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Cover: WPA Crew at the Ward Site (Courtesy of the W. S. Webb Museum of Anthropology).

PREFACE

Since its creation in 1966, the Kentucky Heritage Council has taken the lead in preserving and protecting Kentucky's cultural resources. To accomplish its legislative charge, the Heritage Council maintains three program areas: Site Development, Site Identification, and Site Protection and Archaeology. Site Development administers the state and federal Main Street programs, providing technical assistance in downtown revitalization to communities throughout the state. It also runs the Certified Local Government, Investment Tax Credit, and Restoration Grants-in-Aid programs.

The Site Identification staff maintains the inventory of historic buildings and is responsible for working with a Review Board, composed of professional historians, historic architects, archaeologists, and others interested in historic preservation, to nominate sites to the National Register of Historic Places. This program also is actively working to promote rural preservation and to protect Civil War sites.

The Site Protection and Archaeology Program staff works with a variety of federal and state agencies, local governments, and individuals to assist in their compliance with Section 106 of the National Historic Preservation Act of 1966 and to ensure that potential impacts to significant cultural resources are adequately addressed prior to the implementation of federally funded or licensed projects. They also are responsible for administering the Heritage Council's archaeological programs, which include the agency's state and federal archaeological grants; organizing this conference, including the editing and publication of selected papers; and the dissemination of educational materials, such as the Kentucky Before Boone poster. On occasion, the Site Protection and Archaeology Program staff undertakes field and research projects, such as emergency data recovery at threatened sites.

The Site Protection Program Manager also is the Director of the Kentucky Archaeological Survey, which is jointly administered by the Kentucky Heritage Council and the University of Kentucky Department of Anthropology. Its mission is to provide a service to other state agencies, to work with private landowners to protect archaeological sites, and to educate the public about Kentucky's rich archaeological heritage.

This volume contains papers presented at the Seventeenth Annual Kentucky Heritage Council Archaeological Conference. The conference was held at Western Kentucky University, in Bowling Green, Kentucky on March 26-27, 2000. Dr. Darlene Applegate was in charge of conference details and local arrangements for this conference. Her efforts are greatly appreciated. Heritage Council staff that assisted with conference proceedings included Site Protection Program Manager Thomas N. Sanders, as well as Staff Archaeologist Charles D. Hockensmith.

I would like to thank everyone who has participated in the Heritage Council archaeological conferences. Without your support, these conferences would not have been as successful as they have been.

David Pollack
Site Protection Program Manager
Kentucky Heritage Council

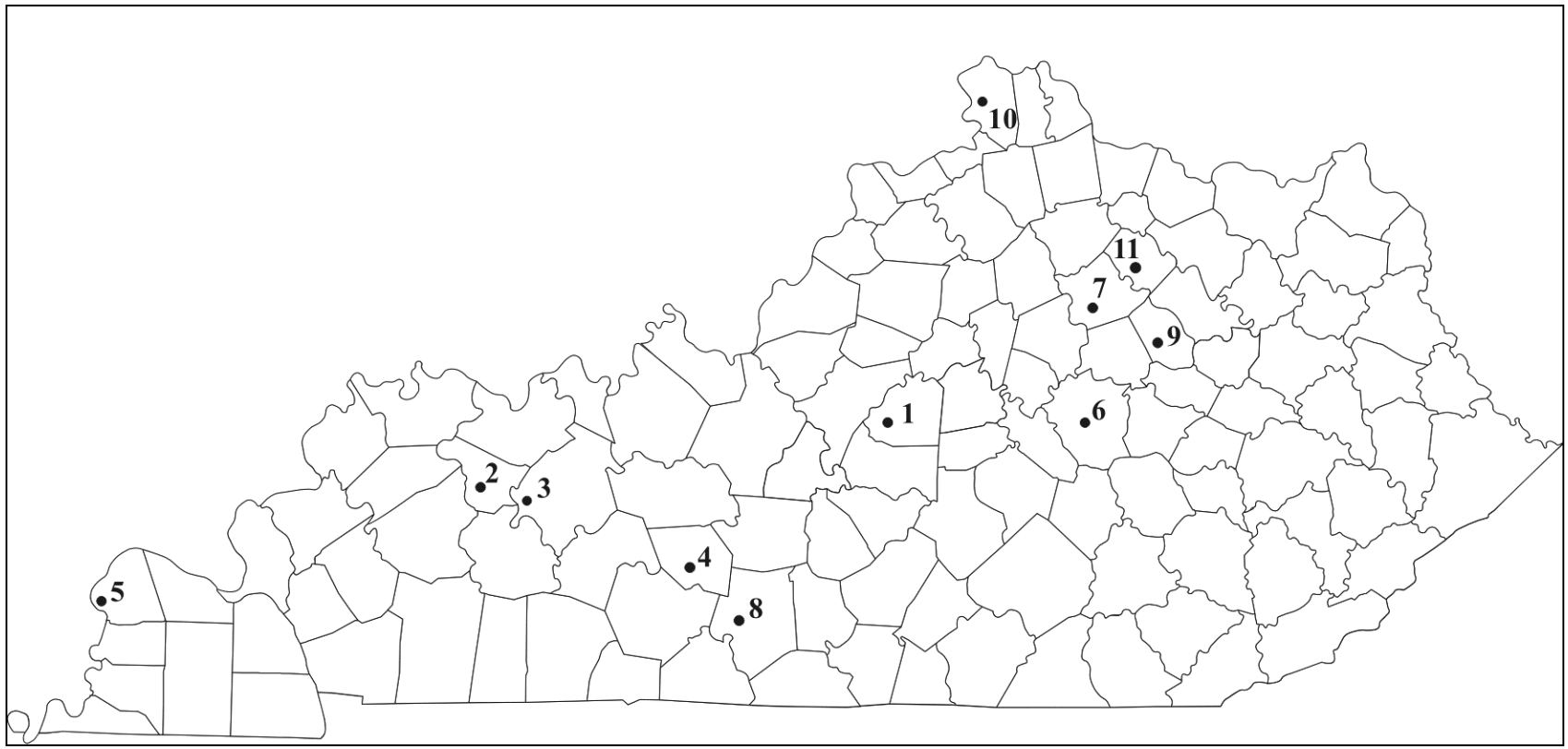

Figure 1. Location of Major Sites and Project Areas in this volume: 1, Upper Rolling Fork and Beech Fork Drainages; 2, Cypress Creek Drainage; 3, Indian Knoll, Ward, and Barrett; 4, Short Cave; 5, Wickcliffe Mound; 6, Broaddus; 7, McConnell's Homestead; 8, Bell's Tavern; 9, 15Mm137; 10, Maplewood; 11, Neal-Rice.

TABLE OF CONTENTS

PALEOINDIAN POINTS FROM THE UPPER ROLLING FORK AND BEECH FORK DRAINAGE BASINS IN CENTRAL KENTUCKY

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ABSTRACT

Relatively few Paleoindian points have been reported from the upper Rolling Fork and Beech Fork drainage basins in central Kentucky. Recent work with farmers and private collectors in this area, however, indicated that the paucity of Paleoindian points is primarily due to a lack of professional investigations. A survey of artifact collections in the study area documented more than 50 Paleoindian points. These include 20 fluted Early and Middle Paleoindian (Clovis, Gainey, and Cumberland), and 32 unfluted Late Paleoindian (Quad, Beaver Lake, Dalton, and Hardaway) varieties. This paper focuses on the distribution of Paleoindian points in the study area, the procurement and use of local vs. extralocal cherts, variability within recognized types, and changes in lithic technologies.

INTRODUCTION

The southeast portion of the continental United States is crucial to understanding early human colonization and occupation of the New World. Large numbers of Paleoindian artifacts have been recovered from this region. The diversity of projectile points, especially during Late Paleoindian times, is so large that the region appears to have been a center of technological and social innovations. Several areas contain evidence of continuous habitation, making the Southeast an ideal laboratory for examining the cultural and technological adaptations associated with the transition from late Pleistocene to early Holocene climatic conditions.

Whether one accepts a founding pre-Clovis migration or not, it is traditionally believed that Early Paleoindians were the first to settle eastern North America. This appears to be well supported by large numbers of Paleoindian points compared to very sparse and contentious evidence for earlier tools. Groups entering the continental United States from the north or northwest would have encountered major river valleys (e.g., the Missouri, Mississippi, Platte, and Arkansas) that offered favorable transportation arteries to the south and east (Anderson 1996:36). Once the Mississippi River was reached, the

Ohio, Tennessee, and Cumberland Rivers provided easy access to more remote regions in the Southeast. These river valleys were rich in food resources as well as localized deposits of high-quality cherts from which stone tools were fashioned. Based on previous surveys of private and institutional collections, fluted points tend to be concentrated along these three rivers in the western and central portions of Kentucky and Tennessee (Anderson 1996:35-36; Rolingson 1964; Rolingson and Schwartz 1966). However, these studies, particularly those based primarily on private collections, may be biased by collector strategies (i.e., collecting on large alluvial terraces). Surveys of collections in upland regions and in the headwater reaches of smaller rivers and streams might reveal a more dispersed and wide ranging settlement pattern than previously thought.

This paper consists of an inventory and analysis of Paleoindian artifacts collected from sites in the upper reaches of the Rolling Fork and Beech Fork river basins in central Kentucky. Relatively few professional investigations have been conducted in these drainage basins, and investigations of Paleoindian sites have been especially rare. Only three Paleoindian sites had been previously recorded in these drainage basins (Ray 2003). This paucity of Paleoindian sites was primarily due to a lack of professional archaeological investigations in Marion and Washington counties, rather than an absence of these early prehistoric sites. The purpose of the survey was to determine relative densities of Paleoindian point types and sites through a survey of private artifact collections. Other research topics that are addressed include changes in the procurement and use of local versus extralocal chert resources, and changes in lithic technologies.

STUDY AREA

The study area is located in the headwater regions of the Rolling Fork and Beech Fork rivers, which occur primarily in Marion and Washington counties, respectively (Figure 1). Portions of these drainage basins, however, extend into neighboring Boyle, Casey, and Nelson counties.

The upper Rolling Fork River valley is located along Muldraugh Hill, which separates the Outer Bluegrass Region on the north and east sides from the Mississippian Plateaus Region on the south and west sides. The highly dissected portion of Muldraugh Hill comprises the western section of the Knobs Region. The upper Beech Fork River valley, on the other hand, is located on the southwest side of the Outer Bluegrass Region just north of the Knobs. This study area is especially diverse in plant and animal resources as well as chert resources (Pollack 1990:7-8; Ray 1998a:11-28, 2000a:97-104).

The Rolling Fork and Beech Fork drainage basins comprise the southern half of the Salt River principal drainage basin and management area (Pollack 1990). The Rolling Fork and Beech Fork rivers join in western Nelson County near Boston, Kentucky. The Rolling Fork River continues northwest until it joins the Salt River near Pitts Point in western Bullitt County. The Salt River then joins the Ohio River a short distance downstream at West Point.

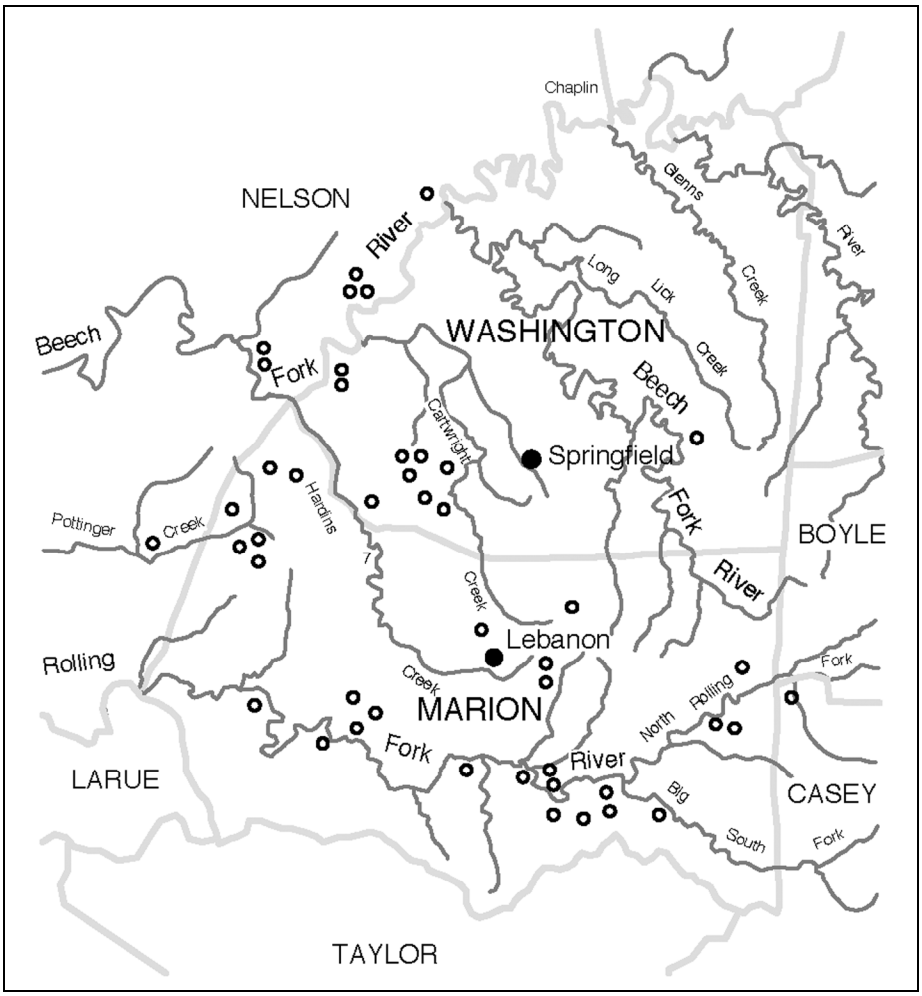

Figure 1. Distribution of Paleoindian Sites in the Study Area.

The headwater areas of the Rolling Fork and Beech Fork rivers have incised deeply into Paleozoic strata since early Pleistocene times. The higher elevations of the Rolling Fork drainage basin (i.e., the Muldraugh Hill Escarpment and outlying knobs) are composed of Mississippian-age formations. The Muldraugh member of the Borden formation is the principal chert-bearing unit in the Mississippian system (Ray 1998a, 2000a). The Harrodsburg formation also produces chert but much of it is undesirable as a chipped-stone resource.

The lower elevations in the Rolling Fork River valley are composed of several Devonian and Ordovician formations. Of these, the Boyle (Devonian) formation produces important quantities of chert (Ray 1998a, 2000a). The Gilbert member of the Ashlock formation (Ordovician) also contains chert but in minor quantities compared to the Muldraugh, Harrodsburg, and Boyle units.

The lower elevations of the Beech Fork drainage basin are composed primarily of Ordovician-age formations, whereas the higher elevations are composed of Silurian and Devonian-aged formations. The Brassfield (Silurian) formation is the principal chert-bearing unit in Washington County; however, small quantities of Muldraugh chert, Boyle chert, and Gilbert chert occur in northern Marion County at the heads of Hardins Creek, Cartwright Creek, and the Beech Fork River.

RESEARCH METHODS

The results of this survey are based on surface finds in twenty private collections. The vast majority of collections that were examined contained one or more Paleoindian points. Informants were asked many questions regarding purported Paleoindian artifacts in their collections. Foremost among these was who discovered the specimen and where it was found. If neither could be determined, those specimens were excluded from the study. Fortunately, a majority of Paleoindian specimens used in this study were still in the possession of the individuals who found them. Several specimens had been purchased but most had been purchased directly from the individuals who found them. Purchased specimens were carefully scrutinized for tell-tale signs of replicas such as popular exotic raw materials sold at knap ins (e.g., Burlington chert, Edwards chert, Knife River flint, obsidian), unpatinated flake scars, traces of foreign substances that mimic patinas, perfect or pristine condition (i.e., absence of nicks or other flaws), and relict slab saw facets.

Whenever possible, the sites where Paleoindian points were found were visited to record the exact location on a topographic map and to determine the condition of each site. Formal archaeological surveys of site locations, however, were beyond the scope of this project. The survey resulted in the documentation of 52 Paleoindian points and the recording of 36 Paleoindian sites.

Most of the sites reported here as Paleoindian are not single component. Based on diagnostic Archaic and/or Woodland artifacts that were observed in private collections from sites that yielded Paleoindian points, most sites are multicomponent. However, some of the Paleoindian sites located in remote upland areas might contain single component deposits. The number of Paleoindian sites and points in this survey are relatively small for meaningful statistical comparisons. Nevertheless, the numbers are considerably larger than anticipated, and there appear to be enough data to address general trends in settlement patterns, the selection and use of chert resources, and lithic technologies.

PALEOINDIAN SURVEY RESULTS

Paleoindian points in the study area are divided into two broad categories: fluted and unfluted. Fluted points are generally long, lanceolate, unnotched forms with

distinctive flutes on both faces. They are generally affiliated with the Early Paleoindian (11,500-11,000 B.P.) and Middle Paleoindian (11,000-10,500 B.P.) periods. Fluted points are composed of three types: Clovis (Figure 2), Gainey (Figure 3), and Cumberland (Figure 4). Clovis points are Early Paleoindian in age, whereas Gainey and Cumberland points are generally considered to be Middle Paleoindian (Tankersley 1996:22-33).

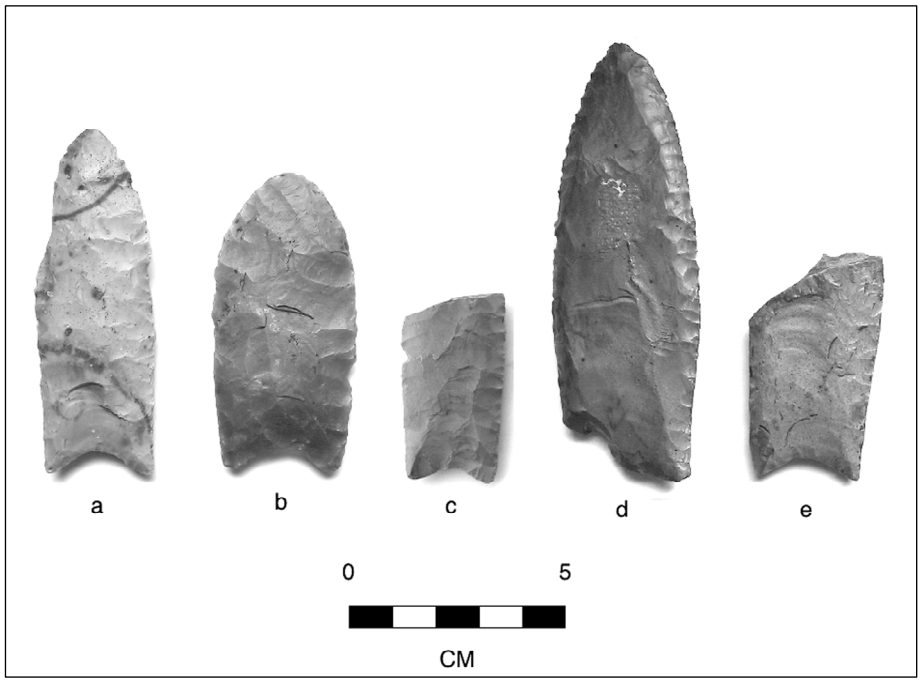

Figure 2. Clovis Points.

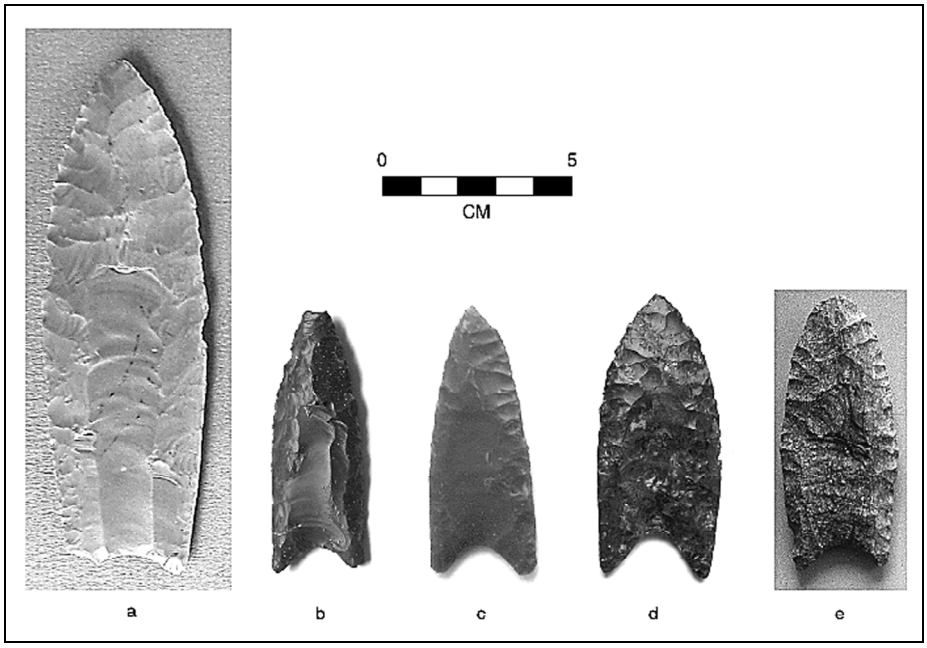

Figure 3. Gainey Points.

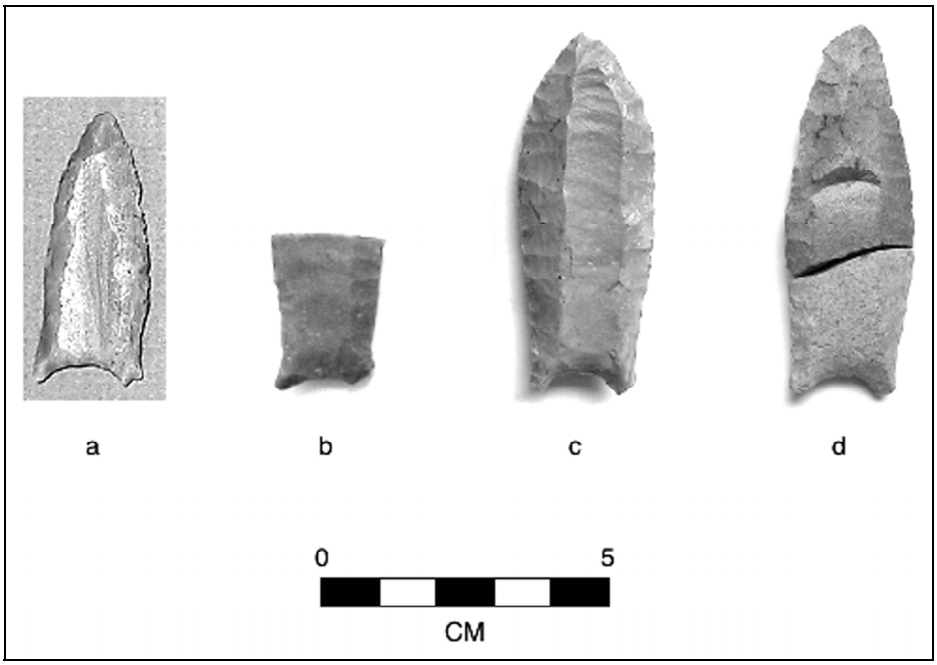

Figure 4. Cumberland Points.

Unfluted points are generally smaller than fluted points. Most exhibit long, narrow basal thinning scars on one or both faces instead of flutes. Unfluted points are affiliated with the Late Paleoindian period (10,500-10,000 B.P.). They appear to be separable into at least four types: Quad (Figure 5), Beaver Lake (Figure 5), Dalton (Figure 6), and Hardaway (Figure 7).

Of the 52 Paleoindian points that are included in this survey, 20 are fluted points/preforms that date to the Early Paleoindian and Middle Paleoindian periods and 32 are unfluted points that date to the Late Paleoindian period. The larger number of unfluted points may be an indicator of a greater population density during Late Paleoindian times. Fluted points include five Clovis, seven Gainey, six Cumberland, and two failed preforms. Unfluted points include two Quads, nine Beaver Lakes, 14 Daltons, and seven Hardaways.

SETTLEMENT PATTERNS

Table 1 compares the location of Early and Middle Paleoindian sites (fluted points) and Late Paleoindian sites (unfluted points) in relation to drainage basin, landform, and distance to a 5th Order stream. The sample totals in Table 1 differ from the total number of fluted and unfluted Paleoindian points in the survey for two reasons. First, two specimens (one fluted point and one unfluted point) have county-wide provenience only and, therefore, could not be associated with specific site data such as landform and distance to permanent water. Second, five sites produced multiple unfluted points (n=14). For these sites, only one unfluted point from each of the five sites was included in Table 1. Therefore, nine unfluted points are excluded from the table.

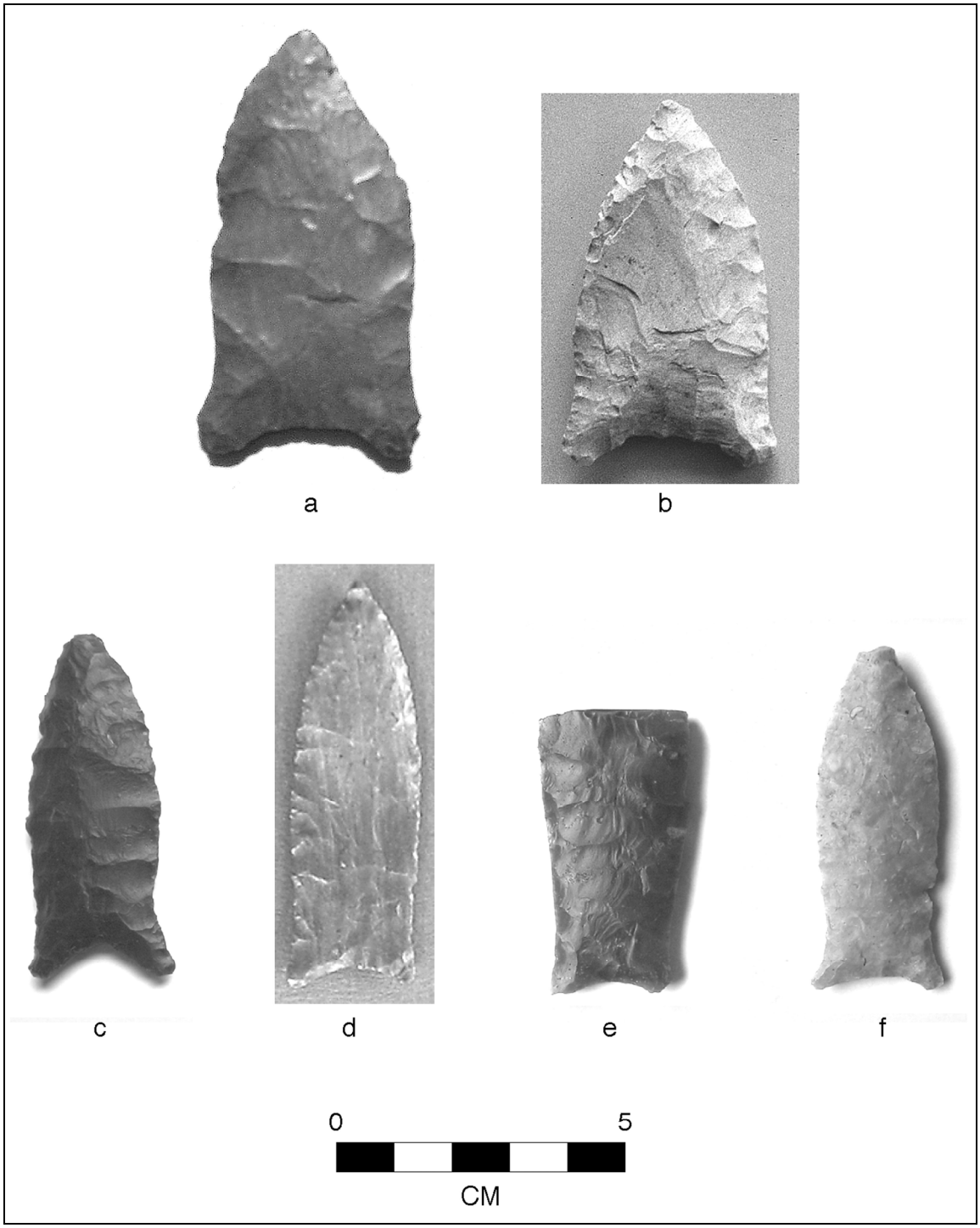

Figure 5. Quad (a, b) and Beaver Lake (c-f) Points.

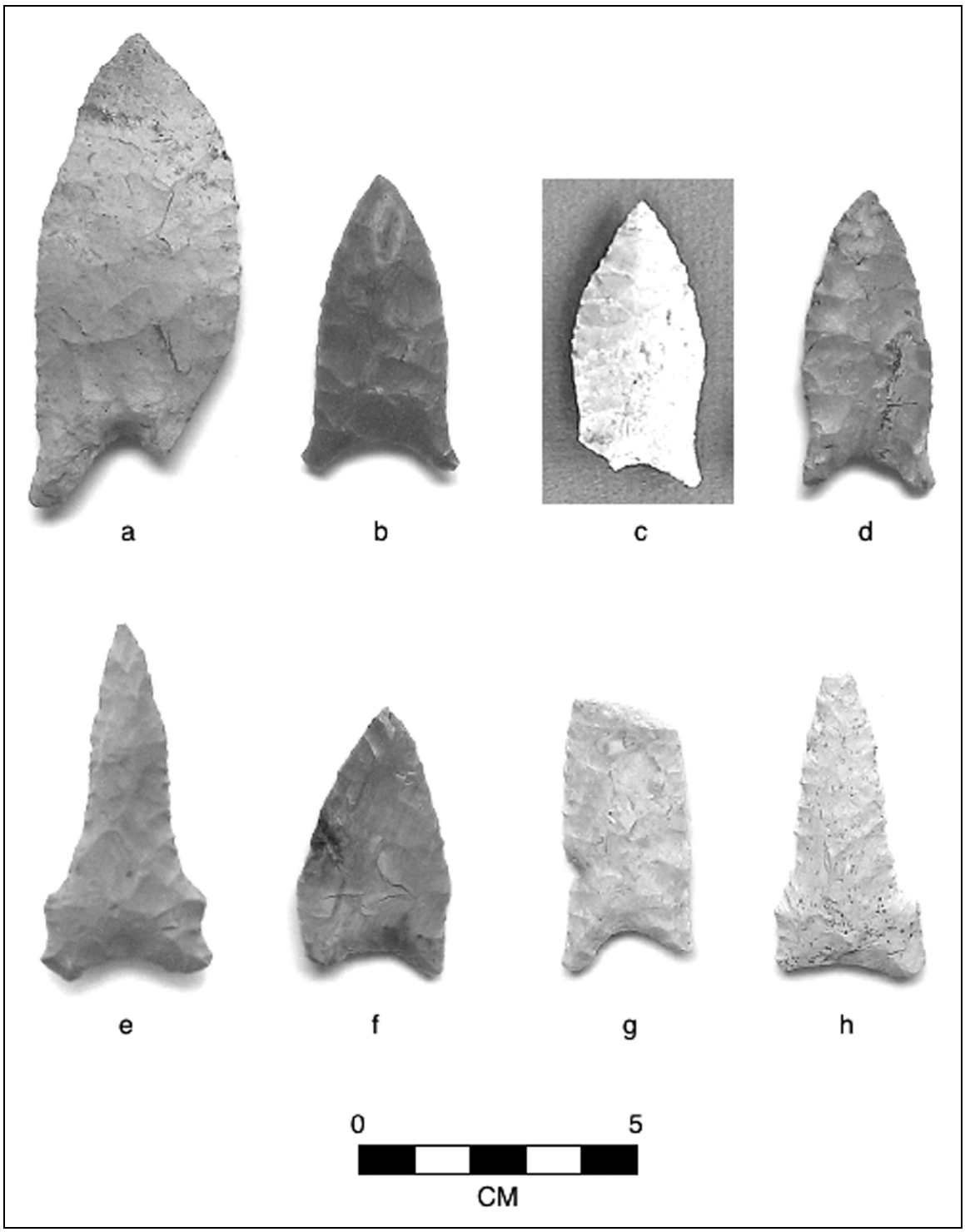

Figure 6. Dalton Points.

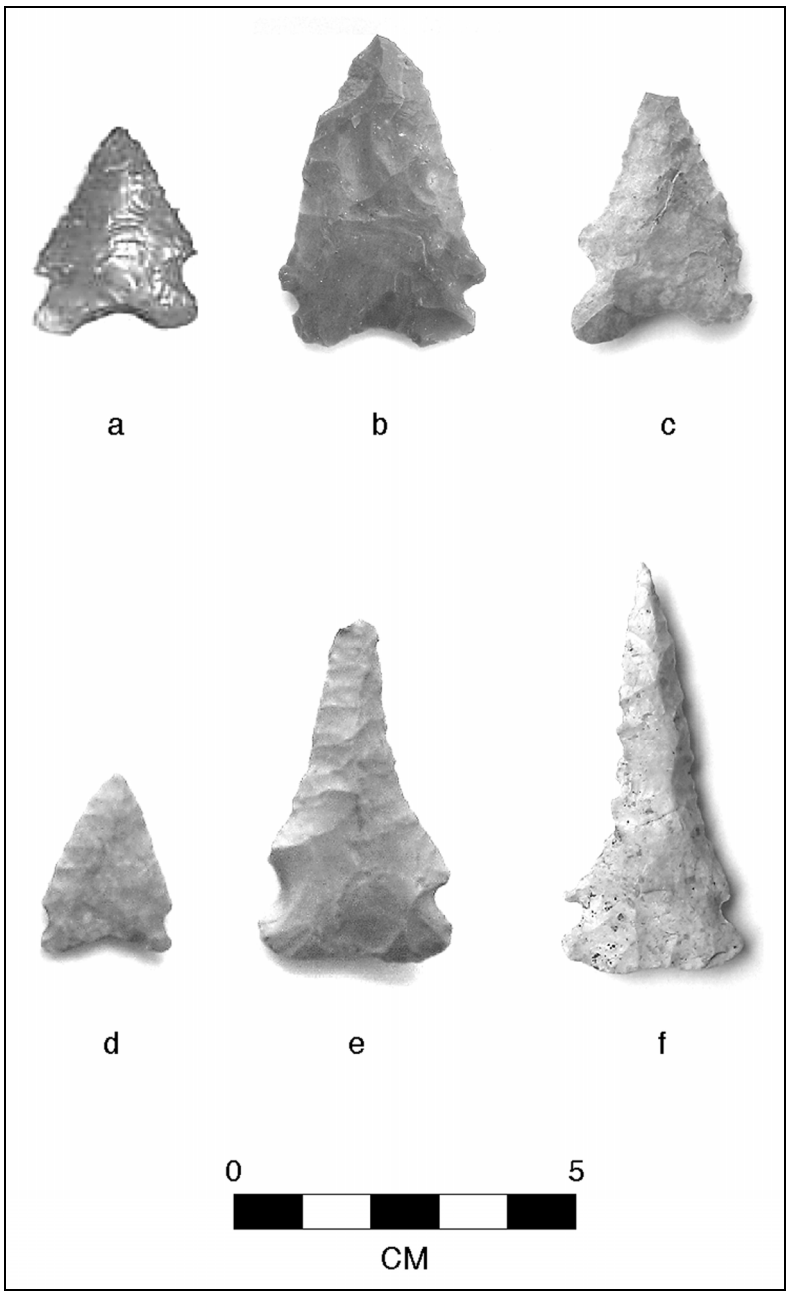

Figure 7. Hardaway Points.

As indicated in Table 1, a slightly higher number of unfluted points were collected from sites in the Beech Fork drainage basin, whereas the majority of fluted points were recovered from sites in the Rolling Fork drainage basin. One fluted point was recovered from a site on the divide separating the Rolling Fork and Beech Fork drainage basins. Sample sizes, however, are relatively small and any differences between drainage basins that contain fluted and unfluted points may be due to sampling error or collector bias.

Table 1. Paleoindian Sites in Relation to Geographic Features.

	Early and Middle Paleoindian Sites (Fluted Points)		Paleoindian Sites (Unfluted Points)		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Drainage Basin						
Rolling Fork	12	60.0	11	47.8	23	53.5
Beech Fork	7	35.0	12	52.2	19	44.2
Rolling Fork-Beech Fork	1	5.0	--	--	1	2.3
Landform						
Divide Summit	1	5.3	1	4.8	2	5.0
Ridge Summit/Slope	10	52.6	12	57.1	22	55.0
Strath Terrace	4	21.1	4	19.0	8	20.0
T-2 Terrace	3	15.8	3	14.3	6	15.0
T-1 Terrace	1	5.3	1	4.8	2	5.0
Distance to 5th Order Stream						
≤1 km	11	57.9	16	72.7	27	65.9
>1 km	8	42.1	6	27.3	14	34.1

There appears to be little or no difference in the selection of site location by landform during Paleoindian times. The majority of fluted and unfluted points were found in upland locations (i.e., ridge summits/slopes or divide summits). The remaining fluted and unfluted points were found on high strath terraces or lower alluvial terraces.

Strath terraces in the upper Rolling Fork River valley are T-3 or T-4 terrace remnants that are 12 m or more in height. They are old and often degraded (eroded) landforms that were formed in Pleistocene times with no significant aggradation (alluvial burial) since human entry into the New World (Ray 1999:62). T-2 terraces in the upper Rolling Fork River valley typically stand 6-8 m above base flow. These terraces also appear to have been formed during late Pleistocene times prior to the arrival of humans (Ray 1999:61-62, 67). Similar high Pleistocene-age terraces (suite 1 and 2 terraces) with limited aggradation were reported in the middle Salt River valley (Collins and Norville 1980:253-254). The same processes of terrace formation that occurred in the upper portion of the Rolling Fork and the middle portion of the Salt Fork probably occurred in the upper Beech Fork River valley.

Paleoindian occupation of the lowest (T-1) terraces in the project area appears to be rare. Investigations in the upper Rolling Fork and middle Salt Fork valleys also suggest a Pleistocene age with limited alluvial aggradation for this terrace (Collins and Norville 1980; Ray 1999); however, these interpretations must be considered preliminary until more extensive geomorphological work involving deep coring and trenching can be conducted. The presence of few Paleoindian points on T-1 terraces in the study area does not mean that Paleoindians did not use these terraces. If T-1 terraces were actively aggrading during terminal Pleistocene and/or early Holocene times, Paleoindian deposits may be too deeply buried to be brought to the surface by plow agriculture. Deeply buried

Paleoindian and Early Archaic deposits have been found in the lower Tennessee River valley (J. Chapman 1975, 1977), in the Duck River valley in central Tennessee (Brakenridge 1984), and in the lower Pomme de Terre and Sac River valleys in southwest Missouri (Brakenridge 1981; Hajic et al. 1998, 2000; Haynes 1985; Kay 1982, Ray 1998b, 2000c). If deep Paleoindian deposits are present in the study area, they probably occur at stream confluences, in alluvial fans, and in the downstream reaches of the Rolling Fork and Beech Fork rivers.

Settlement patterns of Early and Middle Paleoindians are not well understood. Paleoindians generally are thought to have concentrated their activities along major river valleys (Anderson 1996). Although the Salt River and its major southern tributaries (i.e., Rolling Fork and Beech Fork) are not considered major river systems, the Salt River basin does flow directly into the Ohio River. Presumably, Early and Middle Paleoindians made their first entries into Washington and Marion counties by traversing up the Beech Fork and Rolling Fork river valleys. Tankersley (1996:37) states that Paleoindian sites occur over a wide area, but that they are concentrated in specific topographic settings and microenvironments, such as terraces near the confluence of major streams and their tributaries, margins of bogs and ponds, saline springs, major game trails, and sources of high-quality chert.

The findings from Marion and Washington counties indicate that Paleoindian sites are located in a much more diverse and widespread pattern. The Rolling Fork and Beech Fork Paleoindian data were compared to the above models by measuring the distance between Paleoindian sites and permanent streams. For this study, permanent streams are defined as 5th Order or larger. The data indicate that a majority of fluted points and unfluted points were collected from sites located within 1 km of 5th Order streams (Table 1). This may reflect collector bias in that a higher percentage of terraces than uplands are tilled; however, tobacco patches in central Kentucky are often located in upland settings. The most unexpected aspect of the data in Table 1 is that a higher percentage of fluted points were found at distances greater than 1 km than unfluted points. This suggests that groups that were making fluted points had already expanded into, and were utilizing, intermittent tributary valleys and upland areas of the upper Rolling Fork and Beech Fork river valleys during Early and Middle Paleoindian times. This implies very rapid colonization of all environments and regions of Kentucky by the earliest Paleoindian immigrants, or that Early Paleoindians may not have been the first immigrants into Kentucky and that they succeeded an earlier pre-Clovis or pre-Paleoindian presence.

CHERT SELECTION AND USE

The sample totals in Tables 2-6 also differ from the total number of fluted and unfluted Paleoindian points in the survey. Two fluted points and two unfluted points were not available for raw material analysis and five fluted points and two unfluted points were not available for morphometric measurements. As mentioned above, these sample populations are small, especially for the comparison of individual point types. As a result, attribute observations and comparisons may not be statistically significant, and any conclusions should be considered tentative until more data can be collected. General

Table 2. Paleoindian Points by Chert Type

	Local Cherts						Nonlocal/Exotic Cherts						Total	
	Muldraugh		Brassfield		Gilbert		St. Louis		Upper Mercer		Unidentified			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Fluted Points														
Clovis	--	--	--	--	--	--	3	60.0	--	--	2	40.0	5	27.8
Gainey	--	--	--	--	--	--	4	57.1	1	14.3	2	28.6	7	38.9
Cumberland	--	--	--	--	--	--	2	50.0	--	--	2	50.0	4	22.2
Preform	--	--	--	--	--	--	1	50.0	--	--	1	50.0	2	11.1
Total	--	--	--	--	--	--	10	55.6	1	5.6	7	38.9	18	100.0
Unfluted Points														
Quad	1	50.0	--	--	--	--	1	50.0	--	--	--	--	2	6.7
Beaver Lake	3	33.3	1	11.1	--	--	3	33.3	--	--	2	22.2	9	30.0
Dalton	3	25.0	3	25.0	1	8.3	4	33.3	--	--	1	8.3	12	40.0
Hardaway	3	42.9	2	28.6	--	--	2	28.6	--	--	--	--	7	23.3
Total	10	33.3	6	20.0	1	3.3	10	33.3	--	--	3	10.0	30	100.0

Table 3. Metric Data for Early and Middle Paleoindian Points.

Specimen No.	Point Type	Site Number	Inter-Flute Thick.	Max. Blade Width	Basal Width	Length of Basal Grinding	Length (Complete)	Max. Thick.	Depth of Basal Concavity	Max. Flute Length Obv.	Max. Flute Width Obv.	Max. Flute Length Rev.	Max. Flute Length Rev.
1	Clovis	15MN100	5.5	27.5	25.1	30.6	78.8	9.3	5.5	25.6	13.8	15.9	13.1
2	Clovis	n/a	6.4	32.9	26.8	none	67.2	8.7	4.8	31.6	10.9+	25.1	19.6
26	Clovis	15MN105	4.9	ind	20.2	29.8	ind	ind	3.8	22.1	8.6	16.8	9.3
34	Clovis	15MN108	6.4	33.6	ind	36.2	97.7*	8.7	2.3*	39.2	16.2	33.9	13.1
35	Clovis	15MN109	5.8	ind	23.5	34.2	ind	ind	4.5	35.5	12.9	30.8	16.2
3	Gainey	15WS30	6.3	31.9	27.6	31.2	71.1	7.8	11.0	44.2	18.3	35.5	18.9
13	Gainey	15MN101	7.0	40.6	28.0*	58.5	126.0*	9.9	5.2*	68.8	18.3	45.8	17.3
19	Gainey	15MN342	5.9	30.7	24.4	33.4	70.4	8.5	6.5	28.8	16.8	20.6	19.0
28	Gainey	15MN106	6.0	25.9	29.2	33.2	68.9	6.7	7.4	44.2	14.1	45.2	15.6
41	Gainey	15WS37	4.8	22.4	22.0	24.2	61.9*	6.0	6.1	32.1	10.0	30.4	ind
47	Gainey	15CS18											
48	Gainey	15MN359											
5	Cumberland	15WS31	6.5	21.9	18.8	28.8	61.2	8.1	4.0	42.6	10.0	33.6	11.4
14	Cumberland	15WS35	6.5	19.3	19.4	19.7	48.0	7.5	4.0	39.0	11.3	38.1	10.5
29	Cumberland	15MN317	4.1	ind	18.0*	26.7	ind	ind	2.5*	ind	ind	ind	ind
33	Cumberland	15MN107	8.1	23.5	18.3	19.2	60.6	8.9	4.3	51.1	9.6	46.7	9.3
49	Cumberland	15MN113											
50	Cumberland	15MN114											
45	Fluted Preform	15MN59	n/a	ind	ind	none	ind	ind	ind	n/a	16.2	12.4	11.9
46	Fluted Preform	15MN112	n/a	ind	ind		ind						
Mean Values	Clovis		5.8	31.3	23.9	32.7	81.2	8.5	4.2	30.8	12.9	24.5	14.3
	Gainey		6.0	30.3	26.2	36.1	79.7	7.8	7.2	43.6	15.5	35.5	17.7
	Cumberland		6.3	21.6	18.6	23.6	56.6	8.2	3.7	44.2	10.3	39.5	10.4

Notes: * = extrapolated; n/a = not applicable; ind = indeterminate.

Table 4. Attribute Data for Early and Middle Paleoindian Points.

Specimen No.	Point Type	Site Number	Chert Type	Heat Treated	Basal Grinding	Blade Resharp.	Fracture Type	Beveled	Serrated	Basal Thinning	Basal Retouch	Composite Flutes	Guide Flutes
1	Clovis	15MN100	St. Louis-lg	no	light	limited/end	n/a	no	no	no	no	1 face	no
2	Clovis	n/a	St. Louis-rb	no	none	multiple/end	n/a	no	no	no	no	1 face	na
26	Clovis	15MN105	St. Louis-lg	no	moderate	indeterminate	recent	no	no	no	no	2 faces	na
34	Clovis	15MN108	Unidentified	no	moderate	limited/end	n/a	no	no	no	no	no	no
35	Clovis	15MN109	Unidentified	no	moderate	indeterminate	transverse	no	no	no	no	yes	?
3	Gainey	15WS30	Upper Mercer	no	moderate	multiple/end	n/a	no	no	no	no	2 faces	na
13	Gainey	15MN101	St. Louis-bg	no	moderate	no	n/a	no	no	no	no	2 faces	2 faces
19	Gainey	15MN342	Unidentified	no	moderate	limited/end	n/a	no	no	no	no	1 face	na
28	Gainey	15MN106	St. Louis-bg	no	moderate	multiple/end	n/a	no	no	no	no	2 faces	na
41	Gainey	15WS37	St. Louis-rb	no	moderate	multiple/end	impact	no	no	no	no	yes	2 faces
47	Gainey	15CS18	Unidentified			multiple/end	n/a	no	no	no			
48	Gainey	15MN359	St. Louis-bg			indeterminate	transverse						
5	Cumberland	15WS31	Unidentified	no	light	multiple/end	transverse	no	no	no	yes	no	no
14	Cumberland	15WS35	St. Louis-bg	no	light	multiple/end	n/a	no	no	no	yes	no	no
29	Cumberland	15MN317	St. Louis-rb	no	light	indeterminate	transverse	no	no	no	yes	no	no
33	Cumberland	15MN107	Unidentified	no	light	multiple/end	n/a	no	no	no	yes	no	no
49	Cumberland	15MN113											
50	Cumberland	15MN114											
45	Fluted Preform	15MN59	St. Louis-bg	no	none	n/a	reverse hinge	no	no	no	no	ind	na
46	Fluted Preform	15MN112	Unidentified				transverse	no	no	no			

Notes: n/a = not applicable; na = not apparent; bg = blue-gray variety; lg = light gray variety; rb = reddish-brown variety.

Table 5. Metric Data for Late Paleoindian Points.

Spec. No.	Point Type	Site No.	Max. Length of Thin. Scars	Max. Blade Width	Basal Width	Length of Basal Grinding	Length (Complete)	Max. Thick.	Depth of Basal Concavity	Max. Flute Length Obv.	Max. Flute Width Obv.	Max. Flute Length Rev.	Max. Flute Length Rev.
15	Quad	15NE88	18.5	36.1	38.8	34.9	74.9	7.4	6.1	22.6	10.5	n/a	n/a
21	Quad	15WS36	18.9	33.3	36.9	23.3	63.6	7.7	5.4				
4	Beaver Lake (f)	15WS31	5.5	ind	25.1	36.3	ind	ind	5.1				
16	Beaver Lake	15MN355	9.4	23.2	23.4	24.9	73.2	5.7	3.6				
23	Beaver Lake (f)	15MN104	7.3	ind	26.5	ind	ind	ind	4.9				
24	Beaver Lake (f)	15MN104	12.0	ind	22.2	ind	ind	ind	3.8				
36	Beaver Lake	15MN110	9.8	23.4	24.8	26.5	56.5	6.5	5.7				
37	Beaver Lake (f)	15WS35	ind	ind	33.1	ind	ind	ind	8.4				
38	Beaver Lake (f)	15WS35	ind	ind	28.9	ind	ind	ind	5.8				
42	Beaver Lake	15WS34	4.5	ind	21.4	24.2	ind	ind	2.9				
43	Beaver Lake	15MN111	5.8	21.1	22.6	none	58.5	6.8	2.9				
8	Dalton	n/a	9.0	23.5	24.1	21.4	51.6	7.0	5.8				
9	Dalton	15MN28	11.0	25.1	25.2*	17.7	47.9*	6.4	5.3*				
11	Dalton	15WS33	8.0	22.7	ind	23.1	ind	5.8	7.5*				
30	Dalton	15MN317	8.1	18.0	30.2*	13.6	62.5	7.3	4.7	16.5	10.6		
39	Dalton (f)	15MN329	9.2	ind	29.6	16.9	ind	ind	5.0				
51	Dalton	15MN32											
52	Dalton	15NE34											
12	Dalton-Colbert	15WS34	7.1	17.5	26.2	14.4	ind	7.4	2.9				
18	Dalton-Colbert	15NE88	12.2	19.2	31.2	3.8	ind	6.6	2.0				
6	Dalton-like	15WS32	7.0	22.4	26.7	20.6	50.6	6.7	5.4				
7	Dalton-like	15MN115	10.0	35.3	ind	none	82.6*	8.5	14.8*				
17	Dalton-like	15NE89	9.4	24.1	ind	21.2	49.8*	6.2	4.2				
20	Dalton-like	15MN102	14.5	29.8	30.7	24.0	56.1	6.1	5.8				
22	Dalton-like	15MN103	13.8	24.4	21.7	21.9	46.4	5.6	2.7				
10	Hardaway	15MN317	10.0	24.0	24.9	10.0	30.2	5.4	ind				
25	Hardaway	15MN310	n/a	13.0	29.1	14.1	ind	7.8	4.1	13.5	11.0	11.5	11.9
27	Hardaway	n/a	n/a	15.3	26.4*	15.0	ind	5.8	4.2*	17.9	14.1	11.7	12.7
31	Hardaway	15MN317	8.5	18.7	18.8	7.4	26.0	3.9	3.3				
32	Hardaway	15MN317	11.6	26.6	28.1	14.8	ind	8.3	2.0	18.9	14.4		
40	Hardaway	15MN317	n/a	29.1	25.7	none	44.3	5.1	3.0	22.4	13.1		
44	Hardaway	15WS34	10.5	24.1	26.2	8.9	57.1	6.7	1.7				
Mean Values	Quad		18.7	34.7	37.9	29.1	69.3	7.6	5.8				
	Beaver Lake		7.8	22.6	25.3	30.5	62.7	6.3	4.8				
	Dalton		9.6	23.8	28.0	17.7	57.3	6.8	5.8				
	Hardaway		10.2	21.5	25.6	11.7	39.4	6.1	3.1	18.2	13.2	11.6	12.3

Notes: f = stem fragment (classification probable); * = extrapolated; n/a = not applicable; ind = indeterminate

Table 6. Attribute Data for Late Paleoindian Points.

Specimen No.	Point Type	Site Number	Chert Type	Heat Treated	Basal Grinding	Blade Resharp.	Fracture Type	Beveled	Serrated	Basal Thinning
15	Quad	15NE88	St. Louis-bg	no	light	limited/end	n/a	no	no	yes
21	Quad	15WS36	Muldraugh	no	light	multiple/end	n/a	no	no	yes
4	Beaver Lake (f)	15WS31	Unidentified	no	light	indeterminate	transverse	ind	ind	yes
16	Beaver Lake	15MN355	St. Louis-rb	no	light	limited/end	n/a	no	no	yes
23	Beaver Lake (f)	15MN104	Muldraugh	no	light	indeterminate	transverse	ind	ind	yes
24	Beaver Lake (f)	15MN104	Muldraugh	no	moderate	indeterminate	transverse	ind	ind	yes
36	Beaver Lake	15MN110	St. Louis-bg	no	light	limited/end	n/a	no	no	yes
37	Beaver Lake (f)	15WS35	Muldraugh	no	light	indeterminate	transverse	ind	ind	ind
38	Beaver Lake (f)	15WS35	Unidentified	no	moderate	indeterminate	transverse	ind	ind	ind
42	Beaver Lake	15WS34	St. Louis-bg	no	moderate	indeterminate	transverse	no	no	yes
43	Beaver Lake	15MN111	Brassfield	no	none	limited/end	n/a	no	no	yes
8	Dalton	n/a	Gilbert	no	light	limited/end	n/a	no	no	yes
9	Dalton	15MN28	St. Louis-bg	no	light	multiple/sides	n/a	slight left	no	yes
11	Dalton	15WS33	Brassfield	no	light	indeterminate	transverse	no	no	yes
30	Dalton	15MN317	Muldraugh	no	light	multiple/sides	n/a	slight left	no	yes
39	Dalton (f)	15MN329	Muldraugh	no	light	indeterminate	transverse	ind	ind	yes
51	Dalton	15MN32								
52	Dalton	15NE34								
12	Dalton-Colbert	15WS34	Brassfield	no	light	multiple/sides	transverse	no	yes	yes
18	Dalton-Colbert	15NE88	St. Louis-bg	no	moderate	multiple/sides	transverse	slight left	no	yes
6	Dalton-like	15WS32	St. Louis-bg	no	light	multiple/end	n/a	no	no	yes
7	Dalton-like	15MN115	Muldraugh	no	ear only	limited/end	n/a	no	no	yes
17	Dalton-like	15NE89	Brassfield	no	light	multiple/end	n/a	no	no	yes
20	Dalton-like	15MN102	St. Louis-bg	no	light	multiple/end	n/a	no	no	yes
22	Dalton-like	15MN103	Unidentified	no	light	multiple/sides	n/a	no	no	yes
10	Hardaway	15MN317	St. Louis-bg	no	light	multiple/sides	n/a	no	yes	yes
25	Hardaway	15MN310	Muldraugh	no	moderate	multiple/sides	transverse	slight left	no	no
27	Hardaway	n/a	Muldraugh	no	light	multiple/sides	transverse	slight left	no	no
31	Hardaway	15MN317	Brassfield	no	light	multiple/sides	n/a	no	no	yes
32	Hardaway	15MN317	Muldraugh	no	moderate	multiple/sides	transverse	no	no	yes
40	Hardaway	15MN317	St. Louis-bg	no	none	multiple/sides	n/a	slight left	no	no
44	Hardaway	15WS34	Brassfield	no	moderate	multiple/end	n/a	no	no	yes

Notes: f = stem fragment (classification probable); n/a = not applicable; ind = indeterminate; bg = blue-gray variety; rb = reddish-brown variety.

comparisons are made between fluted and unfluted points first, followed by apparent distinctions among individual point types.

Before proceeding to the chert use analyses, a distinction is made regarding local, nonlocal, and exotic resources (Ray 1998a:21-22). A local resource refers to raw material that is located within approximately 10 km of a site. A nonlocal resource is located more than 10 km and less than 100 km from a site. An exotic resource is located 100 km or more from a site. Based on these definitions, Gilbert chert, Brassfield chert, Boyle chert, Muldraugh chert, and Harrodsburg chert are all local resources to the project area. St. Louis chert, on the other hand, is nonlocal or exotic to the study area depending on where the raw material was procured. If procured from areas around Sonora or Louisville (approximately 80-100 km), it would be nonlocal. If procured from more distant sources (e.g., in the Bowling Green, Hopkinsville, Harrison County, or Carter County areas), it would be exotic.

In this paper, St. Louis chert is an undifferentiated classification that includes indistinguishable dark gray chert deposits that occur in the upper portion of the St. Louis formation and the lower portion of the overlying Ste. Genevieve formation. This high-quality chert occurs in western and west-central Kentucky and southern Indiana. Various local place names have been used to refer to this chert, including Hopkinsville chert, Sonora chert, Wyandotte chert, and Harrison County chert. Very similar, if not indistinguishable, chert also occurs in Carter County and surrounding areas in northeastern Kentucky. This colorful chert, which has been referred to informally as Paoli and Carter Cave, derives from the Slade (or Neuman) formation, an apparent lateral equivalent of the St. Louis formation (Sable and Dever 1990). Geochemical analyses may some day help differentiate these regional look-alike cherts. However, the full range of look-alike cherts from the above formations have not been fully sampled and documented by archaeologists and petrochemists. Also, because geochemical analyses are expensive and destroy or alter sample specimens, it is an impractical approach for the analysis of artifacts in private collections. For these reasons, all of the look-alike cherts from the St. Louis, Ste. Genevieve, and Slade formations are referred to in this paper as Undifferentiated St. Louis chert.

Fluted Points

All 18 fluted point specimens in this study appear to have been manufactured from cherts that are either nonlocal or exotic (Table 2). Seven points were made from unidentified cherts. These cherts do not resemble any known varieties of the five local chert types and are presumed to represent nonlocal or exotic cherts.

Undifferentiated St. Louis chert appears to have been the extralocal raw material of choice. More than half (55.6 percent) of the fluted point specimens were manufactured from Undifferentiated St. Louis chert. Undifferentiated St. Louis chert is perhaps the highest quality chert resource in Kentucky. It is fine-grained with relatively few internal flaws and often occurs in large, round, cannonball-like nodules suitable for the manufacture of large lanceolate points.

At least three varieties of Undifferentiated St. Louis chert are recognized in the fluted points from the study area. Five were manufactured from the Blue-Gray variety, three were knapped from the Reddish Brown variety, and two were made from the Light Gray variety (Ray 1998a). High-quality chert from the St. Louis, Ste. Genevieve, and Slade formations is well known as a favorite of Paleoindian knappers in other parts of Kentucky (Gramly et al. 2000; Sanders 1988, 1990; Tankersley 1989, 1990).

The remaining fluted point, a Gainey (Figure 3d), was manufactured from exotic Upper Mercer chert. It is bluish black with light bluish gray mottles, which is the distinctive color pattern of Upper Mercer chert. It is fine grained, lustrous, and nonfossiliferous. Upper Mercer chert is located in east-central Ohio, approximately 400 km to the northeast of the study area.

Of nearly 600 fluted points from Indiana, Kentucky, and Ohio that were studied by Tankersley (1990:263-266), 82 percent were identified as made from Wyandotte/ Hopkinsville (i.e., Undifferentiated St. Louis) chert and Upper Mercer chert. Clovis points identified as made from Hopkinsville chert were found in central Indiana and southern Ohio; Clovis points identified as knapped from Wyandotte chert were found in southern and northern Ohio; and Clovis points identified as made from Upper Mercer chert were found in northern Kentucky, western and southern Indiana, and western New York (Tankersley 1990:Figure 10).

The exotic raw materials in Tankersley's study, as well as the exotic cherts noted in this study, indicate significant movements by Early and Middle Paleoindian groups (Tankersley 1989, 1996:24). In Paleoindian times, exotic raw materials were imported into an area in one of two ways: (1) direct procurement and curation or (2) indirect exchange.

Foraging mobility of Paleoindian hunter-gatherers has been discussed at length by several researchers (Anderson 1995; Anderson and Sassaman 1996; Morse 1971; Schiffer 1975; Walthall 1998). Late Pleistocene hunter-gatherers may have been highly mobile foragers following an annual round, and they may have carried highly curated task-specific tool kits. Band ranges/distances routinely traversed by Early/Middle Paleoindians have been postulated to be 150–300 km or more (Goodyear 1989:5; Haynes 1982:392; Meltzer 1989:11; Simons et al. 1984:267). On the other hand, trade between neighboring groups may have played a larger role in the movement of exotic raw materials than generally believed. Evidence for Early/Middle Paleoindian long-distance exchange of high-quality raw materials has been presented in a number of studies (Anderson 1995; Hayden 1982; Hester and Grady 1972; Tankersley 1989, 1991).

It is very difficult, however, to determine the exact mode by which exotic chert artifacts arrived in the project area. Archaeologists have debated this problem for several decades. As Meltzer (1989:30) stated, "the unfortunate bottom line is that there do not seem to be clear cut rules for sorting direct from indirect acquisition in any deterministic fashion." It appears impossible, therefore, to conclusively demonstrate which form of

acquisition (i.e., direct or indirect) is represented by the exotic chert artifacts found in the upper Rolling Fork and Beech Fork drainage basins. Indeed, it is probable that both forms of acquisition are represented.

It is important to stress, however, that multiple chert types occur in the study area. Three cherts (Brassfield, Boyle, and Muldraugh) occur in relatively abundant quantities (especially in the Rolling Fork basin) and are medium to high-quality cherts. Therefore, there was no need to import cherts into the chert-rich study area.

Two fluted artifacts from the project area that were made from nonlocal/exotic cherts suggest at least some extralocal chert may have arrived via exchange. Both are fluted point production failures. One failed preform is composed of Undifferentiated St. Louis chert that was fluted at Site 15Mn59. The other failed preform was knapped from an unidentified chert at Site 15Mn112. Because these preform failures were broken during manufacture in Marion County, they cannot represent finished curated tools that were made in west-central Kentucky or elsewhere and carried to Marion County on a seasonal round. It was transported to the site, however, as a preform.

Preforms of Undifferentiated St. Louis chert generally were made and fluted at large workshop sites like the Adams site in Christian County (Sanders 1988, 1990) and at smaller workshops like the Joe Priddy site in Hardin County (Haag 2004; Stackelbeck et al. 1996). Such sites may have been staging areas for the distribution of this high-quality chert to neighboring areas. It would seem impractical to transport preforms considerable distances into chert-rich areas only to risk failure during fluting, unless it helped serve other purposes unrelated to raw material procurement (e.g., exchange of goods to strengthen socio-political ties). Paleoindian aggregation, possibly for communal hunts, resource and information exchange, and/or to increase group solidarity, has been proposed for late Pleistocene/early Holocene hunter-gatherers in the Plains, Midwest, and Southeast (Anderson and Hanson 1988; Bamborth 1985, 1988, 1991; Walthall 1998; Walthall and Koldehoff 1998).

The concerted use of Undifferentiated St. Louis chert may have been greater during Early and Middle Paleoindian times than during any other period of Kentucky prehistory. This preference was indicated by Tankersley's (1990:263-266) tri-state study. The use of nonlocal Undifferentiated St. Louis chert during post-Paleoindian periods in the upper Rolling Fork River valley was relatively minor (<10 percent), except during Early Woodland and Middle Woodland times when it comprised approximately 20-27 percent of diagnostic artifacts (Ray 1998a:Table 7, 2000a:Table 2).

None of the 18 fluted points in this study had been heat treated. Intentional heat treatment of chert to improve knapping quality apparently was not a technology that was used during Early and Middle Paleoindian times (Morrow 1996:98; Ray 1998c:255). Early and Middle Paleoindian knappers selected only the highest quality raw materials that needed no heat treatment to improve knapping quality. A preference for high-quality cryptocrystalline material by Paleoindian knappers is well documented (Goodyear 1989;

Haynes 1980, 1982; Meltzer 1985; Ray 1998c; Smith 1990; Tankersley 1989, 1990, 1991).

Unfluted Points

Late Paleoindian points indicate a shift to the use of locally available chert resources (Table 2). This shift is apparent in at least three of the four Late Paleoindian point types (i.e., Beaver Lake, Dalton, and Hardaway) that yielded seven or more specimens. All but 3 of 30 unfluted points could be identified as to chert type.

Nearly 60 percent of the Late Paleoindian points were manufactured from local cherts. These include ten (33.3 percent) made from Muldraugh chert, six (20 percent) made from Brassfield chert, and one (3.3 percent) knapped from Gilbert chert. Muldraugh and Brassfield cherts exhibit fair to good knapping qualities and occur in relatively large quantities. Muldraugh chert is the most abundant chert type in the Rolling Fork River valley and adjacent areas. It is common in residual deposits along the Muldraugh Hills Escarpment and on the flanks of knobs, and it dominates the gravel deposits in the Rolling Fork River (Ray 1998a:26-27, 2000a:100). Brassfield chert is the most common chert type in the western portion of Washington County and many portions of the Beech Fork drainage basin. Where the Brassfield formation crops out, chert is usually abundant as residual deposits. Gilbert chert is the least common of all the local chert resources.

Ten or one-third of the unfluted points were manufactured from nonlocal/exotic Undifferentiated St. Louis chert. Nine of these points were made from the Blue Gray variety and one was made from the Reddish Brown variety. As a nonlocal/exotic resource, Undifferentiated St. Louis chert still comprises a significant percentage of Late Paleoindian points, but it does not approach that for Early and Middle Paleoindian points. It appears that although connections to Undifferentiated St. Louis chert were maintained, a greater effort was made to utilize local cherts during Late Paleoindian times. Reasons for the change to a greater reliance on local resources are unclear, but it may relate to increasing population and/or permanent residency in the upper reaches of the Rolling Fork and Beech Fork drainage basins during Late Paleoindian times.

The remaining three unfluted points were unidentified as to chert type. These unidentified cherts probably represent nonlocal or exotic raw materials. If unidentified and Undifferentiated St. Louis cherts are combined, then 43.3 percent of the Late Paleoindian points were manufactured from nonlocal or exotic raw materials.

None of the 30 Late Paleoindian points exhibited evidence of heat treatment. Heat treatment appears to have developed during Early-Middle Archaic times when knappers began to focus on local cherts, often of inferior knapping quality (Ray 1998a, 1998c).

LITHIC TECHNOLOGY

The complex process of manufacturing Paleoindian tools changed considerably during the approximately 1,500 years that comprise the Paleoindian stage. These changing technologies resulted in the appearance of different forms of Paleoindian points. The multiple point types that occur in Middle Paleoindian and Late Paleoindian times presumably represent distinct, but contemporaneous social groups. Morphometric analyses and other technological attributes on fluted points from the upper Rolling Fork and Beech Fork drainage basins support a distinction between Clovis, Gainey, and Cumberland points. Distinctions between the four Late Paleoindian point types, however, are less clear.

Fluted Points

Fluting technology, which apparently was developed approximately 11,500 years ago during the Early Paleoindian period, spread quickly across the continent. This process involved the removal of large elongated flakes from one or both faces of the stem, presumably to facilitate hafting. Fluting is the primary distinction between points made during Early and Middle Paleoindian times and those made during Late Paleoindian times. Occasionally, however, some Late Paleoindian points, such as Quad, Dalton, and Hardaway, do exhibit central, channel-like flake scars on one or both faces that could be interpreted as small flutes. These flutes never approach the long and wide channel flutes of Middle Paleoindian points. Some, however, compare favorably with flutes on Clovis points.

Morphometric data (Table 3) and other technological attributes (Table 4) on fluted points from the upper Rolling Fork and Beech Fork drainage basins help differentiate Clovis, Gainey, and Cumberland points. Maximum flute lengths of Gainey and Cumberland points (obverse and reverse faces) are similar to one another but are 11-15 mm longer on average than those on Clovis points (Table 3). Flutes on the reverse face are generally several millimeters shorter than on the obverse face of all three point types. Presumably, fluting the reverse face was more difficult than the obverse face due to difficulty in reestablishing a suitable platform.

The ratio of maximum flute length to maximum flute width of Clovis and Gainey points is approximately 2:1, compared to 4:1 for Cumberland points. Thus, flutes on Cumberland points are narrower than those on Clovis and Gainey points. Clovis and Gainey points often exhibit multiple fluting on one or both faces, whereas single flutes usually are present on Cumberland points. Although not always present, guide flutes appear to be restricted to Gainey points. There appears to be little or no difference in interflute thickness on the three fluted point types from the project area.

Gainey points have the deepest basal concavities, which are nearly twice that of Cumberland and Clovis points. An attribute noted only on the Cumberland points is the presence of small bifacial retouch flake scars along the basal concavity (Table 4). They are short (<6 mm) pressure flakes that override the proximal end of each channel flute.

Similar small lateral retouch flake scars sometimes override channel flutes along the blade, which suggests that they probably represent final retouch along the basal and lateral margins prior to hafting. Basal retouch was present on all four Cumberland points. Gramly et al. (2000:35) noted similar fine flaking in the basal concavities of 10 Cumberland points from Lewis County, Kentucky. Fine marginal and basal retouch is an attribute that Cumberland points share with Folsom points (Bell 1958:26; Frison and Bradley 1980:49) and Folsom-like Sedgwick points (Bell 1958:Plate 13; Ray 2000b:49).

All of the fluted points exhibited light to moderate grinding except one Clovis point. The length of grinding along the haft element presumably demarcates that portion of the point inserted and/or bound to a foreshaft. Although there is some variability within and overlap between individual point types, it appears that grinding extended to a greater extent along the lateral margin of Gainey and Clovis points than on Cumberland points.

There appears to be little, if any, difference in maximum thickness among the three fluted point types. Averaged thicknesses of all three types range between 7.8 mm and 8.5 mm. Maximum blade width and basal width of Gainey and Clovis points are similar, whereas both attributes are considerably less for Cumberland points. Tankersley (1990:Table 8) compared metric data for several hundred Clovis and Cumberland points. Basal width, maximum blade width, and maximum flute length all correspond favorably with the morphometric data on Clovis and Cumberland points from the project area. Tankersley's mean total length for Clovis (67.5 mm) and Cumberland (71.7 mm), however, are greater than for those points studied here. Rolingson's (1964:Table 8) morphometric data for Cumberland points also compares favorably with the Cumberland data from the upper Rolling Fork and Beech Fork drainage basins. The only notable differences are greater total length and flute length for Cumberland points in Rolingson's survey. Ten Cumberland points from Lewis County also are considerably longer than those from the study area (Gramly et al. 2000:35).

The reasons for the size discrepancy of Cumberland points from Marion, Nelson, and Washington counties are unclear. A larger sample of Cumberland points from the study area needs to be measured to determine if the noted size differences are real or due to sampling error.

Blade resharpening/maintenance is evident on all but one of the fluted points. Resharpening, however, was confined to the distal portion of the blade, and it varied from limited retouch to multiple episodes of blade rejuvenation. Lateral resharpening flake scars truncated the channel flutes on all three complete Cumberland points. Beveling and serrations are blade resharpening attributes completely absent from all of the fluted point types. One or two specimens of each fluted point type exhibited short bevel retouch on distal ends that resembled scraper-like recycling modifications. Gramly et al. (2000:35) also noted a short beveled area on one Cumberland point.

One Clovis point, one Gainey point, and two Cumberland points exhibited old fractures apparently made during use. The fractures on both Cumberland points and the

Clovis point were transverse snap fractures, whereas the Gainey point exhibited hinge fractures on both faces emanating from the distal end. Both types of breaks reflect impact fractures. These fracture types and lack of resharpening along blade edges indicate the fluted points were used as projectile points.

The above morphometric differences may reflect a change in fluting technology that first appeared during the Middle Paleoindian period. The primary technological shift appears to have been from one of direct percussion to one involving indirect percussion (Morrow 1995:175-176, 1997:4-6). The reduction sequence for Middle Paleoindian points (especially Gainey) appears to differ from Clovis in several important respects (Morrow 1997:8-12; Morrow and Morrow 2000). First, Gainey points are typically fluted during later stages of biface reduction when the preform is not much thicker than the finished point. Second, isolated fluting platforms are usually set low to the center plane of the biface. Third, the distal ends of Gainey points are often blunt and occasionally ground, suggesting that the rounded ends were placed on a hard surface such as a wooden anvil. Fourth, the basal concavities on Gainey preforms are typically much deeper than those on Clovis preforms, which on most preforms would inhibit flute removal by direct percussion. The latter two attributes imply that Gainey points were fluted by indirect percussion as opposed to direct freehand percussion probably used by Clovis knappers (Morrow 1996; Morrow and Morrow 2000:16). Indirect percussion with a punch allows for more accurate placement of the percussor on small nipple platforms and control over the angle of applied force. These advantages appear to have enabled more precise execution of flute removal, resulting in longer and more standardized flutes on Gainey (and probably Cumberland) points than on Clovis points.

Different technological attributes on Gainey and Cumberland points suggest there were additional innovations and specialization during the Middle Paleoindian period that resulted in the development of at least two distinct indirect fluting technologies. Technological differences between Gainey points and Cumberland points pertain to fluting techniques, basal retouch, and overall shape.

Gainey points generally have multiple flutes on one or both faces. Some of the multiple flutes on Gainey points are much shorter than the primary flute. Gainey points also often exhibit guide flutes (Ellis and Payne 1995:465; Morrow and Morrow 1999:68; Ray 2000b:49-51; Simons et al. 1984:268; Witthoft 1952). Guide flutes, located on either side of the channel flute, can be difficult to identify since they may be partially or entirely obscured on some faces by the large channel flute and/or lateral thinning subsequent to fluting. Ostensibly, guide flutes served as guides to the subsequent channel flute; however, the removal of guide flutes may have functioned primarily to isolate a striking platform in the middle of the basal concavity and that a secondary result was the formation of a ridge between the two scars that would guide the main channel flute (Ray 2000b:50). Whatever the main purpose, guide flutes are usually narrower, shorter, and not as thick as the channel flutes. The basal concavity of Gainey points are the deepest of all Midwestern Middle Paleoindian points, averaging nearly twice that of Cumberland points. There is very little retouch along the basal margin of Gainey points other than occasional basal thinning.

In contrast, the fluting technology applied to Cumberland points has been compared to that applied to Folsom points (Justice 1987:25; Roosa and Deller 1982:6-8). Flutes on Cumberland points generally extend the full length of each face to the distal end. Flutes on Cumberland points are relatively wide compared to blade width, comprising approximately one-half or more of the face of the blade. Also like Folsom points, Cumberland points usually exhibit single flutes per face and they do not exhibit guide flutes. They also often exhibit uniform, short lateral flake scars along blade margins like Folsom points (Frison and Bradley 1980:49). Subsequent to fluting, the basal concavity of Cumberland points is finely retouched by pressure flaking on both faces, which is another attribute of Folsom points (Bell 1958:Plate 13). These attributes strongly suggest that the fluting technology of Cumberland points is more closely allied to Folsom than to Gainey. One distinct difference between Cumberland and Folsom, however, is thickness. This may relate to access and use of different raw materials (e.g., obsidian and other glass-like materials used by Folsom knappers vs. lesser-quality cherts used by Cumberland knappers) and/or to different technologies developed for specialized hunting (e.g., Folsom bison hunting vs. Cumberland caribou hunting).

Another attribute that differentiates Cumberland from Gainey is the shape of the stem and base. The stems on Cumberland points are incurvate which produces distinctive ears (or fish-tail shape) generally not seen on Gainey points. As noted above, the depth of the basal cavity on Cumberland points is usually much less than that on Gainey points.

Unfluted Points

Radical changes in lithic technology occurred at the beginning of the Late Paleoindian period at approximately 10,500 B.P. A few of the technological changes include: (1) a reduction in the overall size of Late Paleoindian points (i.e., shorter and narrower), (2) the appearance of notched forms, (3) resharpening along the lateral margins of the blade as well as at the distal ends, and (4) a general abandonment of fluting.

Perhaps the greatest technological change was the disappearance of fluting and the appearance of basal thinning. Although some Late Paleoindian points do exhibit broad basal flake scars that could be classified as flutes, they probably were not produced by the specialized indirect method used during Middle Paleoindian times. Instead, channel flutes were replaced by the removal of one or more relatively thin and short percussion or pressure flakes from the basal concavity. The small flutes evident on a relatively small percentage of Late Paleoindian points could be interpreted as the decline and eventual disappearance of fluting technology, much as the short flutes on Clovis points could be interpreted as the beginning of fluting technology.

Most Late Paleoindian points are thinned along the basal concavity. Of the 30 Late Paleoindian points that were examined, all but three Hardaway points exhibited basal thinning. Thinning scars may be present on one or both faces. The maximum length

of basal thinning scars on most Late Paleoindian points is less than 12 mm (Table 5). Some, however, approach 20 mm in length.

Although less than Gainey points, the depth of basal concavity on Late Paleoindian points does not appear to be significantly different from that on Clovis points and Cumberland points. Average basal concavity on Quad, Beaver Lake, and Dalton points range between 4.8 mm and 5.8 mm. Hardaway points exhibit the shallowest basal concavities of about 3 mm.

Of all the Late Paleoindian points, Quad points exhibit the greatest basal width because its ears usually expand or flare outward. Basal width of Beaver Lake, Dalton, and Hardaway points are similar. As with basal width, maximum blade width is greatest on Quad points. Average blade width is similar among Beaver Lake, Dalton, and Hardaway points. When basal width is compared to maximum blade width, basal width generally is equal to or greater on all four unfluted point types.

Unfluted points can be divided into two types based on the shape of their stems. Quad points and Beaver Lake points are lanceolate in shape with no distinction between the haft and blade elements other than where lateral grinding ends. Dalton and Hardaway, on the other hand, exhibit well-defined stems that have either incurvate sides (Dalton) or side or corner notches (Hardaway).

Blade resharpening on unfluted lanceolate points often differs from that on unfluted notched points (Table 6). Quad points and Beaver Lake points are resharpened only at the distal end, whereas Dalton and Hardaway points may be resharpened at the distal end or along the sides of the blade. Another apparent difference between lanceolate and notched Late Paleoindian points is the presence/absence of beveled and serrated blades. None of the Quad or Beaver Lake points in the survey had beveled blades, whereas three Dalton points and three Hardaway points exhibited beveled blades. When beveling is present, it is usually on the left side of the blade. One Hardaway point, however, was bifacially beveled into a drill-like form. Serrated blades were not common among the Late Paleoindian points. In fact, only one Dalton point (Colbert variety) had a serrated blade. The general lack of beveled and serrated blades on Dalton points from central Kentucky differs from Dalton points in the Ozarks region and other areas west of the Mississippi River, where they are typically serrated and beveled on the right side (C. Chapman 1975:96, 245; Morse 1997). Nearly half of the Late Paleoindian points in the survey had broken blades. All were transverse snap fractures, suggesting they were used primarily as projectile points.

In general, Quad and Beaver Lake points are similar in overall design. The only apparent differences appear to be that Quad points are shorter relative to width and they have a greater basal width due to ears that flare outward (Justice 1987:36). Quad and Beaver Lake points are the least well-known of the Late Paleoindian types. Neither type has been found and radiocarbon dated in good stratigraphic contexts in Kentucky (Tankersley 1996:33). Quad and/or Beaver Lake points have been reported in stratified contexts at Dust Cave in Alabama and at the Olive Branch site in southern Illinois. The

best stratified deposits were found at Dust Cave. At this cave site, two Quad points, three Beaver Lake points, two Dalton points, and one Hardaway point were found together in the earliest deposits that were dated between 10,500 B.P. and 10,000 B.P. (Driskell 1996:326-329). However, no vertical separation was reported among the four Late Paleoindian types, all of which could be lumped into a Dalton Cluster (Justice 1987:35-43).

Gramly (2002:35, 71-75) tried to make a distinction between early and late Dalton Cluster artifacts from the Olive Branch site, even though he admits that, "Intensive bioturbation appears to have occurred, making it a challenge to document small changes in artifact form or frequency." Only one of seven dates (9,975 $\pm$ 125 B.P.) from the Olive Branch site appears to actually date the Late Paleoindian deposit (Gramly 2002:Table 4). Gramly's (2002:71-74) earlier "Sirkin" phase is comprised of Beaver Lake-like points that he refers to as "Olive Branch" points and "long-shanked" Dalton points. However, the specimens that he illustrates as representative of the early Sirkin phase (Gramly 2002:Figures 7 and 17) would fall comfortably within any large Dalton assemblage from Missouri or Arkansas (C. Chapman 1975; Kay 1982; Lopinot et al. 1998, 2000; Morse 1997; O'Brien and Wood 1998). Additionally, most of the specimens from the "Sirkin" phase exhibit serrated and/or beveled blades (Gramly 2002:Figure 17), which are not characteristics generally attributable to Beaver Lake points. Other Quad and Beaver Lake-like points from Olive Branch are illustrated by Gramly (2002:Figure 42 and Plate 80). All of these, however, could represent a wide range of variability within the Dalton type at the Olive Branch site, which appears to have been one of the most important Late Paleoindian sites in the midcontinent. It not only served as a habitation and intensive workshop area, but also probably as a focal point (staging area and/or rendezvous site) where various Dalton groups regularly crossed the Mississippi River and probably exchanged various raw materials.

A number of possibilities might account for the Quad and Beaver Lake types. First, they might indeed represent two separate lanceolate point types as currently defined by most Paleoindian point typologies. The morphometric data from this study generally support this notion, but the sample of each type was too small to make meaningful comparisons. The morphometric differences also might be due simply to range of variability and/or resharpening. Second, they may represent a range in variation within a single point type. This type may be temporally separate from earlier fluted points and technologically separate from contemporaneous Dalton and Hardaway points. Variation in a projectile point template between knappers of different but affiliated bands, especially across an entire state, could account for slightly broader and more pronounced ears on Quad points and a more pronounced stem constriction on Beaver Lake points. Part of this variation may be a result of resharpening. Multiple episodes of blade resharpening of Quad points below the original maximum blade width exaggerate the basal width as well as reduce the length to a short stubby appearance.

There is also considerable overlap between Quad and Beaver Lake points and unresharpened or slightly resharpened Dalton points. Thus, a third possibility is that Quad, Beaver Lake, and Dalton represent an even wider range of variation and/or

resharpening within a single Dalton type. A considerable range of variation in what some investigators consider Quad, Beaver Lake, and Dalton appears to support a single Dalton type. Justice (1987:35-42) placed all three in a Dalton Cluster. Most of the points identified as Quad or Quad subtypes by Rolingson (1964:Figures 13-15, 17) more closely approximate the Beaver Lake (Figures 13 and 17) type and the Dalton type (Figures 14-15). The same is true of points from the Roach site that were identified as Quad (Rolingson 1964:Figure 43; Rolingson and Schwartz 1966:Figure 25a). These points illustrate a considerable range of variation in blade, stem, and base configuration, but most of these fall within the range of unresharpened or slightly resharpened Dalton points. One specimen from the Roach site (Rolingson 1964:Figure 43, lower left) has a classic Beaver Lake shape with a constricted (waisted) stem but exhibits a serrated blade generally attributed to Dalton points. Several similar serrated points were recovered from the Olive Branch site (Gramly 2002:Figure 17). Some Quad and Beaver Lake points may represent Dalton points that were strictly projectiles and were resharpened only on their distal ends. Such Dalton points would not exhibit a sharp break between the blade and the stem and they would not develop serrations along the blade.

Until the Quad and Beaver Lake types can be isolated in well-defined, undisturbed, stratified deposits (either in separate contexts, in a single context, or in association with a Dalton assemblage), the temporal and cultural placement of these two point types will remain uncertain. Splitters will classify them as separate types, and lumpers will combine them into a single type or cluster. Although they have been listed in this report as separate Late Paleoindian types, it appears to this investigator that Quad, Beaver Lake, and Dalton may represent a single type that exhibits considerable variability due to regional variation, individual or group idiosyncrasies, and/or maintenance techniques.

Notched Late Paleoindian points occur in a large variety that exhibits incurvate stems or faint shallow side notches (Dalton) and a small variety that has distinct side notches or corner notches (Hardaway). Besides the presence of notches, these Late Paleoindian points appear to be resharpened in a different manner than lanceolate Late Paleoindian points. Dalton and Hardaway points were resharpened along the entire length of the blade edges, which sometimes produced beveled and/or serrated blades.

Aside from similarities with Quad and Beaver Lake points, Dalton points in central Kentucky exhibit considerable variability. They include: (1) a typical Dalton type (e.g., Figure 6e) with a distinct blade-stem juncture, straight to slightly incurvate blade edges, and a moderately concave base, (2) a Colbert variety (e.g., Figure 6h) which has a relatively short stem and slightly concave base, and (3) a Dalton-like variety (e.g., Figure 6a-c) which exhibits no obvious blade-stem juncture and resembles Quad and Beaver Lake points.

Many of the points classified in this report as Dalton differ slightly from the classic Dalton points found in the Ozarks and areas west of the Mississippi River (C. Chapman 1948, 1975; Goodyear 1974; Morse 1997). Classic Dalton points generally have a deep concave, often bifurcated, base with slightly incurvate stem edges (C.

Chapman 1975:245). The blades of classic Dalton points are usually serrated. Even some unresharpened Dalton blades are serrated (C. Chapman 1975:Figures 4.17 to 5.5). Only one Dalton point from the Rolling Fork-Beech Fork sample was serrated. Blades on classic Dalton points that are repeatedly resharpened also are generally beveled, usually on the right side (C. Chapman 1975:245; Collins et al. 1983:Table 1; Morse 1997:20). Only three Dalton points from the Rolling Fork-Beech Fork sample were beveled, and the beveling on all three was on the left side. Another feature that occurs occasionally on classic Dalton points west of the Mississippi River is burination (Morse 1997:21-22). Explanations for these differences are unclear, but they may be related to slight variations on a general panregional theme.

Although there are some similarities between Hardaway and Dalton points, Hardaway appears to represent a separate, although contemporaneous, point type. First, Hardaway points exhibit distinct side or corner notches and shorter stems. Second, Hardaway points (unresharpened or sharpened) are usually considerably smaller than Dalton points. Third, Hardaway points often exhibit small broad flutes in the basal concavity, unlike most Dalton points. These differences appear to represent different technological approaches to manufacturing Late Paleoindian points.

Dalton and Hardaway points are sometimes found at the same site (e.g., 15Ws34). In large Late Paleoindian assemblages, however, one point type generally will dominate over the other. For example, Dalton points dominate the Late Paleoindian assemblage from the Roach site (Rolingson 1964:Figures 43-44; Rolingson and Schwartz 1966:Figure 25), whereas Hardaway points dominate the Late Paleoindian assemblage from the Morris site (Rolingson and Schwartz 1966:Figure 56).

As for Dalton points, considerable variability exists within the Hardaway type. All seven specimens from the Rolling Fork-Beech Fork area exhibit small side or corner notches placed low on the stem. The seven Hardaway specimens can be separated into large and small varieties. Large Hardaway points (e.g., Figure 7e-f) are longer than 50 mm and range in thickness from 6.7-8.3 mm, whereas small Hardaway points (e.g., Figure 7a-d) are less than 45 mm in length and range in thickness from 3.9-5.8 mm. The smaller specimens most closely resemble the small Hardaway Side-Notched variety described by Coe (1964:Figure 58). One of these (Figure 7d) is corner notched and could be classified as a St. Johns variety of San Patrice (Duffield 1963). At a minimum, the thin, small variety of Hardaway points is different technologically from Dalton points.

In conclusion, four Late Paleoindian point types generally are recognized in Kentucky. There are indications that one or more of the four types might simply represent a range of variability within a single point type or variability within a single widespread technological tradition. However, no clear determinations could be made based on the project data from central Kentucky. Such determinations are very difficult, especially when available data is from relatively small sample sizes and from scattered surface finds. Nevertheless, the data on thirty Late Paleoindian points presented here is considerable more than that documented previously for Marion, Washington, and surrounding counties in central Kentucky.

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CYPRESS CREEK REVISITED: SETTLEMENT AND SUBSISTENCE IN WEST-CENTRAL KENTUCKY[1]

By
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ABSTRACT

Complementary field and museum-based work clarifies patterns in long-term land use by Archaic hunter-gatherers (ca. 8000-1000 B.C.) in the western Kentucky coalfields, specifically in the Cypress Creek drainage. Cypress Creek is a tributary of the Green River, which is well known for its many Archaic shell heaps and deep middens. The relative importance of upland, creek bottomland, and river margin settings shifted over a several thousand year period, as did the number and size of sites. This survey of sites, most located some distance from the Green River, and excavation of the Ward site complements work of other scholars undertaken since the early twentieth century that focuses on the archaeologically rich area close to the river bank.

INTRODUCTION

During the terminal Pleistocene, small, mobile groups of hunter-gatherers colonized the North American midcontinent. Over thousands of years, these societies changed, eventually becoming increasingly sedentary in many places as early as the fifth millennium B.C. Greater sedentism was accompanied by the initial use of native cultigens, a priority placed on especially resource-rich places, a growth in population, increased interregional exchange, and intergroup conflict (Brown 1985; Carstens and Watson [eds.] 1996; Claassen 1996a; Haskins and Herrmann 2000; Hofman 1986;

[1] This KHC meeting paper was greatly revised and subsequently published in the *Journal of Field Archaeology* (Jefferies et al. 2005). Delays in publication of the conference proceedings resulted in an unusual situation where preliminary results are appearing after their more complete presentation. Nevertheless, the Ward site data, presented here, only appears in the KHC version.

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Jefferies 1995, 1996b, 1997; Marquardt 1985; Milner 1999; Rothschild 1979; Smith 1989; Winters 1968).

In the northern Southeast and southern Midwest, the principal settlements of relatively sedentary late Middle or Late Holocene (ca. 5000-1000 B.C.) groups are marked by large and thick accumulations of dark, organically stained midden or discarded shell. River and wetland settings, in particular, provided a diverse mix of resources and, hence, reduced the risk of food shortfalls having catastrophic consequences. Excellent examples of such sites can be found in the western Kentucky coalfields along the Green River. Archaeologists have known of the existence of the largest of these middens for many years, as they are easy to detect and produce numerous artifacts. Through nearly 100 years of work, archaeologists have made great strides toward understanding what went on at the Green River shell heaps (Crothers 1999; Marquardt 1985; Marquardt and Watson 1983; Marquardt and Watson [eds.] 2005; Moore 1916; Webb 1946, 1950a, 1950b; Webb and Haag 1939; Winters 1968). Yet despite this considerable work– early in the twentieth century, during the New Deal, and over the past several decades–little is known about hunter-gatherers who lived away from the main course of the Green River.

To address this gap in present knowledge, archaeologists from the University of Kentucky and Pennsylvania State University initiated the Cypress Creek Archaeological Project (CCAP) in 1997. The project is designed to investigate Holocene hunter-gatherer settlement-subsistence strategies around Cypress Creek, one of the Green River's tributaries (Figure 1). The project's *immediate goals* were to assess the prospects for a long-term research project, to determine the kinds of sites and range of cultural periods in the area, and to form an initial impression of Early, Middle, and Late Archaic site distributions. A reexamination of some of the Ward (15McL11) site materials, the preparation of a base map, and limited excavations were undertaken to see what more could be learned from the principal known site in the area. Further work at Ward is necessary because excavations 70 years ago naturally did not produce all the information archaeologists would like to have today. The *ultimate goal* is to document changes over time in Archaic land-use patterns and to relate this information to population size and distribution, technological innovation, and social organization. This objective requires a considerable investment of time and energy to reanalyze old collections, to conduct systematic surveys, and to undertake new excavations. Information from this project builds on data from nearby Green River shell middens collected by WPA archaeologists in the 1930s and by a number of researchers over the past few decades, most notably Patty Jo Watson (Washington University) and her colleagues (Crothers 1999; Hensley 1992, 1994, 1996; Haskins and Herrmann 1996; Herrmann 2002; Hockensmith et al. 1985; Marquardt 1985; Marquardt and Watson 1983; Marquardt and Watson [eds.] 2005; Meindl et al. 2001; Pedde and Prufer 2001; Rolingson 1967; Stein 1980; Webb 1946, 1950a, 1950b; Webb and Haag 1939; Winters 1968).

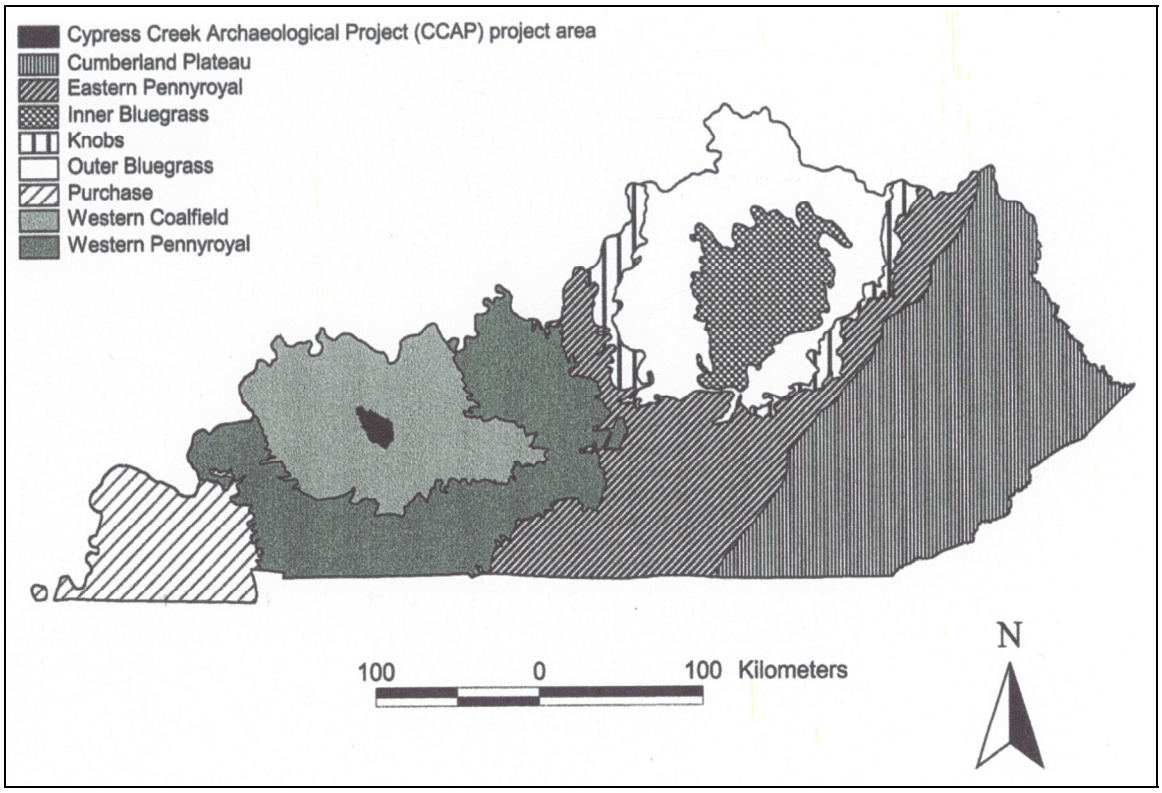

Figure 1. CCAP Project Area and Physiographic Regions of Kentucky.

Surveys and excavations undertaken during the first three years (1999-2001) of the CCAP are summarized here. This work is exploratory in the sense that the project is just getting underway. Nevertheless, results so far point to shifts in land use from Early Archaic to later times. One aspect of the changes in how people lived included an emergence of places that acquired a much greater economic and social significance than others. Why that might be the case–that is, how shifts in land use are related to population and group size, mobility, technology, and intergroup relations–is the subject of ongoing research.

ENVIRONMENTAL SETTING

The CCAP area encompasses about 300 km^2 along lower Cypress Creek, a tributary of the Green River that drains a large area including wetlands and adjacent uplands (Figure 2). Sluggish Cypress Creek flows through the project area from southeast to northwest for 32 km before it merges with Pond River near its confluence with the Green River.

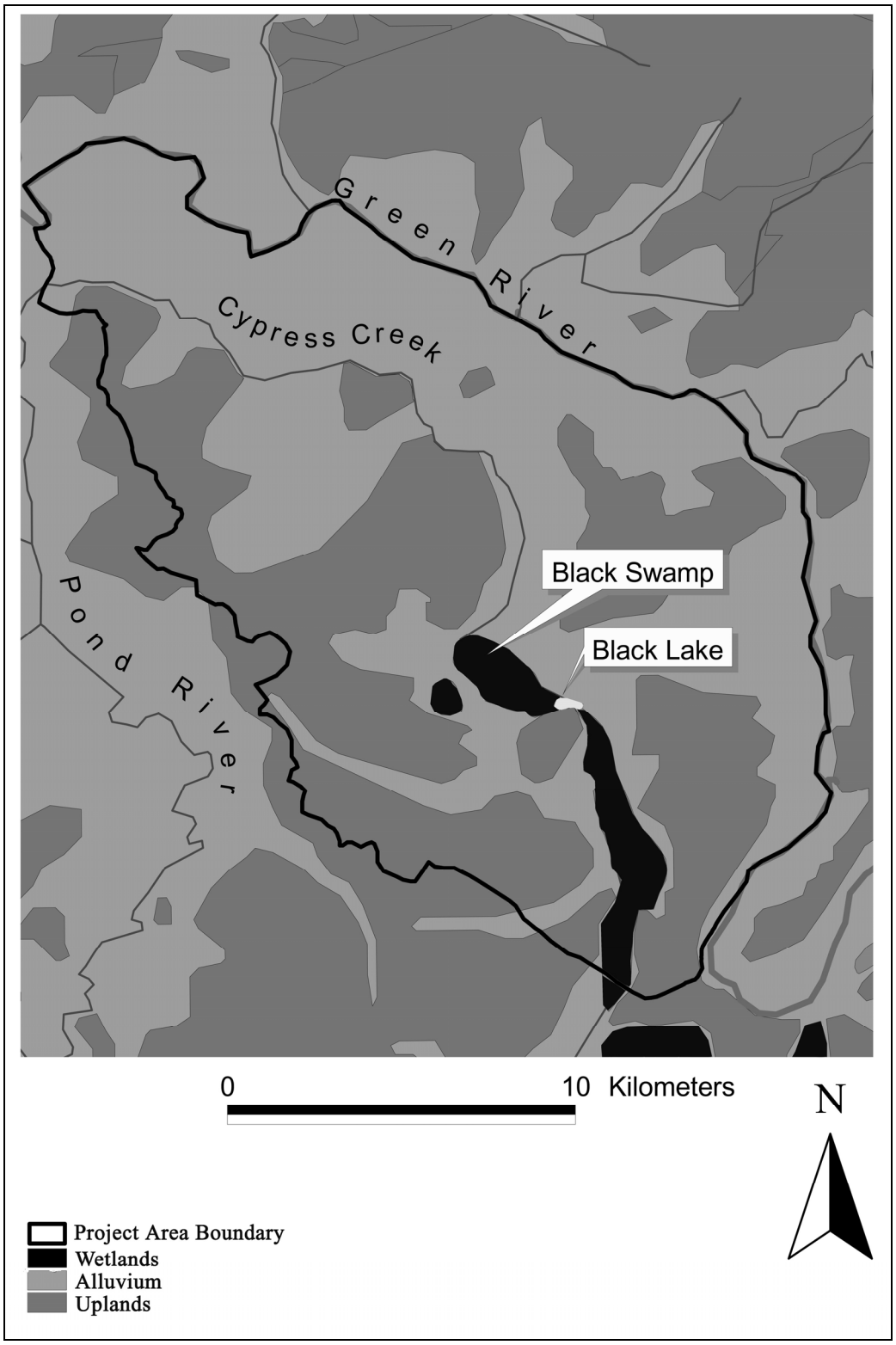

Figure 2. Environmental Features of the Cypress Creek Project Area.

The Cypress Creek watershed is particularly conducive for studying prehistoric settlement strategies. The project area is a single, well-defined region that is sufficiently large to analyze site distributions, but not so big that it cannot be examined systematically within a reasonable amount of time. This area is predominately rural, so it is relatively free of major land modifications that obscure or destroy ancient sites, although a few coal mines and quarries have extensively altered some areas. Furthermore, numerous plowed fields suitable for pedestrian surveys are scattered across the entire area. Field conditions are such that it is possible to detect thinly scattered cultural materials that are easily missed in sub-optimal field conditions. Most of the prehistoric materials probably can be found on or near the modern ground surface–that is, incorporated into a modern plowzone about 30 cm thick (Stein 1980). That is possible even in low-lying areas because Holocene streams and rivers cut into lakebed sediments that originated during the last glacial maximum about 21,000 years ago when glacial Green Lake covered much of the lowlands along this stretch of the river, including the Cypress Creek bottoms. Finally, previous research has documented an Archaic presence in the vicinity of Cypress Creek that ranges from small debris scatters to large and repeatedly occupied middens yielding numerous artifacts (Smith 1997; Webb and Haag 1940).

Much of the CCAP area (ca. 60 percent) is flat, swampy bottomland; the remaining area, 40 percent, consists of low hills. Rolling to deeply dissected high ground rises abruptly from low-lying wetlands that were seasonally, if not permanently, covered by shallow, slow-moving water. The high ground, which extends 125 to 175 m above the former lakebed, can with little exaggeration be viewed as islands jutting up from extensive swamps. In fact, one small town on just such a high area is even named Island. Prior to concerted drainage efforts in the twentieth century, floodwater from Cypress Creek and the Green River commonly surrounded the so-called knobs or islands (Rothert 1913). Thus, the project area is a patchwork of high and low ground with a long and sinuous swamp-hillside edge zone, a setting that was essential to Archaic hunter-gatherers.

Cypress Creek was surrounded by wetlands during the early nineteenth century (Lee 1851; Munsell 1818; Rothert 1913; Swann 1863). These areas, annually replenished by floodwater, drained slowly, and some of them were usually, if not always, covered by large sheets of shallow, stagnant water. Such places included, most notably, a long and narrow lake, known as Black Lake or Cypress Pond, surrounded by a thick growth of water-tolerant vegetation including cypress trees. The Cypress Creek bottomland was not fully drained and remained largely covered by timber well into the twentieth century, as recalled by local residents (Donald Bryant and Hershel Revlett, personal communication 1999). Julie Stein's (1980) geoarchaeological findings indicate that these conditions characterized much of the Green River bottoms, including land bordering Cypress Creek, throughout most of the Middle and Late Holocene.

The local environment's patchiness must have been a key reason hunter-gatherers were attracted to the area. It certainly meant that there was a diverse array of animals and plants for people to hunt, fish, and harvest. So while rivers, including the Green River, naturally receive considerable archaeological attention, they were not the only places that

provided economically important, indeed essential, sources of food for prehistoric people (Table 1). The uplands had many nut-bearing trees and deer, while nearby swamps yielded abundant fish, waterfowl, and turtles. The uneven distribution of resources undoubtedly influenced where Archaic hunter-gatherers chose to camp, how long they stayed there, whether a campsite was later reoccupied, and the size and composition of the group that lived at the site.

Table 1. Resource zones where certain plants and animals are commonly found (from Crothers [1999], Kusmer et al. [1987], and Wagner [1979]).

Resources	Green River (Zone 1)	Wetlands (Zone 2)	Wetlands - Upland Interface (Zone 3)	Uplands (Zone 4)
Aquatic Turtles	XXXXX	XXXXX		
Fish	XXXXX	XXXXX		
Shellfish	XXXXX			
Waterfowl	XXXXX	XXXXX		
Small Mammals	XXXXX	XXXXX	XXXXX	XXXXX
Deer	XXXXX	XXXXX	XXXXX	XXXXX
Elk			XXXXX	XXXXX
Black Walnut	XXXXX	XXXXX	XXXXX	
Chestnut			XXXXX	XXXXX
Oak (various)	XXXXX	XXXXX	XXXXX	XXXXX
Hickory (various)	XXXXX	XXXXX	XXXXX	XXXXX

As a first approximation of resource distribution, the CCAP area was divided into four zones (Zones 1-4) corresponding to elevation and proximity to wetlands, creeks, and the Green River (Figure 3). Land within 500 m of the Green River, Zone 1, provided convenient access to abundant aquatic resources, particularly mussels. Zone 2, low-lying ground more than 500 m from Green River, encompasses extensive interior wetlands surrounding Cypress Creek. Here could be found a rich array of wetland flora and fauna, including fish, turtles, waterfowl, mammals such as muskrats, and aquatic plants. The strip of land within 250 m of the wetland-upland interface is referred to as Zone 3. The hilly uplands are designated Zone 4. The biggest environmental unit, which makes up 40 percent of the CCAP area, is Zone 2. Much of the rest of the area consists of either Zone 4 (29 percent) or Zone 3 (24 percent); Zone 1 (7 percent) is by far the smallest category (Thompson 2001).

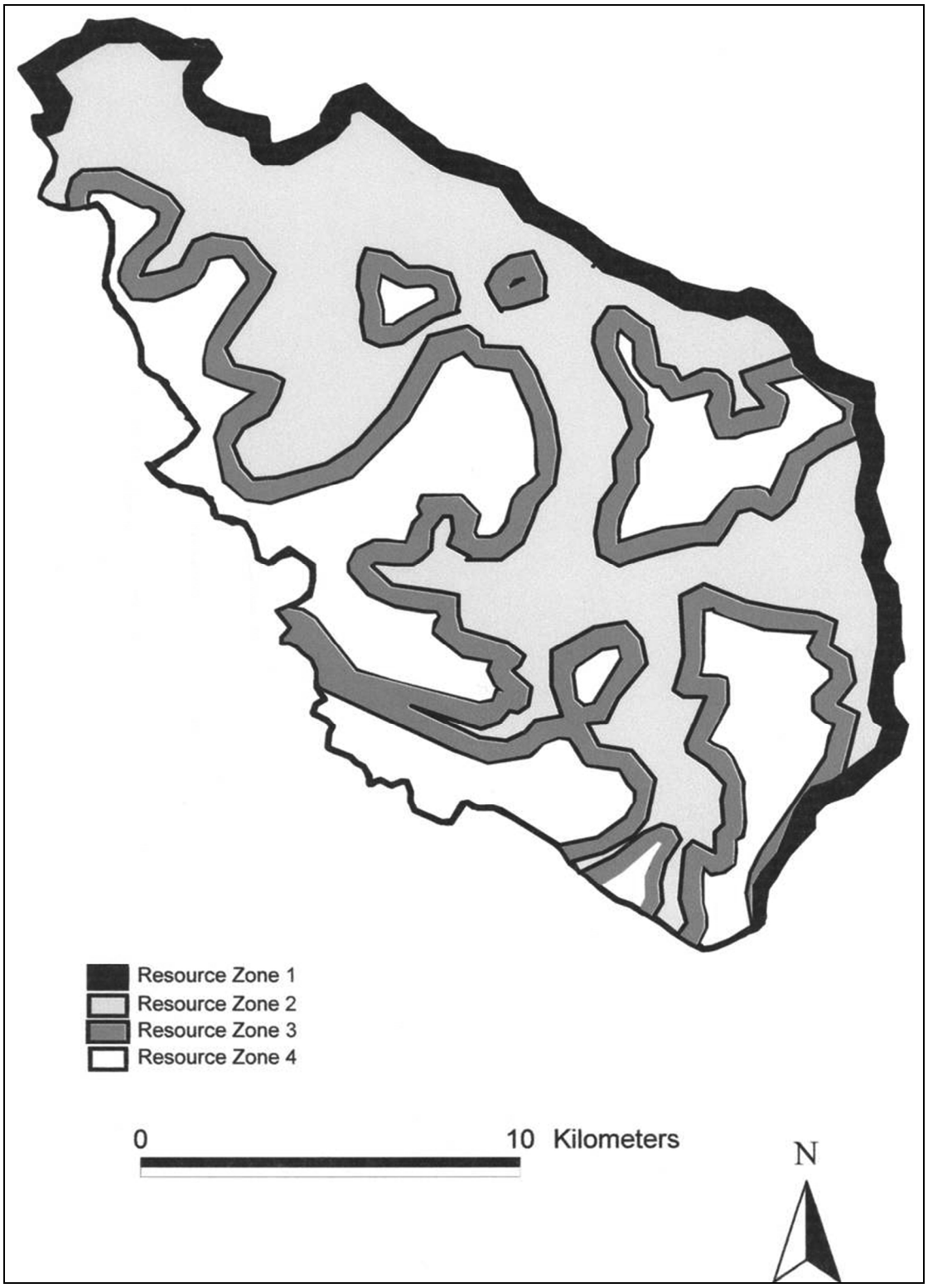

Figure 3. CCAP Project Area Resource Zones.

It is recognized that these divisions are crude characterizations of local settings that mask considerable variability from one place to the next. They are, however, largely based on topography, which has changed little over the Holocene. Therefore, they serve as a useful starting point for describing ancient land-use patterns, especially in the absence of detailed reconstructions of past environmental conditions and how they might have changed over time.

PREVIOUS RESEARCH

In 1915, C.B. Moore (1916) dug into one of the best-known shell middens along the Green River, Indian Knoll, thereby providing an early glimpse of Archaic hunter-gatherer life in Kentucky. During the 1920s, University of Kentucky professors William D. Funkhouser and William S. Webb (1928) included the Green River shell heaps in their statewide survey of known sites. They later speculated that these middens were "among the oldest evidence of mound occupancy in this state," an important observation when chronological concerns were essentially limited to demonstrating the existence of separate pre-pottery and pottery horizons (Webb and Funkhouser 1932:425). Information about the "shell mound people" expanded greatly in the late 1930s when Works Progress Administration (WPA) excavators, under Webb's overall direction, spent considerable time at large sites in the western Kentucky coalfields (Webb and Haag 1940:67). Major excavations included those undertaken at shell middens near the river, such as Read (Webb 1950a), Chiggerville (Webb and Haag 1939), Carlston Annis (Webb 1950b), and, of course, Indian Knoll (Webb 1946) where Moore first dug. The WPA archaeologists were clear that the use of "mound" in this context referred to an accumulation of waste at a long-occupied spot, not the purposeful construction of a monument from shell or earth. The results of this work, in conjunction with similar excavations along the Tennessee River, added much to the early definition of Archaic in the eastern part of North America (Griffin 1952; Ritchie 1932).

Martha Rolingson's (1967) reexamination of the Green River shell midden data represented the first systematic analysis of collections since the WPA excavations some 30 years earlier. Following this important work, William Marquardt and Patty Jo Watson (1983, 2005) in the 1970s began their long-term Shell Mound Archaic Project (SMAP). The incentive for doing this work stemmed largely from their interest in plant domestication in the North American midcontinent, and the project soon gained high visibility. Much of this research, and that by other people, focused on large, river-edge shell middens (Carstens and Watson 1996; Claassen 1996a, 1996b; Crothers 1999; Hensley 1992, 1996; Hockensmith et al.1985; McBride 2000; Milner and Jefferies 1998; Morey and Crothers 1998; Stein 1980). Collectively, these studies provide a much better understanding of the number, size, and locations of shell middens, as well as the cultural and natural processes that contributed to their formation, than the WPA reports that for the most part are summaries of artifacts, habitation features, and burials.

While most of the WPA excavations centered on large river-margin shell middens, the WPA archaeologists were fully aware that ancient hunter-gatherers did not restrict their activities to the banks of the Green River. Sites with an abundance of habitation features, burials, and artifacts engaged their attention largely because they were the best places to put many men, who were otherwise unemployed, to work. After all, work-relief programs such as the WPA were designed to provide jobs, hence incomes to hard-pressed families. What was actually accomplished, particularly when it came to digging holes in fields, was of secondary importance.

Among the sites the WPA workers excavated were several large ones away from the river. Based on what they found, Webb and Haag (1940:67) reached the quite reasonable conclusion that "in Kentucky some shell-mound people lived on shell mounds but others having the same or similar cultural status lived in villages quite removed from any shell accumulations." That is, some middens had plenty of shell, whereas others did not. The distinction was not considered very important. Later work elsewhere in the midcontinent has shown that many midden deposits lacking shells were also contemporaneous with the long-occupied Green River shell middens (Brown 1985; Brown and Vierra 1983; Jefferies and Butler [eds.] 1982).

The WPA archaeologists called two sites located away from the Green River the "Cypress Creek Villages" (Webb and Haag 1940). Ward was one of these sites. It was a deep midden on the crest of a hill overlooking the Cypress Creek wetlands. The creek once snaked past the foot of the hill below Ward. In nearly seven months of work, an area measuring 1,486 m^2 was excavated in the midden. Many burials and features were found, as were numerous artifacts mostly dating to the late Middle to Late Holocene (ca. 4500-1000 B.C.). Unfortunately, this fine work was published only as a short summary because of time and money constraints (Webb and Haag 1940). Much that could have been said about hunter-gatherer life at Ward was not addressed (Pedde and Prufer 2001).

Since 1999, the CCAP archaeologists have begun to address this imbalance in information about Archaic hunter-gatherer life through a survey of the northern part of the Cypress Creek watershed (Jefferies et al. 1999; Jefferies et al. 2001, 2002; Thompson 2001). Newly collected data are supplemented by information collected by earlier surveyors (Sanders and Hockensmith n.d; Smith 1997). In 2001, CCAP researchers also initiated new excavations at Ward to assess the feasibility of conducting more work at the site.

CYPRESS CREEK ARCHAEOLOGICAL PROJECT

The present project originated in 1997 when Jefferies and Milner began work with collections and notes at the University of Kentucky's William S. Webb Museum of Anthropology. A principal purpose of that work was to assess the research potential of existing artifact collections and excavation records. The initial study focused on a Green River shell mound chosen for the integrity of the collections and notes, as well as its

manageable size (Milner and Jefferies 1998). Based on that work, the Principal Investigators, Jefferies and Milner, decided to pursue additional fieldwork and identified a manageable research area in the vicinity of the Green River.

In 1998, the Kentucky Heritage Council provided partial funding for an exploratory survey of the Cypress Creek watershed. This survey, conducted in January 1999, assessed the feasibility of using the Cypress Creek area for a research project. Because of bitter cold and blowing snow, the survey coverage was limited to ca. 10 ha, resulting in the discovery of three sites. The 1999 fieldwork, however, yielded critically important information about present land-use practices and landowner attitudes toward archaeological work (Jefferies et al. 1999). Without this information, the CCAP could not have gotten off the ground.

Further work in the summer of 2000, supported by University of Kentucky research funds, resulted in an additional 315 ha being surveyed. Much of this work focused on low-lying areas because there was easy access to large, freshly plowed fields. These areas were wetlands for much of the Holocene, to judge from historical and paleoenvironmental data, so high site densities were not expected, nor were they found.

The 2001 survey, funded by the Kentucky Heritage Council and the University of Kentucky, focused on the uplands surrounding the Cypress Creek wetlands. An additional 286 ha were surveyed at that time. Test excavations at Ward encountered intact midden; botanical, faunal, soil, and artifact samples were collected using contemporary data recovery techniques.

To date, nineteen parcels of land collectively encompassing >600 ha have been examined. As this project was exploratory and the intent was to cover the greatest amount of land possible, the areas surveyed were determined by landowner cooperation and field conditions, specifically plowed fields where ground visibility was excellent. Nevertheless, survey tracts were intentionally distributed among the four environmental zones, which were identified following the initial reconnaissance work in 1999 (Figure 4). At this point, there is no reason to believe the surveyed areas are not representative of the Cypress Creek watershed as a whole, although a larger and better-sampled group of survey tracts is needed to make such a statement with assurance. Forty previously undocumented archaeological sites were identified in the CCAP-survey area. Including the work of other researchers, 1168 ha have been systematically surveyed (Sanders and Hockensmith n.d; Smith 1997) (Table 2). Thus 3.8 percent of the project area has been examined at one time or another by archaeologists. Collectively, this work resulted in the identification of 57 sites with 98 Early, Middle, or Late Archaic components.

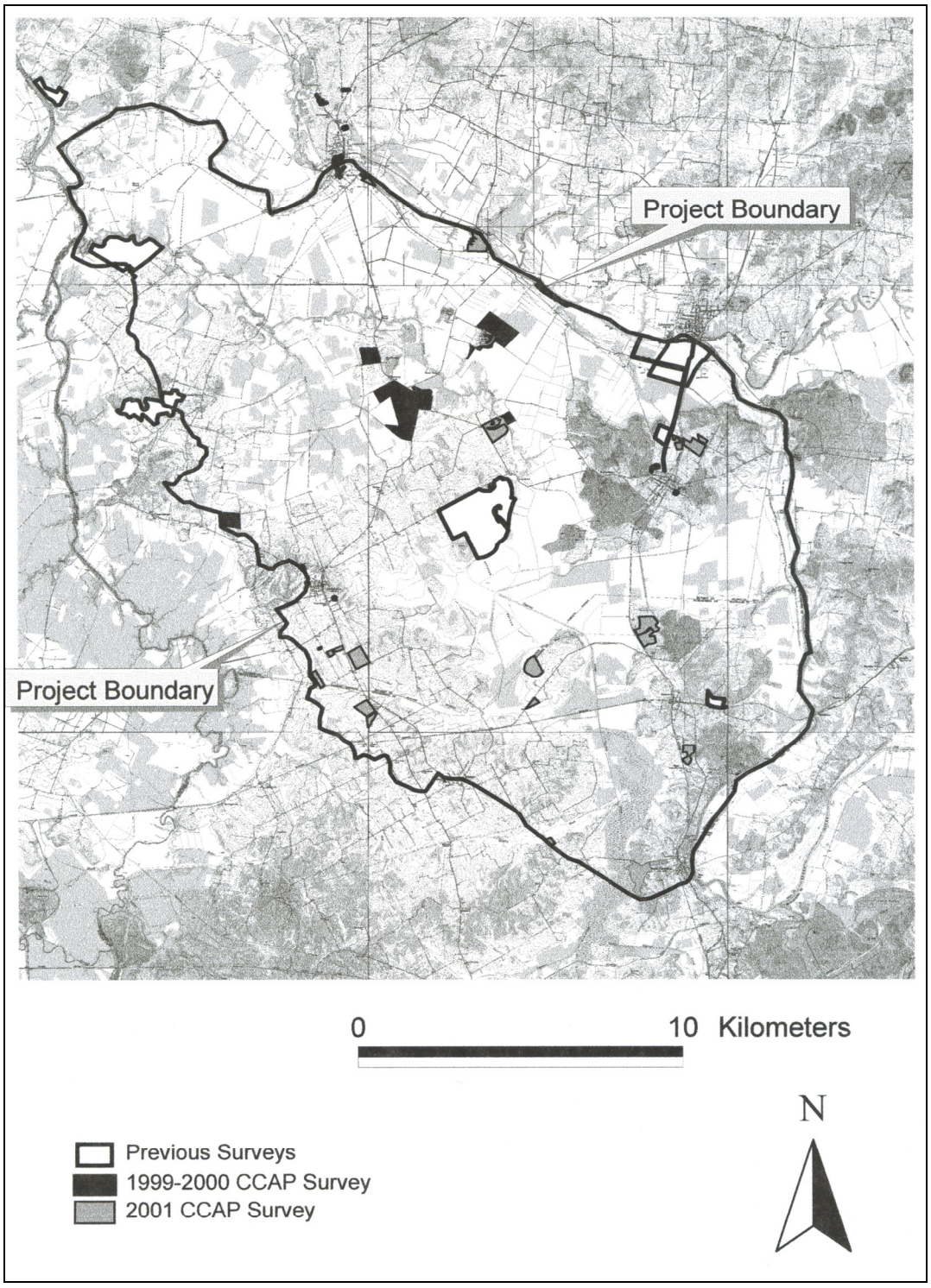

Figure 4. Location of Areas Surveyed in the CCAP Project Area.

Table 2. Resource Zones and Survey Coverages in Hectares.

Resource Zone	Total area	Survey coverage	Percent covered
Green River (Zone 1)	2,200	117	5.3
Wetlands (Zone 2)	12,500	220	1.8
Wetlands -Upland Interface (Zone 3)	7,400	383	5.2
Uplands (Zone 4)	9,000	448	5.0
Totals	31,100	1,168	3.8

HUNTER-GATHERER SETTLEMENT ALONG CYPRESS CREEK

Much of the information on Holocene hunter-gatherer settlement-subsistence strategies in the midcontinent comes from the investigation of deep midden deposits spanning hundreds to thousands of years (Ahler 1993; Brown and Vierra 1983; Cook 1976; Fowler 1959; Granger 1988; Jefferies 1982; Jefferies and Butler [eds.] 1982; Marquardt and Watson [eds.] 2005; Stafford et al. 2000; Styles et al. 1983; Wiant et al. 1983). These projects provide excellent detailed information about what happened at particular places. While less is known about regional changes in Holocene hunter-gatherer settlement strategies, there have been some notable studies that address the ways hunter-gatherers used different parts of their local landscapes (Ahler 1984; Brown 1985; Nance 1986, 1988; Stafford 1994; Stafford and Hajic 1992; Winters 1969, 1974).

The CCAP results presented here are still preliminary, but they generally parallel existing perceptions of land-use change during Archaic times (for additional details, see Thompson 2001). The artifact and site totals used here come from the CCAP and earlier surveys in the area (i.e., the William S. Webb Museum of Anthropology, Murray State University, Kentucky Heritage Council, and the Office of State Archaeology). To compare site frequencies across periods of unequal length–they range from 2,000 to 3,000 years duration–the numbers of Early, Middle, and Late Archaic sites were standardized by simply calculating site frequency per 1000 years (Table 3). Occupations during different parts of the Archaic sequence were identified by temporally diagnostic hafted bifaces. The relative frequencies of stone bifaces can, of course, be affected by how the tools were used and their morphological distinctiveness (i.e., how easy they are to classify consistently and correctly). Nevertheless, it is reasonable to suppose that figures based on identified occupations crudely track changes over time in land use. In Table 4, the percentage distributions of known sites for each period are listed by resource zone.

EARLY ARCHAIC (8000-6000 B.C.)[1]

Early Archaic components were identified by the presence of Dalton, Hardin Barbed, Lost Lake, Greenbrier, Kirk Corner Notched, Kirk Serrated, Palmer, St. Charles, and MacCorkle projectile points (Justice 1987). Early Archaic components are represented at 26 sites (45.6 percent of all Archaic sites; some are multicomponent).

Early Archaic bifaces account for 18 percent (n=33) of all Archaic bifaces found in the CCAP area. There are 13 Early Archaic components/1000 years when standardized to take into account the different lengths of the three Archaic periods**.**

Table 3. Number of Archaic Components by Resource Zone.*

Resource Zone	Early Archaic		Middle Archaic		Late Archaic	
	N	N/1000 yr	N	N/1000 yr	N	N/1000 yr
Green River (Zone 1)	7	3.5	11	3.7	14	7.0
Wetlands (Zone 2)	1	0.5	2	0.7	6	3.0
Wetlands -Upland Interface (Zone 3)	6	3.0	7	2.3	9	4.5
Uplands (Zone 4)	12	6.0	9	3.0	14	7.0
Total Components	26	13.0	29	9.7	43	21.5
* Figures across rows show change through time. Reading down the columns is not particularly meaningful because survey-area sizes are not the same						

Table 4. Number and Percentage of Archaic Components by Resource Zone.*

Resource Zone	Early Archaic		Middle Archaic		Late Archaic	
	N	Percent	N	Percent	N	Percent
Green River (Zone 1)	7	26.9	11	37.9	14	32.6
Wetlands (Zone 2)	1	3.8	2	6.9	6	14.0
Wetlands -Upland Interface (Zone 3)	6	23.1	7	24.1	9	20.9
Uplands (Zone 4)	12	46.2	9	31.0	14	32.6
Total Components	26		29		43	
* Figures in the percentage columns show the distribution of sites in the four zones for each period separately.						

Early Archaic sites were found in a variety of environmental and topographic settings (Figure 5). Many of these sites, 26.9 percent, are located close to the Green River (Tables 3 and 4), including Butterfield (15McL7), the most intensively occupied site at that time. The numerous (n=69) Early Archaic hafted bifaces from Butterfield–they represent 41.6 percent of all such bifaces from that site–indicate this particular spot was repeatedly occupied by Early Holocene hunter-gatherers**.** Early Archaic sites are also commonly located in the vicinity of swampy ground. Sites around the bases of the so-called islands would have provided easy access to resource-rich wetlands. Even the occupants of many hilltop sites could have directed much of their attention toward low, swampy ground. One such example is Ward, perched on a hill overlooking the Cypress Creek bottoms. Generally speaking, Early Archaic components in the uplands were identified by only one or two diagnostic bifaces and little debris, so relatively few places offered the resources, or had some other attractive feature, that caused Early Archaic people to return to them repeatedly.

The overall site distribution is consistent with what would be produced by hunter-gatherers who, for the most part, lived in short-term and widely scattered camps. When

looking at all four zones, Early Archaic people made more use of the uplands than later hunter-gatherers. So, although Early Archaic people favored some places more than others, their use of the landscape was more evenly distributed than it was later in time.

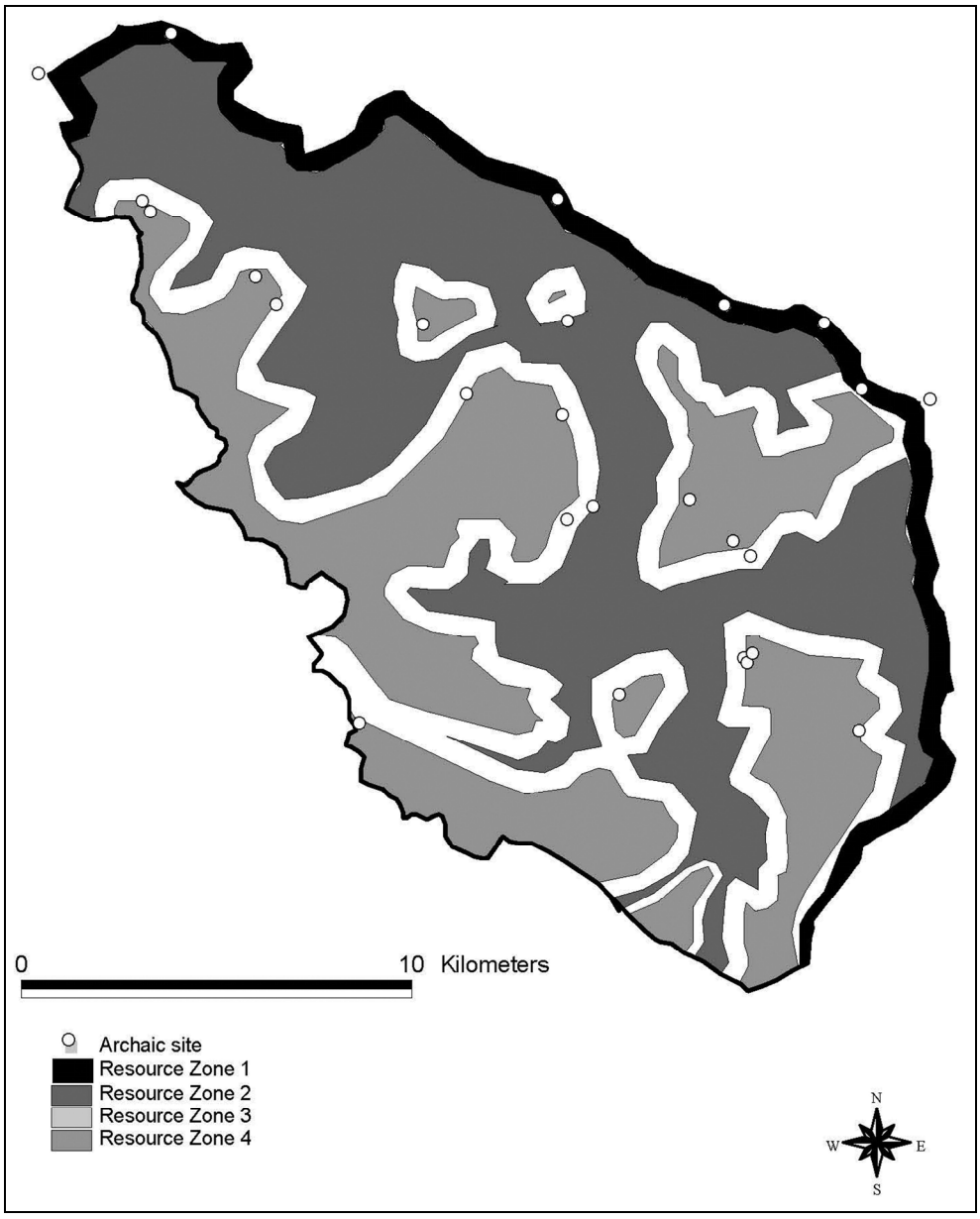

Figure 5. Distribution of Early Archaic Sites.

MIDDLE ARCHAIC (6000-3000 B.C.)

An occupation of the area by Middle Archaic people was indicated by a few early hafted bifaces (ca. 6000-4500 B.C.; Eva and Morrow Mountain) and many late side-notched bifaces (ca. 4500-3000 B.C.; Big Sandy II, Godar, Matanzas, and Brannon)

(Justice 1987). Middle Archaic components are found throughout the Cypress Creek region (Tables 3 and 4, Figure 6). Many of them (37.9 percent, n=11) are immediately adjacent to the Green River. The other sites are mostly located adjacent to, or overlooking, the Cypress Creek bottoms. Continuity in the use of specific places is indicated by the fact that fourteen (48.3 percent) of the Middle Archaic sites also have Early Archaic occupations.

Middle Archaic components were identified at 29 (50.9 percent) sites, resulting in 9.7 components/1000 years. This figure is similar to the corresponding Early Archaic 13 sites/1000 years estimate, if one takes into account problems with sampling, biface classification, and uncertainties in culture-period durations. However, the figure for the entire length of the Middle Archaic period is not the best one to use. That is because components dating to the first one-half of the Middle Archaic (ca. 6000-4500 B.C.) are rare (n=2), as are early Middle Archaic hafted bifaces (n=2). Perhaps this indicates a continuation of an essentially Early Archaic way of life, which seems to have occurred in other parts of the lower Ohio River valley (Jefferies 1996a; Stafford 1994). The occupation of the Cypress Creek area might even have dropped if the scarcity of early Middle Archaic hafted bifaces is not a result of problems with identifying tools of this time period (Stafford 1994). Yet early Middle Archaic occupations are clearly in evidence elsewhere, such as at Morrisroe on the lower Cumberland River about 100 km west of Cypress Creek (Nance 1986).

There are many more late Middle Archaic components: 19.3 components/1000 years. In fact, late Middle Archaic hafted bifaces make up 27.9 percent (n=51) of all bifaces in the Cypress Creek sample. If these shifts are informative about prehistoric land use, then the use of this area increased greatly in the late Middle Archaic. Similar trends in other parts of the midcontinent took place at about the same time, and are often considered a move from residentially to logistically organized mobility strategies, following Binford's (1980) use of those terms (Brown 1985; Granger 1988; Janzen 1977; Jefferies 1983; Nance 1988; Stafford 1994).

While data are not ideal–examined fields are widely scattered and collectively cover a small area–it appears there were several clusters of sites situated close to wetlands (Figure 6). Several sites produced evidence of intensive late Middle Archaic activity, all of which are alongside the Green River or on hills overlooking the Cypress Creek wetlands. The Cypress Creek area is just another example of the relationship between wetlands with diverse and plentiful resources and large late Middle Archaic sites, commonly called base camps (Brown 1985; Granger 1988; Jefferies 1983; Styles et al. 1983). Small sites with low artifact densities characterize other late Middle Archaic components, indicating some places were occupied infrequently for shorter intervals than others, perhaps by smaller groups of people. People also visited rock shelters (e.g., Smith Rockshelter, 15McL5), at least occasionally, during this time period.

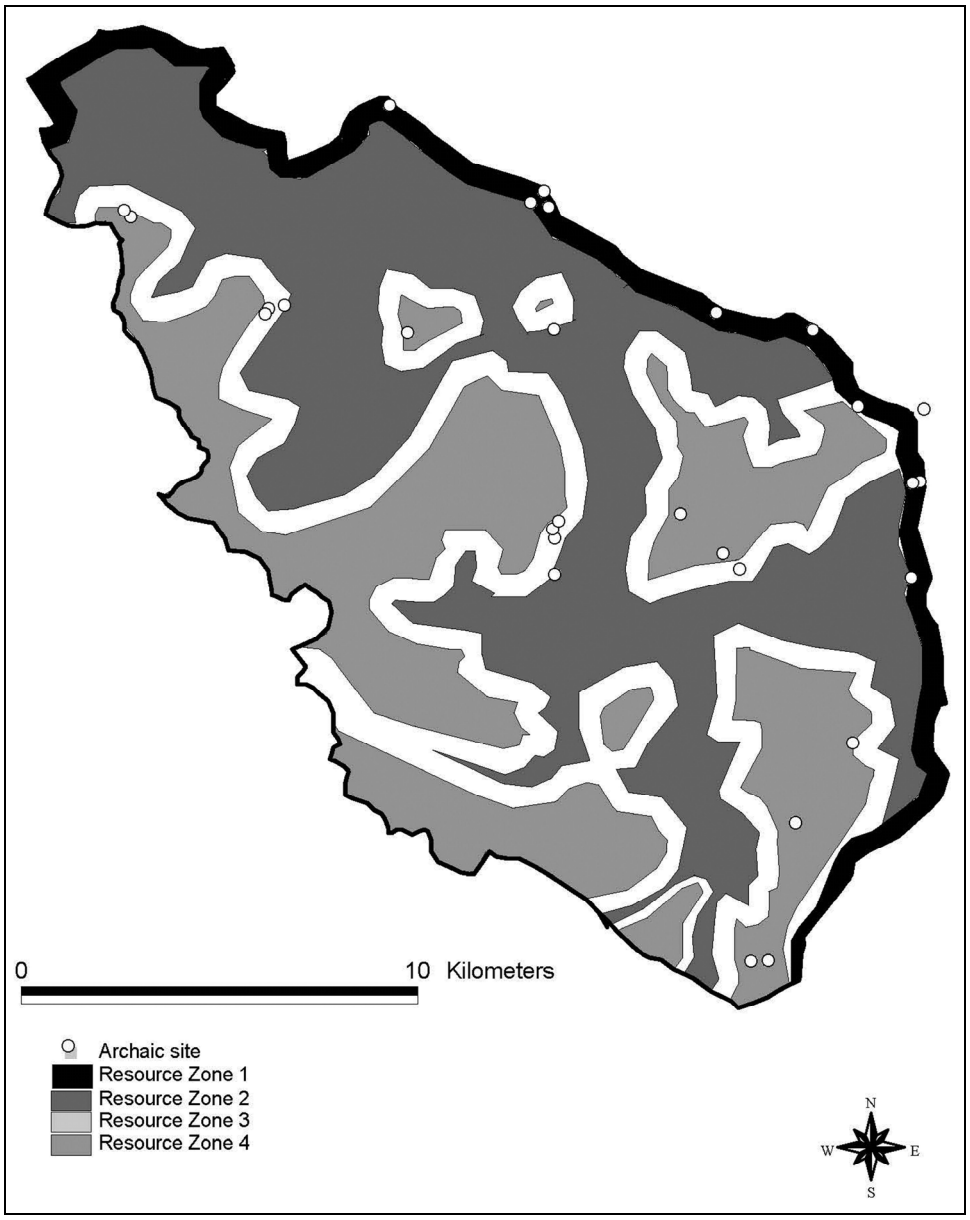

Figure 6. Distribution of Middle Archaic Sites

LATE ARCHAIC (3000 - 1000 B.C.)

Stemmed bifaces (Saratoga, McWhinney/Rowlett, Karnak, Etley, Pickwick, and Ledbetter) as well as Lamoka, Wade, and Trimble points were used to identify 43 Late Archaic sites, 75.4 percent of the total (Justice 1987). For the Late Archaic, there are 21.5 components/1000 years, double the figure for the entire Middle Archaic. It is a bit higher than the estimate for the last half of the Middle Archaic, although the difference is so small it cannot be viewed as particularly meaningful. There are also about twice as many Late Archaic hafted bifaces as late Middle Archaic ones (97 versus 51). Once again, the bifaces indicate a greater population, assuming the tools in each period were equally distinctive and were discarded at roughly the same rates.

The Late Archaic components are characterized by a variety of site types. Several debris heaps, such as Butterfield (Figure 7), were heavily used at this time (Webb and Haag 1947). Many activities were conducted at these sites, as indicated by high artifact diversities and frequencies. Presumably, entire social groups lingered at their camps for extended periods. Large and heavily used Late Archaic sites also exist in the uplands, as exemplified by Ward (Webb and Haag 1940). Late Archaic hafted bifaces account for 57.6 percent of 576 tools in the William S. Webb Museum's Ward site collection. Artifacts from other Late Archaic sites are consistent with a narrower range of activities and only intermittent occupations. So, once again, different parts of the CCAP area were used in very different ways.

Figure 7. General View of the Butterfield Site (15McL7) Looking to the West. The Barn in the Background Marks the Site's Center and the Trees on the Right are Adjacent to the Green River (Courtesy of the W. S. Webb Museum of Anthropology).

The increase in the number and size of site clusters along upland-wetland margins, a trend that began in the late Middle Archaic, continued into the Late Archaic period (Figure 8). Of the Late Archaic components, 48.8 percent (n=21) occur at sites that also have Middle Archaic occupations, indicating that for several thousands of years people favored similar mixes of resources. Many sites, 37.2 percent (n=16), were occupied for the first time by Late Archaic people. Most of these newly occupied Late

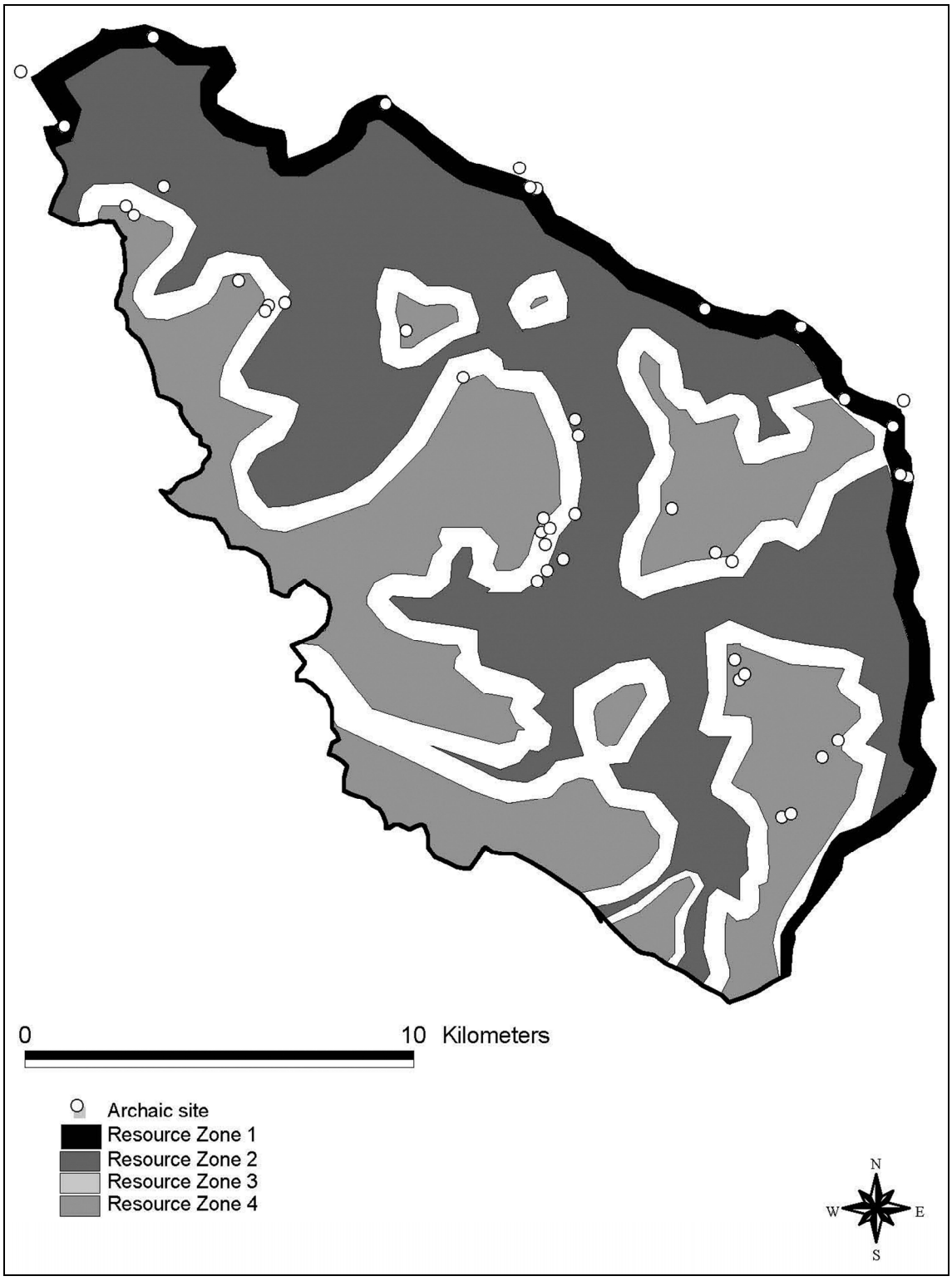

Figure 8. Distribution of Late Archaic Sites.

Archaic sites (n=12, or 75 percent) are situated in uplands bordering low-lying areas, underscoring the growing importance of interior wetland resources. Six other Late Archaic sites were occupied in the Early Archaic but not in the Middle Archaic. Light scatters of debris characterize the newly occupied locations, indicating intermittent and short-term use. A decided tilt toward wetlands is consistent with the greater demands of a rising population, as indicated by larger numbers of both sites and temporally diagnostic artifacts.

PRELIMINARY INTERPRETATIONS

Analyses of sites and hafted bifaces indicate several diachronic trends in hunter-gatherer land use that should be investigated further with additional museum and field-based studies. Site frequencies increased over time, suggesting a growth in the population of the Cypress Creek area, although there are obvious problems with extrapolating from sites to people. Thus, the Cypress Creek area paralleled the slow growth in population across much of the Midwest and Southeast, as indicated by site file information from several states (Milner 2004).

Early, Middle, and Late Archaic sites are found in all four environmental zones, but the relative importance of these areas did not remain the same. Over time, the wetlands, Zones 1 to 3, collectively increased in significance. During late Middle through Late Archaic times, certain spots in the CCAP area assumed much greater importance than others, as indicated by thick middens chock full of features, burials, and artifacts. The repeated use of camps was undoubtedly linked to their economic significance, but cultural concerns quite likely played a part as well. The latter would have been important as people increasingly identified with specific places that they repeatedly visited, as did their ancestors. Lastly, particular segments of the riverbank or swamp edge appear to have acquired disproportionate significance as indicated by what appears to be a clustering of sites. While the survey coverage at this point is insufficient to firmly document the overall spatial patterning of sites, it seems that sites were no longer distributed widely across roughly similar environmental settings.

WARD SITE EXCAVATION

2001 FIELD SEASON

The current work at Ward is designed to assess the prospects for future research that builds on the WPA excavation. The earlier WPA work was impressive, resulting as it did in the discovery of more than 400 burials, numerous pit and surface features, and thousands of stone and bone artifacts (Pedde and Prufer 2001; Webb and Haag 1940; Figures 9 and 10). Yet some materials, such as plant and animal remains, are poorly represented in the WPA collection. That was why the CCAP work was undertaken.

Figure 9. Ward Site (15McL11) Excavations Looking to the East across the Cypress Creek Bottoms (Courtesy of the W. S. Webb Museum of Anthropology).

Temporally diagnostic hafted bifaces from the WPA excavation indicate that the most intensive activity at Ward occurred during the late Middle and Late Archaic periods from roughly 4000 to 1000 B.C. Figures 11 and 12 illustrate the distribution of late Middle Archaic side-notched and Late Archaic stemmed bifaces. Enough debris was deposited during that period to form a midden at least 1.2 m thick (Figure 13).[2] Five radiocarbon dates, four between 3600 and 2140 B.C., support the temporal placement indicated by hafted bifaces (Herrmann 2002; Mensforth 1996, 2001).

Locating the northern edge of the 1938 WPA excavation was an important objective of the recent work. This task was accomplished by examining 25 cores from hand-held soil probes and posthole test profiles (Figure 14). Soil from the middle of the site conformed to backfill deposits, but to the north there was what appeared to be a midden up to 40 cm thick. The approximate northern edge of the WPA excavation, based on the 2001 work, is shown on Figure 14. Pinpointing the exact position will require additional work, but it appears that the approximate margin of the WPA excavation has been located.

Two test units placed to the north of the WPA excavation yielded mussel shell, flaked stone tools and debitage, bone tools, human and nonhuman bone, plant remains, and chunks of sandstone (Figure 14). Unit A (1 x 1 m) extended to a maximum depth of

35 cm; Unit B (1 x 2 m) was 40 cm deep. Both excavation units reached the base of the midden. Temporally diagnostic artifacts include late Middle Archaic side-notched and Late Archaic stemmed projectile points or hafted endscrapers (Table 5). The flaked stone and bone tools indicate many different tasks were undertaken at Ward. The sandstone is attributable to processing plant foods and manufacturing tools.

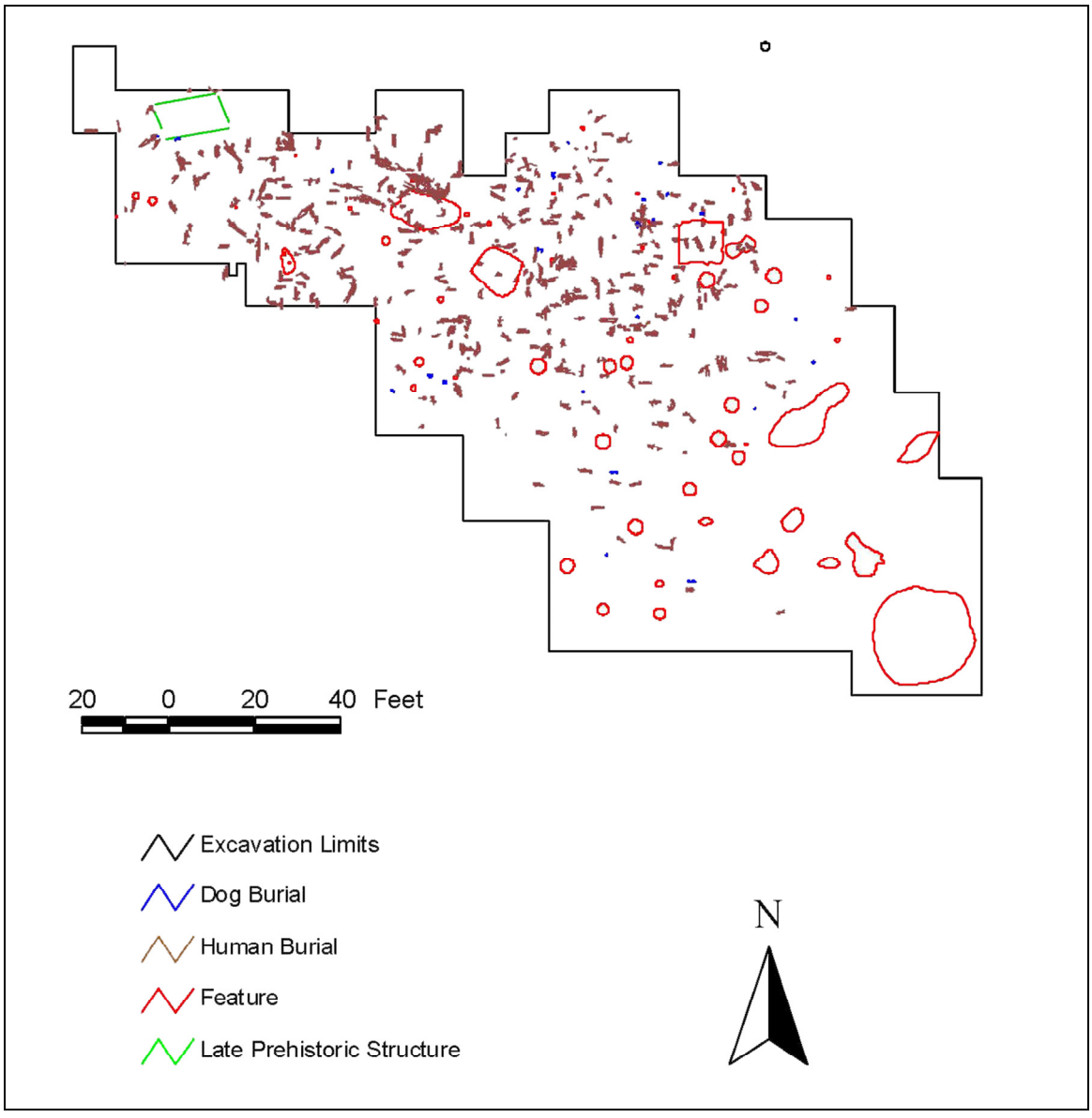

Figure 10. Ward Site Features and Burials Based on WPA Site Records.

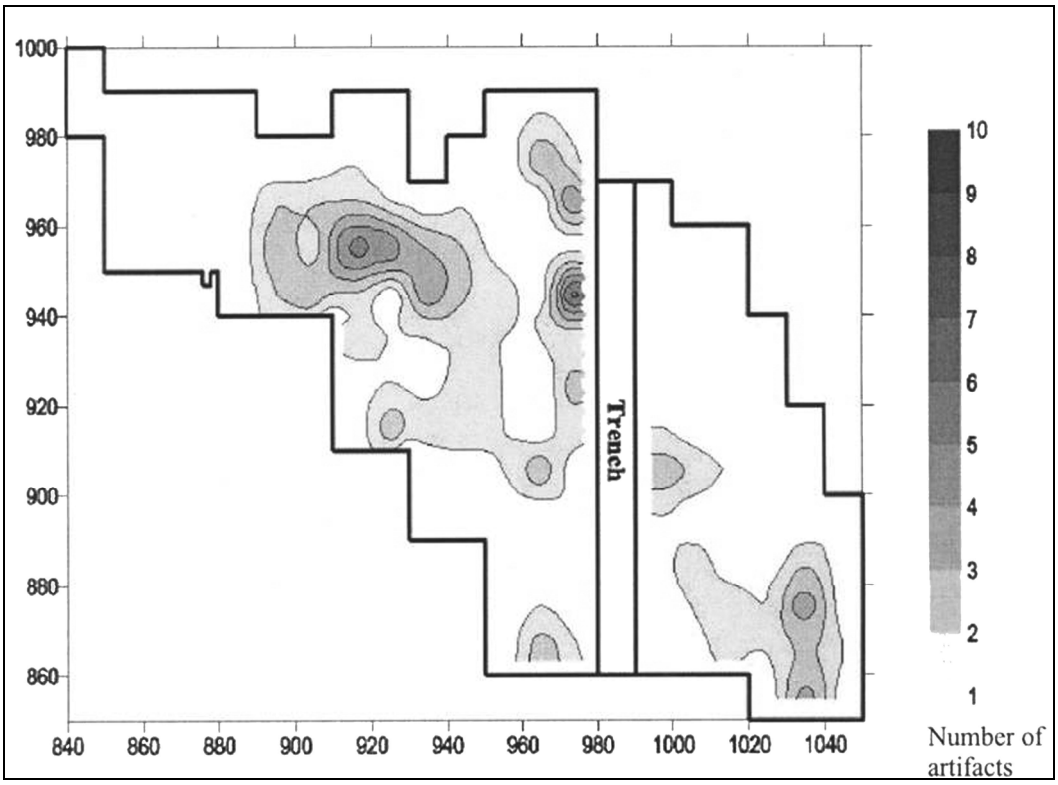

Figure 11. Distribution of Ward Site Middle Archaic Hafted Bifaces.

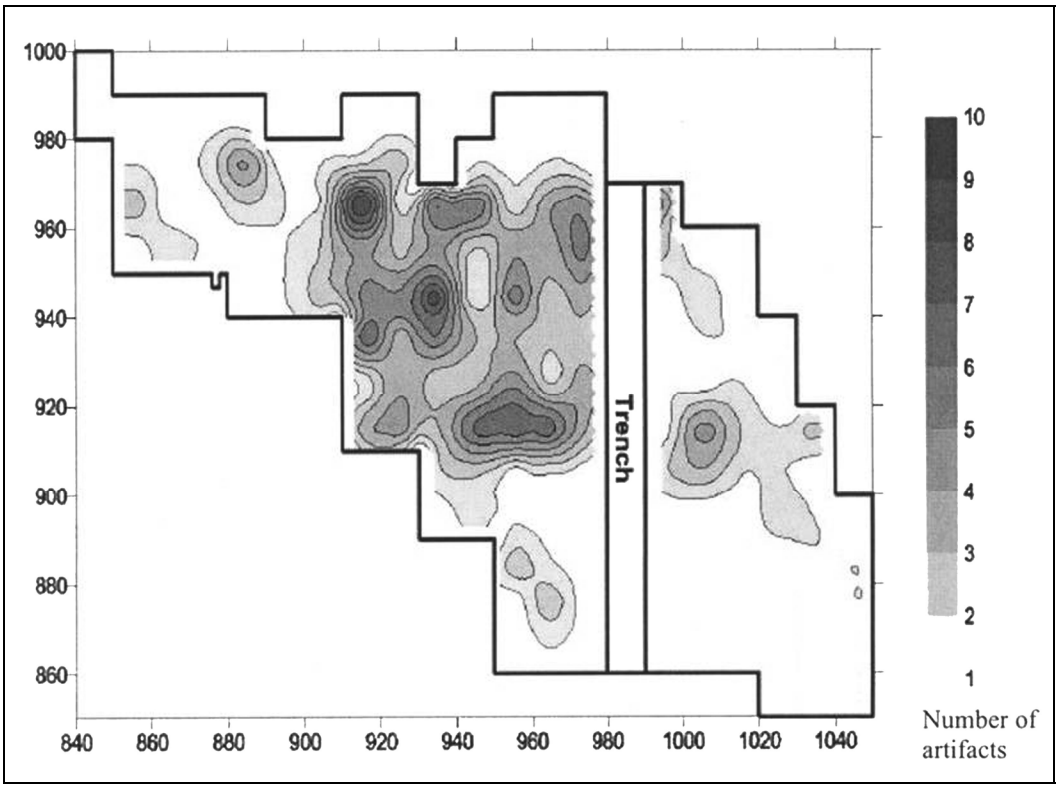

Figure 12. Distribution of Ward Site Late Archaic Hafted Bifaces.

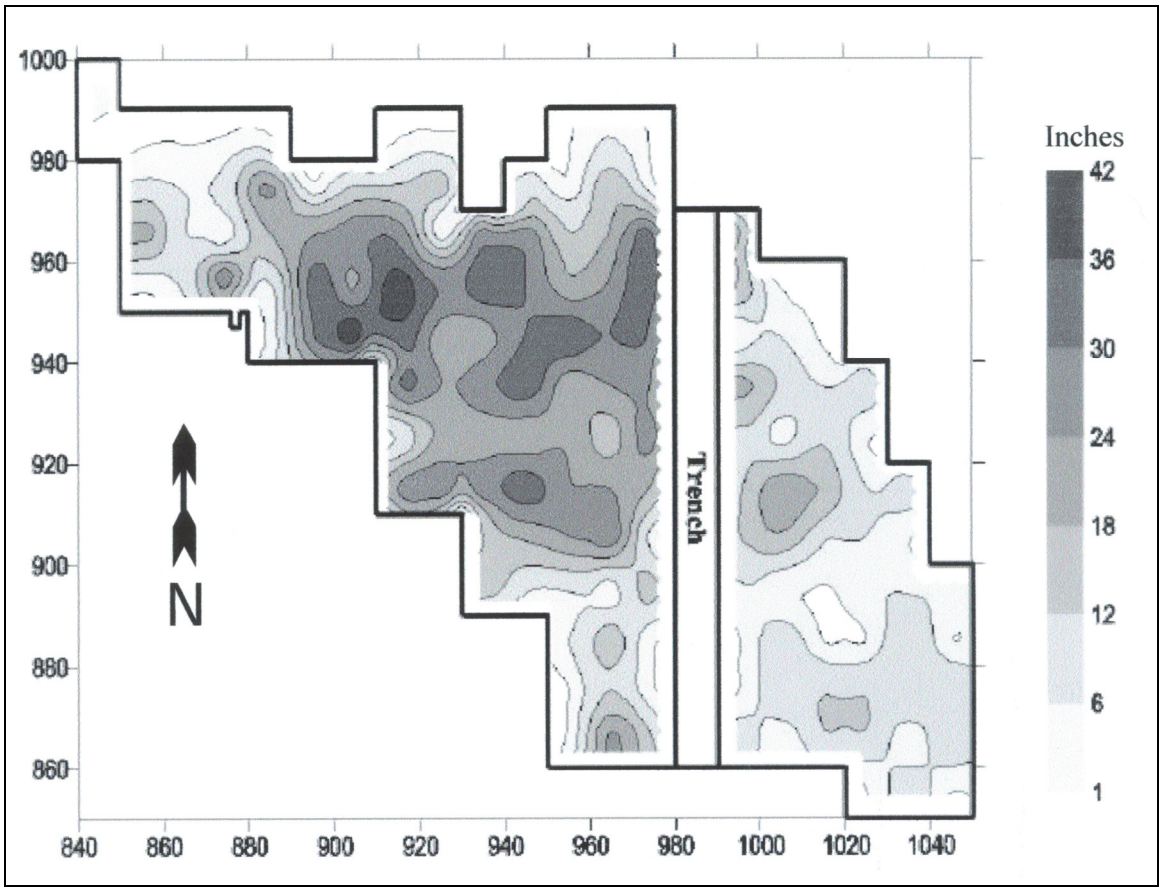

Figure 13. Approximate Depth of Ward Site Midden Based on WPA Excavation Records.

The size of the 2001 excavations combined with the small artifact sample makes broad interpretations risky at best. It should be noted, however, that the materials are consistent with those described by Webb and Haag (1940) in their site report, and they are similar to materials from contemporaneous midden sites elsewhere in the midcontinent (Bader and Granger 1989; Cook 1976; Jefferies and Butler [eds.] 1982; Stafford and Anslinger 1988). Chert debitage (n=565) mostly consists of small flakes (mean = 0.55 g), with only a little cortical material (<10 percent). These attributes are usually associated with later stages of core reduction, biface thinning from late-stage manufacturing, and the resharpening of finished tools (Newcomer 1971). There is little to indicate early-stage core reduction or biface production.

PLANT REMAINS

The flotation samples from the Ward site midden, totaling 34.7 liters, yielded many well-preserved parts of plants (Bonzani 2001). As expected from other Archaic sites in the Midwest and Southeast, nutshell fragments are quite common (Crawford 1982; Lopinot 1982; Wagner 1996; Watson [ed.] 1974; Table 6). At Ward, two hickory taxa (*Carya* sp. and *Carya illinoensis*) account for 93 percent of the nutshell, followed by walnut (*Juglans* sp.) and oak (*Quercus* sp.). More importantly, the seven analyzed

flotation samples contained relatively large numbers of chenopod (*Chenopodium* sp.; n=80) and purslane *(Portulaca oleracea*; n=37) seeds (Table 7). All analyzed samples contained chenopodium seeds, but the majority came from the deepest midden level 30-40 cm below the surface.

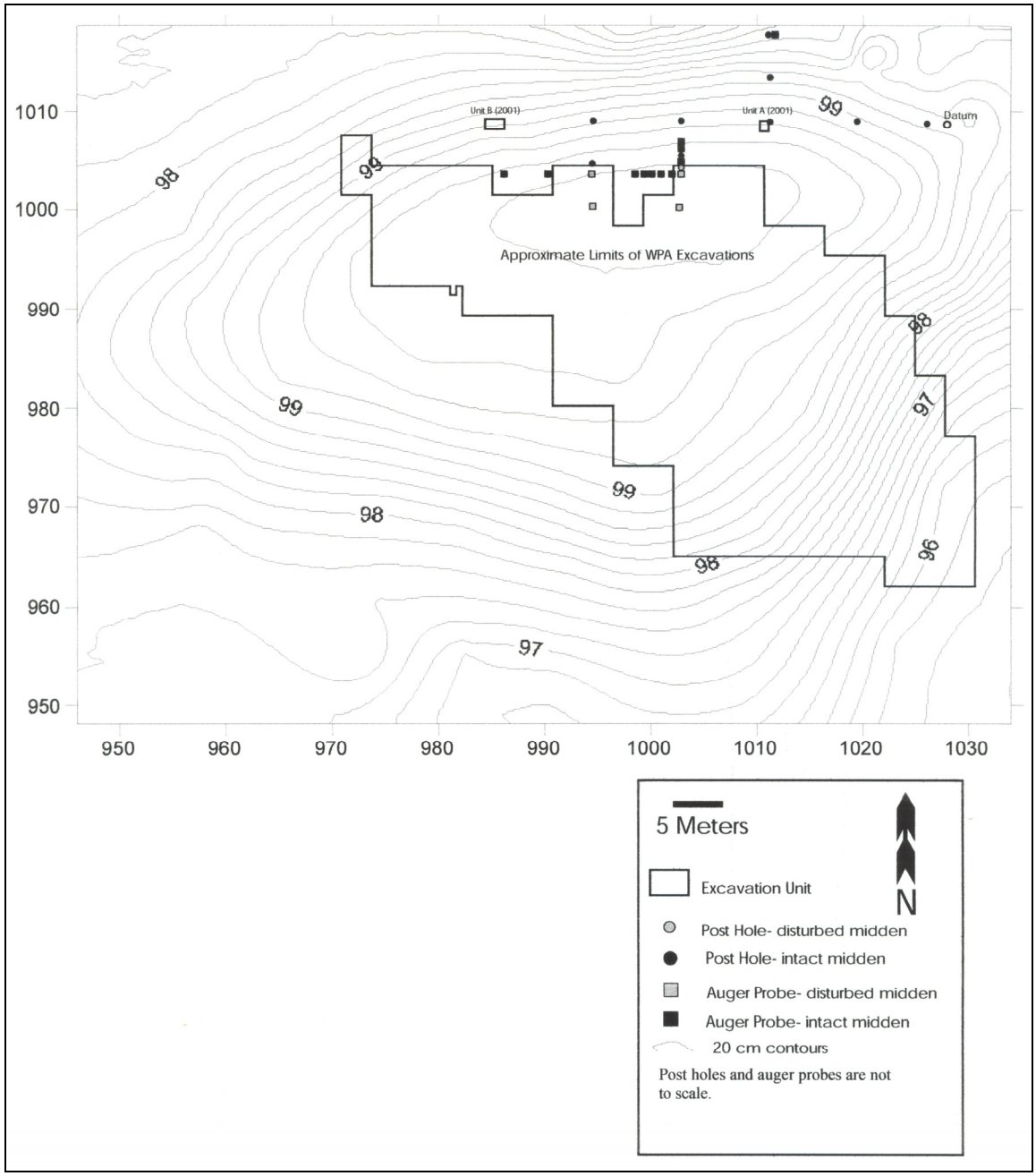

Figure 14. CCAP Topographic Map of Ward Site Showing 2001 Probes and Excavation Units.

Table 5. Distribution of Artifacts in Units A and B.

Artifact Type	Unit A					Unit B			
	L. 1 0-10 cm	L. 2 10-20 cm	L. 3 20-30 cm	L. 4 30-35 cm	Total	L. 1 0-10 cm	L. 2 10-20 cm	L. 3 20-30 cm	Total
I.. Hafted Biface									
A. Early Archaic							1		1
B. Middle Archaic						1	1	1	3
C. Late Archaic - Early Woodland	1				1				
D. Miscellaneous	1				1				
II. Unhafted Biface							1		1
III. Biface Fragment									
A. Base	1				1		1	2	3
B. Mid Section	1	1			2		1		1
C. Distal Tip		1	1		2		1	2	3
D. Other		2			2		2	1	3
IV. Retouched Flake Tool									
A. Scraper			2		2		1	1	2
B. Graver		1?			1?				
C. Other							2	1	3
V. Core							1	1	2
VI. Total Debitage									
A. Number	35	84	48	2	169	63	196	137	396
B. Weight (g)	12.7	41.9	15.3	0.6	70.5	41.4	111.9	90.7	244.0
VII. Ground Stone Tool fragments							3		3
VIII. Sandstone (kg)	2.36	1.95	0.69	0.7	5.7	2.25	11.2	4.68	18.13
IX. Burned Clay (g)	8.9	9.0			17.9	11.9	95.5	117.5	224.9
X. Other (quartz)							2		2

Table 6. Density Measures for Carbonized Plant Remains.

Plant Remains	Count		Density*	
	Number	Weight (g)	Number	Weight (g)
Wood	17	2.0	0.5	<0.1
Nutshell	509	23.7	14.7	0.7
Seeds/fruits	231	<0.1	6.7	<0.1
*Number or weight divided by total liters of processed fill for cultural context.				

Bruce Smith's (personal communication, 2002) analysis of the Ward chenopodium seeds indicates a relatively narrow range of seed morphology that generally conforms to the wild morphotype. Maximum seed diameter measured on seven specimens ranged from 1.30 to 1.47 mm, with a mean of 1.36 and standard deviation of 0.07. Testa thickness values for 16 specimens, measured in microns, ranged from 30.30

to 46.70, with a mean of 35.63 and standard deviation of 4.58. The testae of several seeds are thin enough to classify these specimens as domesticates but, as Smith (1985) cautions, a small proportion of thin-testa seeds can be found in wild populations.

Table 7. Ubiquity Scores for Carbonized Botanical Remains.

Plant Remains	Common Name	Number	Ubiquity (%)*
Aizoaceae *Mollugo* spp.	Carpet Weed	57	57
Amaranthaceae *Amaranthus* sp.	Pigweed	1	14
Caprifoliaceae cf. *Lonicera* sp.	Honeysuckle	1	14
Caryophyllaceae *Silene antirrhina*	Sticky Catchfly	5	29
Chenopodiaceae *Chenopodium berlandieri*	Goosefoot	80	100
Compositae *Eupatorium* cf. *rugosum*	White snakeroot	1	14
Cyperaceae *Carex stipata*	Sedge	1	14
Euphorbiaceae *Euphorbia maculate*	Spotted Spurge	35	86
Fagaceae *Quercus* sp.	Oak	9	43
Juglandaceae *Carya* sp.	Hickory	176	100
Carya cf. *illinoensis*	Pecan	293	100
Juglans sp.	Walnut	26	57
Oxalidaceae *Oxalis stricta*	Yellow Wood Sorrel	5	43
Polygonaceae *Polygonum* sp.	Smartweed	2	29
Portulacaceae *Portulaca oleracea*	Purslane	37	100
Rosaceae *Prunus serotina*	Black Cherry	3	29
Rubiaceae cf. *Galium* sp.	Bedstraw	2	29
Unidentified type		1	14

* Ubiquity refers to the percentage of samples (in this instance seven) that contain specimens of a particular kind of plant

.

Few examples of either chenopodium or purslane have been found at nearby Green River Archaic shell middens (Crawford 1982; Hensley 1994). If it is assumed there is no mixing from later occupations at Ward, then the abundance of these two taxa would indicate the site's late Middle to Late Archaic inhabitants were collecting many seeds. They might have been experimenting with an early stage of plant cultivation where wild plants were tolerated, or even encouraged, to grow in the organic-enriched and continually disturbed soil of a frequently occupied site.

The presence of wild cherry *(Prunus serotina*), knotweed (*Polygonum* sp.), and pigweed (*Amaranthus* sp.) seeds may indicate that these plants also were eaten. All three have been found at sites in Kentucky, and pigweed and knotweed were part of a constellation of seeds cultivated in the midcontinent (Cowan 1997; Cowan et al. 1981; Struever and Vickery 1973; Yarnell 1986). Taken together, the seeds indicate the use of sun-drenched clearings, at least some of which were presumably in the immediate vicinity of the site.

ANIMAL REMAINS

The vertebrate faunal assemblage, consisting of more than 3000 specimens from the two excavation units, provides a glimpse of the animals eaten at the site (Peres 2002; Table 8). The bones were largely from terrestrial fauna, including white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), and possibly black bear (*Ursus americanus*). The eastern box turtle (*Terrapene carolina*) also is present in the sample of bones. Deer, commonly found in forest-edge settings, account for well over 70 percent of the biomass of all mammals represented by bones. In addition to meat, deer would have provided hides, antler, and bone for a variety of utilitarian and ornamental purposes (Breitburg 1982).

Muskrat *(Ondatra zibethicus*), mud/musk turtles (Kinosternidae), and soft-shelled turtles (*Trionyx ferox*) indicate the use of wetlands. Fishes include, among others, the bowfin (*Amia calva*), which is commonly found in sluggish, heavily vegetated, muddy-bottomed swamps and sloughs (Breitburg 1982). The Cypress Creek bottomland, with its permanent bodies of water and regularly flooded low-lying areas, was an ideal habitat for such a fish.

Five species of freshwater bivalves were identified, including ring pink (*Obovaria retusa*), purple wartyback (*Cyclonaias tuberculata*), slitmouth (cf. *Stenotrema* sp.), spike (*Elliptio dilatata*), and pigtoe (*Fusconaia* spp.). All gastropods were put in the Gastropoda category, as there were neither comparative specimens in the reference collection nor identification guides for this region. Although not as numerous as at the Green River shell middens, the Ward site mussel shell indicates that people collected shellfish on occasion, possibly from the "riffle" immediately below the site (WPA Ward field notes, William S. Webb Museum).

SUMMARY OF ARCHAIC SETTLEMENT AND SUBSISTENCE IN THE CYPRESS CREEK REGION

It has long been known that the Green River shell middens were an important part of the hunter-gatherer settlement system, particularly during the late Middle and Late Archaic periods. The recent survey underscores how important other sites in a variety of topographic settings were to the hunter-gatherers of that time.

Early Archaic components are distributed throughout the Cypress Creek project area, indicating that hunter-gatherers made full use of the region's abundant plant and animal resources. Based on hafted biface frequencies, some site locations apparently were used repeatedly during this time, while others were occupied only intermittently.

Table 8. Summary of Faunal Materials from Units A and B.

Taxon	NISP	% NISP	Weight (g)	% Weight	Biomass	% Biomass	Heat Altered	% Heat Altered	MNI	% MNI
Mammalia	1990	65.92%	1862.02	84.86%	11446.88	77.75%	573	95.34%	0	0.00%
Ondatra zibethicus	2	0.07%	0.47	0.02%	13.94	0.09%	0	0.00%	1	8.33%
Artiodactyla	4	0.13%	2.00	0.09%	45.06	0.31%	0	0.00%	0	0.00%
Odocoileus virginianus	60	1.99%	220.50	10.05%	2033.11	13.81%	10	1.66%	1	8.33%
cf. *Ursus americanus*	1	0.03%	11.67	0.53%	188.07	1.28%	0	0.00%	1	8.33%
Procyon lotor	9	0.30%	12.94	0.59%	204.49	1.39%	0	0.00%	1	8.33%
Total Mammalia	**2066**	**68.43%**	**2109.60**	**96.14%**	**13931.57**	**94.63%**	**583**	**97.00%**	**4**	**33.33%**
Aves	14	0.46%	3.00	0.14%	43.73	0.30%	0	0.00%	1	8.33%
Total Aves	**14**	**0.46%**	**3.00**	**0.14%**	**43.73**	**0.30%**	**0**	**0.00%**	**1**	**8.33%**
Testudines	71	2.35%	28.17	1.28%	262.05	1.78%	2	0.33%	0	0.00%
Kinosternidae	69	2.29%	22.38	1.02%	231.97	1.58%	8	1.33%	1	8.33%
Terrapene carolina	7	0.23%	5.36	0.24%	108.76	0.74%	4	0.67%	1	8.33%
Trinoyx ferox	4	0.13%	1.04	0.05%	45.61	0.31%	0	0.00%	1	8.33%
Total Testudines	**151**	**5.00%**	**56.95**	**2.60%**	**648.38**	**4.40%**	**14**	**2.33%**	**3**	**25.00%**
Serpentes	4	0.13%	4.00	0.18%	42.26	0.29%	0	0.00%	1	8.33%
Total Serpentes	**4**	**0.13%**	**4.00**	**0.18%**	**42.26**	**0.29%**	**0**	**0.00%**	**1**	**8.33%**
Amphibia	1	0.03%	0.59	0.03%	15.96	0.11%	0	0.00%	0	0.00%
Caudata	2	0.07%	0.04	0.00%	1.58	0.01%	0	0.00%	1	8.33%
Total Amphibia	**3**	**0.10%**	**0.63**	**0.03%**	**17.53**	**0.12%**	**0**	**0.00%**	**1**	**8.33%**
Osteichthyes	3	0.10%	0.83	0.04%	18.50	0.13%	1	0.17%	1	8.33%
Amia calva	5	0.17%	0.92	0.04%	20.30	0.14%	0	0.00%	1	8.33%
Total Osteichthyes	**8**	**0.26%**	**1.75**	**0.08%**	**38.80**	**0.26%**	**1**	**0.17%**	**2**	**16.67%**
Unidentified vertebrates	773	25.60%	18.26	0.83%	0.00	0.00%	3	0.50%	0	0.00%
Total Vertebrata	**3019**	**100.00%**	**2194.19**	**100.00%**	**14722.27**	**100.00%**	**601**		**12**	**100.00%**
Gastropoda	120	41.10%	48.40	3.51%	24.55	9.78%	0	0.00%	116	72.96%
Total Gastropods	**120**	**41.10%**	**48.40**	**3.51%**	**24.55**	**9.78%**	**0**	**0.00%**	**116**	**72.96%**
Obovaria retusa	23	7.88%	373.28	27.03%	58.75	23.40%	0	0.00%	15	9.43%
Cyclonaias tuberculata	7	2.40%	69.68	5.05%	18.76	7.47%	0	0.00%	7	4.40%
cf. *Stenotrema* sp.	1	0.34%	0.05	0.00%	0.14	0.05%	0	0.00%	1	0.63%
Elliptio dilatata	14	4.79%	217.47	15.75%	40.68	16.20%	0	0.00%	10	6.29%
Fusconaia sp.	9	3.08%	232.70	16.85%	42.60	16.97%	0	0.00%	6	3.77%
Bivalvia	118	40.41%	439.17	31.81%	65.61	26.13%	0	0.00%	4	2.52%
Total Bivalves	**172**	**58.90%**	**1332.35**	**96.49%**	**226.55**	**90.22%**	**0**	**0.00%**	**43**	**27.04%**
Total Invertebrata	**292**	**100.00%**	**1380.75**	**100.00%**	**251.10**	**100.00%**	**0**	**0.00%**	**159**	**100.00%**
TOTAL ALL TAXA	**3311**		**3574.94**		**14973.36**		**601**		**171**	

The Cypress Creek region was not heavily occupied in the early Middle Archaic, but components dating to the last half of the period are common. Some late Middle Archaic sites have thick middens, high artifact diversity, and numerous features and burials, indicating a relatively sedentary way of life with the establishment of major long-lasting base camps. Component frequency was also relatively high during the Late Archaic.

Site frequencies indicate a general trend toward a greater use of the Cypress Creek area from the beginning to the end of the Archaic period. Change over time, however, does not always head steadily in one direction, as indicated here by relatively few early Middle Archaic components. This particular diminishment in occupation might have been part of a widespread population decline, or it might merely signal a shift to more favorable places elsewhere.

Taking a broad temporal perspective spanning many millennia, wetlands eventually became more significant to these people. The wetlands emphasis, indicated by the site distribution, is consistent with food remains from the new Ward site excavations. For several thousand years, from the late Middle Archaic to the Late Archaic, these wetland resources were sufficiently plentiful and dependable to attract many hunter-gatherers. The small collection of plant and animal remains indicates use of swamps and streams along with a woodland setting broken by clearings, perhaps most importantly those closely associated with the use of the site itself. These people–like others elsewhere in the world who must survive on what individual households can produce locally–were presumably more interested in minimizing the risk of shortages than in maximizing yields. Over the long run, people who were beginning to settle for much of the year in one place needed the mix of resources provided by site locations with easy access to both rolling hills and flat wetlands. While the overall amount of material excavated by the CCAP is tiny when compared to what the WPA found, the key issue is not about quantity but about what precisely was collected. The value of the recent work–and that undertaken at other sites first dug long ago–lies in the kinds of materials, such as bones and seeds, that were not systematically collected by the original excavators who, after all, were engaged in addressing other research questions.

The CCAP is only the beginning of what could develop into a long-term research effort. As investigations unfold, they will provide new insights on the adaptive strategies of the Archaic hunter-gatherers who occupied this area, including the cultural, temporal, and functional relationships between Green River shell middens and the Cypress Creek sites.

ACKNOWLEDGMENTS

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ENDNOTES

[1] The dates for the three Archaic periods, which are commonly used, are based on a combination of radiocarbon dates, many uncalibrated, and sheer guesswork. The most recent calibration procedure pushes dates somewhat deeper in time, most noticeably in the earliest part of the sequence.

[2] The total height of debris originally deposited (much consisting of organic waste) was, of course, much greater than the eventual thickness of the midden.

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NEW RADIOCARBON DATES FROM THREE ARCHAIC SHELL MIDDENS IN WESTERN KENTUCKY: INDIAN KNOLL (15OH2), WARD (15McL11) AND BARRETT (15McL4)

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ABSTRACT

The shell mound Archaic sites along the Green River of west-central Kentucky have been the focus of numerous archaeological research projects over the past century. One result of these investigations is numerous large human skeletal samples from eight sites along the Green River and its tributaries (Barrett [15McL4], Butterfield [15McL7], Carlston Annis [15Bt5], Chiggerville [15Oh1], Indian Knoll [15Oh2], Kirkland [15McL12], Read [15Bt10], and Ward [15McL11]). Prior to the last decade, radiocarbon dates were only available from Indian Knoll and Carlston Annis. In this paper seven new Accelerator Mass Spectrometry (AMS) dates are reported for burials from three sites (Indian Knoll, Ward, and Barrett). These dates span a calibrated range from 4690 to 1660 B.C.

INTRODUCTION

The shell mound Archaic sites along the Green River of west-central Kentucky have been the focus of numerous archaeological research projects over the past century (see Jefferies 1990 for a review of Archaic Period research in Kentucky). Researchers have examined topics ranging from settlement and subsistence (Crothers 1999; Hensley 1994; Marquardt and Watson 1983) to skeletal paleopathology (Cassidy 1972; Kelley 1980) and paleodemography (Herrmann 1996; Herrmann and Konigsberg 2002; Mensforth 1990). These researchers have utilized the archaeological materials or the human skeletal remains recovered from the extensive Works Progress Administration (WPA) excavations or conducted new investigations in an attempt to address specific research questions. A key component of these studies has been to address temporal changes in various biological and life history patterns of the Green River Archaic sites relative to other skeletal populations, typically agricultural or horticultural groups. Studies of these archaeological collections and human skeletal materials often fail to provide new chronometric data, however. Notable exceptions to this pattern have been the work of Haskins (1992) and Mensforth (1996).

An extreme example of this problem is Indian Knoll (15Oh2). The archaeological and skeletal collections from Indian Knoll have been the focus of numerous studies (e.g. Cassidy 1972; Kelley 1980), but only three radiometric determinations are available from the site. In addition, these dates represent three of the initial archaeological radiometric determinations, first run in 1951 (Arnold and Libby 1951) and 1952 (Libby 1952). In this paper, new Accelerator Mass Spectrometry (AMS) radiocarbon assays are presented and interpreted for three Green River Archaic sites (see Volume Map) including Indian Knoll, Ward (15McL11), and Barrett (15McL4). These dates represent the first new dates from Indian Knoll since 1952, three additional dates for Ward supplementing the work of Mensforth (1996), and the first radiocarbon determinations for the Barrett site. The dates are all derived from bone samples selected from specific burials at each site. A Grant-in-Aid from the Kentucky Heritage Council (KHC) provided necessary funding for these new radiometric determinations.

ARCHAEOLOGICAL HISTORY

Indian Knoll, Ward and Barrett represent large Archaic middens located within the Green River drainage that were excavated during the Works Progress Administration (WPA). Excavations focused on the documentation and recovery of vast collections of archaeological debris and human burials. Work at the Ward site was initiated in February 1938 under the direction of David S. Stout and finished in September of that year (Jefferies 1988). Less than one-third of the site was excavated, but over 430 burials were recovered (Webb and Haag 1940).

The Barrett site was excavated under the direction of John Elliot and work began at this site in November 1938 and ended in July 1939. Investigations at Barrett were interrupted due to flooding of the Pond River in the spring of 1939 and the site had to be abandoned for several weeks. To compound matters at the Barrett site, excavations were halted in July 1939 due to the discontinuation of the WPA crews in McLean County (Webb and Haag 1947). Similar to the Ward site, approximately one-third of the site area was excavated, and 412 burials were recovered.

WPA investigations at Indian Knoll began in May of 1939 under the direction of Marion H. Baugh (Jefferies 1988). Webb (1946:121) was unsure if any intact deposits would be present at the site given that C.B. Moore had visited Indian Knoll in 1915 and identified approximately 298 burials. Much to Webb's surprise, extensive undisturbed archaeological deposits were present at Indian Knoll. In the course of the excavations, over 880 burials were recovered. The skeletal collections from these three sites are curated at the William S. Webb Museum of Anthropology at the University of Kentucky, Lexington.

MATERIALS AND METHODS

Human rib bone samples from seven burials were selected from Ward, Barrett, and Indian Knoll. The National Science Foundation Accelerator Mass Spectrometry (NSF AMS) Laboratory at the University of Arizona and Beta Analytic, Incorporated of Miami, Florida processed and analyzed the samples. The NSF AMS laboratory processed and analyzed the samples from Indian Knoll (n=2) and Ward (n=3), and Beta ran the Barrett samples (n=2). Each sample submitted to the laboratories consisted of 35-45 grams of rib bone fragments. The extracted collagen amount from all samples permitted radiometric analysis. Researchers at Beta Analytic were concerned with the Alvar surface treatment and the ink used on the bone. A small rib sample was subjected to SEM analysis to determine the penetration depth of both the Alvar and ink. The small section revealed only limited alvar penetration to a depth of 100-200 microns. Bone below this zone was intact and provided a good collagen source. The limited penetration of the Alvar is probably the result of a quick submersion, or "dipping," of the bones in an Alvar bath or the liquid conservative may have been brushed on the bone.

The selection process of burials sampled for dating varied by site. At Indian Knoll, three dates are available from the midden fill (C-254 5320±300 B.P., C-740 4282±/250 B.P., and C-741 3963±350 B.P. [Arnold and Libby 1951; Libby 1951, 1952]). These have very large standard errors on the order of 250 to 350 years, and they represent bulk antler and animal bone samples. One additional problem with these samples is that the age determinations are inverted when compared to their stratigraphic context leading researchers to question the validity of the dates (Rolingson 1967:484). As result, these dates do not provide good "point" estimates for the initiation and termination of Archaic midden formation at Indian Knoll. Therefore, two burials (827 and 612, respectively) were sampled: one from the top and one from the bottom of the Archaic midden deposit (Figure 1). Projectile points associated with these two burials are temporally distinctive and provide a baseline for the expected age range of the Archaic midden deposit. Four Benton cluster projectile points (Justice 1987) are associated with Burial 612 (Figure 2), and seven Late Archaic Stemmed points are associated with Burial 827 (Figure 3). Webb (1946) describes these burials and associated artifacts in detail.

The Ward site bone samples were collected from three burials (44, 224, and 421) located in various areas of the Archaic rock midden (Figure 4). No artifacts are associated with these individuals, but the archaeological context of Burial 421 is important. This burial was recovered from a large trench feature associated with at least 19 individuals. Several of the burials were extended and it appears that numerous other individuals (or parts of numerous other individuals) were interred next to these burials, possibly as reburial episodes. Burial 421 represents the uppermost individual on the northwestern end of the trench and lies on top of at least three individuals. The exact function of the trench is unknown, but similar features have been identified and excavated at the Butterfield site (15McL7) and the Barrett site.

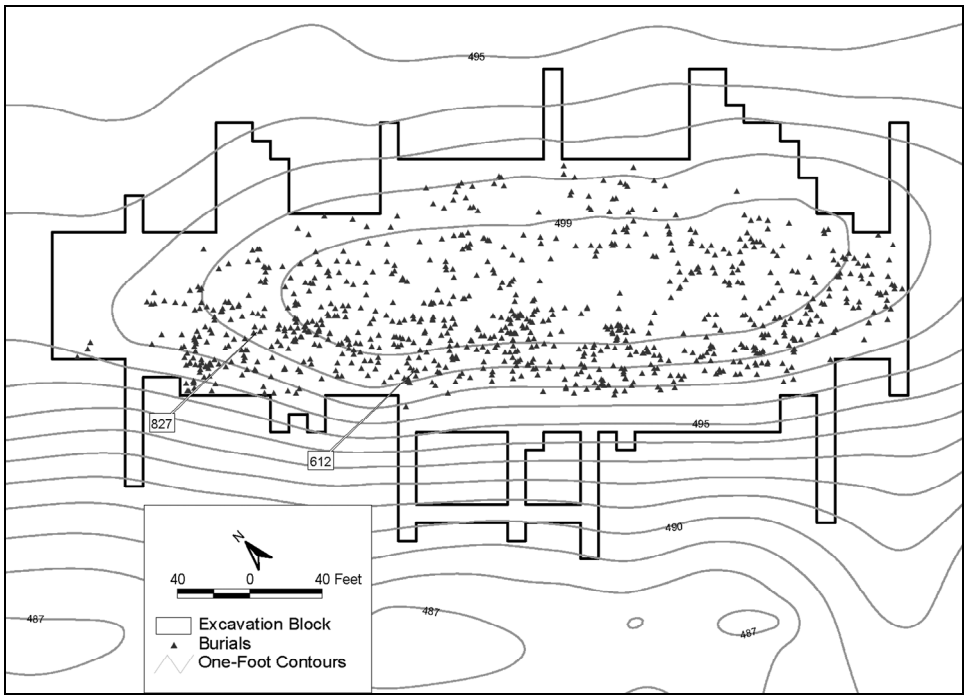

Figure 1. Plan map of Indian Knoll (15Oh2) with the Position of Burials 612 and 827 Identified. Contours Based on Arbitrary 500 ft Elevation for WPA Site Datum.

Figure 2. Benton Cluster Projectile Points Recovered with Burial 612.

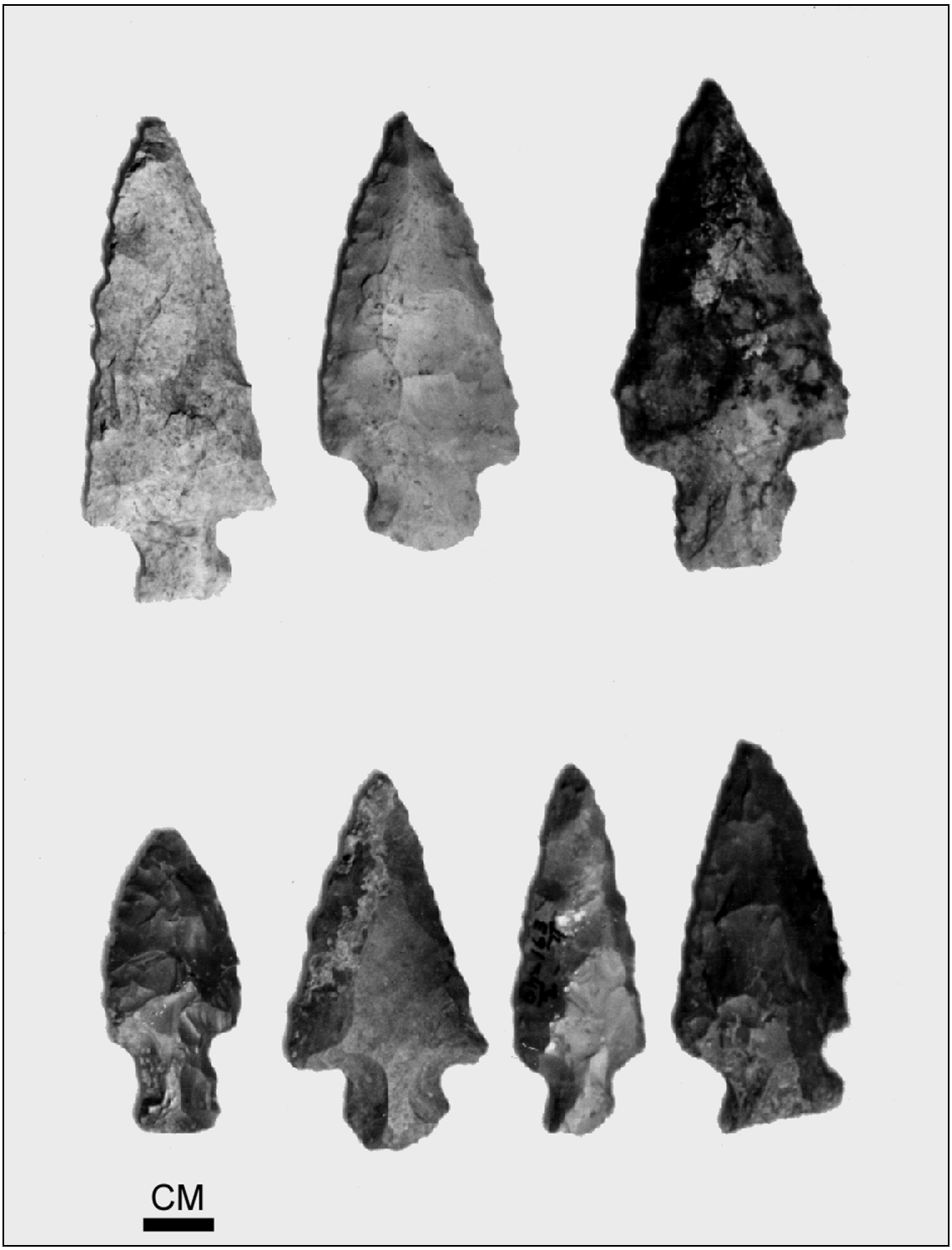

Figure 3. Late Archaic Stemmed Projectile Points Associated with Burial 827.

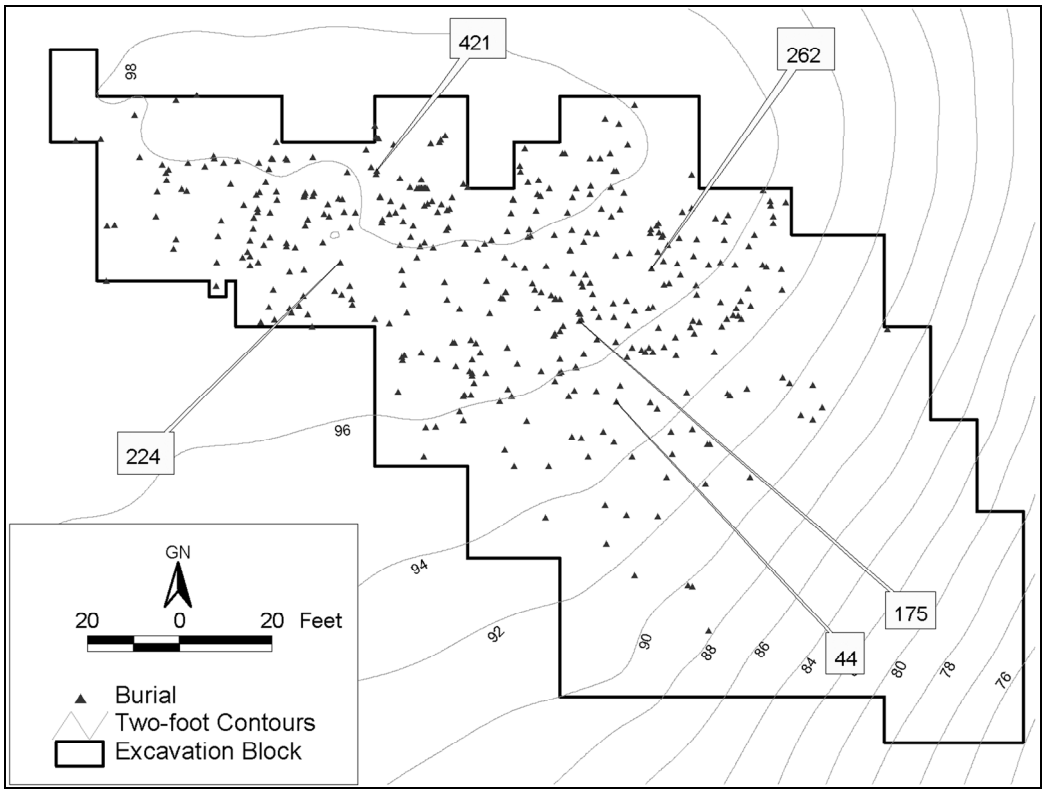

Figure 4. Plan Map of the Ward Site (15McL11) with the Position of Burials 44, 224, and 421 Identified. Contours Based on Arbitrary 100 ft Elevation for WPA Site Datum.

Burials sampled from Barrett are near the base of the Archaic midden deposit and within the shell deposit (Figure 5). A three-quarter grooved axe and various shell artifacts are associated with Burial 87, and Burial 100 exhibits an interesting pathological condition currently being investigated by Mary K. Sandford and David Weaver (Sandford et al. 1998; Weaver et al. 1998) at the University of North Carolina-Greensboro.

RESULTS

The new dates are summarized in Table 1. The sample number, laboratory number, burial number, carbon ratio, uncalibrated midpoint, and calibrated range are provided. Dates were calibrated using CALIB (Stuiver and Reimer 1986, 1993) and densities were plotted with OxCal 3.0 *beta* (Bronk Ramsey 1994, 1995, 1998). The *Intcal98* calibration curve (Stuiver *et al*. 1998) was used in CALIB and OxCal to keep the densities consistent with the calibration ranges. Uncalibrated dates range from 5620±40 BP to 3500± 60 B.P., which translates into a calibrated range of 4690 to 1660 B.C. The dates from the Ward site are well clustered and represent a nice sequence with Burial 224 being the oldest and Burial 44 the youngest.

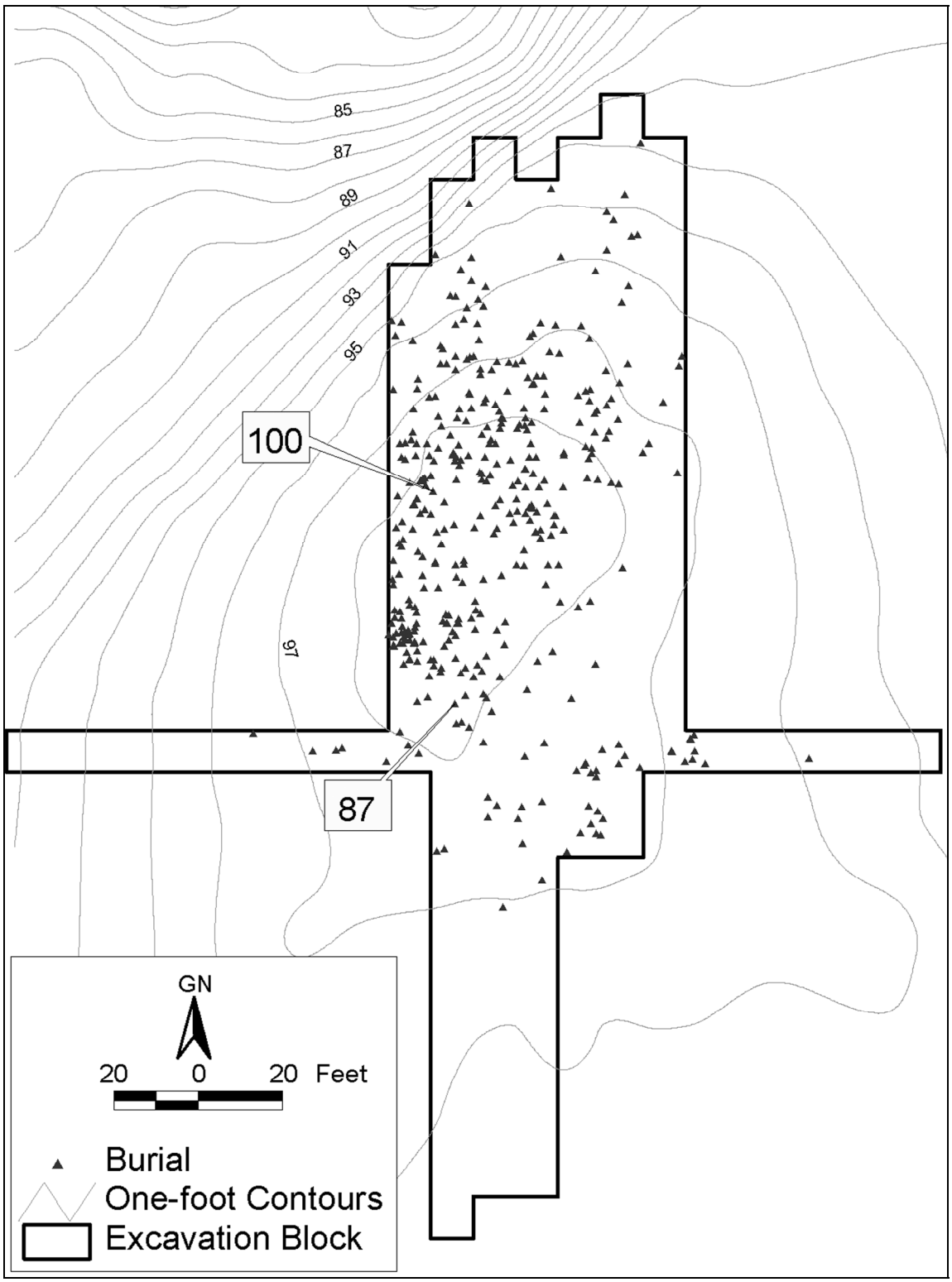

Figure 5. Plan Map of the Barrett Site (15McL4) with the Position of Burials 87 and 100 Identified. Contours Based on Arbitrary 100 ft Elevation for WPA Site Datum.

Table 1. Radiocarbon Dates from Bone Samples from Indian Knoll, Ward and Barrett.

Site	Date/Lab Number	Burial	C13/ C12 Ratio	Conventional AMS Radiocarbon Date (B.P. – uncalibrated)	Two-Sigma Calibrated Range (Median Probability from CALIB)
Indian Knoll (15Oh2)	AA-31194	612	-22.1	4570± 75	3620(3270)3030 B.C.
	AA-31193	827	-23.0	3500±60	2010(1820)1660 B.C.
Ward (15McL11)	AA-30520	44	-22.7	5120± 90	4220(3900)3700 B.C.
	AA-31192	224	-21.3	5600±100	4690(4440)4250 B.C.
	AA-30521	421	-23.1	4800± 65	3700(3570)3380 B.C.
Barrett (15McL4)	Beta-131956	87	-20.6	5620±40	4540(4440)4360 B.C.
	Beta-131957	100	-20.7	4520±40	3360(3210)3100 B.C.

The determination for both Barrett and Indian Knoll are slightly more dispersed, with approximately 1000 years separating the ends of the calibrated ranges. Burial 87 from the Barrett site yielded the oldest determination at 5620± 40 B.P., but Burial 224 from the Ward site also produced a date of 5600±100 B.P. The youngest date by far is from Burial 827 at Indian Knoll with an uncalibrated date of 3500±60 B.P., which is consistent with the artifacts associated with this burial. The carbon 13/12 ratios are consistent across the sites ranging from -23.1 to -20.6. These values are comparable to other non-maize consuming Middle to Late Archaic populations recorded in the Eastern Woodlands (Buikstra 1992).

Prior to the work reported here, only five radiometric determinations were available from these sites. As stated previously, the three reported dates from Indian Knoll are problematic. The other two dates are from the Ward site (Burial 262, 7714±60 B.P.; Burial 175, 4134±60 B.P. [Mensforth 1996]). Burial 262 from the Ward site exhibited skeletal trauma consistent with perimortem violence or scalping. Dates from these burials and Indian Knoll were grouped with the new determinations and plotted using OxCal for comparative purposes in Figure 6.

The three previous dates from Indian Knoll are more difficult to interpret due to the very large standard deviations relative to the new determinations. The new determinations fall within the range of the three previous dates, but still indicate a 1000 to 1500 year time span of midden use at Indian Knoll. The radiocarbon date for Burial 612 is consistent with other reported determinations for Middle to Late Archaic Benton cluster points (Justice 1987:111-114). This individual was found in a large pit with three other individuals (Burials 611, 613, and 614). An additional projectile point was recovered with Burial 614 and this point is very similar to the four projectiles found with 612, except that the base is broken. The radiometric determination of 3500±60 B.P. for Burial 827 is consistent with the expected temporal range of Late Archaic stemmed projectile points in west-central Kentucky.

The date for Burial 262 from Ward (Mensforth 1996) is extremely old when compared to the new dates obtained by the author and to the date reported by Mensforth for Burial 175. The age range of Burial 175 falls nicely at the tail end of the age range of the three new Ward site dates (Figure 6). Based on the new dates reported here, it is possible to conclude that the determination for Burial 262 is potentially contaminated and redating this individual is recommended. Haskins (1992; see Claassen 1996) has reported two dates (ISGS 2299, 7320±80 B.P. and ISGS 2298, 6600±80 B.P.) within the range of Burial 262 from the Kirkland site (15McL12), which is located directly west of the Ward site. These individuals may represent an earlier occupation of the area by a hunter-gatherer population. The radiometric determination from Burial 421 provides an uncalibrated *terminus post quem* for the trench feature of 4800±65 B.P. The calibrated range for this burial is 3700 to 3380 B.C. Further analysis of the individual burials and associated features at Ward as well as additional dates from Ward, Barrett, and Butterfield may help clarify the function and the temporal relationship of these interesting burial facilities.

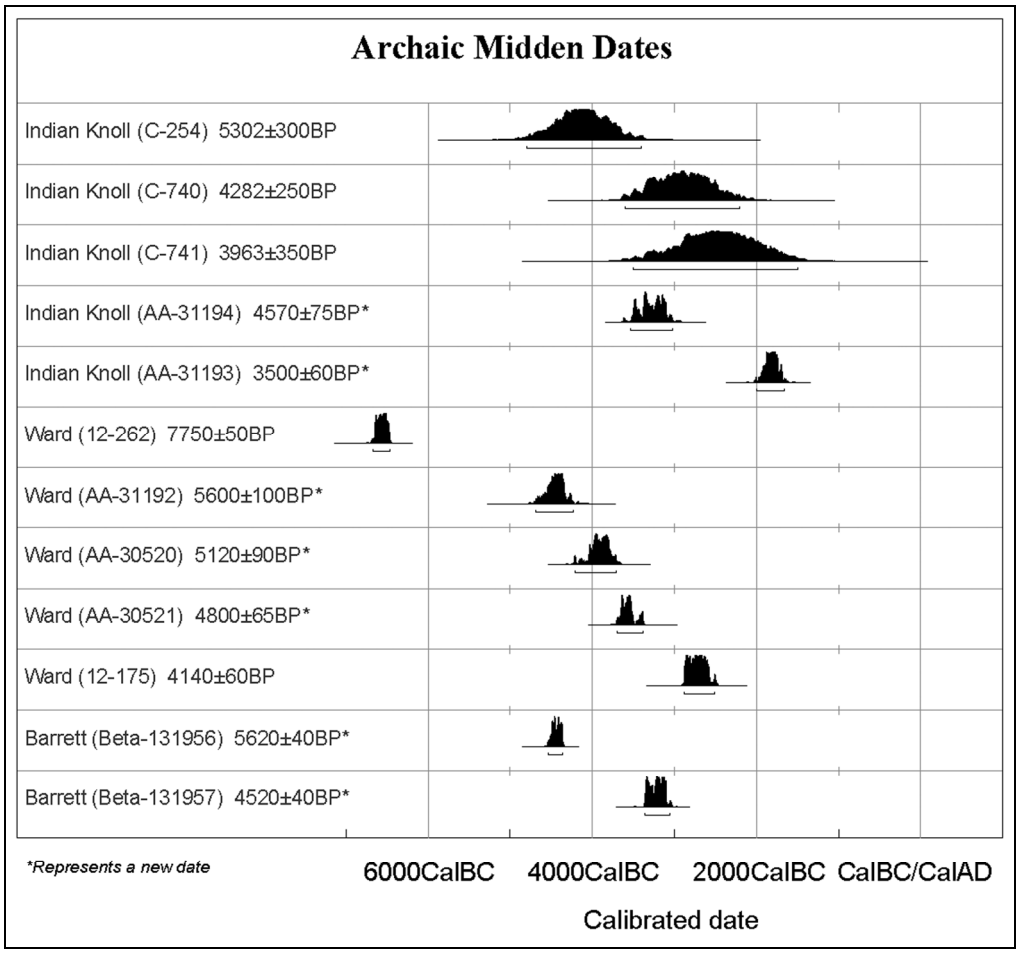

Figure 6. Probability Density Plot of the Calibrated Radiocarbon Dates from Indian Knoll, Ward, and Barrett.

CONCLUSIONS

In this paper, new radiometric determinations for three Green River Archaic middens have been presented. The seven dates, spanning a 2100-year period (uncalibrated years) of relatively consistent regional and cultural adaptation, provide a basis for future research. The research potential of these sites from an archaeological and bioarchaeological perspective is vast, but a good chronological foundation is critical to our understanding of these sites. Most of the prior skeletal biology research with these collections has focused on the subsistence dichotomy of hunter-gatherers versus agriculturalists. It is essential to investigate the Archaic middens individually and address both temporal and spatial variation rather than simply considering them a homogeneous group. The new radiocarbon dates from Ward, Indian Knoll, and Barrett represent a step in this direction and provide a chronological basis for future studies at these sites. The new determinations fall nicely within the range of radiocarbon dates previously reported from the sites and region. Clearly, additional radiocarbon assays are needed to tease out the stratigraphic contexts and depositional histories of these vast middens. Perhaps a series of radiocarbon dates from select burials at each site, in combination with new stratigraphic investigation on the margins of the old excavation blocks, will provide a clearer picture of midden formation and burial patterning. With such data, research questions addressing temporal, spatial, and potentially microevolutionary changes occurring at these sites and in these populations can be better addressed.

ACKNOWLEDGMENTS

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INVESTGATION OF PERISHABLE MATERIALS ASSOCIATED WITH FAWN HOOF, A DESICCATED BURIAL IN SHORT CAVE, KENTUCKY

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ABSTRACT

Fawn Hoof was discovered in Short Cave (15Ed95), Kentucky in 1811. AMS dates obtained from samples of textile fragments associated with this desiccated burial indicate that this individual died approximately 3000 years ago. Identification of some of the materials in the collection (e.g., rattlesnake skin [*Crotalus horridus*], Coopers Hawk feathers [*Accipiter cooperii*], and beads made of either Jack-in-the-pulpit or Green Dragon [*Arisaema* spp.]) seeds, when combined with the rich description of the burial provided by Meriam in 1815, indicate Fawn Hoof may have been a medicine woman.

INTRODUCTION

Throughout the early 1800s several well-preserved burials were discovered in caves in Kentucky and Tennessee by saltpeter miners. Historical accounts of these burials refer to them as "mummies" and several describe perishable materials interred with the bodies. Both this author and others, however, have found that a number of these accounts are not reliable or accurate (Horton 2003; Meloy 1998 [1968]). Several of the "mummies" were eventually given to nineteenth century museums of natural history: Peale's Museum in Philadelphia; Barnum's American Museum in New York; Dr. Daniel Drake's Western Museum in Cincinnati; and the Smithsonian Institution in Washington D.C. Other mummies, such as the Audubon Avenue Mummy from Mammoth Cave, while not reported to have been moved from the caves in which they were found, are unaccounted for today. "Fawn Hoof," discovered in Short Cave, Kentucky, is the only mummy known to be in a museum with portions of its original collection.

Fawn Hoof was discovered by saltpeter miners in 1811 and described by Ebenezer Miriam, a businessman and scientist, in 1813 (Meriam in Bullitt 1985 [1845]). The details provided by Meriam provoked a great deal of interest in Fawn Hoof, and she has been discussed in much of the literature, both popular and scientific, concerning the

Mammoth Cave region (Bullitt 1985 [1845]; George 1990, 1994; Meloy 1998 [1968]; Powell 1996; Schwartz 1965; Watson 1997; Watson and Meloy 1969). Prior to this study there had never been a full and detailed analysis of all of the materials interred with Fawn Hoof.

The artifacts associated with Fawn Hoof are curated at the Peabody Museum of Archaeology and Ethnology, Cambridge, Massachusetts, and the Smithsonian Institution, Washington, D.C. In June 2002, the author traveled to both institutions to carry out a detailed study of those materials. The research emphasis was to complete a detailed attribute analysis of the Fawn Hoof collection using current methods for textile technologies, and to collect samples for fiber analysis and AMS dating. In addition, the reliability of two historical accounts describing the discovery of the burial was assessed: Ebenezer Meriam's 1813 description (in Bullitt 1985 [1845]) and F. W. Putman's (1875) examination of Fawn Hoof for the Boston Society of Natural History. The intent of this study was to determine whether there was evidence to support the interpretation of Fawn Hoof as a medicine woman (Powell 1996).

There is substantial correlation between the remaining collection and Ebenezer Meriam's 1813 description of the Fawn Hoof burial. Analysis of the artifacts associated with Fawn Hoof, in combination with Meriam's 1813 description of the lost elements of that assemblage, supports an interpretation of Fawn Hoof as a special status individual, such as a healer or ritual specialist. In addition, AMS dating establishes a Terminal Archaic context for the burial.

SHORT CAVE

Short Cave (15Ed95) is located between the present day boundaries of Mammoth Cave National Park and Park City, Kentucky, near the edge of the Chester Escarpment. It is approximately 267 m long and is a large canyon-type passage, similar to the upper passages of Mammoth Cave. Short Cave has been substantially altered by historic activity and no longer has a dark zone, although a 1945 description of the cave indicates that at one time it did (Ward 1945).

A western or back entrance was created in the1940s or 1950s during an attempt to bulldoze the enormous breakdown slope that once filled the western end of the passage (Gordon Smith, personal communication 2002). Oral history of the cave indicates that it was during this bulldozing episode that a catastrophic collapse occurred in the back portion of the cave burying the bulldozer (fortunately during the evening when no one was working), creating the back entrance.

Floor deposits were partially removed and badly disturbed by historic activities, including the saltpeter mining of the early 1800s. Since then the cave has been used for a wide variety of activities ranging from use as a cold storage facility for the L and N

Railroad (Sneed 1986), to a mushroom farm (George 1990), and eventually as a commercial cave. Today, the cave is privately owned and no longer open to the public.

Nancy O'Malley, of the University of Kentucky, and a group of interested cavers documented the mixed and disturbed floor deposits during test excavations carried out in the late 1980s. While the analysis of the diagnostic projectile points allowed O'Malley to determine that the cave had been used by prehistoric groups for a long period of time (from the Early Archaic onward), the extreme mixing of historic and prehistoric artifacts indicated that there was little in the way of intact deposits remaining (O'Malley 1986).

The saltpeter mining of the early 1800s unearthed a total of four "mummies." The first, an infant, was uncovered in 1811, and did not survive exposure once disturbed (Wilkins 1817 correspondence, reprinted in George 1990:69-71). This discovery prompted Charles Wilkins, then co-owner of Mammoth Cave and involved in the saltpeter mining in both Mammoth and Short Cave, to offer a reward for the discovery and intact recovery of any other mummies (Wilkins 1817 correspondence, reprinted in George 1990:69).

The second burial, an adult female, was uncovered shortly after the infant and was delivered intact to Wilkins, who placed her in Mammoth Cave. This burial became known as "Fawn Hoof," a name created by Nathaniel Parker Willis in 1852 (Meloy 1998 [1968]:31) based on one of the associated artifacts described as "the red hoofs of fawns on string suppose to be worn as a necklace" (Meriam quoted in Bullitt 1985 [1845]:30). Although the date of her discovery is commonly listed as 1813, Fawn Hoof was probably found either late in 1811, or early in 1812, based on letters between Wilkins and Samuel Burnside (1817 correspondence reprinted in George 1990). By 1813, she was placed on exhibit in Mammoth Cave, becoming the first "Mammoth Cave mummy" (Meloy 1998 [1968]).

In 1814, two more burials were uncovered, an adult male and an adult female. They were removed from Short Cave by Archibald Miller, the manager of nearby Mammoth Cave, and sent to Dr. James H. Rice in Lexington, Kentucky. Dr. Rice detailed his examination of these two mummies in a letter to Dr. Daniel Drake, a prominent member of the University of Transylvania Medical School (The Daniel Drake papers of the Draper manuscripts, 2 o 30, 1814, reprinted in George 1990:85-90). These two mummies were subsequently sent to separate institutions. The male became known as "Scudder's Mummy" and was placed on exhibit in John Scudder's American Museum in New York. This institution later became P. T. Barnum's American Museum, which burned to the ground in 1865 (Meloy 1998 [1968]:38). The female mummy's history is less clear, but it is possible that she became the property of Dr. Drake, who opened a museum in Cincinnati. This mummy was lost or destroyed (Meloy 1998 [1968]:38).

FAWN HOOF

Ebenezer Meriam was commercially involved in saltpeter production and processing and saw Fawn Hoof in 1813, during a visit to Mammoth Cave. Meriam wrote the most detailed description of the burial, which has subsequently been reprinted numerous times (Bullitt 1985 [1845]; George 1990, 1994; Meloy 1998; Putnam 1875). Meriam's description has served as the basis for the commonly held hypothesis regarding the temporal context of Fawn Hoof's burial (Late Prehistoric) and her potential as a special status individual (Powell 1996; Watson 1986; Watson and Meloy 1969).

Nahum Ward observed Fawn Hoof in about 1814 and arranged with Charles Wilkins, a co-owner of Mammoth Cave, to take the mummy to a museum or institution on the East coast (George 1994; Meloy 1998 [1968]). This arrangement was apparently not clearly articulated, and Ward exhibited her for profit in a number of cities including his hometown of Marietta, Ohio (George 1994:87-95). The legal wrangling that resulted between Wilkins and Ward ended in 1817 when Ward turned Fawn Hoof over to the American Antiquarian Society in Worcester, Massachusetts, where she was placed on display (George 1994:95; Meloy 1998 [1968]:30).

In 1874, F.W. Putnam (1875:321) toured archaeological sites in the Mammoth Cave region, including Short Cave and the reputed location of the discovery of Fawn Hoof. Afterwards, he traveled to the American Antiquarian Society to examine Fawn Hoof. Putnam (1875) published a brief description of some of the artifacts associated with the burial. He also obtained samples of the collection while she was curated at the American Antiquarian Society and placed them at the Peabody Museum in 1875 (Peabody Museum Catalog volume 2, 1875). His actions preserved the only extant fragments that once accompanied Fawn Hoof.

In 1876, the American Antiquarian Society traded Fawn Hoof to the Smithsonian, where she remained on exhibit until the late 1800s or early 1900s. She was subsequently removed from exhibit, defleshed, and stored in the Physical Anthropology Department of the Smithsonian (Meloy 1998 [1968]:31-32). The bones were examined by Valeria Haskins in the early 1990s and described as those of a "small elderly woman with arthritis" (Powell 1996:323). In Addition, Haskins described the dental wear patterns as "similar to Late Archaic populations… but dental caries patterns suggest a later burial" (Powell 1996:323).

The surviving portion of the assemblage associated with Fawn Hoof is divided between the Peabody Museum of Ethnology and Archaeology, and the National Museum of Natural History, Smithsonian Institution (Table 1). The collection is extremely fragmentary, consisting primarily of small fragments.

Table 1. Fawn Hoof Artifacts – Catalog Numbers and Brief Description.

Peabody EA collection	Smithsonian NMNH collection
8238.1: Braided warp, two ply weft, plain twined textile 8238.2: Two ply warp and weft, plain twined textile 8238.3: Two ply weft and warp, alternate paired and plain twined textile 8239: Braided cordage (rope) 8240: Cordage 8241.1: Leather object on cord 8241.2: Segments of cordage 8241.3: Pile of fiber material 8242: Strung seeds (Ariseama sp.) 8245: Four (feathers Accipiter cooperii)	21610-A: Wooden bowl 21610-C: Small box of cordage, strung seeds (Ariseama sp.), small leather objects, and snakeskin (Crotalus horridus) fragments 21610-D: Strung feathers (Accipiter cooperii) and pile of feather fragments

ANALYSIS OF THE FAWN HOOF COLLECTION

To develop an evidentiary basis for discussion, the historic accounts and the correspondence between the collection in its present condition and the collection as observed by Meriam and later Putnam had to be evaluated.

TEXTILES

Putnam noted the presence of four textiles in the collection, including two bags in relatively good condition. The other two textile items were described as: 1) a fragment of the outer cloth wrapper placed around the body; and 2) a "finely made piece of cloth… thirteen inches long and four inches wide, with the ends fringed" (Putnam 1875:324). Today, the Peabody curates three textile fragments cataloged as "pieces of three kinds of cloth" (No. 8238, Peabody Museum Catalog, volume 2, 1875). These three textile fragments are samples taken by Putnam of the four textiles that he refers to in his commentary. It is not possible to determine from which item each sample was taken, however.

All three textile fragments are constructed using an S-twined spaced weft but vary in the structure of the warp elements. Although the fragmentary condition of these textiles makes assessing weft and warp a tentative process, for the purposes of clarity and common usage, active elements are referred to as "weft" and passive elements are referred to as "warp."

The first fragment (No. 8238.1, Figure 1a) has braided warp elements, a possible selvage edge, and a bi-colored weft row. The "selvage" in this item consists of several warp elements that exit the body of the textile and then turn to reenter it in the next warp row. Deterioration and the fragmentary condition of this piece precludes determining if this was done with every warp row (thereby creating a continuous warp using one long braid) or whether it was done in staggered intervals, such as every other warp (which

would mean that every two warps consist of one braid doubled). The bi-colored weft of this textile fragment was created by using two different color weft elements, one black or dark brown and the other either a naturally pale or "bleached" fiber, with a one half twist between each warp. This allows the alternate color to show at every other warp.

Figure 1. Textile Fragments Associated with Fawn Hoof, Peabody Collection 8238: a, 8238.1; b, 8238.2; c, 8238.3.

The other two textile fragments (No. 8238.2, Figure 1b and 8238.3, Figure 1c), are constructed with a two ply S-twist warp. Of these, one (No. 8238.2) exhibits a plain twined and spaced weft structure with a medium dense warp. The other (No. 8238.3) was more difficult to analyze due to shifts in the number of warps enclosed in each weft twist. The fragment was too small to determine whether this was done in a regular manner (e.g., for design purposes) or whether the weaver was simply attempting to regulate the thickness of the textile by occasionally filling or splitting the warp spacing.

The warp elements of two textile fragments (No. 8238.1 and 8238.3) are most consistent with Eryngium yuccifolium, or Rattlesnake master, based on the morphology and arrangement of the stomata and guard cells (Gordon 1999). While other diagnostic attributes, such as the presence or absence of leaf hairs, were difficult to determine, the overall appearance of the fibers of the warps from both textile fragments is that of a leaf fiber. The weft sample of the third fragment (No. 8238.1) has not been fully identified, but is a fine and well-processed bast fiber.

Samples of two textile fragments (No. 8238.1 and 8238.3) were sent to Beta Analytic for AMS dating (Table 2). The dates from both textile fragments are consistent with each other as well as with the radiocarbon date obtained by the Smithsonian in 1993 from soft tissue still adhering to the skeletal remains (David Hunt, personal communication 2002). All of the determinations indicate a Terminal Archaic context ranging from 1320 and 975 B.C. for the Fawn Hoof burial. The Archaic date came as something of a surprise because of the traditional assumption that she was a Late Prehistoric burial (Watson 1986:114). The radiocarbon dates for Fawn Hoof place her within a period of increasing activity in the cave systems of the Mammoth Cave region (Crothers et al. 2002; Kennedy 1996), and indicate that this burial should now be assessed within the wider context of the Late Archaic/Early Woodland period.

Table 2. Radiocarbon Dates for Fawn Hoof and Associated Artifacts.

Lab Number	Description of Sample	Conventional Radiocarbon Age (B.P.)	2 Sigma Calibration
SI-NMNH Beta- 62567	Soft tissue	2940±50	1320–1000 B.C.
Beta-170519	Plant fiber - Warp 8238.1.1	2920±40	1215-975 B.C.
Beta-170520	Plant fiber - Weft 8238.1.2	2960±40	1300-1030 B.C.
Beta-170521	Plant fiber - Warp 8238.3.1	2910±40	1245-985 B.C.

CONTENTS OF FAWN HOOF'S "BAGS"

Two woven bags were associated with Fawn Hoof and Meriam's description places all of the items discussed in this section in one of these bags (Meriam in Bullitt 1985 [1845]).

Feathers

There are four sets of strung feathers and several piles of feather fragments in the Fawn Hoof assemblage (Figure 2). Meriam (in Bullitt 1985 [1845]) refers to these strung feathers as "headdresses." Two distinct methods were utilized to affix the feathers to cordage. First, a cord was strung through a hole pierced in the proximal end of the quill shaft. This method would have created a flexible and relatively flowing "headdress," with the feathers able to move individually. The second method is accomplished by bending the proximal end of the quill shaft around a foundation cord, and then securing it in place by means of cord wrapping. The feathers strung in this manner are grouped into sets of three, with two sets of three feathers left intact. If the grouping of three feathers per set was consistent, this item would have held a minimum of 36 feathers. This method would have created a very upright, stiff, and relatively immobile feather structure.

Meriam (in Bullitt 1985 [1845]) includes a relatively accurate description of these two methods. He conflated the methods, however. Meriam describes the construction of the headdresses as feather shafts pierced and strung with cordage, and then wrapped with a second piece of cordage. These two distinct methods of attaching feathers to cordage

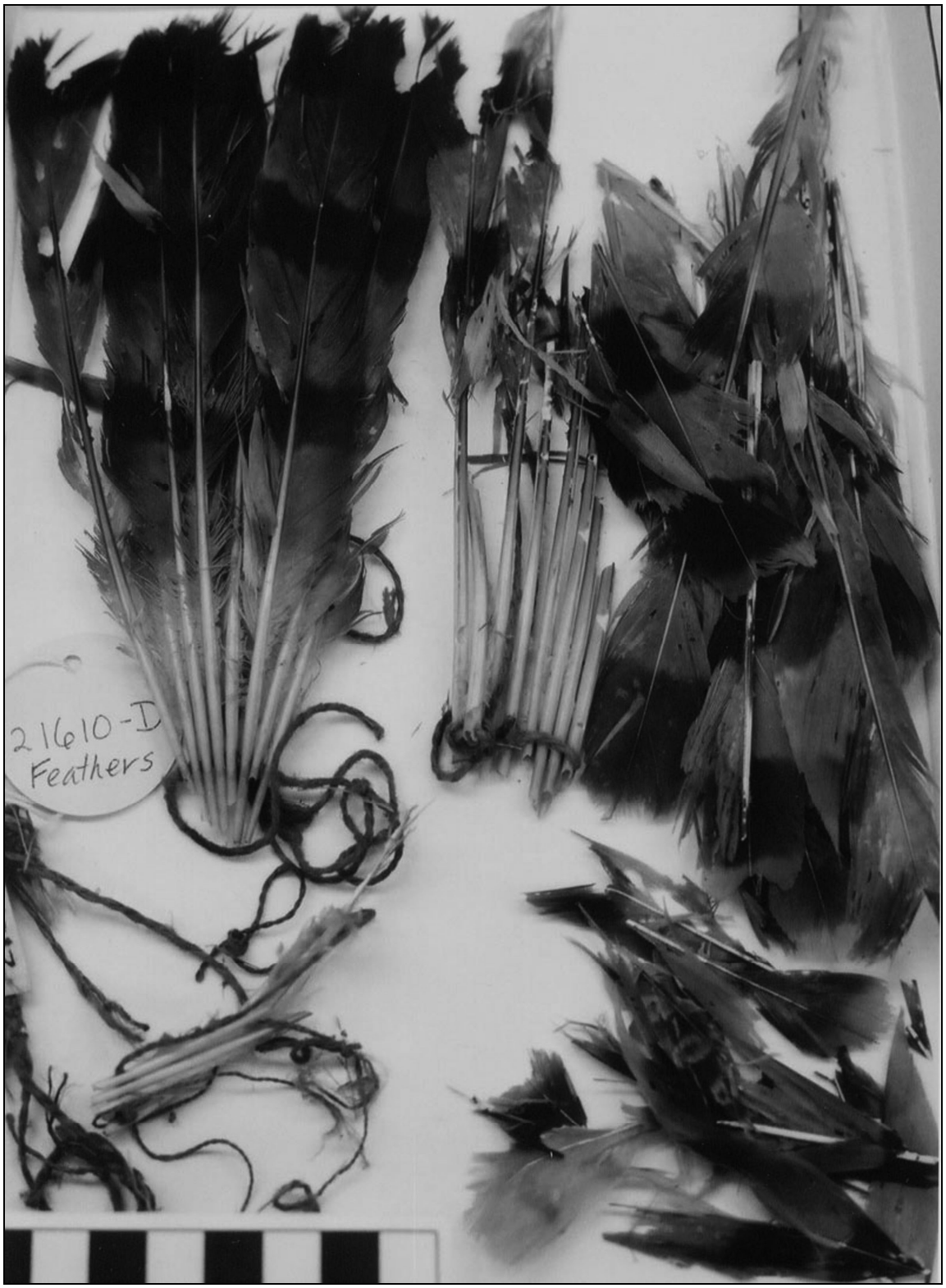

Figure 2. Feather "Headdresses." Smithsonian Collection, Catalog Number 21610-d. Pierced and Strung Feathers are Visible in Top Two Sets. Wrapped Feathers are not Visible in Photograph.

would have created very different types of "headdresses" that separate into functionally different types of ornaments.

Putnam identified the feathers as Cooper's hawk (*Accipiter cooperii*) (Peabody Museum Catalog, volume 2, 1875). With a few possible exceptions, all of the feathers observed at both the Peabody and the Smithsonian are consistent with this identification. The distinctive banding visible on the most intact tail feathers is characteristic of Cooper's hawk and can be distinguished from Sharp-shinned hawk (*Accipiter striatus*) by the white tips on the ends of the tail feathers.

***Arisaema* sp. Seeds**

Collections of seeds strung on cordage are present in the assemblage (Figure 3). The Peabody collection contains a few segments, while the Smithsonian has a sizable quantity of them tangled with other cordage (Table 1). Gina Powell (1996:323) identified the seeds as *Arisaema* spp. and noted that the seeds are either Jack-in-the-pulpit (*Arisaema triphyllum*), Green Dragon (*Arisaema dracontium*), or potentially a mixture of both species. Each seed is pierced and strung on bast cordage. Compaction and distortion of the seeds is common as they are extremely tightly spaced.

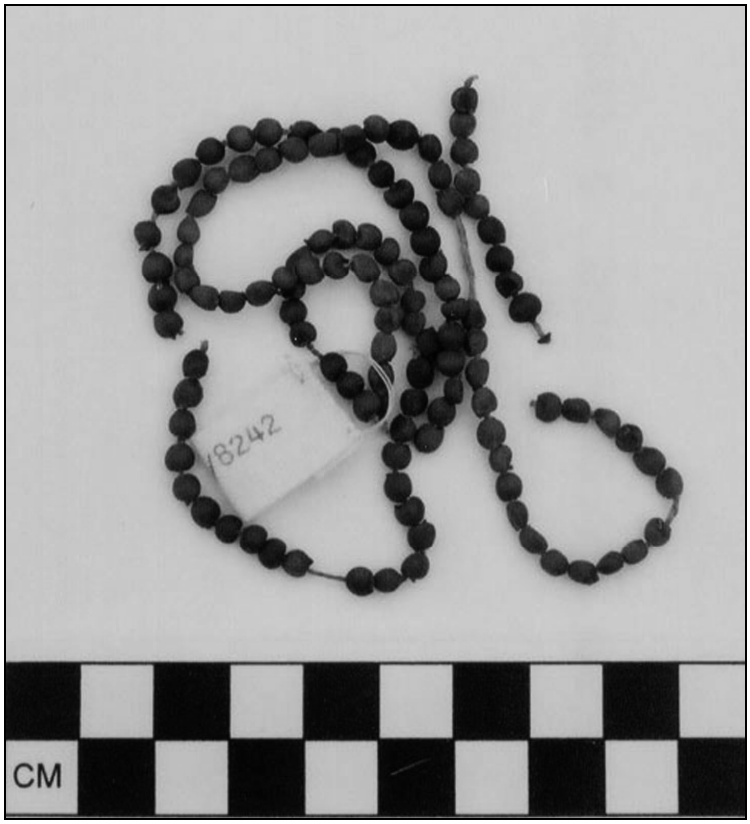

Figure 3. *Arisaema* spp. (Jack-in-the-Pulpit or Green Dragon) Seeds Strung on Cordage. Peabody Collection, Catalog Number 8242.

As the fruits of both species contain multiple seeds, it is clear that it was the seeds and not the fruits that were strung. Stringing the fruits would not have produced the regularly and tightly strung seeds observed in the Fawn Hoof collection. While the historical accounts of the burial indicate that Fawn Hoof was of special status, it was the identification of these seeds as *Arisaema* spp. that provided the evidentiary basis for a possible interpretation of Fawn Hoof as a healer or spiritual specialist (Powell 1996).

"Fawn's Hoofs"

Next are probably the most enigmatic items in the collection. These are what appear to be small pieces of hide strung on cordage (Figure 4). These may be the items that are described as "fawn's hoofs" in both historical documents and the Smithsonian and Peabody accession records. Putnam (1875:325) states that there were artifacts matching Meriam's description of "fawn's hoofs" but placed a question mark after "fawn's hoofs" in his text. The author shares Putnam's hesitation in referring to these as hooves, but believes that the hide objects are the items seen and described by Meriam and Putnam. The fragments are so clearly hide-like that they are almost certainly not hooves.

Figure 4. Hide-like Object Strung on Cordage ("Fawn's Hoofs"?). Peabody Collection, Catalog Number 8241.1.

The Smithsonian artifact assemblage contains five of these small hide objects, while the Peabody has a single segment of cord with one piece of leather on it. All of the hide fragments have extensive insect damage, obscuring any clear indication of their

original form. One of the interesting aspects of these items is the apparent staining of sections of the cordage with red pigments.

Snakeskin

In a box of tangled cordage labeled "21610-C" were two small fragments of snakeskin (Figure 5). The observable scales are strongly keeled, and were either light gray or "salt and pepper" in color. The species most consistent with these fragments is Timber rattler (*Crotalus horridus) (*Jeff Ettling of the St. Louis Zoo, personal communication 2002). While the banding is not completely clear on the archaeological fragments, some portions match the proximal edge of dark banding characteristic of timber rattlers. In addition, for Eastern North American snakes, keeled scales are diagnostic of species belonging to the pit viper family. While there are a few snake species that "mimic" pit viper attributes, they are not as clearly keeled as true vipers.

Figure 5. Close-up Image of Snake Skin Fragment Tangled in Mass of Cordage. Smithsonian Collection, Catalog Number 21610-c.

Meriam (in Bullitt 1985 [1845]) and others (George 1990) refer to rattlesnake skins in their descriptions of the artifacts associated with Fawn Hoof. Putnam (1875:325) notes the snakeskins were presumed lost. Rediscovery of the two snakeskin fragments by the author provides support for Meriam's 1813 description. In addition, the fact that Putnam and subsequent museum accession records missed these snakeskin fragments confirms that this collection had, even by 1874, undergone substantial deterioration and attrition.

Falsely Associated Artifacts

There are two artifacts included in the accession records of the Peabody and the Smithsonian that, based on this study, are false associations (Figure 6). One is a carved wooden bowl curated at the Smithsonian. The bowl is mentioned in articles advertising Fawn Hoof written by Ward during the period he exhibited the mummy (Ward 1816, reprinted in George 1990:102). One of Ward's advertisements refers to the artifact as "a very curious bowl, containing burnt bones, the relics of her friends" (Ward 1816 reprinted in George 1990:105). Ward's skill as a salesman and his willingness to alter the collection for exhibit is evident in these publications. It is uncertain which cave, potentially Short Cave or Mammoth Cave, the bowl came from (Putnam 1875:331) but, with the exception of Ward, no other account associates it with Fawn Hoof.

Figure 6. Items Mistakenly Associated with Fawn Hoof. Left: Peabody Collection, Catalog Number 8241.2 and 8242.3, Pile of Loose Fiber Materials and Small Segment of Cordage. Right: Wooden Bowl, Smithsonian Collection, Catalog Number 21610-a.

A small pile of *Eryngium yuccifolium* leaves and unidentified bark fiber curated with the collection at the Peabody also does not belong to the Fawn Hoof assemblage (Table 1). However, the cordage on top of the leaves and bark is associated with Fawn Hoof. Historical accounts refer to small skeins of cordage in the bags, but none refers to unprocessed fiber material. Putnam did, however, accession to the Peabody a pile of "bark and leaves from which cloth and sandals were made" (Peabody Museum Catalog,

volume 2, 1875), which were collected in either Salts or Mammoth Cave during his 1874 visit to the area (Putnam 1875:320).

Lost Artifacts

There are several artifacts in the original Meriam description that were observed by Putnam in 1874, but were subsequently lost (Table 3). The lost artifacts, include a woven head-cap, a painted deerskin, two cane whistles, at least one bone needle referred to by Putnam as a horn awl, and four individual pieces of textile (Putnam 1875:323-326). The deerskin, described as painted with white pigment in a "vine and leaf design" (Meriam in Bullitt 1985: [1845]), is a particularly unfortunate loss. Putnam apparently provided a sample of the deerskin to the Peabody. The Peabody catalog lists this item, as artifact No. 8244, "a piece of skin painted white" (Peabody Museum Catalog, volume 2, 1875), but it is now missing.

Table 3. Comparison of Historical Accounts and Current Collection.

Meriam (1813)	Putnam (1875)	Horton (2003)
textile and 2 bags	2 textiles (fragments?), 2 bags	3 fragments
deer hide with white painted design	present	absent
woven or knit moccasins	absent	absent
woven or knit head cap	present	absent
fawn "hoofs" on cord	present?	present?
bear jaw on cord	absent	absent
eagle claw on cord	absent	absent
seeds on cord	present	present
sinew	absent	present
pigment packets ("vegetable colors done up in leaves")	absent	ocher (?) staining on some cordage
7 "horn" and bone needles	1 antler awl	absent
thread and twine	several	numerous
2 cane whistles	present	absent
rattle snake skins ("one with fourteen rattles")	absent	fragments present, lacking rattles
hand piece: deer-skin	absent	absent

DISCUSSION

Analysis of the Fawn Hoof collection as it exists today, with careful comparison to the historical accounts of both Ebenezer Meriam (in Bullitt 1985 [1845]) and F. W. Putnam (1875), suggests that Meriam's description of the Fawn Hoof burial is quite accurate. Artifacts included in the current Fawn Hoof collection are consistent with some of the items described by Meriam (in Bullitt 1985 [1845]; George 1990; Meloy 1998 [1968]). Many of the items no longer in the Peabody or Smithsonian collections are

accounted for in Putnam's (1875) examination of the collection prior to its final move to the Smithsonian in 1876 (Table 3).

The combination of the historical descriptions and the author's analysis provide considerable support for the interpretation of Fawn Hoof as a special status burial, probably that of a medicine woman or ritual specialist. The Fawn Hoof assemblage includes portions of animals that may have had symbolic significance, such as the rattlesnake and hawk as well as seeds of either Green Dragon or Jack-in-the-pulpit, noted ethnographically for their use as a medicine or magical device. In addition, the presence of two types of feather "headdresses," other items apparently meant to be worn (e.g., a "bear jaw" and "eagle claw"), and the presence of musical instruments (e.g., the cane whistles) (Meriam in Bullitt 1985 [1845]) suggests that there is also reason to infer that this assemblage represents the items and the "costume" needed for an individual involved in performative activities.

Use of both Jack-in-the-pulpit and Green Dragon (*Arisaema* spp.) is noted ethnographically among a variety of Native American groups. While the plants are considered toxic, proper processing can yield edible foodstuff; hence another of its common names is "Indian turnip." Ethnographic information concerning seed use refers to them as edible with a "peppery" taste and mentions their use in divination practices (Moerman 1981:99; see also Powell's discussion, 1996:324-325). King's (1984:58) reference for Green Dragon (*A. dracontium*) notes its use in sacred bundles by the Menominee. Additionally, Gilmore (1919) reports the use of *Arisaema* spp. seeds in gourd rattles among the Pawnee. Finally, as Gina Powell (1996:325-326) points out, *Arisaema* spp. also has some use as women's medicine due to the potential presence of chemical compounds that "affect receptors specific to the uterus." *A. dracontium* or *A. triphyllum* may, as other aroids do, have some effectiveness as an abortifacient, for inducing the onset of menses, and for easing childbirth (Powell 1996:326).

The presence of hawk feathers and rattlesnake skins is particularly intriguing due to their iconographic importance among Late Prehistoric and Historic populations in the Southeast. Their association with the sky and the underworld, respectively, are relevant, as is the melding of snakes and hawks with other animals (as well as humans) in the development of the horned serpent, the uktena, hawk-human figures, and other anthropomorphic and zoomorphic beings (e.g., Emerson 1989; Hudson 1976). Both rattlesnakes and hawks seem to have had considerable importance in the Southeastern Ceremonial Complex (Phillips and Brown 1978) and provide iconographic elements in numerous pictographs, petroglyphs, and mud glyphs throughout the Midsouth and Southeast (e.g., Faulkner 1986; Hudson 1976; Muller 1986).

That all of these artifacts (with the exception of the hides and cloth wrapped around Fawn Hoof) were placed in woven bags and not on her body suggests that they are not an indication of personal status or wealth but rather are associated with a specialized role or position within the group. Ethnographic accounts of medicine bags and bundles used by many Eastern and Southern tribes, as well as a wide variety of Plains tribes, note the supercharged nature of items contained within bags or bundles (e.g.,

Gilmore 1927; Hudson 1976; Swanton 2001 [1931]). Containment of the contents, that is their placement with bags or pouches, is integral to their proper handling, because the power that they are imbued with could hurt as well as help others.

Archaic cemeteries, such as Indian Knoll, provide some substantial time depth to the use of "medicine bags" (Webb 1974), but few are as artifact-rich as those that accompanied Fawn Hoof. Additionally, the multiple types of feather ornaments, snakeskin, and plant and animal elements strung on cordage can be thought of as paraphernalia for an individual involved in ritual activities. While a single burial does not add substantially to our knowledge of mortuary patterns for Terminal Archaic peoples in the Mammoth Cave region, this single burial does allow a unique glimpse into the more ephemeral technologies and social processes of that prehistoric population.

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AN EVALUATION OF RADIOCARBON DATA FROM MOUND C, WICKLIFFE MOUND GROUP (15BA4)

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ABSTRACT

Stratigraphic data demonstrated that graves in the Mound C cemetery intrude through portions of a late occupation Mississippian period midden, but did not indicate the time depth between depositional events. Accelerator Mass Spectrometry age estimates from graves at the top and bottom of stratified burial sequences established commencement and termination dates for the cemetery. These dates were compared with two samples obtained from the midden. Results indicated that the burial population probably predated the end of midden deposition. There were no statistical differences between the mid-thirteenth-century commencement and termination burial dates. The Mound C cemetery was probably a product of the Wickliffe village with cessation of mound activities approximating that of village abandonment.

INTRODUCTION

Communities recognize that social bonds do not end with death, rather that the dead represent an important aspect of the living's organizational network (Radcliffe-Browne 1964:324). Community burial areas or cemeteries therefore represent an important component in understanding a society's structure. Far too often archaeological settings restrict the capacity to examine a cemetery along with other components of a community's cultural record. One of the most limiting factors is an inability to identify accurately what community is responsible for erecting and maintaining a given mortuary area. Analysts must assume associations between mortuary features and other deposits, or examine them as independent structures. Such is the case for the Mound C cemetery of the Wickliffe Mound Group (15Ba4).

Since the cemetery falls within the boundaries of this Mississippian mound and village complex, it has been assumed that occupation of the village habitation area and use of the mortuary facility were simultaneous (e.g., B. King 1937a; 1937b; F. King 1936). On closer examination, it was determined that many graves were located in deposits formed towards the end of the village's occupation. The presence of these interments led to the suggestion that they postdated the village. Some analysts have suggested that the cemetery

was formed by communities living elsewhere in the region (Clay 1997:25-26; Matternes 1994:96-97; Wesler and Matternes 1991). These diverse interpretations imply important fundamental differences not only in burial community identity, but the burial community's relationship with the Wickliffe village and western Kentucky region as a whole.

A critical stumbling block in community identification of the Mound C cemetery was adequate control over time. Unfortunately, tangible evidence indicating the cemetery's temporal position has at best been tenuous. There were no artifacts with narrow temporal restrictions associated with the graves and age estimates for the mound were based on a very small sample of ceramic forms. The stratigraphic origins of grave pits were unidentifiable, limiting precise determination of when individuals were placed in the mound. All that was known with certainty was that the cemetery could not pre-date the grave-containing substrates.

Precise temporal and community affiliations for Mound C were inexorably linked. If the cemetery and village deposits were contemporary, then the village was the likely population represented; however, if the cemetery dated to one period and the enclosing village to another, they would represent utilization of the site by different communities. One means of controlling for time was through the use of radiometric analyses. In this paper, radiocarbon dating was used as a means of controlling for time, thus establishing a community affiliation for the Mound C cemetery.

BACKGROUND

WESTERN KENTUCKY

Archaeological investigations of Late Prehistoric sites in the Central Mississippi Valley indicate that an extensive cultural record is present. While many reports document materials found, attempts to organize these sites within a regional perspective have been problematic. These difficulties are largely due to a lack of uniform information collection, inability to establish chronological controls over the artifacts, and inconsistencies between regional artifact seriations. Inabilities to precisely place these communities in time have consistently hampered efforts to identify shared patterns of cultural behavior.

Attempts to establish regional chronologies have been especially challenging for those working in western Kentucky. Phillips (1970:925-926) applied ceramic and radiocarbon data to several Late Prehistoric sites in western Kentucky and concluded that these communities were contemporary with Williams' (1954) Middle Mississippian Cairo Lowland phase of Southeastern Missouri. It is nearly impossible to sort out community relationships within the Cairo Lowland phase without the aid of extensive radiometric data. Intensive surveys along the Mississippi and Lower Ohio Rivers have provided a wealth of radiocarbon and artifact data from many aspects of the western Kentucky Late Prehistoric sequence (Butler 1977; Edging 1985; Kreisa 1988; Lewis 1986; Mainfort 1996; Muller 1978; Stout 1987; Sussenbach and Lewis 1987). Lewis (1986, 1996b) has used this

information to temporally link many sites and sort them into a cultural sequence. As a result, Lewis identified potentially interactive Late Prehistoric communities.

Lewis's (1988, 1990a:53, 1996a:145) assertion that Native American communities permanently occupied the region into the sixteenth century has not gained universal acceptance. Artifacts, such as astragalus dice, Nodena points, and historic trade materials, from Adams (15Fu4), Sassafras Ridge (15Fu3), Wolf Island (Missouri), and possibly Twin Mounds (15Ba2) tend to support Lewis's claims (Lewis 1990b:383; Mainfort 1996:95-96). In contrast, Williams (1990) argued that Middle Mississippian communities around the mouth of the Ohio River underwent a rapid change in sociopolitical structure, population decline, and eventual abandonment by the fifteenth century. The lack of well-defined protohistoric communities in the Jackson Purchase region of western Kentucky has lent credence to Williams's assertions. As with issues relating to the temporal association of the Mound C burials to the Wickliffe community, failure to derive a consensus as to when large western Kentucky Mississippian communities were abandoned is in part related to the extent to which the late Mississippian temporal indicators are associated with community deposits or if they represent limited post-abandonment components. There is a need to establish a definitive relationship between time and communities, particularly towards the end of any Mississippian occupation.

WICKLIFFE MOUND GROUP

The Wickliffe Mound Group is located on a bluff overlooking the Mississippi-Ohio River confluence, about one kilometer northeast of the Ballard County Courthouse in Wickliffe, Kentucky. The 10.4 ha site contains no less than five major mounds and an extensive sequence of Middle Mississippian period deposits. Coordination between stratigraphic location, radiometric dates, and ceramic variation has enabled Wesler (1989:89-116) to divide Wickliffe's occupation into Early (A.D. 1100-1175), Middle (A.D. 1175-1250) and Late (A.D. 1250-1350) periods. The Late period was followed by an abrupt cessation of material deposition, generally believed to represent abandonment of the village.

Fain and Blanche King, site owners and amateur archaeologists, conducted the primary excavation of the site in the early 1930s (Wesler 1988). Hoping to capitalize on national interest in antiquities, the Kings acted as entrepreneurs and enlisted the help of the Alabama Museum of Natural History to partially excavate a cemetery detected in Mound C. The depression-era excavations revealed no less than 150 burials, containing several hundred individuals. The cemetery was subsequently left largely unexamined by mortuary specialists as an open pit burial exhibit until the early 1990s. Acquisition of the site by Murray State University and removal of this display provided the first opportunity for serious academic inquiry.

Reexamination of the exposed Mound C deposits and archaeological investigations in other aspects of this earthwork revealed that Mound C was built in several episodes. Wesler (1996:294) noted that two small earth structures and a basket-loaded mound were constructed prior to a final consolidation episode. Ceramic attributes indicate that these

substructures were combined prior to the early portions of the Late Wickliffe period. Late Wickliffe period occupational debris was allowed to accumulate on the surface of Mound C.

Burials tended to occur in the first meter of the mound within a very dark brown midden (Figures 1 and 2). The position of burials within the midden suggests that at least some graves were deposited after structural renovations were completed (Wesler and Matternes 1991). Grave pits in the midden, frequently 50 cm or thicker, were undetectable; thus, grave pit morphology could not be discerned. The absence of identifiable grave pits limits any discussion of whether cemetery accumulation commenced during or after midden deposition had terminated based on stratigraphic provenience.

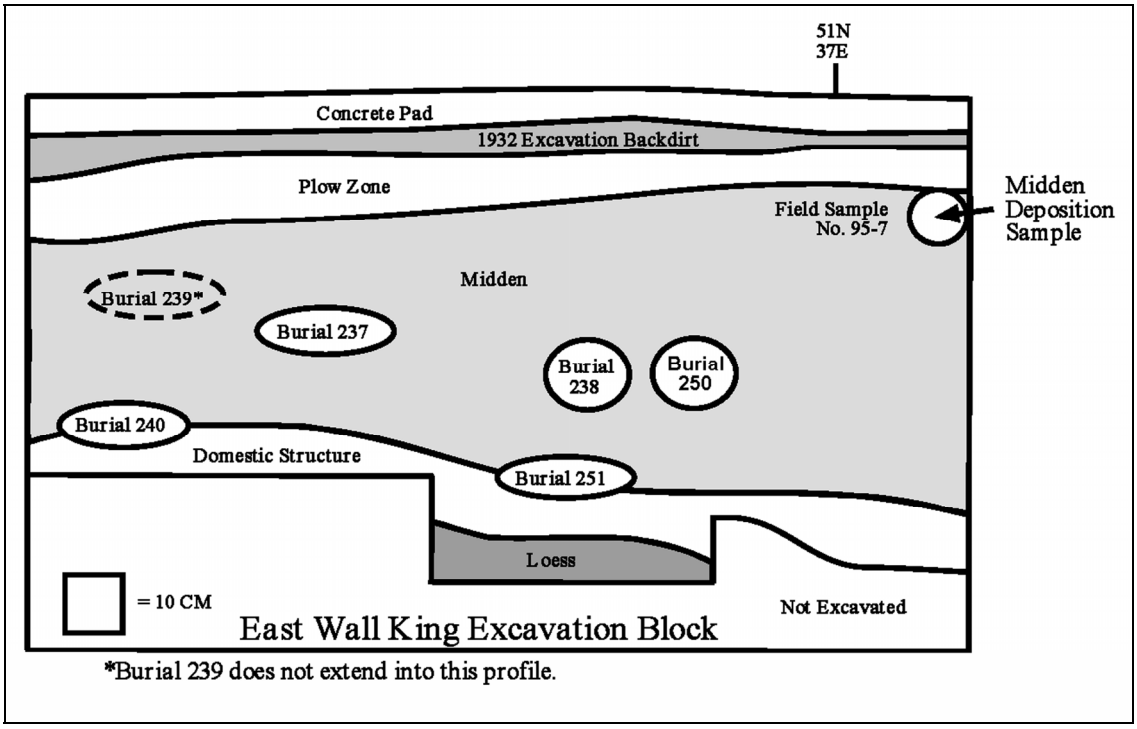

Figure 1. The Stratigraphic Relationship between Midden Deposition, Minimum Burial Accumulation, and Maximum Burial Accumulation Period Samples.

METHODOLOGY

MODEL STRUCTURE

Archaeological investigations of Mound C have established minimal temporal parameters for when events occurred, but have not successfully identified the sequence in which critical events took place. Four different models offer alternative sequences for understanding the terminal deposits in Mound C.

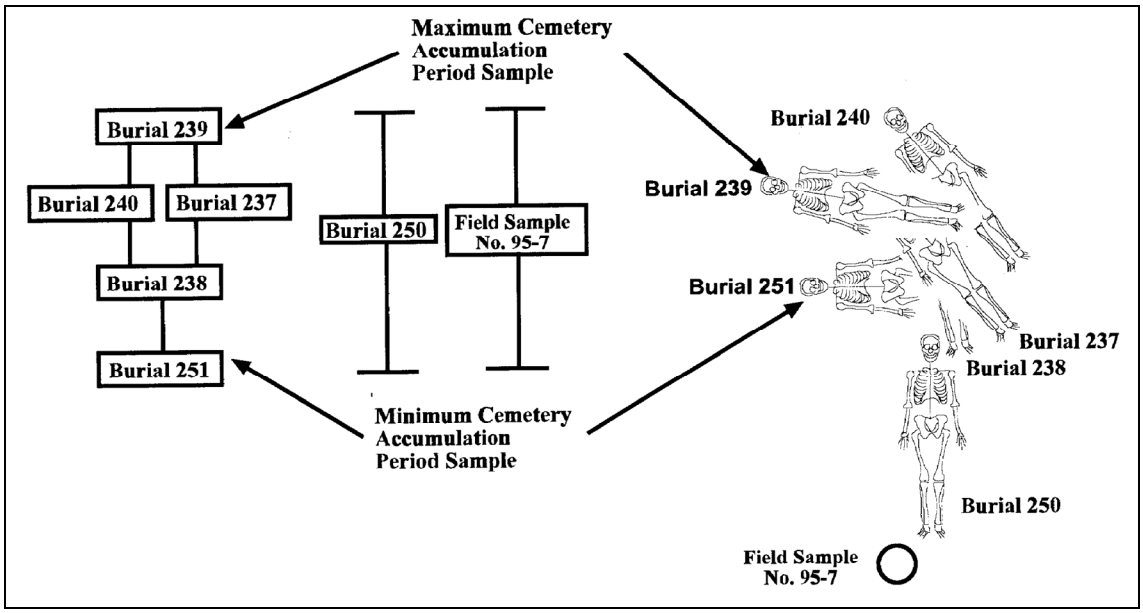

Figure 2. Harris Diagram and Planview of Burial Sample.

The first model posits that the cemetery and midden are contemporary deposits (Figure 3a). This model recognizes that the origin of most burial pits is not visible, thereby obscuring the exact sequence of trash and grave accumulation. It is possible that graves could have been deposited at, or slightly before, midden formation. The contemporary model conforms to the current Wickliffe chronology, where site abandonment is defined by the cessation of significant cultural activities at the village by the mid-fourteenth century.

In the second model, mortuary activities could have occurred as two separate events –one event before and another event after midden development (Figure 3b). Two distinct burial accumulation episodes are possible given that graves found below the midden would predate it, and graves found within the midden would have to postdate when their surrounding substrate was deposited. This model recognizes that the time interval for both the midden and more recent grave accumulation may overlap. Burial dates that distinctly place graves before and after (or corresponding with) midden accumulation would support separate events. This implies that at least two community assemblages are present in the cemetery, one temporally linked with the village and a later re-use of the established mortuary facility.

A third model demonstrates the possibility that aspects of the cemetery are slightly more recent than the midden accumulation (Figure 3c). Following Clay (1997:25-26), if the Wickliffe community migrated but continued to bury their dead at Wickliffe, then at least some graves would postdate the midden accumulation. The theory that the burials postdate the midden coincides with the view that occupation of the site terminated in the mid-fourteenth century and recognizes the site as a ritual place, an activity area beyond domestic abandonment.

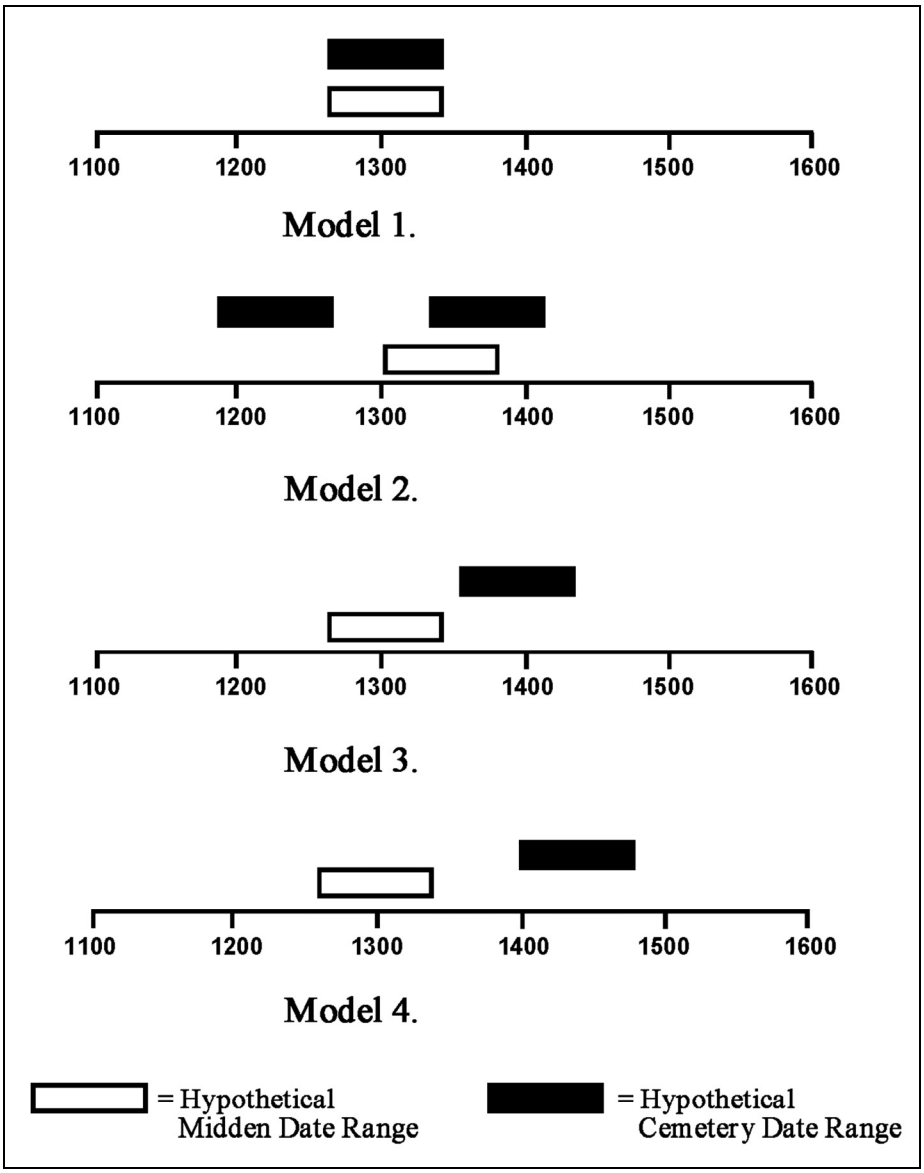

Figure 3. Four Models of the Mound C Cemetery/Terminal Deposit Sequence.

Finally, the fourth model postulates that distinctly different communities formed the cemetery and mound deposits (Figure 3d). Recognizing that, by some estimates (Lewis 1996b), Native American communities thrived in western Kentucky for a century and a half after Wickliffe was abandoned, there were ample opportunities for communities to reutilize the mound as a mortuary facility. Placement of a cemetery on a high, conspicuous landmark, such as Mound C, away from an occupation area, has been identified in other areas (Milner and Schroeder 1992:61).

SAMPLE SELECTION

As a general rule, the value of a temporal estimate is only as good as the association between the dated object and the event one hopes to date. The temporal data used in the current investigation needed to be sensitive enough to determine which model is the most appropriate. The only useful medium, common to both cemetery and midden, was bone. Technically, chronometric dating of skeletal material identifies the time when carbon ceased to be absorbed by the skeleton, generally concurrent with the animal's death. To avoid known contamination, only bone samples directly from an archaeological context, and none from the display, were considered. Many of the sampled bones were primary interments and their articulated arrangement indicated that little soft tissue decomposition occurred prior to burial. This implied that burial occurred relatively soon after death. The disarticulated skeletal elements in secondary interments suggested that retention before final burial was part of the mortuary program (Matternes 1996:306). The period between death and secondary interment may not always have been short. To reduce the possible association bias, bone samples were rejected if evidence of pre-depositional breakage, weathering and other signs of prolonged exposure in a nonburial environment were found. In using these bones to date depositional events, it was assumed that the date of death did not differ strongly from the date of deposition.

The four outlined stratigraphic models identified very different relationships between the burial population, the village community, and sequence of events at the end of the village's occupation period. To sort out the stratigraphy, it was necessary to define the midden deposition, the minimum burial accumulation period, and the maximum burial accumulation period.

Midden Deposition

The midden accumulation on top of Mound C represents the last known habitation deposit in direct association with burials. Two samples (Field No. 95-7 and 97-11) obtained from the upper portions of the midden (Figures 1 and 2) provided a maximum date for midden formation. The bones from this provenience represent faunal remains discarded relatively soon after procurement. Neither of the sampled bones exhibited any signs of weathering.

Minimum Burial Accumulation Period

Cemeteries are rarely formed by singular events. More often they represent accumulations over time. The relationship between village and cemetery, therefore, could not be based on a single point in time, but a sequence of points over time that begins with the initial placement of graves within the mound. Fortunately, the Mound C cemetery was extensively used and there are numerous independent burials that super-impose one another. The Minimum Burial Accumulation period was estimated by selecting bone samples from seven graves located at the base of these stratified deposits (Figures 1 and 2).

Maximum Burial Accumulation Period

At a given point in time, the burial community stopped placing graves in Mound C. To estimate when the accumulation period ended, seven bone samples from interments located on top of super-imposed grave assemblages were selected (Figures 1 and 2). In all cases, minimum and maximum accumulation dates were pair matched from the same super-imposed grave assemblage.

SAMPLE SUBMISSION

Sixteen samples were submitted to the National Science Foundation Accelerator Facility (University of Arizona-Tucson) for Accelerator Mass Spectrometry (AMS) to estimate the Carbon-14 radio-isotope content. AMS dating directly tabulated the number of Carbon-14 ions in a given sample's collagen, providing a more accurate temporal estimate for bone than the traditional Beta count method. This eliminated counting ions of similar mass and substantially reduced the amount of bone needed (Browman 1981:281-282; Hedges and Van Klinken 1992:279). The procedures used to recover collagen from the skeletal matrix and to determine the concentration of radiocarbon present in the collagenous fraction followed Hedges and Van Klinken (1992), Long et al. (1989), and Linnick et al. (1986). Fifteen of the samples contained enough organic matter to obtain radiocarbon age estimates (Table 1). These estimates were corrected for fluctuations in Carbon-14 absorption, brought on by variations in atmospheric carbon content, using the Stuiver and Reimer (1993) corrections. Details of each sample submission are outlined in Matternes (1999).

RESULTS

ARCHAEOLOGICAL EVENT WEIGHTED MEANS

The three outlined archeological events broke the radiocarbon sample into distinct sets of ages, but they did not indicate whether each set of ages (e.g. midden deposition, minimum burial accumulation period, and maximum burial accumulation period) could be treated as a single chronological event. Radiocarbon ages were sorted by archaeological event and each event sample was examined to see whether significant differences existed between samples. Following Ward and Wilson (1981) the Chi-Square statistic, as provided in Stuiver and Reimer's (1993) Calib 4.1 program, was employed. The resulting value was compared to critical values in the Chi distribution (P=0.05), relative to the sample's degrees of freedom (DOF). In Table 2, note that significant differences were not obtained for the midden and minimum accumulation period samples. Test results indicated the presence of internally homogenous samples from these archaeological events.

Initial testing of the maximum cemetery accumulation period samples, however, detected significant differences. A review of the data indicated that two interments (Burials

Table 1. Summary Radiocarbon Age Data.

Sample No.	Burial No.	Pair Match	Archaeological Event	Uncalibrated Radiocarbon Age (1-Sigma) B.P.	Summary Calibrated Age (2-Sigma)* A.D.	B.P.
AA31218	44	218B	Maximum Cemetery	965±45	993(1031)1188	957(919)762
AA31219	49	246	Maximum Cemetery	745±50	1212(1279)1381	738(671)569
AA31220	95	102	Minimum Cemetery	825±50	1044(1220)1284	906(730)666
AA31221	96	221	Maximum Cemetery	1015±50	900(1019)1158	1050(931)792
AA31222	102	95 & 221	Maximum Cemetery	880±50	1024(1163, 1173, 1180)1264	926(787, 777, 770)686
AA31223	147	150	Maximum Cemetery	770±40	1194(1271)1295	756(679)655
AA31224	150	147	Minimum Cemetery	810±45	1159(1224, 1321, 1239)1285	791(726, 719, 711)665
AA31225	218B	44	Minimum Cemetery	995±50	993(1036, 1144, 1146)1212	957(914, 806, 804)738
AA31226	221	96 & 102	Minimum Cemetery	745±60	1188(1279)1387	762(671)563
AA31227	239	251	Maximum Cemetery	No Estimate		
AA31228	246	49	Minimum Cemetery	725±55	1216(1283)1389	734(667)561
AA31229	251	239	Minimum Cemetery	815±55	1044(1222)1290	906(728)660
AA31230	279	280	Minimum Cemetery	865±55	1025(1190, 1202, 1206)1278	925(760, 748, 744)672
AA31231	280	279	Maximum Cemetery	850±55	1032(1212)1281	918(738)669
AA31232	Field No. 95-7	Faunal	Midden Accumulation	715±50	1221(1285)1390	729(665)560
AA31233	Field No. 95-11	Faunal	Midden Accumulation	670±50	1266(1297)1401	684(653)549

*Calibration Curve Intercepts Presented in Parentheses

Table 2. Archaeological Events and Sample Heterogeneity.

Event	Samples	Chi Value	DOF	Critical Value	Significantly Different?
Midden Accumulation	95-7 95-11	0.38	1	3.84	No
Minimum Cemetery Accumulation	95 150 218 221 246 251 279	11.72	6	12.6	No
Maximum Cemetery Accumulation	44 49* 96 102* 147* 280*	23.04	5	11.10	Yes
Sample Retest	*	4.69	3	7.81	No

44 and 96) had dates that were about 150 years earlier than other top-of-the-strata burials. Note that these age estimates also are much earlier than those obtained from their pair-matched underlying complement. Matternes (1999:70-71) has suggested that prolonged burial retention may be an underlying factor. In the case of these two outliers, the assumed close temporal relationship between death and burial event may not be valid and hence these samples provided no estimate of when the burials were interred. Removal of Burials 44 and 96 from the sample and subsequent retesting produced results indicating a statistically identical sample of the maximum burial accumulation period.

Homogenous sets of radiocarbon ages, each reflecting an archaeological event, were pooled to obtain an average age for each event. A weighted mean was established following the equation outlined in Geyh and Schliecher (1990:16) and recalibrated to reflect the true age estimate. The commencement of burial accumulation occurred between A.D. 1165 and 1265 and the last burials appear to have been placed somewhere between A.D. 1190 and 1280 (Figure 4). Note that while many graves are in the same midden deposits as the sampled animal bone, the midden dates of A.D. 1270-1390 indicate a later depositional period.

To determine whether the midden and the cemetery accumulation are contemporaneous, the Chi-Square Test was again employed. Test results revealed no significant difference between cemetery accumulation events. These stratigraphically distinct archaeological features could represent a single burial accumulation period (Table 3). Cemetery accumulation periods were then compared to the average midden radiocarbon age. Significant age differences were detected between both cemetery events and the

midden deposit period. Midden and cemetery accumulation events appear to represent two distinct periods in time.

Table 3. Mound C Event Comparisons.

Compared Events	Chi Value	DOF	Critical Value	Significantly Different?
Minimum to Maximum Cemetery	16.76	10	18.3	No
Minimum Cemetery to Midden	22.15	8	15.5	Yes
Maximum Cemetery to Midden	11.62	5	11.1	Yes

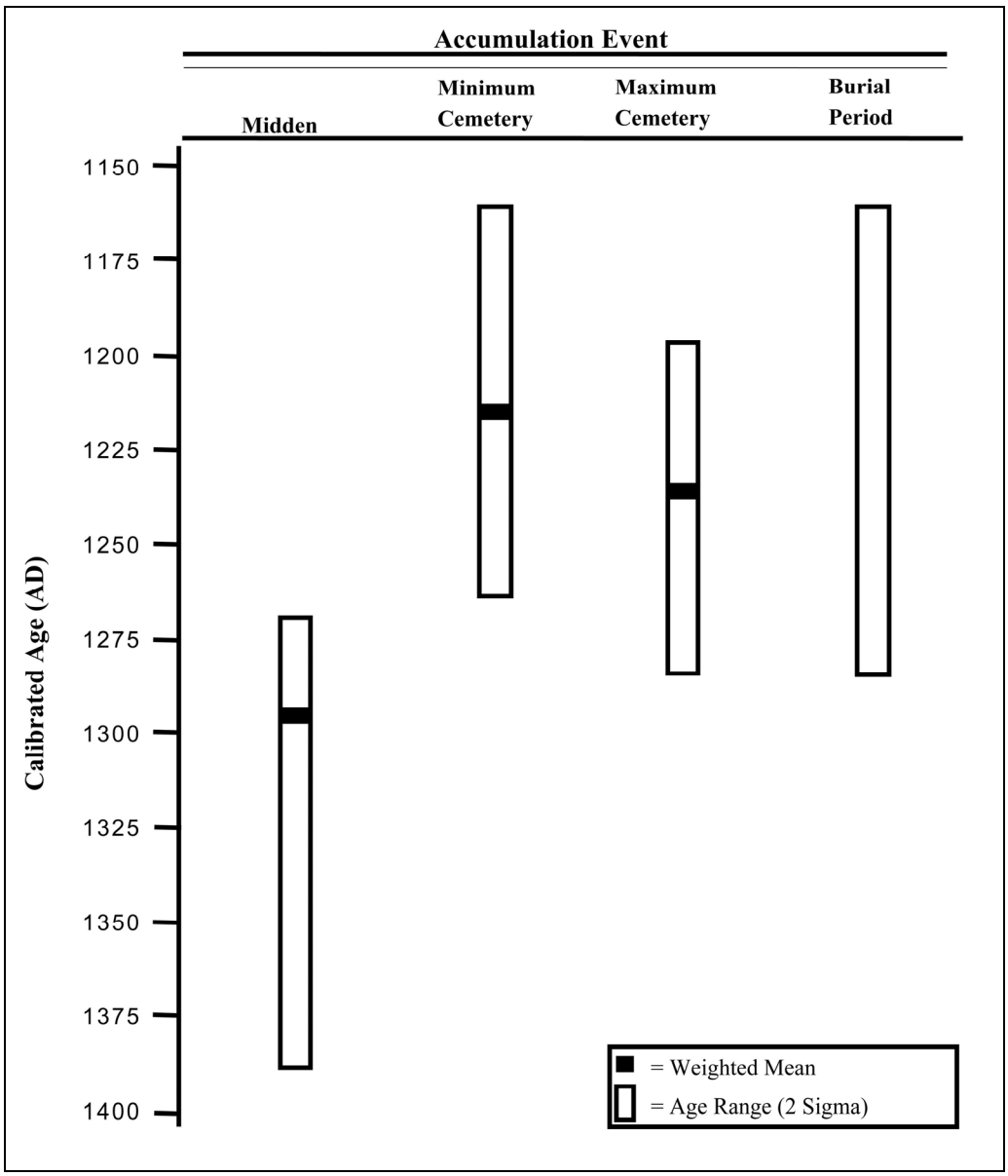

Figure 4. Temporal Comparisons between Mound C Events.

The beginning and end accumulation dates seem to have achieved a paradox. The Mound C cemetery appears to be earlier than its surrounding matrix. Recall, however, that both of the midden dates were from bones situated above the mortuary deposits. These bones, providing maximum age estimates of midden deposition, easily could have been deposited after the graves were in place. Since no stratigraphic divisions have been observed to separate human and animal bones in the midden, the most likely scenario is that midden and mortuary deposits may have occurred at the same time, with the midden accumulation continuing after mortuary use.

COMMUNITY AFFILIATION

What does this information indicate about the community utilizing the cemetery? As previously stated, there are four possible interpretations of the Mound C stratigraphy, each addressing a different community affiliation. The cemetery dates to before the termination of midden deposits in Mound C, indicating that burial and village populations are probably one and the same. This eliminates the theories of separate community representation (Model 4) and migrated burial communities (Model 3). Since minimum and maximum grave accumulation periods have been demonstrated to represent contemporaneous events, it is unlikely that more than one mortuary use period is represented in the cemetery. The multiple accumulation scenario is thereby eliminated (Model 2). Considering the cemetery and midden as contemporary depositional events, as outlined in the first model, provides the best fit with the radiometric data.

The radiocarbon data from Mound C indicate that a single community probably formed the midden and cemetery, but it remains unknown whether the association between the cemetery/midden events is parsimonious with other Wickliffe events. To date, 17 other dates, representing Beta counts of wood and other plant-based carbon, have been obtained from a number of contexts at the Wickliffe Mound Group (Table 4). Recalibrated age estimates between A.D. 656 and 1486 have been obtained and further divided by Wesler (1989) into periods reflecting general patterns of change in the Mound Group's settlement history. Unfortunately, the dates lack any internal consistency and could not be pooled for direct statistical comparisons, but period assignments could be used to relate the Mound C dates with the rest of site. In the temporal comparisons between Mound C and Wickliffe Village events (Figure 5), the midden dates fall exclusively within the Late Wickliffe Period. Deposition of domestic debris in this midden, therefore, appears to have terminated at about the same time as village abandonment. Both minimum and maximum cemetery accumulation phases encompass major components of the Middle Wickliffe period, with date possibilities extending into both the Early and Late Wickliffe periods. The burial period approximates growth and florescence of the village. In contrast to earlier speculations, that the cemetery was formed outside or at the end of the village occupation period, it now appears that the cemetery is most closely associated with the community actually living at the Wickliffe Mound Group.

Table 4. Wickliffe Mound Group Radiocarbon Ages.

Sample No.	Uncalibrated Radiocarbon Age (1 Sigma)	2 Sigma Calibrated Age (AD)*	Period Assignment
B12529	520±70	1299(1416)1483	Early
B25218	920±60	999(1061, 1086, 1123, 1138, 1156)1257	Early
B39030	1265±60	656(721, 743, 770)894	Early
ISGS1143	830±77	1023(1218)1297	Middle
ISGS1156	765±76	1064(1275)1390	Middle
B25217	1030±90	781(1004, 1008, 1017)1213	Middle
B25216	430±60	1405(1445)1635	Late
B31520	620±50	1283(1315, 1354, 1384)1418	Late
B31833	1060±70	782(991)1157	Late
B33584	760±80	1059(1276)1393	Late
B33585	760±90	1040(1276)1398	Late
B25220	730±50	1217(1282)1385	Late
B25219	740±70	1163(1280)1393	Late
B25911	770±60	1161(1271)1379	Late
ISGS1171	720±70	1191(1284)1399	Late
B27506	750±60	164(1278)1385	Late
B27507	580±60	1289(1332, 1340, 1398)1439	Late
* Calibration Curve Intercepts Presented in Parentheses.			

MOUND C AND REGIONAL ARCHAEOLOGICAL EVENTS

To obtain a more regional perspective, Mound C dates were compared with the western Kentucky cultural model (Lewis 1996b). Temporal comparison between Mound C and regional models indicates that the cemetery fits comfortably within the Dorena phase of A.D. 1110 to 1300 (Figure 6). During the Dorena phase, the earlier trend of population nucleation continues to develop a more structured hierarchical settlement system, designed to maximize agricultural exploitation of the fertile river bottoms (Kriesa 1991:10). Matternes' (1999:78) survey of radiocarbon dates from other Mississippian sites in western Kentucky revealed dates from Adams (15Fu4), Chambers (15Ml109), Marshall (15Ce27), Turk (15Ce6), and Twin Mounds (15Ba2) that are contemporary with the Mound C cemetery. Following Kriesa's (1995) community network model for the lower Ohio River Valley, the Mound C burial community probably represents residents of a satellite community, allied with these or other more politically powerful towns.

Termination of the midden accumulation in Mound C occurs during the transition between the Dorena and Medley phases. This latter chronological period stresses the decline of many smaller outlying sites and progressive population growth at the region's fortified towns (Kriesa 1991:11). Lack of substantive prehistoric activity at Mound C after the deposition of the animal bones analyzed during the current investigation is consistent with abandonment of the Wickliffe Mound Group during the fourteenth century.

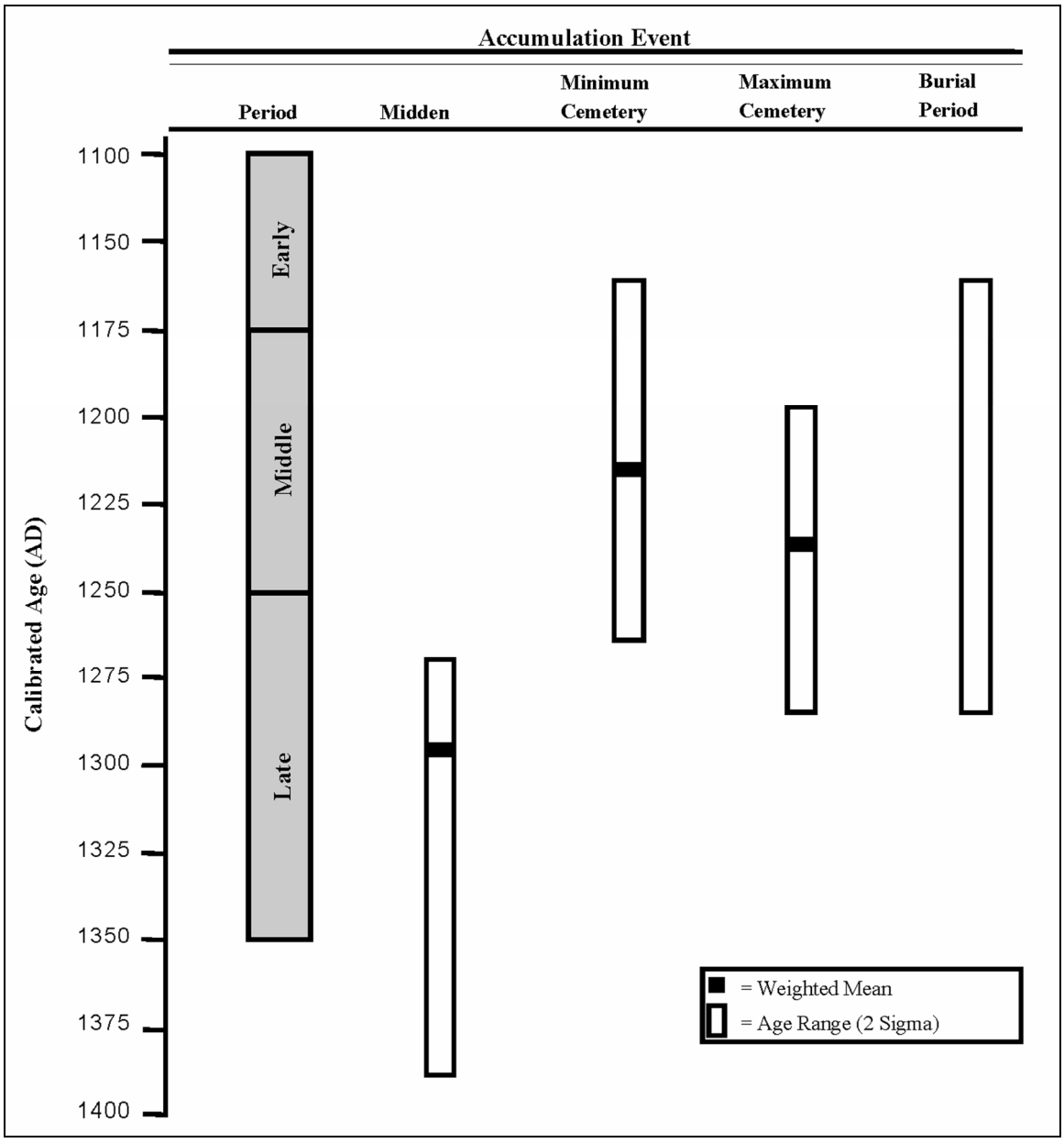

Figure 5. Temporal Comparisons between Mound C and Wickliffe Village Events.

CONCLUSIONS

The results of this analysis have required a strong reconsideration of the Mound C cemetery and the people buried within it. Mound C has been considered a possible source of information about western Kentucky's Mississippian period abandonment; however, these results do not support this belief. Redefining the cemetery as a Middle Mississippian facility, a feature that Clay (1997) emphasized is sorely lacking in western Kentucky, means

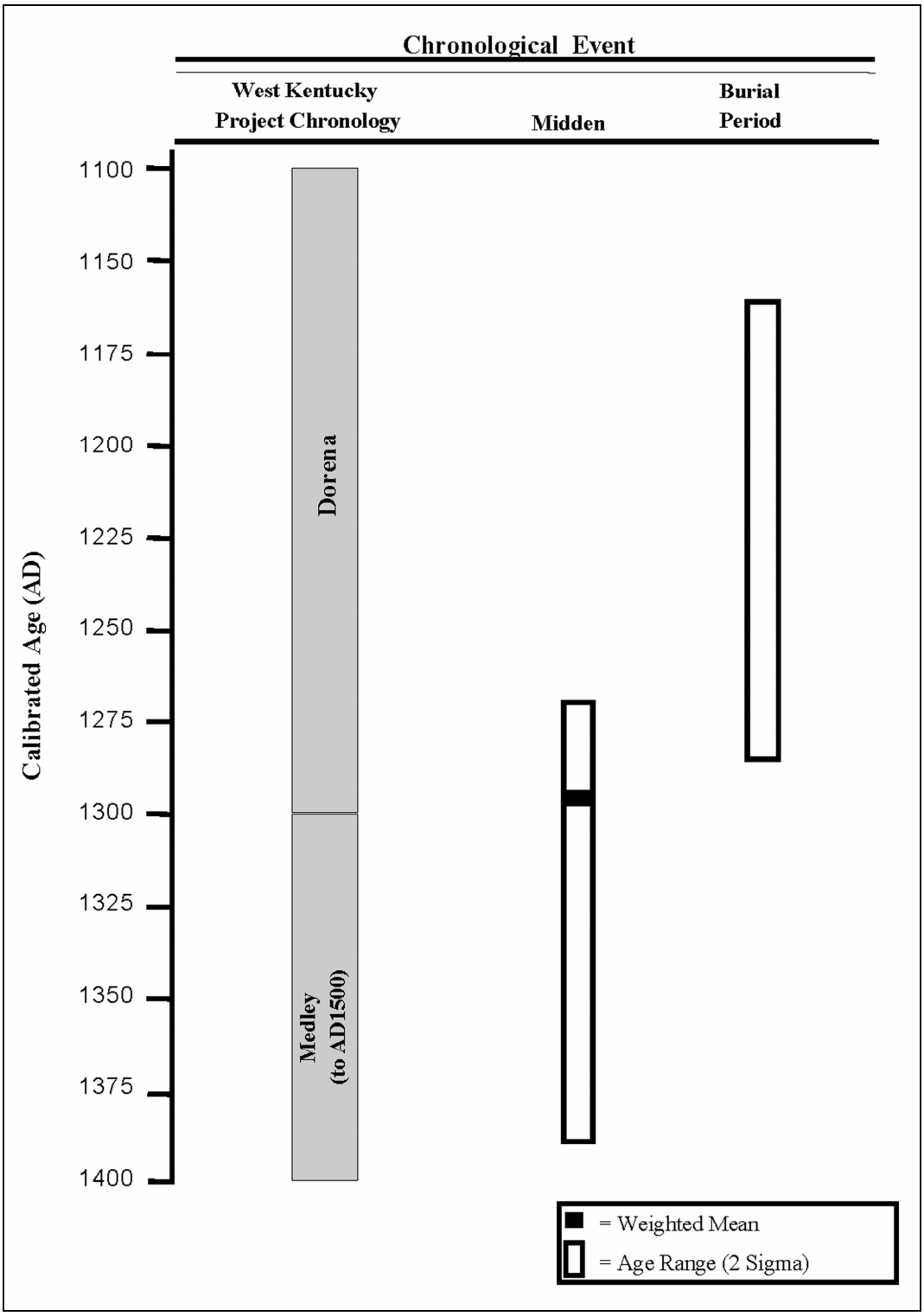

Figure 6. Temporal Comparisons between Mound C and Regional Models.

that Wickliffe's mortuary data can be used to explore life in a Middle Mississippian village context. The Middle Wickliffe period emphasizes an expansion of the site's boundaries and political power. Previously observed temporal changes in the cemetery's form may now reflect internal shifts in the community's structure.

Rejection of the cemetery as a post-abandonment feature emphasizes that the Mound Group lacks a formal burial area for most of the Late and Early Wickliffe periods. This complicates matters. Rather than a model reflecting a single communal mortuary facility for the entire village occupation period, it now appears that over time the Wickliffe community established no less than three burial accumulation areas. The presence of at least two of these mortuary facilities has yet to be realized by modern fieldwork.

Finally, the evaluation of the radiocarbon dates may imply a motive for the consolidation of Mound C into a single earthwork. The Minimum Cemetery Accumulation Period estimates indicate that mound renovation had to occur prior to mortuary use. Given that midden accumulation now appears to be partially contemporary with mortuary use and not an event separating mound building from mortuary activities, it is possible that Mound C may have been renovated to reserve space specifically for mortuary purposes. Previous examination of the cemetery has suggested that its complicated structure reflects a purposeful application of cultural ideals to express important social meanings (Matternes 2000, 2001). Consolidation of the early proto-earthworks underneath Mound C may have been undertaken to specifically create a place for honoring the dead. Clearly chronometric confirmation of pre-midden and pre-cemetery archaeological events in Mound C is needed to clarify their position in the site's cultural sequence. For over 60 years, there has been endless speculation over who is represented from the Mound C cemetery (c.f. Butler 1935; B. King 1937a, 1937b; Lewis 1934; Matternes 1994). As a result of this investigation, it appears that the individuals buried within Mound C represent a larger residential community who, for reasons that are far from understood, chose Mound C to symbolize their place in the world and then shifted their activities to another locale. Equipped with the knowledge of the cemetery's place in time, continued studies of this illusive facility can shed more light on western Kentucky's prehistory.

ACKNOWLEDGEMENTS

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THE BROADDUS SITE (15MA179): A PRELIMINARY REPORT ON A MIDDLE FORT ANCIENT MOUND SITE ON THE BLUE GRASS ARMY DEPOT

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ABSTRACT

This paper provides a preliminary description of the Broaddus site (15Ma179) on the Blue Grass Army Depot in Madison County, based primarily on a short field school held by Eastern Kentucky University in 1999. A small inventory of radiocarbon dates, diagnostic projectile points and site layout indicate that the Broaddus site is best understood as a middle Fort Ancient site. It is possible that initial site occupation may have begun during early Fort Ancient times (A.D. 1000 to 1200), based on an A.D. 990 C14 date from a shovel probe in the mound. It is possible that minimal levels of ritual activity—eventually leading to mound construction—may have begun at this early time. A subsequent and substantial middle Fort Ancient occupation created a circular village pattern centered around a mound and cleared plaza area. Storage pits, probably associated with houses, were filled with refuse sometime during middle (A.D. 1200 to 1400) Fort Ancient times. Minimal late (A.D. 1400 to 1750) Fort Ancient material also is present at the site in the form of a radiocarbon date and a Type 6 triangular projectile point.

INTRODUCTION AND METHODOLOGY

The Broaddus site (15Ma179) is a Fort Ancient village site that was first recorded by Geo-Marine, Inc. in 1994 during a Phase I survey of the Blue Grass Army Depot in Madison County (Waite and Ensor 1994). According to Waite and Ensor, a low-density scatter of cultural debris covered an area of almost 62,000 m^2 (375 x 165 m), making the site quite large, although the high-density central midden area measured 140 x 125 m, indicating a middle-sized village (Henderson 1998:321). The site sits at an elevation of approximately 268 m (880 feet) above sea level and is situated on the edge of a bench overlooking a large, unnamed feeder stream of Muddy Creek. There is a rather quick

drop in elevation of approximately 30 m from the edge of the bench to the drainage below. A mound, approximately one meter in height and 25 m in diameter, is located at the site. Charcoal recovered from a shovel probe excavated atop the mound yielded a calibrated midpoint of A.D. 990 (Waite and Ensor 1994:166), suggesting a very early Fort Ancient initiation of the site.

Five diagnostic projectile points found during Waite and Ensor's survey indicate a longer utilization of the site. These points include a Cogswell/Gary Contracting stemmed (Late Archaic/Middle Woodland), a Fort Ancient point (Late Woodland to Early Late Prehistoric), two Madison points (Late Woodland to Late Prehistoric), and a Hamilton point (terminal Late Woodland to Late Prehistoric) (Justice 1987). Ceramics recovered by Waite and Ensor are predominately shell-tempered, indicating primarily a middle to late Fort Ancient occupation. However, small quantities of limestone and mixed shell/limestone-tempered sherds also were recovered, indicating at least some occupation during Late Woodland and/or early Fort Ancient times.

As part of Eastern Kentucky University's archaeological field school, 10 supervised students conducted three weeks of fieldwork at the Broaddus site in the summer of 1999. Fieldwork centered almost entirely on a 40 x 40 m block east of the mound. The western edge of this block is located 20 m due east of the mound's eastern edge (Figures 1 and 2). Prior to our excavations, a magnetometer survey of the block was performed. The magnetometer readings revealed one major magnetic "hot spot" roughly in the center of the block, and several other hot spots that extended outside of the block (Figure 3). As will be elaborated on below, these hot spots may indicate the possible location of house features, although our fieldwork did not verify this possibility.

Fieldwork consisted of both shovel probes and unit excavations. A total of 136 systematically screened shovel probes were excavated to determine the artifact density both within, and selected locations beyond, the 40 m block. Within the block, the shovel probe interval was 5 m. Shovel probe lines radiated out from all corners of the block except west, which would have run directly into the mound. These probes also were placed at 5-m intervals. The shovel probe lines continued beyond the point where no cultural material was recovered. This methodology helped define the site boundaries to the east, north, and south of the 40 m block.

Eight 1 x 1 m units were placed in various locations within the block to further investigate the magnetic hot spots, as well as areas of high artifact density as revealed through the shovel probe data. The units were excavated in 10 cm arbitrary levels. A distinct plowzone was not identifiable, perhaps due to the fact that land within the Army Depot was last plowed in the 1940s. Subsoil was generally reached anywhere from between 25 to 45 cm below current ground surface.

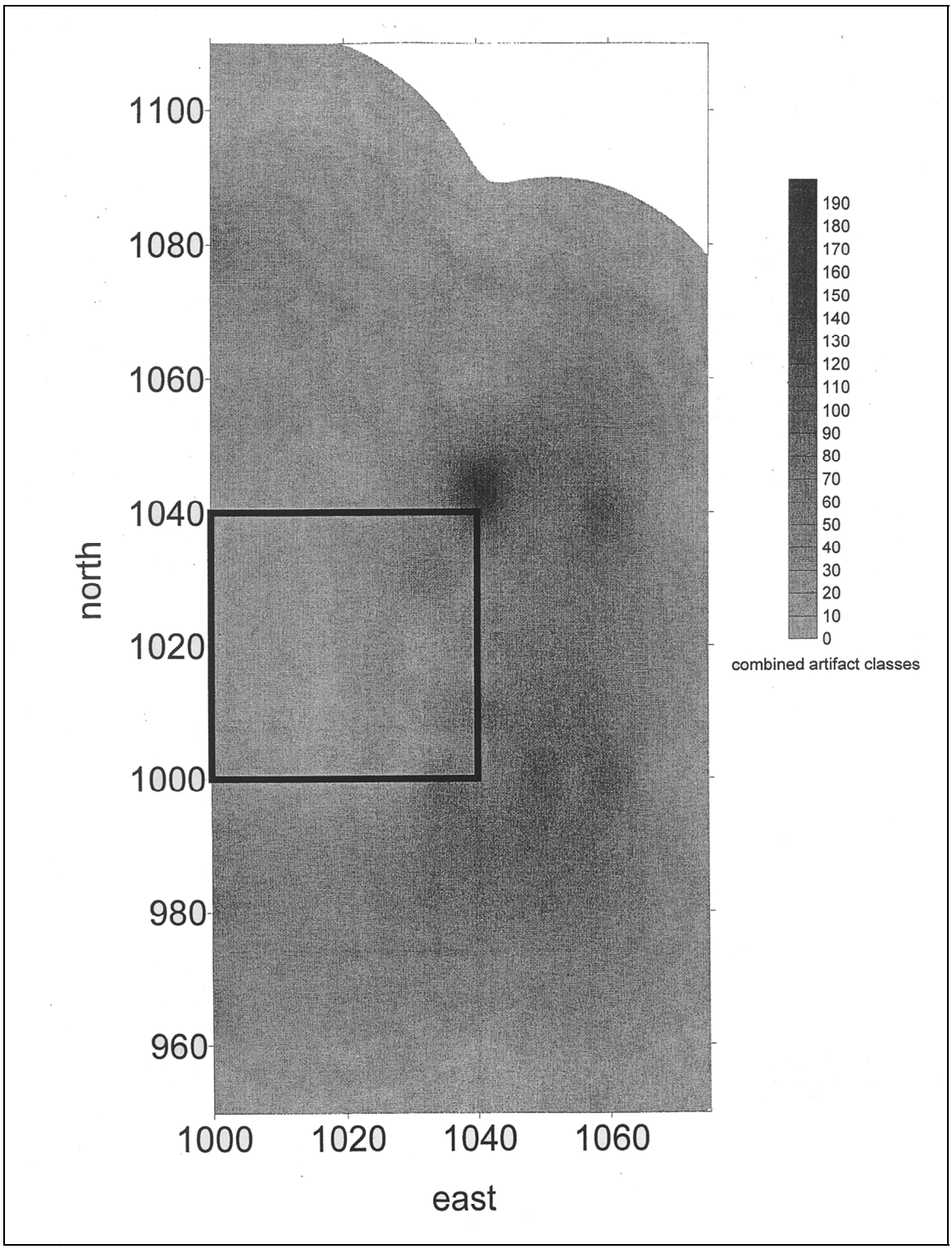

Figure 1. Map Showing Location of 40 x 40 Meter Block and Midden Area at the Broaddus site.

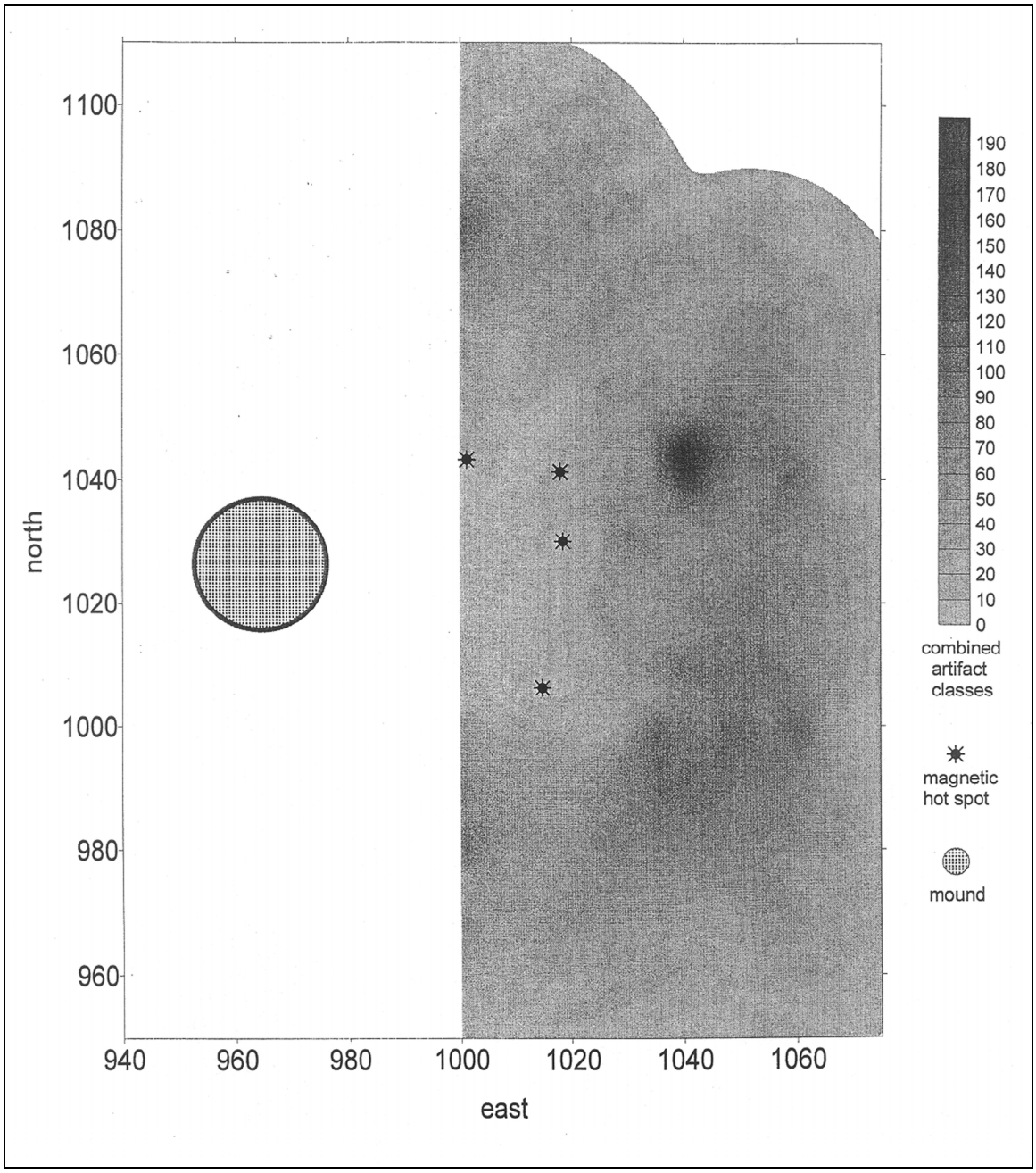

Figure 2. Map Showing Location of Mound, Magnetic Hot Spots, and Midden at the Broaddus Site.

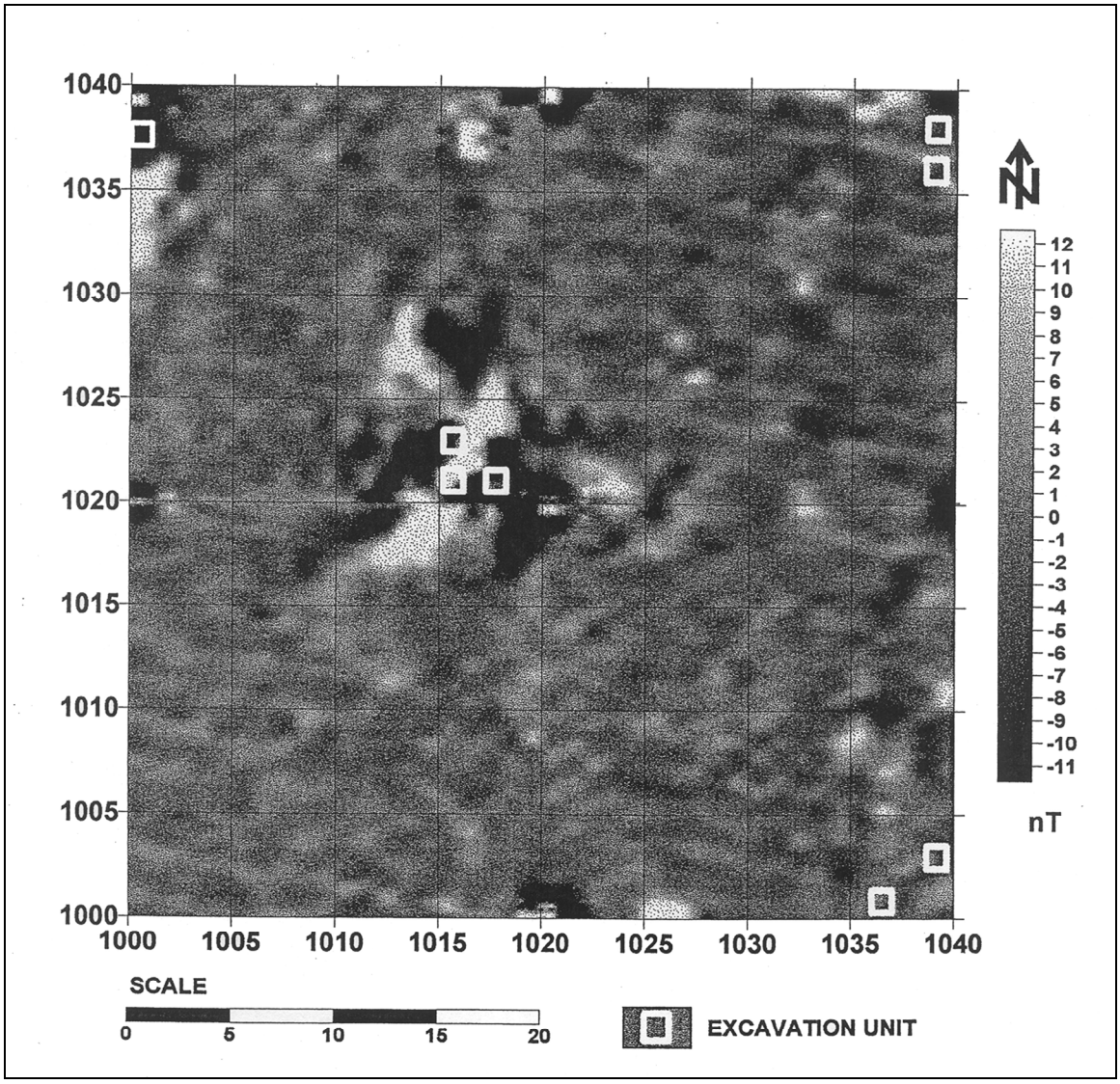

Figure 3. Map of Magnetic Hot Spots in the 40 x 40 Meter Block and Location of Excavation Units (Not to Scale) at the Broaddus Site.

MIDDEN RINGS, MOUNDS AND HOUSES

Shovel probe densities make it clear that midden distribution follows a well-defined circular pattern. This circular pattern is characteristic of middle Fort Ancient communities elsewhere in central Kentucky such as the Florence Site Complex, Guilfoil, Buckner, and Singer (Fassler 1987; Henderson 1998; Sharp 1996; Sharp and Pollack 1992). In the area immediately surrounding the mound there is little or no artifactual debris, suggesting that near-mound locations may have been inappropriate places to perform normal daily activities such as cooking, craft production, and butchering.

Rather, the near-mound area appears to have been maintained space, perhaps identifying the location of a plaza area for dances, funerary and/or other ceremonial activities.

Although it is unknown whether the mound at the Broaddus site contains human burials or internal or sub-mound features, certainly other Fort Ancient mounds are known to contain such remains. At the Cleek-McCabe site, a circular, middle Fort Ancient site in Boone County, evidence for sub-mound architecture suggests that the actual construction of the earthen mound may have occurred much later, to mark the end of a ritual cycle established decades earlier (Rafferty 1974). Sub-mound architecture and deposits at Cleek-McCabe reveal the presence of both circular and rectangular structures which may have served as charnel houses, as well as prepared clay hearths and floors, limestone slabs, burned areas, and burials. As such, the A.D. 990 date (Waite and Ensor 1994) from the Broaddus mound may identify the initiation of ritual activity at the site, with the actual mound built at a later date when the community formed its circular pattern centering on the mound. We must recall, however, that the current radiocarbon date from the mound came from a shovel probe context. Waite and Ensor (1994:167) report that the charcoal was recovered at a depth of 20-30 cm below ground surface, which they identified as below the plowzone. Thus, it is possible that the A.D. 990 date could relate to early funerary ritual activities at the site, but it is difficult to make such interpretations with any degree of certainty due to the date's shovel probe context.

Further away from the Broaddus mound and plaza area the quantity of artifactual debris begins to increase, with the midden quickly becoming very dense approximately 55 to 60 m away from the mound. The dense midden continues for a span of approximately 15 to 20 m and then drops off precipitously. Although some middle Fort Ancient communities were palisaded, this information is not yet known for the Broaddus site. For sites with palisades, however, residential debris occurs within the palisade walls (Sharp 1996). Although Waite and Ensor (1994) report the presence of two discrete midden locations to the east and northeast of the mound, shovel probe evidence from the 1999 season does not confirm this two midden pattern. The following table summarizes the amount and variety of archaeological material recovered from the 136 shovel probes conducted during the 1999 season. The "maximum per probe" column quantifies for comparative purposes and identifies specific locations of high midden density.

Table 1. Summary Statistics of Artifact Classes from Shovel Probes (N=136) during the 1999 Season.

Artifact Group	All Probes	Average per Probe	Maximum per Probe
Flakes	2681	19.0	78
Pottery	850	6.0	64
Bone	657	5.0	73
Tools	36	0.3	4
Total	4227	31.0	205

The Broaddus midden does not appear to be uniformly dense. Rather, there are some particularly concentrated areas within the midden zone. This pattern of variable midden density could indicate that it may be possible to identify discrete midden locations that may correspond to the toss zones of specific houses. The value for understanding broader patterns of community organization by linking individual households with discrete midden locations has been explored profitably in other archaeological settings such as Mesoamerica and the Southeast among others (e.g. Carmean 1998; Rogers and Smith 1995; Wilk and Ashmore 1988). To be able to realize such studies in central Kentucky would greatly enhance our understanding of Fort Ancient communities.

Midden depth at the Broaddus site also is variable. Shallower areas of the midden reach depths of around 25 cm below surface while the thicker midden areas reach around 45 cm below surface (these depths do not include the depths of the pit features, to be discussed below). As such, although it is difficult to accurately judge time according to midden depth, areas that correspond to the very dark, deep, artifact-dense midden may indicate a relatively long and/or intensive occupation of that particular location in comparison to other residential areas of the site, or in comparison to similar sites elsewhere. In the northern Kentucky/Ohio River region, middle Fort Ancient communities are identified as inhabiting a site more densely and for longer periods of time than either earlier or later in the Fort Ancient sequence (Pollack and Henderson 1992:284). For late Fort Ancient Madisonville horizon communities, village longevity is estimated from between 10 and 30 years (Sharp 1996), thus providing a comparative baseline for the Broaddus site.

The magnetometer survey completed before the shovel testing also produced some interesting results: four "hot spots," or high magnetic readings. These hot spots appeared in the plaza area between the mound and the midden. Particularly given the spatial location for some of the hot spots near the plaza's outer edge, we at first thought that these magnetic hot spots may be reflecting house features, with the inhabitants' major refuse disposal zones oriented away from the ritually-significant mound and plaza area. Additionally, it is possible that the hot spots may identify burial locations. Although the mound may contain burials, middle Fort Ancient interments also often occurred in plazas in front of houses, as documented at the Florence Site Complex (Sharp and Pollack 1992) and at SunWatch (Heilman et al. 1988).

Excavations over the magnetic hot spots (Figure 3), however, did not reveal house features or, indeed, features of any kind. We placed three 1 x 1 m units in and around the central hot spot and one 1 x 1 unit over the hot spot in the northwestern corner of the block. Relatively few artifacts were found, no daub or evidence of burning, no hearth, no postholes, no trenches, no stone slabs, or any other indication of features.

Several explanations may account for the lack of association of features with the magnetic hot spots. If the hot spots represented houses, it is possible they were kept incredibly clean and the excavation units came down completely inside the structures for both the central and northwestern hot spots. However, excavations over the central hot

spot (3 x 3 m) should be large enough area to catch at least an edge of a prehistoric house or other internal features would have been found. At the Muir site, for example, an early Fort Ancient site in the Inner Bluegrass (Turnbow and Sharp 1988), the structures were small: from around 2.5 to 4.5 m on a side. House size increased throughout the Fort Ancient period, sometimes up to as large as 9 x 22 m in the late Fort Ancient Madisonville horizon (Sharp 1996; see also Henderson et al. 1992; Turnbow 1985). Further, the house structures were often dug into shallow basins with postholes oriented in clear lines and with floors and prepared hearths made of hard packed clay. Structures such as these at the Broaddus site hot spots would have been difficult to miss.

Why would the houses be kept so spotless, particularly prior to and after abandonment? Abandonment typically occurs due to setting the house on fire accidentally or because the house decayed to such an extent that is was uninhabitable. The dilapidated house is then left in place to decompose. In addition, an abandoned house is often used as a refuse dump by neighbors. Any of these scenarios would leave copious amounts of archaeological evidence, none of which were found at the Broaddus hot spots.

Thus, it remains unclear what the high magnetometer readings actually represent. Additional remote sensing techniques (i.e., a conductivity survey) may be necessary to interpret sub-surface features at archaeological sites. Magnetometer readings measure the strength of magnetic alignments in burned locations, while conductivity studies measure the degree of electrical activity in the soil, where culturally-altered deposits emit higher electrical readings as they retain more water than the surrounding soil matrix. Geophysical and remote sensing studies such as these are becoming increasingly common in archaeological work, but the linkage between specific readings and the interpretation of cultural deposits is far from straightforward. Finally, it is also possible that the magnetic hot spots are natural occurrences and are located far below artifact-bearing levels.

GARBAGE PITS AND NEW RADIOCARBON DATES

As discussed above, shovel probes along the eastern edge of the block revealed locations with high artifact densities. To further investigate these densities, we placed four excavation units directly over these locations. The soil was charcoal stained, even at the upper levels, in all four of these units. In the two units in the southeastern corner of the block, Level 3 exposed partial subsoil while the remaining areas continued to present dark, very artifact dense soil. We began excavating in natural levels at this point, revealing the presence of prehistoric pit features. One pit (N1003 E1039) was relatively shallow with a flat bottom. The base of this shallow pit was at an elevation of 54 cm below the present ground surface. The other pit (N1000 E1036) was very deep, sloping down sharply to a depth of 77 cm below the ground surface before subsoil was reached (Figure 4).

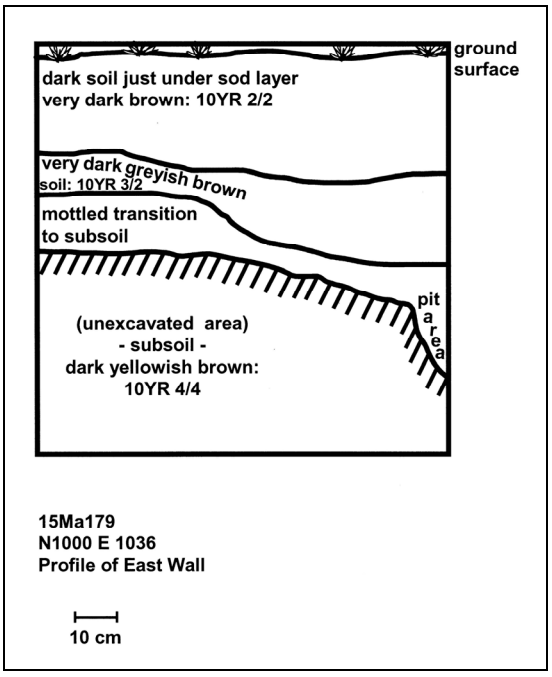

Figure 4. Unit N1000 E1036 Profile of East Wall Showing Deep Pit.

Postholes were found near both pits. The unit with the shallow pit contained one posthole visible at the base of Level 3. The posthole was 11 cm in diameter and 8 cm deep at its initial point of observation. From today's ground surface, the posthole would have extended around 43 cm into the ground. The posthole was located around 10 cm from the western edge of the pit. Another posthole was observed in the eastern wall of the unit, with roughly the same dimensions. The posthole observed in the wall would have come down entirely within the pit, and would have been around 33 cm to the northeast of the first posthole.

The unit with the deep pit contained six postholes (Figure 5). These postholes were smaller than the posthole adjacent to the shallow pit. As was the case with the shallow pit, the postholes near the deep pit were most visible in the subsoil to the north of the pit, but they also appear to extend into the pit as well. They were first visible at the base of Level 4, at a depth of 43 cm below the present ground surface, a depth comparable with the posthole near the shallow pit. There does seem to be some sort of alignment to these postholes, and they could be the remains of a small temporary structure. With the postholes partially intruding into the pits, it appears that these small structures were built at a later date, long after the pits were initially used for storage, and then filled with refuse and forgotten.

Along with a variety of very large, primary midden debris, such as animal bone and pottery, the pits also contained charcoal. Three radiocarbon dates (presented with two sigma ranges) are presented in Table 2. Two out the three dates indicate that people

living in early middle Fort Ancient times (the early 1200s) produced the refuse that filled these pits. The late, late Fort Ancient date, also from a pit feature, is more difficult to interpret.

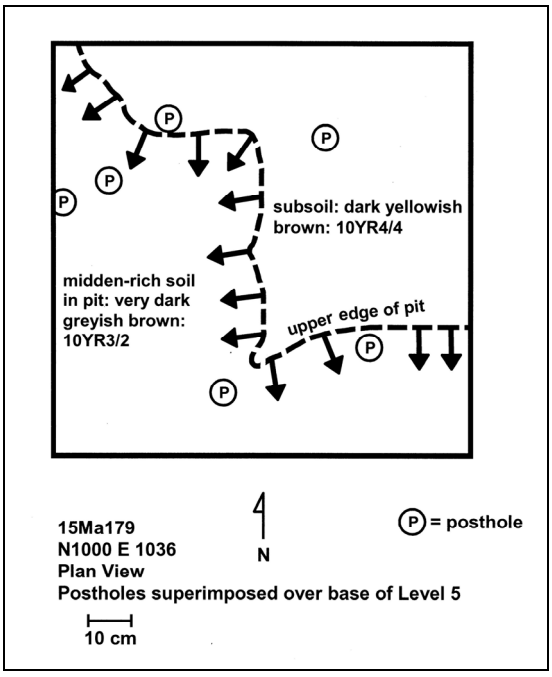

Figure 5. Unit N1000 E1036 Showing Six Postholes and Upper Edge of Deep.

Table 2. Radiocarbon Dates from the 1999 Season.

Reference Number	Provenience	Radiocarbon Date
Sample A (Beta-139033)	N1000 E1036 (deep pit) mid level 3	280±100 B.P. - Cal A.D.1430 (1690) 1950 late late Fort Ancient
Sample B (Beta-139034)	N1000 E1036 (deep pit) mid level 4	710±130 B.P. - Cal A.D.1030 (1235) 1440 early middle Fort Ancient
Sample C (Beta-139035)	N1003 E1039 (shallow pit) base of level 5	790±120 B.P. - Cal A.D.1005 (1207) 1410 early middle Fort Ancient

DIAGNOSTIC PROJECTILE POINTS

There were 18 diagnostic projectile points recovered from both shovel probes and excavations during the 1999 field school. The earliest points were a Palmer Corner Notched (Early Archaic) and a Little Bear Creek (Late Archaic/Early Woodland) point (Justice 1987). Sixteen of the diagnostic points correspond to the Fort Ancient period

(Henderson 1998; Railey 1992). Half of these Fort Ancient points are Type 2 (Fine Triangular: Flared Base) (Figure 6a-h), diagnostic of the early Fort Ancient but which are also found on middle Fort Ancient sites (Pollack and Hockensmith 1992:168). The other Fort Ancient points include Type 5 (Fine Triangular: Straight Sided, n=5) (Figure 6i-m) and Type 6 (Fine Triangular: Concave Base, n=3) (Figure 6n-p). Type 5 points are very common in middle Fort Ancient contexts, and Type 6 points date to the late Fort Ancient (Railey 1992). Thus, the vast majority (94 percent) of identifiable Fort Ancient points are either of the Type 2 or Type 5 varieties, both of which place the site in the middle Fort Ancient subperiod, with perhaps some early Fort Ancient occupation as well.

The Type 3 (serrated) points diagnostic of the middle Fort Ancient period (Railey 1992), however, are conspicuous by their absence. Particularly given the classic middle Fort Ancient concentric circle village layout and radiocarbon dates in the early 1200s, one would expect at least a handful of the serrated point types to appear at the Broaddus site. The absence of serrated points also has been noted at the middle Fort Ancient Dry Branch Creek site in Mercer County, also in the southern Outer Bluegrass region (Melody Pope, personal communication). Excavations at the Inner Bluegrass middle Fort Ancient Guilfoil site (Fassler 1987) produced 12.5 percent (two out of 16) serrated points, a small quantity in comparison to middle Fort Ancient sites like Fox Farm in northern Kentucky (Railey 1992). Thus, it is possible that the absence of serrated points in the southern Outer Bluegrass area points to the presence of a distinct sub-regional pattern in middle Fort Ancient material culture. This absence may also indicate that serrated points begin to be made towards the end of the middle Fort Ancient, and thus are not present on sites occupied during the early middle Fort Ancient, such as Broaddus and Dry Creek Branch. Whether the presence, absence or relative quantities of Type 3 serrated points is a factor of spatial or temporal patterning is yet to be determined.

Other artifacts recovered include two deer bone awls–one complete and one broken–one drilled canine pendant, and one sandstone and one ceramic pipe bowl fragment. A very large scraper made of St. Louis chert was recovered. Of the pottery remains, 40 were rim sherds and 16 were handle fragments, and the vast majority was shell-tempered. Future papers will discuss the ceramic remains from the Broaddus site.

CONCLUSION

It appears that the Broaddus site is best interpreted as an early middle Fort Ancient site. Although the early date (A.D. 990) from the mound may indicate very early funerary ritual usage of the site, the charcoal sample from the mound was recovered from a shovel probe, making the date and its context difficult to interpret. At the later end of the spectrum, there is one Type 6 (Concave Base) and one radiocarbon date (A.D.1690), which may suggest some kind of temporary use of the Broaddus site during the late Fort Ancient. These later dates for the Broaddus site also remain difficult to interpret. In sum, given the solid concentric circle mound-plaza-midden patterning at Broaddus, two radiocarbon dates in the 1200s, a very high percentage of shell-tempered pottery, and the

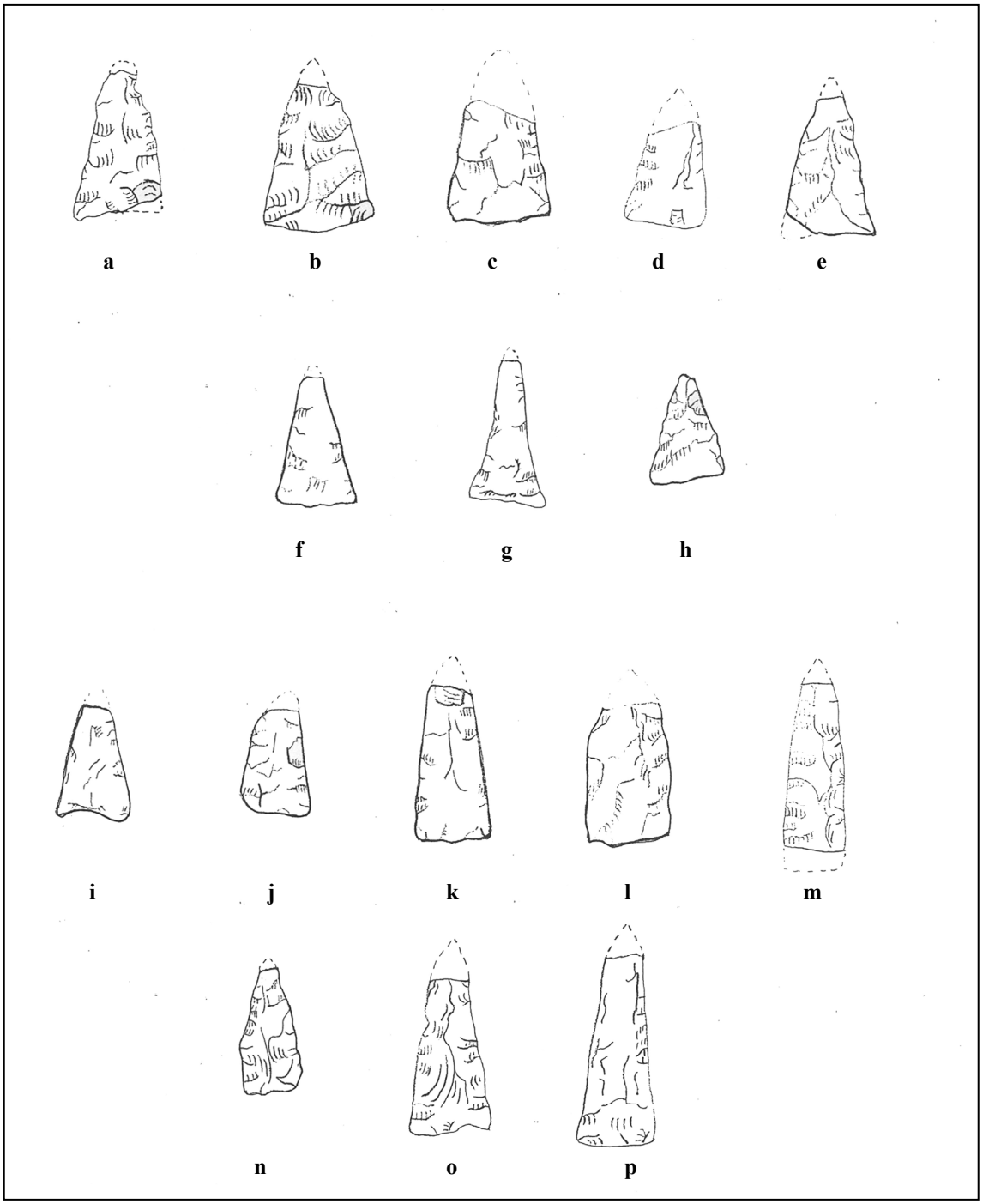

Figure 6. Fort Ancient Points from the Broaddus Site: a-h, Type 2 Fine Triangular Points; i-m, Type 5 Fine Triangular Points; n-p, Type 6 Fine Triangular Points.

vast majority (94 percent) of identifiable Fort Ancient points of either the Type 2 or Type 5 varieties, it seems clear that Broaddus is best interpreted as an early, middle Fort Ancient site.

ACKNOWLEDGEMENTS

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FRONTIER STATION OR HOMESTEAD? ARCHAEOLOGICAL INVESTIGATIONS AT MCCONNELL'S HOMESTEAD (15Bb75)

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ABSTRACT

In 1998, the Kentucky Transportation Cabinet contracted with Cultural Resource Analysts, Inc. to complete an intensive archaeological investigation at McConnell's Homestead (15Bb75). This investigation was in compliance with Section 106 regulations associated with the proposed U.S. Highway 27/68 upgrade project. The analyses of artifacts found at this site, such as faunal remains, domestic materials and architectural elements, were particularly useful during this investigation for site dating and drawing socio-economic conclusions about those who occupied this site from the late-eighteenth thru late-nineteenth centuries. Ceramic cost indexing analysis indicates that McConnell and his heirs maintained an upper middle-class status. Dietary preferences, as represented from the faunal assemblage, indicate an adherence to the Upland South tradition. Insights dealing with the application and utility of the historic analytical techniques used during this investigation also are provided. This investigation provides a much-needed database for future comparative analyses of early historic sites in Kentucky. Although McConnell's Homestead was previously referred to as a station, results from this investigation indicate that it is not possible to differentiate it from other early Kentucky households based on architecture and/or artifacts alone.

INTRODUCTION

Topics in this paper are covered in more detail in the comprehensive report submitted to the Kentucky Transportation Cabinet (Day and Clay 2000). The McConnell Homestead site was located on the Bradyleigh Farm in a grassy pasture overlooking a freshwater spring on the north side of US 27/68, just five to seven km southwest of Paris, Kentucky.

Nancy O'Malley (1987a) first identified this site in 1986 during a Phase I survey of the U.S. Highway 27/68 upgrade. In 1990, O'Malley (1992) conducted a limited Phase II investigation. These investigations uncovered architectural elements of two structures and artifacts believed to be related to the period of McConnell's occupation. In 1998, intensive Phase II investigations successfully located the remains of two structures (Structures 1 and 2), a deep cellar associated with Structure 1, the chimney pad of Structure 2, and two midden areas (Day and Clay 2000). Phase III investigations focused on these two structures and the surrounding features. Structure 1 is assumed to be McConnell's Homestead, constructed ca. 1790. This identification is based upon archival information that places his home in the immediate vicinity and archaeological evidence (primarily the dating of window glass and ceramics) that dates the earliest occupation of this structure to the late-eighteenth century. Eighty-two 1 x 1 m units were excavated during the investigation of Structure 1 and an additional 105 m^2 were hand-stripped to reveal structural elements and associated features. Approximately 27,000 artifacts were found in association with Structure 1.

Structure 2 was built during the late nineteenth or early twentieth centuries. It may have been built for, and occupied by, a tenant farmer(s) and is believed to have had a short period of occupation, less than 40 years. Artifacts from the base of a builder's trench surrounding the chimney pad indicate that the chimney was not constructed earlier than 1875. Thirty-one 1 x 1 m units were excavated during the investigation of Structure 2 and an additional forty-one, 50 x 50 cm units were excavated in this location to reveal architectural information, artifact distributions, and locations of associated features. Approximately 9,500 artifacts were found in association with Structure 2. Fourteen additional 1 x 1 m units were placed in midden areas to investigate features surrounding the structures. A total of 2,413 artifacts were recovered from these 14 additional units.

In this paper, the analyses of artifacts found at McConnell's Homestead (Structure 1) are described and insights to life at this early settlement are provided. The analyses of artifacts, such as faunal remains, ceramics, window glass, nails, and other architectural elements, allow interpretations to be made about the daily lifestyles of the families who lived at this homestead and their transition from a frontier settlement to an agrarian lifestyle. Critical to this discussion is the term "station" and how frontier stations and early settlers in the Bluegrass Region generally have been perceived and described.

ARCHIVAL HISTORY

William McConnell migrated to Kentucky from Lancaster County, Pennsylvania as early as 1781. In 1788, he purchased land in Bourbon County and settled there with his family. In Kentucky, McConnell became a relatively prosperous farmer who raised livestock and periodically rented slaves. McConnell also held several civic positions, including road overseer, deputy surveyor, and grand juror (O'Malley 1992:14).

McConnell lived at this location with his wife Rosanah and at least nine children until his death in 1823, at which time he left his house and land to his heirs.

John Ardery, who married William McConnell's daughter Elizabeth in 1818, inherited the house and a portion of the land after McConnell's death. Like William McConnell, John Ardery also became a prosperous farmer. He increased his land holdings by purchasing surrounding farms and he obtained an increasing number of slaves as his estate grew. Census records indicate there were 20 people living at the Ardery plantation by 1830. Thirteen were family members and seven were probably slaves. Ardery and his family occupied the site until his death in 1853 when Lafayette Ardery, John Ardery's son, inherited the household and farm. Lafayette, Fannie (his wife) and their children may have lived at the site until 1871, at which time archival records indicate they purchased a more commodious house in another location. It is not known for certain how long Lafayette and his family occupied the house or if it was sold or rented to another family after 1871. However, the lack of artifacts dating post-1880 indicates that the structure was abandoned prior to 1880. In addition, the abundance of ash, burned nails, and other burned artifacts indicate that the structure, or a significant portion of it, burned prior to abandonment.

ARCHITECTURAL REMAINS

As discerned from the archaeological investigations, McConnell's Homestead has two main distinguishable sections, which are referred to as the north half and the south half (Figures 1 & 2). The north half was defined by a discontinuous limestone foundation with outside dimensions measuring approximately 12.8 m long by 5.49 m wide (42 ft long by 18 ft wide). The south half was defined by a stone walled cellar that measured approximately 10.97 m long by 7.32 m wide (36 ft long by 24 ft wide).

The most prominent feature recorded in the north half of McConnell's Homestead was a hearth and chimney foundation (Feature 18), and the most prominent feature recorded within the south half was a hearth (Feature 11), located along the eastern wall of the cellar. A brick floor surrounded this hearth and a large number of faunal materials and ceramics were recovered from this area of the cellar.

Another interesting feature discovered in the south half of the McConnell Homestead was a double chimney pad (Feature 26). This triangular shaped chimney pad was one of the more significant architectural features recorded. Such a chimney pad is usually indicative of a three-room plan. German settlers brought the three-room design with them when they settled in areas of Pennsylvania (Kniffen 1986:13; Swaim 1978:34). The three-room plan also has been called the "Quaker plan" or "Penn plan" because it was thought that William Penn encouraged its use in Pennsylvania (Bevins 1981:69; Swaim 1978:34).

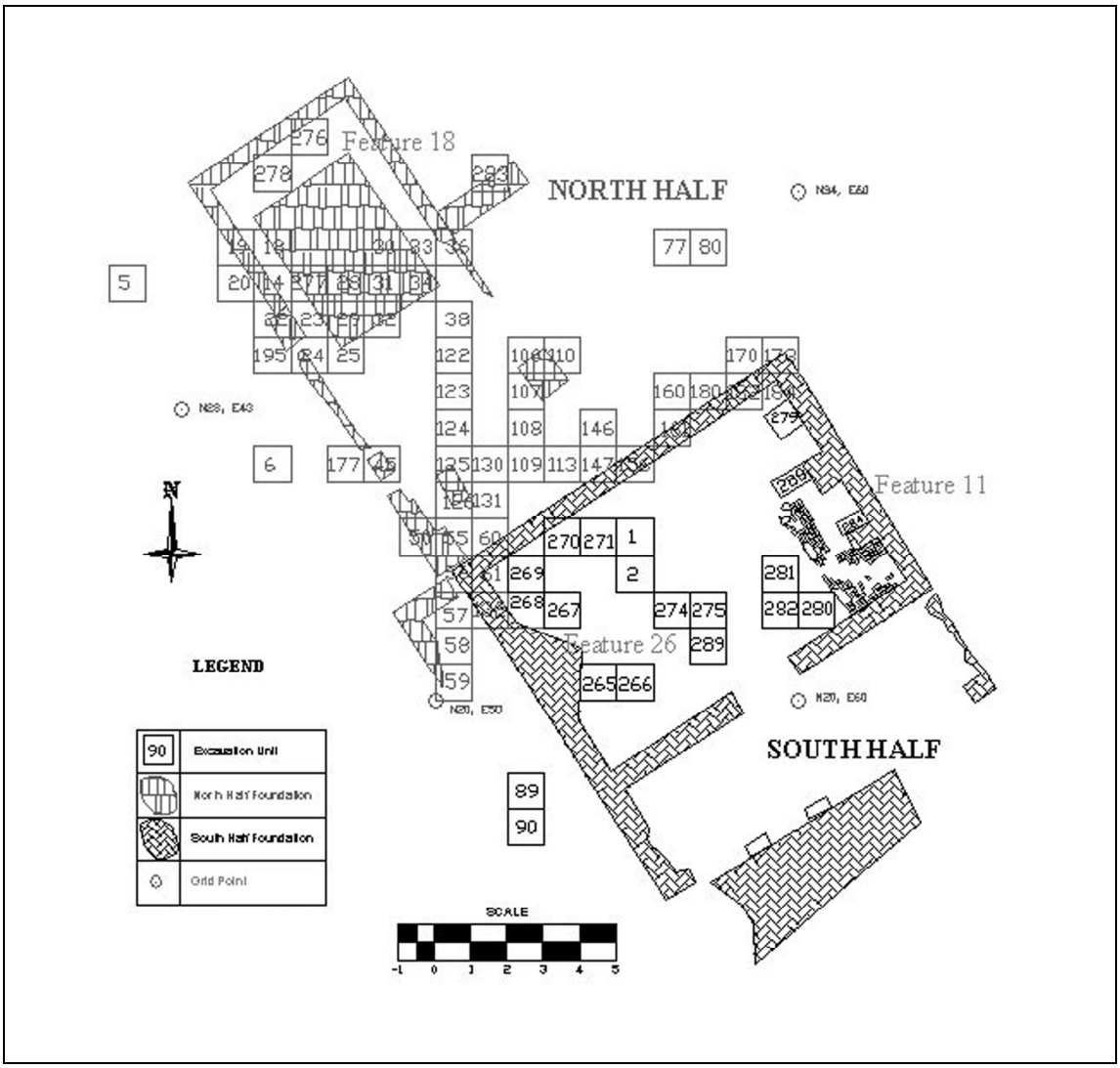

Figure 1. Planview of the 1998 Archaeological Excavation of McConnell's Homestead Showing Stone Foundations of the North and South Halves.

When McConnell built his house, he reached back to the land of his origin, southeast Pennsylvania. His home principally reflects his Scotch-Irish heritage, tempered with Germanic influences from his farming neighbors. The three-room plan had been modified greatly since its European origins. For instance, more fashionable gable-end chimneys replaced the large central chimney. These chimneys probably were adapted from the English I-house, which was considered a symbol of sophistication and attainment during the late-eighteenth century (Kniffen 1986:16). The triangular fireplace, a traditional Pennsylvania Dutch feature, was incorporated, allowing one chimney to service two ground floor rooms and usually a second story room as well.

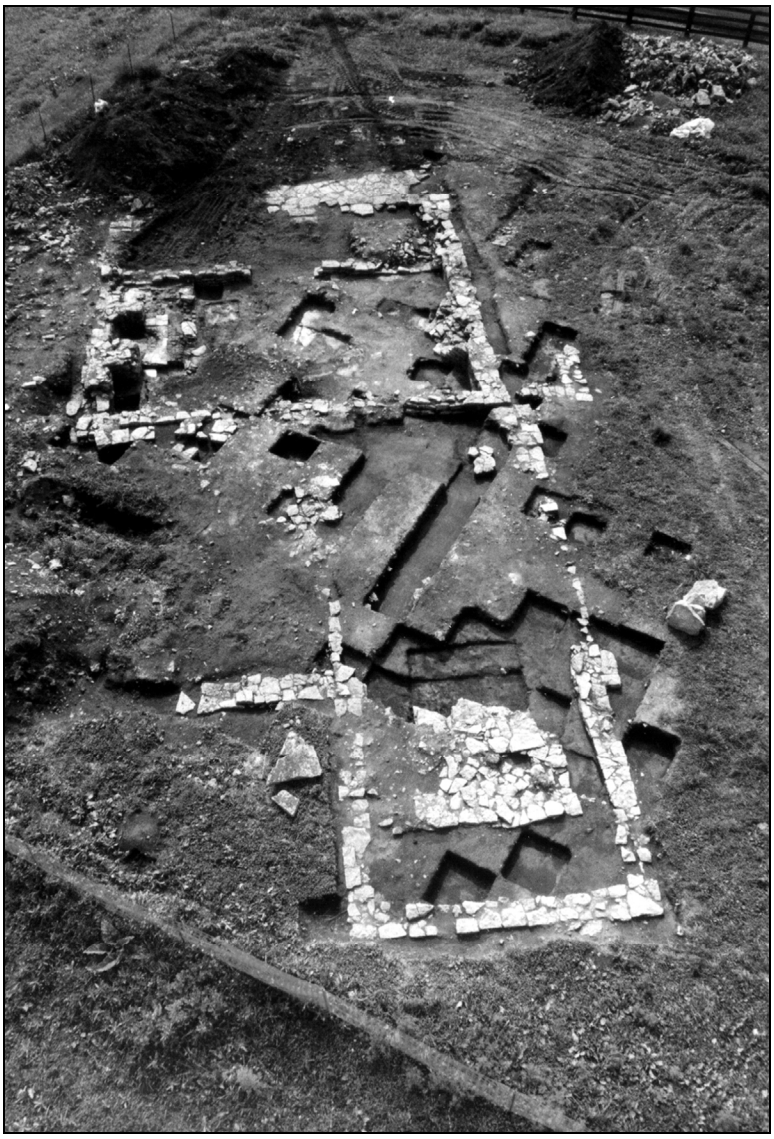

Figure 2. View of the 1998 Archaeological Excavation of McConnell's Homestead, Looking Southeast.

There are several early stone houses built in the Bluegrass region that utilize the three-room plan. Of these, the John Andrew Miller house and the William Thompson house have been well documented and are contemporaneous with McConnell's Homestead (Bevins 1981; Riesenweber and Hudson 1990; Wooley 1982). Conclusions were drawn about the unknown architectural characteristics of McConnell's Homestead by examining the Miller and Thompson houses.

The John Andrew Miller house, built in Scott County around 1790 was very similar to McConnell's Homestead (Figure 3). The structures have many similarities and the original owners have common ethnic backgrounds. McConnell and Miller were both either of Scotch-Irish or of English-Irish descent and arrived in Kentucky from

southeastern Pennsylvania between 1775 and 1781. Miller's house was constructed with sturdy doors, six panels on the outside and bias-batten on the inside. The mantels were high and were finished with fine carvings. The floors were made of ash and the stairways were closeted. The split logs providing flooring and joists were undressed (Bevins 1981:69). It is probable that McConnell's Homestead was constructed in much the same fashion as Miller's house (i.e., six panel doors, split log flooring and joists, and high mantels).

The William Thompson house, built in Boyle County about the same time as McConnell's Homestead (ca. 1790), also utilized the three-room plan (Figure 4). The house is described as having double paneled doors on the front and the rear, pit sawn rafters with collar beams, a closeted corner stairway leading to the second floor and winding to the attic, small attic windows flanking the chimneys, and a separate kitchen. The kitchen of the Thompson house was originally built 3.05 m (10 feet) east of the main house. However, it was connected to the main house during the mid-nineteenth century by a two-story frame addition. In 1806, a room was added to the rear of the main house, but it was later removed (Wooley 1982).

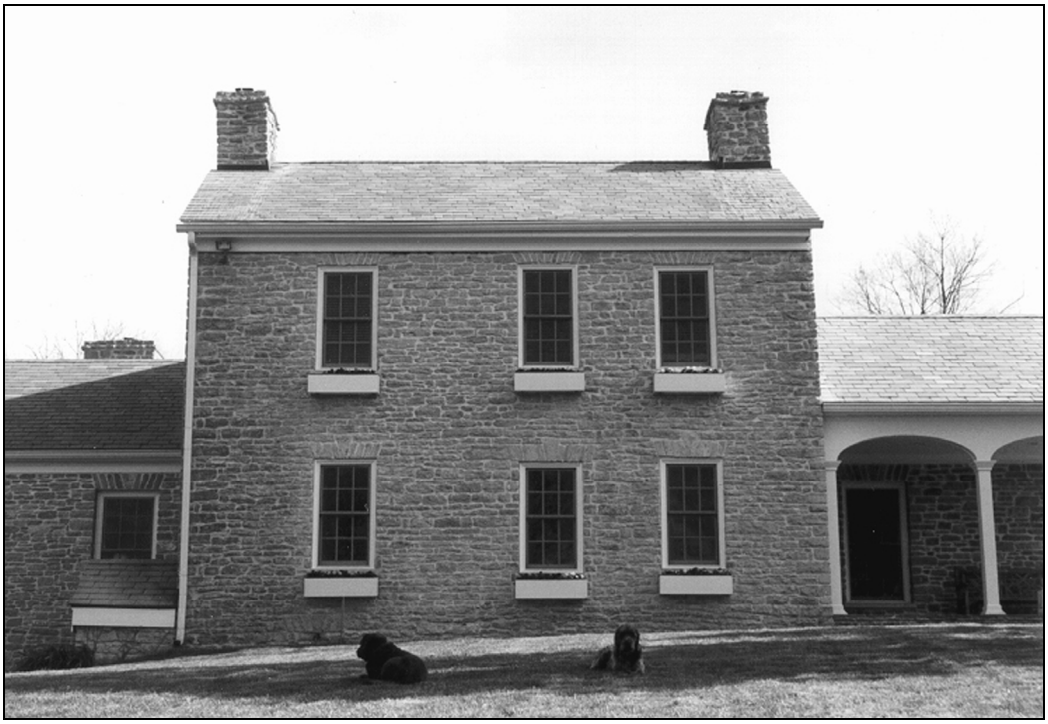

Figure 3. View of the Miller House. [Note: Although modifications have been made and new additions have been added, the basic characteristics of the original house are still intact. Notice the walkout cellar door on the left end of the house. There also was a cellar window that is now below grade.]

Like the Thompson house, the north half of McConnell's Homestead may have been a separate kitchen that was later connected to the main house. The reasons for connecting the kitchen to the main house may have been practical, such as the need for

more sheltered space, but it is more likely that they were adding dining and entertaining rooms to their houses for specific cultural reasons. As the American frontier moved further west, the Bluegrass region became more sophisticated. With this sophistication came change, such as the appearance of the separate dining room (Wenger 1989). Most early houses had a hall and parlor design, where the hall served as the kitchen, dining room, social room, and more. However, as cosmopolitan formality moved into the region the multi-purpose hall became less socially acceptable. In response, additions were added to many houses to accommodate dining rooms, guestrooms, and entertaining areas. These additional rooms became a means of displaying levels of sophistication and wealth.

Figure 4. View of the Thompson House. [Note: This house is constructed with much larger pieces of stone than the Miller house or McConnell's Homestead but the layout and general appearance are similar. The walkout cellar door of the Thompson house is not visible in this picture because it is located on the right gable end toward the backside of the house. There also were cellar windows that are now below grade.]

Based on these architectural comparisons, speculative or interpretive sketches of McConnell's Homestead were drawn (Figure 5). These sketches represent what McConnell's Homestead may have looked like during his occupation, and that of John and Lafayette Ardery's occupations.

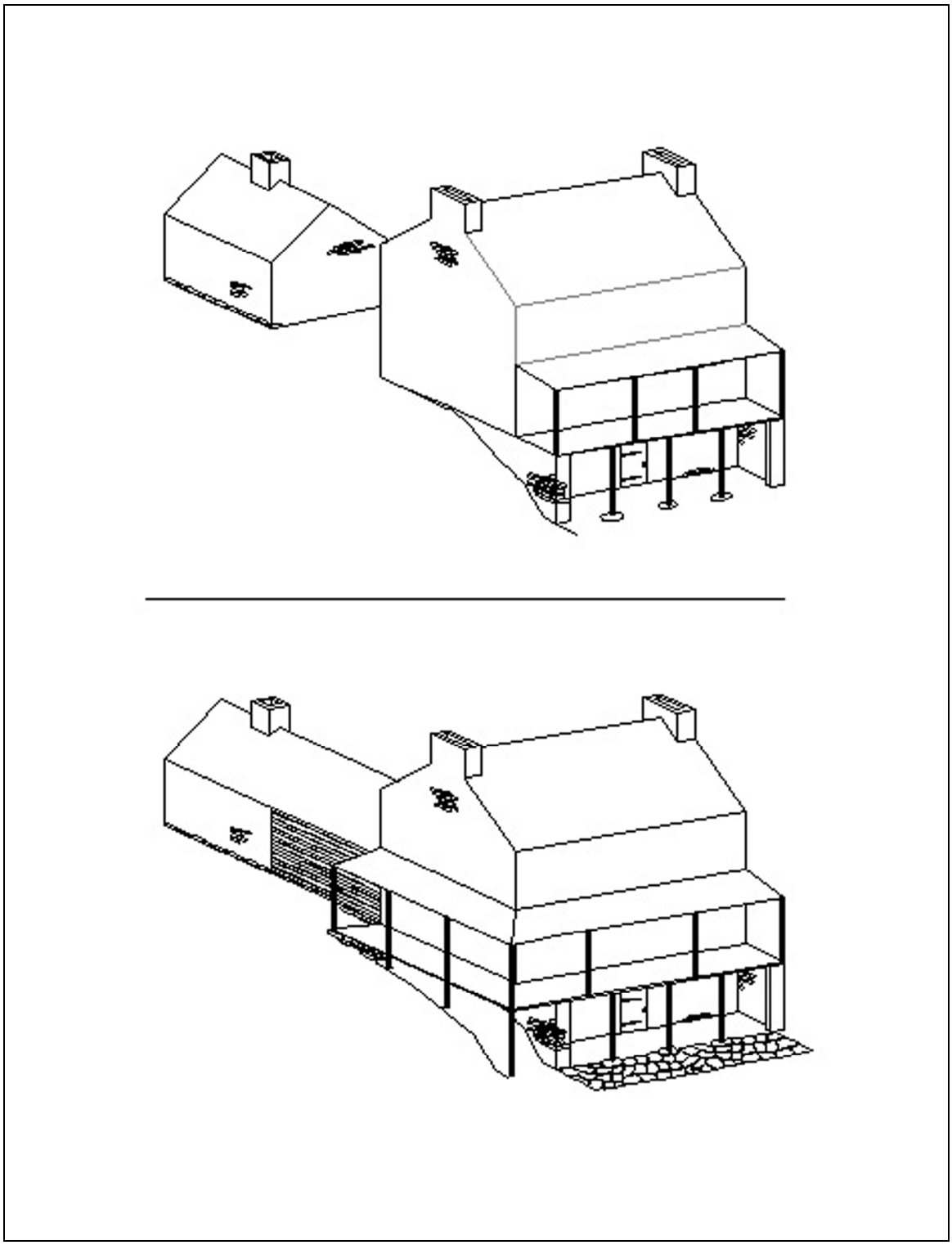

Figure 5. Interpretive Sketches of McConnell's Homestead View Looking Northeast. [Note: (top) represents the house possibly during McConnell's occupation; and (bottom) represents the house during John Ardery's and Lafayette Ardery's occupations.]

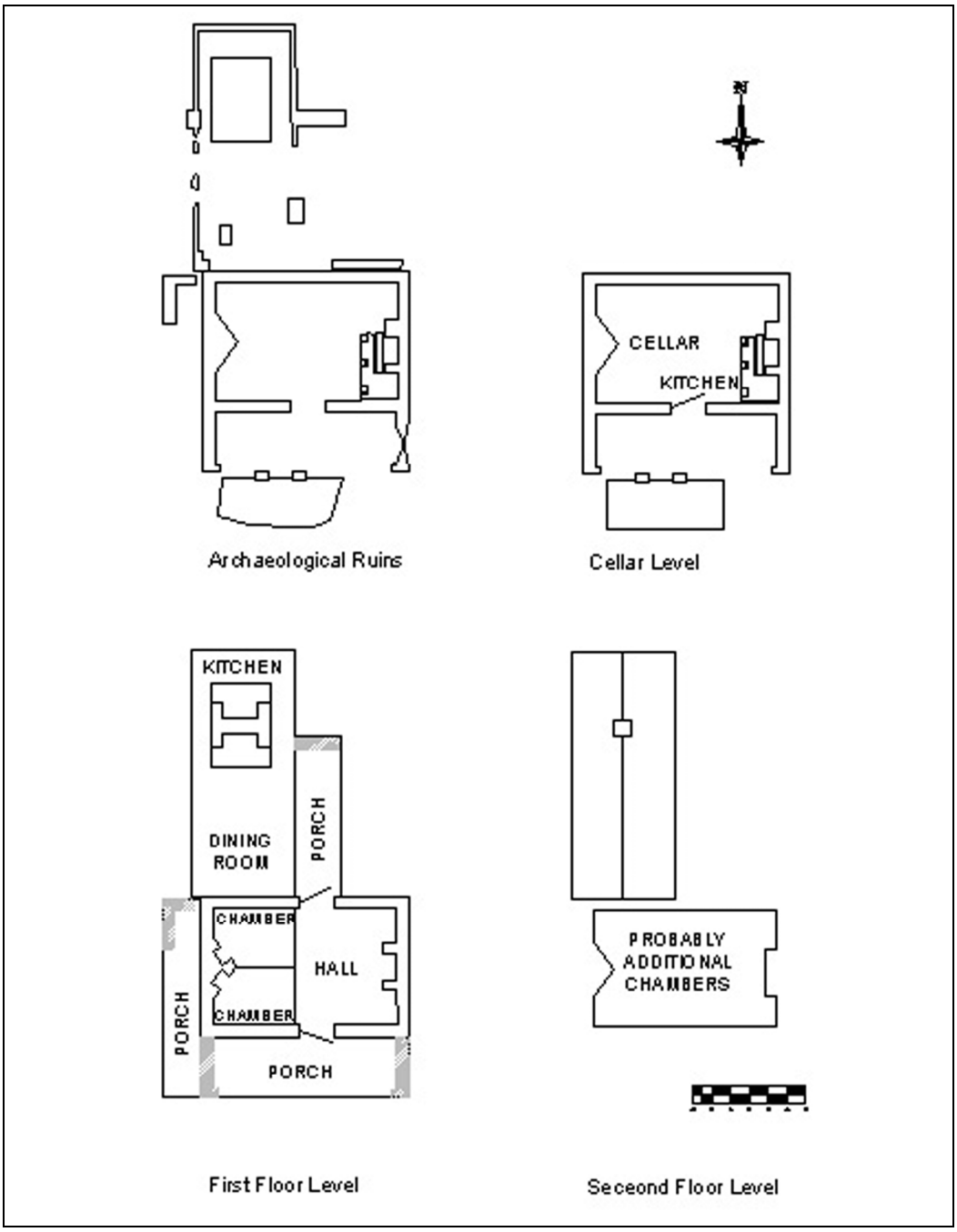

Figure 6. Speculative Layout of McConnell's Homestead: [Note: top left, planview of the archaeological ruins excavated during the 1998 excavations; top right, planview of the cellar or basement level of the house. This level had a brick floor in the southeast corner that surrounded a stone hearth. This area probably served as a kitchen, storage area, and workspace. The rest of the cellar had a clay floor; bottom left, a speculative planview of the first floor level of the house. The designation of rooms and porches was based on the existent stone foundations, artifact distributions, and the layout of similar contemporary structures. Grayed areas under porches indicate the locations of existent supporting stone foundations; bottom right, a speculative planview of the second floor level. Comparative analysis alone indicates the existence of a second floor on the south half of the house. The second floor probably contained additional sleeping areas.]

The designation of rooms and porches on the first floor level was based on the existent stone foundations, artifact distributions, and the layout of other contemporary three-room plan structures. The locations of the porches were determined by the existence of short segments of stone foundations adjacent to the main structure. The existence and design of these porches is speculative but viable. For instance, it is not known whether the porches were covered, open, or fully enclosed additions to the house, but it is fairly certain that the stone foundations in these locations supported some type of addition. The front door and windows are shown slightly off center to accommodate the three-room plan. The north half addition may have been a separate kitchen that was later renovated and connected to the main structure. "Between 1780 and 1820, the wealthiest Kentuckians had separate kitchen buildings for cooking and other heavy household work like laundry and soapmaking" (Riesenweber 1992:254). The existence of the double hearth in the north end of the addition is validated by the existence of the large stone chimney pad. The analysis of the faunal material and the ceramic assemblage recovered from that area indicates that cooking and dining activities took place there. A wash area or possibly a pantry may have been located in the north half of the structure. A number of buttons recovered from the northern end of the north half lends support to the theory of a wash area. Comparative analysis alone indicates that at least the south half of the homestead had a second floor. The second floor probably contained additional sleeping areas.

It is likely that rooms within this structure had an exceedingly complex history of use. The archaeological data offer hints of the types of activities that may have taken place at this location. These data, however, are difficult to relate to particular events that took place at McConnell's Homestead during the almost 90 years of use. What is clear, however, is that William McConnell built a stone home during the late-eighteenth century that set him apart from his neighbors still living in log cabins and reflected his southeastern Pennsylvania origins.

WINDOW GLASS

By analyzing the window glass fragments recovered in association with McConnell's Homestead, it was hoped that the date of initial construction and the span of occupation could be estimated. This analysis provided evidence to determine the construction sequence of the north and south halves of the dwelling. The estimated date of construction was ascertained through a modified use of window glass dating methods suggested by Chance and Chance (1976), McKelway (1992), Moir (1987), and Roenke (1978). A total of 5,096 window glass fragments were collected and dated from McConnell's Homestead. The thickness of each flat glass sherd was measured using digital calipers to the nearest thousandth of a centimeter using digital calipers. These measurements were then processed using Moir's (1987) formula to obtain an associated date of manufacture for each fragment. A histogram was constructed from these calculated dates to illustrate the probable initial construction date and the span of occupation for the structure (Figure 7). Dates derived through this analysis were compared to occupation dates derived from archival sources and analysis of other artifact classes.

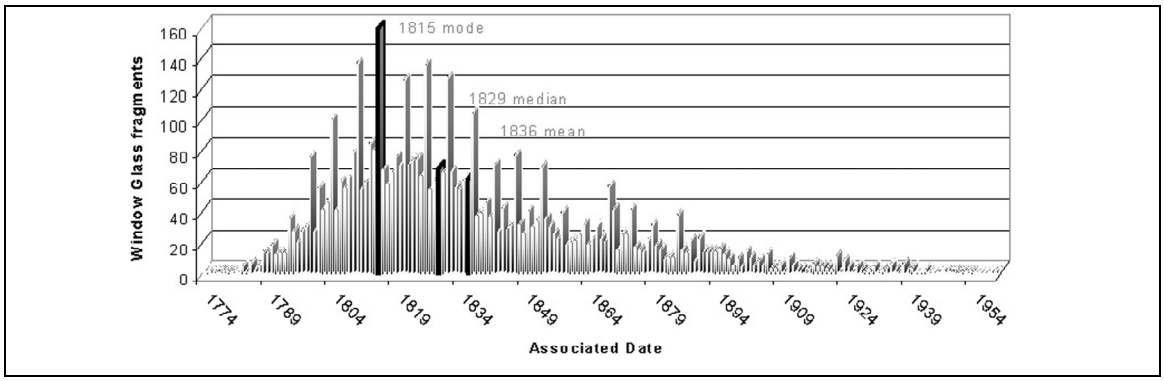

Figure 7. Histogram derived from the analysis of window glass fragments recovered from McConnell's Homestead.

The analysis of window glass indicates a construction date of ca. 1790. This date was established by the sharp increase in the frequency of window glass fragments with a thickness of 0.92 mm (1790) or greater. According to the distribution of calculated dates, the span of occupation for McConnell's Homestead falls predominantly between 1795 and 1886. These dates concur with those of the ceramic assemblage and historical documentation of McConnell's Homestead. According to historical documents, the elevated peaks of window glass fragments between 1800 and 1850 correspond to the peaks of occupation at this site. Between 1800 and 1850, William McConnell and John Ardery were raising their children, purchasing and renting slaves, and most likely expanding and updating their dwelling. The increase of people and construction activities at the site during these years would increase the likelihood of glass breakage and therefore account for the abundance of window glass fragments attributed to this period.

The gradual decline of window glass fragments dating between 1854 and 1886 indicates that McConnell's Homestead was abandoned ca. 1875. However, there is a small but noticeable decrease in the amount of window glass between the years of 1854 and 1870. Interestingly enough, this 16-year period corresponds to the occupation period of Lafayette Ardery. This could indicate that the dwelling was abandoned during this period or that Lafayette replaced few windows during his occupation. Events associated with the Civil War may have diminished Lafayette's access to new window glass.

NAILS

The nails recovered in association with this structure were analyzed to determine its relative age and type of construction. Of the 8,265 nails recovered, nearly 100 percent could be identified as wrought, cut, or wire nails. The majority of nails recovered were cut nails (93.8 percent), with a minor percentage of wrought nails (3.7 percent), even fewer wire nails (2.4 percent) and a negligible number of unidentified nails (0.1 percent). The overwhelming percentage of cut and wrought nails indicates that this structure was constructed during the early- to mid-nineteenth century. However, when the north and

south halves of McConnell's Homestead are viewed separately, the percentages change slightly. The majority of nails identified from the south half of McConnell's Homestead was cut nails (85.2 percent), with a minor percentage of wrought nails (12.3 percent), very few wire nails (2.2 percent), and a negligible number of unidentified nails (0.3 percent). The majority of nails identified from the north half of McConnell's Homestead was cut nails (96.8 percent), with very few wire nails (2.5 percent) and a negligible number of wrought nails (0.3 percent). The higher percentage of wrought nails found in the south half of McConnell's Homestead indicates that it may have been constructed slightly earlier than the north half, or that wrought nails were used for special building purposes primarily associated with the southern half. A chi-square test of independence indicates that there is a significant difference in the representation of wire versus wrought nails between the two halves of the structure (chi-square = 224.648, df: 1, $p < 0.0001$). An examination of Table 1 indicates that wire nails are over-represented in the north half, while wrought nails are over- represented in the south half. This supports the hypothesis that the south half was constructed earlier than the north half.

Table 1. Chi-square Test of Independence of Wire versus Wrought Nails between the North and South Halves of McConnell's Homestead.

Chi-square	North Half	South Half	Total
Wire Nails	144 (67.58)*	23 (99.42)	167
Wrought Nails	47 (123.42)	258 (181.58)	305
Total	191	281	472
*Observed (expected)			

The nails also were sorted by size or pennyweight to determine the type, or types, of construction used. Research indicates that different pennyweights can be associated with different functional categories to provide clues about the types of construction used (Walker 1971; Young 1991). Nearly 56 percent of the nails recovered could be assigned pennyweights accurately. Young (1991) created four functional categories: (1) roofing; (2) siding and light framing; (3) flooring; and (4) heavy framing nails. Young determined that roofing nails range in size from 3 to 5 penny, siding and light framing nails are 6 to 8 penny, flooring nails are 9 to 10 penny, and heavy framing nails are larger than 10 penny. Young created models based on the percentages of each nail type expected to be associated with log, timber frame and balloon construction. Using Young's method, the nails recovered were sorted by pennyweight and then placed into the four functional categories (Figure 8). The results were not similar to any of Young's structure type models. Suspecting that the north and south halves were of different construction types, the nail assemblages were compared independently and still no similarities were discovered.

The lack of similarity between McConnell's Homestead and Young's models is probably due to at least three factors. The first is that McConnell's Homestead, or at least the south half, probably was constructed of stone. Stone construction does not have an established nail pattern model. The nail assemblage for a stone structure may be very

similar to that of a log or timber frame structure where few, if any, nails are used in the walls. Generally, stone construction would require nails to be used only for the roofing, flooring, framing around doors and windows, and interior trim. Theoretically, this would produce a pattern similar to that of McConnell's Homestead, but there are no comparative data.

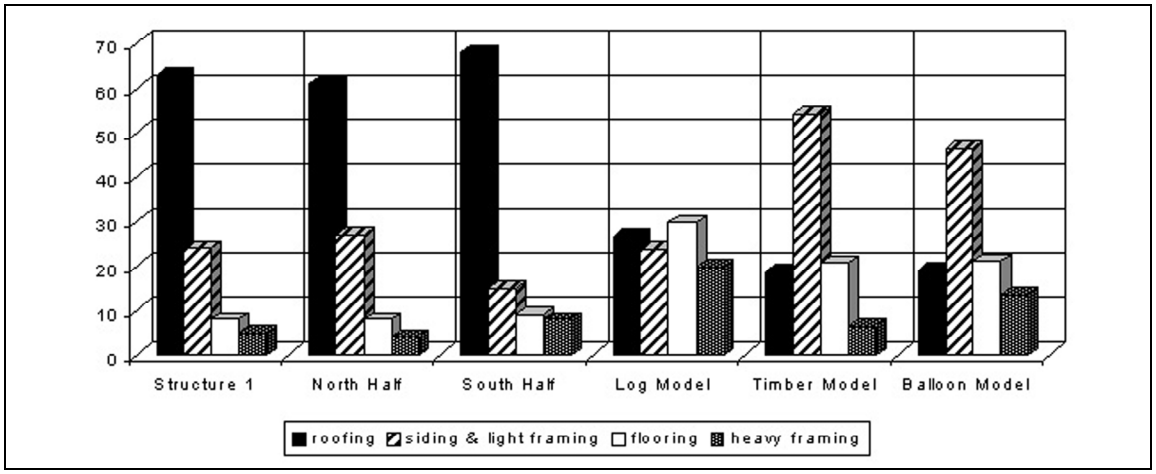

Figure 8. Distribution of Nails by Functional Category Compared to Young's Models for Log Construction, Timber Frame Construction and Balloon Frame Construction (Young 1991).

The second factor is that the models themselves need to be further tested and possibly modified. Initially, Young only used two archaeological sites (Garner and Locust Grove) to test her log model and these sites were of unknown construction types. The models need to be tested with archaeological nail assemblages from structures of known construction types.

The third factor is that standard-sized nails are less likely to be used prior to the introduction of machine cut nails and standard-sized lumber, such as the 2" x 4." When investigating structures that were constructed in stages using different sized pieces of lumber, one is likely to recover a variety of nail sizes. The overall pattern for the use of these nails may be difficult to discern and there may be more than one pattern represented in the nail assemblage. Factors that are not accounted for, such as availability, economics, and aesthetics, also play a role in this equation (Ball 1996).

CERAMICS

The ceramics recovered from the McConnell Homestead were analyzed to help determine the socio-economic status of the occupants (McKelway 2000). Pearlware and whiteware were well suited for identifying differences in the ceramic assemblages of McConnell and his heirs John and Lafayette Ardery. Pearlware was manufactured from

ca. 1790 to 1830 and would have been the most prominent ware during McConnell's occupation until his death. Whiteware was manufactured after pearlware, and would have been the primary ceramic type utilized by John and Lafayette Ardery. Cost index values (Miller 1991) were determined for McConnell and Ardery and they were compared to the index values of other nineteenth century individuals to determine social or class rank (Table 2). Based on this analysis, McConnell and Ardery both were classified as upper middle class farmers.

Table 2. Vessel Ceramic Cost Index Comparisons from Other Historic Sites.

Site	Occupation Range	Status	Vessel Cost Index Average for Site
Moses Tabbs	1800-1840	tenant farmer	1.42
Kings Bay Plantation Slave Cabin A	1791-1815	slave housing	1.47
Kings Bay Plantation Slave Cabin C	1791-1815	slave housing	1.64
William Hale	1832-1837	poor farmer	1.67
Harmony Hall	1793-1832	small planter	1.77
Mabry Slaves	1830-1823	small planter	1.78
James King West Kitchen	1806-1823	small planter	1.84
George Mabry	1830-1860	small planter	1.90
John and Lafayette Ardery	**1823-1875**	**upper middle class**	**1.98**
Gowan Site	1830-1860	small planter	2.10
William McConnell	**1790-1823**	**upper middle class**	**2.21**
John Richardson	1810-1816	wealthy	2.31
Walker Tavern	1834-1850	tavern	2.37
Diaz	1842-1858	merchant	2.69

As McBride and McBride (1987) demonstrated, there is an association between expensive ceramics and individuals of means who maintained positions of social prominence. O'Malley (1995) suggests that the social context of an urban residence of a well to do family, where visitations are more likely, might encourage a show of more expensive ceramics. Social contexts also may have influenced the purchasing decision of some rural households. When viewed from this perspective, the wealth reflected by the McConnell and the Ardery's ceramic assemblages would correspond to the prestigious image that these families wanted to project. This is particularly relevant in the context of interacting with one's social peers through social calls, which frequently involved offering tea and coffee along with food. The prominent and highly visible stone house they constructed along one of the more important transportation routes through Kentucky may be another example of the desire to present their success through their material culture.

This analysis is only a beginning point for ceramic analyses of early sites in Kentucky. Additional studies of this type are drastically needed in the state. Analyses of this kind provide comparative data for other historic sites studied in the future, to

understand the importance, manipulation, and function of ceramics within different social contexts.

FAUNAL REMAINS

Faunal remains were identified and analyzed to examine subsistence activities that occurred at this site (Tuma 2000). Domesticated species dominated the assemblage. Pig bones dominated the assemblage in terms of NISP (Number of Identified Specimens), MNI (Minimum Number of Individuals), and bone weight. Other important domesticated species recovered from this site included cow, chicken, and sheep (Figure 9).

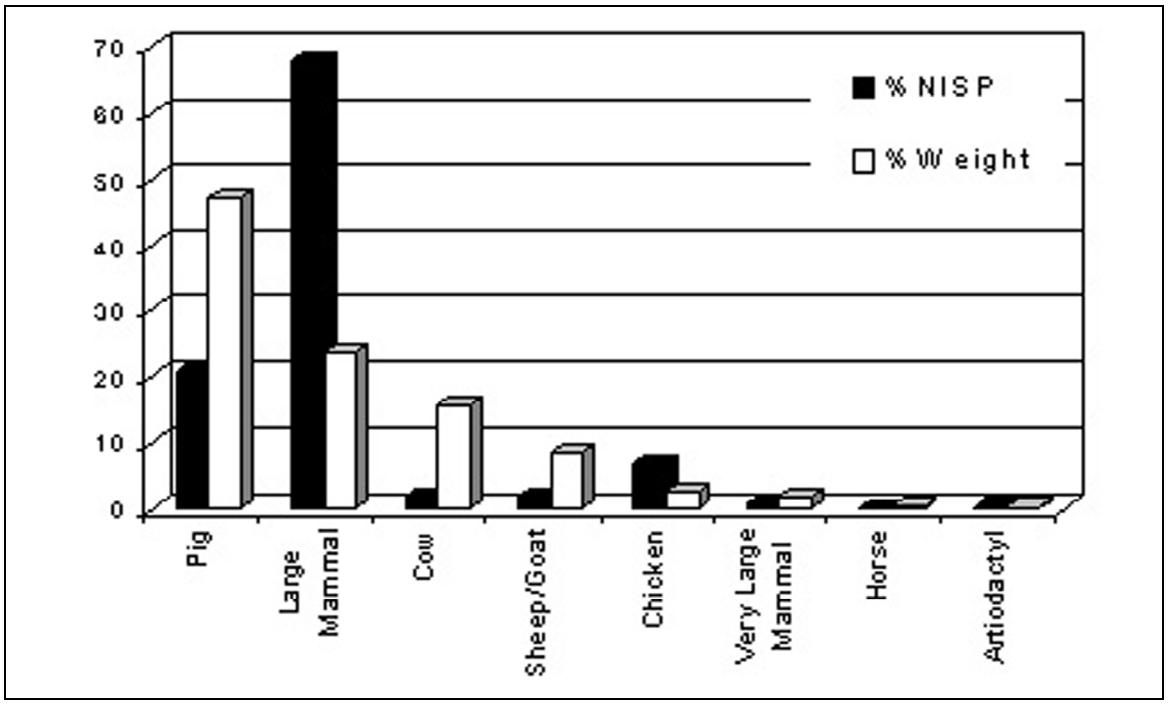

Figure 9. Proportions of NISP and Bone Weight among Domesticated Species Recovered from McConnell's Homestead.

The occupants of McConnell's Homestead appear to have been part of the Upland South Cultural Tradition. This tradition originated in the Upper South during the eighteenth century and spread with the migrations of emigrants from the southern states (McCorvie 1986, 1987:251; McCorvie et al. 1989). The main characteristic of the Upland South populations is their reliance on a diversified farming complex that utilized a variety of resources, enabling each homestead to be self-sufficient in relation to food production (Wagner and McCorvie 1992:7). The Upland South tradition typically

translates into a reliance upon corn, pork, buttermilk, and clabber for a majority of food consumption.

Northerners and Europeans found this reliance "utterly foreign" (Power 1953:106-112). Instead, New Englanders incorporated wheat bread, fresh milk, and beef into their diets. Early nineteenth-century travelers' accounts of the Bluegrass area voice their disdain for the Upland South tradition. One early traveler reported that the road from Philadelphia to Lexington had small inns located every 10 or 12 miles (16.1 or 19.32 km) of the route. He continued saying, "They are generally log huts, of one apartment, and the entertainment consists of bacon, whiskey, and Indian bread" (Ashe 1809:91).

A small part of the McConnell faunal assemblage consisted of wild species, most importantly wild turkey, ruffed grouse, rabbits, and squirrels (Figure 10). In terms of biomass contributed by hunted animals, wild turkey was the most important species. Interestingly, no deer remains were recovered. Several accounts by early explorers and settlers in the region noted the abundance of deer. Imlay (1792:90) observed that "the mountains, hills, and uninhabited parts are abound [sic] in deer…" and that "deer abound in extensive forests" (Imlay 1792:94). Although this region may have never supported a high deer density, they were no doubt present in the Bluegrass Region during the late eighteenth and early nineteenth centuries.

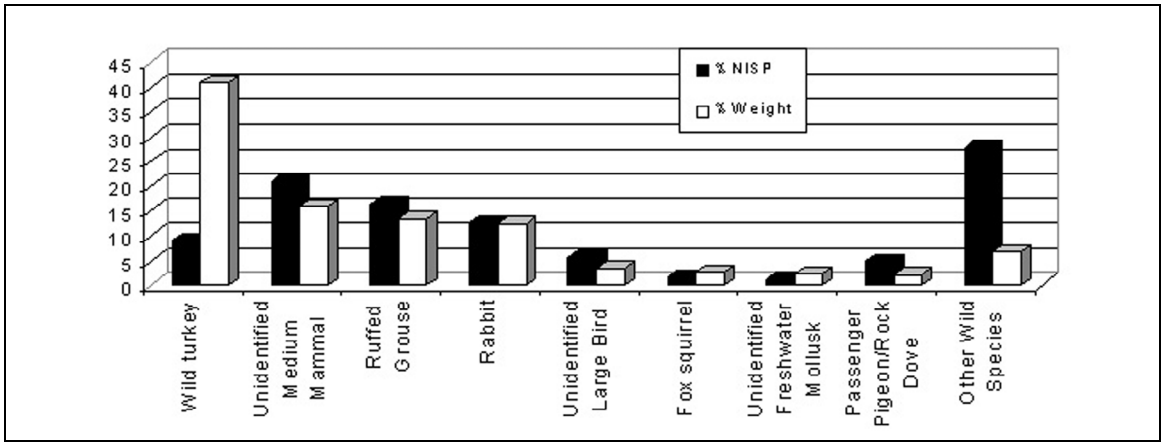

Figure 10. Proportions of NISP and Bone Weight among Wild Species Recovered from McConnell's Homestead.

The cultural aspects of the Upland South tradition may explain the absence of deer from the faunal record. Frederick Law Olmstead noted that a farmer in east Texas owned land that was abundant with game, including deer, but "he never shot any; 'twas too much trouble. When he wanted 'fresh', 'twas easier to go out and stick a hog." This cultural attitude may have been prevalent in Kentucky in the early nineteenth century as well. In addition to the ease of killing a domestic hog over hunting a deer, Kentuckians may have preferred salted pork to fresh venison or fresh meat of any kind. Ashe (1809:216-217) noted that Kentuckians "have an aversion to fresh meat… they find it

unwholesome… they eat salt meat three times a day…" and Michaux (1805:238-239) reported that Kentuckians' use of salted meats gives them a distaste for fresh meat. Venison was generally too lean for Euro-American tastes and they weren't adept at processing and storing large lean animals, although they did quite well with bear (Richard E. McCabe personal communication 2001). McCabe also stated that agrarian settlers killed deer when they could, not so much for meat or skins, but to keep them out of crop patches. Thus, the absence of deer from the archaeological record in the eighteenth to nineteenth centuries appears to be a reflection of cultural traditions regarding meat consumption that were in place not only in Kentucky, but also throughout the Upland South.

STATIONS, FORTS, AND HOMESTEADS

One of the more important questions this investigation had to address was, "Whether McConnell's Homestead was a frontier station?" This question was important because the title or label of "frontier station" has specific connotations about the lifeways, functions, and architecture associated with it. The term frontier station usually is associated with: settlements occupied by individuals, such as Daniel Boone, threats of Indian attacks, hunting and living off the land, cabins with log palisades, dirt floors, wooden bowls and utensils, and crude living conditions in general. However, the term station has been applied to a variety of early settlements in the Bluegrass region, including McConnell's Homestead, confusing the characteristics that determine the differences between stations, forts, and homesteads.

Nancy O'Malley (1985, 1987b, 1999) has done extensive research regarding the topic of Bluegrass region frontier stations, from which many of the following defining characteristics of a station are derived. Basically, stations were temporary shelters designed to protect settlers from the threats of frontier life. Early settlers in Kentucky were subject to a number of threats including attacks from wild animals, Native American tribes and possibly British troops. The scarcity of food and unpredictable weather also were concerns of early settlers. With the intention of diminishing some of the dangers of frontier settlement, a system of forts and stations was established. "The system embodied features borrowed from earlier frontiers – safety in numbers, erection of physical barriers, a vigilant patrol system" (O'Malley 1999:57). Stations usually consisted of a defensible structure or group of cabins, preferably surrounded by a ditch, rampart and parapet, palisades, stockades, or some other means of defense. They were typically constructed of logs, seated on intermittent stone piers and were heated by chimneys made of stick and mud daub (O'Malley 1987b:37). Essentially they were temporary civilian forts built at varying scales depending upon the number of people they were intended to house.

Stations were not government-sanctioned posts, but many were built and occupied by Revolutionary War veterans. Those who built stations on their land were, in a sense, providing a service for which they were entitled to charge a fee. Those who stayed at

someone else's station generally would pay rent, provide labor, or perform some type of service in exchange for their lodging. Station owners also benefited from the fact that those who stayed at their stations sometimes purchased or rented land from them.

Bryant's Station and Squire Boone's Station are among the many examples of early stations in the Bluegrass region. Descriptions of these stations are nearly identical to what most would consider being a fort (Figure 11). With the exception of four examples in the Bluegrass region, Boonesboro, St. Asaph's, Harrodsburg, and Lexington, the term "fort" is rarely used when referring to early pioneer settlements in the Bluegrass region. Forts are typically associated with military occupation, and early Kentucky stations generally housed civilians. However, historians, when discussing the early history of Kentucky, use these two terms almost interchangeably (O'Malley 1987b:27).

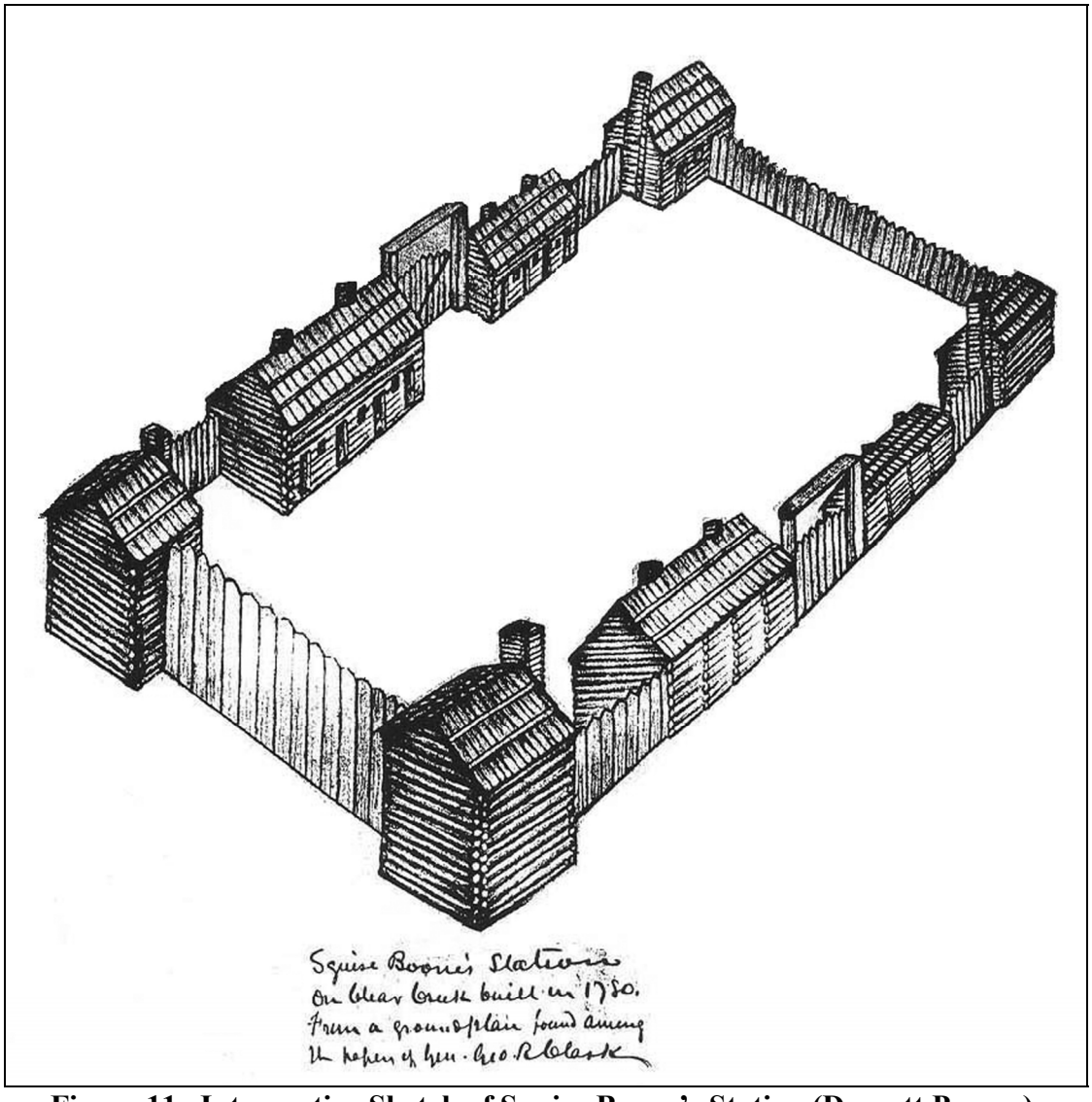

Figure 11. Interpretive Sketch of Squire Boone's Station (Durrett Papers).

The 1792 account of Gilbert Imlay, a Captain in the American Army and a Commissioner for laying out land, may be one of the earliest descriptions of frontier stations in the Bluegrass Region:

> The perturbed state of that period, and the savage state of the country, which was one entire wilderness, made the object of the first emigrants that of security and sustenance, which produced the scheme of several families living together in what were called Stations. These stations were a kind of quadrangular, or sometimes oblong forts, formed by building log-houses connectedly, only leaving openings for gate-ways to pass as they might have occasion (Imlay 1792:132-134).

Even Imlay, writing as early as 1792, uses the term "fort" to describe stations.

Most stations were established between 1770 and 1785 and were "abandoned within a period of only ten or twelve years" (O'Malley 1987b:30). As the threats of frontier life decreased over time, stations were no longer needed. So, they generally were abandoned as people began to settle on their own land. Many people probably built simple log cabins to live in until arrangements could be made for a more substantial structure. Imlay described this process by writing, "As the country gained strength, the stations began to break up in that part of the country, and their inhabitants to spread themselves, and settle upon their respective estates" (Imlay 1792:132-134).

However, the term station continued to be used beyond the frontier period (after 1785) and was being used in reference to homesteads that more resembled a typical family dwelling as opposed to a fort in miniature. O'Malley (1987b) documented a rise in the number of stations being built after 1785. Many of these later dwellings were constructed with little or no defense capabilities, but they were still labeled as stations. It appears that by the 1790s, stations were viewed less as defensive retreats and more as landmarks or resting areas along the trail.

The term "station" has been applied to a broad spectrum of early housing in the Bluegrass Region. At one end of the spectrum is Bryant's Station, consisting of a solid rectilinear row of cabins and stockades with blockhouses in the corners, housing approximately 44 families near its peak. And at the other end of the spectrum is McConnell's Homestead consisting of a single-family stone dwelling with no apparent stockade, that may have housed only one additional person or family for a relatively short period of time. This illustrates how misleading it can be to classify Bryant's Station and McConnell's Homestead together under the same heading of "station" because the two are quite different.

McConnell's Homestead does not conform to the stereotypical station description of a stockaded fort in miniature. Archival information indicates that McConnell built his house toward the end of the frontier period, around 1788. Excavation revealed that McConnell's house had a substantial and continuous stone foundation, a full sized cellar with stonewalls, large and substantial stone hearths, and the main portion of the house

itself was constructed of stone. There was no evidence of a stockade, or other nearby contemporary cabins, and this structure was not built for short-term occupation. McConnell planned to live in this house long after the threats of frontier life had diminished and stations were part of the past. In fact, McConnell and his descendants occupied this structure for nearly one hundred years.

So, why is this site sometimes referred to as McConnell's Station? In the few known documents associated with McConnell, he never refers to his house as a station. "McConnell's Station" is not labeled on any known early maps. In fact, in his last will and testament he refers to his house as a "mansion" and he refers to his farm as a "plantation." There is only one known historic reference where McConnell's Homestead is actually referred to as a "station." This is a 1798 court case, Lanier vs. Protzman, where William McDowell deposed that he lived at McConnell's Station about four miles from Paris around 1789-1790 (Bourbon County n.d.). McConnell provided shelter for at least one person for a short period of time and it is likely for this reason alone that this site is known as McConnell's Station instead of McConnell's Homestead. So, although history has recorded McConnell's house as a "station," it is actually more representative of an upper-middle class homestead or farmstead. It is possible that McConnell built an earlier temporary structure in another location which resembled a fort in miniature; however, this investigation found no evidence for this possibility.

Early stations in the Bluegrass region, such as Bryant's Station were basically temporary forts that were designed primarily to protect groups of settlers from attacks by Native Americans and British troops. Later, it appears that the term was applied to more permanent homesteads where neighboring families or individuals may have stayed while they were building their own homesteads. It also is possible that these later homesteads may not have been erected as stations, but later acquired the title because of their location or because they provided shelter to new settlers in the region. The term station may have evolved from meaning "a fort in miniature" to meaning a "frontier hotel or rest area." Other possibilities for the evolution of the term station might include a rallying point for surrounding settlers in case of an attack or possibly a place where travelers or soldiers were welcome to rest and acquire supplies. However, these lines of inquiry require additional research and investigation before they can be substantiated.

CONCLUSIONS

This investigation has provided new insights into Kentucky's frontier and settlement periods and the way early historic sites in Kentucky are investigated. The analysis of window glass, ceramics, nails, and faunal remains for site dating and drawing socio-economic conclusions about the site occupants were particularly informative during this investigation. The method of graphing the calculated dates of manufacture for each individual window glass fragment by frequency to show the full distribution of fragments proved very successful for the analysis of this structure, yielding good correspondence between artifact dates and archival evidence. Much needed comparative information has

been added to Kentucky's database for conducting ceramic cost indexing analyses. Two hypotheses for conducting nail analyses were tested. The first, which proved useful, indicates that the relative age of a structure can be determined by dating the nails used to build that structure. The second hypothesis, which indicates different types of construction (i.e. log, timber frame, and balloon frame) that can be identified by the archaeological nail assemblage (Young 1991), was inconclusive for the McConnell's Homestead but should not be ruled out for future investigations. The faunal analysis from this site indicates that McConnell and Ardery adhered to the diet of the Upland South tradition. This diet typically refers to a reliance upon corn, pork, buttermilk, and clabber for a majority of food consumption. The main characteristic of the Upland South tradition is a diversified farming complex that utilized a variety of resources, enabling each farmstead to be self-sufficient in relation to food production (Wagner and McCorvie 1992:7). However, McConnell and Ardery were much more than just self-sufficient. They were producing surplus hogs, cattle, and crops with the intent of making a profit. They participated in local government and made investments in stocks. With their earnings they bought status items, such as fashionable ceramics, and they expanded their landholdings when possible and made additions and improvements to their home. This investigation of McConnell's Homestead was the first full-scale excavation of a Bluegrass so-called "station" and it is one of the few large-scale excavations of a late-eighteenth to early-nineteenth century farmstead in Kentucky to date. Although McConnell's house has been referred to as a station, it would be hard to differentiate it from other early Kentucky households based on architecture and/or artifacts alone. The term station may have evolved from meaning "a fort in miniature" to meaning a "frontier hotel or rest area." Clearly, a substantial amount of new research is needed to fully understand the changing role of the term "station" in the history of the Bluegrass region.

ACKNOWLEDGEMENTS

The success of this project has resulted from the efforts of many people. I would like to thank James Brady for graciously allowing access to his farm where the site was located. Members of the Kentucky Transportation Cabinet and the Kentucky Heritage Council also should be acknowledged for their professional guidance and support during this investigation. Many people gladly answered diverse questions raised during the excavation, analysis, and the writing of this paper. I particularly would like to thank Berle Clay, Karen Hudson, James Kirkwood, Henry McKelway, Nancy O'Malley, Robert Polsgrove, and Carolyn Woolley for their cheerful toleration of my questions.

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HISTORY SET IN STONE: ARCHAEOLOGICAL RESEARCH AT BELL'S TAVERN, BARREN COUNTY, KENTUCKY

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ABSTRACT

Bell's Tavern was constructed in the 1820s and burned in the 1850s. Efforts to rebuild the tavern in the 1860s were not successful and the site is now an historical park. The Kentucky Archaeological Survey's investigation of the Bell's Tavern site (15Bn109) resulted in the identification of several mid-nineteenth century outbuildings and features associated with the original tavern and demarcated the boundaries of the historic cemetery located within the park's boundaries.

INTRODUCTION

Bell's Tavern (15Bn109) is a 2 ha (five acre) historical park located in Park City, Kentucky near Mammoth Cave National Park. The site consists of an incomplete stone structure, three wells, a historic cemetery, and a stone-lined vault for an icehouse (Figures 1 and 2). These remains serve as a reminder of the prosperity that once existed at the site of Bell's Tavern in the early to mid-1800s. A devastating fire ended that prosperity and the Civil War destroyed any hopes of rebuilding it. The archaeological resources associated with this site, however, have the potential to contribute to our understanding of the Tavern's history and in so doing restore its prominence as an important place in Park City.

At the request of the Bell's Tavern Historical Park Commission and the City of Park City, the Kentucky Archaeological Survey conducted an archaeological survey and limited excavations at Bell's Tavern. The purpose of these investigations was to locate buildings that were associated with the tavern and intact early to mid-nineteenth century archaeological deposits. Previously known structures consisted of the original tavern, slave quarters, and kitchen. The survey identified these structures and defined the boundaries of a historic cemetery. During the course of this study 455 screened shovel probes, a 1 x 2 m unit, and three backhoe trenches were excavated within the boundaries of Bell's Tavern Historic Park.

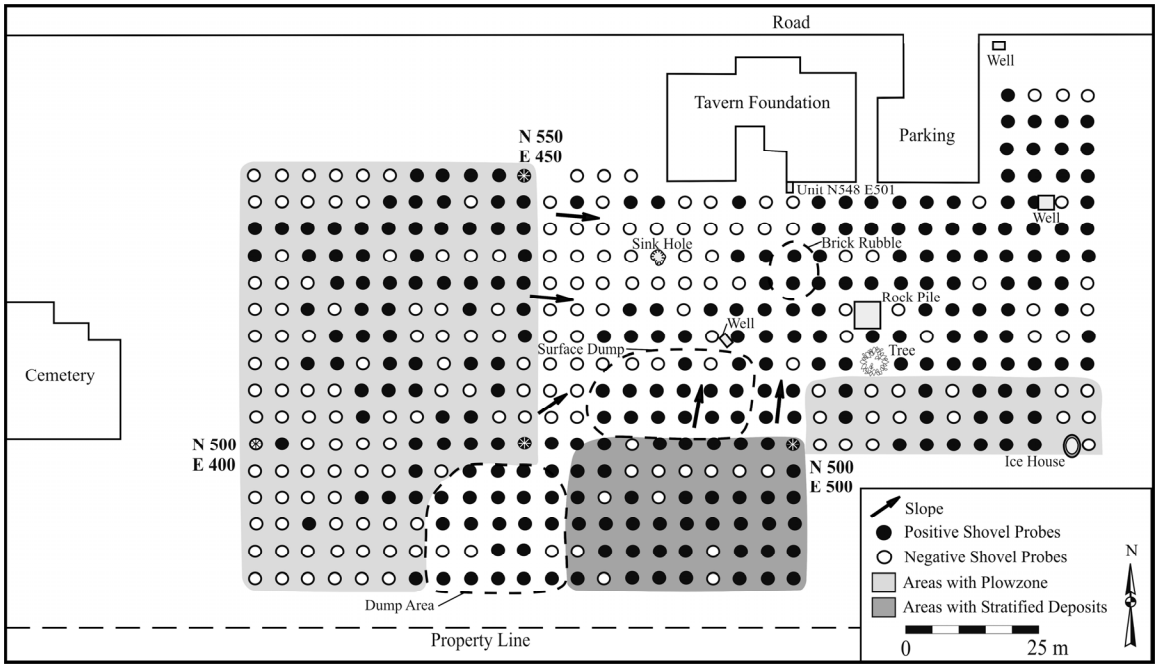

Figure 1. Site Map.

Figure 2. Bell's Tavern Ruins.

The 2,521 artifacts recovered from the site date from the early 1800s to the late 1900s. Based on an examination of artifact distribution maps generated from the shovel probe data, a number of potential areas for the location of the outbuildings and the original tavern were identified. Intact strata and features associated with the destruction of the original tavern and the construction of the second incomplete tavern were documented in a test unit. Backhoe trenches were used to redefine the boundaries of the cemetery. Three sides of the cemetery were mapped; the fourth side was located outside of the project area on private property.

In this paper we provide a description of the site's history, the archaeological field methods used, and a spatial analysis of the architectural artifacts recovered from the shovel probes. The stratigraphic profile documented in the test unit and associated features are then described and interpreted.

HISTORY

William Bell built a wood and brick tavern in the 1820s on part of his large plantation. He erected the tavern along the main stage route between Louisville and Nashville (present day U.S. 31W). One source states: "And it was here that Billy Bell, an aristocratic Virginian with an eye for business, decided to build a tavern. He bought a plantation of some thirty-five hundred acres, and with the aid of slave labor built a large brick inn on the grassy plot near the crossing (Mansfield 1945:3)." The advantageous location allowed the tavern to grow as an important relay station along the network roads leading to Louisville, Nashville, Glasgow, and Mammoth Cave. The town that grew around the tavern became known as Three Forks (Smith, M.T., n.d.). Bell's Tavern became one of the most popular taverns in the United States as Bell entertained many prominent nineteenth-century guests with his hospitality and famous peach brandy (Bridwell 1952:32-33).

William Bell died in 1833 leaving the property to his son and daughter in law, Robert and Marie Gorin. They kept the tavern operating until Robert died in 1853. Robert left the tavern to Maria, who later remarried Major George Proctor (Barren County 1853:339). Major Proctor and Marie successfully managed the tavern and entertained tourists visiting Mammoth Cave. Plans were in place to improve the tavern in advance of the Louisville and Nashville Railroad construction (Moss 1857); however, the tavern burned to the ground in 1858 before any improvements began.

The Proctors immediately wanted to rebuild the famous tavern after the fire. In 1860, slaves started the construction on a more elaborate stone tavern. When the Civil War began, construction was halted again (Bridwell 1952; Mansfield 1945; Thomas 1957). The massive incomplete stonewalls of the tavern served as a landmark for both Union and Confederate soldiers throughout the war. The site became an important strategic point given its proximity to the L & N Railroad. Despite the fact that armies from both sides were stationed near the tavern, no battles or skirmishes took place at the site (Official Record, series 1 vol. 6 [S#23];

vol. 7 [S#7]; vol.4 [S#4], and vol. 23 [S#34]). For example, John Hunt Morgan and his men camped near the unfinished tavern.

Maria Proctor died in 1865 before the end of the war. George Proctor never was able to complete the tavern, though he is credited with developing much of the small town of Three Forks. Later, due to its reliance on the railroad, the town became known as Glasgow Junction. By the 1880s the town was capitalizing on the popularity of nearby Mammoth Cave. The Mammoth Cave Railroad was constructed in town to transport tourists to the cave (Bridwell 1952). Eventually, the town was renamed Park City when Mammoth Cave became a National Park. The tavern remains a stone ruin and the source of many local legends.

EXCAVATIONS

SHOVEL PROBES

During the course of fieldwork, 455 shovel probes were excavated (Figure 1). Examination of the shovel probe profiles indicated that site clearing and dumping activities had disturbed much of the property. However, a large area around the existing tavern walls and in the eastern half of the park was determined to contain intact nineteenth century deposits.

CEMETERY

A nineteenth-century cemetery is located at the western edge of the project area (Figure 1). The cemetery contains 21 intact and broken stone grave markers (Figure 3). Of these, 15 are inscribed with the Bell, Gardner, Proctor, Peticord, Souther, or Whitney family names. The identity of the unmarked graves could not be determined.

Three backhoe trenches were used to determine the boundaries of the cemetery (Figure 3). The trenches were placed near a tree line surrounding the cemetery. No grave shafts or artifacts were uncovered in this area, suggesting that the cemetery was confined within the tree line. The fourth side of the cemetery could not be investigated because it was located on private property.

SPATIAL DISTRIBUTION OF ARTIFACTS

Artifacts recovered from the site were assigned to one of the following functional groups: activities, architecture, arms, clothing, entertainment, faunal, furniture, kitchen, miscellaneous, personal, and prehistoric (Ball 1984; South 1977). Slightly more that 50 percent of the artifacts were assigned to the kitchen group and 27 percent were assigned to

the architecture group, with the remaining artifacts being assigned to one of the other nine functional groups (Table 1). In an attempt to locate the remains of demolished structures, the spatial distribution of architecture and burned artifacts recovered from shovel probes was examined. Since Bell's tavern had been used as a modern dump site, kitchen related materials occurred across most of the site, and thus the distribution of these materials would not be a good indicator nineteenth century activity areas.

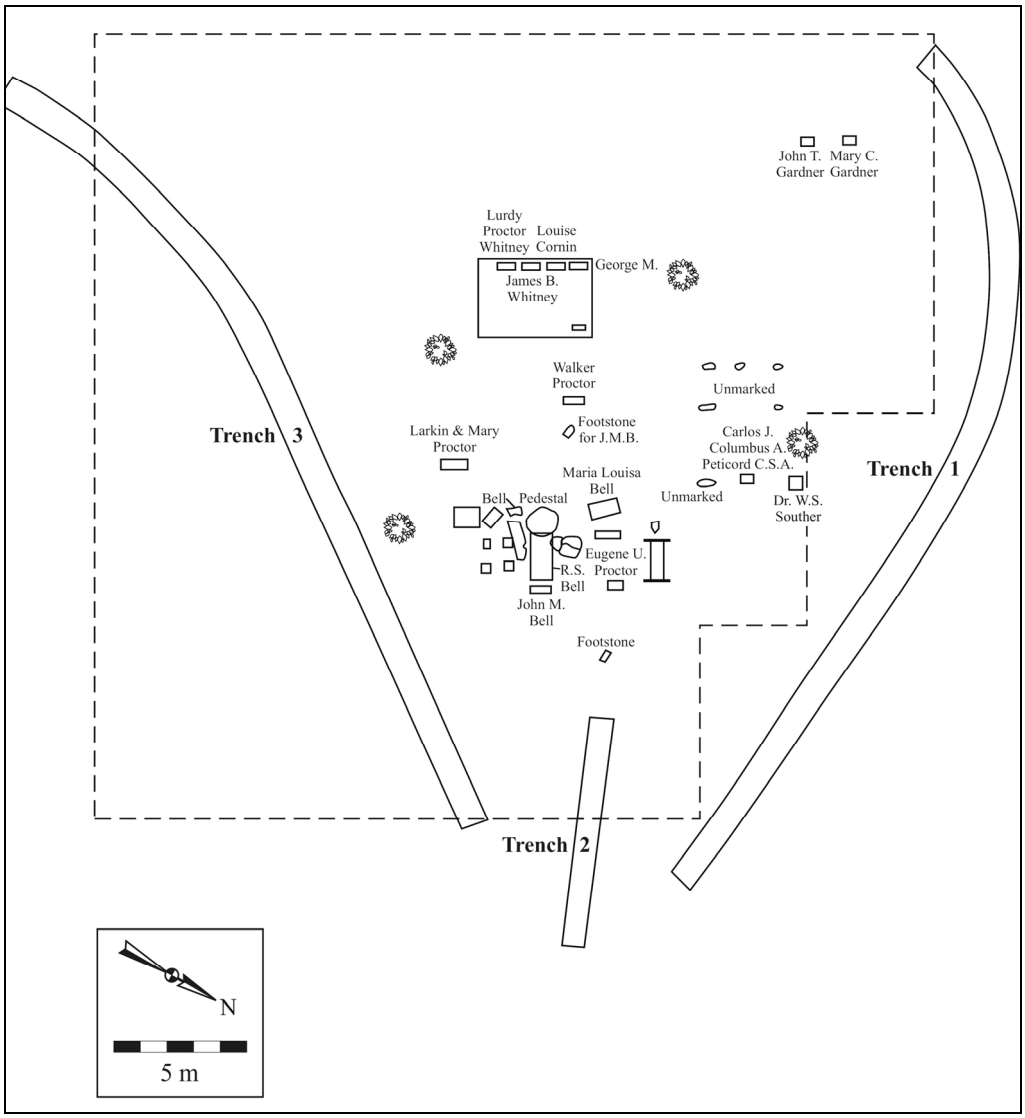

Figure 3. Map of the Cemetery.

Examination of the spatial distribution of architectural artifacts led to the identification of five concentrations, which were primarily located in the eastern half of the site (Figure 4). The northeast corner of the project area contained the highest concentration of architectural artifacts (C-1), mostly burned nails and mortar. Four smaller clusters were identified: C-2 south of the parking lot and east of the icehouse; C-3 southeast of the tavern

foundation; C-4 south of the tavern foundation; and C-5 in the western half of the site near the modern dump. Except for C-5, these concentrations, correspond to high frequencies of brick fragments and stone observed in the shovel probes throughout the eastern half of the site.

Table 1. Functional Groups.

Functional Group	Count	Percent
Activities	60	2.3
Architecture	677	27.0
Arms	30	1.2
Clothing	3	0.1
Entertainment	4	0.1
Faunal	231	9.1
Furniture	46	1.8
Kitchen	1,285	51.0
Miscellaneous	169	6.7
Personal	2	0.1
Prehistoric	14	0.6
Total	**2,521**	**100.0**

The architecture artifact distributions indicate that at least two previously standing buildings were located in the eastern half of the site (Figure 4, C.1 and C.2). To further understand these possible building locations, the distribution of specific architecture-related artifacts, specifically nails and window glass, was examined.

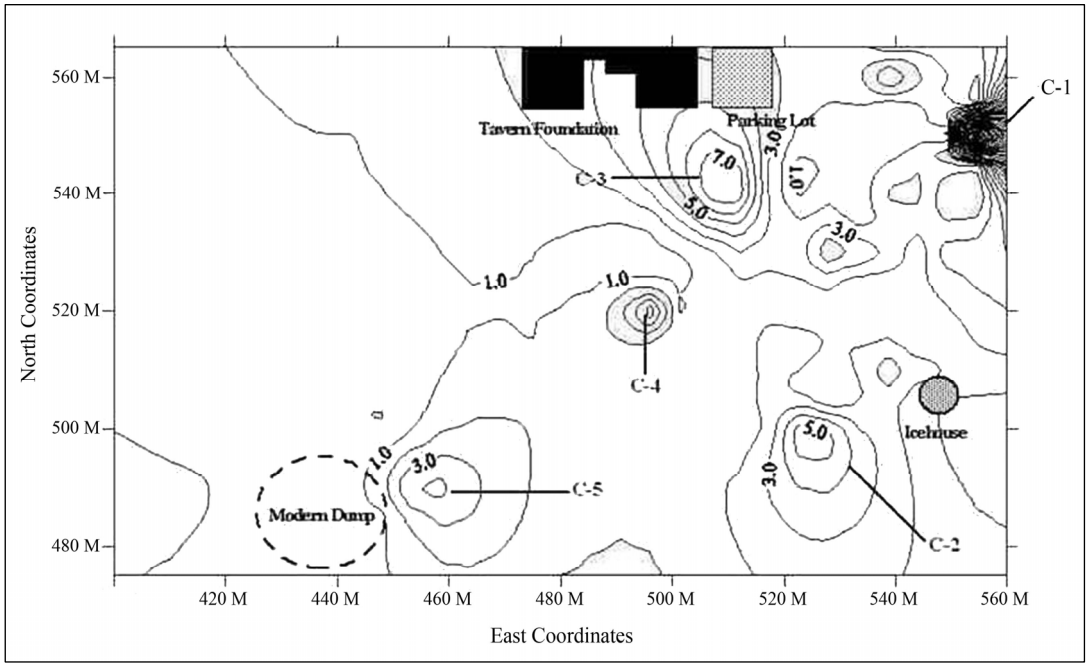

Figure 4. Distribution of Architecture Group Artifacts.

The distribution of machine cut nails illustrates that most nails were associated with the artifact concentration in the northeast corner of the site (C-1) (Figure 5). Smaller clusters of machine cut nails were located to the west of the icehouse (C-2), to the south of the tavern foundation (C-3 and C-4), and near the modern dump (C-5). These clusters correspond to those identified on the distribution map of architectural artifacts (Figure 4).

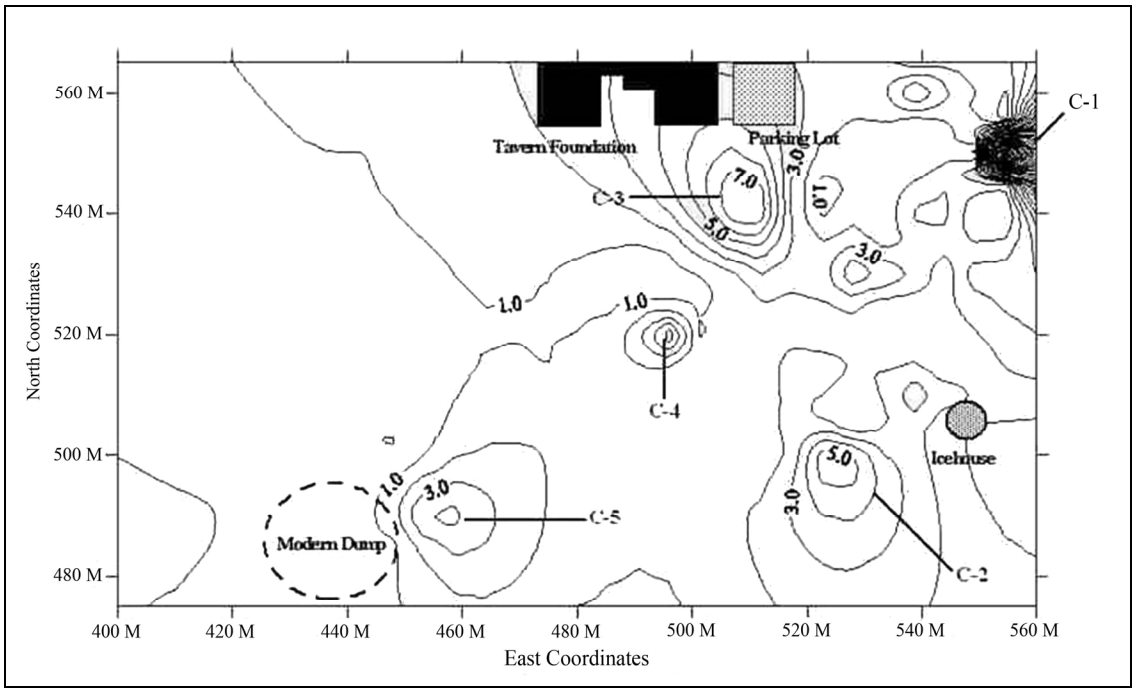

Figure 5. Distribution of Machine Cut Nails.

Figure 6 depicts the distribution of wire nails recovered from shovel probes. Most were concentrated to the west of the icehouse area (C-2) and in the northeast corner of the site (C-1). Lesser concentrations of wire nails were found in the western half of the site and to the east of the modern dump in an area with intact deposits (Figure 6).

The machine cut nail distributions indicate that the clusters in the northeast corner of the project area and near the icehouse probably represent the remains of structures constructed prior to the 1880s. However, the clusters of wire nails that correspond to these same buildings suggest that at least one of these structures was repaired or modified after 1880. This also may be the situation for the building located near the modern dump. It is also possible that some of these wire nails are associated with the dump, if architectural debris was discarded there.

The buildings represented by the artifact concentrations could be remnants of outbuildings, such as a detached kitchen, smoke house, slave house, icehouse, or stables. A tavern, like a domestic site, would have needed such buildings to support the business.

According to the historical documentation of the site, it is known that a kitchen and at least four slave houses were located on or near the tavern (Moss 1857). It is not known whether the kitchen was detached or attached to the tavern. The presence of the cylindrical stone-lined vault in this area provides evidence that an icehouse was at least one of the outbuildings associated with the tavern.

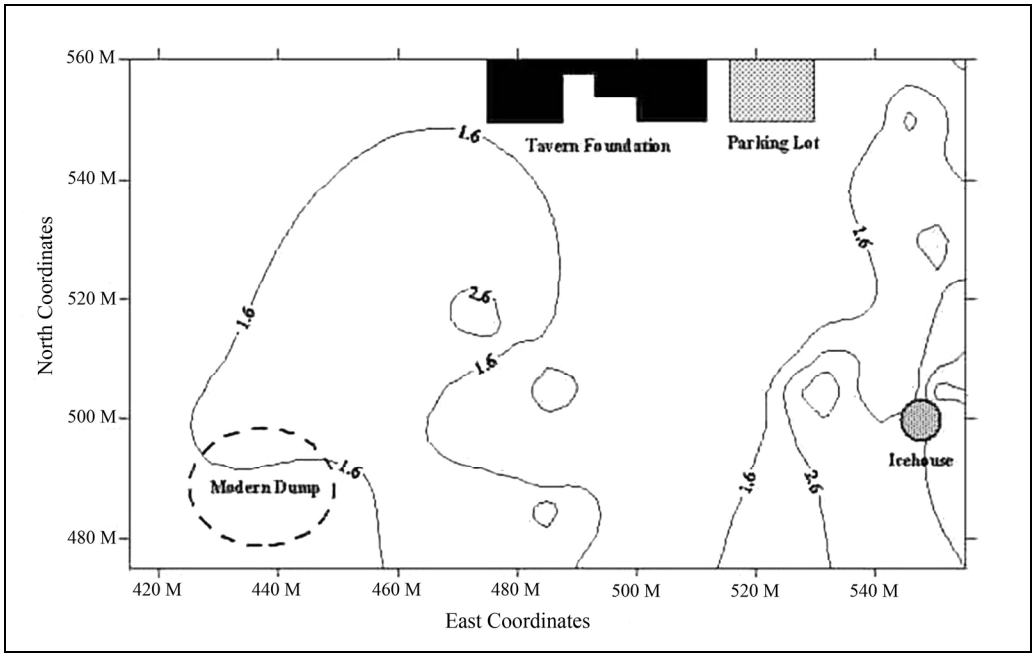

Figure 6. Distribution of Wire Nails.

The distribution of window glass was examined to determine the possible functions of these buildings. Window glass is distributed in low frequencies across the site, except in two locations (Figure 7). One concentration is situated near the modern dump and the other is located near the southeastern corner of the tavern foundation. Both correspond to concentrations of the machine cut nails. This indicates that these buildings were likely associated with a domestic function rather than an agricultural function, as smokehouses or icehouses rarely contain windows. The two concentrations of window glass and associated nails could represent the remains of a kitchen or slave house.

It is also possible that some of the architectural artifacts may represent debris from the tavern that burned in 1858. According to oral tradition, the second tavern was built on the site of the original tavern. However, it has been suggested that the original tavern was located further to the east of the existing tavern foundation near the northeastern corner of the property. That area corresponds to artifact concentration C-1 (Figure 4). Since the original tavern was constructed in the 1820s, its wooden elements were most likely built with machine cut nails. In addition to machine cut nails, several large foundation stones were noted right beneath the gravel in the parking lot located to the east of the tavern ruins. As with the nails, these stones also may have been associated with the original tavern.

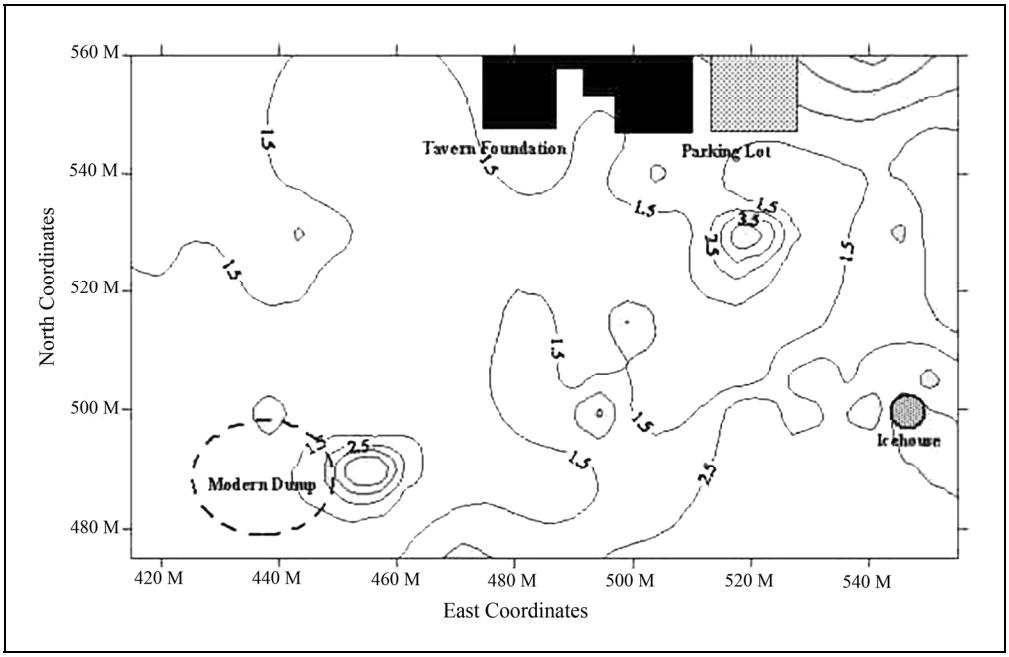

Figure 7. Distribution of Window Glass.

The distribution of burned artifacts was examined to locate the remains of the original tavern burned in 1858 (Figure 8). Most of the burned artifacts are concentrated in the northeast corner of the site and in an area south of the existing tavern ruins. There were smaller concentrations located near the southeastern corner of the tavern foundation and near the icehouse. This distribution, along with the other artifact distributions**,** indicates that the northeast corner of the site may have contained at least a portion of the original tavern**.**

While no building foundations or architectural features were identified in any of the shovel probes, concentrations of architecture-related artifacts indicated that several buildings could have been located at the site. As many as three buildings could be represented by concentrations of building remains located in the eastern half of the site. One of these buildings was the icehouse for which a stone vault still exists. The others are possibly a kitchen or slave houses. Much of the building remains identified were probably associated with the original tavern, which was most likely located in the northeastern portion of the site encompassing the existing parking lot. Another outbuilding could be associated with intact deposits near the modern dump. However, it is difficult to determine whether architectural artifact concentrations in that area are associated with materials in the dump, or building remains disturbed by the dump.

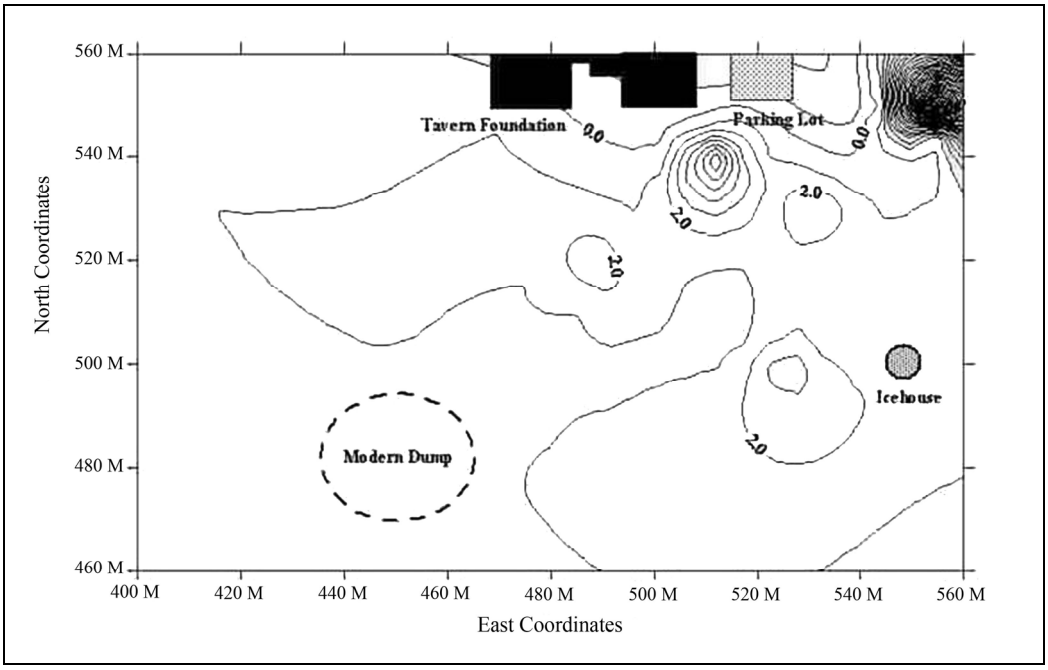

Figure 8. Distribution of Burned Artifacts.

UNIT

To further investigate the intact tavern wall, a 1 x 2 m unit (N548 E501) was excavated adjacent to it (Figure 1). Stratified deposits and intact features were found in this unit. Features consisted of a builder's trench, an ash and charcoal pit, and a possible robber's trench (Figures 9 and 10). The profile contained dark brown topsoil followed by mottled red clay, mottled brown silt clay, and red clay subsoil. These intact deposits and features will be interpreted further in the discussion section of this paper. Each deposit or portion of a deposit and each feature was assigned a unique context number. The following descriptions and analysis refer to these context numbers.

TOPSOIL

The topsoil was a 4 to 8 cm thick dark brown silt loam (Context 462) (Figure 10). It contained 377 artifacts, consisting mostly of twentieth century objects, such as beverage container glass fragments, .22 caliber shell casings, and a variety of unidentified plastic. However, some nineteenth-century artifacts also were found in this layer, such as an applied bottle lip, transfer printed whiteware (n=2), and machine cut nails (n=2). Most (85 percent) of the topsoil artifacts consisted of twentieth century kitchen related objects, with the next most common artifacts (8 percent) being shell casings. The remaining groups were minimally represented and included architecture (4 percent), furniture (2 percent), and activities (1 percent). No faunal remains were recovered from the topsoil layer. Based on the functional group analysis, the activities associated with the deposition of the topsoil

consisted primarily of refuse disposal during the mid- to late-twentieth-century when the site was overgrown and used as a dump and for target shooting.

BUILDER'S TRENCH

A builder's trench (Contexts 463, 465, and 470) associated with the construction of the existing tavern foundation was documented immediately below the topsoil. Following the construction of the tavern wall, the trench was filled with a mottled red clay that extended to various depths within the unit. This fill was divided into three contexts, which are described and interpreted below.

Context 463 consists of the 8 to 12 cm thick upper portion of the mottled red clay builder's trench fill. This portion of the builder's trench fill most likely represents excess soil spilled over from the filling of the trench. Context 463 contained considerably fewer artifacts (n=104) than the topsoil. Most were clear bottle glass fragments (n=25) and window glass fragments (n=23). Other artifacts included machine cut (n=6) and wire (n=1) nails, green tinted container glass (n=3), transfer printed pearlware (n=9), undecorated whiteware (n=1), unidentified transfer printed ceramics (n=1), and porcelain (n=3).

Kitchen group artifacts comprised slightly more than one-third of the materials from this context (37 percent), closely followed by the architecture (28 percent) and faunal groups (28 percent). The furniture (6 percent) and activities (1 percent) groups were minimally represented. Several pieces of plastic were noted at this deposit's interface with the topsoil. Although much of the glass probably dates from the late nineteenth-century to the present, many of the other artifacts date exclusively to the nineteenth-century. A mean date of 1821 and a T.P.Q. date of 1877 were acquired for this context (Table 2). However, the mean date is misleading, because most of the later artifacts do not have ending manufacture dates and were not factored into the calculations. The T.P.Q. date is probably a more accurate reflection of when this deposit was formed. Many of the later artifacts were found in close proximity to the interface with the topsoil and may have originated from that deposit.

In the northern portion of the unit, the mottled red clay builder's trench fill continued, although it had ended elsewhere in the unit (Figure 10). This portion of the builder's trench fill was excavated as Context 465. At this point, the builder's trench fill began to taper with depth towards the foundation and remained a consistent mottled red clay until 45 cm below the surface when it became mottled with dark brown silt loam.

Most of the 72 artifacts associated with this context were body fragments of a black glass bottle (n=48). Other artifacts included clear glass (n=6), blue tinted glass (n=3), hand painted pearlware (n=1), transfer printed pearlware (n=1), undecorated pearlware (n=3), undecorated porcelain (n=1), a machine cut nail, window glass (n=2), and animal bone (n=4). These artifacts represented only three functional groups, with the kitchen group comprising the majority (87 percent) of the assemblage. The architecture group (7 percent) and the faunal group (6 percent) comprised the remainder. A mean date of 1818 and a T.P.Q. date of 1800 was calculated from the diagnostic artifacts recovered from this deposit (Table 2).

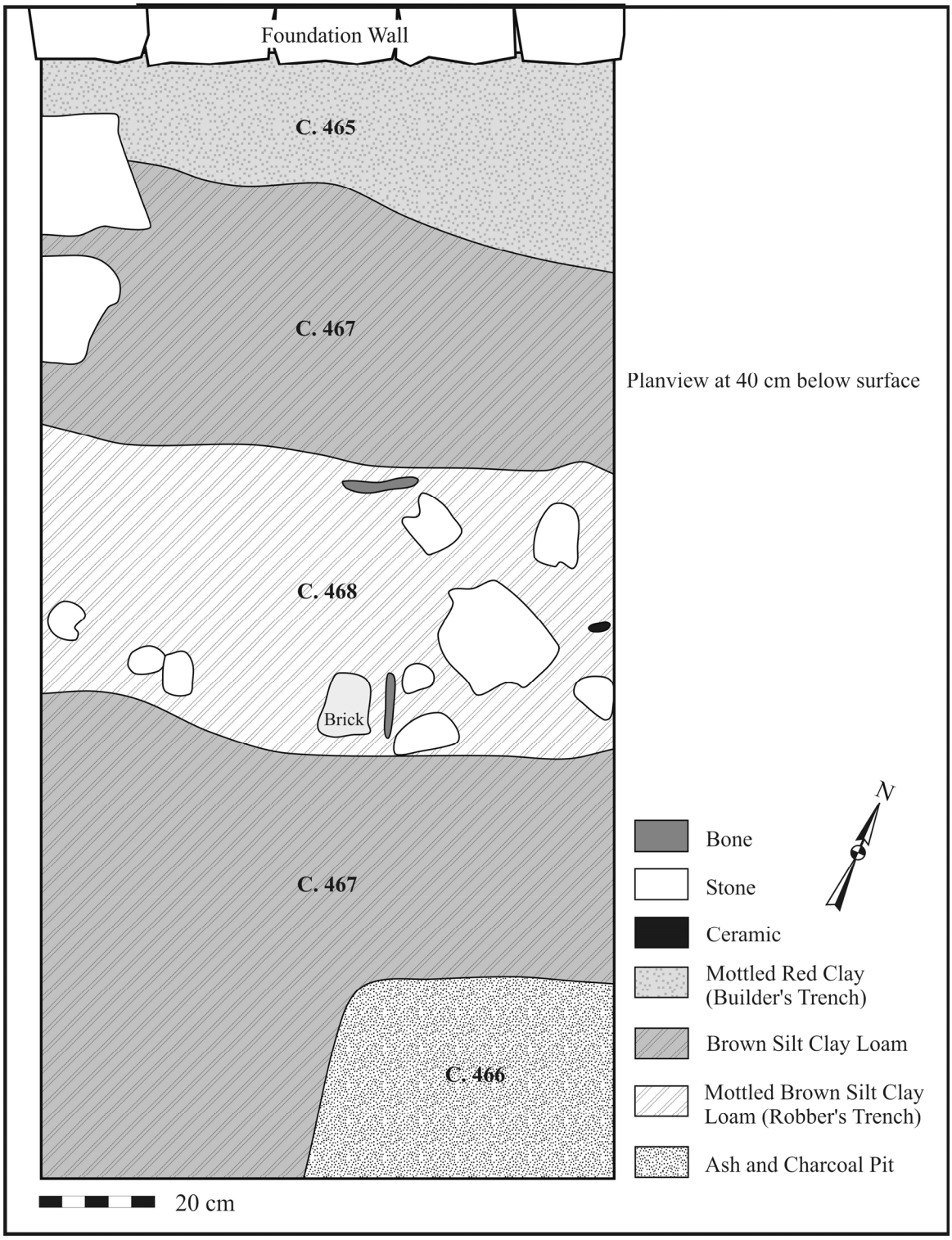

Figure 9. Planview of Test Unit.

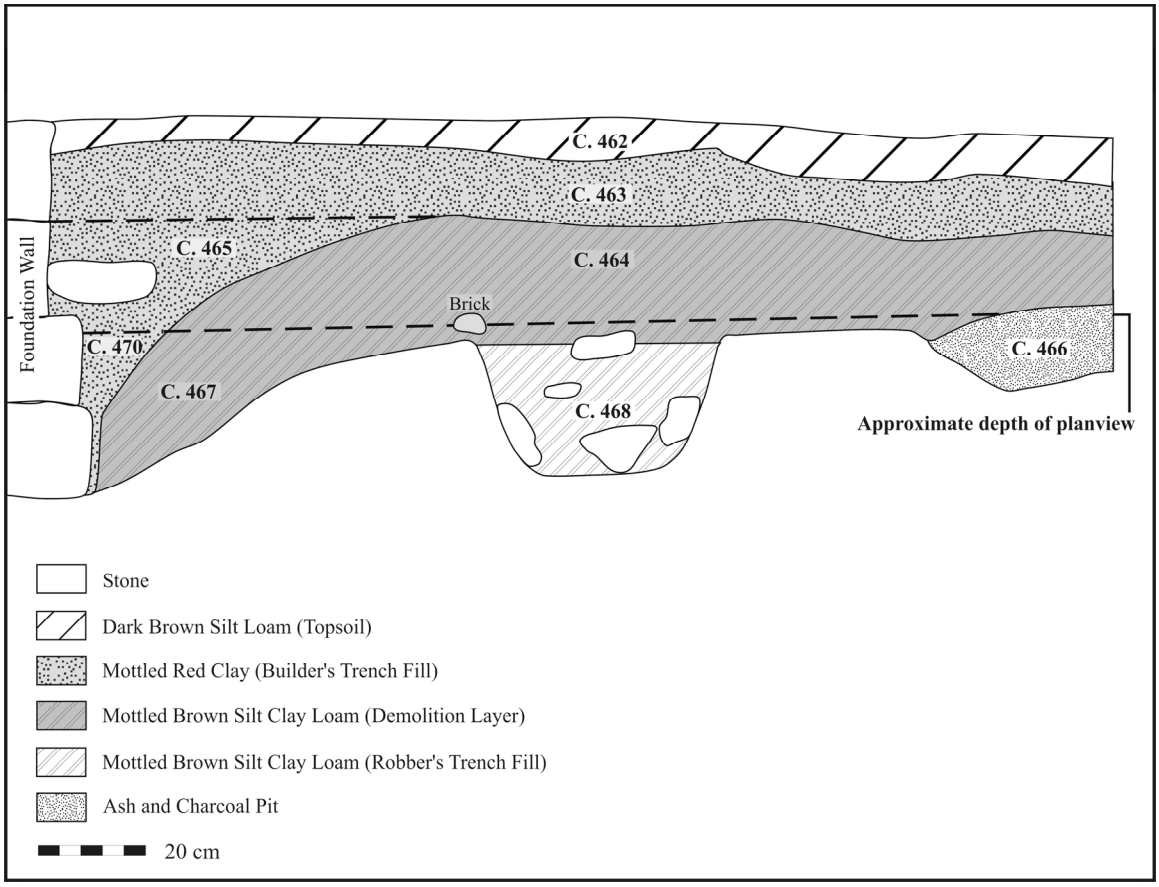

Figure 10. East Wall Profile of Test Unit.

The builder's trench fill became mottled with darker soil at a depth of 45 cm below the surface. This portion of the builder's trench was excavated as Context 470. At this point, the initial excavation of the builder's trench probably disturbed an existing darker soil layer, which was mixed with the fill soil when the feature was backfilled. The builder's trench continued to taper until a depth of 67 cm below the surface where it was only 5 cm wide. It is likely that the lowest portions of the foundation walls were constructed directly against the walls of the trench with little or no unoccupied space remaining in the trench.

Only 15 artifacts were recovered from Context 470. They consisted of undecorated creamware (n=1), undecorated pearlware (n=1), transfer printed pearlware (n=2), undecorated porcelain (n=1), machine cut nails (n=2), a fragment of unidentified metal, window glass fragments (n=2), clear container glass (n=1), and animal bone (n=4). As with the upper portion of the builder's trench fill, only three functional groups were represented: kitchen (40 percent), architecture (33 percent), and faunal (27 percent). A mean date of 1814 and a T.P.Q. date of 1800 were calculated from the diagnostic artifacts recovered from this portion of the builder's trench (Table 2).

Table 2. Diagnostic Artifacts for Builder's Trench Contexts.

Context	Artifact	n=	Date Range	Mean	TPQ	Reference
463	whiteware-undecorated	1	1830-1870	1850	1830	Smith 1983
	pearlware-transfer print	9	1780-1830	1805	1780	South 1977
	machine cut nails	6	1800-1880	1840	1800	Nelson 1968
	wire nail	1	1877-P	*	1877	Loveday 1983
	Total	**17**	**1780-P**	**1821**	**1877**	
465	pearlware-undecorated	3	1780-1830	1805	1780	South 1977
	pearlware-handpainted	1	1780-1830	1805	1780	South 1977
	pearlware-transfer	1	1780-1830	1805	1780	South 1977
	print.		1800-1880	1840	1800	Nelson 1968
	machine cut nails	3	**1780-1880**	**1818**	**1800**	
	Total	**8**				
470	pearlware-undecorated	1	1780-1830	1805	1780	South 1977
	pearlware-transfer print	2	1780-1830	1805	1780	South 1977
	creamware-undecorated	1	1762-1820	1791	1762	South 1977
	machine cut nails	2	1800-1880	1840	1800	Nelson 1968
	Total	**6**	**1762-1880**	**1814**	**1800**	
All	**Total**	**31**	**1762-1880**	**1819**	**1877**	

*Diagnostic artifacts with no ending dates were not used in the calculation of the mean date.

DEMOLITION LAYER AND ROBBER'S TRENCH

Beneath the upper zone of the builder's trench fill (Context 463), a 12 to 22 cm thick demolition layer (Contexts 464 and 467) that consisted of mottled dark brown silt clay loam with brick, mortar, and charcoal inclusions was identified (Figure 10). This layer was first encountered in the southern half of the unit and was partially excavated as Context 464. In the northern portion of the unit, at a depth of 40 cm below the surface, Context 464 was arbitrarily subdivided, with the lower portion of the deposit excavated as Context 467. It is unclear why this deposit dips, but it may be associated with the construction of the foundation and the filling of the builder's trench. Since Contexts 464 and 467 yielded similar types of artifacts they are discussed together in this section. The demolition layer contained significantly more artifacts (n=328) than the soil associated with the builder's trench. Artifacts recovered from this layer, include ceramics (n=74), container glass (n=58), window glass (n=67), nails and unidentified metal (n=54), and animal bone (n=75).

Most of the artifacts represented the kitchen (37 percent) and architecture (36 percent) functional groups. The faunal group comprised 22 percent of the materials, while the furniture (4 percent) and activities (1 percent) groups were minimally represented. A mean date of 1840 and a T.P.Q. date of 1830 were calculated for these materials (Table 3). This was probably the most accurate date attained from all of the contexts due to the high number of diagnostic artifacts present. Based on the high density of domestic refuse and architectural artifacts, the deposit represented by Contexts 464 and 467 was most likely a

demolition layer contemporaneous with the destruction of the original tavern in 1858. Demolition of the original tavern probably disturbed early to mid-1800s topsoil/midden deposits.

Directly below the demolition layer, a trench-like feature (Context 468) was found in the center of the unit (Figure 9). This trench paralleled the builder's trench and the existing tavern foundation. It may represent the former location of a foundation, with the foundation stones having been removed and the resulting void filled with soil and artifacts. Such a feature is often referred to as a robber's trench. The fill removed from this trench consisted of a mottled dark brown silt clay loam that was nearly identical to the dark brown silt clay loam associated with the builder's trench, except that it contained a large amount of limestone rubble and brick fragments. A total of 62 artifacts was recovered from this feature, including undecorated creamware (n=2), undecorated pearlware (n=4), transfer printed pearlware (n=13), hand painted porcelain (n=1), undecorated porcelain (n=5), machine cut nails (n=5), unidentified metal (n=3), clear container glass (n=1), window glass (n=4), and animal bone (n=24). Most of the artifacts represented the kitchen (41 percent) and faunal (39 percent) functional groups. The remaining functional groups represented were the architecture (15 percent) and activities (5 percent) groups. A mean date of 1811 and a T.P.Q. date of 1800 was calculated from the diagnostic artifacts recovered from this deposit (Table 3). These dates are probably inaccurate due to the low frequency of diagnostic artifacts. However, they do indicate that the deposit dates to the nineteenth-century, and most likely the Antebellum period. The artifacts found in the trench fill were comparable to those associated with builder's trench with respect to type and age. However, a much higher percentage of domestic refuse relative to architecture-related artifacts were associated with the robber's trench relative to the builder's trench. After the foundation had been robbed, the trench may have been filled with domestic trash and then sealed by demolition debris mixed with the topsoil.

Table 3. Diagnostic Artifacts from Contexts 464, 467, and 468.

Context	Artifact	n=	Date Range	Mean	TPQ	Reference
464 and 467	creamware-undecorated	1	1762-1820	1791	1762	South 1977
	whiteware-undec	23	1830-1870	1850	1830	Smith 1983
	whiteware-transfer print	6	1830-1860	1845	1830	Price 1979
	pearlware-transfer print	4	1780-1830	1805	1780	South 1977
	pearlware-undecorated	1	1780-1830	1805	1780	South 1977
	machine cut nails	49	1800-1880	1840	1800	Nelson 1968
	Total	**84**	**1762-1880**	**1840**	**1830**	
468	creamware-undecorated	4	1762-1820	1791	1762	South 1977
	pearlware-undecorated	4	1780-1830	1805	1780	South 1977
	pearlware-transfer print	13	1780-1830	1805	1780	South 1977
	machine cut nails	5	1800-1880	1840	1800	Nelson 1968
	Total	**24**	**1762-1880**	**1814**	**1800**	

*Diagnostic artifacts with no ending dates were not used in the calculation of the mean date.

PIT FEATURE

A portion of an ash pit (Context 466) was located below the demolition layer in the south end of the unit. It was rather shallow, extending only 15 to 20 cm below the demolition layer and yielded very few artifacts (n=40), mostly blue tinted container glass (n=26). A transfer printed pearlware sherd (n=1) and machine cut nails (n=4) also were found in this feature. This feature predates the demolition layer and was most likely associated with the original tavern or one of its outbuildings.

INTERPRETATION

Based on an examination of the stratigraphy and analysis of the artifacts recovered from the different contexts identified in Unit N548 E501, an interpretation of these deposits can be put forth. The initial deposit was most likely the ash pit, which was filled with refuse in the early 1800s. Unfortunately, only a small portion of this feature was excavated and its function and relationship to either of the original taverns is not known. Following the burning of the original tavern in 1858, the foundation stones were removed and the resulting trench filled with debris. Both the ash pit and robber's trench were then covered with demolition debris.

In 1860, a trench or large hole was excavated for the construction of the second tavern's foundation. Once the foundation was complete, the builder's trench was filled in with a mixture of subsoil and the disturbed demolition layer.

Overlying the builder's trench was a dark brown soil that represents the most recent topsoil at the site. This topsoil formed over the last 140 years since construction on the second tavern was halted.

CONCLUSION

An examination of the spatial distribution of architectural and burned artifacts at the Bell's Tavern site resulted in the identification of the remains of several possible nineteenth century outbuildings. Based on the association of machine cut nails and window glass, some of the outbuildings may have served a domestic function, such as a kitchen or slave quarters. This work also documented that the Bell's Tavern site contains intact features (ash pit) associated with the original tavern, and that the walls of the existing foundation (builder's trench), parallel the footprint of the original foundation (robber's trench). Finally, the boundaries of three sides of the historic cemetery were defined.

This study has demonstrated that the spatial examination of historic artifacts from shovel probes can generate important information on site structure and that the Bell's Tavern site contains significant early to mid-nineteenth century deposits. More intensive investigations of the Bell's Tavern site have the potential to contribute to a variety of

archaeological research topics relating to early tavern lifeways, nineteenth-century stone masonry architecture, slave architecture and lifeways, architectural layout and function of outbuildings, and nineteenth century transportation.

This study will hopefully be used as a planning tool that will help guide the development the Bell's Tavern Historical Park and the protection of the historic cemetery. Consideration also should be given to the site's potential importance as an educational resource. The proximity of the Bell's Tavern site to a school and its good research potential provide an excellent opportunity to engage students in ongoing research related to local history, architecture, and past lifeways.

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BIOANTHROPOLOGICAL INVESTIGATION OF AN UNMARKED CEMETERY AT SITE 15MM137, MONTGOMERY COUNTY, KENTUCKY

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ABSTRACT

In October 2002, Cultural Resource Analysts, Inc., under contract with the Kentucky Transportation Cabinet, conducted bioanthropological investigations of an unmarked historic cemetery (Site 15Mm137) in Montgomery County, Kentucky. The cemetery consisted of 17 interments yielding cultural and mortuary materials dating ca. 1830 to 1900. Hexagonal and rectangular shaped coffins were identified, most of which were constructed with utilitarian hardware. Mass-produced hardware, such as swing bail handles, escutcheons, thumbscrews, and plaques, was recovered from only two graves. Evidence of clothing and personal adornment items was found with several interments. Human remains, including fragmentary skeletal material, dental elements, and hair, were recovered from 13 graves and provided a variety of demographic information. The spatial organization and other mortuary aspects were characteristic of an upland south folk cemetery. Burials were aligned in rows suggestive of a founding family flanked by later generations or later, unrelated occupants of the land.

INTRODUCTION

In the fall of 2002, Cultural Resource Analysts, Inc., under contract with the Kentucky Transportation Cabinet, completed archaeological data recovery of an unmarked historic cemetery (Site 15Mm137) in Montgomery County, Kentucky. The cemetery was located along an upland ridge overlooking Sycamore Creek and was situated within the right-of-way boundary for the proposed realignment of US 460 between Camargo and Jeffersonville, Kentucky. Analysis of recovered historic materials indicates interments dated from 1830 to 1900. Early interments (ca. 1830 and 1840 to 1890) were identified by the presence of cut nails and porcelain buttons; later interments (ca. 1870, 1875, and

1900) were identified by the presence of celluloid buttons, decorative mass-produced hardware, and wire nails (Figure 1). Intact and fragmentary skeletal remains provided general biological data, while human hair provided information about biological affinity. Dental elements offered a variety of information regarding health, age-at-death, and biological affinity for the interred population. Dates associated with the interments indicate the cemetery could contain members of the Craig family, Euro-American farmers who owned the land on which the cemetery was located until 1865, or the Salyers family, also Euro-American farmers, who purchased the land in 1865 and owned it through most of the period from 1865 until 1920.

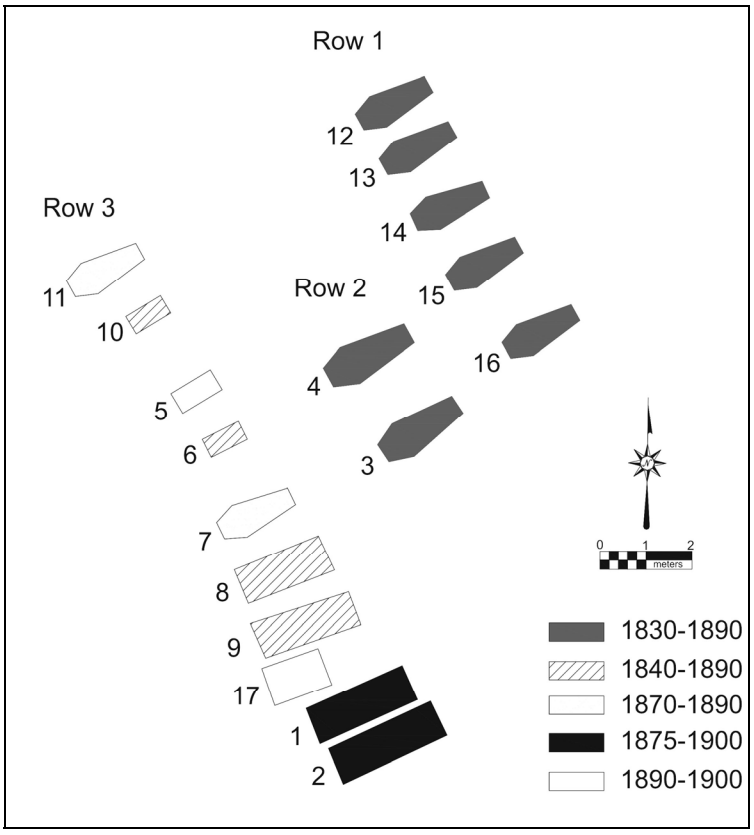

Figure 1. Schematic Plan Map of the Site 15Mm137 Cemetery.

HISTORICAL CONTEXT

Analysis of the recovered historic materials and human remains indicated that all of the interments date from the mid- to late nineteenth century, and that the population was of Caucasian biological affinity, with a slight presence of Mongoloid dental traits suggesting some Native American affinity. These data, viewed in conjunction with the

archival information presented below, indicated the population could include the families of Fleming Craig (born 1804, died 1864) and/or William J. Salyers (born 1825, died 1900). All of the interpretations regarding the Site 15Mm137 cemetery were made in the context of nineteenth century life and attitudes toward death. The following section presents a discussion of eighteenth and nineteenth century American views of death, a summary of the origin of the family cemetery, a description of the traditional southern folk cemetery, and a summary of the typical spatial arrangement within a rural cemetery. This is followed by a summation of archival research pertaining to the cemetery.

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' perceptions 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 that 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 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 of death 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 grave markers and coffin hardware, began to incorporate symbols of beauty from the Romantic era. Coffins began to function not only as receptacles for the dead, but allowed for more beautiful presentation (Bell 1990:55-58; Farrell 1980). 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. The cultural trend of 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).

ORIGIN OF FAMILY CEMETERIES

The change in American views of death during the late seventeenth and eighteenth centuries was fueled, at least in part, by the westward expansion of pioneer Americans into areas previously unoccupied by Euro-Americans, such as present day Kentucky, North Carolina, Virginia, and West Virginia. A dispersed settlement pattern emerged during this period, with pioneer populations scattered among rural farms and plantations. The dispersal of pioneer populations across the landscape led to the use of small family burial plots within large rural landholdings (Bachman and Catts 1990; Stilgoe 1982). European traditions, in particular those of British protestants, held that the dead be buried in community burial grounds close to churches. With the dispersal of pioneer populations across frontier America, 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).

TRADITIONAL SOUTHERN CEMETERIES

The southern folk cemetery is characterized as a simple, non-sanctified family graveyard that is situated far from the confines of the church (Jordan 1982:13). Over time, and as settlement in an area intensifies, families other than the founding family often inter their dead in the same general location. These small cemeteries evolve gradually as people move away from, or into, the area. The cemetery eventually becomes more communal, ending perhaps with several generations of extended family or several unrelated families. The southern folk cemetery is unique to North America and is derived from European, African, and Native American mortuary manifestations (Ragon 1983). Single-family burial grounds are more common in the rural South than in the North, and most likely originated on the grounds of plantations, where the 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 smallpox, cholera, yellow fever, and diphtheria, 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). When gravemarkers are found, they often consist of pieces of fieldstone placed at either end of the grave. A name or date may occasionally be inscribed on one of the stones. Some graves are only marked with 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 gravestones of granite or marble.

SPATIAL ARRANGEMENT

Rural southern cemeteries were arranged spatially to reflect the Christian burial tradition. Individuals were 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 arrived from the east, or to hear Gabriel's horn from that direction (Jordan 1982:30). Those committing unforgivable sins, such as suicide or murder, were often aligned north to south as punishment. Burial arrangements in rural southern cemeteries are usually in family clusters, rows, or a combination of both. The family cluster includes blood relatives or those related through marriage centrally located within the confines of a square or rectangular plot. 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.

Aside from an east to west orientation, the earliest nineteenth century cemeteries often exhibited a fairly limited spatial arrangement of graves (Winchell et al. 1992). Later cemeteries (dating to the last half of the nineteenth century) in the eastern and southern United States were somewhat more structured. These cemeteries had greater spatial organization, defined family plots, and decorative vegetation (Jeane 1989:110).

ARCHIVAL INFORMATION FOR THE CEMETERY AT SITE 15MM137

Fleming Craig was an early landowner in the vicinity of Sycamore Creek and Gibson's Knob, located to the southeast of Mount Sterling. Craig owned the tract of land on which the cemetery was located until his death in 1864. He appeared on the 1860 U.S. Census as a 56 year-old farmer owning $2,000 worth of real estate and a similar amount of personal property. There was no record of Craig owning slaves at any time. In 1865, his 64 year-old widow, Elizabeth, witnessed a mineral lease to her son-in-law's (John Robinson) land along Sycamore Creek (Montgomery County Deed Book 28:226-227).

On September 7, 1865, a group of Fleming Craig's heirs, headed by sons-in-law James S. Kirtley and John Robinson, sold a tract of land along Sycamore Creek and the Jeffersonville Road to William J. Salyers in exchange for another tract of land and $800. Salyers agreed to allow Elizabeth Craig, the widow, and her heirs to remain in the old house located on the farm and to have a small lot of land at her disposal. On October 14, 1867, John Robinson sold an additional 54 ha along Sycamore Creek to Salyers and they may have used the 1867 deed to firm up Salyers' title to the tract sold by Kirtley and the other heirs in 1865 (Montgomery County Deed Book 29:350-351, 404-405). In May 1868, William J. Salyers purchased 58.9 ha of land along Sycamore Creek at an auction

liquidating David Trimble's estate. Trimble once owned several large tracts of land throughout Montgomery County, as well as other parts of the state. It is not clear, however, whether Trimble ever occupied the tract along Sycamore Creek.

According to the 1870 U.S. Census, William J. Salyers owned $6,000 worth of real estate and $2,500 worth of personal property. He was 45 years old and married to L.A. Salyers, a 40 year-old native of Kentucky. Their four oldest children were male: Henderson, 21; J.W., 19; Fielden, 15; and Breckinridge, 12. Their four youngest children were female: Josephine, 10; M.J., 8; Mary, 6, and R.A., 2. A 23 year-old Virginian named John Williams lived in the Salyers' household and worked as a farmhand.

On March 2, 1878, W.J. Salyers sold 44 ha along Sycamore Creek to a family member named Rufus G. Salyers. W.J. Salyers may have left Kentucky at this time, as he later resided in the Oklahoma Territory. In 1900, he sold 30 ha of land along Sycamore Creek and the deed listed his residence as Oklahoma. In 1884, Walter Tipton sold the same tract purchased by R.G. Salyers in 1878 to Hayden H. Salyers for $3,300. Deed research failed to show just how Tipton acquired the tract, but it was clearly the same piece of land (Montgomery County Deed Book 38:382-383; 42:281; 63:290). The tracts along Sycamore Creek remained in the Salyers' hands until November 16, 1920, when Claude Salyers sold a 44 ha tract to John Blanton. By 1944, the Amburgey family owned the tracts and has maintained ownership for more than half a century.

WHO'S BURIED AT THE SITE 15MM137 CEMETERY?

Little is known about the historic population interred in the Site 15Mm137 cemetery. A search of available deeds and other records provided data about the various historic owners of the land on which the cemetery was located, but no cemeteries were depicted within the vicinity of this site on any known historic maps. The earliest landowner identified was Fleming Craig, whose heirs sold the land to William J. Salyers in 1865. Salyers sold the property to a relative, Rufus G. Salyers in 1878, who in turn (between 1878 and 1884) sold it to Walter Tipton. Tipton sold the property to Hayden H. Salyers in 1884 and the land stayed in the Salyers' family possession until 1920.

Because of the lack of historical documentation for Site 15Mm137, the identity of the burial population remains unknown. An effort was made to compile a list of persons who could be interred in the cemetery. Based on archival research and analyses of recovered cultural material and human remains it is possible that the cemetery is associated with either the Fleming Craig family, the William J. Salyer family, or both.

Fleming Craig was born October 18, 1803, died March 20, 1864, and is buried in the Old Fort Chapel Cemetery near Camargo, Kentucky. His headstone is one of only two formally inscribed stones of the hundreds known to exist at that cemetery. No records were found regarding the deaths and burial places of any of Fleming Craig's immediate family, including his wife, Elizabeth, their four known children (John, Nancy, Verlinda, and Mary), and their sons-in-law (John Robinson and James S. Kirtley). In addition, the burial place of John Craig, Fleming's father, has not been identified. It is likely, however,

that John Craig also is buried in the Old Fort Chapel Cemetery, as he was a Methodist minister (Watts 1929).

William J. Salyers purchased the land in 1865. The 1870 census lists several individuals residing with him, including his wife (L.A.), eight children (Henderson, J.W., Fielden, Breckenridge, Josephine, M.J., Mary, and R.A.), and a farm hand named John Williams. William Salyers sold the property in 1878 and may have moved out of Kentucky at that time. He died in the Oklahoma Territory in 1900, and it is not clear what became of his family after the 1870 census was taken.

Rufus G. Salyer purchased the land from William J. Salyers in 1878, and his residence is depicted on an 1879 map of the area (Beers and Lanagan 1879). Rufus G. Salyer was married to Jane Perry, who died in 1880. Jane Perry Salyer is buried in the Amburgey Cemetery, located north of Site 15Mm137, across modern US 460 (the Amburgey Cemetery also is not depicted on the 1879 map of the area). Sometime between 1878 and 1884, most likely after the death of his wife in 1880, Rufus Salyer sold the property containing Site 15Mm137 to Walter Tipton and subsequently moved to Texas, where he died in 1921. Tipton sold the land to Hayden H. Salyers in 1884. Hayden and his wife, Narcissus, are both buried in the Amburgey Cemetery. It is likely that the immediate family of both Rufus and Hayden Salyer are interred in the Amburgey Cemetery.

Although the identity of the funerary population remains unknown, several individuals have been ruled out as possible interments. Several others were identified, however, who could possibly be buried in the Site 15Mm137 cemetery (Table 1). The list of names presented in Table 1 is by no means comprehensive; it merely represents individuals who were identified through archival research.

BIOANTHROPOLOGICAL INVESTIGATIONS

A backhoe with a smooth bucket was used to remove the plowzone from the cemetery. Prior to excavation of the graves, each grave shaft outline was drawn in plan view, photographed, and mapped in reference to an arbitrary datum. Grave 16 had appeared originally to be excessively long, measuring 2.9 m in length. While cleaning the grave shaft outline in preparation for a photograph, what was thought to be the east end of Grave 16 was shown to be an additional prehistoric feature that was partially disturbed during excavation of the grave shaft in preparation for the interment (see Bybee and Richmond [2003] and Richmond [2001] for detailed accounts of the prehistoric component of Site 15Mm137). Grave shaft fill, as observed at the base of the plowzone, consisted of a mixture of brown (10YR5/3) silt loam (plowzone) and yellowish brown (10YR5/8) silty clay loam (B horizon) (Munsell Color 1994). Shale fragments were abundant in all exposed grave shaft fill. Given the shallow soils on the ridge containing the cemetery, it was thought likely that the graves were excavated into the soft shale bedrock, which would account for the prevalence of this material in the grave shaft fill.

Table 1. Individuals Possibly Interred in the Site 15Mm137 Cemetery.

Name	Birth Date	Death Date	Other Information
John Craig	1769	Post-1850	Father of Fleming Craig
Elizabeth Craig	1801	Post-1860	Wife of Fleming Craig
John Craig	1833	Post-1850	Son of Fleming Craig
Nancy S. Craig	1835	Post-1850	Daughter of Fleming Craig
Verlinda T. Craig	1837	Post-1850	Daughter of Fleming Craig
Mary D. Craig	1839	Post-1850	Daughter of Fleming Craig
John Robinson	1828	Post-1860	Husband of Nancy, Verlinda, or Mary Craig
Infant Robinson	1850	Post-1860	Daughter of John Robinson
Samantha Coffee	1826	Post-1850	Residing in Craig household in 1850
William Kirtley	1833	Post-1870	Husband of Verlinda or Mary Craig
Leander Kirtley	1856	Post-1870	Son of William Kirtley
J. H. Kirtley	1860	Post-1870	Son of William Kirtley
Mary M. Kirtley	1862	Post-1870	Daughter of William Kirtley
Mary A. Kirtley	1866	Post-1870	Daughter of William Kirtley
July A. Kirtley	1868	Post-1870	Daughter of William Kirtley
L. A. Salyers	1830	Post-1870	Wife of William J. Salyers
Henderson Salyers	1849	Post-1870	Son of William Salyers
J. W. Salyers	1851	Post-1870	Son of William Salyers
Fielden Salyers	1855	Post-1870	Son of William Salyers
Breckenridge Salyers	1858	Post-1870	Son of William Salyers
Josephine Salyers	1860	Post-1870	Daughter of William Salyers
M. J. Salyers	1862	Post-1870	Daughter of William Salyers
Mary Salyers	1864	Post-1870	Daughter of William Salyers
R. A. Salyers	1868	Post-1870	Daughter of William Salyers
John Williams	1847	Post-1870	Farm hand on Salyers' land

A hand-operated bucket auger with an opening of 10.2 cm was used at various locations across the cemetery in an attempt to identify the depths of the grave shafts and to extract soil samples for contaminant testing. Embalming practices from the mid-nineteenth century until ca. 1910 utilized a variety of potentially hazardous ingredients, including arsenic, mercury, and formaldehyde (use of formaldehyde for embalming purposes continues today). Elemental arsenic and mercury are toxic and never degrade into harmless by-products; they either stay with the remains or seep into the surrounding soils. Formaldehyde, on the other hand, quickly degrades and evaporates from soil (Welton 2003), posing little threat to workers excavating nineteenth century cemeteries. Because of the potential chemical hazards associated with the excavation of the cemetery at Site 15Mm137, an excavation protocol, following Borstel and Niquette (2000), was established. The primary health risk was considered to be the presence of arsenic or mercury in the graves. In order to obtain data necessary to evaluate the cemetery for these

chemical hazards, soil samples were collected from provenienced contexts with a bucket auger. To the extent possible, samples were collected from contexts above and within a sample of the graves, which included a single interment in each row (Graves 3, 7, and 14). In addition, control samples were collected from a near-by off-site location. Soil samples were analyzed for arsenic and mercury content. Slightly elevated levels of arsenic were identified in two of the graves (Graves 7 and 14) and the off-site control sample, while fairly high levels were recorded for one of the graves (Grave 3); insignificant levels of mercury were identified in the samples (Bybee and Richmond 2003).

The upper portions of the grave shafts were removed mechanically to a point thought to be just above the coffins. The remainder of each grave shaft was then excavated with shovels and trowels until coffin hardware was encountered. Excavation of the lower levels of the grave, including human remains, coffin hardware, and personal materials, involved the careful use of bamboo splints, brushes of various sizes, dental tools, and trowels. When applicable, basic osteometric dimensions and other pertinent biological data were collected prior to disturbance of the skeletal remains.

HISTORIC MATERIALS ANALYSIS

Historic materials recovered from the Site 15Mm137 cemetery were used to determine the chronological placement of individual burials. Material classes were broken into five categories, including grave shaft and coffin construction, grave markers, coffin hardware, personal artifacts, and fabric.

GRAVE SHAFT AND COFFIN CONSTRUCTION

Prior to the use of vaults, which began around 1898 in a two-fold attempt to deter grave robbery and preserve the casket and its contents, graves were excavated in two steps. This approach consisted of the excavation of a lower burial pit within the grave shaft, large enough to accommodate the coffin (Atkinson 1987:47). This type of grave shaft has been identified at several nineteenth century sites, such as the Burning Spring Branch Cemetery (Bybee 2003a), Cool Branch Cemetery (Matternes 1998), Elko Switch (Shogren et al. 1989), Facility Cemetery (Slaughter 2001), Oakland Cemetery (Blakely and Beck 1982), Old Branham Cemetery (Bybee 2004), Ravenscraft (Swauger 1959), Reynolds Cemetery (Bybee 2002), Vawter-Swaim Cemetery (Woodall et al. 1983), and Site 15Cp61 (Bybee 2003b). In addition, grave shafts were not often excavated larger or deeper than necessary (Slaughter 2001:28). The grave shafts for all of the Site 15Mm137 burials had been excavated in this staged approach.

Although the terms “coffin” and “casket” are often used interchangeably, they denote two different types of burial receptacles. Coffins are generally hexagonal in shape, with the main function being encasement of the dead, while caskets are typically rectangular and allow for more beautiful presentation (Lang 1984:30). Caskets were first

introduced in 1849 and are thought to represent the change in attitude toward a concern for the appearance and display of the deceased (Lang 1984:2). According to Rotman et al. (2000:60), a "rectangular shape was less of a reminder of the body inside than the form fitting hexagonal coffin." For the purposes of this paper, both hexagonal "coffins" and rectangular "caskets" will be referred to as "coffins."

The use of coffins was nearly universal among Americans by the 1790s (Larkin 1988). During the early part of the nineteenth century, few pre-made coffins were available, particularly in rural areas (Habenstein and Lamers 1955:152; LeeDecker et al. 1995:50). Instead, when an individual died, local cabinetmakers or carpenters were charged with the duty of building the coffin (Habenstein and Lamers 1955:155). According to Larkin (1988:99), when a cabinetmaker or carpenter was not available, a neighbor or family member would construct the coffin. The construction of homemade coffins prior to ca. 1860 was probably an expedient procedure, due to the fact that embalming generally was not practiced before then (Habenstein and Lamers 1955). Coffins made prior to ca. 1860 were most likely constructed to the dimensions of the deceased, and the types and amounts of materials used were probably limited to local availability and affordability of the materials. Typical hardware consisted of commonly available nails, tacks, and screws. The practicality of simple coffins was probably necessary to the nature of rural groups with limited means.

Local construction of coffins was the dominant trend until the Civil War (Taylor et al. 1986:43). The commercial production of coffins did not take hold until the late 1860s, when manufacturers began producing elaborate coffin hardware specifically for mortuary contexts (Rotman et al. 2000:61). Pre-made coffins were typically built in standard sizes and in a more elaborate manner. The standard sizes and constructions probably differed among individual suppliers (Bell 1990; Habenstein and Lamers 1955).

Hexagonal was the predominant coffin shape until the late 1850s (Rotman et al. 2000:60). Hexagonal coffins most often lacked exterior decoration and formal hardware. Although use was not common during the early twentieth century, hexagonal coffins did not become obsolete until 1927 (Lang 1984:46). Rectangular coffins have been used since at least 1830, but were not commonly used until after ca. 1858 (Rotman et al. 2000:60). Rectangular coffins produced after this time often were pre-made and were stylistically more elaborate than the earlier hexagonal forms. The elaboration seen in rectangular coffins is generally synchronous with the "beautification of death" movement of the Victorian period. Roughly half of the coffins at Site 15Mm137 were hexagonal in shape (n=9). All of these were constructed with hardware that would have been commonly available, such as cut and wire nails, tacks, and screws. The eight remaining coffins were rectangular in shape and were constructed with common hardware, although two also contained elaborate, mass-produced hardware.

All of the *in situ* grave markers identified at the Site 15Mm137 cemetery were made from rough sandstone slabs, none of which bore inscription. In most cases, the stones marked the "head" ends of the graves. None of the gravemarkers appeared to have been purposefully cut or otherwise formed, but all had roughly the same geometric shape,

being rectangular to trapezoidal. Historic North American graves have been marked with a variety of materials, including wood, fieldstone, granite, and marble. Crissman (1994:121) notes that fieldstones of limestone, sandstone, granite, slate, soapstone, and marble were readily available in central Appalachia. Fieldstone markers have been identified at various historic cemeteries throughout the south and across Kentucky.

UTILITARIAN COFFIN HARDWARE

Utilitarian coffin hardware recovered from the cemetery consisted of nails, wood screws, and lining tacks. Materials such as these were common and easily accessible to rural nineteenth century populations. Most of the interments contained only utilitarian hardware (Graves 3 through 11 and 14 through 17). Of the remaining interments, Graves 1 and 2 contained mixtures of utilitarian and mass-produced hardware, while no hardware was collected from Graves 12 and 13.

The majority of nails associated with these burials were of the machine cut variety. Cut nails were introduced in 1790 and remained the preferred construction nail until wiredrawn nails were introduced around 1890 (Nelson 1968:8). With the exception of the two interments in which no coffin hardware was recovered, every burial at the cemetery contained cut nails. Based on its period of popular use, a general date of 1830 to 1890 is assigned to this artifact type. The first wiredrawn nails were introduced into the United States from Europe by the mid-nineteenth century. Wire nails were made in the United States with imported French machines as early as 1875, and full-scale production of wire nails began ca. 1890. Wire nails were recovered from only four burials (Graves 1, 2, 5, and 17). The coffins in these burials were constructed with a mixture of cut and wire nails.

Screws were used to secure the lid to the coffin box. Utilitarian screws found at the cemetery were composed of metal caps attached to iron/steel bodies and in several instances only the body remained. Plain wood screws were recovered from eight interments (Graves 1, 2, 3, 5, 6, 7, 11, and 15). The manufacturing technique for tacks was similar to that of screws. Most of the coffin tacks recovered from the cemetery were of the utilitarian, unslotted design and were made of iron/steel. These were probably used to attach a cloth lining to the interior of the coffin. This style of tack was identified in eight interments (Graves 1, 2, 5, 6, 7, 10, 11, and 17).

MASS-PRODUCED COFFIN HARDWARE

Unlike utilitarian hardware, which was available locally, decorative mass-produced hardware had to be special ordered. These items were typically ornamental and elaborately crafted, with their date of manufacture beginning during the middle of the nineteenth century. Decorative hardware types recovered from Graves 1 and 2 at Site 15Mm137 included escutcheons, thumbscrews, handles, and plaques.

Escutcheons are decorative ornamental plates stamped from thin metal sheets. They are of varying shapes and motifs with two small holes on either end of the long axis

and a larger hole in the center for nailing or screwing onto the coffin. These hardware items were used historically at regular intervals around the lid of the coffin in conjunction with decorative screws or thumbscrews to secure the lid. They also offered a decorative touch. Escutcheons were used from 1865 through the early twentieth century (Shogren et al. 1989:162). Fragments of escutcheons made from white metal were recovered from Grave 2. Thumbscrews were found in association with the escutcheons and Thomas et al. (2000:5.23) note that escutcheons and thumbscrews were often sold together as matched sets. The recovered escutcheons were in poor condition with little observable decoration, but at least two appeared to be of the same design. Designs on the escutcheons included raised edges, filigree, and a geometric border.

With the "beautification of death" movement of the mid-nineteenth century came a shift from the use of plain screws as coffin lid fasteners, to the more ornate thumbscrews, such as those recovered from Graves 1 and 2. A usage period of 1875 to the mid-twentieth century is suggested for ornate thumbscrews (Shogren et al. 1989:162). Thumbscrews recovered from Grave 1 were of two designs. A bulbous urn shape was noted for three screws, while the fourth was flat and decorated with a stylized flower and leaf. The top portions of these items (as well as those recovered from Grave 2) were composed of white metal, while the screw bodies were made from iron/steel. The use of different thumbscrew types in this grave indicates that this coffin type was either homemade or pre-made, but decorated locally. A single design was identified for the thumbscrews recovered from Grave 2. The base of these items exhibited vertical filigree, while the main body was flat with what appeared to have been a diamond-shaped aperture. Escutcheon fragments were found in association with three of the four thumbscrews.

Carrying handles were placed along the long sides of the coffin. Adult burials typically had six handles (three on each side), while children's coffins normally contained only four (two handles on each side) (McKillop 1995). Handle types manufactured during the nineteenth century included the swing bail and short bar types, with swing bail forms pre-dating the short bar forms. Swing bail handles were generally composed of two lugs connected by a bail swing arm and date ca. 1860 to 1900 (Trinkley and Hacker-Norton 1984:7, 11-12). Short bar handles, which date ca. 1880 until well into the twentieth century, consist of two lugs with swing arms connected by bars made either of wood or metal.

Swing bail handles were identified in Graves 1 and 2. Each grave contained six identical handles, with three handles placed at regular intervals along each coffin side. Handles recovered from Grave 1 were decorated ornately with scallop designs on each lug and various other decorations across the lugs and swing bail arms. The lugs were made from white metal, while the arms were composed of iron/steel coated in white metal. The handles recovered from Grave 2 also were decorated ornately, but the designs were stylistically different from those recovered from Grave 1. The lugs for the Grave 2 handles depicted a series of arced lines emanating from the lug center, with the innermost lines forming a stylized heart. Single flower designs were depicted at the bottom of each lug. Various other decorations were present across the lugs and swing bail arms. As was

the case for the Grave 1 handles, the lugs were made from white metal, while the arms were composed of iron/steel coated in white metal.

Plaques were decorative pieces of white metal or plated-metal formed in various shapes (i.e., oval, rectangle, and cross), often with a space provided for engraving. Plaques could be engraved with the name, date of birth, date of death, or other pertinent information describing the deceased. Mass-produced plaques also could be purchased bearing various commemorative adages in raised letters, with "At Rest," "Mother," and "Our Darling" being popular. Plaques were usually tacked to the exterior of the coffin lid, but also have been identified within the coffin. Graves 1 and 2 each held remnants of plaques, both of which appeared to have "AT REST" in raised letters (Figure 2).

Figure 2. Plaque Recovered from Grave 1.

PERSONAL ARTIFACTS

Personal artifacts include any cultural objects buried specifically with the deceased, such as clothing, toys, or items used in everyday life. Personal items recovered from Site 15Mm137 consisted mainly of buttons, although other materials also were recovered, such as clothing fasteners, jewelry, and items of personal adornment. Various button types were represented in the assemblage. Use of buttons on clothing was restricted mainly to men's clothing until ca. 1840, after which the tight-fitting buttoned bodice was introduced to women's fashion (Blum 1985).

Celluloid is an early plastic made from nitrated cellulose and camphor (Meikle 1995) and was often used to imitate ivory, tortoiseshell, and glass. It was discovered in 1869 and used until the 1940s, when it was replaced by more durable plastics. Celluloid buttons manufactured from 1871 to 1940 were recovered from Grave 7. The bases were composed of celluloid, while the crown may have been rubber. The buttons were probably associated with an outer garment, such as a coat.

Ceramic buttons are manufactured out of fired clay (Albert and Kent 1949:32). The ceramic button manufacturing process, referred to as the Prosser process (in honor of Richard Prosser, who patented it) received a patent in 1840. This process combined high-fired clays to produce a glass or vitrified appearance. Porcelain buttons were manufactured from 1840 to 1920 (Luscomb 1992) and were considered fashionable between 1850 and 1920. White porcelain buttons were recovered from eight burials at Site 15Mm137. The placement of these buttons within the burials indicates they were used for shirts, dresses, gowns, and undergarments. The manufacture of glass buttons began in the fifteenth century, but did not gain popularity until 1840 (Ford 1943:100). The manufacture and decoration of glass buttons includes most techniques available to the glass industry (Epstein 1990:48), and glass color is achieved by adding various minerals to reach a desired hue. Two white glass buttons were recovered from Graves 1 and 9, both of which exhibited molded designs. These buttons may have been associated with a variety of garment types, including coats, vests, or dresses.

Brass, an alloy, and copper, a native metal, has been used in the manufacture of buttons since the sixteenth century (Albert and Kent 1949:8). Brass buttons were manufactured in the United States from the early eighteenth century. The earliest metal buttons (1800-1860) were cast, one-piece forms that had four holes. Three-piece buttons of pressed metal with a wood or fiber disc in the center also date from 1800 and were manufactured until 1865. Two-piece pressed metal buttons with four holes postdate 1870 (Olsen 1963). Metal buttons recovered from the cemetery consisted of the sew-through variety with four holes. Most of these were made from two pieces and post-dated 1870; the remaining buttons were too fragmentary to discern type. Metal buttons were recovered from Graves 1 and 11, and their placement in the graves indicates they were associated with vests, coats, or trousers.

Charles Goodyear discovered the process of hardening India rubber by adding sulfur and heat in 1839 (Adams-Graf 2000:Appendix 4). Goodyear patented the hard

rubber process in 1844 and received a patent for making hard rubber buttons in 1851 (Rotman et al. 2000:75). This type of button was popular until ca. 1900 (IMACS 1984; Luscomb 1992:170). Black hard rubber buttons exhibiting two and four holes were recovered from Graves 1 and 11. One of the rubber buttons from Grave 11 was marked with "Goodyear's P=T 1851 N.R.Co." "N.R.Co." refers to the "Novelty Rubber Company" of New York and New Brunswick, New Jersey, which manufactured this type of button from 1855 to 1875 (Adams-Graf 2000:Appendix 4). The remaining rubber buttons date from 1851 to 1890 (Hughes and Lester 1981:48).

Clothing fasteners included buckles, a cuff stud or collar button, and a rivet. Buckles generally served as fasteners on belts and suspenders, although they also were used on chinstraps of uniform caps. The two buckles recovered from Grave 11 were composed of brass and one was stamped with the manufacturer's name, which appeared to be "MALTOHAM." The cuff stud or collar button and rivet were recovered from Grave 2. The cuff stud/collar button was made from plain porcelain and the rivet was made from iron/steel. The only jewelry item recovered from the cemetery was a man's wedding band from Grave 11, which was made from brass or copper and had been plated in gold. No decorations or inscriptions were noted on the surfaces. The only personal adornment items recovered were two decorative hair combs from Grave 13. The earliest combs, made of tortoiseshell and ivory, were imported to Europe and America from China, and the first decorative hair combs manufactured in America were made of cow horn during the mid-eighteenth century (Haggin Museum 2002). Both combs recovered from Grave 13 were composed of tortoiseshell. No decorations were identified and both combs had undergone considerable damage through decomposition.

FABRIC

Small quantities of fabric were recovered from the cemetery. Two interments appeared to have been made in tailored garments, perhaps men's wool suits. One grave contained an unidentified piece of leather, while another held the remains of a garment that may have been trimmed in fur. A final grave contained a small piece of what appeared to be silk coffin lining.

SUMMARY

Hexagonal (n=9) and rectangular (n=8) shaped coffins were identified at Site 15Mm137. The majority of coffins were constructed using only utilitarian materials, while only two of the rectangular coffins were constructed with mixtures of utilitarian and mass-produced hardware. Although hexagonal and rectangular shaped coffins have fairly well established dates of popular use, each also has periods of increasing and decreasing use (Shogren et al. 1989). Use of hexagonal coffins was common in America by the early eighteenth century, and this shape of coffin was in use, although infrequently, until around 1927 (Lang 1984). Popular use of hexagonal coffins started to wane with the beginning of the "beautification of death" movement in the early 1860s,

when the desired coffin shape shifted to the rectangular form. Common use of rectangular coffins likely began in urban areas and rural areas with links to urban commercial enterprises. Access to mass-produced coffin hardware and pre-made coffins would have been more convenient in urban contexts, and many rural locales, including the area in which the cemetery was located, may not have been as influenced by commercial trends. It is possible that use of mass-produced hardware and rectangular coffin forms did not "catch on" as quickly in more rural areas, extending rural popular use of hexagonal coffins and utilitarian hardware far beyond the established popular use periods. Thus, when viewing mortuary assemblages from rural areas, it may be necessary to extend the periods of popular use for earlier, utilitarian hardware and hexagonal coffins.

Of the eight rectangular coffins in the assemblage, only two contained mass-produced hardware. In addition, two other rectangular coffins (Graves 5 and 17) were constructed with both cut and wire nails. Popular use of wire nails in the United States began around 1890, roughly 30 years after the advent of mass-produced coffin hardware. This suggests that although mass-produced coffin hardware was available when the coffins for Graves 5 and 17 were built, none was used in the construction. The lack of ornamentation on these late nineteenth century coffins is indicative of an extension of the early American trend for basic coffin construction and minimal decoration.

It is also possible that the lack of decorative hardware in these two graves was the result of the economic status of those interring their dead. Use of decorative elements would have increased the cost of the coffin, and purchase of a pre-made coffin would have raised the total funerary expense considerably. In addition, the lack of formal, inscribed gravemarkers is indicative of an economically stressed population.

Clothing items were recovered from 10 interments. The types of clothing items present and their locations within the graves were characterized by garment types worn by the deceased. Most buttons were porcelain and were probably used on shirts, dresses, gowns, or undergarments. Some of the glass and iron buttons may have been associated with shirts or dresses, while celluloid and rubber buttons were probably used on outer garments, such as coats. In all, the clothing materials present indicate the deceased usually were interred wearing little more than plain garments. No shoes were recovered, suggesting these were retained rather than interred, possibly for use by other members of the family.

Jewelry and personal adornment items were found in two interments. A single plated-metal wedding band was recovered from Grave 11, while two decorative hair combs were found in Grave 13. No jewelry made from precious metals, coins, or other expensive items were present within the burials. This, in addition to the relatively plain garments worn, indicates interment situations where the family chose not to bestow valuable personal possessions with the deceased.

BIOLOGICAL ANALYSIS AND BURIAL SUMMARIES

Human remains were recovered from 13 of the 17 burials located at Site 15Mm137. The nature of the soils in which the deceased were interred promoted the dissolution of tissues. All skeletal elements had undergone considerable physical and chemical decomposition, resulting in the collapse and deterioration of most skeletal aspects. The few preserved skeletal elements offered insights into the general health of the population, but information from recovered dental elements was more substantial. Because tooth enamel is the hardest naturally occurring material in the human body (Steele and Bramblett 1988:72), tooth crowns were often the only nondegraded human remains recovered from the burials. The recovered dental remains provided insights into the biological affinity and overall health of the interred population. Human hair recovered from three interments also provided information on biological affinity.

GENERAL BIOLOGICAL METHODS

The goal of the analysis was to characterize the individuals in regard to such factors as age, sex, stature, pathology, and biological affinity. Several standard osteological methods for data recovery were used in the current analysis. Due to the overall lack of viable skeletal material in the assemblage, the methods used pertained primarily to recovered dental elements. The following presents abbreviated descriptions of the methods used in the analysis (see Bybee and Richmond [2003] for a full description of the methods used).

Osteometric data was collected on all viable skeletal material. Moore-Jansen et al. (1994) compiled a set of measurements to be used on forensic and archaeologically derived human skeletal remains. Measurements were entered into the FORDISC 2.0 computer program (Ousley and Jantz 1996) to assess sex, stature, and biological affinity when appropriate. In addition to the measurement of skeletal material, observations were made on all viable skeletal material to record sex, biological age, and biological affinity.

Estimation of age for subadults was made primarily from assessments of dental eruption. Illustrations and chronological summaries of dental development were consulted for comparative purposes (Hillson 1996; Moorees et al. 1963a, 1963b; Scheurer and Black 2000; Stermer and Risnes 1994; Ubelaker 1989). Age assessments for adults were based primarily on wear patterns on the occlusal surfaces of the teeth. Smith's (1984) system developed for assessing wear on permanent incisors, canines, and premolars and Scott's (1979) system developed for permanent molars were utilized in this study. The dental elements recovered from the site were seriated using three contemporary Euro-American populations (Bybee 2002, 2003a; Winchell et al. 1992).

Pathologies, in the form of dental caries and linear enamel hypoplasias (LEH), were identified among the recovered dental elements. Sutter (1995:186) defines dental caries as "a disease process that results from the demineralization of a tooth's enamel

surface by acids created by bacteria." Dental caries are described as being dark eroded regions on the enamel to gaping cavities in a tooth (White 2000:401). Systemic stressors, such as malnutrition and infectious disease, occurring during the developmental period can produce LEH (Buikstra and Ubelaker 1994:56). Hypoplasias are deficiencies in enamel thickness that are characterized by transverse lines, pits, and grooves on the surface of tooth crowns (White 2000:401). Hypoplasias are often found between the one and four year stages of development, and often represent long-term stress lasting from weeks to months (Larsen 2002:127).

General assessments of biological affinity were made for four individuals based on the presence of shovel-shaped incisors and the Carabelli's cusp trait. Shovel shaping generally involves a "lingual extension of the lateral borders of the incisors" (Bass 1987:283). The highest incidence of this trait has been recorded for Native American and Asian populations and the lowest among Europeans (Carbonell 1963). The Carabelli's cusp trait consists of a tubercle on the anterior lingual surface of maxillary molars (Bass 1987:282), and Europeans have the highest incidence of the trait (75 to 85 percent of individuals) (Hillson 1996:91). The Indiana State Police Laboratory Division analyzed human hair for biological affinity.

BIOANTHROPOLOGICAL SUMMARY OF GRAVES

Summaries of information about biological, mortuary, and cultural aspects of the graves and proposed interment dates are provided in Tables 2 and 3. The Site 15Mm137 cemetery was comprised of individuals ranging in age from birth to around 50 years. The general lack of skeletal elements on which age assessments could be made hindered inferences regarding this biological parameter for the population. Ages were broken into six groups: infants, 0 to 3 years; children and adolescents, 3 to 20 years; adolescents to adults, 12 plus years; older adolescents to young adults, 16 to 22 years; young to middle adults, 20 to 40 years; and middle to old adults, 40 plus years. Of the 15 individuals with identified ages, the infant group comprised a good portion of the population (n=4, 26.7 percent), which is not surprising because infant mortality rates were high during the nineteenth century. One child (3 to 10) and one adolescent (14 to 20) comprised 13.3 percent of the identifiable population. Late adolescents to young adults (16 to 22) comprised 20 percent of those with identifiable ages (n=3), while young to middle adults (20 to 40) made up 26.7 percent (n=4). Middle to old adults (40 plus years) comprised the final 13.3 percent of the population (n=2).

The mortality profile for this cemetery appears average for a nineteenth century rural population. A pattern of decreasing mortality by age for sub-adults was noted for the assemblage. Weiss (1973) maintains that the general pattern of human sub-adult mortality in anthropological populations is one of very high infant mortality. This mortality is highest during the first year of life, decreases between the ages of 1 and 5, and declines further between the ages of 10 and 15. This pattern is reflected in the sub-adult mortality rate for the cemetery at Site 15Mm137.

Table 2. Biological Aspects of the Population.

	Age	Sex	Biological Affinity	Dental Pathology*
Grave 1	40–50 years	Male	Euro-American with possible Native American ancestry	LEH (n=1)
Grave 2	40–50 years	Female	Euro-American	Dental caries (n=1)
Grave 3	12 + years	Unknown	Unknown	No dental elements recovered
Grave 4	12 + years	Unknown	Unknown	No dental elements recovered
Grave 5	Birth–3 yrs	Unknown	Unknown	No dental elements recovered
Grave 6	Birth–3 yrs	Unknown	Unknown	No dental elements recovered
Grave 7	16–22 years	Male	Unknown	None
Grave 8	10–13 years	Unknown	Euro-American with possible Native American ancestry	LEH (n=2)
Grave 9	20–35 years	Unknown	Unknown	Caries (n=1), LEH (n=2), dental calculus (n=1)
Grave 10	Birth–3 yrs	Unknown	Unknown	No dental elements recovered
Grave 11	20–35 years	Male	Unknown	None
Grave 12	20–35 years	Unknown	Euro-American	None
Grave 13	16–22 years	Female	Euro-American	None
Grave 14	16–22 years	Unknown	Unknown	None
Grave 15	20–40 years	Unknown	Euro-American	None
Grave 16	14–20 years	Unknown	Unknown	None
Grave 17	Birth–3 yrs	Unknown	Unknown	No dental elements recovered
*** n = number of dental elements involved**				

Evidence of Caucasian and Mongoloid biological affinity was identified in the human materials. Although biological affinity could be determined for only a small portion of the population (n=6), it is probable that others in the assemblage were of the same biological ancestry. Linear enamel hypoplasias and dental caries were identified for five individuals for whom dental remains were recovered. Only three individuals exhibited pathology in the form of dental caries. With regard to all identified permanent teeth, only 3.2 percent (3 of 95) were carious. The diet available to nineteenth century Kentuckians was probably fairly limited. Agricultural endeavors may have focused on basic crops, such as corn and wheat, and livestock, such as hogs and cattle. Wild game also may have been an integral part of the diet. During the nineteenth century, improved methods of milling and refining brought about greater use of processed flour and sugar. Consumption of large amounts of carbohydrate-rich products is generally associated with increased incidences of dental caries (Larsen 2002). The relatively low incidence of dental caries in the Site 15Mm137 cemetery population may suggest the population did not rely on processed, highly cariogenic foods. In most graves in which dental elements were found, however, the recovered dentition was well preserved. This suggests many dental elements may have been lost prior to death, which could have been the result of poor dental hygiene.

An examination of the presence of enamel hypoplasias in all subadult and adult anterior teeth in the Site 15Mm137 cemetery sample yielded a frequency of 42.9 percent (9 of 21 teeth). The nine affected teeth were from three individuals, or 60 percent of the

population from which anterior teeth were recovered (n=5). The percentage of affected individuals in this population is comparable to that recorded for contemporary cemeteries, such as the Cross Homestead in Illinois where 67 percent of the burial population exhibited hypoplasias (Larsen et al. 1995), the Monroe County Poorhouse in New York where 73 percent had the defect (Lanphear 1990), and the Reynolds Cemetery in West Virginia where 71 percent of the population exhibited this defect (Bybee 2002).

Table 3. Mortuary and Cultural Aspects of the Population.

	Utilitarian Hardware	Mass-Produced Hardware	Clothing and Personal Items	Period of Interment
Grave 1	Cut and wire nails, tacks, woodscrews	Swing bail handles, coffin plate, thumbscrews, escutcheons	Glass, metal, and rubber buttons	1875 – 1900
Grave 2	Cut and wire nails, tacks, woodscrews	Swing bail handles, coffin plate, thumbscrews	Cuff stud or collar button, rivet	1875 – 1900
Grave 3	Cut nails, woodscrews	None	None	1830 – 1890
Grave 4	Cut nails	None	None	1830 – 1890
Grave 5	Cut and wire nails, tacks, woodscrews	None	Porcelain buttons	1890 – 1900
Grave 6	Cut nails, tacks, woodscrews	None	Porcelain buttons	1840 – 1890
Grave 7	Cut nails, tacks, woodscrews	None	Porcelain and celluloid buttons	1871 – 1890
Grave 8	Cut nails	None	Porcelain buttons	1840 – 1890
Grave 9	Cut nails	None	Porcelain and glass buttons	1840 – 1890
Grave 10	Cut nails, tacks	None	Porcelain buttons	1840 – 1890
Grave 11	Cut nails, tacks, woodscrews	None	Metal, porcelain, and rubber buttons, suspender clips, gold-plated wedding band	1870 – 1890
Grave 12	None	None	None	1830 – 1890
Grave 13	None	None	Hair comb	1830 – 1890
Grave 14	Cut nails	None	None	1830 – 1890
Grave 15	Cut nails, woodscrews	None	None	1830 – 1890
Grave 16	Cut nails	None	None	1830 – 1890
Grave 17	Cut and wire nails, tacks	None	Porcelain buttons	1890 – 1900

CONCLUSIONS

Archaeological investigation of the cemetery at Site 15Mm137 resulted in the identification and excavation of 17 historic graves. No records pertaining to the cemetery were found during the archival research and no cemeteries were depicted on any historic maps reviewed. The following describes the structure of the site through description of the historic burials and their placement in the cemetery. The use of space is an integral part of mortuary practices. The spatial aspect of the cemetery will be evaluated in light of expected ideological and economic trends during the nineteenth century.

The cemetery was arranged in a series of three distinct rows oriented north to south, with interments aligned east to west (see Figure 1). Row 1, the easternmost, consisted of five interments situated at fairly regular intervals in the row, with no space left between grave shafts for future interments. All five interments in Row 1 have proposed burial dates of 1830 to 1890. Row 2, located between Rows 1 and 3, contained only two interments, both dating between 1830 and 1890. Again, no space was left between the grave shafts for future interments. Row 3, the westernmost row, contained ten interments dating from 1830 to 1890, 1840 to 1890, 1870 to 1890, 1875 to 1900, and 1890 to 1900. Most of the graves were clustered very close together, although a space was located between two grave shafts in which an additional interment could have been made. Two interments were somewhat spatially segregated from the remainder of Row 3 and all of the infant interments in the cemetery were located in this row.

A considerable amount of data has been presented to provide a basis for reconstructing the sequence of interments in the cemetery at 15Mm137. The proposed sequence detailed below is conjectural, but five phases of interments are estimated: 1830 to 1890; 1840 to 1890; 1870 to 1890; 1875 to 1900; and 1890 to 1900. Early graves (1830 to 1890) were located in all three rows, although Rows 1 and 2 held interments dating to this period exclusively. With the exception of Graves 12 and 13, in which no coffin hardware was recovered, all of the coffins were constructed with cut nails. It is likely that use of the cemetery began with the placement of a grave in either Row 1 or 2, around which other interments were made during this period. As noted earlier, the popular use of hexagonal coffins in the United States began to wane around 1860 with the advent of the beautification of death movement. Because all of the interments in Rows 1 and 2 were made in hexagonal coffins, it is possible that all date prior to ca. 1860. The lack of lining tacks and clothing remains in graves also may signify an interment dating earlier in the 1830 to 1890 period. Early American coffins were generally not decorated, with use of coffin "extras," such as fabric lining and decorative hardware, not becoming a cultural trend until at least the 1850s. From Biblical times until well into the nineteenth century, interments were often made in simple burial garments referred to as shrouds (Habenstein and Lamers 1955). The lack of clothing remains in the Rows 1 and 2 graves may indicate the deceased were interred wearing shrouds, which could date them to the early part of the 1830 to 1890 period.

In addition to the single interment dating from 1830 to 1890, Row 3 had four burials that date from 1840 to 1890. The 1840 date for these graves is based on the presence of porcelain buttons. Three of the 1840 to 1890 graves were located centrally within Row 3, with two adjacent to the 1830 to 1890 grave. The remaining grave was located to the north and was somewhat set apart from the remainder of the 1830/1840 to 1890 graves. The next three phases of interment (1870 to 1890, 1875 to 1900, and 1890 to 1900) consisted of five graves. The proposed interment dates from these individuals were based on a variety of materials, including buttons, cut and wire nails, and decorative hardware. With the exception of Grave 5 (1890 to 1900), all of these graves were located at either the north or south end of Row 3.

The 1830 to 1890 interments appear to constitute the core of the cemetery, comprising all of Rows 1 and 2 and a single interment in Row 3. These two rows were well structured, with fairly even spaces located between interments and grave orientation on essentially the same angle. Row 3 was not as orderly, with fairly wide gaps between some interments and little space between others. The historic context of the cemetery included a period in this part of America that was marked by the transition from a Romantic view, in which death was idealized, to the "beautification of death" movement. In general, little ostentation was associated with early burials, and coffins were constructed with little regard to outward appearance of the burial receptacle. These coffins were made specifically for encasement of the dead and were generally not decorated. The practicality of these simple coffins may, in part, reflect the limited means of many rural families. With the beautification of death, funerary rituals became more elaborate and the period of mourning was prolonged. Mortuary items, such as grave markers and coffin hardware, began to incorporate symbols of beauty from the Romantic era, and coffins began to function not only as receptacles for the deceased, but allowed for more beautiful presentations (Bell 1990:55-58; Farrell 1980). Changes in the American view of death during the mid-nineteenth century were fueled by urbanization, industrialization, and developments in medicine and science.

Mortuary behaviors observed at the cemetery were synchronous with both early and later nineteenth century views of death. Most of the coffins were constructed only with readily available utilitarian materials, such as nails, lining tacks, and screws. The general lack of ornamentation on the coffins and the use of very basic materials are indicative of a lack of ostentation for many interments. For the two coffins in which elaborate hardware was present, decoration included an array of materials available during the last quarter of the nineteenth century.

Few of the individuals interred in the Site 15Mm137 cemetery appeared to have been accorded special treatment in death. The small quantity of personal artifacts recovered suggested funerary clothing during the period ca. 1830 to 1870 was kept to a minimum. In keeping with American mortuary practices, later interments (1870 to 1900) appeared to have been made in more elaborate clothing styles. In addition, it is possible that infants were interred wearing christening gowns, as all interments of individuals from birth to three years contained porcelain buttons. The single jewelry item recovered from the cemetery was not of expensive manufacture. The overall lack of coffin

ornamentation, use of only rough fieldstone gravemarkers, and interment in plain or otherwise minimal garments may be indicative of the limited means of this population.

Changes in attitudes toward death during the nineteenth century were inferred from the mortuary and cultural materials recovered from the Site 15Mm137 cemetery. This change is thought to be part of the "beautification of death" movement, which was an ideational shift fueled by social and material transformations during the nineteenth century, specifically 1831 to 1872 (Bell 1990:56; Little et al. 1992). This movement saw ostentation and elaboration of mortuary behavior, including the use of increasingly complex burial receptacles and hardware, elaboration of funeral costumes, and increasing displays of wealth during the funeral.

In summary, the Site 15Mm137 cemetery may have developed as a final resting place for a small rural family. Later generations of the same family and other landowners probably made use of this already established cemetery, placing their loved ones along the periphery of one row. The cultural and mortuary remains were indicative of a rural population with limited means. Most burials appeared to have been made between 1830 and 1890, while the final phase of interments occurred between 1875 and 1900. The cemetery apparently was abandoned by the early 1900s and forgotten until its accidental discovery in 2001. All of the human remains and associated items recovered from the 17 interments were reinterred at the Macpelah Cemetery in Mount Sterling, Kentucky.

ACKNOWLEDGEMENTS

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IN SEARCH OF MARGARET GARNER: PRELIMINARY ARCHAEOLOGICAL INVESTIGATIONS AT MAPLEWOOD, 15BE483, BOONE COUNTY, KENTUCKY

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ABSTRACT

Margaret Garner, a slave made famous for her attempt to escape slavery in 1856 lived for several years at Maplewood (15Be483), a nineteenth-century farm developed by the Gaines family. When faced with recapture she attacked her own children and murdered her daughter in an attempt to free them of their fate. Archaeological research conducted at this site confirmed that the two-room standing nineteenth-century frame building was part of the larger mid-nineteenth century Gaines house and that the foundation of this house is preserved just to the west of the standing structure. A concentration of mid-nineteenth century artifacts and structural features located to the north of the main house may be associated with a detached kitchen or slave quarters. Future archaeological research at Maplewood has the potential to contribute to our understanding of the domestic lives of both masters and slaves in Kentucky.

INTRODUCTION

In 1998 the Kentucky Archaeological Survey (KAS) conducted two weeks of fieldwork at Maplewood (15Be483) in Boone County, Kentucky. Maplewood was a nineteenth-century farm developed by the Gaines family in the Richwood community. These investigations were concentrated on the main domestic complex of this farm, which was located on a high ridge east of an unnamed tributary of Mud Lick Creek and about one kilometer west of the Richwood Church on State Road 338.

The story of enslaved Margaret Garner, as made famous by the 1987 Toni Morrison novel *Beloved*, an Oprah Winfrey movie of the same name, and Stephen Weisenberger's (1998) cultural analysis *Modern Medea*, has generated enormous public interest in this property. Although a number of twentieth century structures have been

constructed on this property (Figure 1), a two-room frame building is thought to date to the mid-nineteenth century occupation of the Gaines and Garner families (Figure 2). The primary goals of the KAS study were to ascertain the nature of the deposits in and around this building, to confirm the architectural historians' dating of this building, and to evaluate its connection to the main Gaines house and, potentially, to Margaret Garner and other slaves who once lived on this farm. Additional excavations were conducted around the structure in 1999 by Behringer-Crawford Museum field school students from Covington, Kentucky, under the direction of Jeannine Kreinbrink and Rose Pfaff.

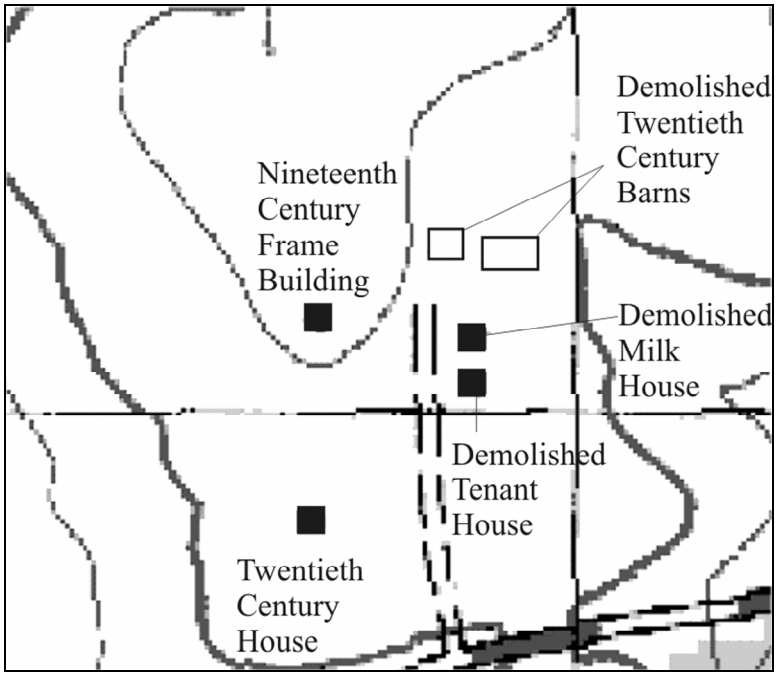


Figure 1. Structures at Maplewood during the Mid-Twentieth Century.

HISTORICAL BACKGROUND

In 1998 Steven Weisenberger, a University of Kentucky English professor, published his interpretation and documentation of the Margaret Garner case. His work was based largely on his examination of records related to the Margaret Garner's court case and the Gaines family papers. This work, an article by Julius Yanuck published in 1953, and family tradition provided by Ruth Wade Brunings, a descendent of the neighboring Bedinger family, are the basis of the historical narrative presented below.

The development of the Maplewood farm seems to have begun about 1825 when the land was purchased by John Pollard Gaines. John was a son of Abner and Elizabeth Gaines, who had come to the Walton area of Boone County about 1810 from Virginia. John married Elizabeth Kinkead in 1824, and they built the first house on the property in

1825. They built a new and larger house at Maplewood, containing 14 rooms, in 1842-1843. It is not known if the 1842-43 house was on the exact foundation of the 1825 house. John Gaines rose to prominence in military and political affairs. In 1849 he was appointed Governor of the Oregon territory. Since this appointment required a move to the Oregon Territory, John sold Maplewood to his brother, Archibald Gaines.

Figure 2. Two-Room Nineteenth Century Frame Structure at Maplewood.

Archibald was living in Arkansas at the time but moved back to Kentucky to manage the farm operation at Maplewood. His first wife had died in Arkansas, but he was later remarried to her sister. The new couple, Archibald and Elizabeth, were at some point joined at Maplewood by Archibald and John's widowed mother, also named Elizabeth. Archibald lived at Maplewood only a short time when the main house burned in November 1850. He immediately rebuilt the main house.

Archibald Gaines died in 1872. His widow Elizabeth and some remaining family lived at Maplewood until 1884 when they moved to Texas. Elizabeth's final year of ownership is referenced on an 1883 atlas (Figure 3). The property was sold to Ben Hind Jr., Joseph C. Hughes, and eventually to a neighbor, Samuel Taylor. Since Taylor had his own house nearby, it is unlikely that he would have moved to Maplewood. The property was brought back into the extended Gaines family by its purchase in 1914 by Benjamin Franklin Bedinger and his wife Lucy Harrison Gaines. Lucy was a direct descendent of James Gaines, brother of Archibald and John. The main Gaines house was no longer standing in 1914, except for the two frame rooms that were the focus of this investigation. The Bedingers lived in these two rooms, adding shed additions, until about 1917 when they completed a Sears and Roebuck house approximately 100 m to the south. They also constructed barns to the east of the nineteenth-century frame building. They (or

possibly Samuel Taylor before them) constructed a tenant house near the Sears and Roebuck house (Figure 4). Bedinger's heirs sold the property to the present owner, George Budig, in 1998. Mr. Budig removed the barns, a tenant house, a small brick dairy building, and the shed additions from the two-room remnant of the nineteenth-century frame house. He continues to farm the surrounding land.

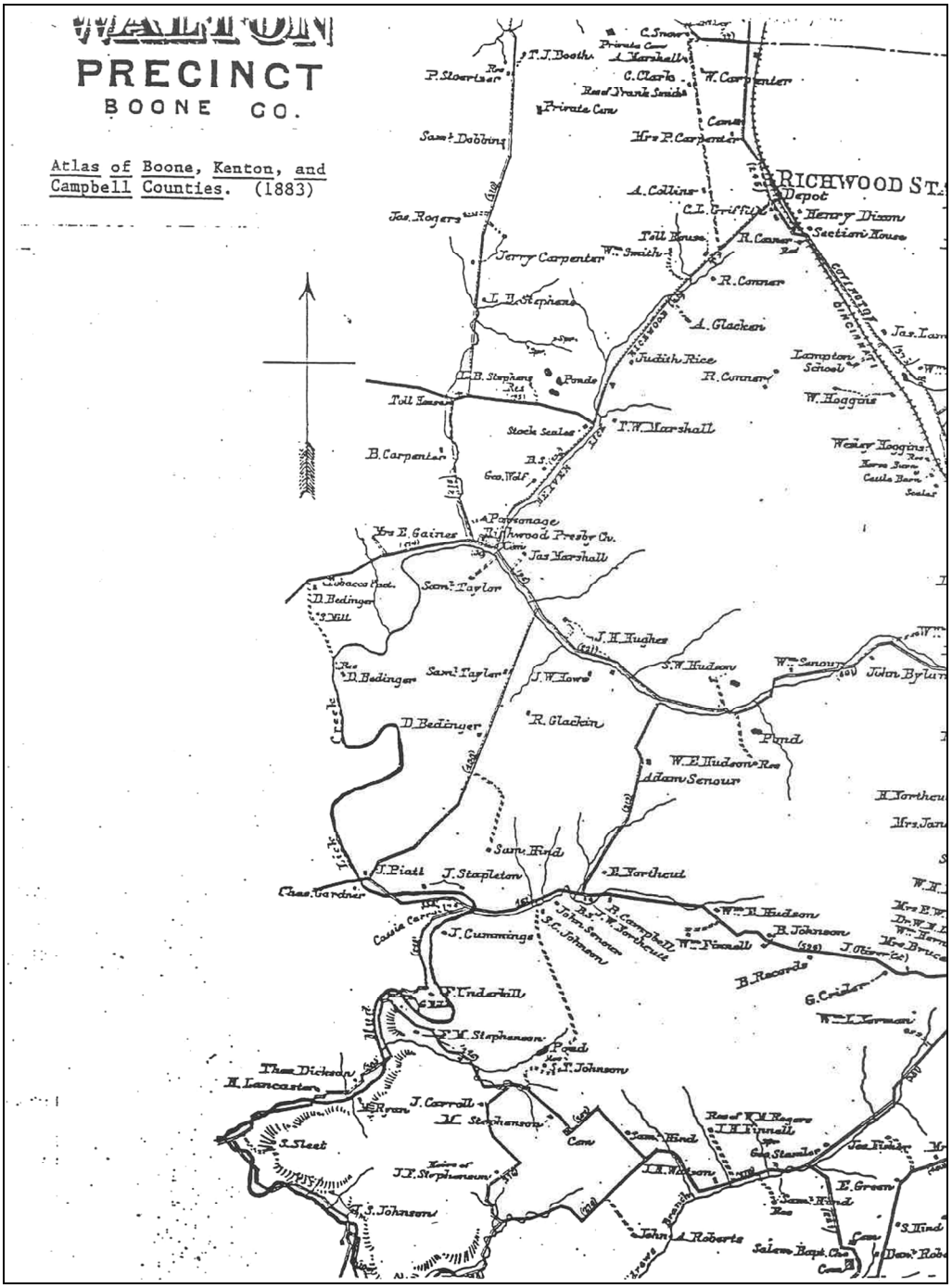


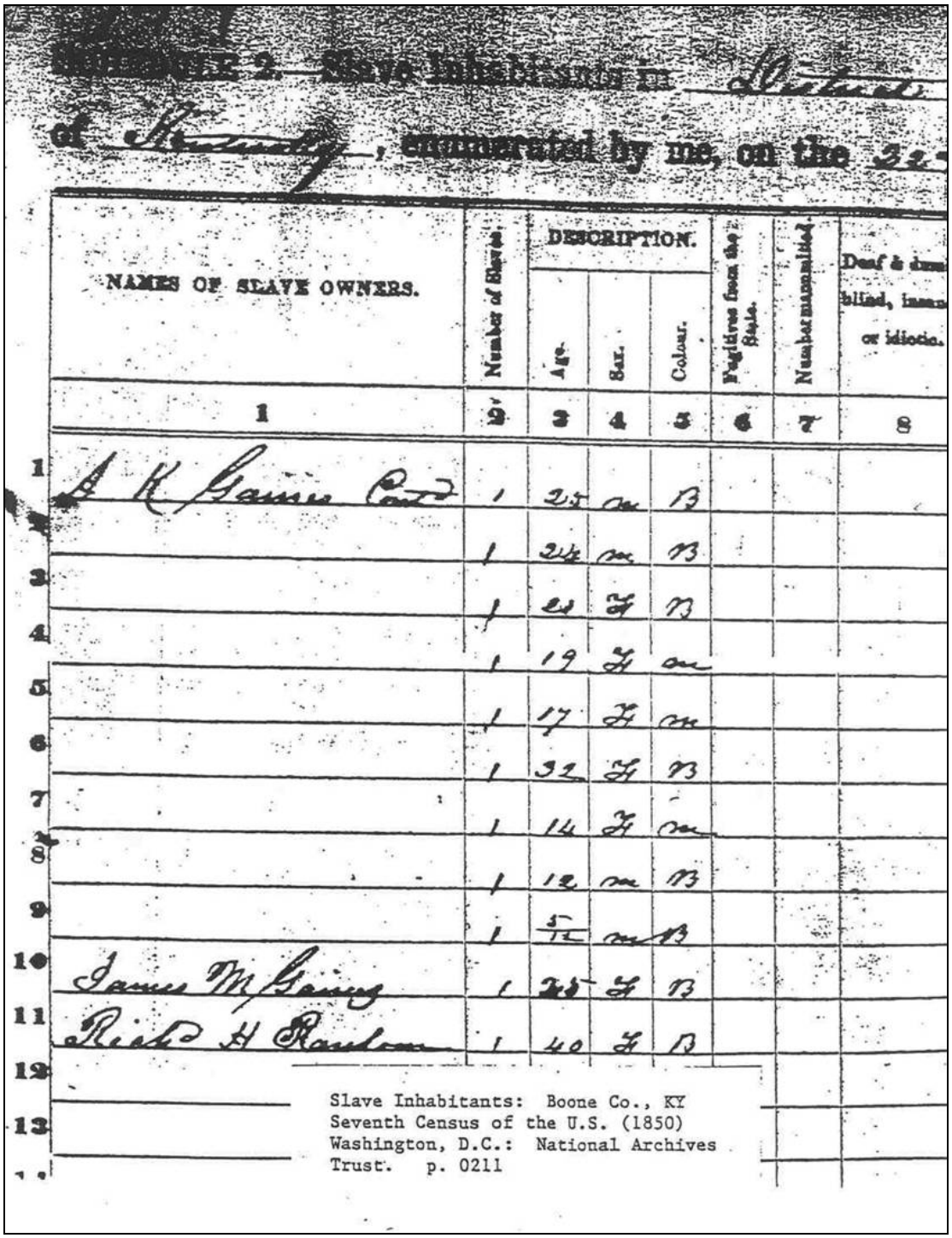
Figure 3. 1883 County Atlas Showing Elizabeth Gaines at Maplewood.

Figure 4. Tenant House Just Before Demolition in 1998.

The nineteenth-century occupants of Maplewood included a number of slaves. In fact, it is the specific history of one Maplewood slave, Margaret Garner, that has gained national attention. Margaret was owned by John Gaines and later Archibald Gaines. John and Archibald also owned her mother, Cilla. In the 1850 census, the first to enumerate slaves individually, Archibald Gaines was listed as owning 12 slaves (Figure 5). One was a woman aged 17, who was most likely Margaret (see Weisenberger 1988:39). Margaret had married Robert Garner, a slave on the neighboring Marshall farm, in 1849. She had four children by the time of her 1856 escape attempt. Court depositions taken during the Margaret Garner case indicate that Margaret spent much of her working time in the main house and caring for Elizabeth, Archibald and John's ailing mother.

In January 1856, the Garner family attempted an escape and fled across the frozen Ohio River. The party included Margaret Garner, her four children, her husband Robert, and his parents—who lived on the neighboring Marshall farm. Their destination was a house occupied by the Kites, free blacks and relatives who lived on the (then) outskirts of Cincinnati. In a matter of hours Margaret's absence was noticed. Archibald Gaines and other neighbors, including Mr. Marshall, caught up with the Garners before they could make the Underground Railroad connections arranged by the Kites. When Margaret realized the presence of the Gaines party and its intention to seize her and the children, she fatally cut the throat of her infant daughter and attempted to kill her other children before she was captured. A key issue addressed at the trial was whether the Ohio courts could claim jurisdiction over Margaret and try her for the crime she committed on Ohio soil, or if Archibald, as owner from a slave state, could reclaim Margaret. The case attracted much attention nationally. The Garners were eventually released to Archibald Gaines. Legal appeals were still in process in 1858 when Margaret died of typhoid on the Mississippi plantation to which Archibald had moved her. According to Weisenberger's research, the case was among the most influential slave-

related cases of the 1850s. A painting by Thomas Satterwhite Noble and references in contemporary journalism and literature have perpetuated the case's fame.



SCHEDULE 2.—Slave Inhabitants in Militia District

of County, enumerated by me, on the 22

	NAMES OF SLAVE OWNERS.	Number of Slaves.	DESCRIPTION. Age.	Sex.	Colour.	Fugitives from the State.	Number manumitted.	Deaf & dumb, blind, insane, or idiotic.
	1	2	3	4	5	6	7	8
1	A K Gaines Cont	1	25	m	B			
2		1	24	m	B			
3		1	21	F	B			
4		1	19	F	m			
5		1	17	F	m			
6		1	32	F	B			
7		1	14	F	m			
8		1	12	m	B			
9		1	5/12	m	B			
10	James M Gaines	1	25	F	B			
11	Richd H Rankin	1	40	F	B			
12								
13								

Slave Inhabitants: Boone Co., KY
Seventh Census of the U.S. (1850)
Washington, D.C.: National Archives
Trust. p. 0211

Figure 5. Archibald Gaines' Listing in the 1850 Federal Census, Slave Schedule.

Although Margaret's escape ended in failure, four other slaves from Maplewood were successful that same winter in their flight across the river and eventually through the Underground Railroad to freedom. According to the 1860 federal census slave schedule, Maplewood at that time had five slaves and two slave houses (Weisenberger 1998; Anne Butler, personal communication 1998). It is likely that slaves continued to live on the farm until emancipation.

ARCHITECTURAL ANALYSIS

The two-room frame building was examined by architectural historians Bill Macintire and Richard Jett of the Kentucky Heritage Council, who have extensive experience with nineteenth century buildings in Kentucky. This building is shown in Figure 2 and a floor plan drawn by Bill Macintire is presented in Figure 6 (shed additions on the east side of the structure have since been removed but are shown here for the benefit of future researchers, since they may have affected the adjoining wall and deposits under them). Macintire and Jett concluded that architectural features argue for a construction date somewhere between 1845 and 1870, and more likely between 1850 and 1860. These features include the use of late machine-cut nails, sash-weighted windows, criss-cross bracing of the floor joists, nailed rather than joined down braces, butt-joined and nailed rafters, milled plaster laths, and close to balloon framing. The brick nogging exposed on the southern facade is quite interesting. In contrast to the balloon framing, the nogging seems to represent a rather conservative element in the building's construction. Macintire and Jett concluded that due to the small size of the fireplaces and finished nature of the interior, these rooms were not likely originally built as a kitchen (the Bedinger family tradition, according to Gaines and Bedinger descendant Ruth Wade Brunings), and more likely represent the hall and parlor of the original house (Bill Macintire, personal communication 1998, 1999). This does not mean that the building was not used for cooking at some point during its occupation.

The western facade, presently an exterior wall (shown in Figure 2), was originally built as an interior wall, and modified to be an exterior wall in the late nineteenth to early twentieth century. Reused windows were installed, presumably in old door openings, and the wall was sided, probably with reused siding from other parts of the main house. Thus the analysis suggested that this building was once part of the main Archibald Gaines house, built between 1850-1851. The rest of the house was then, for reasons unknown, torn or fell down in the late nineteenth to early twentieth centuries after abandonment by the Gaines family in 1884. A depression 15 m west of the structure corresponds to a collapsed cellar remembered by George Gaines Bedinger, a descendent who had made periodic visits to this site as early as the 1930s (Ruth Wade Brunings, personal communication 1998). A humped area located 12 to 15 m to the west of the depression represents the top of a beehive cistern and the edge of the original house on this side (see Figure 7).

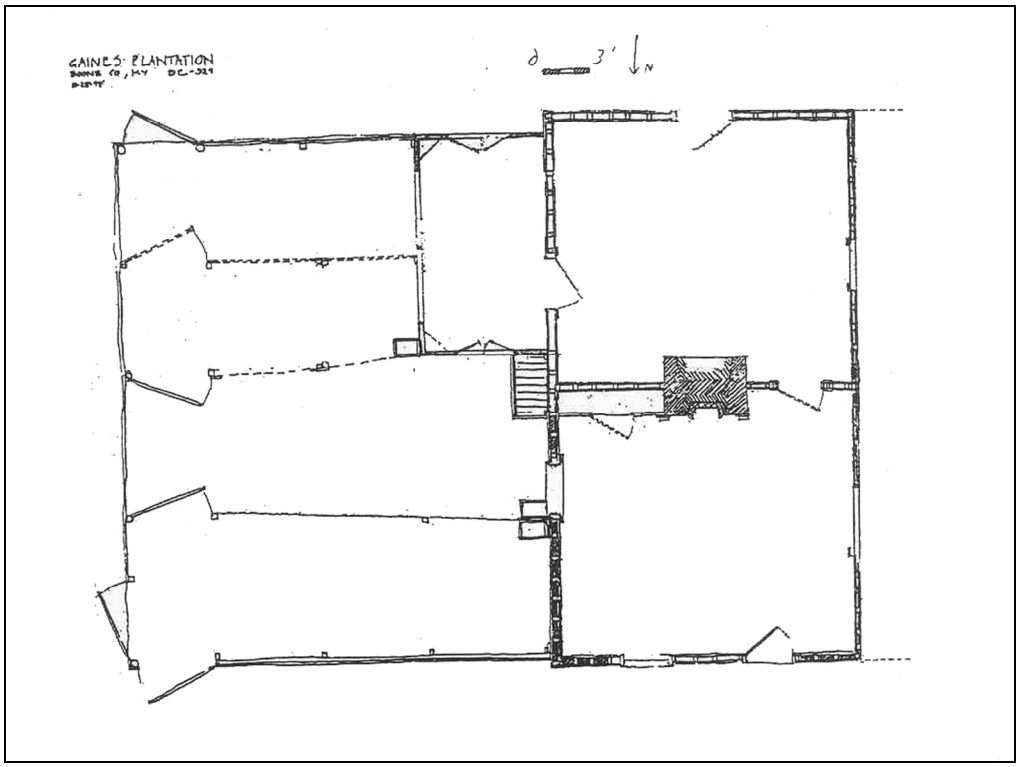


Figure 6. Floor Plan of Two-Room Frame Structure, with Shed Additions.

The 1984 U.S.G.S. topographic map (Figure 1) shows the footprints of four other buildings on the site that are not standing today, having been torn down in the mid-1990s. Among them were two twentieth-century barns that were located to the northwest of the standing nineteenth century frame building. Two additional buildings, a frame tenant house and a brick milk house located directly south of these barns, were standing in the fall of 1998 and were briefly evaluated by Macintire and Jett. They concluded that the tenant house was probably built sometime between the late nineteenth and early twentieth centuries, although it incorporated a variety of reused materials, such as hand-hewn logs. This point is mentioned since it is likely that the logs came from buildings that were part of the original farm complex, possibly even parts of the original house. The brick milk house was constructed sometime in the late nineteenth to early twentieth centuries.

The only other remaining building on the Maplewood farm is a 1917 Sears and Roebuck bungalow located 100 m south of the nineteenth century structure. This structure was vacant in 1998, but was slated for renovation.

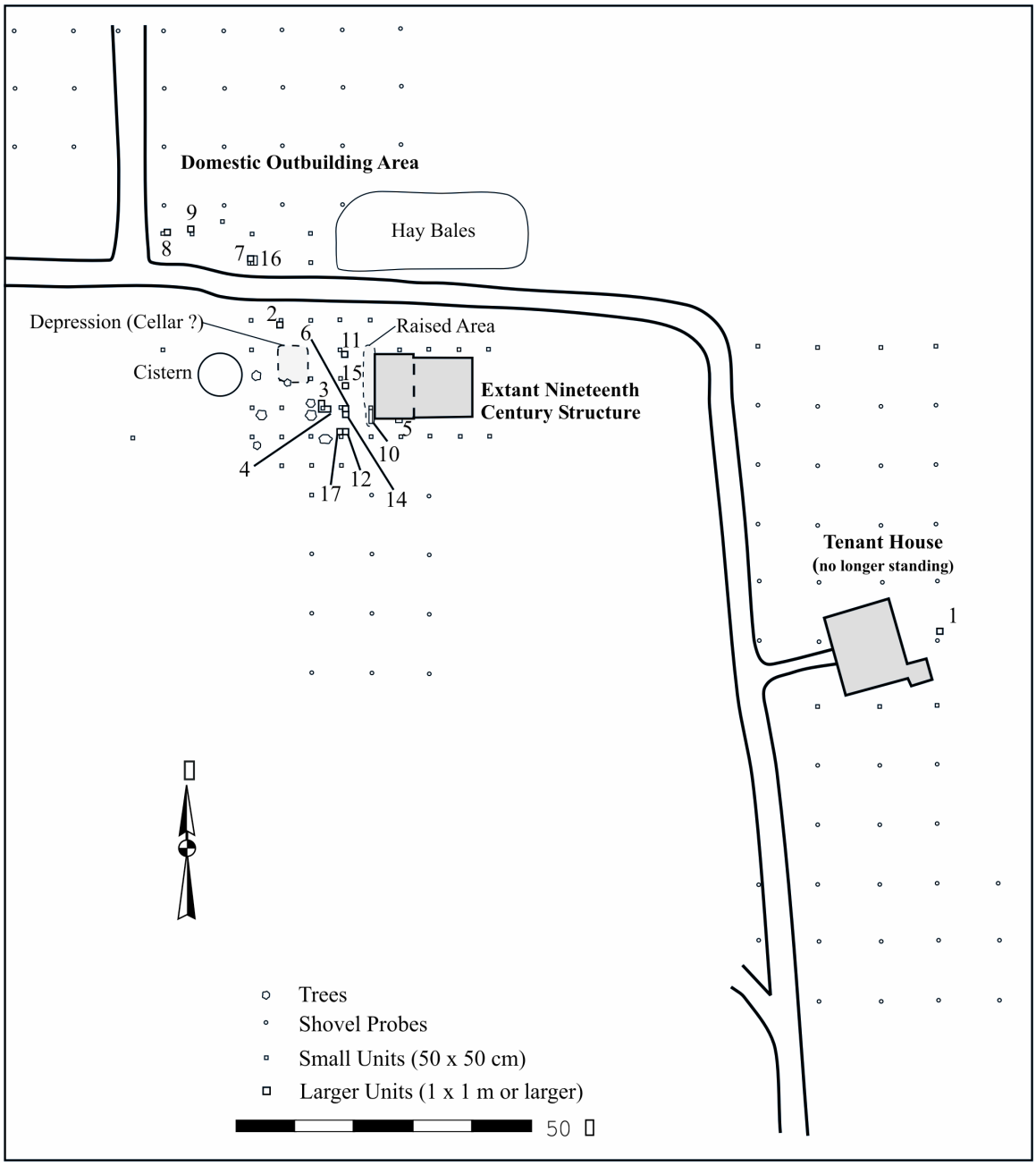


Figure 7. Map of Kentucky Archaeological Survey's Archaeological Investigations.

ARCHAEOLOGICAL METHODS AND FIELD RESULTS

KAS conducted two weeks of fieldwork at Maplewood. This work primarily consisted of the excavation of shovel probes and units in the vicinity of the standing nineteenth century structure (Figure 7). Areas surrounding the structure were investigated with small 50 x 50 cm units (n=47) placed at 5 m intervals. Areas further away from this structure were investigated with 30 x 30 cm screened shovel probes

(n=80) at 10 m intervals. Examination of the survey results led to the delineation of three distinct areas (the main house, a domestic outbuilding area, and the twentieth century tenant house), which were targeted for additional investigation. Larger hand excavated units of various sizes (n=18) were then excavated within the three site areas. The results of this fieldwork are described below.

MAIN HOUSE AREA

The field reconnaissance, oral history, and architectural analysis described above suggest that the standing nineteenth century structure likely had some connection to the Gaines occupation. Thus, the area immediately around this building was designated as the main house area and received the bulk of the fieldwork.

Shovel Probes

Screened shovel probes were excavated in a yard area located to the south of the standing nineteenth century structure and to the north of the 1917 house. Shovel probes were excavated on a 10 m grid in three transects, each containing five shovel probes. The soil profile identified in these probes consisted of a 5 to 50 cm thick mottled brown silt loam and clay that largely contained modern artifacts overlying a yellowish-brown silty clay subsoil. The soil profiles associated with these shovel probes indicated extensive disturbances to this area, with little intact nineteenth century stratigraphy or artifacts.

Small Units

As previously noted, the yard immediately around the standing nineteenth century structure was initially investigated with 50 x 50 cm units. The typical soil profile in the immediate vicinity of the standing nineteenth-century structure consisted of a 10 to 20 cm thick dark brown silt loam topsoil underlain by a yellowish-brown silty clay subsoil. A similar profile was identified in the yard to the west between the existing water cistern and the standing nineteenth-century structure, but in this area a 15 to 20 cm thick transition zone was identified between the topsoil and subsoil. In addition just to the south of the east-west farm road, a 5 cm thick mottled yellowish-brown clay with limestone fragments was identified immediately below the topsoil. Numerous pieces of limestone were noted on the surface in this area, and an amorphous pit-like feature containing nineteenth century artifacts was found in this area.

In addition to the soil profiles described above, five areas with distinct profiles were identified in the vicinity of the nineteenth century standing structure. Of these, one consisted of a 15 to 20 cm thick brick rubble stratum, followed by a 5 cm mortar stratum, a 20 to 30 cm thick brown silt loam stratum, and a yellowish-brown silty clay subsoil that was identified in several units located immediately to the west of this structure. This stratigraphic profile corresponds to a linear raised area located adjacent to the building. Within this area brick rubble was observed on the present-day ground surface (see Figure 7).

Units excavated to the west of the linear raised area exhibited a 5 to 8 cm thick dark brown silt loam topsoil, followed by a 15 to 20 cm thick ashy stratum that contained charcoal and some brick fragments, and a silty clay subsoil. One unit excavated near this area contained a line of large limestone fragments that looked as if they had been part of a foundation. The charcoal associated with these units almost certainly represents the 1850 fire mentioned in the previous historical background section.

Near the northwest corner of the standing structure the stratigraphic profile consisted of a 10 to 30 cm thick mottled yellow clay fill situated between the 5 cm thick topsoil and clay subsoil. This area corresponds to a slight rectangular shaped depression that according to family member George Gaines Bedinger was the location of a cellar. A unit excavated near the center of the depression exhibited a similar stratigraphic profile, but under the clay fill, a 10 cm thick dark brown silt loam followed by a 40 cm thick ash deposit was documented. Nineteenth and twentieth century artifacts were recovered from this unit.

Just to the north of the standing nineteenth century structure, but not far from the door, a 5 to 8 cm thick coal, clinker, and ash stratum was documented just below the 10-20 cm thick modern topsoil. This stratum was not documented in most of the other units excavated at this site.

The fifth area that had a distinctly different soil profile was located on the east side of the standing nineteenth century structure. The stratigraphic profile observed in this area consisted of a 20 to 40 cm thick brown silt loam mottled with yellowish clay inclusions, followed by subsoil. Oral history indicates that this area had been the site of twentieth century barns that had recently been bulldozed.

In summary, the 50 x 50 cm units revealed varied stratigraphy throughout the entire main house area. Excavation of these smaller units helped identify three potentially significant features: a filled cellar, a possible trash pit, and a possible limestone foundation. These areas and the area of brick rubble adjacent to the standing nineteenth century structure were investigated further with larger units.

Larger Units

Within the main house area, 12 larger 1 x 1 m units were hand-excavated, mostly to investigate midden deposits and possible architectural features. Neither the cistern nor the cellar were excavated, since oral history suggested they had been filled in the twentieth century.

Foundation and Sidewalk/Patio Paving

Nine 1 x 1 m units (Units 3, 4, 6, 11, 12, 13, 14, 15, and 17) and one 0.5 x 2.5 m trench (Unit 10), were excavated to the west of the nineteenth century standing structure to sample potential midden deposits and to more fully investigate a possible limestone

foundation remnant identified in this area. The stratigraphic profile in this area consisted of a 5 to 14 cm thick dark brown silt loam topsoil, followed by a 4 to 15 cm thick medium brown ashy silt loam midden (often with extensive root disturbance). Below these two strata were a 6 to 20 cm thick yellowish-brown silt clay loam transitional soil and yellowish-brown silty clay subsoil. The ashy silt loam stratum was not present in Units 12 and 17. In some areas a distinct charcoal outline, which is a remnant of the 1850 fire, could be seen along the edges of the limestone foundation.

This work resulted in the exposure of a portion of a dry-laid limestone foundation (Feature 1) that was usually visible after removal of the topsoil and ashy silt loam midden The foundation was most intact in Units 6, 12, 14, and 17. These four units were located about 5 m to the west of the standing structure, suggesting that if the foundation was part of the building at one time, it made for an approximately 6.09 m (or 20 ft) pen out from this structure. The foundation has a width of 55 to 65 cm wide (about 2 ft) and is composed of pieces of roughly-dressed dry-laid limestone (Figure 8).

Figure 8. Feature 1, Main House Foundation in Unit 6.

Intact stones were not present in Units 11 and 15, located in line with but north of Units 6, 12, 14, and 17. Nor were intact stones found in Unit 10, which was excavated adjacent to the west side of the standing structure (Figure 7) to investigate brick rubble exposed on the surface and documented in several 50 x 50 cm units in this area. While intact foundation stones were not found, a distinct imprint of the foundation's trench was documented in these three units. This trench, often called a robber's trench since the building stones had been removed, was filled with yellow brown ashy silt loam soil and stone or brick rubble. A very distinct charcoal stratum, similar to that documented in other units and thought to be a remnant from the 1850 fire, was also present in Unit 10 (Figures 9 and 10). It remains unknown why the foundation was removed in these units. The articulation of Feature 1 with the southwest corner of the standing structure helped clarify that this was the last remaining portion of the original house.

Figure 9. Feature 1, Main House Foundation Robber's Trench in Unit 10.

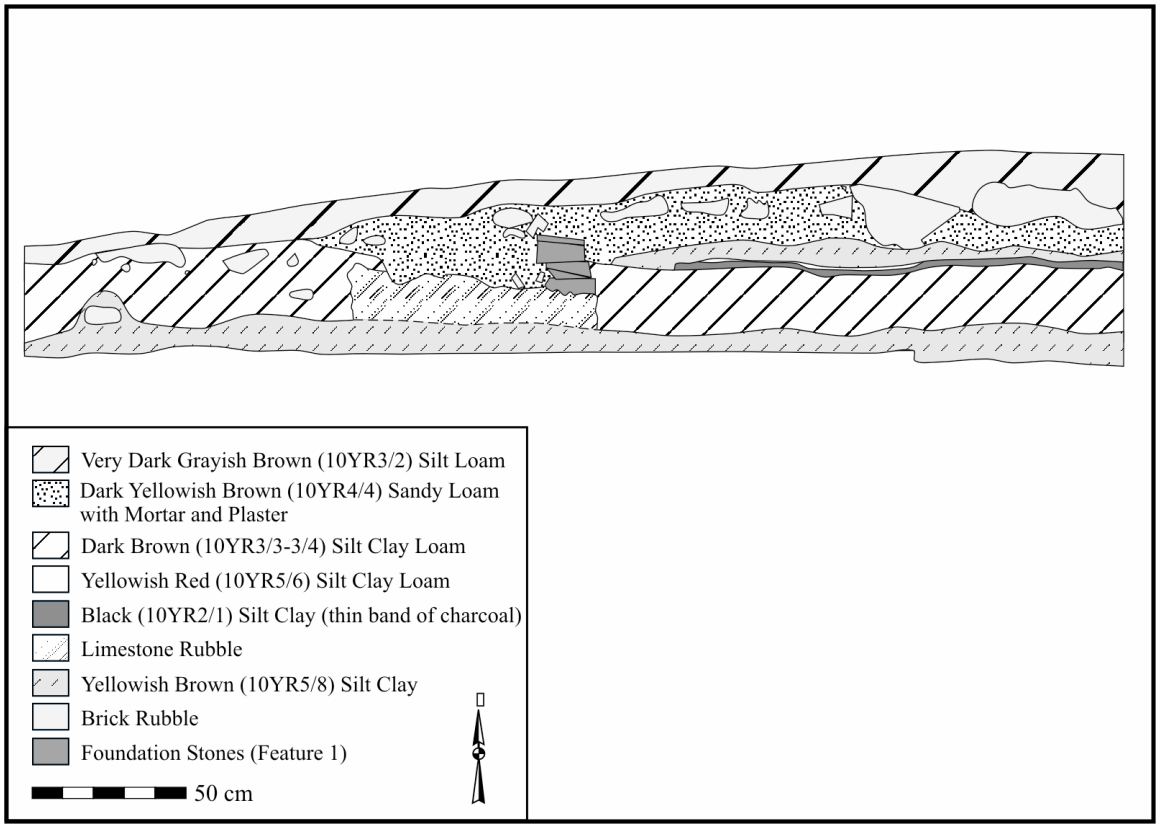


Figure 10. Profile of Unit 10, West Wall, Showing Feature 1 and Thin Band of Charcoal.

Large limestone fragments also were found in Units 3, 4, and 13, which were located just to the east of the base of a large tree about 4 m to the west of Feature 1 (Units 6, 12, 14, and 17). These stones, despite extensive root disturbance, were only one course thick with possible edging stones. This arrangement suggests the stones were a probable walkway or patio/porch rather than a foundation. More work is needed to clarify their relationship to Feature 1.

Foundation of Standing Nineteenth Century Structure

Unit 5 was a 1 x 0.7 m unit excavated adjacent to the south side foundation of the standing nineteenth century structure near the door (Figure 7). This unit was excavated to investigate the building foundation and look for an associated builder's trench. The stratigraphic profile of this unit consisted of three strata, beginning with a 15 to 28 cm dark brown silt loam topsoil/midden, followed by a 4 to 12 cm thick yellow brown silt clay loam transitional soil, and a yellowish-brown silty clay subsoil. There was no evidence of a builder's trench, indicating that either the foundation had been laid from the inside, or that any builder’s trench was too narrow to detect. The foundation stones ended at a depth of 46 cm below the present ground surface (Figures 11 and 12).

Figure 11. Foundation of Two-Room Frame Structure.

Possible Pit Feature

Unit 2 was a 1 x 1 m unit excavated to investigate a possible nineteenth century pit feature located in a 50 x 50 m unit. Five distinct strata were identified in Unit 2. The first strata consisted of a 5 to 10 cm thick dark brown silt loam topsoil. It was followed by a 4 to 7 cm thick yellowish-brown clay with limestone, a 2 to 5 cm thick grayish brown silt loam with pea gravel, a 40 to 45 cm thick rodent and root-disturbed yellow brown silty clay loam, and yellowish-brown silty clay subsoil. While no evidence of a pit feature was found in this unit, this area was determined to have been heavily disturbed by rodent and root activity.

Artifacts from Main House Area

Although artifact density around the main house was fairly low, most of the materials recovered date from the mid- to late nineteenth century. Among the materials recovered were refined and coarse ceramics. The refined ceramic assemblage consisted almost exclusively of whiteware (n=427), which dates from approximately the late 1820s to the present, with only a few (earlier) creamware (n=4) and pearlware (n=2) sherds, and some porcelain (n=39) sherds. More utilitarian ceramics are represented by nineteenth century yellowware (n=4), redware (n=17) and stoneware (n=72).

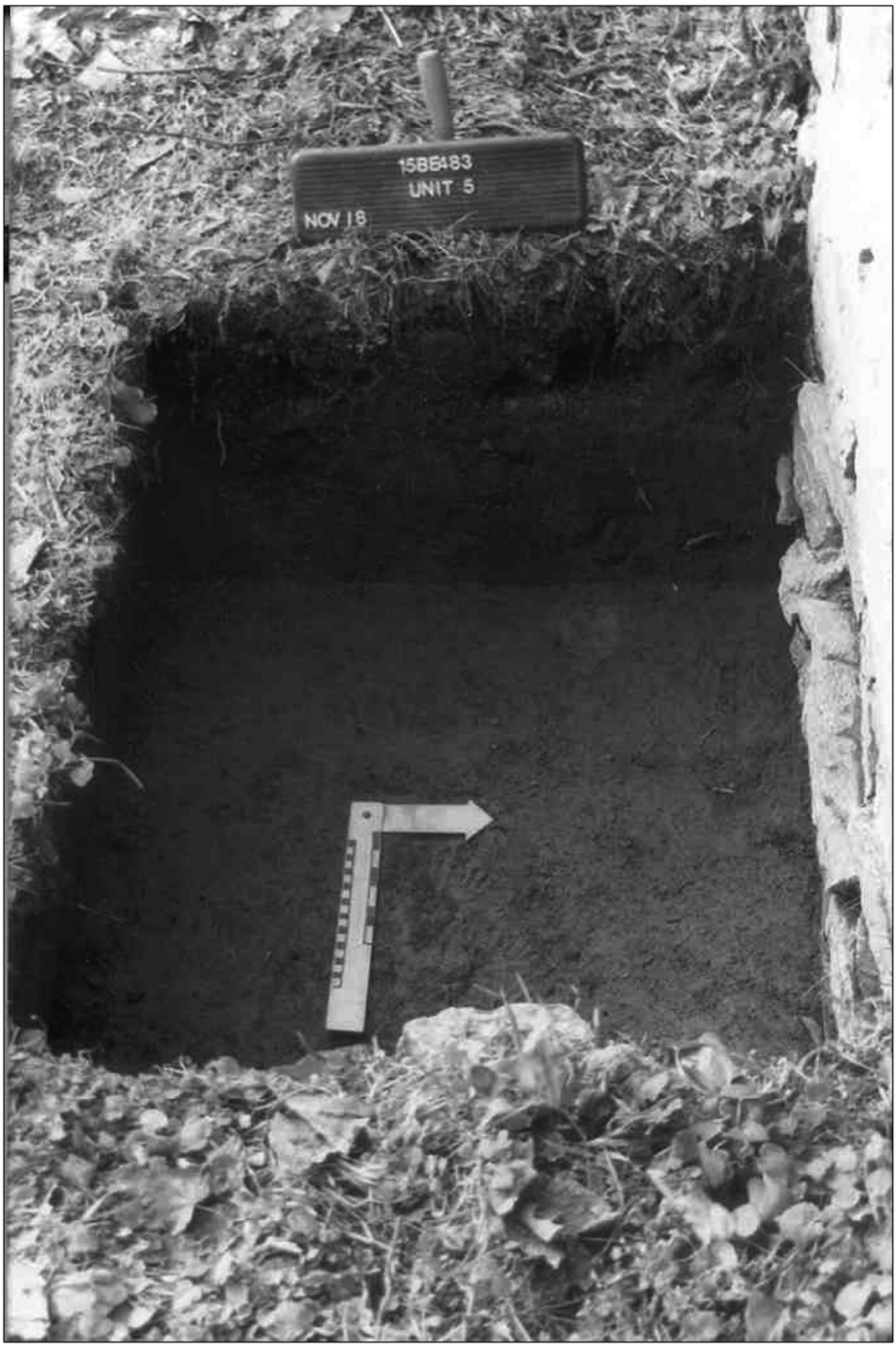


Figure 12. Close-Up of Excavation alongside Foundation.

The 720 bottle glass fragments were too fragmentary to assign to vessel types. Late nineteenth to early twentieth century glass artifacts, such as amethyst colored bottle fragments and machine-made bottle lips and bases were recovered from this area. Personal items were rather sparse, but include one marble, two buttons, one buckle, and one eating utensil (a spoon). An 1845 one-cent coin, found in a small unit located near Feature 1, was the only coin recovered.

Architectural or furniture items include 19 lamp chimney glass fragments, one hinge fragment, one key and a lock fragment, machine cut nails (n=761), wire nails (n=109), and 909 window glass fragments. Brick fragments were noted in most excavation contexts but were usually very fragmentary.

The presence of amethyst bottle glass along the western edge of the standing nineteenth century structure indicates that this building was occupied until at least the late nineteenth century, but the dearth of wire nails relative to machine-cut nails demonstrates that it did not extend into the twentieth century. The absence of early twentieth century artifacts from this portion of the site supports the interpretation provided by the documentary and oral history that indicates the Gaines family left in 1884 and that only part of the house was standing when descendants purchased the property in 1914. A small amount of lithic debitage represents a prehistoric occupation that was heavily disturbed by the historic occupation.

DOMESTIC OUTBUILDING AREA

According to oral tradition, the slave quarters were located in one of two places: north and across the current farm road from the main house or in the vicinity of a twentieth century tenant house (see below). During the archaeological investigation, the area to the north of the main house was being used to wrap hay bales or had been plowed and planted in corn. The plowed portion of this area was surface collected, and a combination of shovel probes, 50 x 50 cm units, and larger units was used to investigate the subsurface deposits (Figure 7).

Surface Collection

The cultivated field north of the main house was surface collected with the help of volunteers. Artifacts were marked with survey flags, mapped, and collected. Numerous nineteenth century artifacts, most notably ceramic sherds, were found widely distributed throughout the southwestern portion of the cultivated field, in closest proximity to the main house. They were most concentrated at the base of a slope in the field just north of the main house.

Shovel Probes

Based on the results of the surface collection, 19 shovel probes were excavated at 10 m intervals in the cultivated field and five were excavated near the stored hay bales (Figure 7). The stratigraphic profile of the shovel probes excavated in the cultivated field

consisted of a 15 to 20 cm thick medium brown silty loam plowzone followed a yellowish-brown silty clay subsoil. In contrast to these probes, those excavated in the vicinity of the hay bales located near the east-west farm road appear not to have been cultivated as intensively as the field to the north of the road. A row of trees just north of the road suggests that an old fence line was located here and it is possible that the area between these trees and the nineteenth century building had not been plowed since this structure was built.

All of the probes contained a moderate density of machine-cut nails and nineteenth century ceramics. The highest density of artifacts was observed in close proximity to the dirt road that bisects the area.

Small Units

The shovel probe data indicated that the highest probability for encountering intact deposits was in the vicinity of the previously mentioned old fence, as this area may never have been plowed. Some of the hay bales located in this area were removed by the landowner to allow for further work.

Of the seven 50 x 50 cm units excavated in this area, the soil profile of two units was characterized by a 20 cm dark brown silt loam topsoil/midden, followed by a 40 cm thick yellow brown silt clay loam transitional soil, and yellowish-brown silty clay subsoil. The topsoil/midden in both units contained a high density of nineteenth century artifacts, especially machine-cut nails and window glass. Brick fragments and plaster flecks were associated with only one of the units. It is likely that the topsoil/midden deposits in these two units represent a structure demolition episode and that the walls of this structure had been plastered. The structure was likely domestic rather than agricultural in function. This topsoil/midden was similar to the rich topsoil/midden stratum identified in the extreme western portion of the main house area.

The remaining five units exhibited a 6 to 15 cm thick dark yellow brown mottled silt clay loam topsoil, followed by a 20 cm thick yellow brown silt clay loam transitional soil, and a yellowish-brown silty clay subsoil. Two of these units, however, exhibited a much thinner topsoil, only 4 cm thick, followed by a 12 cm thick stratum of limestone rubble, a 4 cm thick lens of gravel, and then subsoil.

Larger Units

Five units were hand-excavated in the domestic outbuilding area to further investigate the limestone rubble and the topsoil/midden documented in this area. Units 7 (1 x 1 m), 16 (0.50 x 1.75 m), and 18 (1 m x 75 cm) were grouped to form a small block. The soil profile identified in this block consisted of an 8 to 10 cm thick dark grayish brown silt loam topsoil with brick, rock, and coal inclusions, followed by a 7 to 10 cm thick brown silt loam with dense concentrations of rock, a 3 cm thick lens of pea gravel within a brown silt loam, and a yellowish-brown silty clay subsoil.

Feature 3 was identified within this excavation block. It was characterized by a high density of limestone rubble with some larger stones that appear to be intact foundation stones. The foundation appears to have a "C" or "U" shape suggesting that it may be a chimney foundation. More work is needed to clarify the function of Feature 3 and this area of the site.

Units 8 (1 x 1 m) and 9 (1 x 1 m) were excavated to further sample the intact topsoil/midden. The soil profile in Unit 9 consisted of a 14 to 16 cm thick dark brown silt loam topsoil/midden, followed by a 16 cm thick brown silt loam soil and a yellowish-brown silty clay subsoil.

A posthole and postmold (Feature 4) were identified at the base of the topsoil/midden stratum in Unit 8 (Figure 13). The posthole was characterized by mottled yellow brown silt clay loam, with grey ash patches. The total dimensions of the posthole are unknown because the post was bisected by the northwest corner of the unit, but the portion exposed measured 80 x 60 cm. The postmold was characterized by a dark grayish brown silt loam that was consistent with the midden stratum. No evidence of the wooden post remained within the postmold. The circular postmold measured 28 cm in diameter. This feature extended to depth of 75 cm below the surface.

The soil profile documented in Unit 9 consisted of an 18 to 26 cm thick dark brown silt loam topsoil/midden, followed by a 6 to 20 cm thick yellow brown silt clay loam transitional soil, and a yellowish-brown silty clay subsoil. Another posthole and postmold (Feature 2), was identified at the base of the midden stratum in Unit 9 (Figure 14). The posthole was characterized by a mottled yellow and brown clay with gray ash patches. It measured 60 x 40 cm and was rectangular in shape. The postmold contained a very dark brown and loose silt loam, with a considerable portion of the original wooden post intact. The postmold was circular, 20 cm in diameter. Feature 2 extended to a depth of 81 cm below ground surface.

Artifacts from the Domestic Outbuilding Area

The artifact assemblage from the domestic outbuilding area contained a high density of nineteenth century ceramics, with the refined wares consisting almost exclusively of whiteware (n=413). Only five creamware and two pearlware sherds, and a small amount of porcelain (n=42) were recovered from this area. Coarse wares found in this area consisted of yellowware (n=7), redware (n=9), and a moderate amount of stoneware (n =79). The 647 container glass fragments recovered were primarily from a crushed wine bottle lip and neck, which dates before the Civil War. Several fragments from an eagle flask, very popular in the 1820s to 1840s, also were recovered from this area. No postbellum bottle glass was recovered. Among the other artifacts from this area were

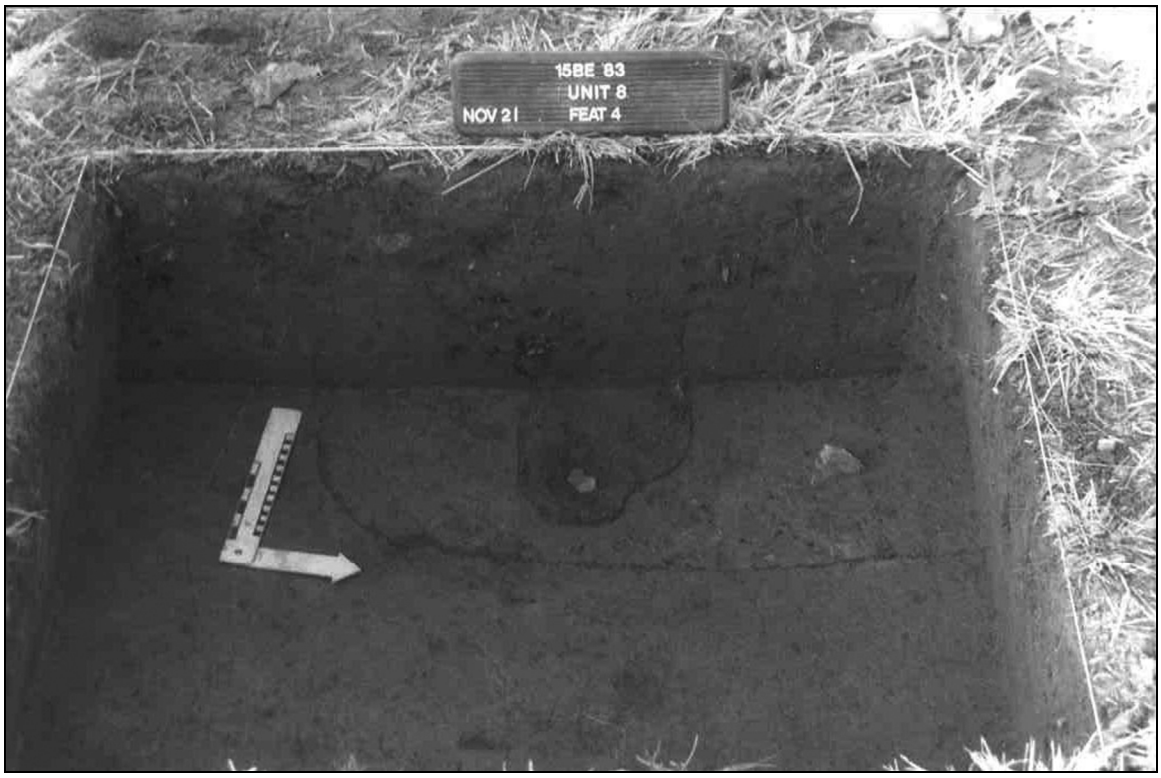


Figure 13. Post, Feature 4 in Unit 8.

Figure 14. Post, Feature 2 in Unit 9.

four buttons, one buckle, eating utensils (one fork and four knife fragments), and 29 lamp chimney fragments. All reflect a domestic occupation.

Among the architectural items recovered were 761 nails (n=613 machine-cut, n=20 wire, and n=128 unidentifiable) and 329 window glass fragments. Inclusions of plaster (especially in Unit 8), and brick fragments were observed but not collected. The presence of nails and window glass, along with the two large structural postmolds/postholes points to the presence of a building at this location. They were situated 4.57 m (15 ft) apart, making the size of the building at about 15 feet, a common size for buildings during the nineteenth century. The postholes contained a few whiteware ceramics and a few machine-cut nails, suggesting a post-1830s construction date.

The artifacts from these units also indicate an earlier end date for the occupation of this building, compared to the adjacent main house foundation. For example, only 3 percent of the nails from this area are wire nails, while 12 percent of the nails from the main house area are wire nails. A line of trees through this area seems to mark an old fence line, which could easily be the origin of these wire nails. The lack of amethyst glass from this area, which was found within the main house area, also supports an earlier ending date for this outbuilding.

TENANT HOUSE AREA

The tenant house area is situated to the south of the standing nineteenth century two-room frame structure where a small frame twentieth century tenant house was located (Figures 1, 4, and 7). The area around the building consisted of a gravel/asphalt road west of the structure and a large bulldozed pit north of the house. This area was targeted for investigation because family tradition suggested it was the possible location of the slave quarters (Ruth Wade Brunings, personal communication 1998). The landowner dismantled the tenant house during our investigations, but Macintire and Jett were able to look at the building before its demolition. As previously noted, they concluded that it had been constructed in the twentieth century from a variety of salvaged materials, some of them likely nineteenth century in origin. This area was investigated with shovel probes and a 1 x 1 m unit.

Shovel Probes

Forty shovel probes were excavated in the tenant house area. These shovel probes exhibited a soil profile that was characterized by a 15 to 30 cm thick brown silt loam topsoil/plowzone followed by yellowish-brown silty clay subsoil. A shovel probe located directly behind the tenant house, however, exhibited a more complex soil profile, consisting of a 10 cm thick dark brown silt loam topsoil followed by a 10 cm thick orange clay fill, a 14 cm thick brown silt loam buried topsoil, and an orange brown clay subsoil. A small amount of mostly twentieth century artifacts were concentrated immediately around the house. Some nineteenth century artifacts were recovered from one shovel probe.

Larger Units

A single 1 x 1 m unit was excavated to sample the possible nineteenth century deposit identified in one shovel probe. Unit 1's soil profile consisted of a 27 to 38 cm thick dark brown silt loam topsoil/midden and a yellowish-brown silt clay subsoil. A pocket of mottled yellow brown silty clay and a 4 to 6 cm thick lens of gravel were identified just under the topsoil in the west half of the unit. Although some nineteenth century artifacts were recovered from Unit 1, most of the artifacts dated from the twentieth century. The unit exhibited signs of significant disturbances to any nineteenth century deposits.

BEHRINGER-CRAWFORD FIELD SCHOOL

During the course of one week, students participating in the Behringer-Crawford Museum archaeological field school excavated shovel probes and small and large units in the vicinity of the standing nineteenth century structure. Of these, three shovel probes and two larger 1 x 1 m units were excavated 34 m east of Unit 9 in an area that in 1998 had been covered with hay bales. While dark midden soil and nineteenth century artifacts were recovered from the shovel probes and larger units, no structural features were documented in these localities. Gravel found in these units may be the remains of an old roadbed that ran east-west to the north of the modern farm road.

The Behringer-Crawford students also were able to excavate shovel probes under the twentieth century stable addition, which had been attached to the east side of the two-room frame structure during earlier KAS fieldwork but had since been removed. Though this area had been heavily disturbed, some intact nineteenth century deposits were documented to northeast of the door on the north side of the two-room frame structure. Stones that were likely part of a pavement was documented in this area. and may be associated with a walkway leading from the doorway.

SUMMARY AND INTERPRETATIONS

The KAS and Behringer-Crawford investigations demonstrated the presence of significant intact early to mid-nineteenth century deposits to the west and north of a standing nineteenth century two-room frame building. Historic topsoil and midden deposits in this area extend 25 to 40 cm below the present ground surface, and there is little evidence of intrusive fill soils brought in from other areas or extensive removal of these deposits following demolition of the main house. Deposits to the immediate east and further south of the nineteenth century building, in the area of a former tenant house and milk house (both now gone), contain mostly twentieth century materials, with some mixing with nineteenth century materials.

One of the more significant findings of the study was documentation of the Gaines family house foundation. The foundation appears to be in good shape in most areas, although in some places it has been damaged by tree roots or the occasional robbing of stone. Even where the foundation is not complete, a clear "robber's trench" allows for delineation of the foundation. Not enough units were excavated to expose the entire main house footprint, but this would be possible with the complete excavation of the house area.

One portion of the robber's trench from the foundation, with a few foundation stones still present, lines up and connects to the foundation of the standing building, offering further support for the architectural historians Macintire and Jett's interpretation that the standing two-room building is a remnant of a larger Gaines house. More work near where the foundation of the standing two rooms and the main house foundation intersect would likely refine our understanding of the site's structure and sequence of construction. In several areas, a thin layer of burning was noted along one edge of the foundation stones. This burning is significant as it ties this foundation to the 1850 burning of the main house (the one built circa 1842-43, and then rebuilt after this fire). The artifacts found around the main house date primarily from the 1830s to the 1890s, which corroborate documentary and oral history accounts that the Gaines family left in 1884 and that only part of the house was standing when they returned in 1914.

The presence of two large posts situated 4.57 m (15 ft) apart and an associated earlier nineteenth century midden located to the north of the main house, points to the presence of the remains of another building. The recovery of late machine-cut nails and whiteware from the postholes suggests a construction date sometime after 1830. Thus, these posts are not likely associated with the original 1825 house, but rather represent an outbuilding contemporary with the 1840s house. The presence of plaster, along with window glass, indicates a fairly finished domestic outbuilding of some sort. A concentration of large limestone fragments, in a C- or U- shape, is suggestive of a hearth area. The interpretation of this building(s) must remain preliminary until further excavations are conducted, but it is likely that these remains are from slave houses or a detached kitchen.

The construction of small buildings, such as slave quarters or kitchens, on supporting posts was not uncommon in Kentucky during the nineteenth century. Recent archaeological examples are the detached kitchen at Riverside, the Farnsely-Moreman Estate, that may have doubled as slave quarters (Stottman and Watts-Roy 2000; Watts-Roy and Stottman 1995), and a nineteenth century Shaker barn excavated at Pleasant Hill in central Kentucky (McBride 1992). Given the history of Maplewood, and the presence of intact archaeological and architectural resources, some of which may represent slave quarters, this site has the potential to significantly contribute to our understanding of slave life in Kentucky.

The archaeology of slavery has become an important specialization within historical archaeology, in which scholars strive to ascertain the ways in which African

heritage was used in the construction of African American life and identity, and to understand the daily life of slaves and the ways that slaves survived the rigors of that particular circumstance. Major emphasis within slave studies has been directed toward the study of slave social structure (Mullens-Moore 1985), African survivals and acculturation (Armstrong 1985; Brown and Cooper 1990; Ferguson 1992; Klingelhofer 1987; Lees 1981: Russell 1997; Singleton 1985, 1988, 1990; Wheaton and Garrow 1985; Young 1996, 1997; Young et al. 1998), foodways (McKee 1987; Otto 1984; Reitz et al. 1985; Young 1997), material culture patterning and acquisition (Lange and Carlson 1985; Otto 1984), and spatial organization of sites (Kelso 1984; Lewis 1985).

In Kentucky, Amy Young's research of the slave quarters at Locust Grove, the plantation of William Croghan in Louisville, has highlighted slave subsistence strategies and contributed to our understanding of slave ritual practices (Young 1996, 1997; Young et al. 1998). Young associated the cellars she found with the slaves' needs for food storage and she interpreted the presence of a moderate amount of wild species in the recovered faunal assemblage as indicating that the slaves were partly procuring their own food. Thus, slaves at Locust Grove may have had some responsibility for their own food procurement and preparation.

Young also found several artifacts inscribed with an "X" at Locust Grove. An X engraved on circular artifacts, such as coins or marbles, has been well-documented in association with African American slave occupations (Brown and Cooper 1990; Ferguson 1992; Klingelhofer 1987; Russell 1997; Stottman and Watts-Roy 2000; Watts-Roy and Stottman 1995). African Americans are thought to have carried these ritual artifacts as amulets or charms, and the "X" is generally interpreted as a cosmogram representing a general conception of life, death, and the structure of the cosmos and the flow of life and reincarnation. The documentation of these items at slave sites has contributed to our understanding of ritual practices and the continuation of African influences among African American slaves (Brown and Cooper 1990; Ferguson 1992; Klingelhofer 1987; Russell 1997). Additional work at Maplewood is needed to determine if the Gaines family slaves had the same level of autonomy as those at Locust Grove and if they practiced similar rituals.

Archaeologist Teresa Singleton, a recognized scholar in the field of African American archaeology (see Singleton 1985, 1988, 1990), has noted that while slave archaeology has had a low impact within black communities, it has had a significant impact within the realm of museum exhibits. These exhibits help disseminate important information about archaeology and about slavery. Maplewood has an unusually high potential for enhancing the public interpretation of slavery, given its important history and recent media exposure.

ACKNOWLEDGEMENTS

The KAS excavations at Maplewood were funded by a grant from the Kentucky African-American Heritage Commission and by Kentucky State University's Center for Excellence in the Study of Kentucky's African-Americans, directed by Dr. Anne Butler. Students from Kentucky State University and Georgetown College participated in the excavations and subsequent laboratory processing. Local historian JoAnn Caputo, who is conducting research about Margaret Garner, also volunteered on the project. Permission for the excavations was given by landowner George Budig. Mr. Budig allowed us to use the twentieth century house on the property as field headquarters, with the oversight of Ruth Wade Brunings, a descendent of the neighboring Bedinger family into which the Gaines family had intermarried. Ruth Brunings also provided historical information about the family and the twentieth century occupation of the site. Susan Cabot, then of the Boone County Historic Preservation Office, and Anne Butler of Kentucky State University's Center for Excellence for the Study of Kentucky's African Americans clarified several details based upon their research in local primary records.

The Maplewood site's importance has been recognized by the Kentucky African-American Heritage Commission, who supported the archaeological research, along with Kentucky State University, and by the National Register of Historic Places, which recently listed it for its research value. The Maplewood excavations have received recent public exposure, having been included in a Kentucky Educational Television (KET) documentary about the Underground Railroad. Results of the Maplewood excavation were part of a temporary exhibit on slavery at the National Underground Railroad Freedom Center in Cincinnati, which has expressed interest in the long-term use of materials from the Maplewood site.

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THE 4-H CULTURAL HERITAGE PROJECT: RESEARCH OF A POSTBELLUM AFRICAN-AMERICAN HOMESTEAD

By
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ABSTRACT

Between 1994 and 1996, the 4-H Cultural Heritage Project documented the Neal-Rice site (15Ni44), a turn-of-the-twentieth century African-American homesite in rural Nicholas County, Kentucky. Mutually corroborating lines of evidence from historical documents, material culture, and surviving architectural remains provide insights into the lives of the site's only inhabitants: Morris Rice, a stone mason, and his family. Results of these investigations also provide important information about Postbellum black consumerism and tenancy and landownership in rural central Kentucky.

INTRODUCTION

From 1994 to 1996, as part of the 4-H Cultural Heritage Project, archaeological excavations were conducted at the Neal-Rice site (15Ni44), a Postbellum African-American homestead located in Nicholas County, Kentucky. The use of multiple sources of information, which included historical, architectural, and archaeological data, permitted an interpretation of this turn-of-the-twentieth century African-American homesite. The information recovered from this site has contributed to our understanding of a variety of issues concerning the lives of African-Americans in rural Kentucky at the end of the nineteenth century.

The Neal-Rice site is located in Nicholas County, Kentucky on North Central 4-H Camp property near Carlisle, Kentucky (Figure 1). It is situated on a narrow, severely eroded ridge directly adjacent to and east of Kentucky Highway 1455 and a remnant of the old Gallows Hill Road. Throughout the 1800s, Gallows Hill Road was a small dirt road, used primarily for horses and foot traffic. The old road bed extends along much of the site's northwestern and western edges.

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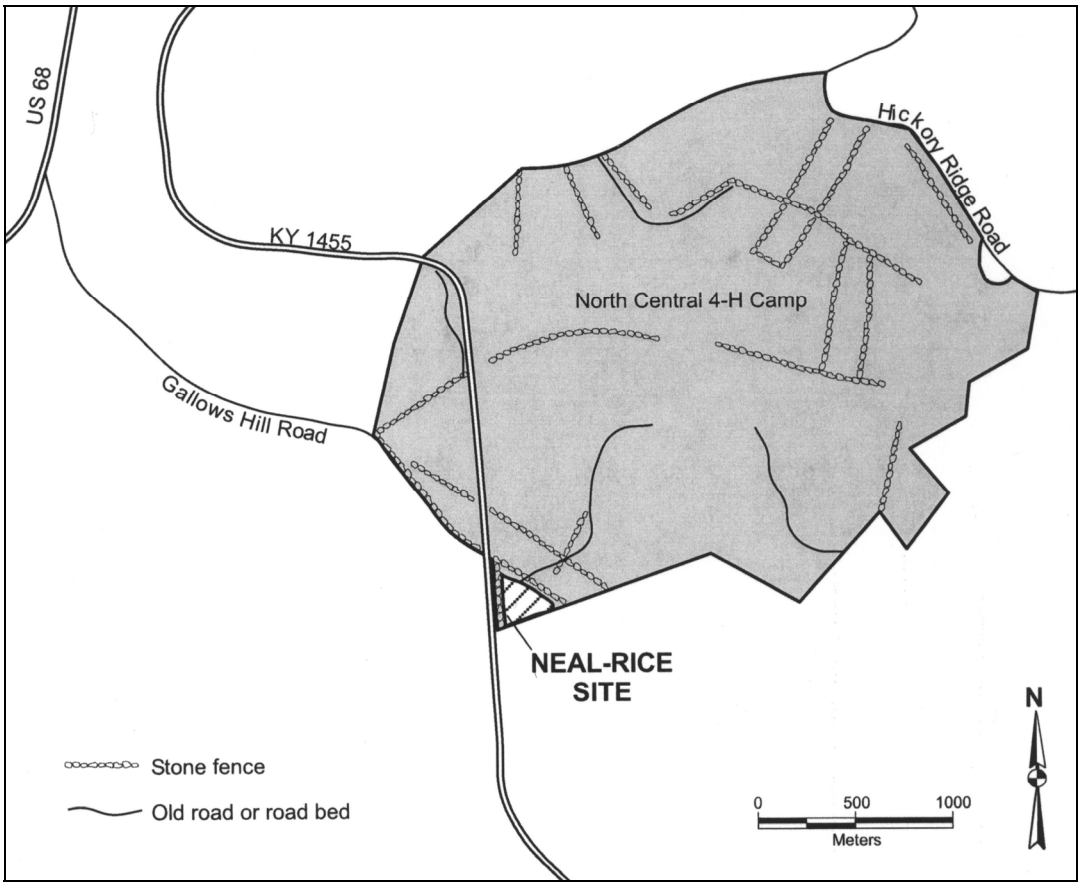

Figure 1. Location of the Neal-Rice Site (15NI44), Relative to North Central 4-H Camp, Nicholas County, Kentucky.

The research conducted at the Neal-Rice site reflects a common trend in historical archaeology, one that focuses on the integration of multiple lines of evidence to make interpretations about the past (Shackel 1993; Wylie 1993). While this particular approach has always been a staple of archaeological research, historical archaeologists can consider an even greater diversity of data sources when conducting their research than their prehistoric colleagues. No single source of data is more important or valid than another, and all information plays a part in formulating interpretations about the past (Shackel 1993).

Because interpreting the Neal-Rice site required the consideration of several different lines of evidence, this paper begins by separately presenting each data set (land ownership data, architectural data, and archaeological data) in the order in which they were collected. Next, interpretations about the people and the buildings, which integrate these data sets, are presented. This paper concludes with a brief discussion of broader topics in African-American studies, particularly consumerism and tenancy and property ownership.

THE DATA

LAND OWNERSHIP HISTORY

The land on which the Neal-Rice site sits once was part of a 55.7 ha (138-acre) farm owned by John Neal. Neal's son, Charles Neal, inherited the land from his father, who had owned it since the early 1800s. Neal sold the land to B.F. Mathers in 1860, who quickly began to parcel out Neal's original farm.

Mathers sold a 21 ha (52-acre) and a 3.2 ha (8-acre) parcel to Michael McGinley (Nicholas County Deed Book T:146). The Neal-Rice site was situated on a portion of McGinley's 3.2 ha (8-acre) parcel that was bounded by Gallows Hill Road. The 3.2 ha (8-acre) parcel was just a small sliver of land that was cut-off from McGinley's other land holdings by Gallows Hill Road. This undoubtedly made it difficult to sell this parcel as a farm or as an addition to nearby farms.

McGinley owned his two parcels of land until 1876, when he sold them to Michael Minoque (Nicholas County Deed Book 5:629). Minoque owned the property for four years, during which time he subdivided the 3.2 ha (8-acre) parcel into two equal parts of 1.6 ha (4 acres) each. The Neal-Rice site was located on the 1.6 ha (4-acre) parcel that Minoque sold to Morris Rice in 1880 (Nicholas County Deed Book 7:165). Rice owned the property for 21 years (until 1901), when he sold it to Campbell Ledford (Nicholas County Deed Book 18:435).

During the early to middle 1900s, the 1.6 ha (4-acre) property exchanged hands three more times: to Radford Banta (1913-1953), Sterling Banta (1953-1959), and Francis Wasson (1959-1961), all of whom had larger land holdings nearby (Nicholas County Deed Books 29:321; 54:430; 57:246). Nicholas County acquired the property in 1961, along with several other neighboring tracts of land, and created North Central 4-H Camp (Nicholas County Deed Book 58:490).

The property on which the Neal-Rice site was located was not prime real estate. The small 1.6 ha (4-acre) parcel of land had limited agricultural utility due to its size and poor soils, which are described as severely eroded (Richardson et al. 1982). Also, the parcel was isolated from nearby larger tracts of land by a road.

ARCHITECTURAL DATA

Today, all that remains above ground at the Neal-Rice site are piles of stone scattered across a narrow ridge. Upon closer examination, the visitor can make out the outlines of three dry-laid stone foundations clustered in a small forest clearing (Figures 2 and 3).

Figure 2. Stone Foundation of the House.

Figure 3. Stone Foundation of an Outbuilding, Possibly a Barn.

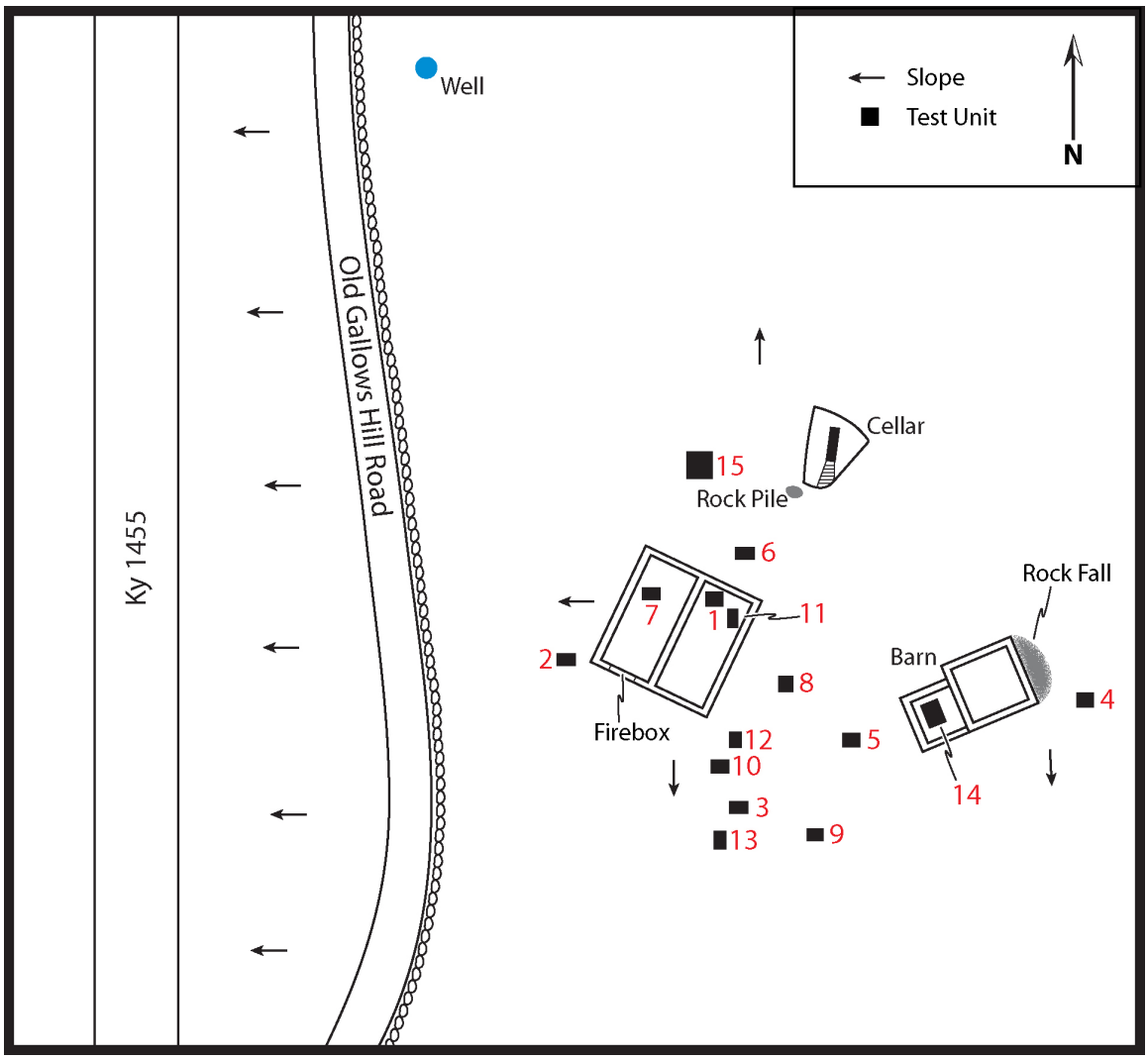

Figure 4. Schematic Map of the Neal-Rice Site, Main Habitation Area, Showing Location of Excavation Units.

The only building foundation that showed the remains of a chimney is located closest to the old Gallows Hill Road (Figures 2 and 4). The foundation measured approximately 6.1 by 6.1 m (20 by 20 ft) and was divided by a small stone wall foundation into two 3 by 6.1 m (10 by 20 ft) pens. The size and shape of this foundation, as well as the presence of a chimney, suggests that it functioned as a dwelling.

Just east of the house is the foundation of another structure that exhibited no evidence of a chimney, but had remnants of stone walls (Figures 3 and 4). The walls consisted of a main pen, which measured 4.9 by 4.9 m (16 by 16 ft), and a smaller 3.6 by 3 m (12 by 10 ft) western pen. The size and shape of this structure, as well as the fact that it lacked a chimney, suggests that it likely was not used as a dwelling. It is more likely that the structure served as an outbuilding to the dwelling, possibly a barn.

Northeast of and slightly downslope from the dwelling is what appeared to be a large pile of stone covering an approximately 3.0 by 4.9 m (10 by 16 ft) area (Figure 4). Stone removal revealed a small set of stone stairs dug into the earth leading down into a shallow, narrow opening. At the opening was the remnant of a wooden door frame that protruded from the stone pile (Figure 12). The stairs apparently led down the small slope to the door of a root cellar.

In addition to these three buildings, hidden in the dense vegetation 24.4 m (80 ft) down slope and north of the dwelling (Figure 4) is a circular ring of stone that probably was the well (Figure 4). This stone-lined well shaft measured 0.91 by 0.76 m (3 by 2.5 ft).

Also hidden in thick brush west and northwest of the foundations are the remnants of a stone fence that borders a well-worn gouge in the earth: the remains of the old Gallows Hill Road. During research prior to archaeological excavations, a network of stone fences and old roads was documented within North Central 4-H Camp (Figure 1). These fences probably defined property boundaries or separated pastured fields from cropland in the 1800s.

Based on the architectural remains, it appeared that a small domestic structure was located at the Neal-Rice site. Accompanying the home were the outbuildings necessary for a rural lifestyle.

ARCHAEOLOGICAL DATA

Archaeological research conducted at the Neal-Rice site consisted of the excavation of 15 units of various sizes according to stratigraphic layers, with the soil screened through 6.35 mm (1/4 inch) mesh (Table 1). Three excavation units were placed inside of the house foundation to sample deposits there (Figure 4). Four units were placed near the house foundation on its north, east, and west sides to sample deposits immediately surrounding the house.

Other excavation units at the site sampled the extant stone root cellar, the barn, and an area on the downhill slope located south of the house and barn foundations. Interior deposits of the root cellar were partially excavated. Two units were placed around the barn and one large unit was excavated inside it in order to determine its function. Finally, five units were excavated on the ridgetop's southern downhill slope to sample materials that may have washed down or been disposed of down the hill (Figure 4).

Stratigraphy

The Neal-Rice site stratigraphy consisted of only two cultural zones and the subsoil. The cultural zones extended no farther than 25 cm (10 inches) below the surface, but they did exhibit some variation in thickness. The first zone, representing the topsoil, was a dark clay loam that ranged in thickness from 5-13 cm (2-5 inches). The second

zone, a mottled yellow and dark brown clay, also ranged in thickness from 5-13 cm (2-5 inches). It represented an interface between the topsoil and the sterile subsoil. Both zones were characterized by dense inclusions of coal and clinkers within the soil matrix. The subsoil was a yellow clay that was devoid of artifacts. The cultural zones tended to be deeper in the units placed south of the foundations and downslope from the ridgetop.

The variation in thickness of both the topsoil and the interface zone probably is related in some way to erosional processes at work at the Neal-Rice site's narrow ridgetop location. The Nicholas County soil maps indicate that the site sits on severely eroded Eden flaggy silty clay soils (Richardson et al. 1982). Soil and possibly some artifacts may have collected in the area south of the foundations and downslope from the ridgetop due to erosion. Similarly, in areas with abundant tree roots or near the foundation walls, erosion may not have been as great as in open areas or on the ridgetop itself.

Table 1. Excavation Units.

Unit #	Size	Location
1	1.2 x 1.2 m (4 x 4 ft)	Inside house foundation
2	1.2 x .91 m (4 x 3 ft)	West of house foundation
3	1.2 x .91 m (4 x 3 ft)	South of house foundation down slope
4	1.2 x .91 m (4 x 3 ft)	East of barn foundation
5	1.2 x .91 m (4 x 3 ft)	West of barn foundation
6	.91 x 1.5 m (3 x 5 ft)	North of house foundation
7	1.2 x .91 m (4 x 3 ft)	Inside house foundation
8	1.2 x .91 m (4 x 3 ft)	East of house foundation
9	1.2 x .91 m (4 x 3 ft)	South of house foundation down slope
10	1.2 x .91 m (4 x 3 ft)	South of house foundation down slope
11	1.2 x .91 m (4 x 3 ft)	Inside house foundation
12	1.2 x .91 m (4 x 3 ft)	South of house foundation down slope
13	1.2 x .91 m (4 x 3 ft)	South of house foundation down slope
14	1.8 x 1.5 m (6 x 5 ft)	Inside barn foundation
15	2 x 2 m (6.5 x 6.5 ft)	North of house foundation
Cellar	.60 x 1.8 m (2 x 6 ft)	Inside cellar

Artifacts Recovered

Excavations at the Neal-Rice site produced a total of 4,091 artifacts, representing a variety of material types: ceramics, glass, metal, and other materials. In this section, they are described according to these types.

Ceramics

A total of 464 ceramic sherds were recovered. Whiteware (51.5 percent) comprised the majority of the ceramic collection (Table 2). Significant amounts of white granite (also known as Ironstone) (21.6 percent) and stoneware (16.4 percent) also were recovered. Other types of ceramics recovered from the Neal-Rice site consisted of

porcelain, redware, and yelloware (Table 2). Ceramic sherds that were unidentified according to type comprised 6.7 percent of the ceramic assemblage.

Table 2. Ceramic Types.

Ceramic Type	Frequency	Percent
Whiteware	239	51.5
White Granite (Ironstone)	100	21.6
Stoneware	76	16.4
Unidentified	31	6.7
Porcelain	10	2.2
Redware	4	0.8
Yelloware	4	0.8
Total	**464**	**100.0**

Most of the refined ceramics (represented by whiteware, white granite, and porcelain) were undecorated, comprising 95.3 percent of the ceramic assemblage. Pattern molded accounted for 1.4 percent of the refined ceramics (Table 3). Other decoration types consisted of decal, decal and relief, lustered, flowed, colored glaze, and handpainted. Decorated refined ceramics were distributed rather evenly among each of these ceramic types (Table 4), although together they comprised less than 5 percent (n=16) of the assemblage (Table 3). The coarse ceramics (represented by redware, stoneware, and yellowware) were all very plain, exhibiting simply a salt, slip, or clear glaze (Table 4).

Table 3. Decoration Types for Refined Ceramics.

Decoration Type	Frequency	Percent
Undecorated	333	95.3
Pattern molded	5	1.4
Decal	2	0.6
Decal and relief	2	0.6
Lustered	2	0.6
Unidentified decorated	2	0.6
Flowed	1	0.3
Colored glaze	1	0.3
Handpainted	1	0.3
Total	**349**	**100.0**

Although the ceramic sherds recovered from the Neal-Rice site were primarily small, some vessel forms and whole objects were identified. Most of these identified vessels consisted of plates and crocks, representing 28.1 percent and 26.6 percent of the ceramic sherds, respectively (Table 5) (Figures 5 and 6). Other ceramic vessels or objects recovered from the site consisted of cups, bowls, saucers, plain porcelain buttons undecorated clay marbles, porcelain doll parts, smoking pipes, and a porcelain toy teapot spout (Table 5). Fragments of vessels were identified primarily from units excavated inside of the house foundation, because they contained the highest proportions of large

and mendable sherds. The majority of sherds recovered from units outside of the house foundation were highly fragmented.

Table 4. Refined and Coarse Ceramics and Decoration Types.

Ceramic/Decoration Type	Frequency
Refined	
Porcelain	
Undecorated	7
Handpainted	1
Lustered	1
Pattern molded	1
Total	**10**
White Granite (Ironstone)	
Undecorated	92
Decal and relief	2
Pattern molded	2
Unidentified decorated	2
Colored glaze	1
Lustered	1
Total	**100**
Whiteware	
Undecorated	234
Decal	2
Pattern molded	2
Flowed	1
Total/Total Refined	**239/349**
Coarse	
Redware	
Clear glaze	4
Total	**4**
Stoneware	
Salt glaze	48
Slip glaze	26
Clear glaze	1
Unglazed	1
Total	**76**
Yellowware	
Clear glaze	4
Total/Total Coarse	**4/84**
Unidentified	31
Total/Total Unidentified	**31/31**
Grand Total	**464**

Table 5. Ceramic Vessel Forms/Objects.

Vessel Form	Frequency	Percent
Plate	39	28.1
Crock	37	26.6
Cups	19	13.7
Buttons	14	10.0
Bowls	9	6.5
Marble	9	6.5
Saucer	5	3.6
Doll/doll part	4	2.9
Smoking pipe	2	1.4
Toy teapot spout	1	0.7
Total	**139**	**100.0**

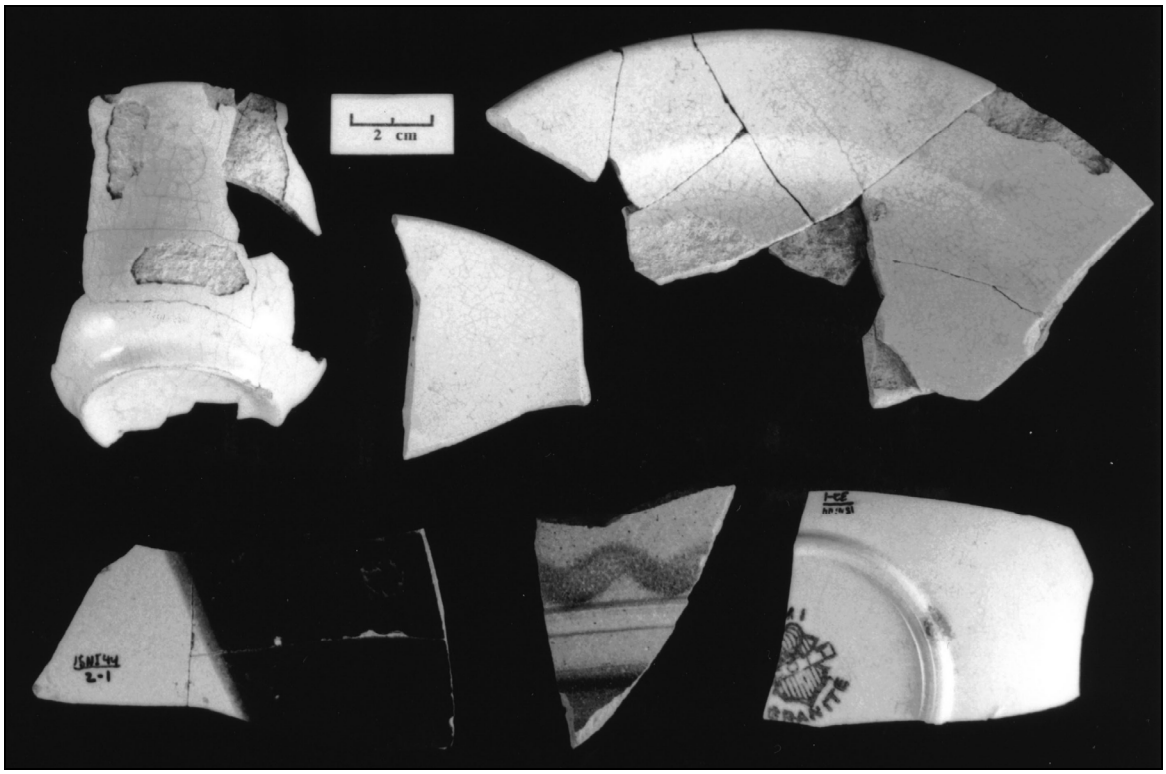

Figure 5. Ceramics from the Neal-Rice Site: Whiteware, White Granite, and Salt-Glazed Stoneware.

Glass

A total of 1,796 glass fragments were recovered, consisting of container glass and window glass. Window glass comprised 14.4 percent of the total glass assemblage and two different colors were represented: green tinted (n=144) and blue tinted (n=115). The container glass occurred in a wider variety of colors, of which clear, amethyst, and aqua

were the most prominent (Table 6). Container glass lip and base specimens revealed the processes by which some of the containers had been manufactured (Table 7).

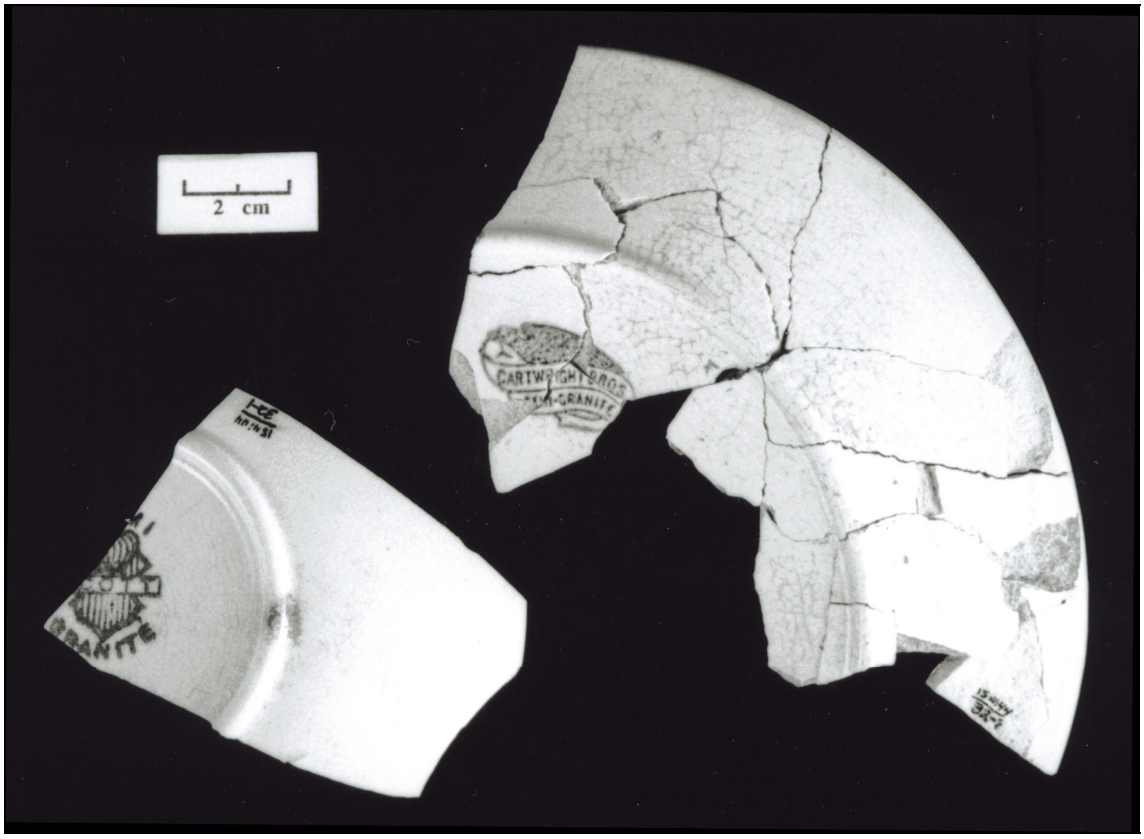

Figure 6. White Granite Plate and Bowl with Maker's Mark.

A wide variety of glass vessel forms/objects were identified, most of which were represented by unidentified bottles and could not be assigned to specific vessel forms or objects (61.7 percent) of the glass (Table 8). Several glass vessel forms/objects could be identified, including lamp globes (6.9 percent), canning jars (4.4 percent), and tumblers (3.1 percent) (Table 8) (Figure 7). A variety of other glass vessel forms/objects also were identified, though they occurred in smaller quantities (Table 8).

Metal

High frequencies of metal artifacts (n=1,598) were recovered from the Neal-Rice site. Unlike the ceramic and glass artifacts, most of the metal artifacts represented identifiable forms.

Most prominent in the metal assemblage were nails (n=539), roofing fragments (n=516), and can fragments (n=168) (Table 9). Most of the nails were machine-cut (60.0 percent), followed by wire nails (38.0 percent). The remaining 2.0 percent were unidentified nail types (Table 9). A wide variety of other metal objects were recovered,

Table 6. Container Glass.

Glass Color	Frequency
Clear	825
Amethyst	256
Aqua	136
Olive	76
Milk glass-white	73
Green tint	68
Brown	39
Blue tint	30
Dark green	20
Unidentified	8
Amber	5
Cobalt	1
Total	**1537**

Table 7. Container Glass Lip and Base Attributes.

Attribute	Type	Frequency
Lip	Machine-made/molded	34
	Applied fused	11
	Improved tooled	3
	Blob top	1
Total		**49**
Base	Machine-made	5
	Valve scar	4
	Plate bottom mold	1
	Molded	1
Total		**11**

Table 8. Glass Vessel Forms and Objects.

Glass function	Frequency	Percent
Bottle-unidentified	1108	61.70
Window glass	259	14.40
Lamp globe	124	6.90
Canning jar	80	4.40
Unidentified	74	4.10
Tumbler	55	3.10
Button	35	1.90
Dish	24	1.30
Medicine bottle-other	12	0.70
Liquor bottle-flask	6	0.30
Condiment	5	0.30
Chemical bottle-household	3	0.20
Jar-unidentified	3	0.20
Stemware	3	0.20
Collar stud	1	0.05
Eye glass lens	1	0.05
Lid liner	1	0.05
Syringe/dropper	1	0.05
Vial	1	0.05
Total	**1,796**	**100.00**

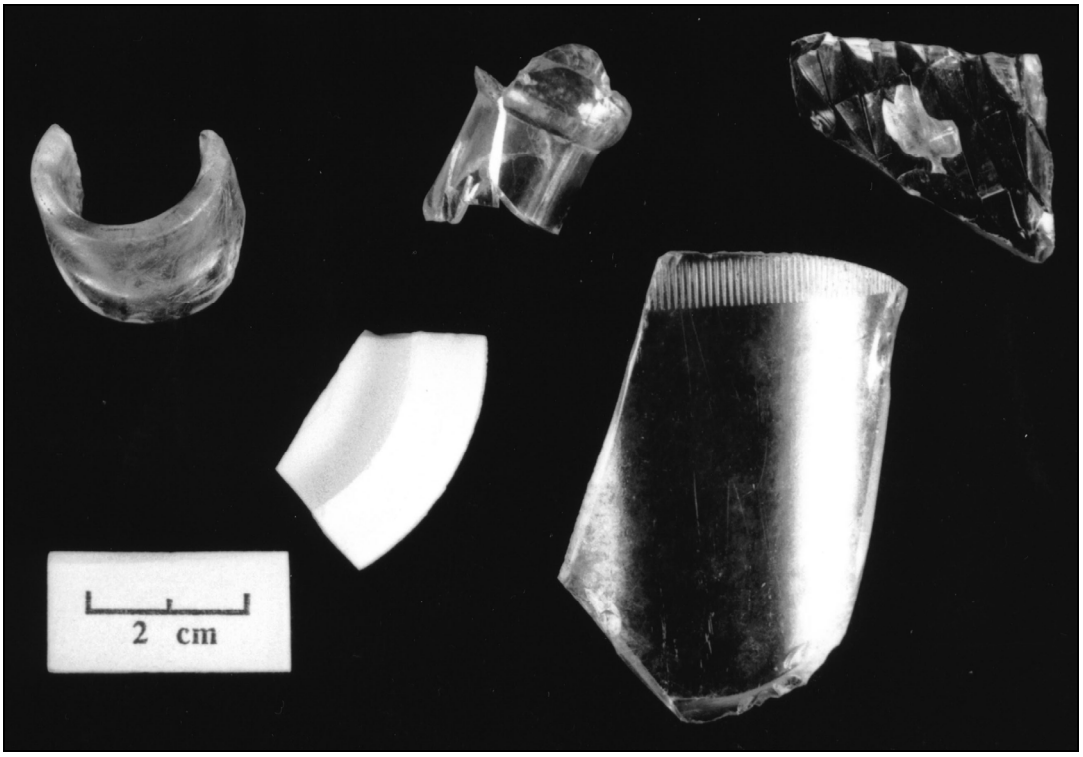

Figure 7. Glass Artifacts from the Neal-Rice Site: Bottle Lips, Milk Glass Lid Liner, and Tumbler.

some of which included two pennies dating 1890 and 1895 respectively (Figure 8); a fork, a spoon, and knife fragments; buttons and a thimble; shell casings (from a shotgun and a rifle); a harmonica part; a safety pin; and a watch part (Figure 8).

Other Materials

A variety of artifacts made from other materials (n=233) were recovered from the Neal-Rice site, consisting mostly of highly fragmented faunal remains (n=89) (Table 10). They represented a rather small proportion of the total artifact assemblage. Although a formal faunal analysis was not conducted, a cursory analysis of the remains indicated that fauna typical of domestic sites were present, like rat, pig, cow, and chicken.

High frequencies of shell (n=84) and slate (n=52) also were recovered. Most of the shell (n=76) were snail shells that probably originated at the site rather recently. The stone foundations created a damp, cool habitat enjoyed by these animals. The only other shell artifacts consisted of buttons (n=8). The slate artifacts were comprised mostly of writing board fragments (n=49), along with three unidentified slate items. In addition to these artifacts, a graphite pencil and seven leather shoe parts also were found (Table 10).

Table 9. Metal Objects.

Metal form	Frequency
Roofing fragments	516
Nail-machine cut	324
Nail-wire	204
Nail-unknown	11
Can fragments	168
Bullet	13
Hardware	13
Button	12
Bolt	11
Horseshoe nail	8
Bucket fragment	7
Screw	7
Jewelry	6
Musical instrument (harmonica)	5
Shell casing/cartridge	5
Fencing fragments	4
Buckle/clasp	4
Horse tack	4
Knife	4
Tack	4
Tool (hand)	3
Barrel stave bands	2
Coin	2
Grommet	2
Handle	2
Hinge	2
Pencil/pencil parts	2
Razor blade	2
Safety pin	2
Stove part	2
Cuff link	1
Fork	1
Furniture hardware	1
Gun part (barrel?)	1
Hook and eye	1
Horseshoe	1
Spoon	1
Thimble	1
Toy	1
Pocketwatch part	1
Window weight	1
Unidentified metal fragments	236
Total	**1598**

Table 10. Other Materials.

Material/Form	Frequency
Bone	
Faunal remains	89
Total	**89**
Shell	
Buttons	8
Faunal remains (snail)	76
Total	**84**
Slate	
Writing board	49
Unidentified	3
Total	**52**
Leather	
Shoe parts	7
Total	**7**
Graphite	
Pencil	1
Total	**1**

Figure 8. Miscellaneous Artifacts from the Neal-Rice Site: Writing Board (Slate) Fragments, Lead Pencil, Safety Pin, Coin, Small Buckle, and Metal and Shell Buttons.

Artifact Analysis

Functional Categories

Although the segregation of artifacts into arbitrary categories based on function (e.g., South 1977) is not particularly useful for site type pattern recognition studies when applied to domestic sites such as the Neal-Rice site, this kind of analysis can be beneficial for characterizing artifact assemblages. The artifacts are assigned to categories according to their presumed use in the past. For example, items associated with dining, food preparation, and food storage are generally considered kitchen-related, while items associated with the material used in the construction of a building are considered architectural. Because the delineation of these functional categories varies greatly among archaeologists, using them for intersite analysis is limited. However, functional categories do have great utility in characterizing the artifact assemblages on an intrasite level.

In the case of the Neal-Rice site, with its high percentages of kitchen- and architecture-related artifacts, the functional categories that are represented clearly reflect the domestic nature of the assemblage (Table 11). The different functional categories also can help characterize the activities that took place at this site and the people who once lived there.

Table 11. Functional Categories.

Functional Category	Percent
Kitchen	47.8
Architecture	33.2
Activities	7.0
Faunal	3.8
Furnishings	3.4
Clothing	2.2
Personal	1.9
Arms	0.5
Miscellaneous	0.2
Total	**100.0**

The bulk of the ceramic artifacts found at the Neal-Rice site are probably associated with food preparation, storage, and service. The identified ceramic vessel forms are typical of these functions, as represented by plates, cups, bowls, saucers, and storage crocks. Other food preparation/service type artifacts are represented by eating utensils, like a fork, knives, and a spoon. Much of the glass artifact assemblage also can be considered kitchen-related. These artifacts include medicine bottles, whiskey bottles, canning jars, chemical bottles, stemware, and tumblers, representing food and drink storage, drink service, and the storage of other household products.

The architecture group is represented primarily by window glass, nails, architectural hardware, and roofing materials. Based on the nails recovered, it can be

inferred that a wooden, frame-type building was constructed on the stone foundations that remain at the site. The recovery of large fragments of metal roofing, in addition to associated roofing nails, suggests that the structures had metal roofs. The recovery of window glass indicates that windows were present in at least some of the structures.

The other functional categories that were less prominent than the kitchen and architecture groups provide a characterization of the people who lived and worked in the buildings. The doll parts, marbles, and other toy artifacts suggest that children were present in the household. Other personal items include smoking pipe fragments, an eye glass lens, a pocket watch fragment, a harmonica part, and two pennies. These personal items suggest that a family occupied the site rather than a couple or a single individual.

Sewing seemed to be an important activity in the household, as evidenced by artifacts representative of the clothing group like buttons, suspender parts, buckles, and a thimble embossed with the words "Forget Me Not." Someone within the household was literate or was learning how to read and write, given the recovery of writing board fragments and pencil fragments. It seems that the household was probably never equipped with electricity, based on the high frequency of lamp globe fragments from oil lamps represented in the furnishing group. No artifacts related to the use of electricity were recovered, such as electrical insulators. Other furnishing items include decorative pressed and milk glass dish fragments. Due to the recovery of fragments of arms-related objects, it can be inferred that someone in the household owned guns. These guns probably consisted of a shotgun and a hunting rifle, based on the recovery of cartridges and a possible gun barrel.

Other activities that took place at the site, as represented by the activities group artifacts (fencing material, unidentified tool parts, bucket fragments, hardware, barrel stave bands, and a horseshoe and horseshoe nails) included the up-keep of the property, fence maintenance, and other types of farm chores. The recovery of fencing material reflects the presence and maintenance of fences on the property. Furthermore, the presence of fences suggests animals may have been kept on the property or that fences were intended to keep some animals out of the domestic area. Tools and other kinds of hardware were needed to maintain the fences and the buildings on the property. Buckets were most likely a part of the everyday chore of hauling water from the well to the house, while barrel stave bands suggest the presence of wooden barrels for bulk storage. The presence of a horseshoe, horseshoe nails, and horse tack indicates that the household owned or had the use of a horse.

Site Date Range

Establishing a date range for the site occupation from the artifacts can place the site within a particular historical context. Based on the diagnostic artifacts from the Neal-Rice site, the artifact assemblage can be assigned a general date range from the 1880s to the 1910s.

Numerous temporally diagnostic artifacts were recovered, eight of which provided excellent information upon which to establish a date range for the site's occupation: two coins, five sherds with ceramic maker's marks (Figure 6), and a metal harmonica part stamped with a patent date. A date range of 1885 to 1913 and a mean date of 1897 were derived from these diagnostic artifacts (Table 12). These dates are supplemented by the presence of similarly dated types of artifacts that are less reliable for mean dating. These include glass type, bottle lip and base types, ceramic types, canning jars, and nail types.

Table 12. Mean Dating of the Neal-Rice Site.

Artifact/Company Name	Date Range	Number	Mean	Reference
Coins				
Penny	1890	1	1890	
Penny	1895	1	1895	
Musical Instrument				
Harmonica part with a patent date	1899	1	1899	
Ceramic Maker's Marks				
Bridgewood and Sons	1885-1891	1	1888	Godden 1964
Cartwright Brothers	1887-1896	1	1891.5	DeBolt 1994
U.S. Pottery Co.	1899-1907	2	1903	DeBolt 1994
Alfred Meakin Pottery	1897-1913	1	1905	Godden 1964
Total	**1885-1913**	**8**	**1897**	

Amethyst glass (n=256), which was generally produced from 1880 to 1914 (Newman 1970), was found in great frequency at the Neal-Rice site (Table 6). Clear glass for bottles (n=825) was not produced widely until after 1875 (Fike 1987). The bottle lip and base types recovered from the Neal-Rice site consisted mostly of machine-made types, which generally began to be produced after the 1880s (Table 7) (Jones and Sullivan 1989). Improved tooled lips, several examples of which were found at the site, were generally manufactured from 1875 to 1903 (Deiss 1981). Also, older bottle manufacturing techniques were represented within the Neal-Rice site assemblage. For example, applied fused lips were most commonly used during the mid- and late 1800s, but also were manufactured into the early 1900s (Newman 1970). The high frequencies of late whiteware and white granite in the assemblage also indicate a late 1800s/early 1900s date for the site occupation (Table 4) (DeBolt 1994; Miller 1991). Decal-decorated varieties of these ceramic types, several examples of which were found at the site, generally date to after the 1890s (Adams 1980). Finally, the presence of *Ball* mason jars and a porcelain/milk glass canning jar lid liner support the date range suggested by other diagnostic artifacts. *Ball* mason jars began to be produced after 1879 when the patent for the jars held by Mason expired (Sives 1991). The lid liners were patented in 1869 and used into the early 1900s (Sives 1991).

The dates for selected architectural artifacts, especially nail types, also support the dates derived from the other artifacts. The presence of metal roofing reflects a trend in the use of inexpensive metal roofing in the late 1800s and early 1900s. The nail types recovered from the Neal-Rice site support the 1880-1910 date range, as evidenced by the

high frequencies of both machine-cut and wire nails in the assemblage (Table 9) (Nelson 1968). Although the United States Patent Office granted the first patent for wire nails strong enough for heavy construction in 1877 (Loveday 1983), wire nails were used primarily for the construction of packing cases until the last two decades of the nineteenth century. By about 1890, however, wire nail production had overtaken cut nail production (Smith 1975). Preiss (1973:90) suggests that an effective beginning date for wire nails used in building construction is 1880. By 1913, cut nail production accounted for less than 10 percent of the total nails produced in the United States (Loveday 1983). Jurney (1987:90) suggests that sites with less than 20 percent wire nails would date prior to 1888, those with 75 percent wire nails would date after 1895, and sites containing only wire nails would date after 1902. Based on the percentage of machine-cut nails (60.0 percent) and wire nails (38.0 percent) recovered from the Neal-Rice site excavations, the nail data suggest a date well within the transition period of nail technology, which coincides with the late nineteenth to early twentieth century date range established by the other artifacts.

Spatial Patterns

An examination of the spatial distribution of artifacts recovered from the Neal-Rice site reveals artifact concentrations that can help identify the function of the structures at the site. The majority of artifacts (55 percent) were recovered from units excavated inside (45 percent) or outside (10 percent) of the house foundation (Table 13 and Figure 4). Materials from the stone outbuilding (12 percent) and downslope from the house (24 percent) accounted for 36 percent of the assemblage. Artifacts found in association with the cellar (2 percent) or from general surface contexts at the site (7 percent) represented only a minor percentage of the overall site assemblage (Table 13).

Areas inside and outside of the house produced the greatest variety of artifact types recovered and functions represented - a total of ten different functional groups. The units downslope from the house produced artifacts representing eight functional groups, but those from the stone outbuilding, cellar, and surface produced historic artifacts relating to six or fewer functional groups.

When site area functional group profiles (rank and percent of area assemblage represented) are compared, contexts inside, outside, and downslope of the house are very similar. Kitchen [1], architecture [2], activities [3], and furniture [4] are ranked the same for each area. Also for these three areas, the kitchen functional group varies between 52.2 and 58 percent, the architecture group varies from 23.2 to 29.1 percent, and the activities group varies between 7.7 and 10.3 percent. These data illustrate that activities in these areas were similar. They are typical for refuse disposal deposits associated with a domestic structure, given the high percentage of kitchen artifacts and the diversity of functional groups, and probably are related to day-to-day domestic activities. This pattern at the Neal-Rice site is similar, but not identical to, Ball's (1984) "residential pattern," in which kitchen and architecture functional groups occur within a site assemblage in almost equal amounts (46 and 47 percent, respectively) and the furniture group is low.

Table 13. Functional Groups by Site Area.

Site Area	Functional Groups										
	Kitchen	Architecture	Activities	Furniture	Faunal	Clothing	Personal	Arms	Entertainment	Misc.	Prehistoric
Inside House Foundation (n=1854; 45 percent) (Units 1, 7, and 11)	52.2	23.8	8.4	4.7	3.1	3.7	3.1	0.8	0.1	0.1	--
Outside House Foundation (n=425; 10 percent) (Units 2, 6, 8 and 15)	56.8	29.1	7.7	1.8	1.2	1.1	1.0	0.4	0.1	0.8	--
Downslope (n=958; 24 percent) (Units 3, 5, 9, 10, 12, and 13)	58.0	23.2	10.3	6.5	0.2	0.7	0.4	--	0.7	--	--
Barn (n=495; 12 percent) (Units 4 and 14)	4.1	79.0	1.2	0.2	15.5	--	--	--	--	--	--
Cellar (n=76; 2 percent)	6.6	73.7	10.5	--	6.6	--	--	--	1.3	--	1.3
Surface (n=283; 7 percent) no area specified	59.0	33.8	1.4	2.4	--	3.1	0.3	--	--	--	--

The functional group profiles for the stone outbuilding and cellar contrast sharply with the areas inside, outside, and downslope of the house. The architecture group is the majority group for each, representing 73.7 or 79 percent of the materials from these areas. The next most frequently represented groups are either faunal (in the case of the barn) or activities (in the case of the cellar).

Excavations in the interior of the cellar produced only 76 artifacts, most of which represented architectural debris from the structure itself (metal roofing fragments and a few wire nails) and some evidence of storage vessels (bucket fragments and a few unidentified glass sherds). Several sherds of stoneware crockery were found in the vicinity of the cellar on the surface and may have been used in conjunction with other activities taking place in this building. The results of the cellar investigations indicate a storage function for this structure. The lack of concentrations of highly varied domestic refuse is also good evidence for a cellar, where only a limited range of activities would have taken place.

Substantially more artifacts were recovered (n=495) from the stone outbuilding. These artifacts were derived from a unit placed outside of the foundation wall (Unit 4) (n=4) and a large unit placed inside the structure (Unit 14) (n=491) (Figure 4). As with the cellar, most of the artifacts recovered from inside the structure were roofing fragments (n=381) or snail shells (n=76), which together accounted for 93 percent of the Unit 14 assemblage. The rest of the artifact assemblage from inside the structure consisted of a few stoneware sherds, glass fragments, and the lip of a medicine bottle. It appears that the interior deposits consisted mostly of fragments from a collapsed metal roof. These artifacts suggest that this structure served no domestic function. Based on the identification of another structure as the dwelling (located elsewhere on the site) and the negative evidence provided by the artifacts, it is probable that this stone building served as a barn or shed where low artifact density-producing activities took place.

Economic Scaling

In an attempt to gauge the socio-economic status of the people who lived at the Neal-Rice site, the proportion of decorated ceramics recovered from the site was determined in order to calculate an economic scaling index for the site assemblage. Examination of the refined ceramics suggests that only very plain items were purchased. In fact, the Neal-Rice site has a low proportion of molded wares (n=5; 1.4 percent), otherwise decorated wares (n=11; 3.2 percent), and porcelain (n=10; 2.2 percent) (this porcelain percentage does not include two fragments of a doll head) (Tables 2 and 3).

Utilizing Thomas's (1988) late nineteenth century to early twentieth century ceramic indexing formula, 1890 and 1900 indexes of 1.00 were calculated for the Neal-Rice site assemblage (the base number used in economic scaling). This resulted in the lowest index score possible (McBride et al. 1995). By way of comparison, the James L. Brown site, an 1870 to 1915 African-American farmstead of 16.2 ha (40 acres) in Henderson County, had 1890 and 1900 indexes of 1.02 and 1.23, respectively (Wagner 1992, 1995). The William Woods farmstead, a Euro-American farmstead of 56.6 ha (140

acres) in southern Illinois, had indexes of 1.01 and 1.09, respectively (Blanton 1989). The 1900 indexes are higher than the 1890 indexes because of the addition of decalcomania in the 1900 formula.

Based on these data, it appears that many small farmsteads during this particular time period exhibited low economic scaling scores. However, the economic indicators derived from the Neal-Rice site data suggest that the economic capabilities of the Neal-Rice site household were particularly low.

INTERPRETATION OF ARCHAEOLOGICAL AND ARCHITECTURAL EVIDENCE

The archaeological and architectural evidence characterizes the Neal-Rice site as a small domestic site that consisted of a house, a cellar outbuilding, a well, and an outbuilding probably used as a barn or shed. The site was occupied from the 1880s to the 1910s. This is a very tight time span, and the complete lack of artifacts suggesting an occupation later than this date range indicates that it is unlikely the site was ever occupied much past the 1910s. There is no proliferation of plastics, crown capped bottles, screw caps, screen-printed labels, or other artifacts that are indicative of a post-1920s occupation. The small size of the site and the hilly and severely eroded terrain upon which it sits suggests that it probably was not used as a farm, although the site appears to be laid out much like a farmstead. The primary function of the site seems to be strictly domestic, serving only as a residence, with possibly some small-scale subsistence farming also being conducted.

SITE INTERPRETATIONS

THE PEOPLE

Who lived at the Neal-Rice site? Based on the archaeological data and the property's land ownership history, it appears that the Neal-Rice site was occupied by Morris Rice and his family from the 1880s to the early 1900s. The two previous owners of the property, McGinley and Minoque, owned larger parcels of Neal's original 55.7 ha (138 acres) where Neal's home site probably was located. It is doubtful that either of these property owners lived on the 1.6 ha (4-acre) plot on which the Neal-Rice site is located. More than likely, the structures were constructed by Morris Rice when the property first became a 1.6 ha (4-acre) tract (in 1880). Since this particular parcel of land was Morris Rice's only land holding at the time, it would have been his only option upon which to construct a home.

The profile of the site occupants provided by the archaeological evidence complements the historical documents concerning the composition of Morris Rice's family (presence of children) and economic standing (low). Morris Rice is listed only in the 1910 Census Records, after his ownership of the property had ceased. He was listed

as being 54 years old, with his family consisting of his wife, Harriet (age 49), and their three children: Maggie (age 18), Bruce (age 16), and Stanley (age 7). The Census also indicated that Rice was an African-American whose occupation was a stone mason.

It is clear from the archaeological and historical data that Rice was not a very wealthy man; the land he owned consisted mostly of a narrow ridgetop with steeply sloping sides. This land was certainly not considered prime farmland and it is doubtful that Rice grew any crops or raised a large number of animals. More than likely, the Rice family tended a small garden and raised a few animals for their own use. According to the Nicholas County tax records, the only taxable property Rice owned when he lived at the Neal-Rice site was the 1.6 ha (4-acre) parcel of land and a few hogs. However, Rice was able to earn a living as a stone mason, most likely by working on nearby farms, building and maintaining structures and fences.

Rice was not listed in the 1900 Census nor in the 1880 Census (the 1890 Census records for Kentucky burned and are not available). It is probable that he purchased the land after the 1880 Census had been taken and he was apparently missed by the 1900 Census. It was not unusual for Census takers to miss African-Americans in the years following Emancipation. Overall, many forms of records were poorly kept on African-Americans during this period. It should be noted that a Morrison Rice (age 60) and his wife Dinah (age 57) were listed in the 1900 Census as living in Nicholas County, but they are not considered to be the same Rice family listed in the 1910 Census and who lived at the Neal-Rice site.

According to the 1910 Census, Morris Rice and his family were no longer living at the Neal-Rice site. This corroborates the land records, which indicate that he deeded the property in 1901 to Campbell Ledford. Apparently, by 1910 Rice had moved his family to a small nearby African-American community in Nicholas County called Henryville, where he most likely found work utilizing his stone masonry skills (United States 1910). His wife Harriet worked as a laundress and his daughter Maggie as a cook to supplement the family income.

The date range established by the archaeological evidence (1880s-1910s) extends beyond Morris Rice's tenure at the site and into the ownership of Campbell Ledford (1901-1913). The 1.6 ha (4-acre) parcel of land was deeded to Campbell Ledford in 1901, shortly after Rice mortgaged the property for $150.00 (Nicholas County 18:435). However, Ledford most likely never actually occupied the property. It is possible that Rice may have defaulted on his mortgage and lost the property. The property may have been owned only by Ledford after the default, either through an auction or sale by the bank that issued the loan.

It seems that Rice had some financial difficulties while living at the Neal-Rice site. Ledford may have allowed Rice to rent the homestead for a period after the sale of the property, which would account for the archaeological evidence of a post-1901 occupancy at the site.

Although the Rice family may have fallen on hard economic times toward the end of their occupation at the site, Rice did own his house in Henryville. This suggests that he still could afford to buy property. Therefore, perhaps the move to Henryville was occasioned by other considerations besides financial ones. By 1910, Rice was 54 years old and his health may have deteriorated due to the strenuous work associated with masonry. A health condition could have limited his ability to work, forcing his family to make up the economic difference. Perhaps the rural location of the Neal-Rice site area limited the family's employment opportunities. Therefore, Rice may have moved his family into the community of Henryville to make it easier for Rice and other members of his family to find work. However, the details of this interpretation are only speculative.

Unfortunately, very little is known about Campbell Ledford. The 1910 Census lists only one Ledford family residing in Nicholas County—William Ledford and his family, not Campbell Ledford. Campbell may have been related to William Ledford, who had owned 60.6 ha (150 acres) near the Neal-Rice site in the 1860s (Nicholas County 2:48). It is clear from the documents that Campbell Ledford owned the Neal-Rice site at the time of his death because the property was sold by his heirs to Radford Banta in 1913 (Nicholas County 18:435).

The archaeological evidence suggests that the Neal-Rice site was probably not occupied much past the 1910s. Thus, it is doubtful that the site was occupied much past Ledford's ownership of the property. The property on which the Neal-Rice site sits was owned by various members of the Banta family until 1959 (members of this family owned large portions of land adjacent to the Neal-Rice site property). It is likely that this particular 1.6 ha (4-acre) parcel was just one of the Banta family's many landholdings and was not utilized as a residence. It is possible that Ledford and the Bantas rented-out the property throughout the early 1900s, but there is no archaeological evidence of occupation past the 1910s.

THE BUILDINGS

Given Morris Rice's occupation as a stone mason, it seems appropriate that the surviving structural materials at the Neal-Rice site are made of stone. An architectural analysis of the foundations and architecture-related artifacts can provide additional insights into the site inhabitants and the site's occupation history. All of the information gathered indicates that the structures at the Neal-Rice site were constructed during the Morris Rice family occupation.

House

Based on the characteristics of the extant stone foundation, it appears that the Morris Rice home was a single-pen structure with an exterior-end stone chimney, a rear shed, and a front porch. A similar home, located in Jackson County, Kentucky, is illustrated in Figure 9. The Rice home faced northwest, toward the old Gallows Hill Road (Figure 4). The main unit of the structure (which contained the chimney) as well as the rear shed measured approximately 3 by 6.1 m (10 by 20 ft) each.

Figure 9. A House in Jackson County, Kentucky that May be Similar to the Rice Family's Home.

Identifying the unique architectural contributions of African-Americans is often difficult. This is due to the fact that African and European folk housing is similar in several basic ways - the two building traditions share a repertoire of plans, methods of construction, and a preference for certain building materials. However, in his study of African-American architectural traditions, Vlach (1986:74-76) was able to demonstrate that proxemic continuities rather than technological factors can provide a strong link to African architectural legacies. For example, while the common European room size is 4.9 by 4.9 m (16 by 16 ft), there is an African preference for small, intimate space. His fieldwork in Yoruba, for example, found that the basic house form was a 3 by 6.1 m (10 by 20 ft) two-room building. This double unit constitutes a basic module for the development of other building types. The two-room unit also may be modified by the omission of the partition wall to create a large room that still has the same overall 3 by 6.1 m (10 by 20 ft) dimensions. The basic unit also may be enlarged by adding a second unit of the same size. As stated earlier, the Rice home appears to have consisted of two 3 by 6.1 m (10 by 20 ft) units. As will be demonstrated below, the unit without a chimney was a later addition. Thus, it appears that the Morris Rice home has a direct continuity with the African proxemic code. In the United States, Vlach (1986) found a similar

connection with the shotgun house. Unlike the shotgun house, which was gable-oriented, the Rice home appears to have been eave-oriented.

Nails, sometimes the most common artifacts recovered from historic sites, can often help answer questions concerning building construction, repair and remodeling, abandonment, and destruction. As illustrated in Table 14, 34.7 percent of the nails recovered from the three units (1, 7, and 11; see Figure 4) located inside the Rice home were machine-cut and 65.3 percent were wire. According to Jurney's (1987) and Preiss's (1973) estimates, this would place the construction date of the Rice home between 1880 and 1895. Since Rice owned the property during this period, it appears that he either built the home himself or commissioned someone else to build it for him.

Table 14. Nail Types Recovered from Inside House.

Unit Number	Machine-Cut Nails		Wire Nails		Total	Percent
	Frequency	Percent	Frequency	Percent		
1	39	**42.8**	52	**57.2**	**91**	**100.0**
7	8	**53.3**	7	**46.7**	**15**	**100.0**
11	22	**23.6**	71	**76.4**	**93**	**100.0**
Total	69	(34.7)	130	(65.3)	199	(100.0)

A closer analysis of the nails reveals additional information about the evolution of the Rice home. For example, while 76.4 percent of the nails recovered from Unit 11, located inside the rear shed, were wire, only 57.2 percent of those recovered from Unit 1, which was located at the back wall of the room with the chimney, were wire (Table 14). This suggests that the rear shed was a later addition. Using Jurney's (1987) dating formula, it would have been constructed between 1895 and 1902. Rice sold the property in 1901, thus the nail analysis suggests that Rice made the addition to the home.

This corresponds to a period when the Rice family was rapidly growing. His three children were born between 1892 and 1903: Maggie (1892), Bruce (1894), and Stanley (1903). When they purchased the property in 1880, Rice (age 34) and his wife, Harriet (age 29) were just beginning their family. As the family grew, the single-pen home could no longer accommodate their needs, and thus Rice constructed a shed room addition to the back of his original home. This is the most common traditional method of enlarging single-pen homes in Kentucky. The dimension Rice chose for the addition, however, 3 by 6.1 m (10 by 20 ft), provides a direct link to his African legacy.

A number of scholars have suggested that, based on nail length frequencies, one can determine if a structure was log, timber frame, or balloon frame (Young 1991). Wagner (1992:181-184) summarized the literature on the subject. They found that because the framing of log structures is done with corner notching, there is little need for heavy framing nails (9d and above). Nails 8d and smaller, which were used in light framing around doors, flooring, shingling, finish work, lathing, and siding, were common in log structures. The structural members of timber frame buildings are mortised and

tenoned together. Thus, like log buildings, they would not require heavy framing nails. Balloon frame structures, however, use nails at the joints instead of mortise and tenon joints or corner notching. As a result, a significantly greater number of large nails (10d and greater) would be expected. The number of roofing nails (4d and 5d) and weather boarding nails (7d to 10d) would remain fairly constant in all types of construction.

Box framing was a common construction method employed in Kentucky at the time the Rice house was built. Box framing is a type of construction involving the nailing of boards vertically between sills and plates to form both the interior and exterior walls, as well as the building's weight-bearing support. Narrow strips of wood or battens were often nailed over the cracks on the exterior to produce the appearance of board-and-batten siding. In box framing, all posts, studs, and braces were frequently eliminated. Thus, like log and timber frame construction, one would expect to find few nails larger than 8d at the site of a box-framed house. In his analysis of six box-framed homes in Texas, Jurney (1987:85) found that 8d nails were most often used for wall boards and 5d and 6d nails were commonly used for battens.

Timber-frame homes were no longer being constructed in Kentucky at the time that the Neal-Rice house was built. Not enough large framing nails (10d or greater) were recovered from units inside the house at the Neal-Rice site to support the idea that the home was balloon frame (Table 15). Thus, it appears that Rice either constructed a log or a box house on top of his stone foundation.

Table 15. Nail Sizes from Units Inside House.

Size of Nail	Unit 1		Unit 7		Unit 11		Total	
	Freq.	Pct.	Freq.	Pct.	Freq.	Pct.	Freq.	Pct.
2d	15	23.4	0	0.0	10	13.0	**25**	**17.1**
3d	14	21.9	0	0.0	21	27.3	**35**	**24.0**
4d	4	6.2	2	40.0	16	20.8	**22**	**15.1**
5d	6	9.4	0	0.0	10	13.0	**16**	**11.0**
6d	3	4.7	0	0.0	5	6.4	**8**	**5.5**
7d	12	18.7	0	0.0	3	3.9	**15**	**10.3**
8d	8	12.5	1	20.0	4	5.2	**13**	**8.9**
9d	1	1.6	1	20.0	4	5.2	**6**	**4.0**
10d	0	0.0	1	20.0	0	0.0	**1**	**0.7**
12d	0	0.0	0	0.0	1	1.3	**1**	**0.7**
>16d	1	1.6	0	0.0	3	3.9	**4**	**2.7**
Total	**64**	**100.0**	**5**	**100.0**	**77**	**100.0**	**146**	**100.0**

Further information regarding the correlation of nail size and construction method can be provided by examining the results of archaeological investigations at three sites in Illinois that, based on historical and ethnographic information, were known to have been log structures (Wagner 1992). Nails 8d and smaller represented 100.0 percent, 94.0 percent and 86.4 percent of the nails at these three sites, respectively. At the Neal-Rice site, 91.8 percent of the nails recovered from inside the house were 8d or smaller, which suggests that it, too, may have been a log structure (Table 15). Unfortunately, similar

nail profiles would be expected for a box house. Thus, it is impossible to determine if the house was log or box. However, because box construction was one of the most popular methods of constructing rear additions to log homes at this time, it would have been unusual for a rear addition to a house of this period to have been constructed of logs. Thus, it is likely that both sections of the home were box constructed or that the original unit was log and the addition was boxed.

All that remains above ground of the Morris Rice home is the stone foundation. What happened to the rest of the structure? There are several possibilities. It may have burned or decayed in place or it may have been dismantled, its lumber recycled or hauled to a dump.

Young and Carr (1993) suggest that the condition of nails can help determine the post-occupational outcome of a structure. They separated nails by the way they were bent, or not bent. Unaltered nails are straight (unused), or at least straight enough to be successfully driven into wood. Clinched nails are nails that are bent at an angle of approximately 90 degrees, to increase their holding power. Pulled nails are characterized by a gentle arc shape. In the process of construction, some nails are lost at a site. While some may be cleared from the area, others would undoubtedly enter the archaeological record as unaltered or straight nails. When a building is dismantled, nails are either pulled with a crow bar or hammer, or entire boards are pulled from the building. In either case, this results in pulled nails. Young and Carr (1993) suggest that at a building site where the structure had been dismantled, the nail assemblage would be characterized by a significant proportion of pulled and straight nails, with relatively few clinched nails, which are nearly impossible to remove. At a site where a structure has been allowed to rot, the assemblage should reflect substantial numbers of clinched and straight nails, with relatively few pulled nails.

Table 16 illustrates the condition of the nails recovered from inside the house at the Neal-Rice site. There are large numbers of straight (55.9 percent) and pulled (39.3 percent) nails, but few clinched nails (4.8 percent). This suggests that the Rice home may have been dismantled, its lumber either recycled or hauled to a dump.

Table 16. Whole Nail Conditions for Units Inside House.

Unit Number	Straight		Pulled		Clinched		Total	Pct.
	Freq.	Pct.	Freq.	Pct.	Freq.	Pct.		
1	40	**63.5**	18	**28.6**	5	**7.9**	**63**	**100.0**
7	4	**80.0**	1	**20.0**	0	**0.0**	**5**	**100.0**
11	37	**48.0**	38	**49.4**	2	**2.6**	**77**	**100.0**
Total	**81**	(55.9)	**57**	(39.3)	**7**	(4.8)	**145**	(100.0)

Barn

The historic records (census and tax) and the archaeological record suggest that Rice was practicing subsistence agriculture. Since little livestock or excess crops would

have been produced from such small-scale farming and since Kentucky has relatively mild winters, it would not have been necessary for Rice to construct a large barn (referred to previously as the stone outbuilding). Based on the surviving foundation, it appears that he constructed a square, single-crib barn measuring approximately 4.9 by 4.9 m (16 by 16 ft) with a 3.6 by 3 m (12 by 10 ft) shed on one side.

Figure 10. A Barn in Jackson County, Kentucky.

The single-crib barn is the basic barn type found throughout the Southern United States. It has a gable roof with the entrance in the gable end. The crib is usually divided into two levels, with the lower one utilized for corn storage and the upper one as a hay loft. Most farming operations quickly outgrew the basic single-crib unit and the first stage of expansion consisted of shed additions. The fact that both late machine-cut and wire nails were found near the Rice barn suggests that the smaller shed unit may have been an addition. The sheds of single-crib barns, which were usually built of a lighter material than the central crib and with a lower pitch, were used for stabling livestock and equipment storage. Figure 10 is a photograph of a single-crib log barn with two frame shed additions located in Jackson County, Kentucky.

Unlike the Jackson County barn, Rice's barn had an unusually high stone foundation (Figure 3). This was likely due to his skill as a stone mason. The extant stone walls rise as high as 0.76 m (2.5 ft) in some sections. Despite their height, they would have been topped by a log or frame second level. Kentuckians continued to construct log barns well into the twentieth century, long after logs ceased to be a popular construction material for homes. At the time the Rice barn was built, both log and single-crib frame barns were commonly being constructed in the region. While it is not known which construction method was used, the fact that few nails were recovered from the area (six

wire and three cut) suggests that the barn was log. The shed addition, however, was most likely frame.

Cellar

Cellars provide storage for canned goods, turnips, potatoes, and other root crops, as well as other vegetables and foodstuffs. They are usually small, partially subterranean, stone structures. Stone walls on a partially subterranean outbuilding were essential for preservation of certain foods, particularly root products. The cellar is usually located near the back of the home.

Writing in 1881, about the time the Rice cellar was built, Halsted, the author of *Barns, Sheds & Outbuildings* suggested that, "The leading features of a good root cellar are: cheapness, nearness to the place where the roots are consumed, dryness, ventilation, and, above all, it should be frost-proof" (Halsted 1994:224). Though it is unlikely that Rice actually read Halsted's work, his cellar had many of the features suggested by the author. For example, it was located near the back of his house and appears to have been a field root cellar, a type which Halsted suggested was cheap to construct (Figure 11). A field root cellar was built by excavating a hole in dry ground, constructing a roof over the hole and covering it with soil, forming a mound that could be planted in grass. In light soils, it was necessary to place a stone, brick or post-and-board wall against the sides of the cellar, and at the ends.

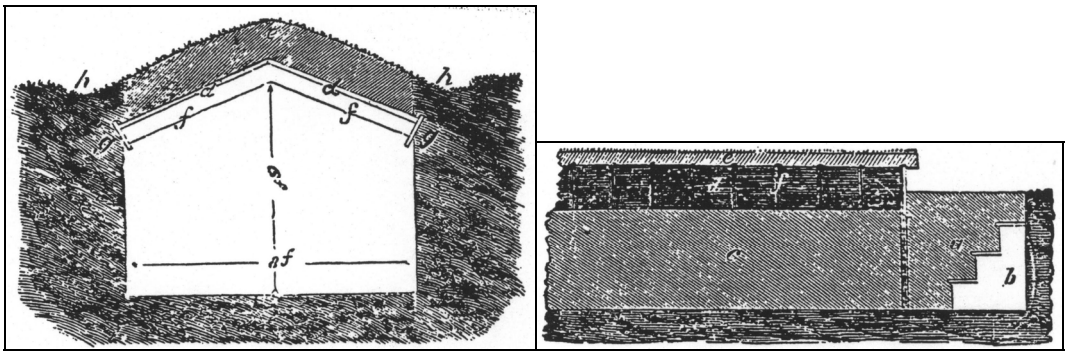

Figure 11. Diagrams of a Root Cellar (from Halsted 1994 [1881]).

Being a stone mason, it is not surprising that the walls of his cellar were constructed out of field stone. At one end of the stone foundation, researchers documented a single wood post (Figure 12). This was where the door was located. The door opened onto steps that led into the cellar. Although the cellar's roof did not survive, metal sheathing from the collapsed roof was recovered from inside the cellar. A ventilation pipe, which most likely projected through the roof to provide air, was not recovered. Figure 13 is a photograph of an extant field root cellar located in Nicholas County, at the intersection of Kentucky State Highways 32 and 36, just a few kilometers from the Neal-Rice site. Though it is larger than the Rice cellar, the two structures appear to have been of similar construction.

Figure 12. Remains of the Cellar at the Neal-Rice Site.

Figure 13. An Existing Cellar a Few Miles from the Neal-Rice Site.

BROADER RESEARCH ISSUES

Analyses of the historic documents, architectural remains, and artifactual materials recovered from the Neal-Rice site and the interpretations about the people who lived there and the buildings constructed provide a glimpse into the life of an African-American family during Postbellum Reconstruction. The subject of Postbellum Reconstruction is a particularly important one in Kentucky history and is under-represented in archaeological investigations, particularly for African-Americans (McBride and McBride 1990).

The information recovered from the Neal-Rice site has the potential to contribute to an understanding of broader African-American research topics. Through the examination of this and other African-American sites, researchers can study how African-Americans made a new life for themselves after Emancipation and the difficulties they had in doing so. Furthermore, such research also can serve as an important tool for establishing an understanding of the historical development of African-American culture in Kentucky. In this section, two issues, consumerism, and African-American tenancy and land ownership, are briefly discussed in order to provide an idea of the research potential of sites like the Neal-Rice site and the potential for their comparison to a variety of other site types.

CONSUMERISM

One of the ways in which people can express their status, desires, or even freedom is by consuming goods, and there are many factors that guide this motivation: personal taste, style, political perspective, and ethnic affiliation, among others. Therefore, much can be learned about a family just by examining their table setting and the ceramics with which they chose to furnish it. By considering consumerism within the context of post-Emancipation African-American life, it is possible to interpret much about this formative period in African-American culture. The following discussion illustrates the research potential the Neal-Rice site, and other sites like it, holds with respect to this topic.

Despite the Rice family's low economic standing, the ceramic artifacts recovered from the Neal-Rice site indicate that the family purchased or acquired fairly new dishes. The site produced little evidence of older ceramics, such as pearlware or early whitewares. Most of the ceramics were undecorated whiteware and white granite, the most common ceramics purchased at the turn of the twentieth century. Decal and pattern-molded decorated ceramics, the more expensive early twentieth century ceramics, also were represented at the Neal-Rice site, though minimally.

Late nineteenth century African-American households typically possessed a wide range of ceramic types, particularly older types that could be purchased at a very low cost or acquired used (Mullins 1999). Whether Rice purchased ceramics at full price or from bargain odd lots, his table setting displayed newer dishes. While these dishes may have been new, they do not appear to be part of a matching set. Although undecorated dishes

from a variety of sources can give the appearance of a matched set, Rice's dishes were most likely not part of a matching set. Four different ceramic manufacturers were represented in the tableware recovered at the Neal-Rice site, suggesting that mismatched sets of dishes were purchased piecemeal. This particular consumption trend is similar to late nineteenth century urban African-American home sites in Annapolis, Maryland studied by Mullins (1999).

Although many of the ceramic vessels in the Neal-Rice site assemblage were utilitarian, like crocks and bowls, finer tablewares were well represented, particularly tea wares like cups and saucers. Added to the dishes were table glasswares in the form of tumblers and stemware. Again, these items could have been purchased at a reduced cost from bargain odd lots or as incomplete sets, but it seems that Rice wanted tablewares reflecting the latest style and etiquette.

While Rice's actual economic capabilities were rather low, he seemed intent on displaying a sense of higher status through the consumption of goods reflecting the latest styles. He lived at the Neal-Rice site at a time when mass-produced goods were changing the way Americans consumed. Rice seems to have been an active participant in this consumer revolution. Even in his rural location, many products were available through mail order catalogs and were easily transported over long distances due to improved product packaging (Mullins 1999; Schlereth 1989).

The numerous metal can fragments found at the site suggest that Rice purchased some canned food products, although most Americans still purchased food in bulk from local stores at this time. Other researchers have demonstrated a trend among late nineteenth century African-American households towards the extensive purchasing of packaged foods and national brands. It has been suggested that these trends may have been associated with an attempt by African-American households to subvert racism and discrimination at local stores (Mullins 1999). It was believed that producers of packaged and national brand products could not discriminate due to standardization. This trend also suggests that African-Americans were gaining status in society at this time through consumerism. The increasing power of African-American consumerism was well recognized by businesses in the early twentieth century as they began to target the African-American consumer through advertising (Edwards 1932). It is unclear whether these interpretations are relevant to Rice and his family, but his consumer patterns seem to mirror the urban African-American households studied by Mullins (1999).

Whether or not the Rice family's consumer habits are indicative of their ethnicity, their habits certainly indicate that they were intent on participating in America's mass consumerism. They did not necessarily purchase only the things they needed to survive. They also apparently tried to make a statement of status and freedom through their ability to consume. This brief analysis of consumerism only hints at the possible insights that could be realized through a more in-depth study of the Neal-Rice site artifact assemblage.

AFRICAN-AMERICAN TENANCY AND LAND OWNERSHIP

Research conducted at the Neal-Rice site also provides an opportunity to investigate the demographic developments that occurred during Reconstruction, as tenancy spread throughout the Commonwealth and the South. Increased tenancy was part of a nationwide trend at this time. It was more prevalent in the South—in 1900, tenants farmed almost 50 percent of all farms compared to only 26 percent in the North (Woodman 1996).

During the time that Morris Rice and his family lived at the Neal-Rice site, America was in the process of recovering from the Civil War. The defeated South was in a period of transition from the system of slavery that ran huge agricultural operations to small farms and tenancy. With the breakup of the large plantations from 1880 to 1920, tenancy increased 13 percent in the South. The trends of tenancy for the South as a region are comparable to those found in Kentucky (McBride and McBride 1990).

Although proportionally most tenants were white, African-Americans were more likely to be tenants than whites. In 1900, the first Census that tracked tenancy by race, 74 percent of African-American farmers were tenants, compared to only 36 percent for whites (Woodman 1996). This was not an alarming number, because tenancy had long been considered a crucial step towards land ownership. It was expected that tenancy would be an important step for former slaves to assimilate into the American tradition of land ownership. Part of this thinking stemmed from the old perceptions during slavery that African-Americans were not capable of taking care of themselves, much less operating their own farms. Tenancy was seen as a sort of training for ex-slaves (Woodman 1996).

Morris Rice's ownership of the Neal-Rice site represents an unusual situation for an African-American during the years shortly after the Civil War. More than likely, Rice was once himself a tenant, but eventually he was able to purchase property. On the surface, it appears that Rice may have been a wealthy or privileged African-American, but a closer examination of the situation suggests that his ownership of the Neal-Rice site may have been more symbolic than economic.

Evidence indicates that Morris Rice most likely held an economic standing on the same level as a tenant, i.e., a rather low economic status. However, it does not appear that Rice purchased the Neal-Rice site property for commercial agriculture use—it only consisted of 1.6 ha (4 acres) and its soils were poorly suited for farming. Morris Rice apparently purchased this rural land specifically for the purpose of living on it because he had the opportunity and the ability to do so. This was contradictory to the traditional view of rural land ownership as a purely subsistence or commercial venture. Landownership was seen as power, representing wealth and status.

Morris Rice lived in a rural area, but he was not a farmer. It was more typical for African-Americans as well as whites, particularly if they possessed a specific skill, to move to urban areas during the late nineteenth and early twentieth centuries (Pleck 1979).

Morris Rice's talents as a stone mason probably would have been more conducive to living in an urban environment, where construction opportunities were greater. However, it seems that Rice was able to make a living for 21 years at this rural location. Most likely, he built and mended buildings and stone fences for local farmers and residents in nearby towns.

Owning land would not have been a particularly easy task to accomplish for Morris Rice. Poverty and racism were certainly major obstacles to owning land for African-Americans. Before the Civil War, slavery was well established in Nicholas County (one person in seven was a slave), but, overall, there were fewer slaves and more free Negroes in Nicholas County than in surrounding counties (Conley 1976). Though it cannot be documented conclusively that Rice was born a slave, it is likely that he was. The emancipation of slaves in 1865, when Rice was 15, opened up a new world of opportunities and restrictions. One opportunity was the right to buy land, which Rice did in 1880.

After the War, dislike of Negroes forced African-Americans to settle in less desirable areas of towns or in villages that had their beginnings as free towns (Wright 1985). This led to increasing segregation. However, it is not known whether any of the African-American settlements in Nicholas County had their beginnings as free towns.

The closest African-American settlement to Rice's home place was the community of Hickory Ridge, located about 2 km (1 1/4 miles) northeast of his house. Hickory Ridge was made up of little more than the Methodist Episcopal Church of America, built in 1894 (of which Rice was a trustee), and a school. After the church was destroyed by a tornado and the school was destroyed by a fire in 1904, the community began to disappear (Conley 1976). Proximity to Hickory Ridge may have been one of the incentives for Rice to purchase the Neal-Rice site property. When Morris Rice sold the property, he remained within the parameters of segregated society at the time and moved to the African-American community of Henryville, also located in Nicholas County.

Although Rice was not a wealthy man, it seems that owning property was an important statement for him. When he left the Neal-Rice site for Henryville, he purchased property again. Owning land may have given Rice the feeling of true freedom at a time when many African-Americans and whites were economically enslaved by tenancy. However, it would take much longer for African-Americans to break free of the enslavement of racism.

SUMMARY

Excavations at the Neal-Rice site from 1994 to 1996 recovered a total of 4,091 artifacts from hand-excavated units placed inside and outside of the foundations of a house, barn, and root cellar. The site contains the domestic refuse and architectural remains of a late nineteenth to early twentieth century African-American homestead.

Documents suggest that Morris Rice, an African-American stone mason, purchased the 1.6 ha (4-acre) piece of property on which he built a house, barn, root cellar, and fence in the 1880s. Here he and his family, likely the only occupants of the site, lived until ca. 1910.

Research conducted at the Neal-Rice site recovered important data from a turn-of-the-twentieth century African-American homestead. The archaeological, architectural, and historical data from this site provide a rare opportunity to study rural Kentucky African-Americans at the end of the nineteenth century. As archaeologists begin to examine in greater detail the beginnings of post-Emancipation African-American culture, more intensive study of these data will contribute additional interpretations about the people who once lived at the Neal-Rice site and about African-American households in general during this era. This very unique dataset also will be an important comparative tool for other African-American archaeological studies in Kentucky and elsewhere.

ACKNOWLEDGMENTS

Research at the Neal-Rice site was conducted as part of the 4-H Cultural Heritage Project. Conceived of as a pilot project, it had two major purposes: education and site management. As part of the former, the goal was to enhance 4-H youths' appreciation of prehistory and history by involving them in all aspects of "real live" archaeological research. The goal of the latter was to evaluate cultural resources on Kentucky's four 4-H camps to develop plans for their protection and management.

Investigations at one of the camps, North Central 4-H Camp in northcentral Nicholas County, were initiated in 1994 after 4-H adult volunteer Cheryl Bersaglia's research of historical documents identified eight potential historic archaeological sites on camp property. The first year of investigations consisted of two weeks of fieldwork, weekend days of lab work, and the preparation of educational activities and a management plan for the camp's cultural resources. Project personnel presented preliminary findings at the Kentucky Heritage Council's 12th Annual Archaeology Conference in Richmond, Kentucky (McBride et al. 1995). These activities were funded in part by a Federal Survey and Planning Grant from the Kentucky Heritage Council to the University of Kentucky's Program for Cultural Resource Assessment and by the Kentucky 4-H Program.

In 1995, one week of field/lab work was supported by North Central's Camp Committee, the 4-H programs of the three participating counties (Madison, Robertson, and Rowan), and the Kentucky Archaeological Survey. In 1996, the University of Kentucky College of Agriculture awarded a Program Enhancement Grant to the Madison County 4-H Program to support an Archaeology Weekend, open to all Kentucky 4-H high school students, as well as for architectural research and report preparation. These activities were carried out by the Kentucky Archaeological Survey and a private historic architectural consultant. The Kentucky Archaeological Survey supported other project

research and educational activities, including a one-day site reconnaissance, a 4-H agents' workshop, a 4-H Senior Week workshop, an exhibit at the 1995 Kentucky State Fair, and development of a permanent museum exhibit for North Central 4-H Camp.

It is impossible to thank everyone who has contributed to our work at North Central—hundreds of 4-H campers; scores of adult volunteers, agents, and county 4-H programs (especially Madison and Fayette counties); and dozens of administrators—but a few individuals deserve special mention. Mark Morgan, former Madison County 4-H Youth Development Extension Agent, took a personal interest in the project from the very beginning. He saw enormous opportunities for youth education and development and worked to make sure we had the resources to realize them. Jennifer Lynn, North-Central 4-H Camp's Environmental Director, has been an enthusiastic supporter of the project. She has worked to ensure that the results of the project will enrich 4-H campers for many years through the camp museum exhibit and the educational activities developed for the camp. The support of the University of Kentucky's Agricultural Extension Program's 4-H administrators Dwight Crum, John Mobray, and Bill Umsheid, was critical to the project's initiation.

Finally, we would like to thank the scores of 4-H campers of all ages and from many counties who directly participated in the project. The hard work and enthusiasm of these 4-H "youth archaeologists" made this project a truly special one for us.

The 4-H Cultural Heritage Project was a resounding success, both in terms of research results and in terms of youth education, and it can serve as a model for involving other youth organizations in archaeology. The research at North Central 4-H Camp has made a contribution to our understanding of Kentucky's past and will continue to make a contribution for a long time to come. Hopefully, through our educational efforts, the long-term outcome of this project will be the creation of a constituency that supports archaeological site preservation for the present and the future.

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