills (15Fr120) (Day et al. 2000); and a grist and sawmilling complex in Franklin County (Hockensmith 1998b).

Gunpowder mills or factories are another type of processing mill investigated within the Inner Bluegrass Section. O'Malley (2006) investigated the Trotter Gunpowder mill (15Fa137) at McConnell Springs in Lexington. This work included documentation of physical remains of the packing and drying house, and extensive archival research (see also George 1986; O'Dell 1995; O'Dell and Johnson 1998). Another site type that has been investigated is railroads. The rail bed for the Lexington and Ohio in Frankfort was documented by Hockensmith (1997a).

Civil War studies are well represented in the Inner Bluegrass Section. Schock (2002) recorded the earthworks overlooking the Kentucky River at Boonesboro (15Ck281). Investigated battlefields in this section include Perryville (Clay 1994) and Richmond (15Ma306) (McBride and Stottman 2000). In the latter case, battle lines were delineated.

Research also has been conducted at two Civil War depots: Camp Dick Robinson (15Gd87) in Garrard County, and Camp Nelson (15Js78, 15Js96, 15Js97, 15Js112, and 15Js164) in Jessamine County. At Camp Dick Robinson, Civil War era features, such as linear trash pits (slip trench privies) and postholes were found. A relatively small amount of artifacts, consisting primarily of architectural debris such as nails and brick fragments,

were recovered from the privies (Anderson and Faberson 2006). Other artifacts found include a large amount of animal bone, mainly pig and cow, and Civil War ammunition.

Camp Nelson in Jessamine County was a large U.S. Army supply depot, recruitment and training camp, and hospital that was occupied from 1863 to 1866). It is most significant as Kentucky's largest recruitment camp for African-American Troops (known at the time as U.S. Colored Troops, or U.S.C.T.) and as a refugee camp for their wives and children. Camp Nelson has been the subject of archaeological research since 1976 (Bartnik 1976), with surveys were conducted in the late 1980s (Janzen 1987; Schock 1987) and limited excavations conducted in the early 1990s (McBride and Sharp 1991). More extensive excavations were conducted in the late 1990s (W. McBride 2005; McBride et al. 2000, 2001, 2003). This work focused on the Headquarters-Mess Houses (15Js96), Owen's House and Post Office (15Js97), and the camp's machine shop (15Js112). Subsequent work has been conducted at Fort Putnum and Fort Jones (W. McBride 2005; McBride et al. 2006), the camp's prison (all part of 15Js78) (Mabelitini and McBride 2007), and an African-American refugee encampment (15Js164) (McBride and McBride 2006).

The archaeology and archival research revealed the complexity and evolution of this combined military and civilian community. For instance, the Owens' House and Post Office complex consisted of a commercial district with stores, saloons/bars, and a hotel or tavern. Ceramics and glassware, faunal material, and military items suggested that the Owens' House was used by officers and higher-level civilian employees, while the two unnamed establishments were a store and saloon for enlisted men and lower-class employees.

Archaeological excavations combined with archival research at the Headquarters-Mess Houses illustrated the changes in the camp after African-American men began to enlist in the U.S. Army. Features and artifacts from the former employee mess houses indicated that these structures housed African-American soldiers, and sometimes their families. An undocumented tent encampment for African-American troops (and likely women and children) was discovered just south of the mess houses. The presence of these tents suggest a housing shortage for troops, as Camp Nelson became the largest enlistment and training center for U.S.C.T. Artifacts and faunal/botanical remains from the mess houses and encampment gave insights into the material culture and foodways of this population. Glass beads, dress buttons, hair barrettes, and dolls indicated the presence of women and children. Gun parts and ammunition suggested a mix of outdated (.69 cal.) muskets and modern weapons (.58 cal. rifles, breech loaders, and repeaters). The ceramics and glassware suggested some social differentiation with the encampment. Though most mess houses yielded plain, low-quality wares, two yielded medium- to high-quality wares, suggesting the presence of officers or supervisory employees. Food remains suggest that the soldiers consumed lower quality pork and beef cuts, and this area contained the only concentration of beans and lentils found at Camp Nelson.

Another aspect of this site was the Headquarters itself. Archaeology combined with documents suggests that the "new" Headquarters was designed and built to reinforce the power and authority of the army. The recruitment of U.S.C.T. troops was very unpopular with Kentucky whites and many whites in the military. The design and layout of buildings, sidewalks, and an ornamental fountain at the Headquarters, which were determined through

archaeological and historical research, utilized religious overtones. The cruciform shape of the headquarters, and the water and symmetry of buildings reinforce this sense of righteousness and authority. Unlike most sites at Camp Nelson, the Headquarters was kept relatively neat, with the only refuse midden being located far to the rear of the structure. Table glass and ceramics from the Headquarters midden and foundation were very expensive, even more so than the serving wares associated with the Owens' House, suggesting the use of different wares to enhance separation and to display high status and rank.

Following the passage of the 13th Amendment in December 1865 and the subsequent freeing of slaves in Kentucky, many African-Americans stayed in the rural areas where they had lived as slaves. One prominent settlement type developed in the Bluegrass: rural hamlets located close to a farm where the slaves may have worked, or where they now rented land or worked as farm laborers (Smith 1972; Smith and Raitz 1974). Sites that have been investigated include Hall (15Js163) in Jessamine County (McBride 1997), Woodridgetown in Woodford County (McBride and O'Shaughnessy 1994), Peanickle in Anderson County (15An108) (Stahlgren and Witte 2004), Cadentown in Fayette County (Linebaugh 2004; Schneider 2004), and Little Georgetown (15Fa278) in Fayette County (Wampler 2005). Most of these investigations have not been very intensive, but they have created the beginnings of a database of potentially comparable material culture and background information on these sites.

OUTER BLUEGRASS

Some of the earliest work in this section was undertaken in the mid-1980s. One study was O'Malley's (1987d, 1987f, 1988) survey of several early residences in the town of Washington in Mason County. Shovel probes placed in the vicinity of these residences suggested the presence of well-preserved late-eighteenth century and early-nineteenth century deposits. This study also generated information on topics such as sanitation, water procurement, trash disposal, and outbuilding location. During the course of this study, O'Malley (1988) also investigated a jail in Washington. Another investigation of a jail was undertaken in Augusta, where a series of architectural features related to the historic jail were documented (Stottman 1999c).

Compared to the Inner Bluegrass Section, very limited work has been conducted at historic stations in the Outer Bluegrass. O'Malley's (1996d) survey of the purported location of Squire Boone's Station (15Sh47) in Shelby County resulted in the recovery of period metal artifacts, but no other material or structural remains were found. Fiegel (1998) located a site in Fleming County that may be Fleming's Station (15F192). He found wrought nails and creamware on the site, but more detailed deed research is needed to verify the connection to John Fleming's station.

Slightly more research has been conducted on Antebellum farm sites in this cultural landscape. Limited excavations were conducted at Federal Hill (My Old Kentucky Home) (15Ne62) in Bardstown, Nelson County (McBride 1993). This work documented intact midden deposits in the western yard and to the west of the kitchen,

despite the fact that many areas of the site have been compromised by park landscaping activities. The fieldwork, combined with oral history, suggests that the slave quarters may be located within the present golf course.

At the Duckworth Farm (15Bh212), an Antebellum site in Bath County, two residential structures (a house and a possible slave cabin) and a barn were excavated (Peres 2002a; Pullins 2005; Pullins and O'Connor 2007). The three structures were all organized around an intensively used activity area. The main house was found to have been constructed in the earthfast style, which is somewhat unusual for nineteenth century Kentucky. If the cabin was occupied by slaves, its proximity to the main house represents an interesting variant of the more typical pattern of the spatial separation of slave and master housing. Interpretations about the lives of the slaves, however, were limited, as the material culture assemblage was very small. The low number of nails associated with the barn suggests that it was likely timber-framed. An unusual feature found within this barn was a stone-lined cellar. A large pit feature may have been associated with sugar production, which was documented for the family in the 1850 agricultural census.

A more prosperous site, the Hardin Farmstead (15On55 and 15On57) was investigated in Owen County. The layout of this site was consistent with that of an Upland South farmstead. Analysis of the ceramics recovered (Andrews and Fenton 2001; Andrews and Sandefur 2002) reflected the family's participation in dining rituals, such as the tea ceremony, and their proximity to Monterey, which facilitated their participation in the local consumer economy. The rapid changes in consumerism during the nineteenth century, as the availability of goods increased and as it became increasingly important to display appropriate social knowledge as part of social status negotiations, was not lost on the Hardin family. They appear to have been able to achieve financial success and attain a higher socioeconomic position than most farmstead families, by combining slave ownership and possibly the breeding of slaves, with other agricultural pursuits. This study is unusual in that the authors were able to make a contribution to our understanding of slavery despite the fact that archaeological deposits generated by slaves could not be confirmed at the site.

A very unique and important slave site in Kentucky that has received archaeological investigation is the Anderson slave pen in Mason County (15Ms112) (Kreinbrink 2001, 2004). Documentary research established that owner John Anderson was a major dealer in the trade in slaves from Kentucky to Natchez. Since the structure was only used as a holding pen for several years in the 1830s, and had other functions before and after, it is hard to associate artifacts found at the site with the slave activities, though many of the cooking and serving artifacts recovered may have been related to provisioning slaves.

The Neal-Rice site (15Ni44) is a Postbellum African-American farmstead located in Nicholas County (Stottman et al. 2007). The site represents a relatively short-term occupation that may have lasted from the 1890s to the early twentieth century. Structural remains were documented and a variety of domestic artifacts were recovered from yard midden deposits. The ceramics in particular suggest a low socio-economic position for the family.

Two historic sites in urban downtown Maysville have been investigated (Ross-Stallings and Stallings 1998). Foundations, midden, and a privy were documented at the site of an African Methodist Episcopal church (15Ms102) and thick midden deposits were sampled at the Ebenezer Jenkins House (15Ms103). The ceramic assemblage recovered from the Ebenezer Jenkins House site reflected the residents middle class socioeconomic status, while consumer items and the faunal assemblage reflected the diversity of commodities offered by city markets.

Mid-nineteenth century sites of more moderate socioeconomic status households also have been investigated in this section (Ball 1984b; Granger 1984b; Granger and Ball 1982; O'Malley 1987a). Granger and Ball (1982; see also Wolgemuth 1981) excavated the Linville site (15Bk15), a residence associated with an Augusta (Bracken County) winery. Ceramic analysis suggested a moderate socioeconomic level for the mid-nineteenth century occupation. Documentary evidence points to a decline in the occupants status by the late-nineteenth century, with eventual abandonment and reuse of the structure as a storage shed by ca. 1890 or 1900 (Granger 1984b).

Other domestic sites that have been investigated in this section include Janzen's (1986c; see also Henderson-Fiegel 1987) work at a nineteenth century farmstead in Bracken County; Sanders et al.'s (1976) investigation of a mid- to late-nineteenth to mid-twentieth century log cabin in Mason County; Schock and Howell's (1973) work at a nineteenth century log and frame house and yard area in Washington County; and Rossen's (1985) and Levy and Myers' (1986) work at a nineteenth century house site in Nelson County.

St. Thomas (15Ne84-87) in Nelson County was an important early Catholic Center and a school. Intensive survey and limited excavation resulted in the recovery of numerous artifacts, some of which were related to religious activities. Distributional analysis helped identify midden deposits and landscape features, such as sidewalks and outbuildings. Some structural evidence of a possible kitchen also was documented (Miller 2002).

Only one cemetery has been excavated in this section. It was located in Montgomery County and consisted of 17 graves (Bybee 2007; Bybee and Richmond 2003). Analysis of hair and teeth suggested Euro-American racial affiliation, but with some Native American ancestry. Hypoplasias on the teeth suggested periods of stress or illness in childhood. The teeth also suggested a diet low in commercially processed food (few cavities), but poor dental hygiene. The cemetery layout fit the Upland South cemetery pattern.

Several investigations have taken place on rural brick kilns or on more formal brick factories in the Outer Bluegrass Section. A small brick camp or brickmaking site documented in Shelby County (15Sh50) represents a rural industrial locality (McKelway et al. 1997; Wingfield et al. 1997). Peres (2002a) excavated a large brick kiln (15Bh213) in Bath County. The kiln had four or five flues, and bricks from it were likely used to build nearby Peck's Place. Commercial brick making facilities also have been studied. For example, Hockensmith and Stottman (1997) conducted limited investigations at the Maysville Brick Company site (Mason County).

Knudson's (1985; see also Bodkin 2002) investigation of the Clear Creek Iron Furnace (15Bh53) (Bath County) verified that stone piles at the site represented the remains of fireplaces from associated domestic structures. Other industrial sites or industries investigated in this section includes a possible sorghum processing pit in Owen County (Allen 1973), and the lead mining industry (Hockensmith 2005a).

APPALACHIAN MOUNTAINS

COALFIELDS

During the late 1970s and the early 1980s, several large architectural studies (Carlisle 1978; Dugan and Levy 1981; Hutchinson et al. 1982) undertaken in this region generated information that can be used to interpret archaeological sites. Dugan and Levy's (1981) and Hutchinson et al.'s (1982) work in the Big South Fork National Recreation Area in McCreary County focused on developing models of site location in relation to environmental variables and maturation of the settlement system. Their explicit concern for diachronic variation is somewhat unusual. As a result of their studies, they addressed settlement patterns for this region. Additional information on the Big South Fork area was generated by Howell's (1981) historical and cultural overview, in which the author developed a cultural ecological model for the study area.

Both Howell (1981) and Hutchinson et al. (1982) provided an historic context for the subsequent archaeological investigations conducted by Ferguson et al. (1983). This work resulted in the location of nearly 100 historical archaeological sites. One of the conclusions of Ferguson et al.'s (1983) study was that there was a relationship between site types and their proximity to roads. Ferguson et al. (1982) also conducted an intensive surface collection and limited excavation of a farmstead complex (15McY233). A more detailed analysis of the relationship between land holding and kinship was completed by Gardner (1987). Investigations of the Big South Fork area also have included an oral history of the Blue Heron mining complex (tapes curated at Eastern Kentucky University), which contains useful background information on this mining town.

An historical context for logging and coal mining also has been developed for the Big South Fork National River and Recreation Area (McBride et al. 1994; McBride and McBride 2000b). The study area included the holdings of the Stearns Company, which had come to the area for logging, but stayed to develop what would become the third largest coal mining operation in the United States in the 1920s. The Stearns Company had headquarters in Stearns, as well as a series of coal camps and its own railroad line (the K & T) to bring goods and miners in, and the coal out. The historical context also addressed industries, such as oil and natural gas, earlier logging operations, and town development. A related study is McBride's (1994) oral history and limited archaeological survey of Barthell (15McY523), the first of the Stearns mines (opened in 1902). Topics covered include an overview of the Barthell population, including kinship relations, company stores, and housing. Detailed descriptions of many house lots also are provided.

The Beatty Oil Well, located within the Big South Fork Recreation Area, was one of the earliest, if not the first, commercial oil wells in the United States. It initially produced oil in 1818, and by 1820, oil was being pumped from this well for commercial consumption (Fiegel 1987b). Transportation problems limited its long-term commercial success. The initial drilling of this well was not for oil but for salt water for commercial

salt production. A few years after the oil was discovered, founder Martin Beatty eventually abandoned this location and established a new salt operation several miles downstream. This salt works site has received extensive documentary research (McBride and McBride 2000b) and archaeological mapping and limited excavations (Prentice 1993).

A number of other industrial sites have been investigated, though it is surprising that no large investigations have taken place at a coal mine or camp, given the prominence of this industry in this section. In addition to Barthell, Barren Fork Mining Camp (15McY808 and 15McY809) in McCreary County is the only other mining camp that has been investigated in this section. Work at this site consisted of limited reconnaissance and mapping (McBride 1996). The Crawford-Nurre Sawmill (15Wh165) located near Williamsburg (Day et al. 2004) is the only other industrial site that has been documented in this section. The engine pad and boiler foundation were exposed and mapped. This mill was built to provide raw materials to a Cincinnati millworks (Day et al. 2004).

Few sites located within the limits of a town have been excavated in this section. One site that has been is the early nineteenth century dump associated with the coal mining town of Jenkins (15Lr40), in Letcher County (Sussenbach and Updike 1994). The diverse artifact assemblage recovered from this site points to availability of products from national markets. A very different town assemblage was recovered from the DeRossett-Johns site (15Fd50), a middle to upper class town lot in Prestonsburg (O'Malley 1989b, 1990b, 1995). Analysis of the archaeological assemblage focused on the refined ceramics, including calculation of a CC index value and changing ideas about proper dining and tableware. Women's roles in the nineteenth century and the "Cult of Domesticity" also were considered (O'Malley 1990b).

Several nineteenth century farmsteads were documented in the Yatesville Lake region: Skaggs (15La11), Carter (15La228), Wellman (15La67) (Redmond and Hughes 1991) and Adams Farmstead (15La254) (Kerr et al. 1990). Few intact deposits were found at the Carter site, but midden and features were located at the Skaggs and Wellman sites, both of which contained material goods from national markets, and data needed for research on consumerism. The Wellman site assemblage contained a large quantity of stoneware, which might be related to molasses or butter production (Redmond and Hughes 1991). The Adams Farmstead data was primarily from the second house on the property, dating from the 1860 to the 1950s (Kerr et al. 1990).

Limited excavations undertaken at the McKenzie Farmstead (15Jo67) in Johnson County (McBride 1994) documented the location of a detached kitchen and activity areas within the yard. Oral historical data from several McKenzie family members was combined with an architectural rendering of the structure to provide a more interdisciplinary view of life at the farmstead.

One of the more intensive historic archaeological projects undertaken in this section was the excavation of the Prater site (15Fd62), a 1840s-1984 farmstead located in Floyd County (Huser 1993). Subsurface features documented at this site include an area of sealed midden, a nut processing pit, and several other pits. The relatively low CC

value calculated for the site may relate as much to a lack of access to resources as it does the low socioeconomic status of the site's inhabitants (Esarey 1993).

A reconnaissance effort that involved more than the usual level of documentary research is Walker's (1975) examination of the archaeological resources in Cumberland Gap National Historic Park (Bell County). This study included detailed consideration of the historic resources in the park and is almost unique in its attention to a wide variety of cultural resources, such as historic roads and paths, as well as more common types of resources such as structure-related sites. Though much information is available about the Davis Tavern (or Station) site, its location was not discovered.

Cemeteries are another site type that has received little investigation in this section. An exception is Bybee's (2004) excavation of Site 15Fd94 in Floyd County. This cemetery is associated with the family of Revolutionary War veteran David Branham. Though the human remains associated with the 24 excavated graves were poorly preserved, some information on the population's health and demography was obtained from the analysis of the teeth. Personal items and coffin hardware, which helped date the burials to the nineteenth century, also were recovered. Three cemeteries on the Artemis National Guard Training Center have been mapped (Stahlgren 2005a). Their documentation will aid future research on cemetery organization and mortality patterns in this cultural landscape section.

FOOTHILLS

Robinson Forest in Breathitt County, which was created as a forest reserve and research area in the 1920s, was the setting for a large survey (over 7,000 acres) in the late 1980s (Sussenbach et al. 1990). This survey recorded many historical archaeological sites, particularly domestic and other sites associated with late nineteenth and early twentieth century logging activities. Perhaps partly because of its having been purchased early in the logging process by E.O. Robinson, and then turned into a preserve, other typical community features, such as local stores and churches, were absent. Within Robinson Forest, historic site densities were found to be highest in the stream bottom areas, with the initial historic occupation of this area probably being part of a larger community that had ties to the Buckhorn Creek and Quicksand Creek areas. In general, settlement patterns were found to be strongly influenced by kinship relations. Kinship also was seen as having a strong influence on site location in the Yatesville Lake area of the Coalfields section (Niquette and Donham 1985).

While the large survey of Robinson Forest provided important information on historical settlement patterns, few intensive investigations of historic sites have been conducted in this section. One exception is Aument's (1986) investigation of the Davis site (15Bd307b) in Boyd County. Analysis of the materials recovered suggested a mid- to late nineteenth century occupation of this site.

More limited archaeological investigations have been conducted on several domestic sites and a mill site in this section. Domestic sites that have been investigated include two nineteenth century sites (15Lw300c and 15Lw314e) in Lewis County

(Schock and Lanford 1980; Schock and Howell 1980). Investigation of the Cox-Simpson House (15Ja487) (Stottman and Temple 2004), an early to mid-nineteenth century residence located at Big Hill in Jackson County, identified pockets of intact nineteenth and twentieth century midden around the building.

Civil War investigations also are underrepresented in this section. Wildcat Mountain (15L1131) in Laurel County is one of the few Civil War sites that have been investigated. This work focused on documenting the spatial extent of the encampment and battle areas, with the identification of linear patterning of ammunition being indicative of battle lines (McBride 1998, 2001, 2007).

Industrial sites are better represented in this section. Of the three furnace sites investigated in this section, two (Fitchburg Furnace [15Es105] and Cottage Furnace) are located in Estill County and one (Buffalo Furnace [15Gp291]) is located in Greenup County. The Fitchburg Furnace was one of the first modern iron producing facilities in this section, though due to price reductions in iron, it only operated a short time in the 1870s. The furnace stack still stands, and archaeological investigations verified that the presence of other components, including the casting shed foundation (D. McBride 2005).

Investigations conducted in the vicinity of Cottage Furnace focused on two workers' residences (sites 15Es89 and 15Es90) (Updike 1999, 2000). This research generated information on workers housing, foodways, and access to material goods. Other types of archaeological sites related to iron furnace production include charcoal kilns, used in the production of furnace fuel.

Limited investigation of Buffalo Furnace (15Gp291) (O'Malley et al. 1992) in Greenup County collected information on the furnace, the furnace manager's house, the old hotel, and three cabins. The study also documented seven domestic sites along Buffalo Branch and in other nearby hollows (15Gp293, 295-300) that are likely associated with the furnace. Two collier's pits (15Gp292, 294) were recorded.

The processing of other local natural resources has been addressed in studies of pine tar kilns and saltpeter. Both of these products could be processed on a less capitalized scale than iron ore, though some nitre operations were extensive. Ison (1995) provides information on many recorded tar kilns, some of which have been mapped in detail or investigated with shovel probes. Unfortunately few have been excavated. Carmean's (1994) trenching of a tar kiln near London, however, provided a closer look at site structure, documenting the interior mound with its encircling ditch.

The Saltpeter Cave works (15Cr99) at Carter Cave in Carter County was one of the more extensive nitre mining operations in this section. Investigation of this site documented the several mine related features (Duncan 1993, 1995). Based on the results of her study, Duncan concluded that saltpeter production in eastern Kentucky, even when on a large scale, was not standardized (see also O'Dell 1995).

Mill studies are not well represented within this section. Hockensmith's (1988, 1997b) study of millstone quarrying sites in Powell County, however, has generated new information on the manufacturing component of milling operations.

METHODOLOGICAL AND PARADIGMATIC STUDIES

In addition to site reports and site- or regionally-based articles or monographs, a number of middle-range theoretical and methodological studies have been conducted in Kentucky. Since these works all share a common concern, that of aiding the development of techniques or methods for analyzing and interpreting historical archaeological sites regardless of geographical location, they are discussed in this section rather than in their respective cultural landscapes. This discussion has been divided into the following five categories: artifact studies, chronological analysis, artifact pattern recognition studies, thematic site type studies, and bibliographical works.

ARTIFACT STUDIES

Many artifact studies have been conducted on Kentucky assemblages, with most focusing on a specific artifact class. Most have been published in journals or edited volumes, though site reports increasingly contain detailed analyses of artifacts.

Deiss (1986) examined Blue Licks Water and American Oil Medicine companies, and provided detailed information on the containers used to bottle these products. Although the discussion focused on just two glass companies, much of the information presented on glass container technology can be applied to all bottles manufactured during the mid-nineteenth to early twentieth century (see also Deiss 1981, or Ball 2006b). This study, as well as Deiss's (1984) work on vernacular medications, are good examples of work that provide a cultural context for material items. Deiss (1992) also conducted research on drainage tiles.

Other artifact studies include Ball's (2006b) research on leather production. Schock and Dowell's (1983) description of gunflints from seven nineteenth century Kentucky sites is useful as a reference to the basic background and sources of French, British, and American gunflints. Ball also has compiled information on gunflints, as well as guns and ammunition (Ball 1997a, 1997b, 1997c, 1999b, 2000a, 2000c, 2000d, 2005c), and has described ammunition assemblages from several sites, including the Crawford-Nurre Sawmill (Ball 1998b), the Gower House (Ball 2005b), the Frankfort History Center (15Fr115) (Ball 1996), Fort Starr (Ball 2004a), and McConnell's Homestead (Ball 2004c). Hockensmith et al. (2000) examined chewed lead bullets.

Maples (2004) provides information on a little researched topic: corset hardware and other "unmentionables" of female attire. Rivers (1999) provides information on buttons. Young (1991) developed models of what kinds of nails to expect from certain kinds of buildings or structure maintenance and remodeling (see also Young 1994a, 1994b; Young and Carr 1993). The model has received some criticism (Ball 1999a, 2005d) or demonstrated lack of fit with other indicators of architecture (Day and Clay 2002; Fiegel 1991; Pullins 2005). These difficulties point to the complexity of building construction and demolition, and the need for more detailed studies with larger numbers

of well-documented buildings in the construction of models. Ball (2005c) provides additional data and perspectives on nail manufacturing.

Pottery-related studies include Genheimer's (1987, 1988b) research on the Covington Pottery, which generated important information on the manufacture of pottery (yellowware; Genheimer also did extensive research on glass products produced by the Hemingray Glass Company). Bader's (2002) study of a Moravian pottery assemblage from Louisville presents information on an interesting specialized ware. Stradling and Stradling (2001, see also Stradling et al. 1998) provide documentation on whiteware production in Louisville at the Lewis Pottery in the 1820s and 1830s, and general contextual information on how the pottery trade was organized. (See also Fryatt 2006 for a 1881 essay on pottery production in the United States.) Other types of common clay artifacts are addressed by Murphy's (1987b) description of clay tobacco pipes from the Covington Riverfront project, and by Hockensmith's (1996b, 1997c, 1997d, 2002, 2004b, 2005b, 2007b, 2007c; Hockensmith and Black 1998, 200a, 2004b4; Hockensmith and Stottman 1997) descriptions of brick potteries and brick site assemblages.

Research also has been conducted on millstones. Hockensmith and Meadows (1996a, 1996b; Hockensmith 1993a) have published detailed studies of millstone quarrying in the Eastern United States and on the millstone industry in the Red River area. In addition, Ball and Hockensmith (2007) compiled a detailed overview of millstone makers and production.

CHRONOLOGICAL ANALYSIS

Several Kentucky archaeologists have attempted to develop guides or methods to date sites or collections. A general guide to dating historic artifacts has been compiled by Maples (1998). More specific artifact studies have focused on chronological issues. They include Ball's (1982, 1983) method for dating flat (window) glass. Ball (1983) proposed a refinement in the measurement of window glass thickness, which involved taking measurements in increments of .5 mm. This formula is not as commonly used today as it was in the 1980s, as most analysts use the Moir (1987) formula, which involves obtaining an average window glass thickness for an assemblage or context, and then applying his linear regression formula, which models the change in thickness over time. Day and Clay (2002) proposed a refinement of window glass dating that involved using Moir's formula to compute a date for each window glass fragment and then creating a histogram of the dates, with peaks in window glass dates representing specific construction and repair episodes. McKelway (1992, 1994) utilized a similar procedure, but computed a single date for all window glass fragments that had the same thickness, which is more similar to the Roenke's (1978) window glass dating method, which uses ranges of thickness. These efforts complement the comprehensive guide published by Miller (2000).

Another chronologically oriented analytical method is that of distinguishing lead from alkaline ceramic glazes through the use of hydrofluoride acid and ammonium sulfide solutions (Deiss 1985). The presence or absence of lead in the glaze is a useful

chronological indicator, since lead glazing was replaced by alkaline glazing, especially on decorated refined ceramics, in the 1820s. Obvious advantages of this method include its low cost and the fact that it does not require sacrificing a portion of the vessel or sherd as required by other methods, such as electrospectrographic analysis. The acid spot test has been applied in Kentucky historical archaeology in the analysis of materials from the Frankfort Public Square (Deiss 1988), the Johnson-Bates site, John Grant Station, and the Ingles Pottery (O'Malley 1986a, 1987a). Fiegel (1991) developed a chronology for late nineteenth to early twentieth century shotgun ammunition.

ARTIFACT PATTERNING AND RELATED STUDIES

Kentucky archaeologists have used a variety of classification schemes to organize artifact collections from historical archaeological sites. Often the function of artifacts is assessed with a goal of identifying patterns inherent to specific site types or certain localities. For example, Ball (1984a, 1984b) used data from 41 sites to propose and test two new artifact patterns (an open refuse pattern and a sealed refuse pattern). These new patterns target secondary refuse and are characterized by very high percentages of kitchen artifacts, with high breakage seen in the open refuse pattern (this breakage does not appear to have been quantified). These new patterns are in addition to the usual residential (South's Carolina) and architectural (South's Frontier patterns) (South 1977, see also South 1978). Genheimer (1995) used data from a number of privies in the Ohio Valley to construct the Ohio Valley Urban Privy Pattern (OVUPP). He noted that the pattern indicated dominance by Kitchen Group artifacts, and was similar to the Urban Domestic Pattern (Garrow 1982; Henry and Garrow 1982; Klein and Garrow 1984) or Ball's (1984a) Sealed Refuse Pattern. Genheimer cautioned that the large Kitchen Group masked considerable variation within it, and that functionally based patterns would be more useful if variables such as social class could be controlled for. These cautions should be added to South's (1988) reminder that pattern recognition should not become an end in itself but rather a starting point in connecting archaeological data to human behaviors. For South, connecting these behaviors to larger cultural processes, such as the exploitation of energy resources, was a major consideration. In addition, Orser (1989) noted that a functional analysis can encourage an overly synchronic perspective effectively masking change over time.

Wesler (1984a, 1984b, 1984c) has suggested that the greatest potential of artifact patterning (i.e., functional typology studies) is in intrasite comparisons. For example, based upon a comparison of the intrasite patterning of materials at the Moore site and Whitehaven, Wesler (1987) was able to suggest where an outbuilding had been located at this site. Wesler (2004) has continued refining pattern analysis by comparing and contrasting assemblage homogeneity, citing the need to make pattern recognition more dynamic. A methodology for sorting out variation in artifact distribution within features, and relating this to fill episodes, is presented by McKelway et al. (1992).

THEMATIC SITE TYPE STUDIES

Besides the artifact-based studies mentioned previously, several investigations geared toward specific site types have been conducted in Kentucky. For instance, the nitre mines and production sites associated with rockshelters or caves in the Red River Gorge area have been reported on by Coy et al. (1984) and Fig and Knudsen (1984) (see Faust 1967) on Mammoth Cave. Ball and O'Dell (2001) have compiled a bibliography on the nitre industry.

There also have been several thematic studies of small industries, mostly in the eastern part of the state. These include Pace and Gardner's (1985) analysis of the archaeological structure and cultural content of stills; Hockensmith's (1986) examination of the distribution of petroglyphs associated with pine tar and lye production; Hockensmith's (2002, 2004c) study of the lime industry or brick industry; Ball and Hockensmith's (2007) study of the millstone industry; and Ball's (2008) study of tub mills (small mills with a horizontal wheel than were on many farms). Several studies of brick kiln sites include a more general treatment of this rural industry (Peres 2002a; Verslius 2004; Wingfield et al. 1997).

Another thematically focused study is Ball and Parrish's (1985) survey of landings along the Ohio River. Although they found that these types of sites have low archaeological visibility and research potential, knowledge of their existence and exact location can aid efforts aimed at studying historic settlement patterns or larger complexes, such as plantations or river towns.

Another thematic study is Boisvert's (1984) investigation of salt licks and springs. The salt and mineral waters associated with these natural features attracted the attention of early settlers and developers. As a result, a variety of historical archaeological sites, including roads, towns, and resort hotels, are often associated with salt licks and springs. DuVall's (1977) paper on ice houses and McGraw's (1971) study of spring houses are site reports rather than detailed thematic studies, but both serve to bring together information about specific site types or features. Genheimer (1995, 2003) and Stottman (1995b, 2000b) have examined an even more common feature, privies, in a systematic way; Stottman focused on sanitation issues.

Local or regional thematic studies of the built environment, include Ball's (n.d.) bibliography of folk and domestic architecture, Macintire's (1998) study of log buildings in Kentucky, and Kennedy and Macintire's (1999) survey of agricultural and domestic outbuildings. Also useful is Hudson's (1995) examination of Appalachian buildings and material culture. More general studies of landscape features, such as stone fences, have been compiled as well (Ball 2004b), complementing the comprehensive overview by Murray-Wooley and Raitz (1992).

BIBLIOGRAPHICAL STUDIES

Bibliographies of historical archaeology in Kentucky have been compiled since the early 1980s. The first efforts were by Boisvert (1982), Hilgeman (1983, 1984), and Clay and Bodkin (1987). Other efforts include listings of articles in specific publications, such as *Ohio Valley Historical Archaeology* by Ball (1985, 1989, 2000b, 2005a). Although also published in this same journal, Hockensmith's (1993b) bibliography covers a broad range of reports.

RESEARCH TOPICS AND OBJECTIVES

This section presents a series of broad topics that historical archaeological research in Kentucky has or can address. The topics discussed are consumerism and exchange, settlement patterns, foodways (subsistence), ethnicity, archaeology of the household, farmstead archaeology, urban archaeology, industrial archaeology, Civil War archaeology, and mortuary archaeology. While this section places greater emphasis on culture history and research topics than on specific property types, it is recognized that certain types of sites require special considerations, and thus they have been singled out for separate treatment.

The focus of this discussion is on topics relevant to late eighteenth, nineteenth, and twentieth century historic sites. Research objectives presented are not exhaustive, and researchers are encouraged to develop additional questions.

1. CONSUMERISM AND EXCHANGE

Increased consumption of material goods in seventeenth and eighteenth century Europe and North America resulted in the growth and expansion of the capitalist economies of both regions. Ever-increasing consumption of material goods has continued to characterize these regions for the last 200 years. Thus, most artifacts recovered from historical archaeological sites represent the end results of consumer decisions made by the site's inhabitants or someone purchasing for them. Given the centrality of consumer goods to the modern economy, there is a wealth of research available to help contextualize archaeological investigations of consumerism, most in other disciplines, such as sociology, economics, and history (Baudet and Meulen 1982; Bermingham and Brewer 1995; Bocock 1993; Bourdieu 1984; Braudel 1973; Breen 2004; Brewer and Porter 1993; Burk 1967; Douglas and Isherwood 1979; Ewen 1976; Forty 1986; Fox and Lears 1981; Keynes 1936; Kowaleski-Wallace 1997; Lears 1983; McKendrick et al. 1982; Miller 1995; Mukerji 1983; Nicosia and Mayer 1976; Robertson 1970; Sahlins 1976; Schlereth 1980; Slater 1997; Williams 1982). Much of this work is oriented toward understanding the historical development of a culture of consumption, in which consumerism is related to an overall growth in materialism at the expense of other social goals, and consumption of goods as a form of communication.

Archaeologists have often focused on consumer behavior as broken into four components: 1) the decision to consume; 2) acquisition or procurement; 3) use; and 4) post-use deposition (Henry 1991; see Nicosia and Mayer 1976; see also Klein 1991 or LeeDecker et al. 1987 and LeeDecker 1991 for other efforts to model this behavior). Since the earliest interest in this topic, historical archaeologists have primarily focused on the relationship between socioeconomic groups and the consumption of material goods (Baughner and Venables 1987, Spencer Wood 1987b). In this discussion, factors such as income, occupation, and social status are thought to influence the types of goods that individuals or households acquire. Many other factors can affect consumption patterns and, therefore, possibly complicate the relationship between socioeconomic level and

consumer decisions. These issues should be addressed not simply for how they affect this relationship but also as separate topics in and of themselves. Other areas related to consumption patterns that can be studied with archaeological data include broad rural/urban differences; the effects of advertising and marketing systems (for example, the growth of mail-order catalogs); the means of acquiring goods; the effects of household composition and the household life cycle; the relationship between material goods consumption and gender; the role of transportation and other infrastructure variables in the distribution of material goods; and the effects of economic cycles booms and depressions.

Studies using ceramics are popular partly because this artifact type comprises such a large percentage of archaeological assemblages and because of the availability of Miller's (1980, 1991) ceramic price index data and methodology. This is the case in Kentucky as elsewhere. Miller's index measures the cost of decorated wares relative to plain ware or "cc" as potters often called it, and is based on documented variations in the prices of various decorative types and vessel forms found in merchant and import records. Most archaeological site reports dealing with at least a moderate ceramic assemblage include calculation of CC index values and comparisons with other sites. Many Kentucky researchers have gone beyond basic comparisons to elucidate dining behaviors and changes in attitudes about material culture, as part of broader cultural change associated with nineteenth century domestic life (Andrews et al. 2004; Andrews and Sandefur 2002; Barber 2005; Day et al. 2004; Day and Clay 2002; Esarey 1993; McBride et al. 2003; O'Malley 1995; Pullins 2005; Rotman and Thomason 2003). These studies have typically been undertaken using CC values calculated from vessels (not sherds), allowing for connections between artifacts and dining behavior.

Miller's (1980, 1991) CC values limit researchers to data from the nineteenth century, and preferably no later than the mid-nineteenth century. One attempt in Kentucky to extend this approach is Schenian's (1988a, 1991, 1995) construction of a preliminary ceramic price index for twentieth century ceramics (using mail order catalogs), which she developed from her research on the Onionville community. More studies that look closely at other classes of artifacts are needed. By examining specific classes of artifacts, it may be possible to identify various factors that influence consumption patterns and develop "consumer choice profiles," a line of inquiry initiated by Spencer-Wood (1987a).

- * Determine the relationships between the consumption of material goods and socio-economic levels. Determine if the same kinds of items, but in varying quantities, were acquired by different groups, or are observed differences related to the quality and type of the goods obtained. Determine the relationship between the consumption of ceramics and the consumption of other goods.
- * Determine if the influence of higher socioeconomic groups on the consumption patterns of lower and middle socioeconomic groups diminished after 1910, as suggested by some consumer theorists (Katona 1960:160-161).

- * Determine if the nature and degree of differentiation of consumption patterns varied over time. Assess the effects economic cycles or events, such as a recession or depression, had on consumption patterns.
- * Assess the relationship between the degree of heterogeneity or homogeneity of a population and consumption patterns. Determine the effect of household composition and life-cycle stage on the consumption and disposal of consumer goods.
- * Determine the effect race, ethnicity, gender, and socio-economic level had on consumer behavior. Determine if certain classes of material goods are more informative than others regarding these relationships.
- * Identify the effects development of transportation networks, such as the initial dominance of rivers and later growth of railroads and development of road systems, had on access to goods. Determine if there is there a relationship between a household's distance from a town or market center and its acquisition of manufactured goods.
- * Assess the effect that new marketing and distribution practices, such as the use of mail-order catalogs in the late nineteenth century (see Schlereth 1980), had on retailing and wholesaling distributional networks. Identify the mechanisms that were used to distribute goods in different temporal and regional settings and how this translated into access to goods. Determine the importance of frontier merchants, "drummers," and furnishing agents in rural areas (Atherton 1971).
- * Identify differences in consumption patterns between rural and urban sites, and between large plantations and farms. Determine if agricultural complexes and rural residences exhibit similar consumer consumption patterns.
- * Identify the relationship between consumption of goods and possession of land, and if it varied over time and by cultural landscape section or household.

2. SETTLEMENT PATTERNS

Settlement studies have been a major thrust of investigation within historical archaeology. Topics of study have included the change from frontier to mature settlement systems; the relationship of environmental and sociocultural features to settlement patterns; urban layout and industrial site location; utilization of space within individual sites (town, farm, or plantation); and landscape and garden studies. Environmental as well as cultural factors, such as transportation routes, technology, kinship, common geographical origin, religion, and the presence of other cultural groups, also should be taken into consideration. Research also has focused on examining the internal layout and organization of cities and towns (Cressey 1983; Cressey et al. 1982; Granger 1984b; Praetzellis et al. 1987; Rothschild 1985, 1987; Young 2000b); the type and location of buildings and activity areas within house lots (Andrews 1992; Heath and Bennett 2000; Keeler 1978; King and Miller 1987; Lewis 1977; Stewart-Abernathy 1986; Vlach 1993); and refuse disposal practices and landscaping patterns (Beaudry 1986;

Genheimer 1995; Keeler 1978; Kelso and Most 1990; Moir 1982; Stottman 1995b, 2000b).

In his overview of colonization, Gosden (2004) suggests that the settlement of North America by Europeans is an example of a settler society, a form of colonization that is unusual within the long span of human migrations and settlement patterns. More research is needed to understand how this colonization was accomplished. In Kentucky, a more precise understanding of frontier stations, based on size, location, function, and chronology is needed (Day and Clay 2002).

- * Determine if stations function as defensive structures, social, economic and political centers, and “way stations” or inns for travelers and early Euro-American settlers (Day and Clay 2002; McBride et al. 2003b, McBride 1992b; O’Malley 1985, 1987b, 1999a; Perkins 1998). Identify the demographic composition of stations and if it was stratified, based on socioeconomic status. Determine the types of nondomestic building associated with stations. Determine the architectural and construction techniques that were used to build forts, stations, cabins, and outbuildings.
- * Identify the settlement hierarchy of each cultural landscape section during the Early Settlement/Frontier subperiod and how it changed over time. Determine the extent to which accounts of Long Hunters and surveyors influence the nature of initial Euro-American settlement. Assess the extent to which land speculation influenced later settlement patterns.
- * Identify the geographical and cultural origins of initial Euro-American settlers and the extent to which it varied by cultural landscape. Fischer (1989) and Fischer and Kelly (2000) argue that the region of Virginia that became Kentucky was heavily settled by families from the border area of northern England/southern Scotland, and Northern Ireland, which had developed a distinctive border culture that was particularly adapted to the political and environmental situation west of the Allegheny Mountains.
- * Determine if African-American settlement patterns changed over time (especially following Emancipation) and if the extent to which they varied by cultural landscape. The development of rural African-American hamlets has been well-documented in the Bluegrass Cultural Landscape. Determine if similar settlement patterns and economic strategies can be documented in the other cultural landscapes. Determine if racially segregated neighborhoods developed and how this varied by cultural landscape.
- * Identify the factors (e.g., transportation improvements, commercialization, marketing practices, industrialization, and political organization) that influenced the distribution of settlements within each cultural landscape. Determine how communities that grew around railroads differed from those that developed along rivers or roads.
- * Identify the effects of late nineteenth and early twentieth century urbanization on the spatial organization of Kentucky communities. Assess how changes in

- sanitation and the systematic provisioning of water, electricity, and natural gas affected regional settlement patterns and the distribution of residential sites. Determine when such services became available within each cultural landscape and how were they introduced.
- * Assess the relationship between the location of settlements and environmental variables, such as soil type, slope, and availability of water.
 - * Examine how trade and technological developments affected settlement-environment relationship.
 - * Determine if the layout and functional organization of towns reflect economic, regional, and ideological variation within or between cultural landscapes (Earle and Hoffman 1976; Pillsbury 1970; Stilgoe 1982).
 - * Identify the basic layout and organization of small towns and hamlets in Kentucky and how they varied by cultural landscape. Within any given region, determine what distinguished small towns and hamlets from larger towns with respect to internal organization and the range of property types associated with them.
 - * Assess the influence proximity to economic and transportation networks had on the location and success of agricultural complexes.
 - * Compare the spatial distribution of industrial sites and agricultural complexes. Determine if proximity to a particular transportation network, labor pool, or natural resource had a greater impact on the location of industrial sites than agricultural complexes.
 - * Determine the extent to which suburban life differed from rural life or living in the more densely settled areas of a city. Identify the ethnic and socioeconomic composition of early suburbs, and who were the first to move into suburbs. Assess how homogeneous suburban populations were with respect to socioeconomic status and ethnicity, and if this changed over time.
 - * Identify the characteristics of company towns, and how they varied by industry and cultural landscape, in terms of their physical layout and company control and services provided..

3. FOODWAYS (SUBSISTENCE)

The term “foodways” is used here to denote the interrelated systems of food procurement, preparation, and consumption, as proposed by Anderson (1971). Studies of foodways patterns in historical archaeology have focused on faunal and ethnobotanical remains. One topic that has been investigated using faunal remains is dietary variation relative to socioeconomic status. Several studies have identified two characteristics that are common to faunal collections recovered from high-status domestic settlements. These are 1) a greater incidence and proportion of nonlocal and exotic food items, and 2) greater diversity of both wild and domestic species (Branstner and Martin 1987; Martin 1986; Reitz 1986, 1987). In assessing the relationship between socioeconomic groups

and diet, information is needed on local environments, in order to determine which foods were locally available, and on regional cuisines, in order to determine what foods were eaten. According to Reitz (1987:106), “environmental variables probably are the basis of regional food preferences.” Besides regional variation, much of which is related to the general environment, broad differences between rural and urban subsistence patterns have been identified (Henry 1987b; Mudar 1978; Reitz 1986; Zierdan and Calhoun 1984a). It is assumed that these patterns cross-cut regions, and some authors suggest that they are stronger than socioeconomic variation (Reitz 1986).

There has been extensive writing on the Southern diet in general; probably more than any other single regional cuisine. Also useful to dietary studies in Kentucky is the current research on the “Upland South” agricultural complex (see below). In part, this complex is characterized by an emphasis on pork over beef (Bidwell and Falconer 1925; Hilliard 1972; Jordan-Bychkov 2003; Mason 1984; Mitchell 1972, 1978; Power 1953). The relative importance of these two staples is a topic of broad interest within anthropology (Harris and Ross 1978; Ross 1980; Sahlins 1976). The centrality of pork to the Upland South diet has been verified by archaeological studies (Allgood 2004, 2005; Breitburg 1976, 1983; Haskins 1998; McCorvie 1987; Martin 1986; Price 1985). An exception to the dominance of pork has been documented at a site in Tennessee, although its special function as a resort may explain a higher than usual consumption of beef (Breitburg 1983).

An individual’s or family’s ethnicity often influenced the types of animals processed and eaten by a settlement’s inhabitants, since food can be an important component of cultural identity. Food choice and preparation are areas in which an individual or family generally have somewhat greater freedom compared to many other aspects of everyday life. Thus, ethnic patterns may be identified in terms of food preparation techniques, as in butchering practices, or in the types of food consumed. To date, most studies of ethnicity and foodways in historical archaeology have focused on Asian-American (Evans 1980; Langenwalter 1980) or African-American settlements (Baker 1980).

Early colonial and frontier settings provide ideal opportunities to study change from European to American diets (Cleland 1970; Cumbaa 1975; Reitz and Honerkamp 1983; Shapiro 1979). Changes in foodways can be subtle, such as the complete replacement of certain foods for ones more suitable to a new environment but without major changes in the food procurement system, to wholesale changes in procuring and processing food. Archaeologists need to understand the circumstances under which foodways patterns change and how these changes are reflected in the archaeological record.

Another topic that can be examined by analyzing faunal remains is animal husbandry. Sex and age at time of butchering can be used to reconstruct animal husbandry patterns (Bowen 1975; Journey and Moir 1987; Miller 1979). For example, the butchering of primarily older cows may suggest a dairy operation, while butchering soon after maximum weight has been achieved may suggest an emphasis on meat production. Also, certain types of domestic animals might be present at a farmstead but not frequently slaughtered because they were being raised for sale. If this was the case, they should be referenced in documentary records but not well-represented in the archaeological record.

Many of the above topics also can be addressed through the analysis of botanical remains (Holt 1991; Reitz and Scarry 1985; Rossen 1992, 1995a, 2003; Scarry 1993). Ethnobotanical data also can provide information on climate and seasonality, since many plants and their use are tied to growing seasons. Analysis of wood charcoal remains can provide additional information, such as types of wood selected for construction.

- * Identify the relationship of the proportion of wild plant and animal species consumed to socioeconomic status.
- * Determine the extent to which a higher proportion of wild animal consumption was a result of wealth, either from increased pleasure hunting or the availability of servants or slaves to provide game.
- * Determine the importance of wild game to local diets during Early Settlement/Frontier times and into the early decades of the Antebellum subperiod. Determine the contribution of local plant foods to household diets.
- * Determine if rural Kentucky households conformed to the Upland South Pattern. Analyze faunal remains from a variety of contexts to identify the range of variation in usage of different species, and the types of settlements that exhibit the highest or the lowest incidence of pork usage; and to determine which environmental, cultural, or regional economic factors best explain the observed variation in the reliance on pork.
- * Determine if small town subsistence practices resemble a rural or urban pattern.
- * Assess the nature of nonagricultural occupational specializations on household diets. For instance, Schenian (1987, 1988a) noted that the residents of Onionville had a diet that was similar to that documented at urban sites. Similar studies should be conducted at other coal towns and other small towns.
- * Determine if marketing systems affect the availability and price of various kinds of meat and plant foods.
- * Assess the extent to which a restricted market, coupled with reduced access to home-produced food, result in decreased dietary diversity (Mudar 1978; Reitz and Scarry 1985), or if restricted markets result in increased home production.
- * Determine if changes in subsistence patterns were influenced by the extent of similarity between the old and new environment, the plasticity of the food resources, and the reliability of supply lines (Reitz and Scarry 1985).
- * Assess if food preparation methods are unique to certain cultural landscapes can be documented in the archaeological record.
- * Determine if enslaved African Americans had a substantially different diet from the Euro-Americans.
- * Identify the relationship between the development of new transportation routes and dietary changes. For example, assess whether there was an increase in the consumption of prepared foods (usually contained in tin cans) in rural areas as railways made shipping goods more economical.

4. ETHNICITY

The treatment of ethnicity is a complex and difficult topic, both to conceptualize, and to operationalize (Franklin and Fesler 1999; Mullins 1999, 2001; Potter 1999; Singleton 1995; 1999; Wilkie 2000). Ethnicity is usually used by historical archaeologists in the sense of personal identity, especially as an ascriptive category used by the ethnic groups themselves (Barth 1969; Spicer 1971). Certainly the largest current focus is on the African-American diaspora (Blakely 2001; Epperson 2004; Franklin and McKee 2004; Mack and Blakely 2004; Mullins 1999; Orser 1996, 1999b; Singleton 1999; Singleton and Bograd 1993). Archaeological studies of ethnicity often focus on minority populations who were disenfranchised to some degree by the host society and who are not well-represented in documentary sources.

McGuire (1982) and Huelsbeck (1988) have suggested that aspects of an ethnic group that are not opposed by stronger ethnic groups will show the most change. They also have suggested that ethnic activities or attitudes that are most objectionable to the majority group will remain the most resistant to change, often becoming the strongest markers of ethnic identity. Mullins' (1999) analysis of African-American consumerism in Annapolis suggests that faced with discrimination, they turned to the possession of material goods as a form of empowerment, at the same time refocusing the meaning of their relationship with mainstream material culture. This and other studies (Casella and Fowler 2005; Wilke 2000) have moved beyond any attempts to identify "marker" artifacts and begun to focus on more complex relations of ethnicity and identity formation. The complexities of identity include that it changes over time for a given individual, or that a given artifact has polysemic meanings in relation to identity. To combat these difficulties, studies need to be very well contextualized, typically with a wealth of ethnohistorical, oral historical, and documentary data to complement the archaeological data. Some studies focus on the role of material culture in terms of enduring practices and in terms of active agents whose identities are formed in a recursive process of social belonging (Casella and Fowler 2005; Wilke 2000) or creolization (Groover 2000).

Since cities and towns received the majority of immigrants to this country during the nineteenth century, especially during the late nineteenth century, studies of ethnic identity tend to focus on town or urban settings. In Kentucky, Louisville received more immigrants than any other locale and more actively sought them as well, though small immigrant communities, such as Bernstadt, East Bernstadt, Strassburg and Langnau in Laurel County; Saaner, Lutherheim and Highland in Lincoln County; New Austria in Boyle County; Templar Springs in Edmonson County; and small colonies in Christian and Lyon counties were established in the late nineteenth century (Traugher 1942). The spatial patterning of residences of different groups within a community can be studied to determine if neighborhoods were stratified by ethnic affiliation.

- * Determine the importance of social institutions, such as churches and mutual aid societies, extended families, or other kinship relationships in maintaining ethnic identity.
- * Assess what happens when new ethnic groups move into previously segregated ethnic neighborhoods.
- * Determine if certain aspects of material culture change faster than others for different ethnic groups.
- * Identify the spatial distribution of ethnic groups within a community and their position within the local economy. Assess their success in maintaining their ethnic identity.
- * Determine how members of different ethnic groups used material culture to create and define membership and establish relationships with other ethnic groups. Assess how these processes varied relative to interethnic group power dynamics.
- * Determine the spatial distribution of ethnic groups within company towns, such as coal towns. Determine if immigrants were segregated physically within company towns, and if they were restricted to certain occupations and if this affected their ethnic identity.

5. THE ARCHAEOLOGY OF THE HOUSEHOLD

Archaeologists have probably excavated more domestic dwellings than any other site type and have, with other anthropologists, given broad support to the household as an appropriate unit of analysis (Barile and Brandon 2004; Deetz 1982; Flannery 1976; Galke 1998; Goody 1971; Mrozowski 1984; Netting et al. 1984; Rathje and McGuire 1982; Wilk and Rathje 1982). Most researchers who work in urban contexts have to contend with domestic sites created by a long sequence of different occupants. To address this issue, they have attempted with varying degrees of success to link certain deposits to specific occupants (Beaudry 1984, 1988; Barille and Brandon 2004; Brown 1987; Friedlander 1987; Groover 2003a, 2003b; Henry 1987a; Mrozowski 1984, 1987).

Research on privies, wells, and other deep features focuses on their original functions and on what they can say about basic aspects of domestic life, like providing water or sanitary facilities (Genheimer 1995, 2003; Stottman 1995b, 2000b). Architectural information, from analysis of standing structures, archaeological features, or changes in the frequency of nails and other architectural artifacts, has been used to identify alterations to structures that are associated with changes in the household. Botanical and/or phytolith analysis has been used to investigate landscaping episodes and their relationship to changes in household composition or household turnover (Bartovics 1977; Bastian 1986; Beaudry 1984, 1987; Brown 1987; Groover 2003a; Herman 1984; Louis Berger and Associates 1985; Moran et al. 1982; Mrozowski 1983, 1984).

Research on the archaeology of households has focused on topics like household dynamics and composition, provisioning of basic services, or household activities,

architecture, or the use of interior and exterior (usually yards) spaces (Beaudry 1984, 1998a, 2004; Friedlander 1987; Groover 2003a, 2003b; Henry 1987a; LeeDecker et al. 1987; Mrozowski 1987; Neiman 1986; Spencer-Wood 2004; Starbuck 1984; Stewart-Abernathy 1986, Wall 1987a; Yentsch 1975, 1981). These studies challenge assumptions that all households looked alike or operated under the same basic principles; explore variation due to factors, such as ethnicity, socioeconomic class, market participation, and/or regional setting; and investigate the ramifications of such variation on the archaeological record. Groover (2001, 2003b) has developed a method called time-sequence analysis, the goal of which is to better link midden and feature deposits to specific households.

- * Determine the composition of a household (morphology), and how it changed through time.
- * Determine if differences can be documented between the composition of urban and rural households or by ethnicity.
- * Assess the relationship between household composition and economic activities; the developmental life cycle of the household; household income or wealth; the timing and nature of important transitional periods in the life cycle of individuals; house and lot renovation; and acquisition and deposition of material goods.
- * Identify the effect of urbanization, industrialization, and migration on household composition and material wealth.
- * Determine if there are major differences in how households acquired and managed wealth based on their degree of production for capitalist markets versus home consumption.

6. FARMSTEAD ARCHAEOLOGY

A farmstead is defined here as a complex of agriculturally related buildings, yards, enclosures, and specific activity or use areas associated with the practices of farming. Not surprisingly, given Kentucky's rural character and the importance of farming as a major economic activity in the state farmsteads make up a significant portion of recorded historic sites in Kentucky (Table 8.1). To date, archaeological investigations at farmsteads have focused on identifying the various structural components of these sites and their associated function(s). Because many materials were processed at farmsteads, these sites often contain a wide range of outbuildings or other features indicative of those activities, such as livestock butchering, molasses preparation, water collection, and refuse disposal. Research at farmsteads typically has focused on describing the morphology and location of outbuildings and features, and identifying the kinds of activities they reflect (Adams 1990; Andrews 1997; Barber 2005; Gibb and King 1991; Emerson and Rohrbaugh 1986; Fiegel 1988; Journey and Moir 1987; Lewis 1977; Moir and Journey 1987; O'Malley 1987a; Rotenizer 1992; Smith et al. 1982; Stewart-Abernathy 1985; Wagner 1995; Wagner et al. 1992; Wurst 2007; Vlach 1993).

Research also has focused on identifying aspects of the Upland South Pattern, typically seen as a blending of eighteenth century elements by settlers from Pennsylvania and the Chesapeake region who migrated to western Maryland and Virginia. This tradition then was transported west to Kentucky, North Carolina, Tennessee, Missouri, and parts of Arkansas and Texas. The Upland South Pattern is usually characterized by the following features: a diversified and somewhat self-reliant agricultural system, with an emphasis on corn and pork, supplemented with smaller amounts of cotton, tobacco or hemp, and generalized livestock for those who could finance such operations; a technology heavily dependent on wood; an architecture dominated by log and frame I-frame style houses and transverse crib barns; a social structure dominated by household-organized farms but influenced by slavery and a desire of most farmers to own slaves (though the incidence of slave ownership is lower than in the Lower South); a high valuation of land as a social asset; an attenuation of towns and low percentages of professionals or craftsmen relative to northern areas; and an emphasis on counties as a major unit of local government, with resulting importance of the county seat town, which often was laid out around a court house square (Gray 1933, Jordan 1967, Jordan-Bychkov 2003; Kniffen 1965; Kniffen and Glassie 1966; Mitchell 1972, 1978; Newton 1974). Several researchers working in Kentucky and elsewhere have employed this tradition to interpret aspects of the archaeological record (Andrews 1997; Andrews and Sandefur 2002; Andrews et al. 2004; Breitburg 1976, 1983; Day and Clay 2002; Groover 1993, 2003b; McCorvie 1987; Madsen et al. 2005; Mason 1984; O'Brien 1984; Wagner 1995; Wagner et al. 1992) (see also foodways above).

While many documentary sources can be used to study the agriculture of a region and its transportation and market network, there are few documents, other than census records, scattered diaries, or other personal papers, that give detail on what individual farmers grew, what they did with their produce, and to what extent they used profits from the sale of farm goods to buy other material goods. For example, a study of income and spending in the 1930s (Nourse 1934) suggested that farm households nationwide spent far less, often half as much, on material culture than nonfarm households. This could explain the low ceramic cost index values sometimes associated with farmsteads. Historical archaeology offers a chance to approach these questions through combined historical research into the economic structure of an area, documentary and ethnographic research concerning cultural background, and material culture data on the actual activities of farming strategies and how this was related to goods coming into farms (Andrews and Fenton 2001; Friedlander 1991).

Some studies of Appalachian farms (Dunaway 1996; Salstrom 1991) from a world systems perspective suggest that their insertion within capitalist economies, (Wallerstein 1974, 1980, 1989, 1997) is an important variable to investigate. Groover's (2003b) study of the Gibbs farmstead in Tennessee employed this perspective and it is a relevant comparison to Kentucky farmsteads. These perspectives on world systems and the process of incorporating households within capitalist economies also can be applied to urban households, or to comparisons made between urban and farm households. The issue is to understand the nature of this articulation, rather than to debate whether farms on the American continent were ever really self-sufficient or did not participate in capitalist economies, since from its beginnings Euro-American settlement was related to

expansion of the European core economies and their search for raw materials, and later, markets and consumers.

One way that archaeological information can be used to address this topic is by inferring from the artifacts the kinds of materials that would have been produced or preserved on the farmstead. Many types of artifacts are known to be of nonlocal origin, and some, such as marked ceramics or bottle glass, may identify points of origin. Analysis of ethnobotanical and faunal remains, sometimes in conjunction with census and other documentary information, can be used to construct crop profiles. Marketing of livestock may be indicated by cases in which species known to have been raised on the farm occur in lower than expected proportions within the faunal assemblage. Also, general inferences about the degree of self-sufficiency could be made from the types of activities suggested by structural features, outbuildings, or functional artifacts. For example, a decrease in the frequency of canning jars relative to tin cans might suggest an increase in commercially procured food.

- * Identify the types of agricultural complexes present in each cultural landscape section and their spatial distribution across the landscape.
- * Within each cultural landscape section, determine the relationship between agricultural complexes and nearby communities with regards to race and socioeconomic status.
- * Identify the basic structure of farmsteads and how it varied by time period and cultural landscape. Determine if subdividing farmsteads into inner, outer, and peripheral yard (Moir 1984, 1987) is useful, and if not, identify other models that are more applicable to Kentucky farms. Determine if activity areas on farms can be differentiated by gender or age.
- * Determine if farmsteads were oriented towards cultural features, such as transportation arteries connecting nearby towns; towards natural features, such as prominent topographic landmarks; or towards the cardinal directions. Determine if this orientation changed over time and if so, how and why.
- * Determine if there are typical patterns of refuse disposal for farmsteads that differentiate them from purely rural residences or urban sites (Keeler 1978; McBride 1985; Rogers 1985).
- * Assess the extent to which night soil or the contents from privies were used for fertilizer in agricultural fields, and if these activities created artifact scatters in fields and reduced the assemblage found around the house or in other areas. Assess how other agricultural practices affect the distribution of artifacts at farmsteads.
- * Determine the extent garbage was disposed of in nearby ravines. Determine if there was temporal and regional variation in this pattern, and how it changed in response to the growth of material culture over the nineteenth and twentieth centuries. If refuse was carried away from the immediate yard area, determine how this was accomplished and how far it was carried.

- * Identify if there were density-dependent effects for farms, as well as between farms and urban areas. That is, determine if there are differences in refuse disposal patterns depending upon a farmstead's degree of proximity to neighboring houses.
- * Determine the extent to which Kentucky farmsteads conform to the Upland South Pattern, and if there is spatial or temporal variation in the extent to which they conform to this pattern.
- * Identify differences between fully agricultural farmsteads, part-time farmsteads, or rural residences; or by different types of tenancy. Determine if there are systematic differences between the types of structures and activities represented on these types of farmsteads. Determine if different types of agricultural elements were retained longer on part-time farms than on rural residences and if this varied by region or by the type of farming. Identify the structural elements or activities reminiscent of the farm that were carried over into small town and urban life. Determine how long they lasted and how this varied over time.
- * Determine if the nature of the farm production can be characterized in terms of its relationship to commercial (capitalist markets) integration. Determine if variation in the nature of this production had an effect on material goods acquisition and disposal. Identify differences in how farm and urban households articulate with capitalist production and consumption, and how this affected their access to material goods. Identify the effects of crop selection on disposable wealth and farm organization. Identify the effects of mechanization on crop selection.
- * Assess how soil depletion, common in Kentucky during the early twentieth century, affected farming strategies, and the organization and success of a farm.
- * Identify the relationship between ethnicity and patterns of farm ownership and success. For example, Martin (1988:266) suggested that in the Pennyryle Cultural Landscape African-American farmers had a better chance of becoming autonomous cash renters, as opposed to share-croppers, when they farmed less desirable and probably less commercial farms. Determine if this pattern can be documented in other cultural landscapes.

7. URBAN ARCHAEOLOGY

Urban archaeology began to be perceived as a specialization within historical archaeology in the late 1960s and early 1970s. Salwen (1970, 1973) can be credited with making the distinction between archaeology in the city versus archaeology of the city. A similar distinction between archaeology undertaken in an urban area and urban archaeology was made in Kentucky by Granger (1983). Archaeology in the city is used here to refer to the differences between conducting archaeological research in cities versus small towns or rural environments. A high density of sites, coupled with the reuse of localities, complicates archaeological investigations undertaken in urban contexts. Because of the reuse of house lots, they often contain very complex deposits, with a

greater degree of superposition of features and structures than at rural domestic sites. Also, the density of occupation and geographical mobility that characterizes most urban areas means that most sites have a high occupant turnover rate.

Urban archaeologists have experimented and continue to experiment with ways to work with fill and complex building sequences (Barber 1978; Dickens 1982a, 1982b; Garrow 1984; Honerkamp and Council 1984; Rubertone 1982a, 1982b; Staski 1987a, 1987b). For example, identification of fill episodes and other events thought of as site disturbing (like installation of sewage lines) have come to be viewed as crucial in attempting to document the growth of a city (Bastian 1986; Beaudry 1986; Faulkner et al. 1978; Honerkamp and Council 1984; Honerkamp and Fairbanks 1984; Sapan 1985; Seasholes 2003; Stottman and Stahlgren 2006).

Archaeology of the City

The concept of an archaeology of the city, in contrast to the preceding discussion of archaeology in the city, refers to the study of various processes of urbanization and of what life in cities was like. This approach includes a consideration of the city as an integrated system of sites, or in Cressey's (1979, 1983; Cressey and Stephens 1982) terms, the city as a site. Although this approach seems widely supported (for a Kentucky example, see Granger 1983), based on a review of major publications in historical archaeology, Henry and Klein (1988:2) concluded that most studies still "exemplify archaeology in the city, not of the city" (emphasis original). Staski (1987a) offered a similar assessment. Henry and Klein (1988) support a comparative approach within urban archaeology, but only if comparisons take into consideration the site's context within the city and region at large.

Research topics proposed by urban archaeologists studying the city include the development of definitional schemes of the urban area, most of which focus on high population density and heterogeneity (Henry and Klein 1988; Pilling 1982; Rothschild and Rockman 1982). Amy Young (2000a; see also Young 2000b) has identified a number of characteristics of Southern cities that likely could be applied to most U.S. cities. They include attention to commercial rather than agricultural pursuits; maintenance of a relatively dense population and the problems attendant to it, such as food procurement, waste disposal, and animal maintenance; employment or the means to acquire goods, both necessities and luxuries for its dense populations; political and social center functions; and formation of community identity. Mullins and Klein (2000) offered similar, but subtly different characteristics, with more of a behavioral slant. Their urban characteristics include high levels of in- and out-migration; heterogeneity in social and ethnic makeup; distinct social hierarchies and material inequality reflected in class divisions; frequent impersonal interactions; openness to innovations; and rapid changes in social practices and their material expressions. For them, urban is more of a "way of life, or a perception of a way of life" than a place (Mullins and Klein 2000:222). On the other hand, they note that characteristics that might be considered rural, such as close personal relations, often can be found in urban neighborhoods (Joseph 2000; see also Hahn and Prude 1985).

In 1982, Schuyler (1982) noted that attention needs to be given to all phases of urbanism, not just the mature phase that has been studied most frequently. More comparisons between U.S. and European and other cities also is needed. For example, U.S. cities may be highly unusual for their relatively low population density compared to cities in other parts of the world, and for the type of suburban development that occurred in the late nineteenth and early twentieth centuries (Jackson 1985:71, 43). More research is needed into these differences and their cultural meaning. Mullins and Klein (2000) provide suggestions for future research in Southern cities. Suggested topics include urban planning; provisioning of mundane services, such as sewage, suburbanization, marketing, or urban topography; participation in consumer transformations including the spread of gentility and refinement (Bushman 1993); and how mass-produced goods were given meaning. Garrow (2000) suggested the following clusters of topics be addressed in urban contexts: 1) Social/Cultural Reconstruction, Gender, Ethnicity, Subsistence, Household Material Culture, Neighborhood Material Culture and Consumer Patterns; 2) Land-Use History, Settlement Patterns, the Process of Land Transformation, Site Function and the formation of Neighborhood and Districts; and 3) Urban Theory. Researchers also may find the framework for analysis of urban data laid out by Cheek and Friedlander (1990) helpful.

- * Determine if population density is related to settlement complexity and range of characteristics and services typically of urban communities. Determine if this changed over time and in relation to a city's developmental phases.
- * Identify how corporate means of refuse disposal differ from those of individuals.
- * Identify variation in refuse disposal, provisioning of water, or other basic services within cities (Honerkamp and Council 1984), and how this has affected the archaeological record.
- * Assess the degree of functional segregation within cities and how it changed over time (Cressey 1983; Cressey et al. 1982; Rubertone 1982b; Zierden and Calhoun 1984a, 1984b).
- * Identify the range of variation of ethnic and class distinctions, both in material culture and in residential segregation, within cities (Cressey 1983; Cressey and Stephens 1982; Ostrogorsky 1987; Rothschild 1987; Schultz 1982; Shepard 1983; Staski 1987a; Wall 1987a, 1987b, 1999).
- * Identify the relative position (or specialization) of a city with regard to economic networks and changes in that position over time (Cressey and Stephens 1982; Dickens and Crimmins 1982; Gorman 1982; Granger 1984a, 1984b; Schultz 1982).
- * Assess organizational differences between preindustrial and industrial cities (Gorman 1982; Pilling 1982).

8. INDUSTRIAL ARCHAEOLOGY

Industrial archaeology is concerned with investigating, surveying, recording, and preserving industrial remains and examining the broader economic and social contexts in which these sites existed (Buchanan 1979:53; Cassell 2005; Shackel 2004; Teague 1987:200). It should be noted that both large and small industrial sites, as well as artisan/craft shops, are included under the topic “industrial archaeology”. The agricultural nature of Kentucky’s economy is reflected in the early industries and crafts, which included grist and flour mills, saw mills, tanneries, blacksmith shops, distilleries, hemp and rope manufacturers, and tobacco processing centers. Other early industries included potteries, salt works, iron furnaces, river boat building, millstone quarrying and manufacture, and gunpowder mills (with associated nitre mining and charcoal production). Later industries, such as coal mining (which actually started in the 1820s), lumbering, the glass industry, and breweries, were more diversified but still took advantage of Kentucky’s natural and cultural resources.

- * Assess the position and arrangement of individual industrial buildings or groups of buildings at industrial sites and determine their relationship to associated features and activity areas.
- * Determine if regional variability in the form and position of the dam, mill race, and flume reflect environmental, technological, and cultural factors in the construction of mills. Identify what affect these factors had on other industrial sites.
- * Identify the relationship of different industries to community growth, and the development/improvement of new transportation routes.
- * Identify the relationship between industrial endeavors and surrounding agricultural complexes.
- * Determine how industries in each of the cultural landscapes were organized, including production sites, procurement sites, worker housing, and waste disposal areas.
- * Determine if the size and internal organization of company-influenced house lots compare to other house lots and agricultural complexes.
- * Identify the type of power machinery (wheel, turbine, or steam engine), internal machinery, and fuel sources used by various industries.
- * Determine if evidence of conservatism, rapid change, or local variation in technology is related to broad economic and technological change, local economic conditions, environmental conditions, and cultural factors.
- * Determine if an analysis of product waste can significantly increase one's understanding of an industry (cf., Faulkner 1982; Genheimer 1987, 1988a, 1988b; McBride 1987; Rotman and Staicer 2002; Turnbaugh 1985).

- * Determine if the establishment of certain industries (e.g., grain mills, distilleries, tobacco, and hemp factories) is correlated with an increase in the commercialization of surrounding farms.
- * Assess the relationship of local industries within the growth, development, and possible decline of a community.
- * Identify the effect of local industries on the social stratification and ethnic composition of a community or region.
- * Identify the relationship of local industries to environmental factors, transportation routes, population distribution, and other industries.
- * Assess the extent to which industrial worker residences, whether private or company-owned, reflect their social and economic conditions.
- * Determine within company towns, such as coal towns, the degree of control the company had over workers' social lives, the distribution, variety and costs of material goods, differential quality of housing, and community layout.

9). CIVIL WAR

While Kentucky was not the major battleground of the Civil War, significant military activities occurred within the state, including several engagements, supply storage and transport, and soldier recruitment and training. The large number of Civil War sites in Kentucky hold great potential for archaeological research. To date, most archaeological examinations of Civil War sites have focused on earthen fortifications and battlefields, with some attention given to encampments. Pre-1987 archaeological work on Civil War sites in Kentucky focused on fortifications, sometimes with a goal of reconstruction. Earthen fortifications in Covington, Frankfort, and Glasgow were among the first to be investigated by archaeologists (Fenwick 1979; Harper et al. 1981; Schock 1978a, 1978b). These investigations documented construction elements, including their parapets, ditches, gun platforms, and revetments.

Since 1987, earthen fortifications have continued to be examined, but emphasis has shifted toward determining how they were constructed, the range of activities that took place within them, their state of preservation, and whether they had associated encampments. Fortifications investigated in the last 20 years include Covington (Kreinbrink 1996), Fort Jones at Camp Nelson (W. McBride 2005; McBride et al. 2006, Fort Duffield (O'Malley 1999b), and Fort Starr (Ball 2004a; Carstens 1998; Quertermous 1999).

In addition to fortifications, greater attention has been paid to Civil War battlefields. Methods utilized in the study of battlefields include systematic and judgmental metal detecting (Scott and Fox 1987, Scott et al. 1998). Kentucky battlefields that have received metal detector surveys include Perryville (Clay 1994), Richmond (McBride and Stottman 2000), Mill Springs (Miller 1994), and Wildcat Mountain (McBride 1998, 2001, 2007). These surveys were directed towards locating artifactual

evidence, such as fired and dropped bullets, clothing items, or accoutrements that would identify the positioning of soldiers on the battlefield. Through an examination of the spatial distribution of dropped bullets and fired bullets, two of these studies (McBride 2001; McBride and Stottman 2000), and possibly a third (Miller 1994), successfully located battle lines.

Civil War encampments that have been the subject of survey-level investigations include Fort Duffield (O'Malley 1999c), Infantry Ridge at Wildcat Mountain (McBride 1998, 2007), and Fort Jones at Camp Nelson (McBride et al. 2006). Typical artifacts recovered from these sites include cut nails, whiteware, bottle glass, military buttons and accoutrements, and ammunition. In addition to this work, limited excavations have been conducted at Camp Dick Robinson in Garrard County (Anderson and Faberson 2006). This study located several Civil War features, including slipped trench privies and postmolds. The most extensive archaeological investigations on any Civil War encampment, or site of any kind in Kentucky, have occurred at Camp Nelson, a large U.S. Army supply depot, recruitment and training camp, and hospital occupied from 1863 to 1866 in Jessamine County (McBride 1998; McBride and McBride 2006; McBride and Sharp 1991; McBride et al. 2000; McBride et al. 2003).

The most efficient way to examine the types of topics or problems that can be addressed using data from Civil War sites is to organize the discussion by site types (fortifications, battlefields, encampments, domestic, and industrial). These site types, however, are not mutually exclusive, since an individual site could represent two or even three of these types. However, because of the different behaviors associated with each site type, they will be discussed separately.

There is one issue that research on Civil War sites should address regardless of site type. This is the variability of arms and equipment, which should be examined synchronically and diachronically within each Army and between the two. For instance, some scholars have suggested that Union equipment and provisions improved in condition and became more standardized as the war progressed, while nearly the opposite occurred with Confederate supplies (Coggins 1987:120; Lord 1960:137). The exact nature of these changes is not presently known and is an issue that should be addressed through archaeological research.

Fortifications

Kentucky contains a large number of Civil War fortifications, both large and small, and permanent and temporary. Most consist of earthen walls (ramparts and trenches), but beyond this, a great deal of variation has been noted in how they were constructed. Many smaller fortifications, placed at strategic locations such as railroad crossings or along other transportation routes were never the scene of military action.

- * Determine how fortifications were constructed.
- * Identify the fortification components.
- * Identify the ordinance stored at forts and the activities that took place at these types of sites.

Battlefields

A well-known historical archaeologist once stated that “little can usefully be said of battlefield sites” (Noel-Hume 1975:188). Examination of battlefields located in the southeast (Braley 1987), west (Scott and Fox 1987; Scott et al. 1998), and Kentucky (McBride 2001; McBride and Stottman 2000), however, have demonstrated the utility of archaeology in the analysis of the spatial structure, the location and movement of troops, and the equipment and arms used at battlefields.

- * Determine the nature of the fortifications or entrenchments constructed.
- * Identify how troops were deployed across the battlefield. The spatial distribution of percussion caps or shell cases is a good reflection of their positions.
- * Assess where the most intensive fighting took place. Examination of the spatial distribution of spent bullets, balls, and percussion caps can provide important data that can be used to address this issue.
- * Identify the variation in arms, ammunition, and equipment used during the battle. Determine if there is spatial patterning by caliber. Since arms were often issued by company, information on the distribution of ammunition type could be used to help reconstruct company positions and determine whether the quality of arms was a factor in these positions (Braley 1987; Wiley 1943:292). Also, the general quality of arms and equipment issued can be examined.
- * Determine if a field hospital was established and if it was composed of tents, a requisitioned house, or some other type of structure(s). Determine the types of tools, medicines, and other equipment that were utilized. Determine if there is any evidence of specific medical procedures that were used at the hospital.

Encampments

Camp sites probably hold the most potential for the archaeological investigation of the Civil War. Being habitation sites, they have good potential for producing a substantial quantity of artifacts, both domestic and military, and they allow for the study of military lifeways and material provisioning. Many Civil War encampments have been studied by archaeologists in the last ten years (Geier et al. 2006), including some in Kentucky (Anderson and Faberson 2006; McBride et al. 2003). Information has been collected on topics, such as housing, arms and equipment variation, supply manufacturing, social stratification, and camp layout (Bentz and Kim 1993; Geier and Potter 2000; Geier and Winters 1994; Geier et al. 2006; Legg and Smith 1989; McBride et al. 2003).

An important distinction that should be made for encampments besides being Confederate or Union is whether they were permanent or temporary. The types of structures associated with these two kinds of encampments varied, as did their internal organization and the kinds of activities likely to have taken place. Kentucky contains many examples of both kinds of encampments, which were occupied by Union and

Confederate armies. In terms of temporary encampments, researchers should be careful not to disregard relatively short-term occupations, since they were often occupied by large numbers of troops and therefore may contain large material culture assemblages. Also, to gain a better understanding of military behavior and practices during the Civil War, it is important that a variety of site types be investigated.

- * Determine if the troops lived in tents, huts, cabins, or barracks, and what they were like. The potential for discovering evidence of these structures depends on their permanence and construction. There was much variation in housing, especially in winter quarters, and the investigation of this topic could generate important information about the lifeways and creativity of soldiers (Bentz and Kim 1993; Billings 1993; Coggins 1987:18; Geier et al. 2006; Wiley 1951:53-57).
- * Determine how the camp was laid out. Both armies had explicit instructions concerning the placement of tents and huts as well as wagons, kitchens, and privies. Assess the extent to which these instructions were followed.
- * Determine how refuse was disposed. Although camps were supposed to be kept somewhat clean, many accounts suggest that garbage was concentrated in a number of areas, including the “streets” and drainage ditches between tents (Billings 1993; McBride et al. 2003a; Wiley 1951:127).
- * Identify the kinds of food eaten and how they were prepared. Food was supposed to be prepared in the company kitchen, but in many camps, especially impermanent ones, cooking was commonly undertaken near a soldier’s tent or hut (Billings 1993; Wiley 1951:237, 244). The usual army diet was fairly standardized and monotonous, but soldiers often foraged and bought additional food from settlers (McBride et al. 2003). Determine if there is any evidence of these activities.
- * Determine if gambling was a major recreational activity or if large quantities of alcohol were consumed by the troops.
- * Determine if there were differences by military rank in housing, diet, and equipment at these camps.
- * Determine if there were differences in African-American and Euro-American soldiers' housing. Some scholars have stated that African-American troops received inferior equipment (Berlin 1982:485; Quarles 1953:204). Determine if this can be documented in the archaeological record.
- * Determine how slave families were fed and housed at refugee centers. Assess how their housing compared with other slave or free African-American housing. Assess the degree and nature of African-American resistance to authority in these camps.
- * Identify variation in equipment used, housing lived in, and food consumed between earlier and later encampments. As was noted previously, the condition of Union soldiers is reported to have improved as the war continued, while that of

the Confederate soldiers deteriorated. Identify differences in housing and food consumption between temporary and permanent camps.

- * Identify the nature of medical treatment within these camps. Identify the types of medicines and equipment that were utilized.

Domestic and Industrial Sites

As was noted above, the Civil War greatly affected the civilian population. Many farms and towns experienced hardships from severed trade ties and war-related damage, particularly in the early part of the war. Also, some houses and farms were commandeered by the army and used for military housing or storage. Some industries experienced hardships during the Civil War, while others prospered and expanded. The limited duration of the war makes these issues difficult, but not impossible, to investigate through archaeological research. The major impact of the Civil War on the civilian population was the end of slavery and the new labor systems and social relationships associated with this change.

- * Identify the extent to which an agricultural or industrial site was associated with the expansion or contraction of the Civil War.
- * Determine if a site was physically impacted by Civil War-related activities.
- * Determine if a site was utilized by Union or Confederate troops.

10. MORTUARY ARCHAEOLOGY (BY ALEXANDRA D. BYBEE)

Since the mid-1990s, archaeologists working in Kentucky have considered historic cemeteries significant sources of data about past health, demography, and socioeconomic status. Excavation of historic cemeteries and the analysis of recovered human remains and artifacts can offer insights into mortuary behavior, material culture, demography, and health (Bybee 2003a, 2003b, 2004; Bybee and Richmond 2003; Bybee et al. 2004; Favret 2005, 2006; Miller 2007; Pollack and Killoran 2006; Stottman and Pollack 2006; Weitzel 2007).

Early American Views of Death

Prior to the nineteenth century, death in America was recognized as a natural, inevitable, commonplace reality (Habenstein and Lamers 1955:200). Attitudes toward death and treatment of the dead exhibited a strong continuity with traditions coming from medieval Europe (Stannard 1977). Over time, regional variations based on traditional European idealizations of death began to emerge in the American colonies (LeeDecker et al. 1995:120). During the Middle Ages, plagues, epidemics, and short life spans provoked a fear of and obsession with death, and much of this ideology influenced colonial New Englanders' perception of death. In Puritan traditions, death was considered a punishment

for sinful people, while also being viewed as a call to eternal life by God for the good (LeeDecker et al. 1995:121). Puritans believed the time of death was a time of judgment for the deceased, thus prayers for the dead were not made. Puritan funerals were simple happenings, marked solely by disposal of the dead. The strict, religiously skeptical Puritan views held by early colonists began to dissolve toward the end of the seventeenth century, giving way to a more relaxed view of death and the afterlife. Funerals became more elaborate affairs, with preaching, consumption of food and drink, firing of guns, and distribution of memorial gifts (Habenstein and Lamers 1955).

The Beautification of Death

The romanticism of the late eighteenth and early nineteenth centuries celebrated nature, and death was seen as part of the natural design, linking the deceased with the universe (Buikstra et al. 2000:18). This romantic view grew during the nineteenth century, bringing an idealization of death and heaven (Bromberg et al. 2000:148). Death was beautified, with rituals becoming more elaborate and the period of mourning prolonged. Mortuary items, such as gravemarkers and coffin hardware, began to incorporate symbols of beauty from the Romantic era. Coffins began to function not only as receptacles for the deceased, but allowed for more beautiful presentation (Bell 1990:55-58; Farrell 1980). The beautification of death was most prominent during the second half of the nineteenth century (Bell 1990:57), particularly the late 1860s through 1870s (Little et al. 1992).

Changes in the American view of death during the nineteenth century were fueled by urbanization, industrialization, and developments in medicine and science (Farrell 1980). Services associated with death, including the mass-production of coffins and coffin hardware, and the appearance of undertaking enterprises, aided in the reinterpretation of death (Farrell 1980). The increased sentimentality in death and dying created a market for cultural materials associated with the beautification of death movement, such as elaborate coffin hardware, and technological and transportation improvements enabled them to become affordable and available to all segments of the population. This, in turn, fueled the acceptance of the concepts of the beautification of death in American society (Bell 1990:57).

Origin of Family Cemeteries

The change in American views of death during the late seventeenth and eighteenth centuries was stimulated, at least in part, by the westward expansion of Americans into areas previously unoccupied by European-Americans, including Kentucky, North Carolina, Virginia, and West Virginia. A dispersed settlement pattern emerged during this period, with frontier populations scattered among rural farms and plantations. The dispersal of agricultural settlements across the landscape led to the use of small family burial plots within large rural landholdings (Bachman and Catts 1990; Stilgoe 1982). This pattern stood in contrast to European traditions, in particular those of British Protestants, that held that the dead be buried in community burial grounds close to churches. With the dispersal of farmsteads and plantations across the American frontier, this was not possible, as churches were not often built until a community was established

(Habenstein and Lamers 1955). The use of small family burial plots was a well-established American practice by the late eighteenth century (Sloane 1991). The family burial plots at George Washington's Mount Vernon and Thomas Jefferson's Monticello are well-known examples of this type of cemetery.

Traditional Southern Cemeteries

The southern folk cemetery has been characterized as a simple, nonsanctified family graveyard that is situated far from the confines of the church (Jordan 1982:13). Over time, and as settlement in an area intensified, families other than the founding family often interred their deceased in the same general location. These small cemeteries evolved gradually as people moved away from or into the area. The cemetery eventually became more communal, ending perhaps with several generations of an extended family or several nonrelated families.

The southern folk cemetery is unique to North America, and is derived from European, African, and possibly Native American mortuary customs (Jordan 1982; Ragon 1983). Single-family burial grounds are more common in the rural South than the North, and most likely originated on the grounds of plantations, where owners were often buried on their property (French 1975:72-74). The location of rural southern cemeteries also may have been influenced by fears of the danger of contamination from dangerous diseases, such as cholera, diphtheria, smallpox, and yellow fever, which were common on the American frontier from the seventeenth through nineteenth centuries.

The traditional Upland South folk cemetery is characterized by "hilltop location, scraped ground, mounded graves, east to west grave orientation, creative decorations expressing the art of 'making do,' preferred species of vegetation, the use of graveshelters, and cults of piety" (Jeane 1989:108, see also Jeane 1969, 1978, 1987). When gravemarkers are found, they are often pieces of fieldstone placed at either end of the grave, and a name or date will occasionally be inscribed. Some graves have only a wooden stake at the head of the grave. Jeane (1989:114) states that what is decidedly missing from Upland South folk cemeteries is the frequent use of commercially-produced gravemarkers of granite or marble.

Spatial Arrangement

Rural southern cemeteries are arranged spatially to reflect the Anglo-Christian burial tradition. Individuals are aligned with their heads to the west and feet to the east, enabling them to rise up and meet Jesus during the Second Coming as he arrives from the east, or to hear Gabriel's horn from that direction (Jordan 1982:30). Those committing unforgivable sins, such as suicide or murder, are occasionally aligned north to south as punishment. Wives are placed to the left of their husbands, following the Anglo-Christian account of Creation (Eve created from the left rib of Adam) (Jordan 1982:31).

Burial arrangements in rural southern cemeteries are usually in family clusters and rows. The family cluster includes blood relatives, or those related through marriage, centrally-located within the confines of a square or rectangular plot. Fences made of stone, brick, iron, wood, or bushes often border these plots (Jordan 1982). The row

arrangement consists of related or unrelated individuals buried in a series. A mixture of both spatial arrangements can be seen in many cemeteries (Winchell et al. 1992:27). The mixture of arrangements may be attributed to the use of a cemetery by multiple families, or by later generations of the same family. The cluster arrangement of a founding family in a cemetery may have become outmoded with the interment of unrelated or distantly related individuals.

- * Identify the types of burial receptacles that were used during the Early Settlement/Frontier subperiod.
- * Determine if variation in how the dead were treated within a cemetery represents preferential treatment at death, ethnicity, or other cultural factors.
- * Identify the type of grave shaft an individual was interred in: two stage or “grave arch” (Atkinson and Turner 1987:47; Blakely and Beck 1982:188).
- * Identify ethnic, national, religious, or behavioral traits that are exhibited by the arrangement of the graves, headstones, and objects interred with the dead and how the body was positioned within the grave.
- * Determine the socioeconomic status of the burial population, as reflected by their headstones, coffin hardware, types of materials they were interred with, and their health.
- * Assess the degree to which the cemetery conforms with the Beautification of Death movement of the late 1860s and 1870s.
- * Determine if differences in mortuary practices can be documented between graves pre-dating and post-dating the coal and timber booms in Appalachia, and pre-dating and post-dating the Great Depression.
- * Identify when embalming practices became popular.
- * Determine what burial attire was popular for the periods represented.
- * Determine if individuals were interred in shrouds or in everyday clothing.
- * Determine the demographic profile and assess the overall health of the burial population (adult stature, nutritional stress, dental caries, and other pathological conditions). Identify differences between rural and urban populations.
- * Staple carbon isotope ratios from two Kentucky cemeteries (Old Frankfort and Vardeman) are suggestive of high consumption of corn-based products (David Pollack, personal communication 2007). Determine the extent to which this pattern is reflected in other nineteenth century cemeteries.
- * Utilize DNA to determine ethnic affiliation.
- * The presence or absence of certain nonmetric traits in skeletal populations could be indicative of genetic relationships between the interred individuals. Assess the extent to which familial relationship between interred individuals can be inferred from a comparison of nonmetric traits.

MAJOR ACCOMPLISHMENTS

Since 1990, historical archaeology in Kentucky has experienced tremendous growth and has come of age. Not only have many historic sites been excavated, but a much greater variety of sites have been investigated including farmsteads occupied by poor and middle class families, slave cabins, and African-American neighborhoods. Prior to the 1980s, the focus of most historic archaeological studies were sites that had been occupied by wealthy individuals. Greater attention also has been directed toward the study of historic cemeteries. This work has contributed to our understanding of Kentucky history and provided new insights into the lives of families who are often not mentioned in history books.

One of the insights of the last 20 years is that many families living in rural Kentucky from the late eighteenth to the mid-nineteenth century were not as isolated as previously thought. Even during the early decades of settlement, many families continued to be well-articulated with the national consumer culture, adhering to the latest fashions, such as taking tea, and purchasing expensive clothing and furniture items. On the other hand, examination of archaeological data and documentary data, such as tax and land records, indicates that some farm families were investing more in land than material goods. Thus, families living in rural Kentucky were making decisions based on what they thought best for themselves.

Research conducted since 1990 also has demonstrated that farmsteads exhibit a great deal of variation in terms of structural layout, occupational history, and relationships between material culture and socioeconomic status. General patterns, such as outbuildings being located toward the back of the main house, are documented at most farmsteads. At some farmsteads, however, outbuildings were placed to the side or front of the house. At others, additional houses, some perhaps occupied by slaves, were located close to the main house. More complex plantations exhibit even more variation, such as the establishment of an open great space called an English Pleasure Garden, which would have influenced the placement of outbuildings.

The archaeology of African Americans in Kentucky has involved both Antebellum slave sites and Postbellum neighborhoods/communities. One of the more interesting findings has been that enslaved African Americans possessed a separate culture from mainstream Euro-American culture. They also were part of the consumer economy, not only as commodities themselves, but as participants in the consumption of material goods. This desire to be a part of and participate in mainstream consumer society also has been documented at Postbellum African American sites.

Historic cemeteries research has greatly expanded since 1990. This work has shown that within urban contexts, pre-Civil War cemeteries were often integrated. Moreover, within-community socioeconomic differences existed among the white as well as African-American populations. Analysis of skeletal remains of both ethnic groups has shown that most individuals performed a lot of manual labor, and that life during the nineteenth century was difficult. Physical hardship is indicated by pathologies, incidents

of malnutrition or disease, and high infant mortality rates. Yet, even the poorest took care of the aged and disabled.

Though a great deal has been learned in the last 20 years, there is still much that we do not know about Kentucky's history. Research on historic archaeological sites will continue to focus on the history of those who did not make it into the history books and to supplement and enrich the work of historians. The richness of historical archeology is rooted in its synthesis of oral historical, documentary, and material culture data, but the methods for achieving this synthesis are still a work in progress. One important goal for the next 20 years should be to refine our integration of multiple data sets, and to set our sights on broader interpretive studies that build from the impressive body of data that has been generated.

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