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Division of Historic Preservation
and Archaeology (DHPA)



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INTRODUCTION

Per state statute (Indiana Code 14-21-1-12), one of the duties of the Division of Historic Preservation and Archaeology (DHPA) is to develop a program of archaeological research and development, including the publication of information regarding archaeological resources in the state. This journal is one of the ways the DHPA addresses that mandate. In addition, Indiana's *Cultural Resources Management Plan 2005 to 2011* (DHPA 2005:32) also lists educating the public about Indiana's prehistoric and historic Native American cultures and identifying, and studying Native American, African-American, and other ethnic and cultural heritage resources, as ways to accomplish several preservation goals. The variety of archaeological sites in Indiana is wide-ranging and impressive. Virtually all of the cultural groups prehistorically and historically in Indiana are represented archaeologically in one way or another.

We are pleased to offer this digital document containing articles on a broad range of archaeological and anthropological topics. Archaeology is happening regularly in Indiana, and all of these articles provide the reader with various insights into many important sites, theories, and projects. To view previous volumes of *Indiana Archaeology*, go to <http://www.in.gov/dnr/historic/3676.htm>.

For those who may not be familiar with some archaeological terms, a helpful glossary of some of these general terms is included in the back of this journal. To also aid the non-archaeologist reader, a general overview of prehistoric time periods may be found at the end of this volume. Additional archaeological outreach documents, including *Early Peoples of Indiana*, may be accessed at www.IN.gov/dnr/historic. For those readers who may not be familiar with the authors and editors of the volume, biographical information is provided. Feel free to access our Indiana archaeological travel itinerary (<http://www.in.gov/dnr/historic/files/travelsarchaeo.pdf>) if you would wish to visit an archaeological site. The DHPA also urges you to participate in the annual Indiana Archaeology Month in September. If you have an interest in providing a voluntary financial donation to contribute to archaeology in our state, consider the Archeology Preservation Trust Fund (<http://www.in.gov/dnr/historic/5897.htm>).

With this volume, the editors are introducing a new section—occasional “reports” or “features” on various archaeological topics pertinent to specific regions, counties, or city/towns of Indiana—to disseminate further archaeological information of local, topical, and community interest. If qualified professional archaeologists, professionals in fields related to archaeology, avocational archaeologists, and knowledgeable individuals with expertise in relevant topics wish to tender a credible submission, please contact the editors for consideration prior to submission. If individuals or groups have particular topics or ideas they wish to offer, the editors welcome suggestions.

-- JRJ, ALJ

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LOOKING FOR YANKEETOWN IN POSEY COUNTY, INDIANA

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In this paper preliminary data is presented from excavations at the Dead Man's Curve site (12Po3), in southern Indiana (Figure 1). This was the first step in the Investigating Yankeetown project. Yankeetown Phase people, (dated from A.D. 700 to 1100) are believed by some to be ancestral to the Mississippian Angel Phase people, while others suggest Yankeetown settlement represents an intrusive group who moved into southern Indiana from some unknown locale (Garniewicz et al. 2009; Redmond 1990). The authors' interest in Yankeetown, however, originated with evidence that Yankeetown people migrated from southern Indiana and settled in Cahokian villages (Figure 2) (Alt 2002a, b; 2006a, b).

The excavations at Dead Man's Curve were designed to explore Yankeetown settlement in Posey County, Indiana. The researchers hoped to excavate a Yankeetown house (which was accomplished and is reported on here), and thus begin to develop a database with which to understand Yankeetown settlement and how it relates to the genesis of the Mississippian Angel Phase and the founding of places like Angel Mounds. But ultimately, not only is more needed to be known about Yankeetown people to better understand the Angel phase people, but we believe this data is necessary to better understand the Mississippian transformations (which began at Cahokia, in west central Illinois; Pauketat 2004) that swept across the Midwest and Southeast.

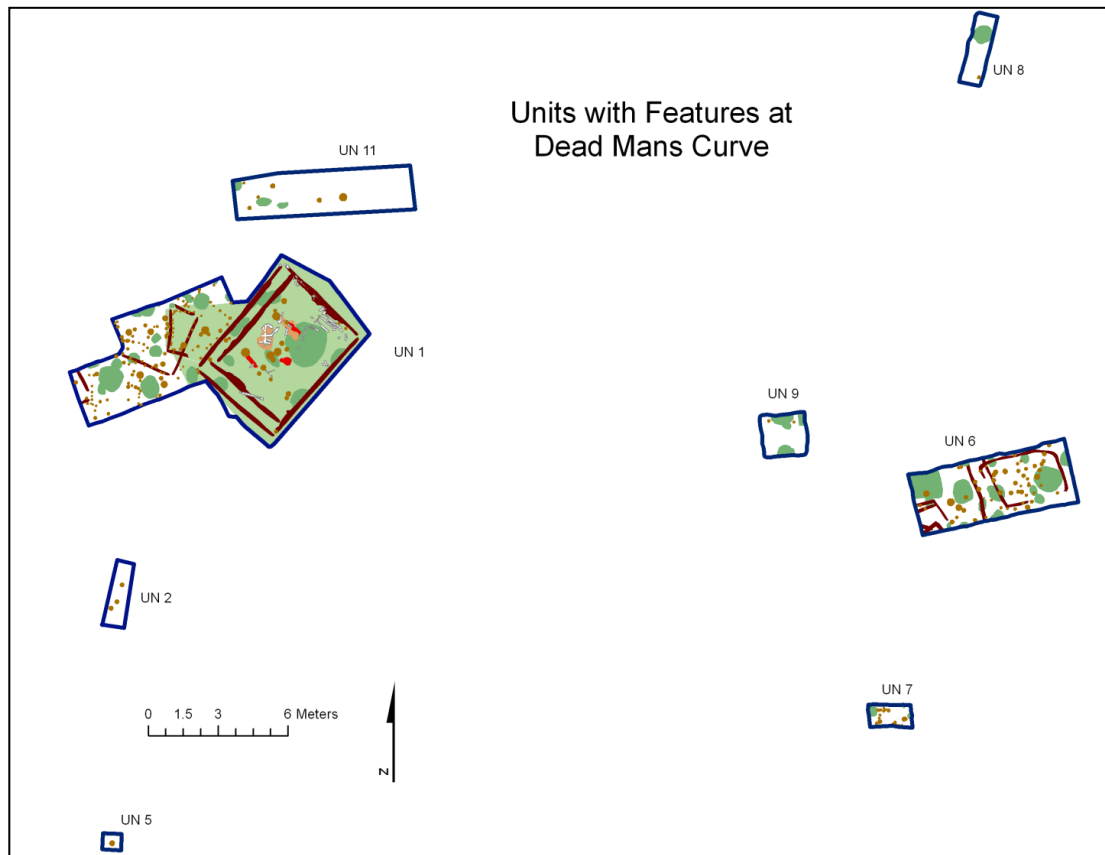


Figure 1. Map of excavation units at Dead Man's Curve.

The authors believe people were drawn to the Cahokia area, and by their very presence, despite their efforts to fit in, their differences unwittingly helped spark many of the changes that led to Mississippian culture and greater complexity. This occurred through a process of “hybridity,” a process whereby people who are engaged with difference are more likely to generate new cultural forms (Alt 2002a, 2006a, b). At Cahokia, the mixing of old and new, recently arrived people living with long term residents, and many of these residing in new places, led to a process of hybridity. Ultimately, we assert that an influx of immigrants from places like southern Indiana, plus a process such as hybridity may help explain the development of Mississippian culture (Alt 2006b).

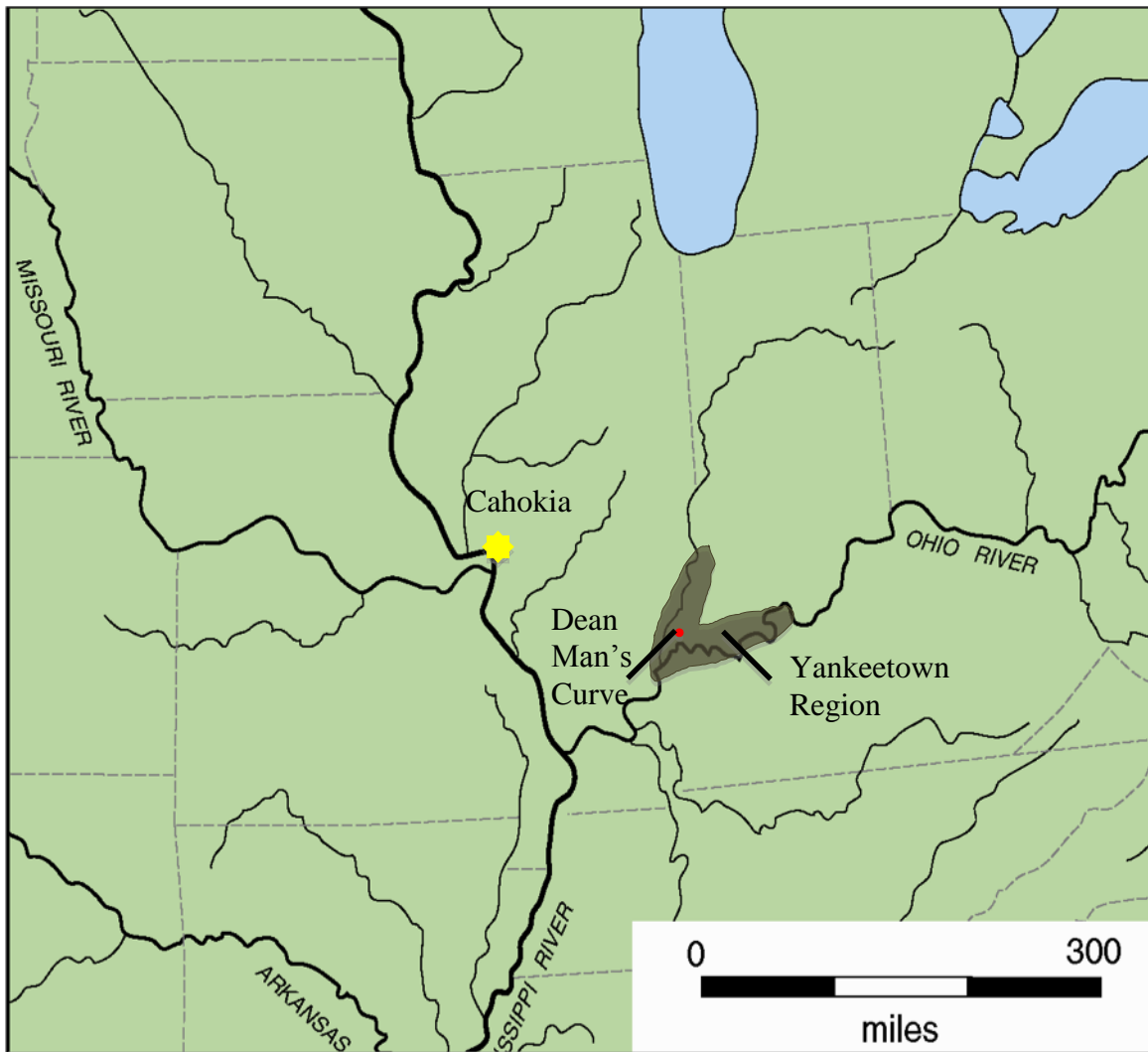


Figure 2. Map showing the Yankeetown region, Dead Man's Curve, and Cahokia.

Located in Illinois east of St. Louis, Cahokia began as a typical farming village but, for unknown reasons and within the span of a generation, was transformed into a city. With exponential growth came political and social change, but the Cahokians did not just develop a new form of politics, they changed everything from how they built and arranged houses to how

they made pottery (Milner 1998; Pauketat 1994, 2004; Pauketat and Emerson 1997). Although analysts accepted that changes in daily life were symptomatic of large scale political change, there is no satisfying reason as to why a change in leadership should lead to changes in things like cooking-ware, particularly when conventional wisdom determined that the changes were internally driven, not imported from other communities or imposed by invading peoples. So, while Cahokia provides a case study of internally driven rapid development of social and political complexity, the mechanisms of change remained elusive (Milner 1998; Pauketat 1994, 2004; Pauketat and Emerson 1997). Research around Cahokia led the senior author to suspect that the changes that occurred were related to the presence of immigrants who, by their very presence, unwittingly helped spark many of the changes associated the genesis of Mississippian culture (Alt 2006a, b, 2008).

So, what might the Yankeetown Phase, a Late Woodland entity in southwestern Indiana have to tell us about Cahokia and the beginnings of Mississippian culture? To some degree, the answer resides in the fact that Yankeetown material has long been found at and around Cahokia, with sherds of the foreign pots being found at Cahokia's Tracts 15A and 15B, in the sub-mound 51 feasting pit, and at upland sites of the Richland Complex, including the Mound centers such as the Pfeffer and Emerald sites, as well as at the Knoebel site (Alt 2002b; Koldehoff et al. 1993; Kruchten 2000; Pauketat 1998; Pauketat et al. 2002).

A reanalysis of the Knoebel site (located 11 miles east of Cahokia in St. Clair County, Illinois) in conjunction with the excavation and analysis of towns in Cahokia's upland Richland Complex in particular, led the senior author to conclude that some places not only contained alien pottery, but also seemed "off" in other ways. For example, at the Knoebel site, 5 percent of the vessels were Yankeetown decorated wares—keep in mind Blasingham found that only 20 percent of the ceramics from excavated pits at the Yankeetown site were decorated (Alt 2002b; Blasingham 1965:35). But then there are other indicators that some residents of the American Bottom region had a southwestern Indiana origin, including a greater reliance on cobble based chert tool technology similar to that described for Yankeetown sites and the presence of a few bits of Indiana derived chert. The Knoebel site also had a greater proportion of jars tempered with grog than other local sites. As mentioned, the nearby Pfeffer and Emerald mound centers also produced Yankeetown-like wares (Kruchten 2002; data on file, University of Illinois), although in lower quantities.

Some villages in the Cahokia region contained larger than expected quantities of pottery from places like southwestern Indiana (Yankeetown) and also places like southeastern Missouri (Varney) (Alt 2001, 2006 a, b). For example, at the Halliday site at least 25 percent of the ceramics are classic Varney style, and these are accompanied by Varney lithics. Important to keep in mind, at all of these sites the pottery is just the first and most obvious difference. These places also contained unusual tools, nonlocal cherts, unusual food-ways, odd ways of organizing space and building houses as well as evidence of other unusual habits (we should point out that these data derive from the excavation of hundreds of houses and many more hundreds of pits and other features) (Alt 2001, 2006a, b). For such reasons, it has been suggested that immigration is a likely explanation of the unusual attributes.

Problematic for understanding immigration at Cahokia is a dearth of information about the Yankeetown Phase, currently dated from A.D. 700 to 1100 (Redmond 1990). Yankeetown settlement is currently identified primarily based on distinctive ceramic decorative treatments. Despite the fact that the Yankeetown Phase occupies a critical period in midwestern history, almost everything we know about it has been extrapolated from surface collections. There have been a few pits excavated at the type site, also called Yankeetown, and at places like the Stull

site in Kentucky, but as recently as 2008 no one had knowingly identified, much less excavated, a Yankeetown house (Blasingham 1953, 1965; Dorwin 1967; Dorwin and Kellar 1968; Garniewicz et al. 2009; Ottesen 1981; Redmond 1990). This situation is now changing given this project, as well as new work at the Yankeetown type site recently conducted by Rex Garniewicz and Michele Greenan of the Indiana State Museum (Garniewicz et al. 2009).

The Yankeetown site itself is located in Warrick County, Indiana, and has seen limited excavation in the more distant past. Prior to recent work by Garniewicz and Greenan (Garniewicz, et al. 2009), investigations that reported on Yankeetown features were limited to testing and salvage that occurred in 1951 and 1965. During the summer of 1951, a small test pit was dug by Glenn A. Black and Emily Blasingham followed that winter by the salvage of a few features eroding from the river bank, again by Glenn A. Black. In 1965, under the direction of Emily Blasingham, two test units were excavated close to the riverbank (this excavation area has subsequently eroded into the river). The results of these investigations were eight Yankeetown Phase pits and a few postmolds (Blasingham 1953, 1965; Dorwin 1967; Dorwin and Kellar 1968; Garniewicz et al. 2009; Redmond 1990). The Yankeetown Phase is currently understood based on these materials along with more recent surface collections from other sites, all of which are reported as multi-component.

Yankeetown culture is defined on the basis of a specific range of decorated pottery. Yankeetown jars and bowls are grog tempered and include vessels decorated with incised lines, appliquéd fillets and stamped designs. But there are also Yankeetown plain and cordmarked wares, which are not as distinctive (Redmond 1990). Data on assemblages derive for the most part from surface collections, which are generally only defined as Yankeetown if decorated wares are reported, thus eliminating features or collections that may only contain Yankeetown plain and cordmarked wares. This is problematic for understanding densities of decorated wares as recent excavation at the Yankeetown site demonstrates that there are many features that only contain Yankeetown plain wares.

This state of affairs certainly leaves open the question of whether our view of Yankeetown may be skewed by the emphasis on decorated wares. Particularly problematic is that Yankeetown material (as defined by decorated ceramics) is always reported with what appears to be Middle Woodland and /or Mississippian material. This emphasis on decorated wares certainly hampers understanding Yankeetown materials outside of the Yankeetown region, but then again, the plain and cordmarked wares are not distinctive.

Given the difficulty in explaining the large and sudden population increase at Cahokia, hypothesizing that people from outlying regions moved to Cahokia seems a reasonable inference (Alt 2006b; Pauketat 2003). Because of the presence of Yankeetown pottery and Indiana cherts at Cahokia and its Richland Complex villages, some of the people that moved in can reasonably be hypothesized to have originated from Yankeetown settlements in southern Indiana. But confirming whether unusual material culture, architecture, cuisine, habits, and/or spatial organization were derived from particular distant towns is impossible without excavated Yankeetown sites in Indiana.

This lacuna in regional settlement data is lamentable. Cahokia is once again being centered in stories of how Mississippian culture began and spread (Brown 2006; Kelly 2006; Pauketat 2004). But if Mississippian culture began at Cahokia, it was not the sole invention of American Bottom people, but rather the outcome of a vibrant and diverse society created by the mixing of people who came from places like Varney towns in Missouri and Yankeetown settlements in Indiana, who converged at Cahokia and had a role in sparking Mississippian culture (Alt 2006a, b). To go beyond this statement and to try to understand how novel cultural

forms are invented, enacted and embodied, and thus to understand the particulars of the invention of those identified as inherently Mississippian, it is necessary to know more about the constituent parts. That means learning more about people and things from the cultures that Cahokian immigrants originated from, such as Yankeetown in Indiana, Varney in southeast Missouri, Mill Creek in Iowa, or Coles Creek from the Lower Mississippi Valley.

The investigating Yankeetown project was conceived to begin to address such questions with a project that got off, or rather into, the ground in the summer of 2009, with the aid of a Historic Preservation Fund grant administered by the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology. The search for Yankeetown settlements began at the Dead Man's Curve site (DMC), a site reported to cover over 10,000 square meters and to have produced Yankeetown, as well as Middle Woodland, materials in surface collections.

At the DMC site a deep, double plowzone was encountered that was full of artifacts that were variously chopped up thanks to an extremely long history of plowing and disking. The soils were well mixed, such that any given shovel full of soil could contain any combination of material dating from the Archaic through the Historic period. This well mixed plowzone was up to 40 cm deep and often gave way directly onto evidence of structure architecture, rather than basin fill (when structure basins are plowed away, it is impossible to link artifacts to specific houses). Features that remained were severely impacted by the plowing. Often only soil stains remained to represent the more shallow pits. All features had lost the top 30 - 40 centimeters of fill, leaving in most cases a nearly sterile fill with few artifacts that were rarely diagnostic. In only a few instances, such as a burned wall trench house, were remnant house basin fill and structure floors present. It is on these structures that we will focus in this discussion.

Given the mix of materials in the plowzone it was expected to encounter features dating to the Middle Woodland, Yankeetown, and Mississippian periods. Unreasonably, it was hoped that there might be some spatial distinction between these occupations. What was found were pits, posts, and houses that in many cases defy seriation due to a lack of diagnostic material. Obtained, however, was particular data on the construction of the burned house and the houses that were built around and under it. It is suspected these data begin to tease out particulars on the Late Woodland to Mississippian transition in southern Indiana.

There are analysts who do not believe that the Yankeetown Phase people became the later Mississippian Angel Phase people (Redmond 1990). But then there has not been much data with which to approach this question. Therefore, when wall trench and single post architecture was encountered, but very little in the way of shell tempered pottery, the authors had to consider whether Yankeetown people may have built wall trench structures. The rest of this paper is an attempt to answer this question.

Based on data derived from surface collection, magnetometry, and shovel testing, we placed and hand excavated 11 units at the Dead Man's Curve site for a total excavation area of 106 square meters. In these units we encountered posts, pits, wall trenches, and post pits but our best data were collected from F 24, a burned house (Figure 3) that unfortunately was not a Yankeetown structure.

The burned house at Dead Man's Curve was built with wall trench construction. Three walls of the building were each rebuilt once. The wall trenches first appeared as distinct stains above the level of the floor--the floor itself being obvious thanks to highly compacted and burned soils--as well as sections of the northern and eastern walls which were lying on the floor of the structure. As plow scars were evident on the structure floor we suspect that much more burned material had originally been left in place but had been subsequently plowed away. The

walls themselves were constructed as a series of 8 - 10 cm wide timbers interspersed with smaller sticks and/or grasses covered in daub.

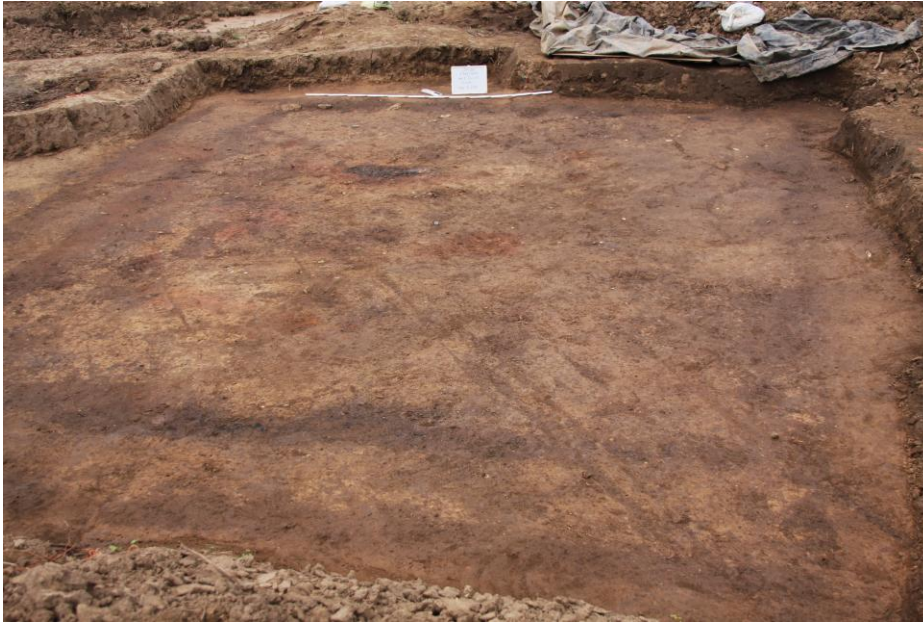


Figure 3. Floor of the burned house.

The wall trenches narrowed with depth (from 25 cm to 6 cm). But this was not terribly odd. What *was* odd was that the profiles of wall trenches and posts were so very irregular. This was confounding, but then other features on site had irregular outlines. Lacking a very enriched fill in the features led to the question: were these very feature-like basins really all rodent runs and roots? This question was resolved with the burned house because there could be no question that the posts and wall trenches were very real architectural elements. What the burned house convinced us of was, that unlike the Mississippian sites the researchers were more familiar with where it has been demonstrated that wall trenches were dug with stone hoes, many of the Dead Man's Curve site features were instead dug with digging sticks. Here in these profiles (see Figure 4) you can clearly see where the stick shape protrudes from the outline of the wall trench. Does this technological glitch in house construction matter? It should. Archaeologists all know that the appearance of material objects is not always telling for determining people's ethnicity or political affiliation. Studies on style, technological style, embodiment, and how people learn have repeatedly demonstrated that "how people do things" is often the aspect of manufacture and production that is more important than the particulars of final product. That is, people can more easily change the superficial characteristics of material objects, but in fact have a much harder time changing "how" they do things. So, unusual construction techniques should be considered evidence that pertains to who built the burned house at Dead Man's Curve.



Figure 4. Wall trench profiles showing evidence of digging stick impressions.

To better understand this house, a sample of Angel Phase structures at the nearby Southwind site was turned to (Munson 1994). This site was a Mississippian village excavated by Cheryl Munson in the early 1980s and still constitutes the best evidence of Angel Phase settlement. The Southwind village was palisaded and contained over 96 rectangular, and 29 circular structures arranged in a circular pattern around a plaza.

The typical Mississippian house at Southwind was rectangular in shape and built with wall trench construction. The house basin would have been about 30 cm deep with an interior floor area of 23.3 square meters. Walls were .24 m wide and bottom out about .41m below ground surface. Pottery associated with this house would be simply shaped, shell tempered jars and bowls absent all decoration, slip and surface treatment (Munson 1994).

The floor of the DMC house was 43 cm below original ground surface, and the wall trenches bottomed out 54 cm below that. So the structure at DMC is close in size and shape, construction details of basin depth, and wall trench depth to those at Southwind. The width of wall trenches match, house shape and size compare favorably. The DMC house had an interior floor area of 23.6 m and the Southwind house 23.3 sq m. Structure shape is similar as described by a length/width ratio. This would be 1.25 at Southwind and 1.33 at DMC. However, Cheryl Munson reports no evidence of digging stick excavation for Southwind features. But interestingly, these data from the burned house do not compare well with other wall trenches and posts found at Dead Man's Curve. All of the other wall trenches at DMC were between 9 and 14 cm deep, and shaped in a way that suggests that they could have been dug with hoes.

Expectations for how Yankeetown houses were built are non-existent. None had ever been excavated when we began at Dead Man's Curve. But forced to make a guess, we predicted that we would find single post structures not unlike those found at terminal Late Woodland

communities across the greater region. The time frame presented by the Yankeetown culture complicates such predictions however. A 400 year-long phase likely means variability in settlement organization and technology between early and late settlements. And now dates from the Yankeetown site are expanding the Yankeetown Phase into the Mississippian time frame with dates as late as A.D. 1250.

As it turned out, the DMC burned house that compares so well with the Southwind ideal house was dated to A.D. 1360 based on C14 dates generated from its burned wall posts. This is a date that sits within the framework for the Angel Phase (A.D. 1100 -1400) but could also represent an early Caborn-Welborn house—the Hovey Lake site is just a few miles away from DMC.

The other evidence mustered for understanding the burned house relates to ceramics, but given extensive plowing to the floor of the house these data are somewhat suspect. The burned house appeared to have been cleared out before being burned down, with the exception of a small smashed section of a plain shell tempered jar found on the floor of the structure. Other small sherds were present in the fill, including one grog tempered Yankeetown decorated sherd, but all of these sherds were of a similar size and condition as the disc-chewed sherds found elsewhere on site. These Late Woodland seeming sherds are more likely associated with the single post houses truncated by the wall trenches of the burned house.

To the north and northwest of the burned house were a series of wall trenches and lines of posts that seem to belong to structures that appear incomplete due to being truncated by the construction of later features (Figure 5). For the most part these were lacking basins and thus any associated diagnostics. Thus it is hard to characterize these structures. There was one of these, however, that did have a remnant, albeit fairly sterile basin.

The smear of basin associated with the single post house northwest of the burned house contained only grog tempered sherds, as well as one Yankeetown decorated sherd. Posts were about 10 cm in diameter and set about 22 centimeters apart, with an average depth of about 10 centimeters. Based on post construction and grog ceramics we are somewhat comfortable identifying this single post structure as a Yankeetown house. The size of this house is uncertain given that it was truncated by later construction, including wall trenches that were smaller and more shallow in depth than those of the burned wall trench house. These were likely built earlier in the Angel Phase, but given a lack of house basins and diagnostic material this cannot be demonstrated.

One pit was also found that can be assigned to the Yankeetown Phase. This pit, Feature 22, contained one Yankeetown decorated rim, and only grog tempered sherds. Sherds in the fill of the burned house were 18 percent grit, 6 percent shell and 75 percent grog tempered, but then again, some of this is likely admixture from other features. The few sherds confidently from the floor of this structure were shell tempered with a plain surface. However, it should also be noted that shell tempered sherds are not unknown for Yankeetown features. Pits excavated at the Stull site in Kentucky contained up to 18 percent shell tempered sherds (Ottesen 1981).



Figure 5. Superimposed structures next to the burned house.

So how to characterize settlement at DMC? Dead Man's Curve was a place that was occupied over thousands of years, from the Archaic period up to the late Mississippian. Plowing and disking have curtailed the evidence available from the site, and yet evidence was found that expands our understanding of Mississippian house construction, but more to our main point, we found evidence of Yankeetown settlement. Given our limited data, and lack of Yankeetown comparative material, the best answer is that the Yankeetown house was smaller than Mississippian houses, and was built with single post construction. Further, the posts did not seem set with any slant but were set perpendicular to the ground. As for the Mississippian house, although it compares well with houses at Southwind, the basin and wall trenches were deeper than seems more typically expected. Given the lack of material on the floor, the house was likely intentionally burned. It was constructed by digging wall trenches and postholes with a digging stick, not a hoe as appears to be the method used for the other wall trenches on site and elsewhere at Mississippian sites. Also just to the west of the house was a post-pit for a marker post—but this was a smaller marker post that appeared in size and configuration more comparable to a Late Woodland post pit than a Mississippian post pit. Given intentional burning, unusual construction techniques, and comparisons with Southwind, it is further suggested that the burned house at DMC may not have been a domestic structure.

We also suggest that based on our evidence, our sense is that the Mississippian transition seems seamless with the earlier Yankeetown occupation. Most of the ceramics in the Yankeetown pit and single post structure are plain surfaced. Pastes for all of the sherds seem very similar, which is to say it all looks locally made, leading to the question if it is possible that

Yankeetown decorated wares may be less common at sites away from the Yankeetown type-site. Clearly the data from Dead Man's Curve is fragmentary, but the authors look forward to testing our findings against what is hoped will be a growing database.

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ARCHAEOLOGICAL INVESTIGATIONS AT THE ELLINGSWORTH SITE (12 CI 127), A MISSISSIPPIAN HAMLET OF THE FALLS MISSISSIPPIAN COMPLEX OF SOUTHEASTERN INDIANA

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[Editors' note: Beginning with this volume, to be consistent, site numbers will be written, for example, as 12W245, exceptions being when county abbreviations with an "I" before the numbers, such as Allen (Al) or Clark (Cl). Counties such as the latter will be designated with a space between the 12 and the county abbreviation and a space between the county abbreviation and the site number, such as 12 Cl 127 in the below article. This is done so that the reader understands that the site is from Clark County (Cl), and the number of the site is 127, rather than 1127.]

The Ellingsworth site (12 Cl 127) consists of a multicomponent Woodland and Mississippian period occupation in Clark County, Indiana, commonly associated with the Falls Mississippian Complex. The site is situated on an undulating upland flat west of the Ohio River (Figure 1). It appears to be associated with the nearby Smith-Sutton site (12 Cl 130), a Mississippian village that is located approximately 400 meters northeast of 12 Cl 127.

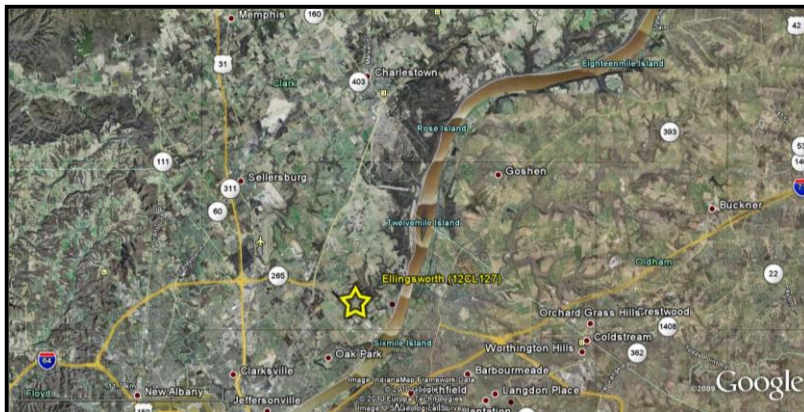


Figure 1. Aerial photograph of the general location of project area (Google maps 2010).

Work at 12 Cl 127 during the 2009-2010 season focused on four main goals: 1. layout and collection of geophysical data on portions of three land tracts totaling approximately 8.9 acres (3.6 hectares); 2. use the collected geophysical data to identify subsurface features and if possible further refine site boundaries for 12 Cl 127; 3. conduct limited intensive excavations to ground-truth anomalies interpreted as subsurface cultural features by IPFW-AS personnel; and 4. recover carbon samples from in situ contexts to obtain preliminary occupation dates for site 12 Cl 127. Archaeological investigations at the Ellingsworth site was one aspect of grant-supported research conducted by the Indiana University-Purdue University Fort Wayne Archaeological Survey (IPFW-AS) during 2009 and 2010. This Historic Preservation Fund grant was designed to build on work conducted previously by IPFW-AS during 2007 and 2008 (Wells et al. 2008).

Previous investigations at the Ellingsworth site identified Late Woodland/Mississippian artifacts and subsurface features, and that the boundaries of the site extend across a large

agricultural field based on cultural material recovered from shovel test probes (Bader and Paznokas 2003; Bader and Stallings 2004; Martin 2002). The survey grid was placed within and west of the previously recorded site boundary on a loess-deposited landform that is flat to severely sloping near the southeast, east, and northeastern edges of the field (Figure 2). The area was moderately saturated and contained residual harvest litter, grass, and weeds that limited surface visibility to 0 - 10 percent. The site has been in extensive agricultural use for some time and is partially eroded in some areas. Road construction, commercial and residential properties, grading, and other earth moving activities have likely disturbed portions of the site.



Figure 2. Aerial photograph showing survey grids at the Ellingsworth site (12 CI 127).

Project Setting

Clark County is situated on the southern border of Indiana and is bounded on the south by the Ohio River. Immediately across the river is the Commonwealth of Kentucky, where Louisville is the regionally dominant urban center situated directly across from Jeffersonville, Indiana. Within Indiana, Clark County is bounded by the counties of Floyd (southwest), Washington (west), Scott (north), and Jefferson (northeast). The county seat of Jeffersonville and the cities of Charlestown, Clarksville, and Sellersburg are magnets for urban and rural settlement.

Physiography in Clark County, Indiana, is largely defined by the relationship of the area to the Ohio River. The local relief is characterized as uplands with flats that slope down to the Ohio River, with frequently steep breaks and hillsides.

The Late Prehistoric period extends from A.D. 1000-1600 (1000 to 400 B.P.). In very general terms, the last 600 years prior to European intrusion into southern Indiana can be described as a period during which prehistoric peoples: 1. completed a shift to a largely sedentary, agricultural way of life; 2. followed a nucleated pattern of settlement that centered around villages or towns; and 3. established some level of ranked socio-economic organization. Two major cultural manifestations have been identified in southern Indiana during the Late

Prehistoric period: Mississippian and Fort Ancient. These periods/traditions were roughly contemporaneous in Indiana, but included unique characteristics that developed from environmental differences as well as existing regional cultural variation among Late Woodland groups.

Aspects of the Mississippian cultural pattern in Indiana, although present throughout the Ohio Valley region, were expressed most intensely in southwestern Indiana along the Ohio River. The Fort Ancient culture area in Indiana primarily included the far southeastern corner of the state, east of the Falls of the Ohio. A tremendous amount of cultural variation is subsumed within the concepts of Mississippian and Fort Ancient, and numerous phases, or foci, have been defined within each (Griffin 1943; Jennings 1989:254-271). The following summary only highlights those characteristics that are broadly applicable to Mississippian or Fort Ancient manifestations.

Mississippian

Mississippian is a term used to describe prehistoric groups that lived in ranked societies with a highly organized subsistence economy and a chiefdom-based political economy (Wells et al. 2008:14). Within Mississippian chiefdom polities, settlement hierarchies were established. Settlements included dispersed farmsteads and hamlets, small villages made up of several hamlets, and dense population concentrations nucleated in and around large villages and towns, or mound centers. Individuals of elite rank are believed to have exerted some level of control over the production and distribution of surplus subsistence goods (Wells et al. 2008:14). Mississippian food economies were centered on maize agriculture, hunting, and fishing.

Large earthen mounds were constructed at larger Mississippian sites, not only for burials as in previous periods, but also to serve as platforms for ceremonial buildings. The Angel Mounds site, located east of Evansville, Indiana, is an example of a large Mississippian (Angel phase) town with monumental (platform mound) architecture (Black 1967).

Within the Mississippian tradition, triangular projectile points (Justice 1987) and pecked and ground stone tools continued to dominate the lithic tool assemblage. Bone, hematite, catlinite, fluorite, and coal were also commonly worked into a variety of tool forms (Wells et al. 2008:14). The abundance of ceramics at Mississippian sites reflects their importance within an agricultural food economy. A large variety of ceramic vessel forms, both utilitarian and ceremonial, as produced, includes salt pans, storage and cooking jars, bottles, beakers, plates, bowls, and a range of human and animal effigy forms. Mississippian ceramics were most often tempered with crushed freshwater mussel shell. In comparison to Late Woodland pottery, a much smaller percentage of decorated ceramics (e.g., negative painted, incised, punctated) is represented in Mississippian assemblages (Wells et al. 2008:14). However, this pattern does not necessarily represent a decrease in the decoration and/or ceremonial use of pottery, but more likely reflects an increase in the sheer quantity of plain, utilitarian ceramics manufactured and used in Mississippian households.

An extensive, highly organized exchange network linked Mississippian societies of Indiana with those as far west as Oklahoma and as far southeast as Georgia and Florida (Wells et al. 2008:14). It has long been assumed that elites controlled the trade and distribution of exotic raw materials and finished goods, especially those items that are believed to have served as displays of prestige. However, the recovery of such luxury or “display” items from a wide range of site types and contexts suggests that distribution and use of these goods was not exclusively controlled by elites (Muller 1997:46).

The easternmost Mississippian presence in Indiana and Kentucky, labeled either the Prather or Falls Mississippian Complex (Muller 1986:249-250), was centered on the Falls of the Ohio region in the rapidly expanding modern Louisville metropolitan area (Bader 2003; Granger et al. 1981; Griffin 1978; Guernsey 1939, 1492; Janzen 1972). The Prather Complex represents the northeastern limit of Mississippian occupation in the Ohio Valley and is also situated near the southwestern limit of the Fort Ancient culture (Griffin 1978; Green and Munson 1978). Sites in this area with shell-tempered pottery and stone box graves were reported in the nineteenth century, and in 1934, E. Y. Guernsey (1939, 1942) confirmed the presence of Mississippian components at seven Falls area sites in Clark County, Indiana: the Devil's Backbone (12 CI 14) on a steep bluff overlooking the river; Prather (12 CI 4); Willey (12 CI 16); Spangler-Koons (12 CI 701); Clark's Point/Collins (12 CI 1); Newcomb (12 CI 2); and Elrod, or Kelly, which is a continuation of Newcomb. Limited excavations at Prather were undertaken by Guernsey (1942) and later by David Janzen (1971), and more extensive investigations recently have established that Prather was a Mississippian mound center settlement with four mounds surrounding a central plaza, a habitation zone, and an encircling palisade (Munson and McCullough 2004; Munson et al. 2006). Smaller upland sites or camps with shell-tempered pottery and triangular points in Clark (Wells et al. 2008) and neighboring Floyd counties have also been reported (e.g., 12 CI 127, 129, and 130). On the Kentucky side of the river, several small camps have been reported (Granger et al. 1981:170), while more extensive habitation sites have been investigated recently, including upland sites (15JF650/651 and 15JF671) southeast of Louisville (Bader 2003:28-33), Shippingport (15JF702) (Keeney and Hemberger 2003), and Eva Bandman (15JF668) on a terrace margin in Louisville (Henderson 2004). Additionally, Joseph Granger (Bader 2003:18) has plotted a large Mississippian mound center (15JF95), based on nineteenth-century maps and reports, located in what is today Louisville.

This substantial Mississippian presence on the periphery of the Mississippian world remains little known, and the relationships among the sites in the Falls area and their connection to other Mississippian centers farther south and west is poorly understood. The Falls Mississippian sites are marked as much by diversity as hierarchy in settlement structure, type, and location. The frequency of upland habitation sites is uncommon although not unknown in Mississippian settlements of similar size. Evidence of trade with other Mississippian centers is limited (Munson et al. 2006:15-17). Temporal relationships among the Falls Mississippian sites are equally tentative. Five radiocarbon assays from Prather indicate an occupation between A.D. 1000 and 1260 at 2 sigma (Munson et al. 2006:154). Shippingport assays resulted in dates ranging from A.D. 1010 to 1480 at 2 sigma (Munson et al. 2006:154-155). Reliable contexts at Eva Bandman returned dates between A.D. 1270 and 1470 at 2 sigma (Munson et al. 2006:158). Further research to more fully define the Prather Complex, or Falls Mississippian, in Clark County is urgently needed, especially in the face of the area's rapid development.

Geophysical Investigations at 12 CI 127

Geophysical survey is a noninvasive method for aiding identification of cultural activity below ground surface. Often, there is little to no evidence of cultural features (i.e., structures, hearths, storage/refuse pits, cellars, foundations) or materials above ground that can provide information about specific site layout or its integrity, especially in prehistoric contexts. Other factors, such as agriculture, erosion, or earth moving activities thwart the detection of previously intact or extant

sites and structures. Consequently, the use of remote sensing equipment provides, in various ways, an opportunity to glance beneath the soil.

Archaeological geophysics “encompasses a range of noninvasive methods for delineation and analysis of subsurface archaeological and cultural features” (Lockhart and Green 2006:17). The use of geophysical methods at varying scales and resolutions has become increasingly common in archaeological research over the last several decades (e.g., see Bevan 1998; Clark 2000; Conyers 2004; Johnson 2006). Large scale, low-resolution survey is commonly used to generate information about large site areas at a much lower cost (in time and money) than traditional archaeological excavation. Higher-resolution data collection is often employed to investigate smaller areas of sites and even individual features. The relatively low cost and high speed of geophysical survey, as well as its non-invasive, non-destructive nature, often makes geophysics an attractive complement or alternative to excavation.

The application of geophysics to archaeology rests on the fact that many of the activities carried out by humans on an archaeological site produce changes in the physical or chemical properties of the soil and/or its contents. The magnetic and electrical properties of the soil may be altered, for example, by heating, compaction, or the inclusion of materials with different properties (such as when a pit is excavated and subsequently refilled with a different kind of sediment). Geophysical instruments are used to make and record measurements of the properties of the soil at or near the ground surface. If the localized alterations contrast sufficiently with the surrounding matrix (areas that have not been altered), they may be detected as geophysical anomalies. The properties of these anomalies (size, shape, contrast, depth, etc.) may allow some inference to be made about the feature that is producing the anomaly. Interpretation can be aided by the use of multiple instruments and knowledge of the properties of the natural sediments in the area.

Instruments measuring variation in the magnetic and electrical properties of near-surface sediments are commonly used in archaeology. Geophysical techniques can be classified as active or passive. Passive techniques measure variations in naturally occurring fields, such as the earth’s magnetic field (Heimmer and DeVore 1995:7). Gradiometry is the most commonly used passive technique. Active techniques measure some property of the deposits at a site by transmitting an electrical, electromagnetic, or acoustic signal into the ground (Heimmer and DeVore 1995:9).

The IPFW-AS performed a geophysical survey at the Ellingsworth site to help locate features and structures and to identify patterns of site structure. Survey was completed by IPFW-AS personnel using a Bartington DL601 gradiometer with two sensors. Seventy-nine 20 x 20 m grids oriented grid north were completed across the project area at the Ellingsworth site, extending 160 m north-south and 300 m east-west at greatest dimension (Figure 3). Unfortunately there was some machine interference or other disturbance causing a “zipper-like” effect across a portion of the survey grid. Plow scars were also evident, running east-west across the majority of the grid. Other geological features were also very evident near the southeastern portion of the grid, which was likely caused by shallow deposition of bedrock. As a result, this area where natural geology caused interference makes it difficult to interpret the data and confidently determine the presence or absence of cultural anomalies.

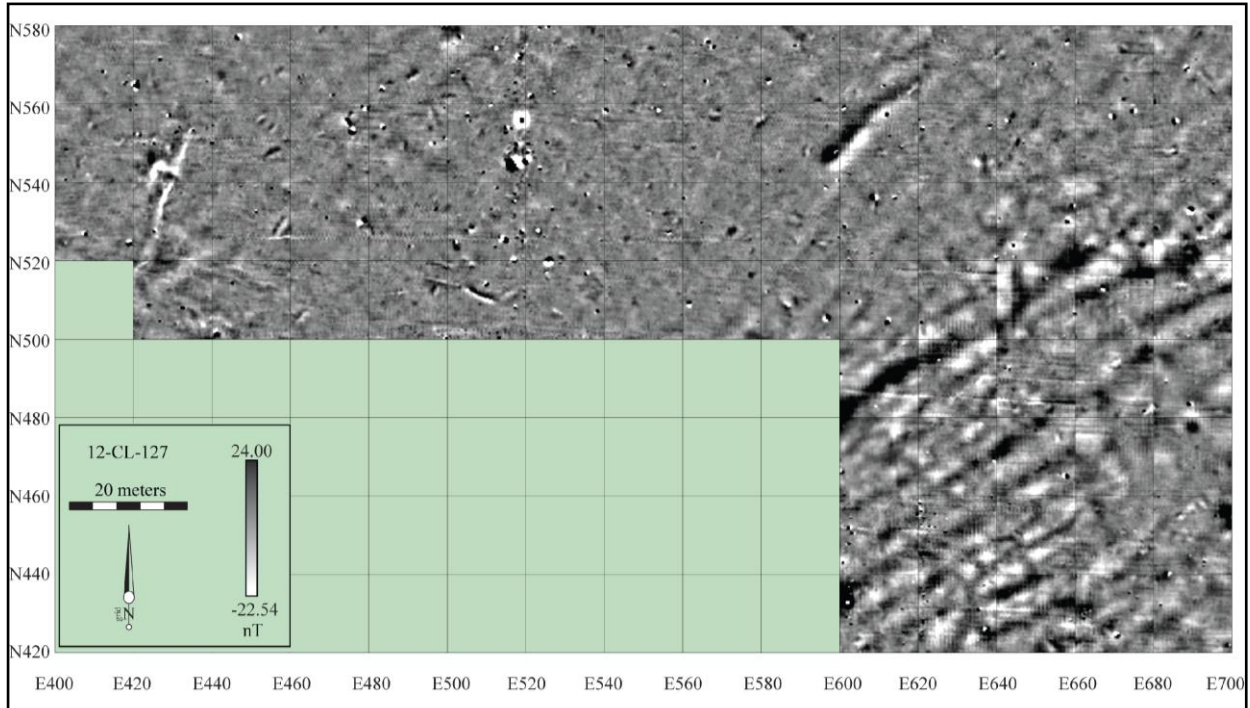


Figure 3. Magnetic gradient composite at the Ellingsworth site (12 CL 127).

Several regular to irregular-shaped monopole and dipole anomalies are highlighted throughout the project area (Figure 4). Nearly all were relatively weak in intensity (less than 20nT in magnitude) and roughly circular in shape. Most were between 1.0 and 2.0 m in diameter. These anomalies could have been naturally occurring phenomena such as varying geomorphology or rodent activity, but many are interpreted as being culturally derived. These anomalies may represent pit features, structures, hearths, earth ovens, or buried materials, such as pieces of metal, fire-cracked rock, and pottery.

Several large anomalies with rectangular outlines surrounded by linear patterns of magnetic positive and negative values are apparent within the central portion of the project area. These linear outlines are often caused by the placement of wall trenches associated with structures. Many of these large anomalies or structure complexes have smaller circular monopoles within or outside of their boundaries suggesting associated pit features, hearths, or burned areas. Six anomalies are interpreted as possible structures (Anomalies 1, 3, 4, and 7-9; see Figure 4).

A large, very clear anomaly (1) measuring approximately 5 x 5 m with a rectangular outline surrounded by linear patterns of positive values is apparent within Grid 45 (see Figure 4). The structure is oriented roughly northeast by southwest and appears to have several small, circular monopoles and a few dipoles within and around it. Interestingly, a break in the outline of the structure located in the southwest corner may represent an opening.

Within a portion of Grids 8 and 9 lies a very large, rectangular anomaly (3) measuring approximately 6 x 6 m and is interpreted as a structure (see Figure 4). It is approximately 11 m north of Anomaly 7 and is oriented east-west. The linear, positive outline has strong to weak values and its northern and western edges are somewhat hard to discern. A few small, circular monopoles are evident within the structure, as well as several larger, irregular to regular shaped monopoles and dipoles surrounding it.

Anomaly 4 is located near the southern portion of Grid 71, approximately 7 m northeast of Anomaly 3 (see Figure 4). It is circular in shape, measures 4 m in diameter, and has a positive outline and negative value interior. Anomaly 4 is also not as discernible as many of the other possible structures.

Anomaly 7 is located approximately 15 m to the northeast of Anomaly 1 and is roughly square, measuring approximately 4 x 4 m (see Figure 4). It is oriented just slightly northeast by southwest, and outlined by linear patterns of positive values within Grid 32. It has a small, circular monopole within and two large, positive monopoles with high readings on the northwest and southeast corners. It also appears to have an opening or slight break in the outline of the structure located in the northeast corner.

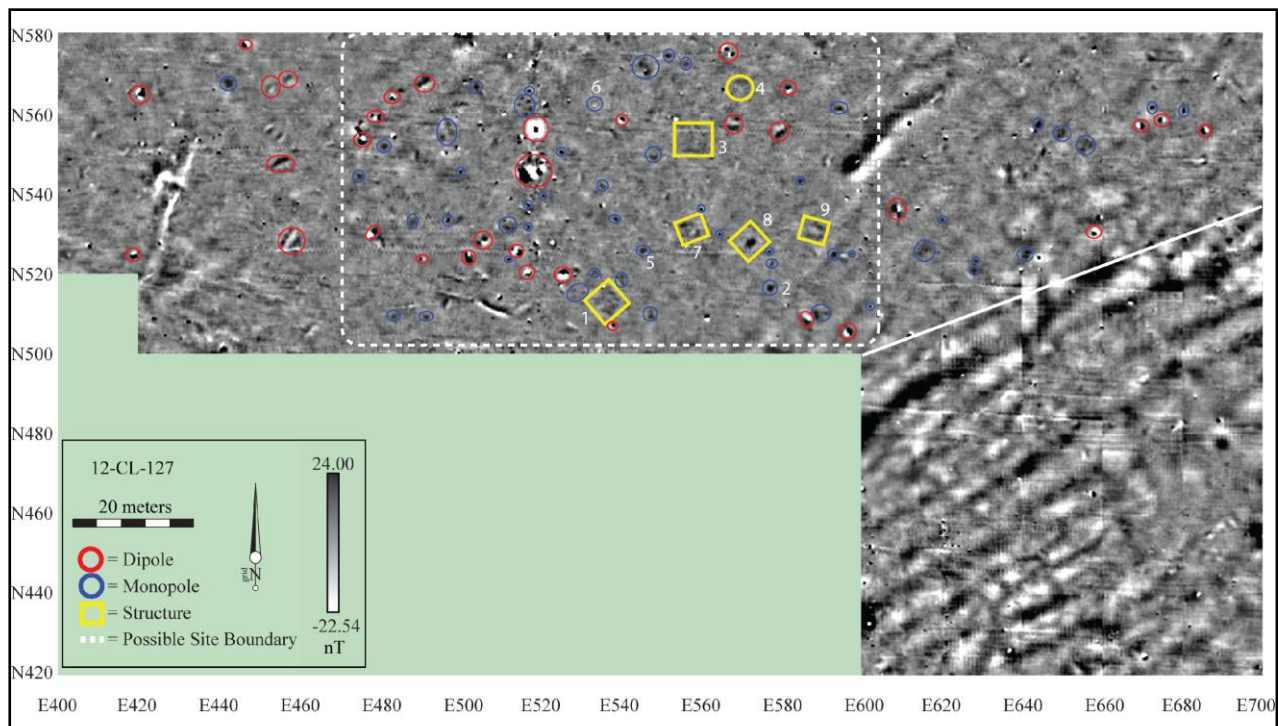


Figure 4. Magnetic gradient composite at the Ellingsworth site (12 CL 127) showing anomalies.

Just 6 m east of Anomaly 7 is another anomaly interpreted as a structure. Anomaly 8 has a linear pattern of negative values forming a rectangular outline, with a very large, strong monopole within the interior, which deviates from the other structures (see Figure 4).

Anomaly 8 measures approximately 5 x 5 m and is oriented northeast by southwest within Grid 31. Lastly, Anomaly 9 is located near the center of Grid 30, approximately 8 m east of Anomaly 8 (see Figure 4). It measures approximately 4 x 4.5 m and is oriented roughly east-west. The structure has a positive linear outline and may also have an opening on the east side.

The large volume of anomalies-especially the presence of possible structures-detected within the gradiometer data suggests the presence of subsurface features that can provide information about cultural activity and community layout at the site. In general, many anomalies were scattered across the survey area, though most (including possible structure outlines) were located between the E460 and E620 lines (see Figure 4). This area also corresponds to a

distribution map of positive shovel probes identified during previous archaeological investigations (Bader and Paznokas 2003). Unlike the nearby Smith-Sutton site (12 Cl 130), which clearly shows a palisade or site boundary within magnetic data collected in 2007 (Wells et al. 2008), no discernible similar anomaly is detected at the Ellingsworth site.

Three anomalies, numbers 2, 5, and 6, were tested using a soil probe at the Ellingsworth site (Figure 5). Anomaly 2 is located in northeast corner of Grid 47. The anomaly is a large, somewhat ovate monopole with positive values. The soil profile revealed feature fill from approximately 25 to 65 cmbs. The darker soil contained charcoal flecking and mottles. Anomaly 5 is located near the southwestern portion of Grid 32, approximately 8 m northeast of Anomaly 1 (possible structure). The anomaly is a somewhat circular monopole with a positive magnetic reading. Subsurface probing revealed obvious feature fill containing charcoal, pottery and chipped stone chert debitage from approximately 30 cmbs to a maximum depth of 65 cmbs. Lastly, Anomaly 6 is a circular monopole with negative value magnetic readings located in the southeastern corner of Grid 73. Probes revealed feature fill between 25 to 75 cmbs, which contained charcoal flecking and dark, organic soil.

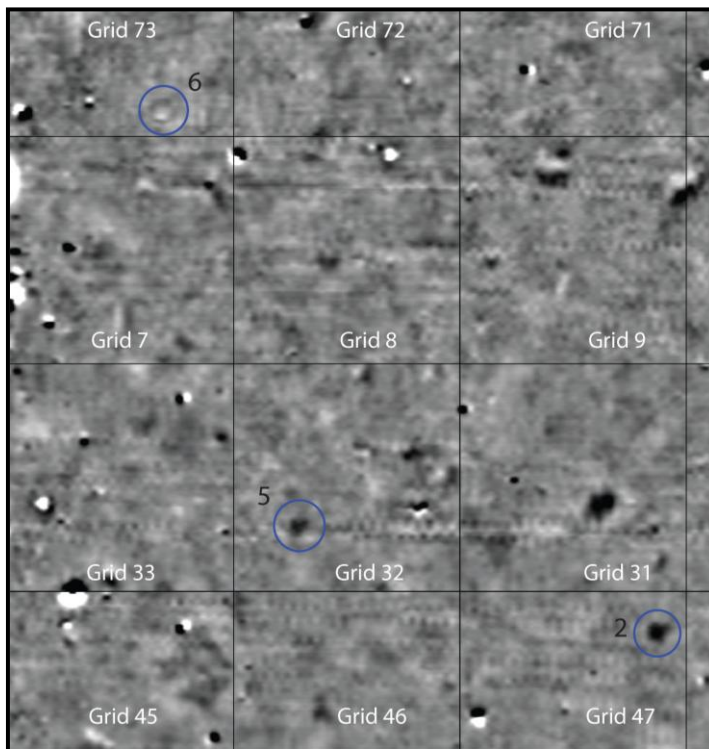


Figure 5. Anomalies ground-truthed using a soil probe at the Ellingsworth site (12 Cl 127).

The probes were successful in verifying the presence of subsurface features and confirming the deposition of culturally modified soils. All of the anomalies tested at the Ellingsworth site were cultural features extending well below the plowzone.

Based on the information from the magnetic gradient data at 12 Cl 127, four excavation units were subsequently placed over anomalies showing strong potential of being cultural features (Figure 6). A unit was placed within Grid 45 over the southern corner of Anomaly 1. Two units were positioned within Grids 8 and 9 over the southern portion of Anomaly 3. The fourth unit was located on the northeast edge of the circular anomaly in Grid 71. Figures 7 through 9 illustrate a close-up view of the units placed over the various anomalies.

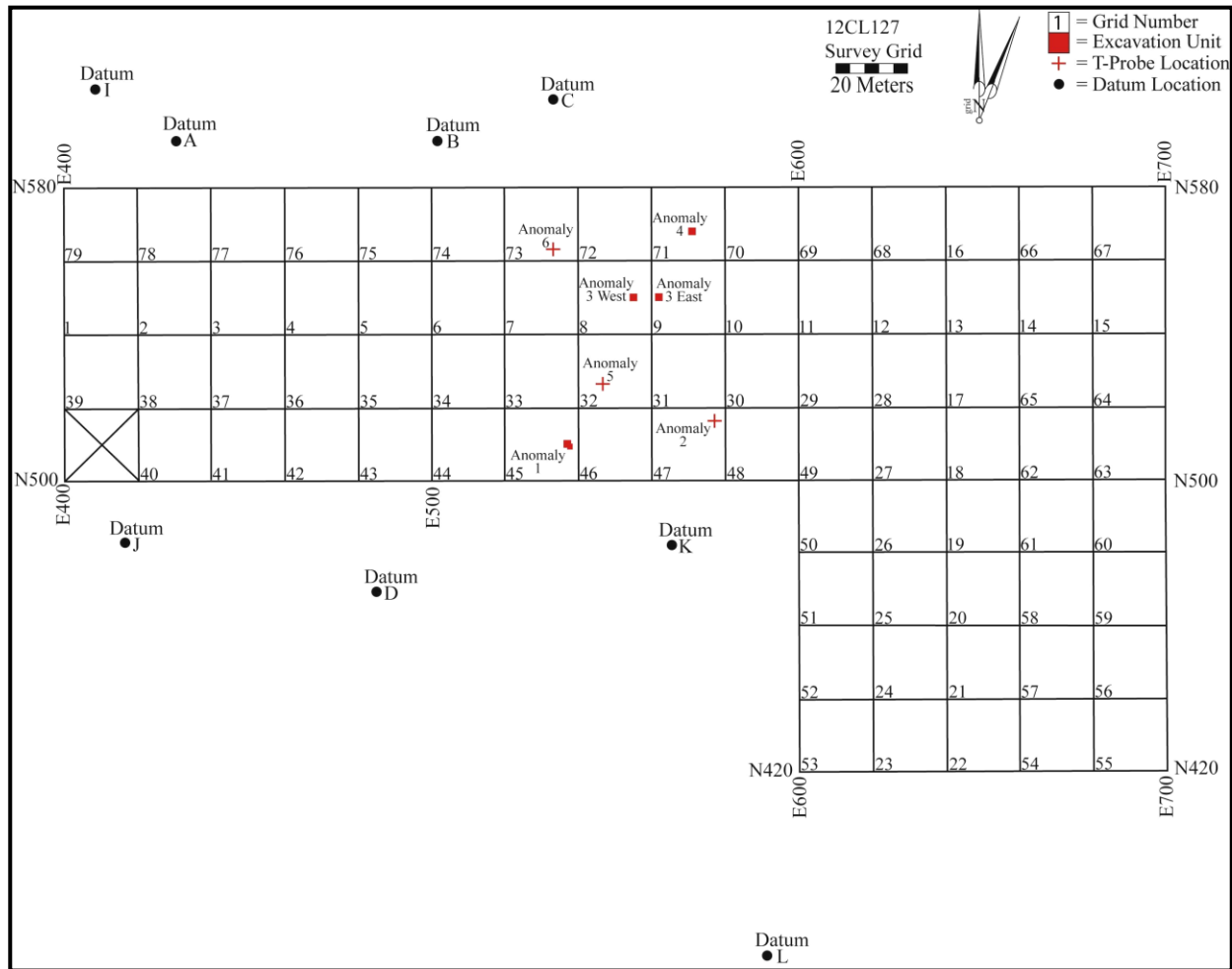
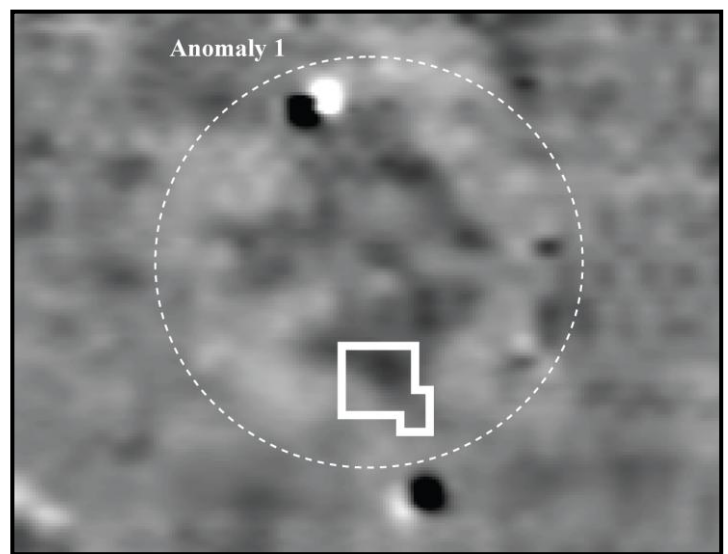


Figure 6. Grid map of the Ellingsworth site showing probe placement and unit excavations.

Figure 7. Illustration of the excavation unit placed over Anomaly 1, highlighted in white.



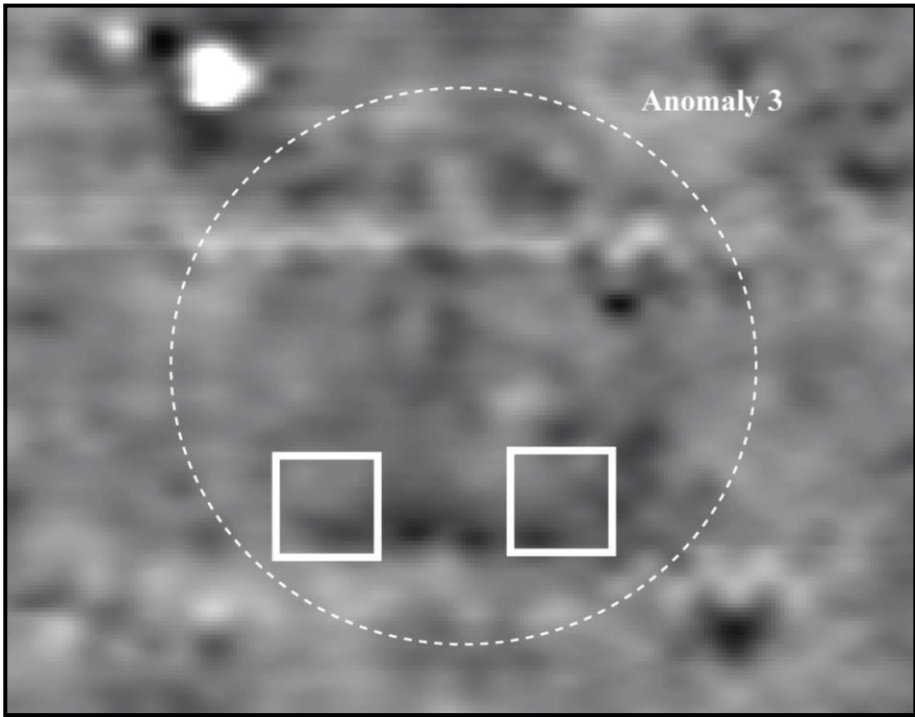


Figure 8. Illustration of excavation units placed over Anomaly 3, highlighted in white.

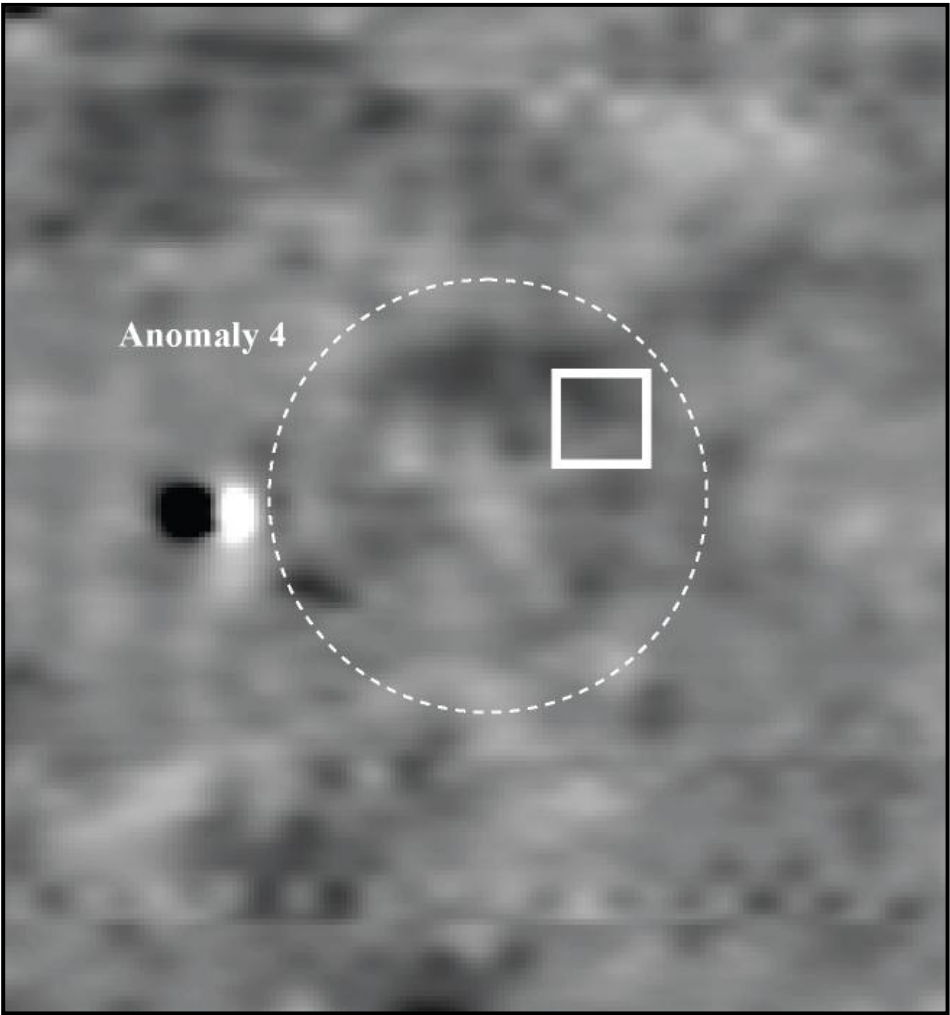


Figure 9. Illustration of the excavation unit placed over Anomaly 4, highlighted in white.

Archaeological Excavations at 12 CI 127

The 2010 archaeological investigations conducted at the Ellingsworth site were located over or within specific anomalies selected from the geophysical data. Four 2 x 2 m excavation blocks composed of 1 x 1 m units were opened, and each block was assigned a designation by the anomaly it was placed over. All excavations were conducted using accepted archaeological methods and standardized procedures. Only Anomalies 1 and 3 West will be briefly discussed here. Anomalies 2, 5, and 6 were investigated through use of a T-probe (a hollow metal tube pushed into the ground to extract a soil sample). The Anomaly 3 East 2 x 2 m block was excavated in what was identified as a trash-filled house basin and Anomaly 4 was investigated through placement of a 2 x 2 m excavation block but no cultural feature was identified at the base of the plowzone; the signature likely resulted from underlying soil properties. No further discussion of these anomalies will be presented here (see Arnold 2010).

Anomaly 1

Anomaly 1, located within Grid 45 of the geophysical data, is a large, clear anomaly measuring approximately 5 x 5 m with rectangular outlines surrounded by linear patterns of positive values. Interpreted as a structure, it is oriented roughly northeast by southwest and appears to have several small, circular monopoles and a few dipoles within and around it. The Anomaly 1 excavation block was originally composed of four 1 x 1 m units (Units 1-4) arranged in a 2 x 2 m block. The southeast quarter of the excavation block was later expanded slightly on both the south and east sides of Unit 2 by 0.5 x 1 m with an additional 0.5 x 0.5 m unit placed on the southeast corner of the original block, creating an L-shaped addition.

Four 50 x 50 cm soil volumetric samples (SVS) were removed from the surface to 45 cmbd from the southwest corner of each 1 x 1 m unit, with all soils passed through ¼" hardware cloth. The remaining plowzone soil, constituting Level 1, was hand excavated and removed by unit to 45 cmbd, or approximately 30 cmbs, but was not screened.

Level 2 was hand excavated by unit provenience from a depth of 45 to 55 cmbd, and a relatively well-defined house basin was apparent, occupying the majority of the excavation block. The southwest basin edge was clear but somewhat diffuse to the southeast while the north portion of the block remained dark, indicative of cultural fill, and contained numerous artifacts. In order to fully define the edge and corners of the basin fill (Figures 10 and 11), the area south and east of Unit 2 was expanded a half meter farther to the south and east beyond the edge of the original excavation block. The house basin was clear in plan and was visible in the west and east profile walls. The house structure was designated Feature 1.



Figure 10. Photograph of Anomaly 1, base of Level 2 at 55 cmbd with the added southeast expansions, view east.

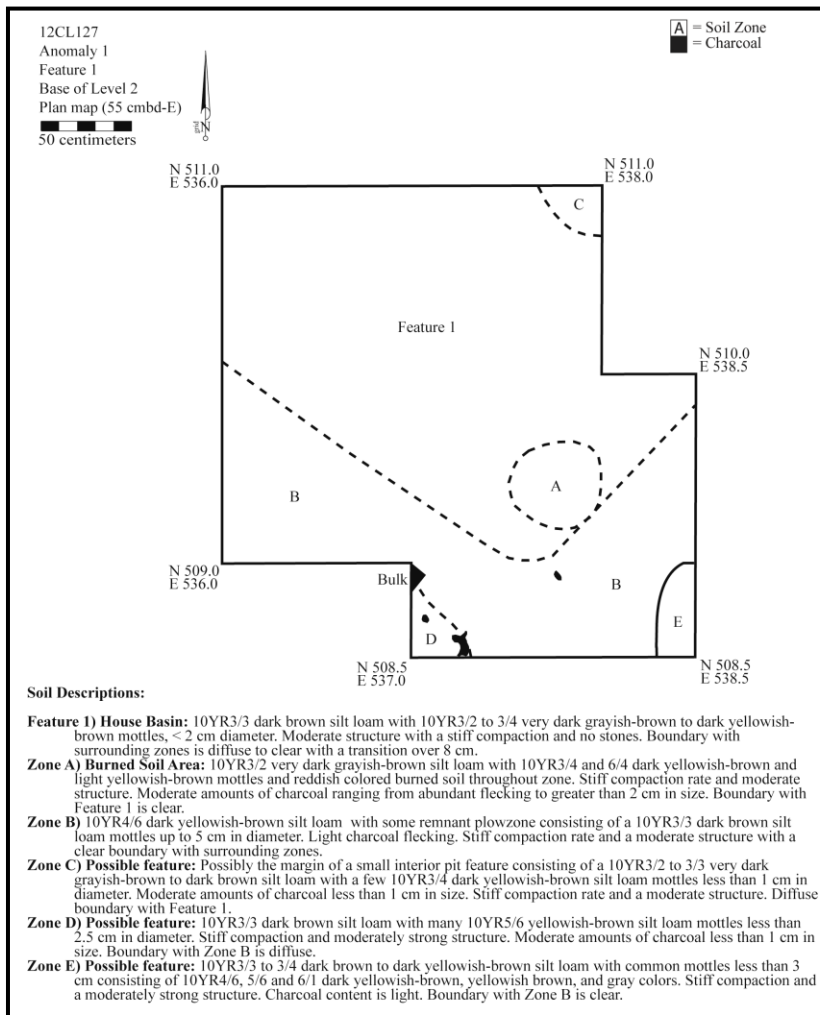


Figure 11. Plan map of Anomaly 1, base of Level 2 at 55 cmbd with the added southeast expansions.

A third excavation level was removed from 55 to 72 cmbd where two house wall trenches were exposed in plan, revealing a Mississippian-style open corner with walls extending from the corner to the north and west (Figures 12 and 13). The exposed portion of the eastern wall trench in Unit 2 was bisected and cross-sectioned. This segment constituted the portion of the wall trench that began at the house corner and proceeded north, terminating at the excavation block wall. These soils were screened. In profile (Figure 14), the wall trench architecture and construction were exposed, exhibiting a discontinuous, undulating wall trench containing three posts. Posthole 1-1 was set at the corner of the house structure and was located in an isolated section of wall trench that had a conical-shaped pit appearance. Postholes 1-2 and 1-3 were difficult to define as they both were similar in appearance to the heavily mottled trench fill. A carbon sample was trowel collected from the upper portion of posthole 1-3 and sent for radiocarbon dating. It returned a split calendrical date at 2 sigma (cal) of A.D. 1240 to 1300 and A.D. 1370 to 1380 (cal). The remainder of posthole 1-3 was removed as a flotation sample and processed in the IPFW-AS laboratory. The remaining northwest half of the exposed wall trench that contained posthole 1-2 was removed and screened.

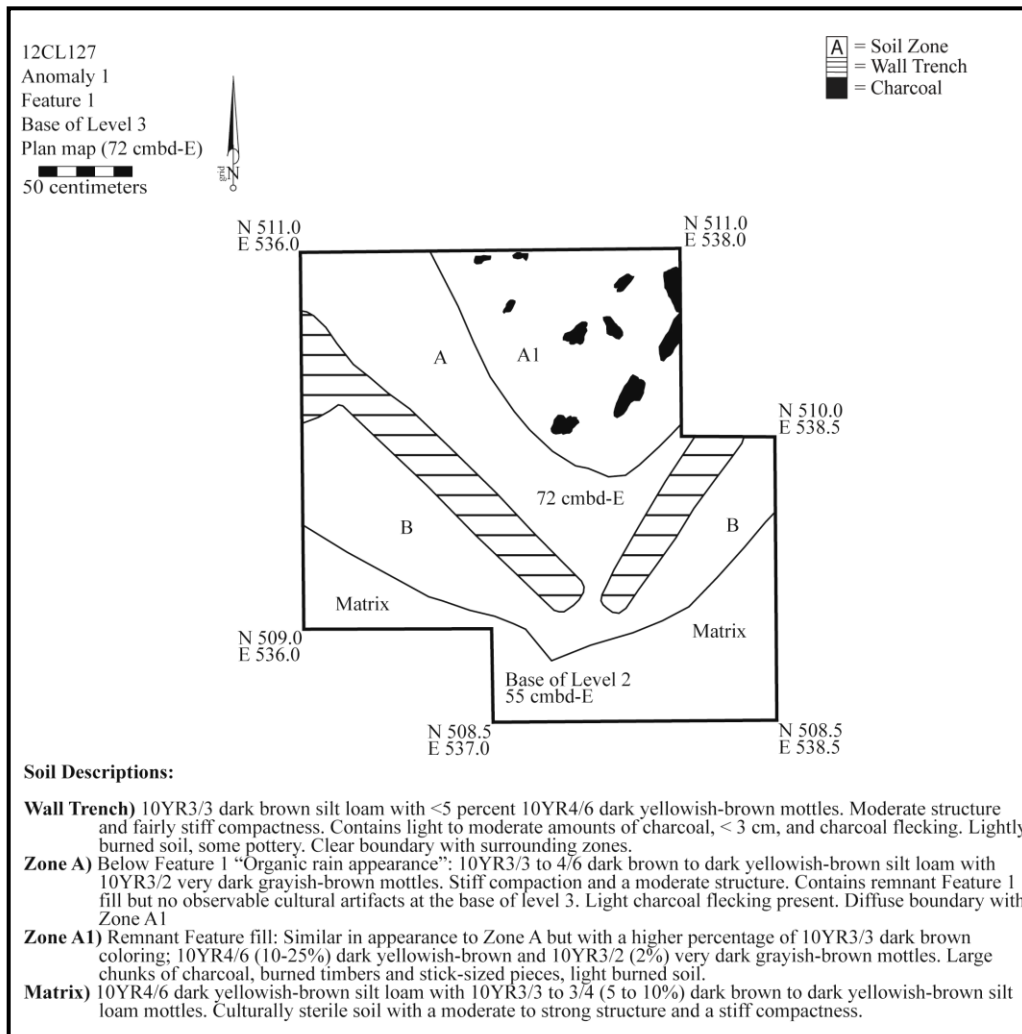


Figure 12. Plan map of Anomaly 1, base of Level 3 at 72 cmbd.



Figure 13. Photograph of Anomaly 1, base of Level 3 at 72 cmbd showing the wall trenches and remnant basin fill, view west. Note the edge of the house basin in the west profile wall.

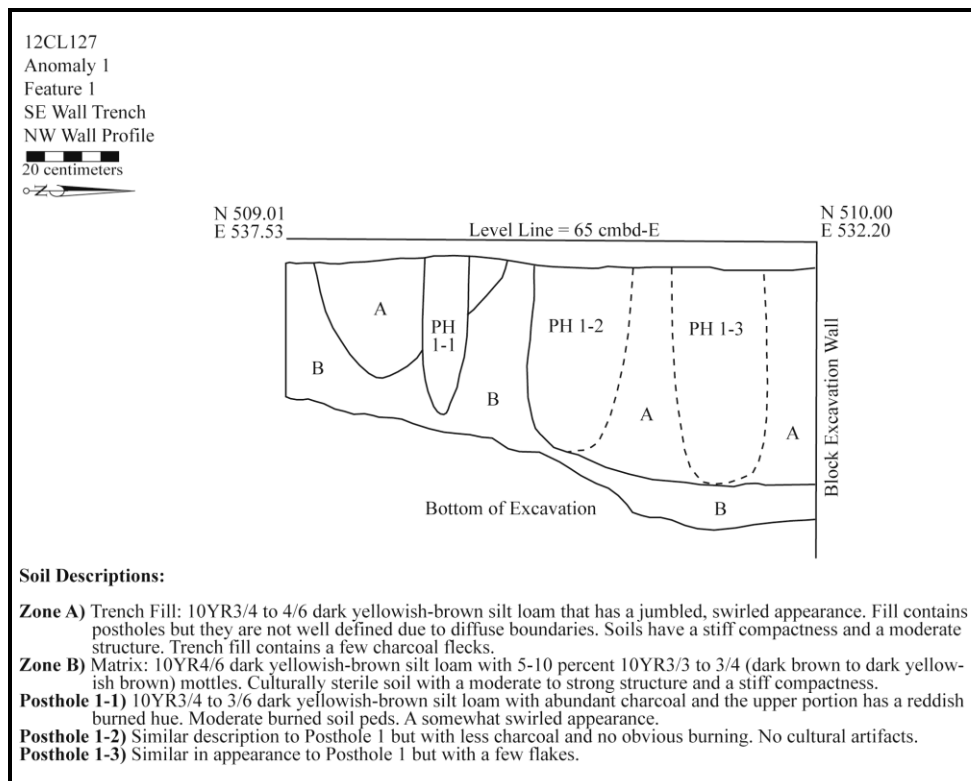


Figure 14. Plan map of the northwest profile of the southeast wall trench of Feature 1 showing the postholes and irregular wall trench.

The west (Figure 15) and north (Figure 16) walls of the Anomaly 1 excavation block were photographed and mapped in profile. The west profile wall exhibited four soil zones as detailed in Figure 17. The plowzone (Ap) was underlain by three additional soil zones. Zone 2 consisted of a B-horizon loess soil nearly devoid of artifacts. The Feature 1 soil to the right of Zone 2 comprised house basin fill containing numerous artifacts in addition to charred wood and burned soils. Zone 3 was a zone within Feature 1 that had a mottled, swirled appearance slightly lighter than the rest of Feature 1, but the transition between the two zones was diffuse.

The north profile wall (Figure 18) was similar in appearance and description to the west profile, but the Feature 1 soils extended the entire width of the excavation block as it was completely located within the house structure. This underlay the Ap plowzone. The Zone 3 soils recorded in the west profile continued around the block corner and into the left side of the north profile before transitioning to the darker Feature 1 soils. Near the base of the north profile wall was Zone 1A, the house basin floor that had an increased degree of burning and numerous large charred wood pieces. A heavy concentration of burned soil was mapped in the west portion of the north profile wall, extending from the base of excavation upward approximately 15 cm.



Figure 15. Photograph of the Anomaly 1 excavation block west profile wall showing delineation between Feature 1 basin fill soils to the right and the lighter matrix soils to the left.



Figure 16. Photograph of the north profile wall consisting of Feature 1 house basin fill.

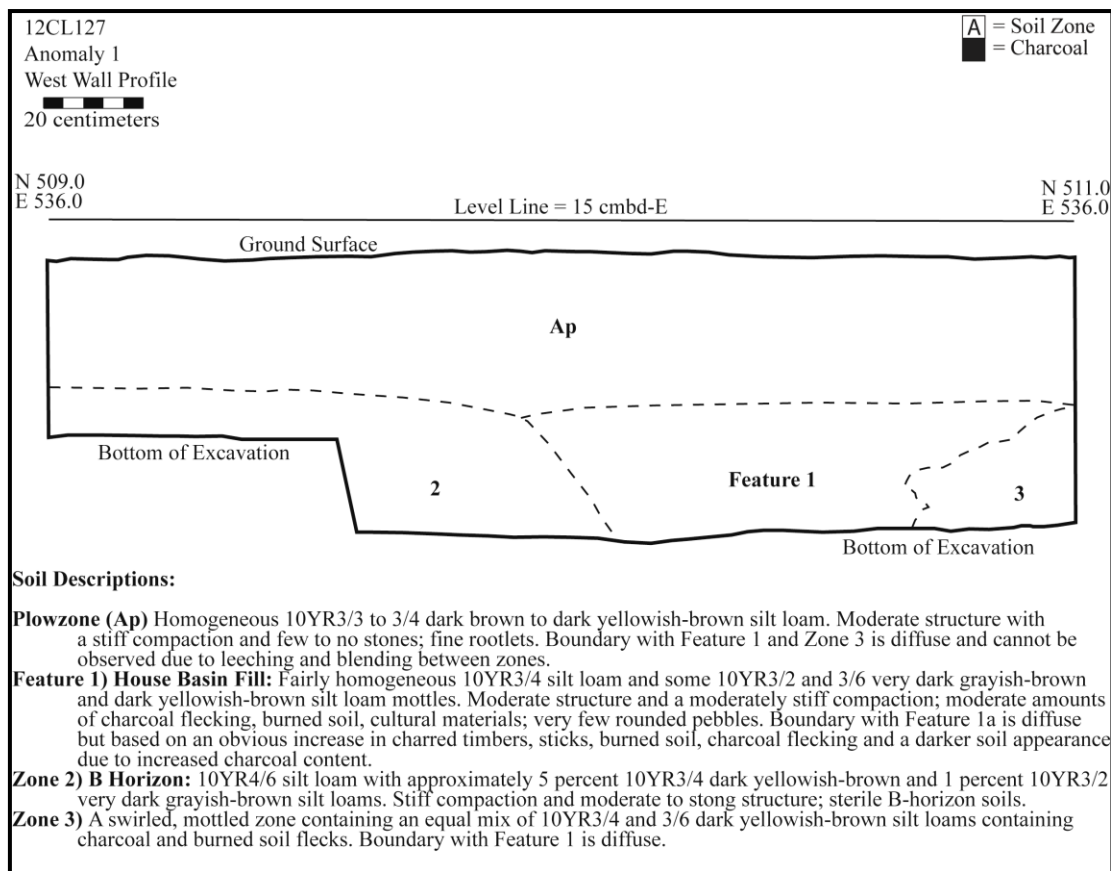


Figure 17. Profile map of the west wall of the Anomaly 1 excavation block.

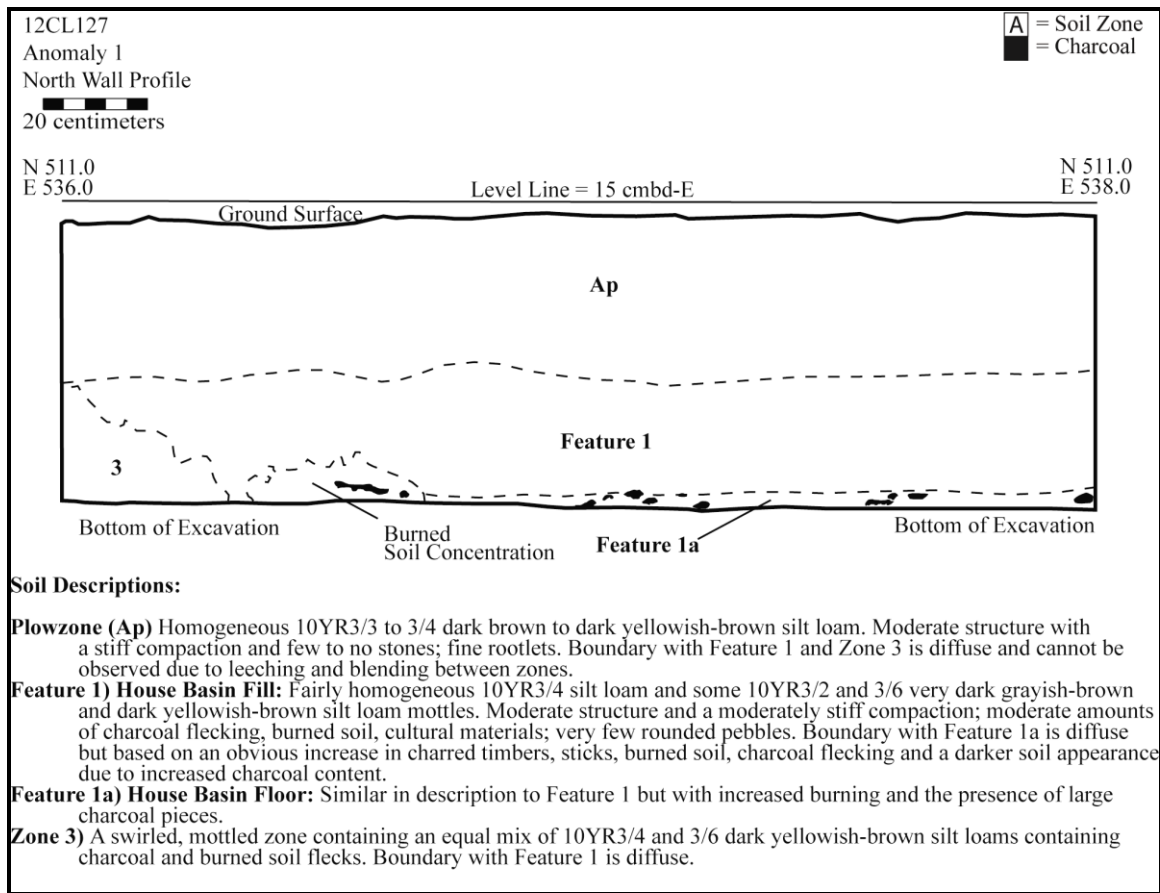


Figure 18. Profile map of the north wall of the Anomaly 1 excavation block.

Anomaly 3 West

Anomaly 3, located within Grids 8 and 9 of the geophysical data, is a very large, rectangular anomaly, measuring approximately 6 x 6 m, interpreted as a structure (see Figures 4 and 8). The anomaly is oriented east-west and consists of a linear, positive outline, with strong to weak values, although its north and west edges were somewhat difficult to discern. A few small, circular monopoles were evident within the structure, as well as several larger, irregular to regular shaped monopoles and dipoles surrounding it. This anomaly was selected for limited archaeological testing to confirm its interpretation as a structure. The Anomaly 3 West excavation block was placed over the southwest corner of the anomaly and was composed of four 1 x 1 m units (Units 5-8) arranged into a 2 x 2 m block.

At the base of Level 1 (58 cmbd), the soils exhibited considerable mottling that may still retain remnant plowzone soils. However, there appeared to be an ephemeral dark linear anomaly extending across the excavation block in an east-west direction (Figure 19). This was possibly a wall trench containing posts. A second dark, noncontiguous, linear stain diverged from the initial east-west dark linear anomaly in the southeast quarter of the block and extended north into the north excavation wall. This was also interpreted to be another wall trench with three possible postholes (3-1, 3-2, and 3-3). The base of Level 1 was photographed and mapped in plan with two soil zones designated (Figure 20). Zone A consisted of a 10YR3/4 wall trench fill containing numerous mottles and light charcoal flecking. The boundary was diffuse with a transition

extending over 8 cm in width. Zone B soils, consisting of a 10YR4/6 silt loam B horizon, contained few artifacts but had light charcoal flecking throughout.



Figure 19. Photograph of Anomaly 3, Base of Level 1 at 58 cmbd showing the ephemeral wall trenches, view north.

The east-west wall trench (Zone A) was bisected and cross-sectioned with the south portion removed but not screened. After removal, the north wall trench profile was photographed and mapped (Figure 21) resulting in two soil zone designations. Zone 1 was the same as Zone A in plan and was designated as wall trench fill consisting of a 10YR3/4 silt loam containing light charcoal flecking, pottery sherds, and debitage. The base of the wall trench undulates and was irregular in appearance. The mottled soils had a swirled, mixed appearance resulting from backfilling of the trench.

Zone 2 soils consisted of a 10YR4/6 silt loam that was culturally sterile and had a higher clay content than the Zone 1 cultural soils. In profile, the stratigraphy was irregular, consisting of mixed light and dark mottles. Several possible postholes were mapped in profile but could not be positively defined due to indistinct edges and the heavy mottling present within the trench. The north-south wall trench extending north from the east-west wall trench was not bisected due to its irregular appearance. However, the three possible postholes were each cross-sectioned and examined in profile. All three were confirmed as postholes (Figure 22), though ephemeral in appearance. Soils from Posthole 3-2 were screened, and the charcoal recovered was sent for radiocarbon dating. This sample returned a calendrical date at 2 sigma (cal) of A.D. 1300 to 1430 (cal).

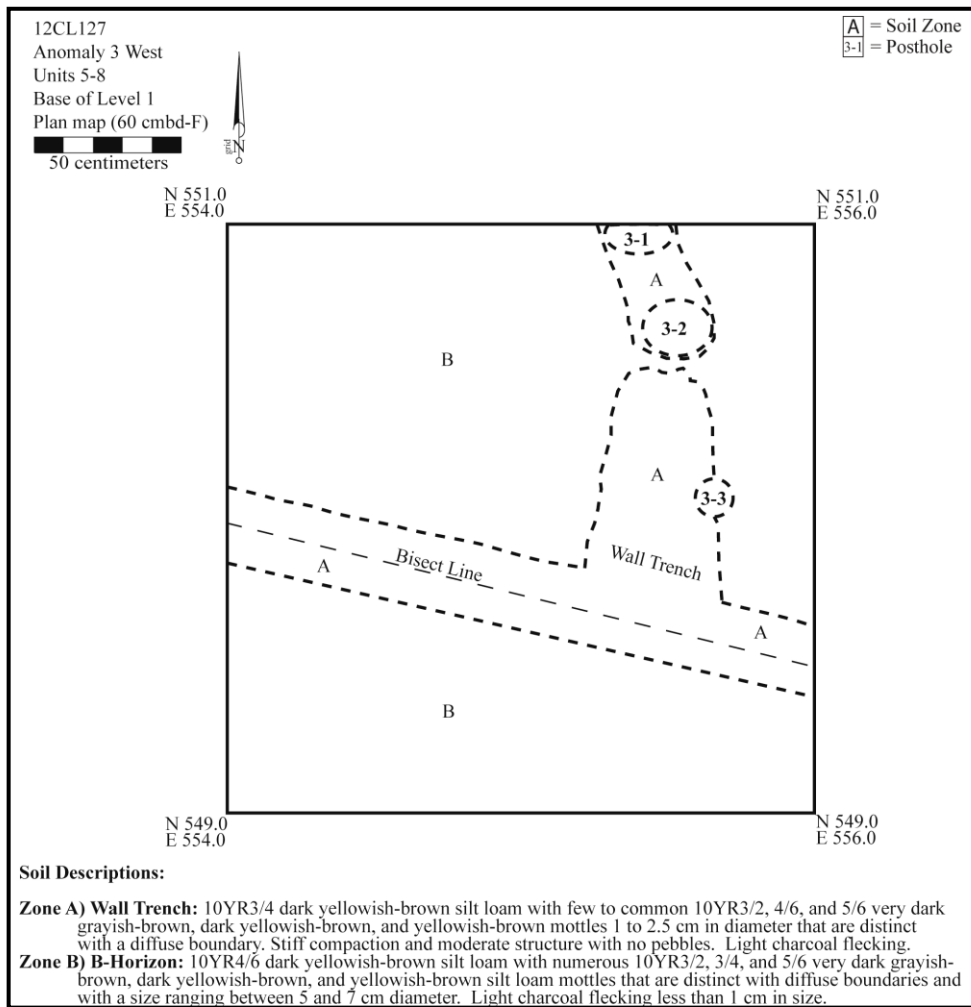


Figure 20. Plan map of Anomaly 3 West at the base of Level 1 showing the ephemeral wall trenches and postholes.

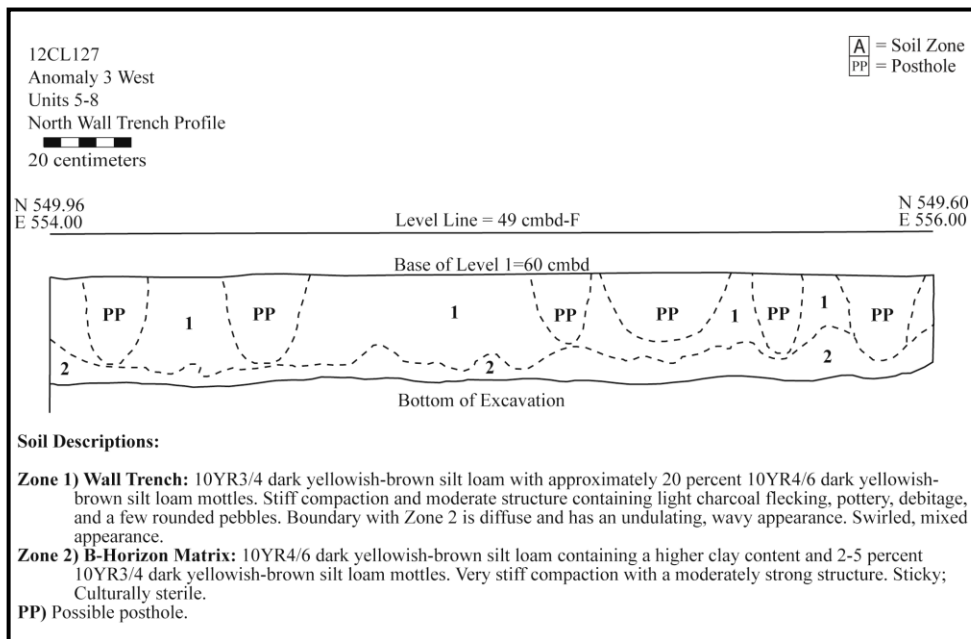


Figure 21. Map of the north profile of the bisected east-west wall trench in Anomaly 3 West.



Figure 22. Photograph of Posthole 3-3 in the Anomaly 3 West block after being cross-sectioned.

Soils adjacent to the west and north profile walls were removed to either side of the wall trenches in attempts to better define the feature in profile. These excavations resulted in the exposure of a rounded wall trench in the west wall (Figure 23) and a rounded V-shaped wall trench in the north wall. The west and north profile walls were photographed and mapped with accompanying soil descriptions. In profile, both exposed wall trenches were truncated by the plowzone soils indicating that this portion of Anomaly 3 West had been impacted by agricultural tillage.

Probably the upper portion of Anomaly 3 West has been plowed away and only the lower architecture consisting of the wall trenches remains. This may have been further evidenced by the large, charred wood pieces near the base of plowzone observed during removal of Level 1 soils. The wall trenches, when cut in profile, had an irregular, indistinct form and the postholes were ephemeral in appearance, possibly resulting from a salvage episode where posts were recovered, or removed, and used in a rebuilding episode.

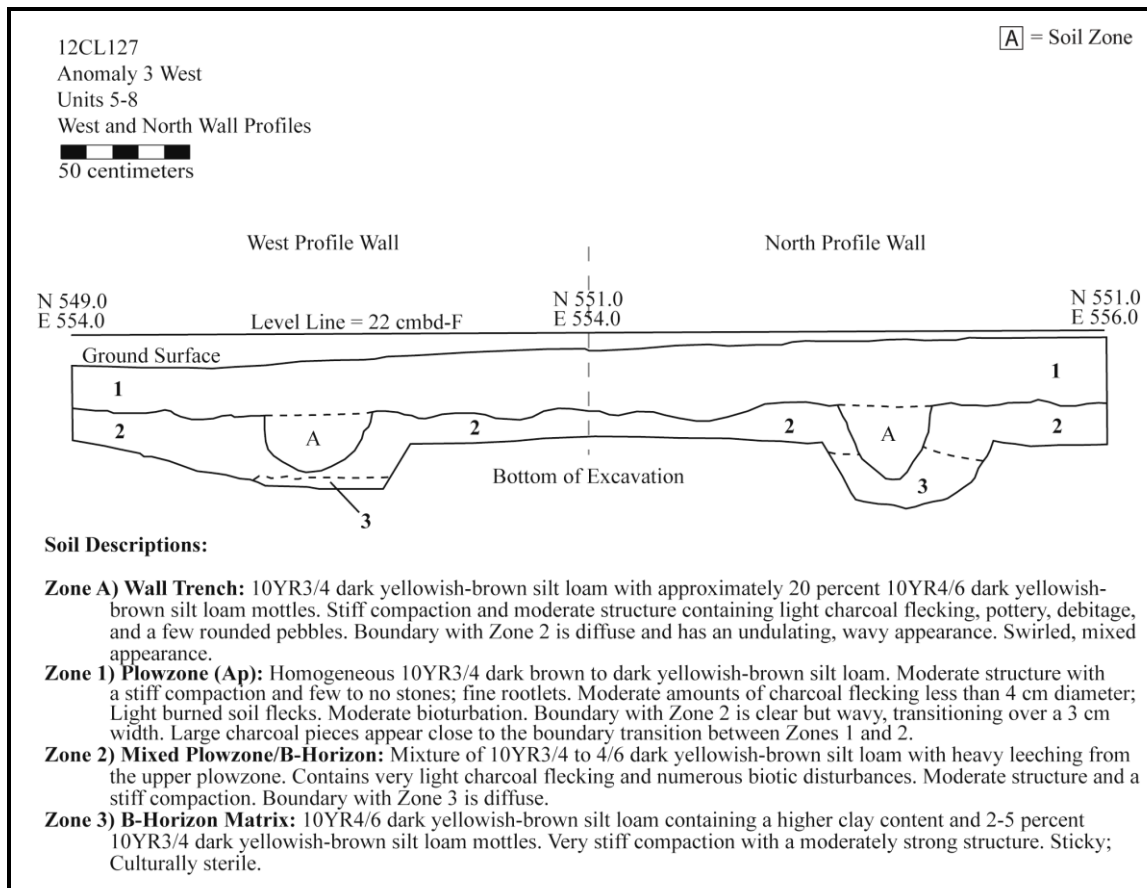


Figure 23. Map of the west and north profile walls of the Anomaly 3 West block.

Discussion

The 79 geophysical survey grids collected within the project area indicated numerous anomalies interpreted by IPFW-AS personnel to be the product of prehistoric cultural activities. Six of these anomalies were selected for archaeological testing by intensive excavation to ground-truth IPFW-AS interpretations. Of the six anomalies archaeologically tested at the Ellingsworth site, five (1, 2, 3, 5, and 6) were confirmed as prehistoric features resulting from cultural activities. The sixth tested anomaly was apparently a product of subsurface geology. Two of the five tested cultural anomalies resulted in confirmation of the presence of Mississippian-era houses within site 12 Cl 127. The other three tested anomalies were prehistoric pit features that could have been used for a number of cooking, storage, or discard functions.

The geophysical survey and the subsequent 17.25 m² excavated at 12 Cl 127 in four separate excavation blocks resulted in the following conclusions. First, site 12 Cl 127 is recommended as eligible for the National Register of Historic Places under criterion D (indicates there are subsurface archaeological deposits present that have scientific value). The excavations confirmed the presence of intact subsurface archaeological features and deposits that will very likely shed light on the Falls Mississippian Complex. The excavations validated the geophysical data and verified the presence of multiple Mississippian-era house structures and pit features at

12 CI 127. And second, the geophysics and excavations established that 12 CI 127 is likely either a Mississippian village or hamlet associated with the nearby Smith-Sutton site (12 CI 130). Whether it is associated with 12 CI 130 only 400 m distant is still uncertain pending further archaeological investigations that include securing radiocarbon dates from 12 CI 130, although it is highly likely that the two sites were occupied contemporaneously. Site 12 CI 127 is likely a small hamlet associated with 12 CI 130, since 12 CI 127 currently appears to lack a wood fence, or palisade, like the one present at 12 CI 130. It was not visible in the geophysical data and no excavations were conducted to verify the presence or absence of a palisade at 12 CI 127.

The two radiocarbon dates returned from carbonized wood samples submitted for testing provide a beginning timeline for the occupation of 12 CI 127. The first was obtained from charcoal recovered from Posthole 1-3 in Anomaly 1 (Figure 24). It returned a split calendrical date at 2 sigma (cal) of A.D. 1240 to 1300 and from A.D. 1370 to 1380 (cal). The second date was recovered from Posthole 3-2 in Anomaly 3 West (see Figure 24). This sample returned a calendrical date at 2 sigma (cal) of A.D. 1300 to 1430 (cal). These two dates are contemporaneous with other Falls Mississippian Complex sites in the area such as the Shippingport and Eva Bandman sites (Munson et al. 2006:154-155). However, these dates are slightly later than those from the Newcomb and Prather sites (Munson and McCullough 2004; Munson et al. 2006:154).

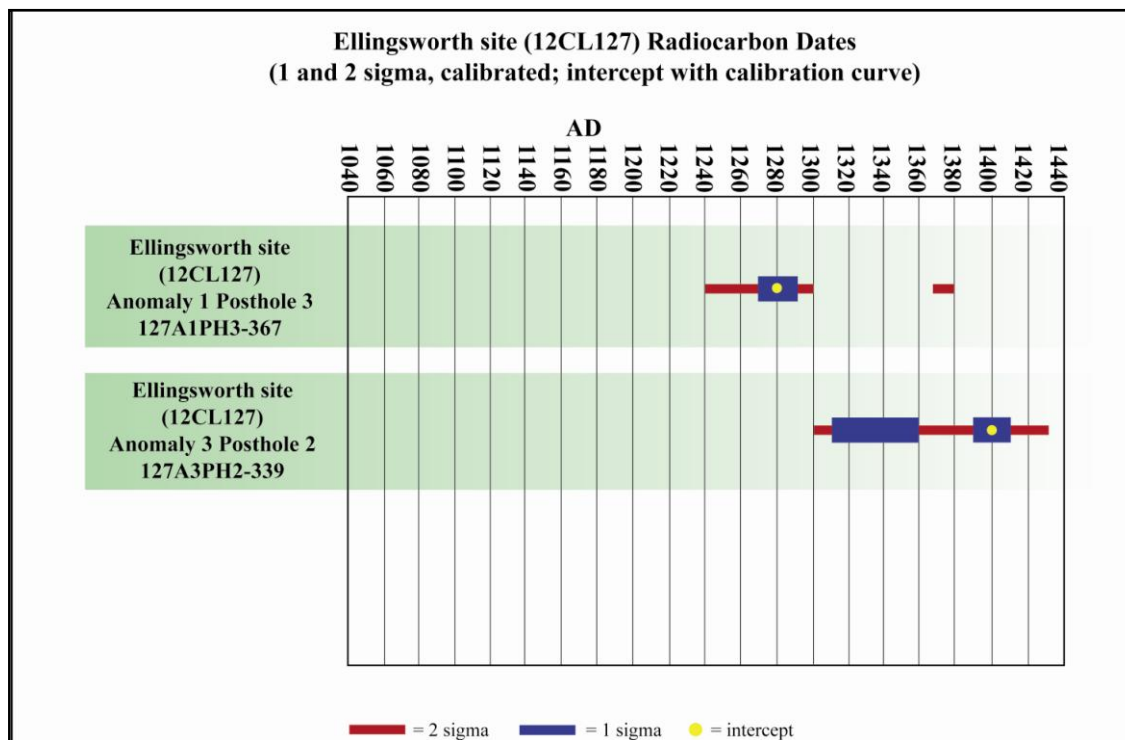


Figure 24. AMS radiocarbon dates from site 12 CI 127.

It was not anticipated, but there is little overlap between the two dates and this only occurs at A.D. 1370 to 1380 of the split date returned from Anomaly 1, Posthole 1-3. The dates suggest several possible interpretations. One is a long continuous occupation of 12 CI 127 with the two houses constructed at different times. Alternatively, there may have been an interrupted

occupation, or reoccupation of the same site at a later date. Further questions that may have bearing on the later radiocarbon date are the three grit-tempered sherds recovered from Anomaly 3 West (Figure 25). Are these a result of trade with neighboring Fort Ancient groups or is there a Fort Ancient presence at 12 Cl 127? Further support for a Fort Ancient presence is the quantity of grit-tempered sherds from the 12 Cl 127/130 Stoner collection, including a grit-tempered neck sherd with a curvilinear guilloche pattern decoration. If so, Anomaly 3 West may very well be a later house structure associated with Fort Ancient peoples. This will further complicate our understanding of the Falls Mississippian Complex but could shed light on the Late Prehistoric occupations in the Falls of the Ohio area. Currently, the limited excavations and only two carbon dates restrict inferences that can be offered. Future work on site 12 Cl 130 including the recovery of a series of radiocarbon dates should further assist in clarifying occupations on 12 Cl 127.



Figure 25. Photograph of the rim sherd assemblage recovered from the Anomaly 3 West excavation block.

This grant-supported research substantiated the presence of another intact Falls Mississippian occupation that holds significant scientific information regarding the Mississippian settlement in the Clark County area.

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SCIENTIFIC RECOVERY INVESTIGATIONS AT THE KRAMER MOUND SITE (12Sp7): FIELDWORK, STRATIGRAPHY AND DATING

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Cincinnati, OH

*Everywhere I look I see things that were used, they were touched and handled . . . the old names are there,
somewhere in time.* Spender, Archaeologist, 4th Mars Expedition

Ray Bradbury, *The Martian Chronicles*

Introduction

In fulfillment of the terms of an approved plan granted by the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (DHPA), the author implemented scientific recovery investigations at the Kramer Mound site (12Sp7) in Spencer County (Figure 1). The investigations were precipitated by disturbance to the site consisting of soils excavated from a shallow basin. These were subsequently incorporated into retaining berms, as well as into a plowzone segregation backdirt pile (Figures 2 and 3). Based on calculations derived from the interior of the basin, it is suggested the ground disturbance involved approximately 213 cubic meters within a 16.5 m x 17 m x 0.76 m.

The fieldwork was completed in July 2010, but analytical studies are still underway. The present data suggest the site is multicomponent, but predominantly Late Archaic as identified in 1987 by Indiana University (Indiana University Archaeological Survey Form [IUASF] 1987). The following discussion highlights the results of the field investigations and provides new information related to the stratigraphic sequence and dating. This paper is the first in a series planned for subsequent editions of *Indiana Archaeology* with the future studies providing detailed information on the archaeological and bioarchaeological assemblages from the site.



Figure 1. View from the east of 12Sp7 during the scientific recovery.

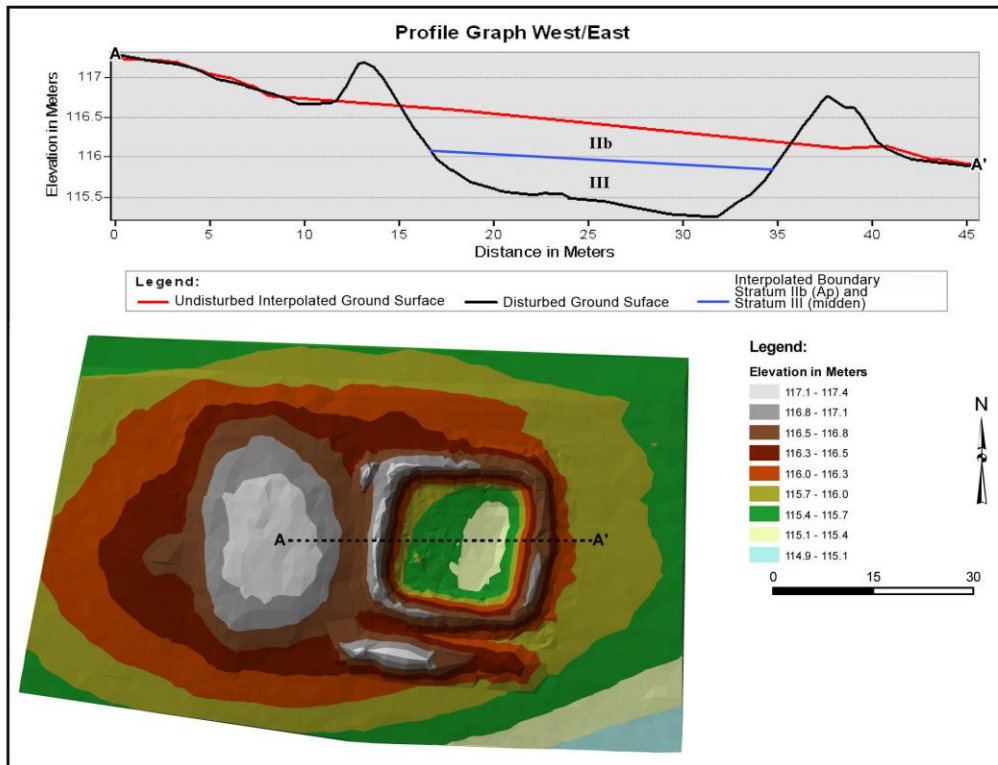


Figure 2. Contour map of 12Sp7 showing basin (elevations in meters above mean sea level).

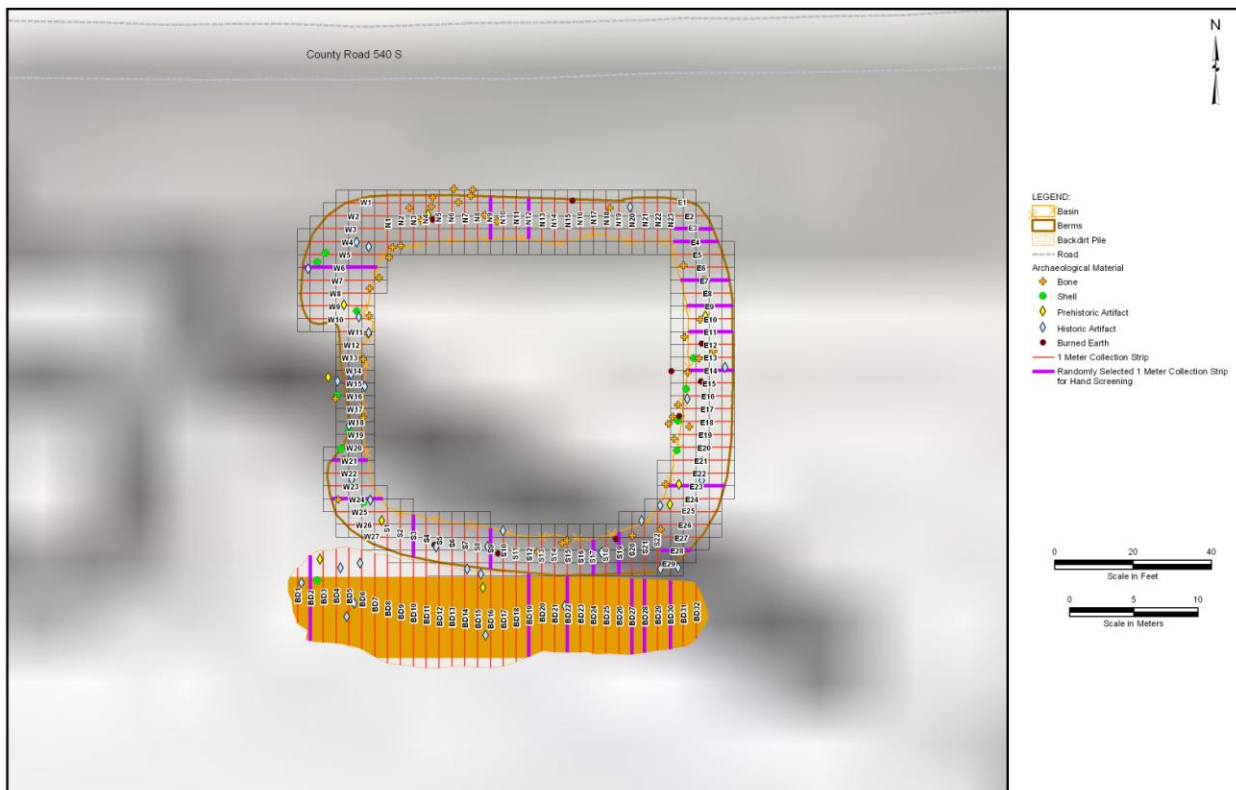


Figure 3. Map of the site area and grid system employed during the scientific recovery.

Brief History of Research

The history of investigations at 12Sp7 began with the excavations of Arthur Veatch and Clarence Kennedy in 1896. Apparently, they dug a trench “10 feet long, 4 feet wide, and 6 feet deep” which “revealed the usual stratification found in shell middens” (Kellar 1956:24). In 1916, a human burial was encountered and additional human remains were recovered in the 1930s during the excavation of post holes (Kellar 1956:24).

James Kellar identifies the site as the Kramer Mound or 12Sp7, although he states that it is not “an artificially constructed tumuli . . . Rather, it is a midden deposit made up of an underlying concentration of mussel shell covered by a stratum of dark soil” (Kellar 1956:24). He further notes the presence of burned rock and flint and indicates the “area of occurrence is about 75 yards in diameter and is about five feet high in the center” (Kellar 1956:24).

The site was formally recorded in 1987 by Indiana University when the site number 12Sp7 was assigned (IUASF 1987), incorporating Kellar’s original designation of 12Sp7. Based on pedestrian reconnaissance, the site was reported as a Late Archaic shell mound covering an area of three acres, but subsequent amendments to this temporal affiliation by Cheryl Munson indicated the presence of Middle Archaic, Woodland, and Mississippian components as well (IUASF 1987). The surface material identified at the location included human remains, mussel shell, chert debris, cracked rock, and the remains of a historic-era barn.

The Indiana University Archaeological Survey Forms, dated between February and August 1987 (IUASF 1987), describe “heavy potting” at 12Sp7 with the excavation of “15-20 foot deep potholes.” During the removal of the barn, “the site was backhoed out to 15 feet depth” and it was believed the midden deposits had been totally destroyed.

Between 1999 and 2000, the DHPA conducted investigations related to accidental discovery of archaeological materials at the site. In contrast to the 1987 position that 12Sp7 had been obliterated, the DHPA fieldwork showed that portions of the site’s midden remained intact based on the continuing recovery of both human remains and artifacts.

2010 Field Investigations

The 2010 field investigations involved two separate phases which may be characterized as “Recovery” and “Investigation,” respectively. The Recovery Phase involved the collection of disturbed archaeological materials from the surface and within the berms and basin, as well as within the backdirt pile located to the south of the basin (Figure 3). The Investigation Phase involved the profiling of wall sections in order to make stratigraphic observations, as well as to collect flotation samples for paleobotanical and AMS dating purposes. The second phase was somewhat limited in scope, given that the intent was to make stratigraphic observations in the least intrusive manner possible.

Recovery Phase Fieldwork

The Recovery Phase of the fieldwork did not result in any stratigraphic observations per se, with the exception that disturbed soils were re-deposited in a recognizable order as follows:

1. The backdirt pile contained the upper portion of the Ap, or the plowzone soil horizon, from the surface to a depth of about 15.2 centimeters (Paul Witte, personal communication, 2010). These soils were segregated for two reasons: 1) to be able to replace the Ap if needed for agricultural purposes; and 2) the upper portion of the Ap did not possess a suitable water retention capacity for lining the inside of the basin. Preliminary field observations suggest that the backdirt pile contained later prehistoric components with a significant concentration of historic artifacts, but this awaits confirmation upon completion of the analysis.
2. The disturbed berm deposits appeared to display a trend for prehistoric materials to be concentrated at the surface and within each berm's upper portions. As the bases of the berms were reached, a tendency was observed for increased numbers of historic-era materials, a not unsurprising stratigraphic reversal.

Prior to the start of fieldwork, the site area was mapped and a grid of meter-wide artifact collection strips was established (Figure 3). The mapping and grid system used a datum recorded in absolute meters above mean sea level. While the areas to be investigated were composed entirely of disturbed soils, it was believed that some observations regarding the original provenience of the artifacts could be made by noting their location in the surrounding berms. At this time, careful inspection of the berms and basin floor was undertaken to collect displaced cultural materials, as well to determine whether anything at these locations remained in situ. The materials identified during this process were generally point provenienced with a Total Station. Inspection of the berms and basin continued thereafter on a daily basis throughout the project.

The soils comprising the berms, due to alternate wetting and drying in extreme June and July 2010 heat, proved to be extremely tough to excavate. Indeed, artifacts were so firmly embedded that extraction was akin to removal from a hardened matrix like a breccia. Thus, it was proposed to use a mechanical excavator to assist recovery. The equipment consisted of a small John Deere 35D Compact Excavator with rubber tracks. The 35D Compact Excavator was selected because of its maneuverability and low ground pressure (i.e., less than five pounds per square inch [5 psi]) which ensures that loading is dispersed, while also limiting surface damage associated with rubber tires or metal treads.

The bucket was modified with a flat plate to which rounded pieces of rebar had been welded, achieving an effect much like a comb. This configuration allowed for the loosening of the disturbed berm soils and the dislodging of artifacts and bone. During the process, which started with the exterior of the berms, one of the field team constantly monitored progress, making observations and collecting exposed artifacts and other materials. Artifacts collected during this effort involved those specimens that were prehistoric in age or suspected to be prehistoric, along with all osseous specimens.

There is no doubt that the mechanical rake facilitated the collection of artifacts and fragile specimens made of bone and antler and did so in a manner that significantly limited additional damage. However, concerns about breaking artifacts remained and, consequently, a

300 gallon water tank was brought to the site. To a certain extent, spraying the berms helped to loosen soils, but the actual depth of water penetration was extremely limited (no more than several centimeters). Mitigating this problem, however, is the fact that once the mechanical rake penetrated the hardened surface, the soils underneath were more moist and responded better to hand raking and troweling.

Once the disturbed soils had been lightly combed by the mechanical rake, the next step of the recovery effort involved hand raking and troweling of the exposed surfaces. The process involved one member of the field team pulling back the soils with a hand rake, while another team member trowelled the surface clean and collected artifacts (Figure 4). This methodology was extremely effective in recovering even relatively small specimens such as tiny flakes and, occasionally, microdebitage. Microdebitage consists of tiny flakes, often less than 5 millimeters in length, that are detached in very large numbers while working stone.



Figure 4. Recovery Phase, North Berm exterior, showing hand excavation with rake and trowel (the former location of the barn is the grass-covered area).

A final stage of the field recovery effort involved the hand-screening of soils from 24 of the meter strips from both the interior and exterior of the berms and the backdirt pile (Figure 3, indicated in purple). These units were selected randomly and a ¼-inch (6 mm) mesh was used for the screening process. All prehistoric and historic artifacts and osseous remains were collected, while the mussel shell that was collected comprised only the larger, more complete specimens for the purposes of the faunal analysis.

Investigation Phase Fieldwork

The Investigation Phase involved more accurate and detailed stratigraphic observations related to the profiling of eight wall “sections,” as well as the hand excavation of one, 1 meter wide, test unit in the interior of the basin. The basin walls were profiled at eight separate locations that corresponded with the meter strips numbered 7 and 17 at each of the cardinal directions (North 7 and North 17, West 7 and West 17, South 7 and South 17, and East 7 and East 17). Unit South 4 was entirely hand excavated at the beginning of fieldwork to act as a guide for the Investigation Phase by documenting the depth of disturbed soils and their relation to in situ deposits.

The corners of each unit were mapped using a Total Station to establish datum points with absolute depths above mean sea level. A flat blade welded to the bucket of the excavator was used to lightly scrape the surface of the wall to clean the previously raked and trowelled surfaces. This usually entailed an average depth of no more than 10 centimeters. All profiles were then further cleaned with a trowel and flat-bladed spade, as well as photographed and hand drawn. The soil texture and Munsell colors were noted, while five gallon flotation samples were taken from each stratum.

The term “profile” in the context of this scientific recovery requires some clarification. Due to the need to collect information about the undisturbed stratigraphy at the site, without further disturbing in situ deposits, the basin walls were carefully scraped as described above. The resulting sections are probably best described as “plan profile sections” in that they attempt to follow the undisturbed contour of the basin and are not straight 90 degree profiles (Figures 5 and 6). To excavate straight profiles into the basin walls, as is normal practice in archaeology, would have entailed significant new excavation outside the scope of the approved plan. Nonetheless, using Environmental Visualization System software, it was possible to reconstruct accurate profiles, using precise elevation data collected with the Total Station, supplemented by photographs and hand drawings of the meter strips.

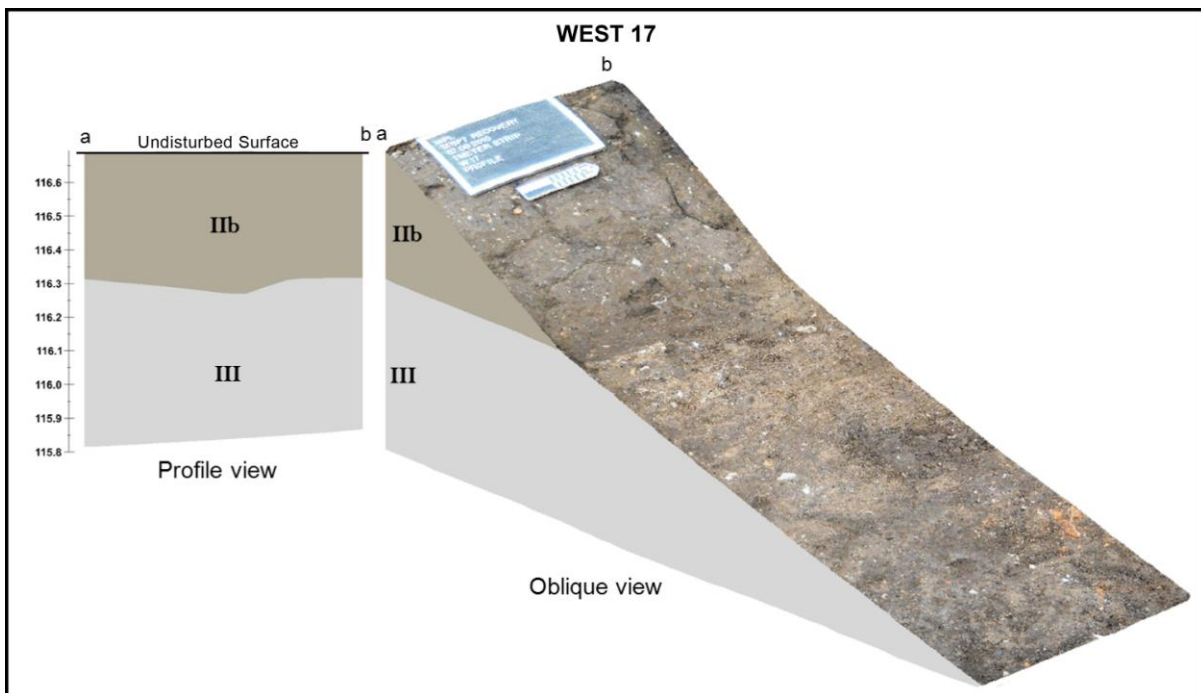


Figure 5. Plan Profile of West 17, following the contours of the basin, showing the interface between the Stratum IIb Ap and the Stratum III midden at ca. 116.30 meters above mean sea level.

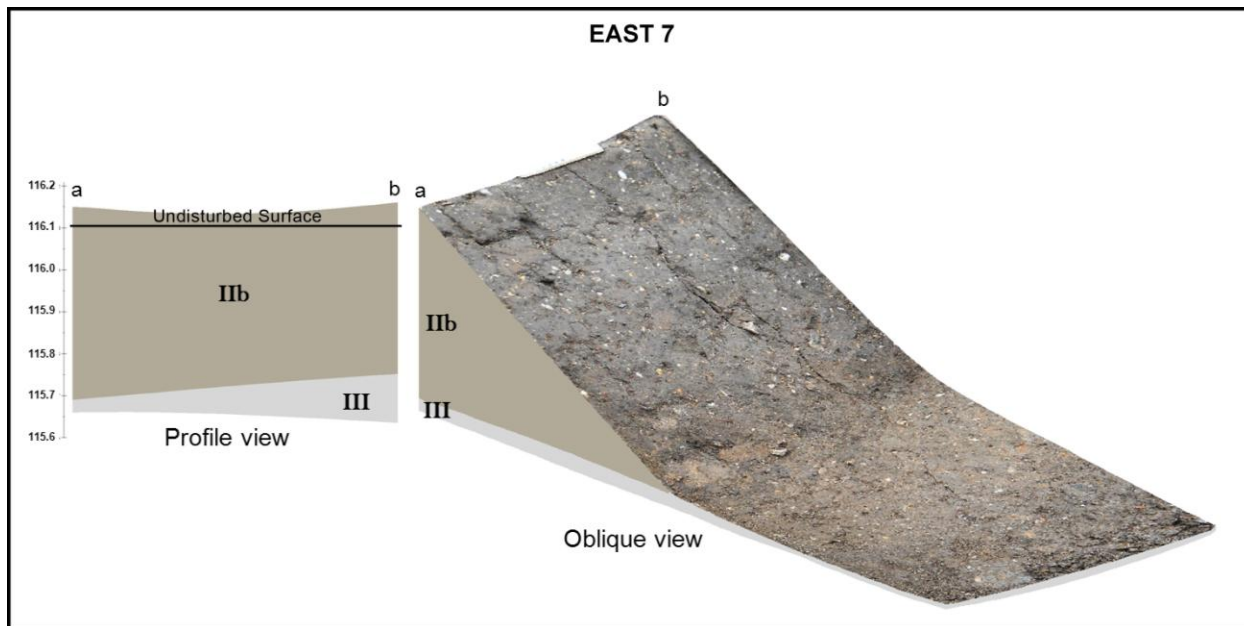


Figure 6. Plan Profile of East 7, following the contours of the basin, showing the interface between the Stratum IIb Ap and the Stratum III midden at ca. 115.70 meters above mean sea level.

Soils and Stratigraphy

During the course of the field investigation, a stratigraphic sequence was developed to describe the context of artifact deposition, both in prehistory and as a result of historic-era and modern disturbance. The stratigraphy, as identified in the profile plan sections, is highly varied across the site and includes in situ archaeological deposits, as well as deposits disturbed in historic times.

It is important to note that disturbance to the site has been both chronic and acute, spanning at least a century based on earlier statements by Kellar (1956:24). The chronic episodes of disturbance include plowing, while more acute episodes involve excavation for postholes and the presence and later demolition of a barn, as well as a reported home on the property and 1980s-era looting using a backhoe (Anonymous local informant, personal communication, 2010). The following table lists the stratigraphic units identified at 12Sp7.

Table 1. Generalized Stratigraphic Profile for 12Sp7.

Stratum	Stratigraphic Description	Average Thickness of Deposit	Texture	Primary Munsell Color	Additional Discoloration	Cultural Material and Inclusions
I	Disturbed deposits incorporated into berms	71.3 cm (deposited above present land-surface, varies across the site with the east berm ranging between 85 cm and 95 cm in thickness)	Silty Clay, Clay	10YR 4/1, 4/2	Mottled 7.5YR 6/8 and 5YR 5/8	Historic and prehistoric artifacts, shell, bone, burned earth, charcoal, angular stone and gravel
Ib	Disturbed deposits, earlier historic event(s)	44.5 cm (highly variable)	Silty Clay, Clay	10YR 3/1, 3/2, 4/2	Mottled 7.5YR 6/8 and 5YR 5/8	Historic and prehistoric artifacts, shell, bone, burned earth, charcoal, angular stone and gravel
IIa	“Upper Ap”	15 cm (in backdirt pile, not verifiable stratigraphically)	Silty Clay	10YR 2/1, 3/2	None observed	Historic and prehistoric artifacts, shell, bone, angular stone and gravel
IIb	“Lower Ap”	21.7 cm	Silty Clay, Clay	10YR 3/1, 3/2, 4/2	Mottled 7.5YR 6/8 and 5YR 5/8	Historic and prehistoric artifacts, smaller pulverized shell fragments, bone, burned earth, charcoal, angular stone and gravel
III	Prehistoric midden	31.2 cm (depth of midden below basin floor unknown)	Silty Loam, Silty Clay, Clay	7.5YR 3/1, 4/3, 4/4; 10YR 3/3, 4/1, 4/2	Mottled 2.5 YR 4/8 and 7.5YR 6/8; 7.5YR 6/8 and 5YR 5/8	Prehistoric artifacts, larger shell fragments, bone, burned earth, greater number of charcoal inclusions, angular stone and gravel

The following Table 2 provides data on strata thickness and indicates that the total depth of the observed plan profiles ranges between 117 centimeters and 153 centimeters. Stratum I consists of an average of 71.3 centimeters of deposits incorporated into the berms, which correlates well with the originally suspected depth of disturbance of roughly 76 centimeters.

Given the conditions under which field observations were made, this result is surprisingly accurate. For plan profiles that indicated lesser degrees of disturbance, there was an average of 68 centimeters of exposed deposits incorporating the Ap and Stratum III midden.

Table 2. Stratigraphic Units and Thickness for the Meter Strips and Hand Excavated Unit South 4.

Unit/Stratum	N7 (cm)	N17 (cm)	W7 (cm)	W17 (cm)	S4 (cm)	S17 (cm)	E7 (cm)	E17 (cm)	Average Thickness (cm)	S7 (cm)
Stratum I (Disturbed, recent)	+80.0	+77.0	+55.0	+51.0	+52.0	+75.0	+85.0	+95.0	+71.3	+69.0
Stratum Ib (Disturbed, earlier event)	N/O	N/O	47.0	N/O	N/O	42.0	N/O	N/O	44.5	87.0
Stratum IIa ("Upper Ap," not verifiable stratigraphically)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Stratum IIb ("Lower Ap")	12.0	25.0	N/O	37.0	20.0	N/O	19.0	17.0	21.7	N/O
Stratum III (Exposed midden)	30.0	N/O	N/O	50.0	46.0	N/O	10.0	20.0	31.2	77.0

+ = Deposited above the present surface

N/O= Not Observed in profile

In terms of general stratigraphy, the profile includes disturbed horizons which can be quite thick. The Stratum I disturbance averaged 71.3 centimeters in thickness, ranging between 51.0 and 95.0 centimeters. Stratum I was thickest within the eastern berm, coinciding with the deepest part of the basin (Figure 2). This stratigraphic unit represents deposits pulled up from the basin and incorporated into the berms and, thus, could not be recorded in the plan profiles as it was removed during the Recovery Phase of investigation. Consequently, its thickness was determined by measurements taken with the Total Station before and after excavation.

Stratum Ib, believed to represent several discrete episodes of earlier historic-era disturbance achieved a thickness of 87.0 centimeters in Unit South 7. In South 7, Stratum Ib extends from just below the present surface to the base of the plan profile in one part of the meter strip and may reflect the reported episodes of "heavy potting" using a backhoe. The significant degree of disturbance and somewhat unique plan profile resulted in this meter strip being separated from the others described in Table 2. Stratum Ib also occurs in West 7 and South 17, but it is unclear whether this also relates to looting or some other type of historic-era disturbance. The "Upper Ap" in both of these meter strips would obviously have incorporated previously disturbed materials, which appear to extend to the depth of the basin.

The Ap at the site was arbitrarily divided into upper (Stratum IIa) and lower (Stratum IIb) portions based on the removal of approximately 15 centimeters from its top, which was subsequently segregated in a backdirt pile (Figure 3). Assuming the reported thickness of 15

centimeters for the “Upper Ap” is a correct estimation, the plowzone apparently averaged about 37 centimeters. The contact between the Ap and underlying midden (Stratum III) was generally sharp as illustrated in Figures 5 and 6.

The soils within the boundaries of 12Sp7 are mapped as Stendal-Philo-Huntington Association and are deep, somewhat poorly drained to well-drained, nearly level soils on bottomlands (Williamson and Shively 1973). According to the Spencer County Soil Survey, the Ap for both soils is relatively shallow, averaging about 9 inches or roughly 23 centimeters (Williamson and Shively 1973:14, 16). The 23 centimeter depth of the Ap, recorded in the Spencer County Soil Survey, is somewhat at variance with the observations on-site and may be related to the generalized nature of soil mapping or inaccurate stratigraphic documentation during the current fieldwork. The latter is entirely understandable given the degree of disturbance and the means by which the stratigraphy had to be recorded in the plan profiles.

Finally, the exposed midden deposits averaged 31.2 centimeters with their overall thickness being unrecorded. Due to the terms of the approved plan, and the need to avoid further intrusion into undisturbed deposits, no attempt was made to assess the stratigraphy beneath the basin floor. Intact midden deposits were encountered at an elevation of 116.30 meters above mean sea level on the western side of the basin and an elevation of 115.70 meters on the eastern side. This indicates that the deposits in the basin slope to the east as illustrated in Figure 2, a fact readily observable by the contours of the present landsurface. The presence of finer stratigraphic subdivisions within the Stratum III midden could not be observed in the plan profiles and remains an open question.

Stratigraphic Correlation

Although a discernable generalized stratigraphic sequence can be described for the portion of 12Sp7 that was investigated during the Scientific Recovery, the stratigraphic units present are actually quite varied in the plan profiles examined (Table 3).

AMS Dating

Two samples consisting of carbonized nutshell (hickory, walnut, and oak) were submitted to Beta Analytic, Inc. for AMS dating. The samples were recovered by flotation involving water screening of soils collected from Strata I Ib and III. These represent the Ap and midden deposits as identified in the plan profiles described above. Beta Sample 284033 was collected from Stratum I Ib, West 17, within a five gallon flot and yielded a calibrated radiocarbon age of 4220 B.C. (conventional radiocarbon age of 5300 + 40 B.P.). Beta Sample 284032 was collected from Stratum III, South 7, within a five gallon flot and yielded a calibrated radiocarbon age of 3760 B.C. (conventional radiocarbon age of 4980 + 40 B.P.).

Table 3. Stratigraphic Correlation at 12Sp7.

Unit	Stratum I (Disturbed, recent event)	Stratum Ib (Disturbed, earlier event[s])	Stratum IIa ("Upper Ap")	Stratum IIb ("Lower Ap")	Stratum III (Midden)
Plan Profile, North 7	10 YR4/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, charcoal, angular stone and gravel	N/O	Removed to backdirt pile	10 YR4/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, small pieces of charcoal, angular stone and gravel	7.5 YR 4/3 silty clay, clay mottled with 2.5 YR4/8 and 7.5 YR 6/8, burned earth, bone, larger pieces of shell, concentrations of charcoal, angular stone and gravel
Plan Profile, North 17	10 YR4/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, small pieces of charcoal, angular stone and gravel (possibly incorporating Stratum Ib)	See comments for Stratum I	Removed to backdirt pile	10YR 3/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, small pieces of charcoal, angular stone and gravel	N/O
Plan Profile, West 7	10 YR4/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, charcoal, angular stone and gravel	10 YR4/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, some shell fragments, charcoal, angular stone and gravel	Removed to backdirt pile	N/O	N/O
Plan Profile, West 17	10 YR4/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, charcoal, angular stone and gravel	N/O	Removed to backdirt pile	10 YR 3/1 silty clay, clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, angular stone and gravel	10 YR4/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, concentrations of shell and charcoal, angular stone and gravel
Hand Excavated Unit S4, interior berm	10 YR4/1 clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, pulverized shell, angular stone and gravel	N/O	Removed to backdirt pile	10 YR3/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, pulverized shell, charcoal, angular stone and gravel	7.5 YR3/1 and 7.5 YR4/4 silty clay, clay mottled with 2.5 YR4/8 and 7.5 YR 6/8, burned earth, bone, larger shell, charcoal, angular stone and gravel
Plan Profile, South 7	10 YR4/1 clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, charcoal, angular stone and gravel	10 YR 3/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8 burned earth, shell, charcoal, angular stone and gravel	Removed to backdirt pile	N/O	10 YR4/2 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, concentrations of shell and charcoal, angular stone and gravel
Plan Profile, South 17	10 YR4/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, charcoal, angular stone and gravel	10 YR3/1 clay mottled 7.5YR 6/8 and 5YR 5/8, with small amounts of burned earth, concentrations of shell, charcoal, angular stone and gravel	Removed to backdirt pile	N/O	N/O
Plan Profile, East 7	10 YR4/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, charcoal, angular stone and gravel	N/O	Removed to backdirt pile	10 YR3/2 clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, shell, small pieces of charcoal, angular stone and gravel	10 YR4/1 silty clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, shell, small pieces of charcoal, angular stone and gravel
Plan Profile, East 17	10 YR4/1 clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, shell, small pieces of charcoal, angular stone and gravel	N/O	Removed to backdirt pile	10 YR3/2 clay mottled 7.5YR 6/8 and 5YR 5/8, burned earth, bone, shell, small pieces of charcoal, angular stone and gravel	10 YR 3/3 silty loam mottled 7.5YR 6/8 and 5YR 5/8, burned earth, shell, greater number of charcoal inclusions, angular stone and gravel

General Taphonomic Observations

In terms of site taphonomy, there are events that clearly are contemporary with the Archaic period occupation of 12Sp7, as well as events that occurred much later in the historical period, all of which impacted the midden deposits. For example, there is evidence of rodent gnawing on some of the antler objects, probably when the site was periodically abandoned by its prehistoric

occupants, illustrating the activities of small mammals altering the structure and content of the archaeological deposits. In the historic period, the episodes of agriculturally-related disturbance through post holes or plowing, the emplacement of a barn, and the reported looting of the site impacted the deposits more significantly. This is illustrated by stratigraphic units such as Stratum III-the midden deposits-not being consistently identified in each of the plan profiles examined. Specifically, the plan profiles at West 7 and South 17 (Tables 2 and 3) were disturbed to the bottom of the basin, while South 7 appeared to display the remains of earlier backhoe cuts, perhaps related to the activities of artifact collectors as indicated on the Indiana Historic Sites and Structures Inventory – Archaeological Sites (forms cited as IUASF 1987). Nonetheless, evidence also exists for the preservation of in situ midden deposits such as within the profiles of North 7, West 17, South 4, South 7, East 7 and East 17 (Tables 2 and 3, Figures 5 and 6).

Preliminary Overview of the Archaeological and Bioarchaeological Assemblages

The archaeological assemblage, to be described in greater detail in subsequent editions of *Indiana Archaeology*, is currently undergoing analysis and involves thousands of specimens including bone and antler objects, groundstone objects, lithic debitage, retouched flake tools, bifaces, and projectile points. The projectile points (Figure 7) identified to date include types belonging to the Lamoka Cluster, Large Side Notched Cluster, Late Archaic Stemmed Cluster, Ledbetter Cluster, Matanzas Cluster, Merom Cluster, Saratoga Cluster, and Terminal Archaic Barbed Clusters, as defined by Noel Justice (1987).

The bone and antler tools include late Middle Archaic/Late Archaic decorated pins (Figure 7) like those identified by Richard Jefferies (1997). Preliminary analysis indicates the presence of Crutch Top, Fish-tail, Fish-tailed Cruciform, and Straight/Concave-Top- Expanded Side styles among others. The remaining bone and antler artifacts consist of numerous types of awls, as well as lozenge-shaped “spatulas” (similar to tongue depressors), suspected pressure flaker tips, and beads (Figure 7) such as bone and antler tubes and drilled canines. The groundstone assemblage includes worked pieces of red ochre, atlatl fragments, axe or celt fragments, and hematite objects comprised of grooved axes, waisted flattened nodules, and grooved elongated pebbles.

The Late Archaic French Lick Phase was originally described on the basis of excavations at four sites identified during the Patoka Lake project (Stafford and Cantin 2009:300). In terms of projectile points, the French Lick Phase is typically characterized by Matanzas, Big Sandy II, Karnak Stemmed, McWhinney, and Saratoga types. According to Russell Stafford and Mark Cantin (2009:300), the Patoka Lake weakly side-notched and stemmed projectile points consist of 70 percent Matanzas Cluster types with the remaining 30 percent comprised of Justice’s (1987) Late Archaic Stemmed Cluster types.



Figure 7. Selected artifacts from 12Sp7: top (left to right), projectile points and a hematite grooved axe; bottom (left to right): bone pins, a pierced and incised decorated bone or antler object, and a finely incised bead. (Note: lithic specimens not cleaned for later microwear and residue analyses.)

Stafford and Cantin (2009:304-305) suggested the presence of two distinct temporal subdivisions for the French Lick Phase. The earlier part of French Lick, dating to around 3350 B.C. (5300 B.P.), is characterized by significant numbers of Mantanzas Cluster projectile points including Matanzas, Brewerton Eared Notched, and a variety of weakly side-notched types. The later part of the phase, dating to post 2550 B.C. (4500 B.P.), is characterized by a predominance of McWhinney Heavy Stemmed, Saratoga Broad Bladed, and Karnak Stemmed projectile points. Based on the overview provided above, the vast bulk of material recovered during the Scientific Recovery appears to be related to the French Lick Phase as a whole, a fact also supported by the two AMS dates which coincide with the early part of the phase as defined by Stafford and Cantin.

The fauna from 12Sp7, currently being analyzed by Tanya Peres Lemons of Middle Tennessee State University, appears similar to other Archaic Period assemblages. Thus far,

white-tailed deer, bobcat, dog, fox, squirrel, rabbit, opossum, woodchuck, raccoon, beaver, turkey, hawk, turtle (eastern box and soft-shelled), freshwater drum, and bivalves have been identified. The paleobotanical remains recovered from 12Sp7 are being analyzed by Heather Trigg of the University of Massachusetts, Boston, and include wood charcoal, carbonized nutshells, and seeds. A small sample of nutshells, analyzed prior to submittal for AMS dating, was sorted from five gallon flots collected at North 7, West 17, and South 7. This sample was identified to genus-level and walnut and hickory are most common at 68 and 87 specimens, respectively (Table 4), while oak acorns consist of only three specimens.

Table 4. Paleobotanical Remains Selected for AMS Dating at 12Sp7.

Unit	Stratum	Total Sample Size (liters)	Juglans sp. (walnut)	Weight (grams)	Carya sp. (Hickory)	Weight (grams)	Quercus sp. (Oak)	Weight (grams)	Unident. Specimens	Weight
N7	III	18.92	11	0.2	15	0.3	2	0.04	88	1.8
W17	Ib	18.92	33	1.4	43	1.8	1	0.04	43	1.8
S7	III	18.92	24	1.7	29	2.0	0	0.0	20	1.4
	Total	56.76	68	3.3	87	4.1	3	0.08	151	5.0

Conclusions

The results of the 2010 fieldwork at 12Sp7 clearly indicate that the site has suffered considerable disturbance in the historic-era, a not unsurprising conclusion given the documentation provided by Kellar in 1956. The stratigraphy across the site is highly varied, based on the eight plan profiles and one hand excavated unit investigated. Nonetheless, there is good evidence for the preservation of in situ midden deposits in Stratum III, beneath the Ap, and these retain a wealth of information preserved in chipped and groundstone tools, bone and antler tools and other objects, faunal remains, and paleobotanical remains.

As previously posited in 1987 (IUASF 1987), it is possible to verify that the vast bulk of material appears to be Late Archaic in origin, although a few earlier Archaic and later Woodland artifacts have been noted in the on-going analysis. The preliminary impression is that the projectile points, which consist of numerous Matanzas Cluster, Late Archaic Stemmed Cluster, and Saratoga Cluster examples, indicate an intensive occupation during the French Lick Phase, a belief further bolstered by the two AMS dates coinciding with the earlier portions of this phase.

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CURRENT INVESTIGATIONS AT THE KRAMER ENCLOSURE (12 AI 15): A WESTERN BASIN TRADITION-RELATED SITE IN NORTHEASTERN INDIANA

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Fort Wayne, IN

[Editors' note: Beginning with this volume, to be consistent, site numbers will be written, for example, as 12W245, exceptions being when county abbreviations with an "I" before the numbers, such as Allen (AI) or Clark (CI). Counties such as the latter will be designated with a space between the 12 and the county abbreviation and a space between the county abbreviation and the site number, such as 12 AI 15 in the below article. This is done so that the reader understands that the site is from Allen County (AI), and the number of the site is 15, rather than 115.]

The Kramer enclosure (12 AI 15) is an earthen embankment with an associated exterior ditch located in Allen County, Indiana. The county contains two major river drainages within its borders, the upper Maumee River drainage and the far upper reach of the Wabash River drainage. The Maumee, which flows northeast into Lake Erie, is created by the confluence of the southwest-flowing St. Joseph River and the northwest-moving St. Marys Rivers in what is now downtown Fort Wayne. Only a few miles west of this confluence is the Little River, which feeds into the Wabash near present-day Huntington, Indiana. This location, between access by river to the Great Lakes and to the Mississippi River, has made the area encompassed by modern Allen County a desirable location for human occupation throughout its history.

The primary objective of research was to collect additional information for the Late Prehistoric (ca. A.D. 1000–1400) Western Basin Tradition peoples in northeastern Indiana through investigations at the Kramer enclosure in Allen County. Western Basin Tradition is a loosely defined designation for the Late Prehistoric farming populations ranged around the western edge of Lake Erie (Figure 1), who shared a number of characteristics, such as pottery decoration, burial practices, and a settlement pattern of scattered farmsteads and small hamlets. The Western Basin Tradition is generally understood to be an in situ development out of earlier Middle Woodland populations and was first described on the basis of sites in Michigan, where it was called the Younger Tradition (e.g., Fitting 1965). David Stothers (1978, 1995; Stothers and Bechtel 2000) has synthesized Ohio and Michigan data and proposed four sequential phases throughout the region: Gibraltar (ca. A.D. 500–750); Riviere au Vase (ca. A.D. 750–1000); Younger (ca. A.D. 1000–1200); and Springwells (ca. A.D. 1200–1300).

Unlike Sandusky Tradition peoples farther east along the shore of Lake Erie, Western Basin Tradition populations were not thought to have “achieved a formal village lifestyle, and while there is evidence of maize agriculture, it does not appear to have been more than a supplement to an economy based on fishing, hunting, and gathering” (Stothers and Schneider 2003:173). At best, “semi-sedentism” was achieved during the Late Prehistoric Younger and Springwells phases, when “warm weather hamlets with interior, as opposed to lacustrine or riverine, locations were favored. . . . During the winter, populations shifted to cold weather campsites located in the upland interior” (Stothers and Bechtel 2000:24). Beginning about A.D. 1200, Wolf phase Sandusky Tradition peoples began displacing Springwells people, forcing

them farther to the west, and by A.D. 1300 “there are no Springwells phase sites east of the Maumee River valley” (Stothers and Schneider 2003:173).

Although northeastern Indiana is included by archaeologists in the area dominated by the Western Basin Tradition (e.g., Schneider and Cameron 2004:7; Stothers and Bechtel 2000; Stothers and Schneider 2003:176), that attribution was based almost entirely on surface surveys and only a few test excavations (for excavations, see Cochran 1980, 1987; White et al. 2002, 2003). Western Basin Tradition ceramics have been reported in the northeastern counties (e.g., Cochran 1980, 1984, 1985; Mohow 1987; Moore 1987; Schurr 1991), primarily in riverine settings, and as far west as the Fifield site (Faulkner 1972) and elsewhere in the Kankakee valley (Schurr 1993). On the basis of these limited investigations, the settlement-subsistence system in northeastern Indiana was defined as one of dispersed farmsteads along river terraces, with perhaps seasonal aggregation in larger villages, much as Faulkner hypothesized for northwestern Indiana (Cochran 1987; Faulkner 1972). Smaller sites were interpreted as farmsteads, and larger sites as villages, although substantial subsurface archaeological data from neither was available.

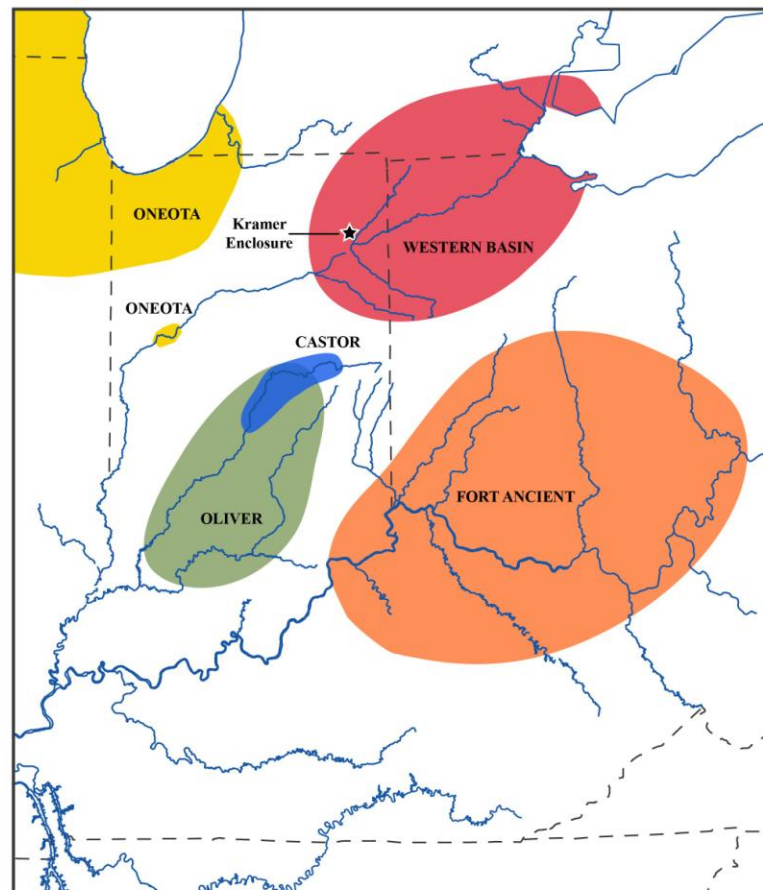


Figure 1. Late Prehistoric cultural groups in Indiana and surrounding states (IPFW Archaeological Survey).

Earthen embanked enclosures also are known throughout the Western Basin Tradition core area during the Late Prehistoric (e.g., Krakker 1983; Mainfort and Sullivan 1998; Sullivan 1996; Zurel 1999), but their association with Western Basin Tradition populations is uncertain, with many researchers placing them in the later Wolf phase or Protohistoric periods (e.g., Krakker 1983; Zurel 1999). Enclosures in northeastern Indiana that have been reported in

association with grit-tempered, Late Woodland/Great Lakes impressed ceramics include ones in Allen (Black 1936; Moore 1987; Robertson 1888), DeKalb (Anonymous 1880:5; Robertson 1875; Slocum 1905; White et al. 2002, 2003), Whitley (Goodspeed and Blanchard 1882), LaGrange (Rerick 1882), and Steuben (Donald Cochran, personal communication 2001) counties.

Excavations at the Scranage enclosure in southern DeKalb County in 2001 and 2002 confirmed its construction date to the eleventh or twelfth century, well within the Younge phase time period, but it had little habitation debris (White et al. 2002, 2003). Investigations in 2008 of the earthen embanked Kramer enclosure, however, demonstrated that it was a village occupation with hearths, Great Lakes impressed pottery, and activity areas (McCullough 2009). The fact that two enclosures in the same region and associated with the same cultural group could differ so dramatically illustrates the difficulties in researching enclosures as a site type.

In eastern North America, earthen enclosures have great antiquity. Defined simply as a type of earthwork consisting of an earthen berm or embankment built to surround an area, enclosures have varied widely in terms of shape, function, region, and time period. Enclosures are known to be present in Louisiana as early as 3,400 B.C. at the Watson Brake site, where an earthen embankment supported several mounds in a circular to oval configuration (Saunders et al. 2005). The Poverty Point site (Gibson 2001; Jackson 1991), also in Louisiana, consisted of a series of six concentric berms, each divided by pathways into six sections. These earthworks formed a C-shape or amphitheater around a plaza, all of which was truncated by an escarpment along a wetland. At its zenith, Poverty Point has been dated to about 1350 B.C. (Gibson 1999), but it was occupied for several hundred years.

By the Early Woodland period, mounds and earthworks were present in the Midwest. The group associated with these earthen structures is known as Adena (Clay 1986, 1991; Dragoo 1963; Henderson and Schlarb 2007), which was centered in the central Ohio Valley drainages (roughly 500 B.C. to A.D. 1). Adena sites can be divided into three main categories: habitation sites; mounds, which were used for mortuary activities; and earthworks. Adena earthworks were typically C-shaped, surrounding a central platform and bordered by an interior ditch. The opening in the C-shape provided space for an entry ramp to a center platform. Often there is evidence of a wooden screen that restricted the view of activities being carried out on the platform. The primary function of these enclosures appears to be the demarcation of ritual space for private or semi-private activities; the earthworks were not used for habitation, nor, given the interior placement of the ditch, did they serve defensive purposes. The best examples of these types of earthworks in Indiana are found at Mounds State Park in Anderson, Indiana (Cochran 1996; Cochran and McCord 2001; Lilly 1937) and at the Commissary site in New Castle (Lilly 1937; McCord 1999).

The high point of earthwork construction occurred during the Middle Woodland period, with the largest and most elaborate fabrications centered in Ohio (Brose and Greber 1979; Pacheco 1996; Squier and Davis 1848). Known as Ohio Hopewell or Scioto Hopewell (A.D. 1 to A.D. 400-500), the earthworks consisted of elaborate geometric enclosures of varying shapes, often connected by linear earthworks or causeways sometimes miles in length. The Ohio expression of Hopewell developed out of the earlier Adena cultural grouping and was located in the same geographical area. Often the previous Adena enclosure sites were reused and reworked, as was done at Mounds State Park in Anderson (Cochran and McCord 2001; McCord 2008).

In contrast to Early and Middle Woodland enclosures, the ditch is exterior to the earthen embankment in Late Woodland/Late Prehistoric enclosures (most are A.D. 900 to 1500/1600).

These Late Prehistoric earthworks are distributed across northern Ohio, parts of New York, Indiana, and Michigan, and are typically related to the cultural groups associated with the Great Lakes. A variety of shapes is found: most are circular to oblong with a range of openings; some enclosures are more U-shaped, with an opening to water; and, in northern Ohio especially, berms walling off terminal ridge spurs are found in upland areas. Unfortunately, these kinds of earthworks are not very impressive looking, and most have been destroyed by cultivation and other disturbances. Those still extant are almost always in woodlots where portions at least have never been cultivated. Given the 500 to 600 year temporal span and the broad geographical distribution of Late Prehistoric enclosures, functional interpretations have varied widely. Most early interpretations thought of the earthworks (including the Early and Middle Woodland earthworks) as fortifications. While some enclosures that contained sedentary villages may represent fortifications, the variation in size, construction, and placement of Late Prehistoric enclosures suggests that not all were built as defensive measures. Other interpretations have been offered, such as religious and/or mortuary functions (Neusius et al. 1998), dance circles, “trading posts” or *entrepôts* (Milner and O’Shea 1998:199), or the material remnant of ritual reenactment (Howey and O’Shea 2006). These explanations are not necessarily mutually exclusive, and common to each of these more recent interpretations is a socially integrative function for the presence of the enclosures. Probably no single explanation is adequate, nor is it likely that the function of the demarcated space remained static over time.

In Indiana, probable Late Prehistoric enclosures have been reported across many regions of Indiana (Figure 2). However, only two in northeastern Indiana, the Scranage (White et al. 2002, 2003) and Kramer enclosures (McCullough 2009), have been professionally excavated and a Western Basin affiliation confirmed. In central and south-central Indiana, the Strawtown enclosure (McCullough 2005; White et al. 2002, 2003), and Cox’s Woods (Redmond and McCullough 1993, 1995, 1996), Valeene (Redmond and McCullough 1993), and Clampitt¹ (Redmond 1994) sites are all associated with the Oliver phase, which represents the mixing of Middle Fort Ancient and Great Lakes cultural elements to create a distinct group that occupied the White River drainage between about A.D. 1200 to 1450. The Oliver-related earthen enclosures surrounded villages with central plazas and stockade walls. Middle Fort Ancient sites in Ohio typically have circular, stockaded villages, but not an embankment and ditch. The presence of these earthworks in conjunction with circular villages on some Oliver sites is probably yet another example of a Great Lakes cultural element added to a Fort Ancient template.

¹Although an enclosure was not extant at the Clampitt site, the site was located on a sand dune formation with easily eroded sandy soil. This site had been cultivated for a century and a half, and the first few plow episodes would have obliterated any surface evidence for an earthen embankment. However, during the excavation, a ditch was identified running along the exterior side of the stockade wall.

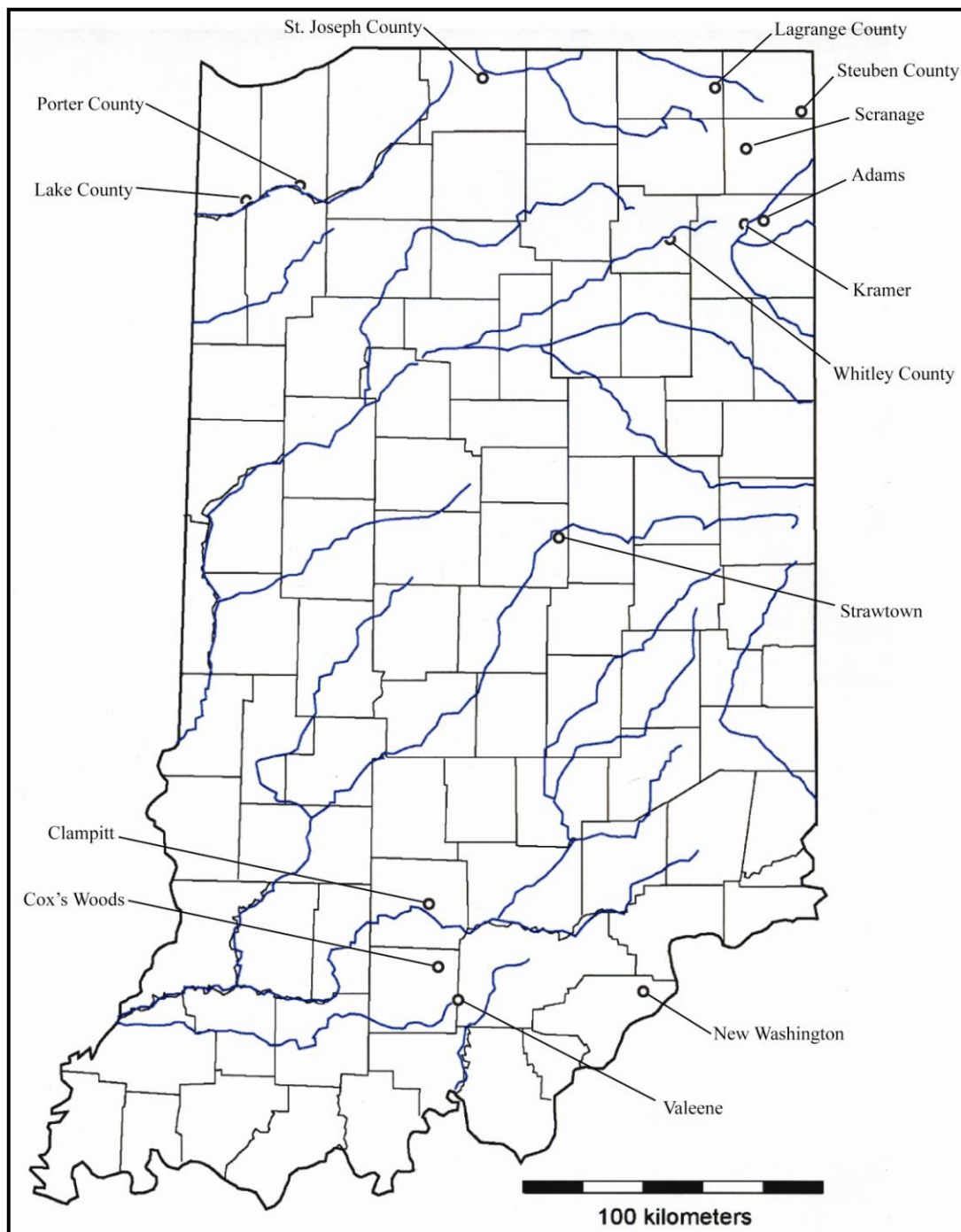


Figure 2. Reported Late Prehistoric enclosures in Indiana (McCullough and Graham 2010:239).

In 2001 and 2002, the IPFW-AS focused on investigating the function and cultural affiliation of both the Strawtown and Scranage enclosures (White et al. 2002, 2003). Neither had been professionally excavated, but both were considered important in understanding the ethnogenesis of the Oliver phase. Great Lakes-style sherds were reported from the Scranage enclosure, which could shed light on Western Basin settlement patterning in northeastern Indiana; and Great Lakes impressed as well as Fort Ancient ceramics had been collected from the Strawtown enclosure, which indicated an early Oliver site.

The Scranage enclosure had been first described by Robertson (1875:381) as “a circular earth-work about 600 feet in circumference, with two entrances opposite each other. The earth-

work is from 2 to 2 ½ feet high, with a ditch outside. . . . The “fort” is situated in the woods on a high piece of ground which is nearly surrounded by ravines . . .” The IPFW-AS investigation found that the earthwork was more oval in shape, measuring about 52 to 63 m from the embankment apex to apex, and enclosed an area of approximately 2,600 m². Currently, the earthwork is still in uncultivated forest but is criss-crossed with ATV trails and farm roads. A ramp is still visible on the southeast side, but if another ramp was opposite this one, it has been destroyed by an existing farm road. Another possible ramp is present on the east side.

Excavations revealed that a wooden stockade fence, oriented parallel with the embankment, was constructed prior to the excavation of the ditch and the placement of the fill to the inside that formed the embankment. The stockade posts were deeply set narrow posts placed closely together, but they did not continue up through the embankment. This indicates that social space had been demarcated by a fence for some unspecified amount of time before the earthwork was built. Another row of closely set wooden posts ran at a slightly oblique angle to the above-mentioned posts and was partially under the embankment. It is possible that these posts represented an earlier or later screen wall or perhaps an overlapping opening through the original wall. Another portion of the embankment excavation revealed that an ephemeral wall was constructed on top of the extant berm. These wall posts were spaced about 50 cm apart, and there were occasional posts angled from the inside toward the wall that were probably support posts. These posts were not set deeply and were contained entirely within the embankment fill.

The two seasons of investigations at the Scranage enclosure produced little evidence that it was a long-term habitation site. Very few artifacts were recovered even though all of the soil excavated was passed through ¼” screen. For instance, lithic tools consisted of only one core, one preform, and three triangular point fragments. In addition, no domestic features or areas of midden development were identified within the enclosure. A similar lack of habitation debris was also found at the Whorley enclosure (Speth 1966), which is located in Michigan across the Indiana state line. Rather than a sedentary occupation site, Scranage appears to have been used seasonally or sporadically for social or ceremonial, short-term gatherings. The botanical evidence supports this interpretation. Processing of maize was not a significant activity, if it happened at all, at Scranage (Bush 2003). Most of the maize recovered was kernels with only a few cupules, or cob debris, identified (66:7 kernel to cupule ratio). Harvesting and processing that occur at or near habitation sites produce a more even ratio of kernels and cupules. Based on the kernel to cupule ratio, the corn recovered at Scranage was brought to the enclosure already processed and in an edible form.

Even though a relatively low density of cultural materials was recovered, the ceramics indicated a general Western Basin Tradition cultural affiliation. The radiocarbon dates recovered from Scranage gave an overlapping calibrated range (at 2-sigma) of between A.D. 1040 and 1240, placing it temporally, as well as culturally, within the Western Basin Tradition (Figure 3).

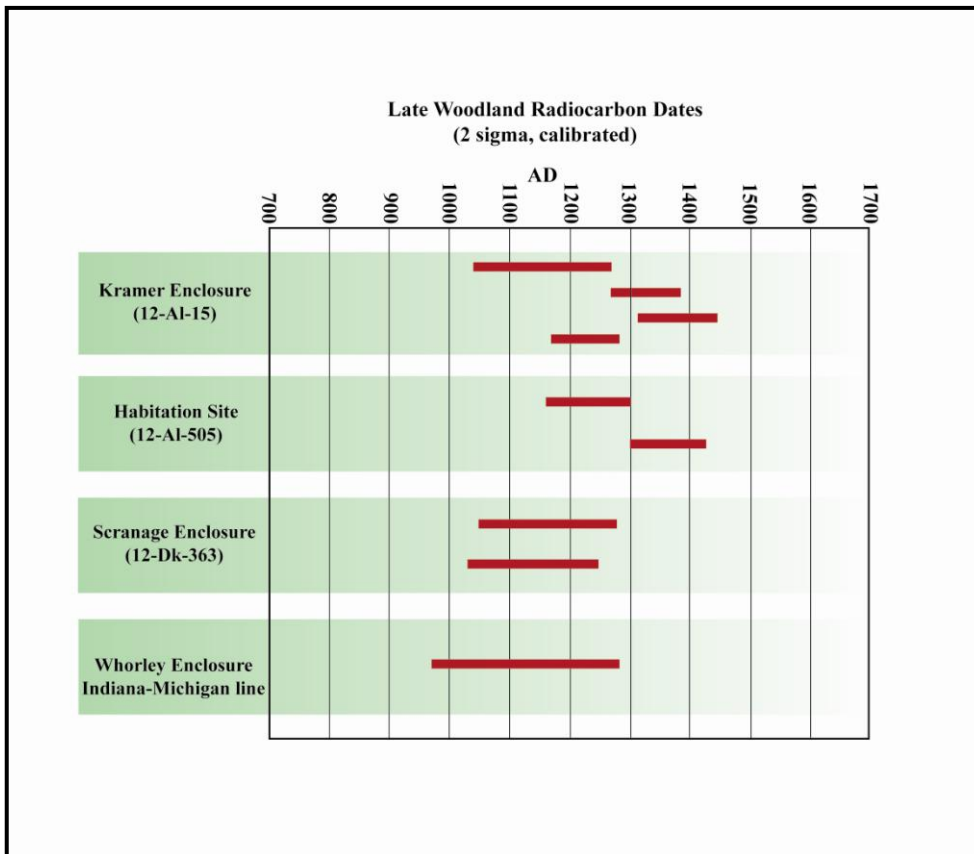


Figure 3. Radiocarbon dates of Western Basin Tradition sites in the northeastern Indiana region (McCullough and Graham 2010:241).

The excavations at the Scranage enclosure not only associated the enclosure with the Western Basin Tradition, but suggested that it functioned as a short-term gathering place. The earthwork does not appear to be defensive, given the lack of evidence for any substantial occupation, the light-weight nature of the stockade walls, and the relatively low relief between the ditch and the embankment apex along most of its length. The settlement pattern at the time of the enclosure's use was dispersed, with people living in scattered farmsteads along drainageways and other wetland resources and practicing horticulture dominated by maize. This scattered settlement pattern is the major reason why archaeologists have a difficult time finding Late Prehistoric habitation sites. Dispersed populations need to have some type of integrating mechanism to provide an arena for a variety of social and religious activities, such as developing trading partners, finding mates, affirming kin connections, conducting renewal ceremonies, or appeasing the spirits. This DeKalb County enclosure, as well as others that did not support substantial occupations, probably were used for these types of activities.

Investigations at the Kramer Enclosure

Unlike the earlier excavations at the Scranage enclosure, which recovered little evidence of sedentary occupation, recent investigations at the Kramer enclosure in 2008 and 2009 have produced compelling evidence not only of a sedentary occupation within the embankment, but one that has considerable time depth. The Kramer site (12 AI 15) is a U-shaped enclosure eroding into the St. Joseph River with a Western Basin Tradition-related cultural affiliation. The

center portion of the enclosure has been cultivated, but there are extant ditch and embankment remnants along its east and west margins (Figure 4). Currently, the enclosure measures about 105 m across at the riverbank. Based on systematic shovel test probes, the distribution of lithic and ceramic artifacts forms a ring along the interior, indicating a habitation zone surrounding a relatively clear central area or plaza (Figures 5 and 6). Among this habitation debris was a fine-grained, heat-treated Liston Creek chert that was recovered only in the north-northeast portion of the enclosure. This limited distribution indicates not only tool manufacture and discard within the enclosure, but also its procurement and use by a specific kin-group or related social group (McCullough and Graham 2010:1).

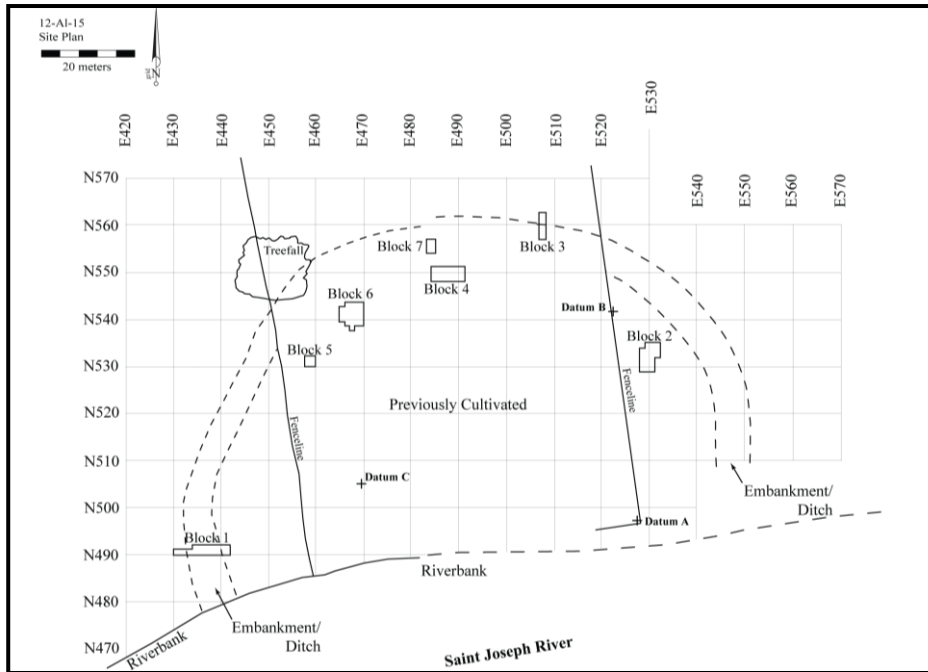


Figure 4. Map of the Kramer enclosure and excavation blocks (McCullough and Graham 2010:18).

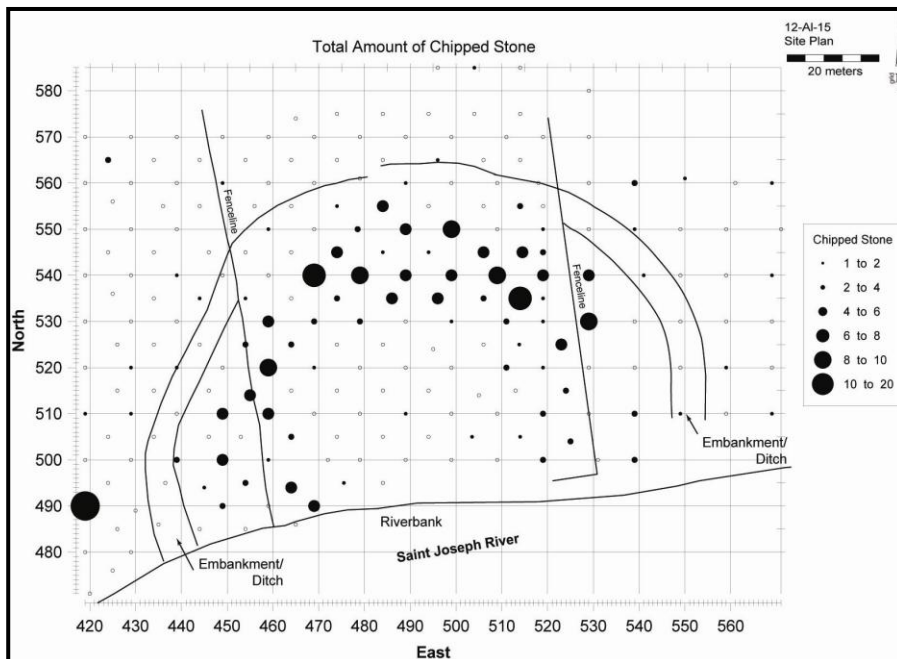


Figure 5. Distribution for all chipped stone artifacts, 2008 and 2009 combined (note that shovel tests east of the east fence line were not conducted in 2009, due to a change in property ownership) (McCullough and Graham 2010:25).

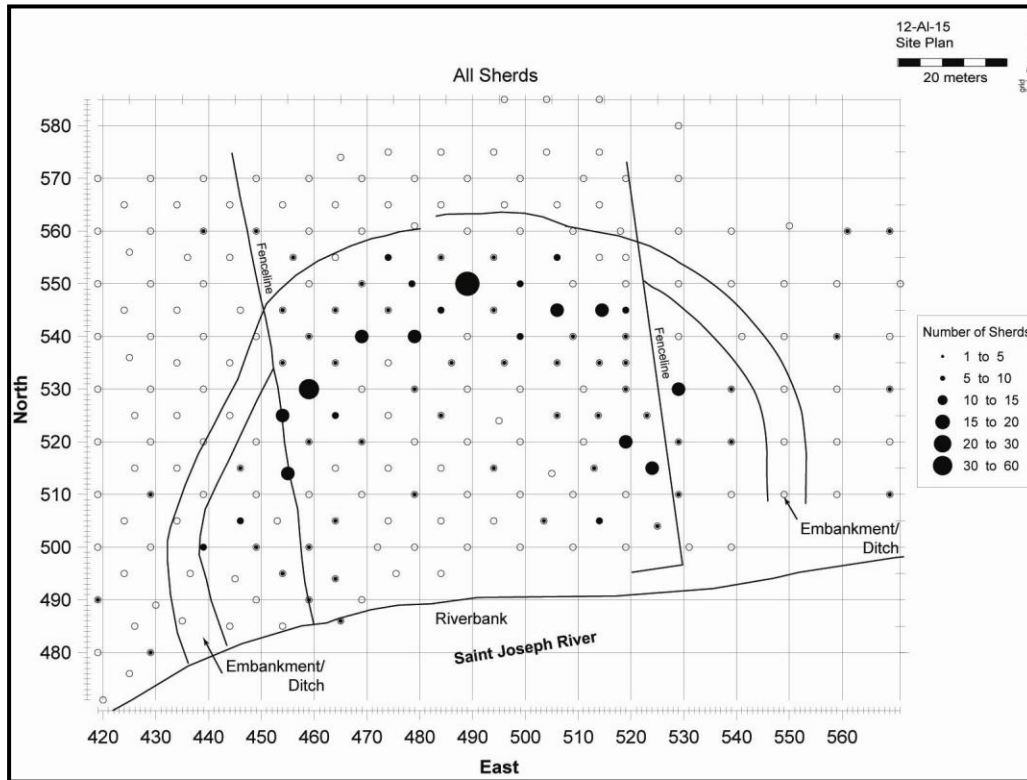


Figure 6. Distribution for all sherds, 2008 and 2009 combined (note that shovel tests east of the east fenceline were not conducted in 2009, due to a change in property ownership) (McCullough and Graham 2010:25).

Botanical remains at the Kramer enclosure also differ in kind and quantity from those at Scranage (e.g., see Bush 2003). At Kramer, macrobotanical analysis of both flotation and ¼” screen samples revealed a “broad diet consisting of several agricultural products complemented by a wide variety of wild resources” (Bush 2010:335). Maize was ubiquitous, identified in every flotation sample, while beans and bottle gourd rind were recovered below the embankment. Among eastern agricultural complex (EAC) plants were chenopodium, amaranth, and little barley. Wild plant foods included sumac, blackberry, strawberry, pokeberry, purslane, and an unidentified bulb, as well as such nuts as hickory, black walnut, and hazelnut (Bush 2010). Table 1 summarizes all identified food plant remains by provenience.

Table 1. Floral Food Remains by Count from 12 Al 15 (Flotation and 1/4" Screen Combined) (From Bush 2010:Tables D.3 and D.5).

Feature	PH 33	PH 40	3	4	8	11	12	TOTAL
Corn (<i>Zea mays</i>)								
cupules	405+26*		2	9			7	423+26*
kernels	337+7*		17	34	3		224	615+7*
Bean (<i>Phaseolus vulgaris</i>)								
	2	1*						3
Bottle gourd rind (<i>Lagenaria siceraria</i>)								
	3							3

Feature	PH 33	PH 40	3	4	8	11	12	TOTAL
Starchy seeds								
Chenopodium (<i>Chenopodium</i> spp.)	86+7*							86+7*
Amaranth (<i>Amaranthus</i> spp.)	37							37
Little barley (<i>Hordeum pusillum</i>)	1						2	3
Nutshell								
Hickory			23	63				86
Black walnut				1				1
Hickory/walnut family				6				6
Hazelnut (<i>Corylus americana</i>)			1	2				3
Wild seeds								
Sumac (<i>Rhus</i> spp.)	32+4*							
Blackberry (<i>Rubus</i> spp.)	4+1*		1				26	31+1*
Black nightshade (<i>Solanum nigrum</i>)	9			2	1		2	14
Strawberry (<i>Fragaria</i> spp.)	1							1
Pokeberry (<i>Phytolacca americana</i>)	1							1
Purslane (<i>Portulaca oleracea</i>)	19		1					20
Grape seeds (<i>Vitis</i> spp.)						11**		11**
Other wild plants								
Bulb scale			1					1
Grape stem (<i>Vitis</i> spp.)						3**		3**

*Semi-carbonized

**Uncarbonized

Excavation revealed that the Kramer earthwork was originally much more substantial than is visible on the surface today. The embankment and ditch as demonstrated in Block 1 (Figure 7; see Figure 4) extended up to 7.5 m in width. The relief from the original bottom of the ditch to the apex of the extant embankment is 1.9 m; however, a significant amount of erosion has occurred, filling most of the ditch. In profile, the embankment side of the ditch continues upward at a steep angle (in Blocks 1 and 3), indicating that the embankment was much higher at one time. The original relief between the ditch and embankment could easily have been between 2.5 and 3 m. The massiveness of this construction was not found at the Scranage enclosure or at other reported Late Prehistoric enclosures in the region, suggesting that the Kramer earthwork had a different function.



Figure 7. Embankment and ditch profile, Block 1, 2008 (IPFW Archaeological Survey image).

As at the Scranage enclosure, posts were identified within and under the embankment. Because bioturbation was extensive and the embankment was composed of mixed fill, identifying posts within the embankment fill, especially near the top, was difficult. However, the presence of at least some posts within the embankment fill indicated that a stockade wall was present on top of the embankment. A wall on top of an earthwork with a possible relief of three meters would have been an intimidating barrier and certainly would have discouraged easy access into the village.

The posts found underneath the embankment fill were more easily observed than those within the fill (Figure 8). The excavation in Block 1 revealed two lines of posts with a few possible support posts that pre-dated the embankment construction. These two lines of posts were oriented parallel to the apex of the embankment. The outside line consisted of narrow posts set at an angle, with the top to the south. These angled posts would have formed a facade on the exterior surface of the wall.

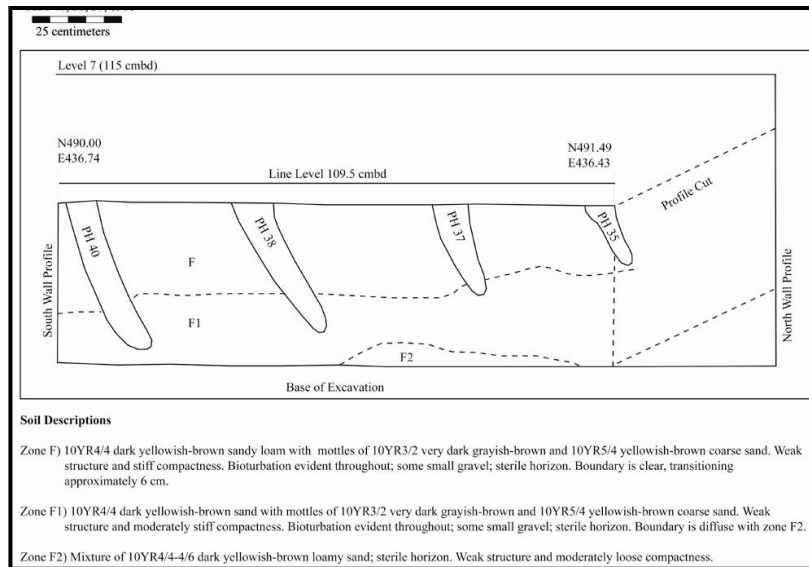


Figure 8. Postholes below the Kramer embankment, Block 1, 2008 (McCullough and Graham 2010:46).

A domesticated bean was recovered from one of these angled posts (posthole 40), while a possible support post (posthole 33) contained two beans, along with bottle gourd, maize kernels and cupules, chenopodium, amaranth, and little barley (see Table 1). One of the beans from this post was submitted for radiocarbon analysis and returned the latest date from the site (Figure 9), a calibrated date of A.D. 1310 to 1360 and 1390 to 1440 (2 sigma), which is consistent with beans recovered elsewhere in eastern North America. Two important observations can be made from the posts found under the embankment. First, as with Scranage, this social space was demarcated by the presence of a stockade wall prior to the construction of the earthwork; and second, with a date possibly extending into the mid-fifteenth century, the earthwork was a very late addition to the site.

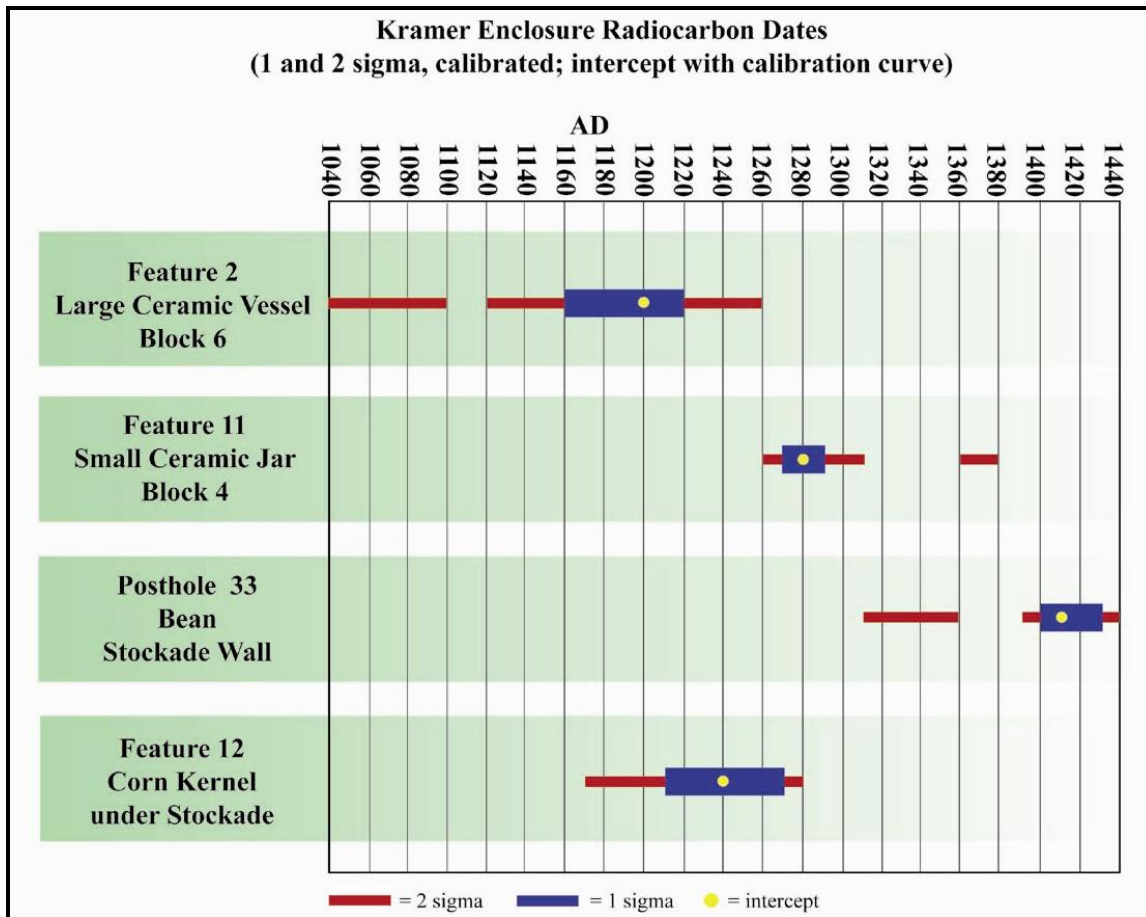


Figure 9. Radiocarbon dates from the Kramer enclosure (McCullough and Graham 2010:244).

The placement of the stockade wall beneath the embankment does not represent the first construction episode at the Kramer site, however. Another segment of the stockade wall was identified in Block 7, which was placed in the projected location of the embankment in the plowed portion of the site and only a few meters from the opening in the ditch (see Figure 4). The line of deeply set stockade posts, some penetrating between 122 and 126 cmbs, was superimposed on a roasting pit designated Feature 12. A maize kernel from Feature 12 returned a calibrated date of A.D. 1170 to 1280 at 2 sigma (see Figure 9). Although the stockade wall identified in Block 7 appears to be the same one as in Block 1, based on post sizes and its

placement relative to the ditch, the discovery of additional stockade lines is possible with wide-area excavations in the future.

A variety of structure types also was identified within the Kramer enclosure. In the unplowed eastern portion of the enclosure, a wigwam or wickiup type of structure was identified in Block 2. This ephemeral structure consisted of small, relatively shallow posts forming the western end of an oval or arc (Figure 10). It is rare for archaeologists to find these more temporary types of structures, since this evidence is often obliterated in previously cultivated soils.

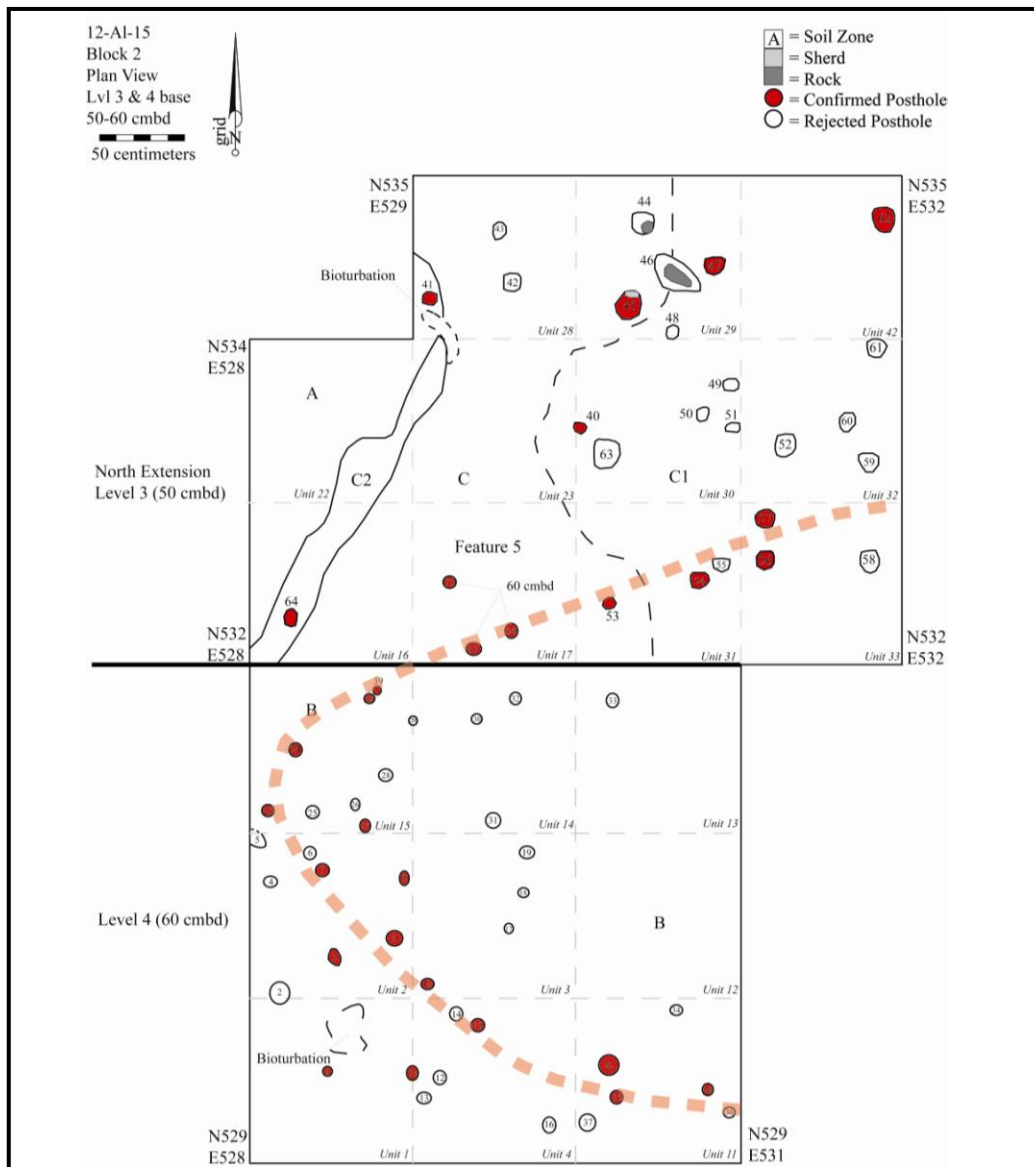


Figure 10. Structure outline in Block 2 (McCullough and Graham 2010:72).

More substantial, but poorly understood structures were located in Blocks 4 and 6. The structure in Block 4 exhibited double wall trenches that were irregular in plan and profile. In its southeast corner, the wall trenches extended two meters north into the block wall and at least

seven meters east. In some places these irregular trenches penetrated to the base of Level 5, and elsewhere they consisted of difficult-to-detect stains that were similar to anomalies at the Scranage site that were thought to be an archaeological signature of decomposing above-ground structures. The soil in Block 4 was soft and sandy, and organic matter from a structure wall could easily have worked its way down into the soil. Posts were identified in an irregular pattern, with some portions of the trenches having posts and others without. Feature 11, which was associated with the inner wall trench, contained a small subglobular vessel (Figure 11) from which soot removed from the exterior of the vessel produced a calibrated date of A.D. 1260 to 1310 and 1360 to 1380 (see Figure 9).

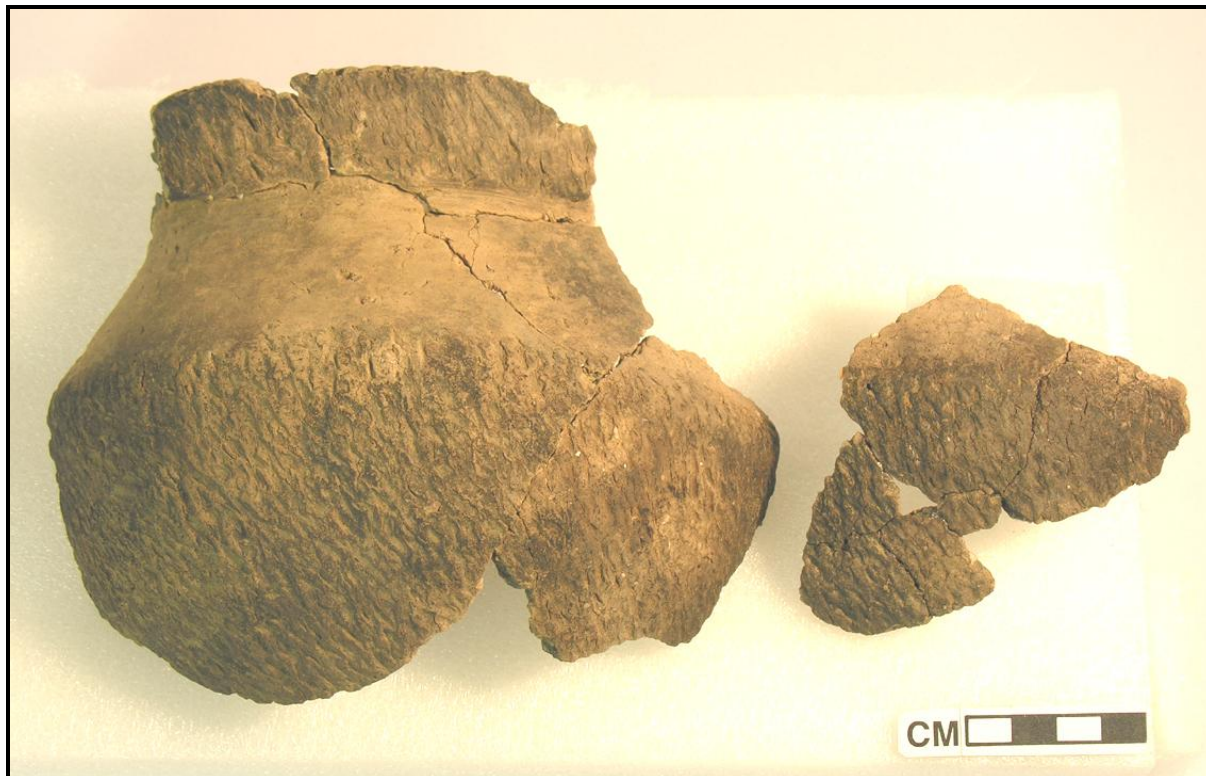


Figure 11. View of Vessel C, Feature 11, Block 4 (base image from McCullough and Graham 2010:189).

Even less is known about the structure located in Block 6. Like Block 4, this block was located within the previously cultivated portion of the enclosure (see Figure 4). The excavation revealed a portion of a basin-type structure containing mostly undisturbed pottery concentrations below the base of the plowzone. The concentrations were lying flat, as if on a floor, and would not have survived the plowing intact unless they were in a structure basin or some other type of feature whose base was below the plowzone. Several features with high densities of domestic refuse were identified in Block 6, as opposed to Block 4 where features containing dark organic soil and domestic refuse were not found. The size of the excavation and several disturbances prevented the identification of the structure layout. However, one ephemeral linear anomaly was identified with some irregularly spaced posts along the northeast edge of the structure basin. The soot removed from the exterior surface of a large vessel (Figure 12) found in Block 6 produced a calibrated radiocarbon date of A.D. 1040 to 1100 and 1120 to 1260 at 2 sigma (see Figure 9), which is the earliest date recovered from the Kramer enclosure.



Figure 12. View of Vessel A, Feature 2, Block 6 (McCullough and Graham 2010:186).

These excavations have provided solid evidence that the Kramer enclosure was in use over a significant amount of time, and undoubtedly its function changed over the centuries (see Figure 9). Through time, this site appears to have evolved from a special purpose location to a substantial nucleated settlement. The Principal Investigator believes the early contexts represent short-term use or a sedentary occupation by only a few individuals. Based on radiocarbon dating, the earliest context thus far identified from the site is the structure basin located in Block 6, followed by Feature 12 in Block 7 which is a roasting pit that is stratigraphically under the stockade wall. The macrobotanical analysis (see Table 1) from these earlier contexts determined that the starchy seed native cultigens were represented by only two specimens of little barley in Feature 12. More importantly, maize kernels significantly outnumbered cupules. For example, 275 corn kernels and only 18 cupules were recovered from Features 3, 4, and 12. Clearly, maize was processed elsewhere and transported to the site in its finished, edible form. A similar macrobotanical signature was present at the Scranage enclosure, which was contemporary with these earlier contexts at Kramer (see Figure 3). A few small Late Woodland-era sites have been identified along the St. Joseph River and nearby Cedar Creek. These types of sites are indicative of a dispersed habitation settlement pattern around the vicinity of this enclosure. It seems likely that Kramer served the same purpose as Scranage by providing a locale where various socially integrative activities were conducted.

Later in the occupational history of the Kramer site, an apparent population coalescence occurred, and a sedentary village was formed. This transition from a dispersed to nucleated settlement by at least some of the inhabitants of northeastern Indiana occurred after the Scranage enclosure was no longer in use. The population within the Kramer enclosure followed a specific village template that has been found in many politically autonomous farming communities in eastern North America: a habitation ring surrounding community space (a plaza), which is relatively clear of domestic debris. As discussed above, the stockade wall and earthwork were later additions to the site. However, the distribution of high-quality, heat-treated Liston Creek chert (Figure 13) attests to a discard pattern that contained debris within the village perimeter. This high-quality chert was in all likelihood used for a limited temporal duration by specific individuals. Its presence in the wall trenches in Block 4 (over 400 pieces in 2009 alone) and in Feature 11 date this material roughly to the middle of the occupation at Kramer (see Figure 9). Pieces of this chert were recovered from Feature 12, which was superimposed by a stockade wall. The containment of this material within the habitation ring suggests that an earlier barrier or wall could well have been present that has not yet been identified.



Figure 13. High-quality, heat-treated Liston Creek chert recovered only within the enclosure (McCullough and Graham 2010:199).

With the transition of the Kramer site to a nucleated village, evidently the inhabitants saw a need for stockade walls and a substantial earthwork. The construction of an exterior ditch and embankment with up to 3 m in relief and topped by another wall to surround a resident population strongly suggests a defensive function. A transition is also visible in the macrobotanical remains. The latest dated context, the stockade wall underlying the embankment, revealed more corn processing waste than kernels (see Table 1). Posthole 33 contained 334 kernels and 431 cupules, which is opposite to the ratios found at the Scranage enclosure and the earlier contexts at Kramer. This ratio shows that maize processing activities were being carried out on the site. Interestingly, diet breadth increased later in the sequence at Kramer. In contexts

under the embankment, beans were added to the diet, and the native starchy seed cultigens were well represented. Seeds collected from wild plants were also recovered, although most of the nutshell was recovered from the earlier domestic features in Block 6.

The presence of these native cultigens in the later contexts is something of an anomaly. Typically, as maize cultivation increased, the use of the starchy seeded plants decreased in frequency. On the other hand, these plants are often referred to as famine foods, or second-tier resources, that were used during times of stress. Political uncertainty, or the perceived potential for conflict, can be a source of this stress, which often limits how far individuals feel safe traveling from their village and affects the selection of available resources. The process of coalescence of people into a sedentary occupation is itself a population stressor, however. More mouths to feed in a confined area may have required a wider variety of supplemental foods. The lack of nut shell in the later contexts could be a reflection of either political uncertainty, population coalescence, or both: a restricted range for gathering nut meats because of the political environment, or the intensity of local procurement over the years near the village limited the availability of nuts and other resources.

Discussion

As a result of investigations at the Kramer enclosure, distinct differences between the Western Basin Tradition in Indiana and in the surrounding regions are now more apparent—in temporal span, in subsistence and settlement patterns, and in material culture.

Temporally, the radiocarbon dates from the Kramer enclosure (12 Al 15), 12 Al 505, and the Scranage enclosure (12Dk363) place these sites within the accepted regional time period for Western Basin sites (see Figure 3), but they also extend the temporal range. Prior to these investigations, it was assumed that the regional abandonment after about A.D. 1250 or 1300 documented east of the Maumee River also occurred along its headwaters in northeastern Indiana. Like the Scranage enclosure in Dekalb County, Indiana (White et al. 2002, 2003), and the Whorley enclosure north of the current Indiana state line in Michigan (Speth 1966), occupation at the Kramer enclosure began around A.D. 1050, consistent with the beginnings of the Younge phase of the Western Basin Tradition, and continued past A.D. 1200 into the Springwells phase. Occupation of 12 Al 505, a small habitation site on the Maumee River (Hipskind 2009), also began during the Younge phase and persisted through the Springwells phase, but at both 12 Al 15 and 12 Al 505 occupation continued well past the presumed A.D. 1300 displacement of the Springwells peoples by the Sandusky Tradition/Wolf phase populations of north-central and northwestern Ohio (e.g., Stothers and Schneider 2003). Rather than displacement or disappearance, in northeastern Indiana the Western Basin populations appear to have remained along the major rivers for another 100 years or so. This time span is similar to the Western Basin-derived Castor phase peoples along the White River who were farming the bottomlands there, certainly by A.D. 1100 and for the next three centuries (Cantin et al. 2003; McCord 2006; McCullough 2005; McCullough and Graham 2010:II).

The riverine locations of most Western Basin Tradition sites in northeastern Indiana, on floodplains that are still farmed today, suggests a much greater reliance on agriculture, especially maize, than has been suggested for Western Basin Tradition peoples (e.g., Stothers and Bechtel 2000; Stothers and Schneider 2003). The subsistence pattern at sites investigated by the IPFW-

AS is materially similar (McCullough 2009): corn (*Zea mays*) was recovered from all contexts investigated at 12 Al 505; it was present in appreciable quantities at the Scranage enclosure; and it was found in high densities at the Kramer enclosure. Clearly the ubiquity of corn and the presence of beans indicate that products from farming were more than a dietary supplement. Chenopodium, amaranth, little barley, and gourds also were recovered from the Kramer enclosure.

The settlement pattern documented by the current investigations also diverges from current understandings of the Western Basin Tradition. Site 12 Al 505 is the only Western Basin farmstead professionally investigated in northeastern Indiana (Cochran 1987; Hipskind 2009). Rather than an ephemeral presence, the excavated features indicated an occupation at a desirable location with a considerable time depth. Although no structures were identified, intact subsurface features remain. More importantly, the evidence, to date, from 12 Al 15 strongly suggests a settlement of a size larger than a farmstead or hamlet within the circular enclosure. The investigations identified at least two activity areas associated with structures, as well as middens and household debris, probable hearths, and a roasting pit. Within the embankment there was a diversity of structures, with at least three types encountered, and of dates, indicating a temporal depth to the occupation. One structure, an ephemeral, oval-ended, wickiup, may represent an earlier, less-intensive use of the enclosure. As at the Scranage enclosure, posts were identified beneath the earthen embankment, suggesting a barrier prior to the construction of the earthwork, and there was evidence of posts atop the embankment. It is noteworthy that the Kramer enclosure, with its evidence of habitation within the embankment, returned radiocarbon dates both contemporaneous with, and later than, the Scranage enclosure, which had little evidence of domestic occupation within its walls. It may be that the function of the Late Prehistoric enclosures recorded throughout the Western Basin region varied over time, beginning, perhaps, as ritual or integrative spaces and serving as defensive structures later when neighboring groups became more threatening.

In terms of material culture, as is the pattern with Late Woodland sites, few nonlocal cherts were recovered from the site, and the majority of diagnostic tools were triangular points (Figure 14). The materials not available locally were limited to a very minor percentage of the lithic collection and consisted of Allen's Creek chert, Indian Creek chert, Upper Mercer chert, and Wyandotte chert. Liston Creek chert made up the greatest percentage of the lithic material at site 12 Al 15. In total, 7,485 pieces of prehistoric chipped stone was collected during excavations at 12 Al 15 (McCullough and Graham 2010).



Figure 14. Representative sample of complete and partial triangular points recovered from 12 Al 15, 2008. (Point 1838/2950, top row, was made from heat-treated, Liston Creek chert.) (McCullough and Graham 2010:202).

The Late Prehistoric ceramics recovered from this project exhibit general similarities with the broader Western Basin Tradition and are typical as well of what has been collected from elsewhere in northeastern Indiana. The vessels are manufactured with sand and/or grit temper. Many exhibit collared rim forms, and rims with castellations are not uncommon. Most rim sherds are not decorated and exhibit cordmarked, fabric-roughened, and smoothed surface finishes. When decoration is present, the majority consists of some type of cordage impression. Minor instances of other implements, such as tool impression or trailed lines, were also identified. Notably, the few trailed line examples were from Middle Fort Ancient vessels. While the similarities with Western Basin Tradition ceramics from sites in Michigan or Ohio could be observed, the Indiana material demonstrates some notable exceptions. Many of the illustrated vessels associated with the Western Basin Tradition have an elongated or bag-shaped morphology (e.g. Fitting 1965; Stothers and Bechtel 2000), but the contemporary material from Allen County (and the Castor phase) clearly demonstrates a preponderance of globular to subglobular vessel shapes. In addition, the elaborate decoration found on the neck portion of vessels from some of the Western Basin Tradition phases (e.g., Fitting 1965) is absent in the ceramic assemblage. Further, the tool-impressed technique often used with this more-elaborate decoration constitutes a very minor portion of the assemblage.

The Allen County pottery recovered in the current investigations also exhibits general similarities to the Castor phase of central Indiana. The two areas have common designs, such as

horizontal, cord-wrapped dowel (or cordage) impression lines that are interrupted by oblique or double oblique lines that rise underneath castellations (Figure 15). Both areas also have rim sherds that reveal small vertical nodes or extruded profiles (ones that project outward when viewed from above) underneath castellations of varying sizes. Rims with lips scalloped by fairly large, cord-wrapped dowels are also present in both areas. In general, the ceramic assemblage from Allen County recovered from this project and that observed in collections have more similarities with the Castor phase of central Indiana than with the more northern and eastern components of the Western Basin Tradition.



Figure 15. Rim sherds with cord-wrapped dowel impressions, Kramer enclosure, 2009 (McCullough and Graham 2010:178).

In brief, the 2008 and 2009 investigations of Western Basin sites in northeastern Indiana by the IPFW-AS (McCullough 2009; McCullough and Graham 2010:I), as well as earlier investigations at the Scranage enclosure (White et al. 2002, 2003) have considerably enlarged our understanding of the Late Prehistoric Western Basin Tradition, showing that in northeastern Indiana Western Basin peoples were settled longer, farmed more intensively, and developed more distinctive material culture traits than has been previously recognized. These investigations have also firmly associated enclosures with Western Basin populations, as well as documented shifts in their function over time, from seasonal or ritual use to defensive structures surrounding domestic occupations.

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LINCOLN'S BOYHOOD LANDSCAPE--ARCHAEOLOGY EDUCATION PROJECT, SPENCER COUNTY, INDIANA

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Introduction

This FY2009 archaeological education Historic Preservation Fund project is an investigation of the historically significant but poorly understood landscape of Abraham Lincoln's boyhood. During the Lincoln Bicentennial Year in September of 2009, archaeological research was conducted at Lincoln State Park in Spencer County, Indiana, under a plan approved by the Department of Natural Resources (IN-DNR), Division of Historic Preservation and Archaeology (DHPA) (plan number 2009046). The primary goal was to conduct a public archaeology project with an emphasis on education. The research was focused on three locations significant in the story of Lincoln's life in Indiana, all contained within the park: the Colonel Jones' property; the Gordon homestead; and the presumed location of the Gordon Horse Mill. Broad-area multi-method geophysical surveys were conducted on nearly 10,000 square meters of the park, providing the foundation for future investigations. Test excavations of archaeological features identified by these surveys occurred during Indiana Archaeology Month 2009. Other activities, including public talks, site tours, and hands-on public participation in the investigation itself were part of the project. Staffan Peterson (Indiana University and INDOT) and Michael Strezewski (University of Southern Indiana (USI)) jointly directed this program of survey and research, and Vicki Basman, Chief of Interpretive Services for IN-DNR State Parks and Reservoirs (SP&R) served as project coordinator. Timothy Horsley of Yale University and Nelson Shaffer and Jason Mysinger of the Indiana Geological Survey conducted the geophysical surveys. Staff from the Indiana Department of Transportation (INDOT) donated effort during the excavation portion of the project.

Abraham Lincoln's youth in Indiana was spent in the Little Pigeon Creek community in Spencer County, Indiana. Today, this area is largely contained within Lincoln State Park (LSP) and Lincoln Boyhood Home National Memorial, approximately twenty miles north of the Ohio River and just south of Dale, Indiana (Figure 1). Because of the veneration with which Lincoln has been regarded since the 1860s, this area has been revered and coveted by preservationists, historians, memorializers, and tourists (McEnaney 2001; Sweeten et al. 2002). However, the park has never been systematically investigated archaeologically.

The landscape under investigation is managed by IN-DNR SP&R. Very little is known about the nature and extent of the subsurface cultural resources across the park. This information gap presents difficulties for site managers who, in accommodating the large number of visitors to this highly popular property, must, almost on a daily basis, make decisions which potentially impact the integrity of the landscape. In addition, these gaps in knowledge create huge missed opportunities in understanding and interpreting to the public Lincoln's Indiana boyhood, as well as pioneer life in the trans-Appalachian Midwest generally.

Despite the historical significance and scale of the Lincoln landscape at LSP, it bears only one National Register of Historic Places (NRHP) listing. This is the Jones Home, built in 1834 and reconstructed in situ by the Cook family in the 1970s, where part of this project occurred. Not listed are several probable potentially eligible sites, some of which were investigated during the initial year of this project. A goal of this project was to identify properties eligible for nomination to NRHP, in particular but not limited to the areas excavated during the project.

Project Area - Lincoln State Park Spencer Co., IN

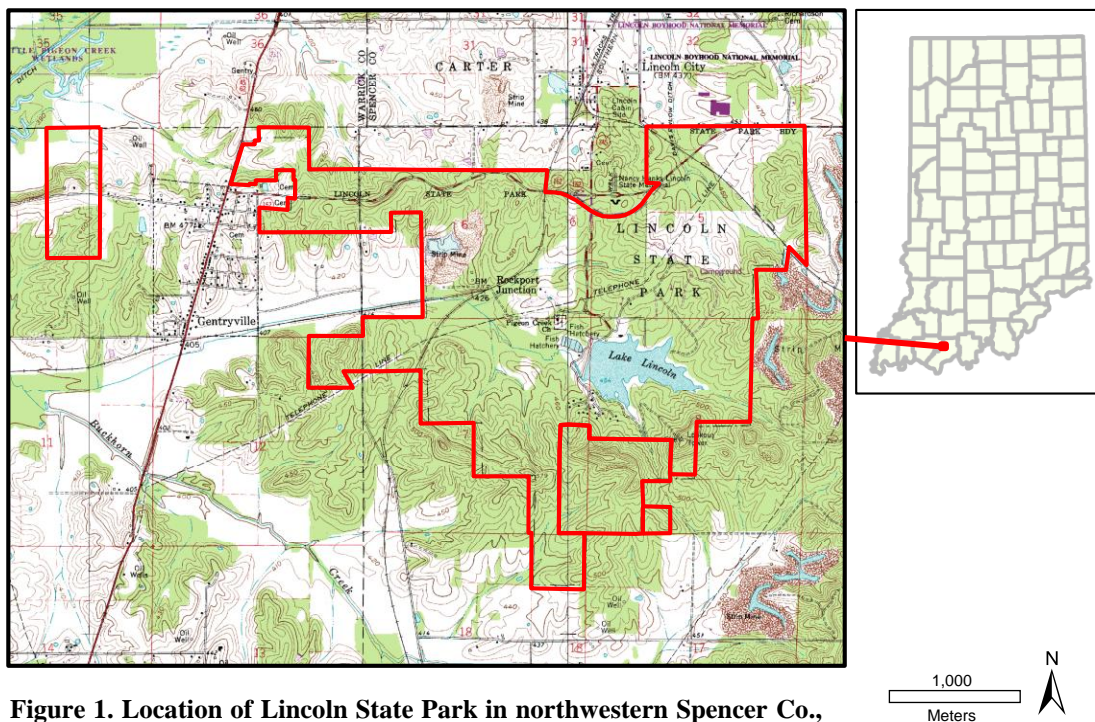


Figure 1. Location of Lincoln State Park in northwestern Spencer Co., IN. (Chrisney, IN and Santa Claus, IN USGS 1:24000 topographic quadrangle maps).

Background: Research Setting: Lincoln's Boyhood Landscape

Historians describe the villages of Little Pigeon Creek and Gentryville as defining the orbit of young Abraham's life (Bartelt 2008; Cayton 1996; Madison 1990; Warren 1991). The Lincolns arrived there in 1816 and stayed until 1830, leaving when Abraham was twenty years old. The sites associated with his time in Indiana are today almost entirely located within Lincoln State Park, which is 1,747 acres in extent. Efforts to preserve this landscape have a long and varied history. Local efforts to purchase and maintain lands, later to become LSP, for memorialization began as early as 1870 (O'Bright 1987; York 1984). Decades of fundraising, advocacy and land acquisition finally coalesced in 1932 to form LSP. The park was created in order to preserve the historic landscape and to offer education and reflection opportunities for visitors. In order to gain the advantage in national visibility federal support would bring, the Lincoln home site itself and 114 acres surrounding were transferred to the federal government in 1963 by an act of Congress (O'Bright 1987:104ff), to become the Lincoln Boyhood National Memorial. Accompanying this long process, significant alterations to the landscape have occurred, including the construction of two large lakes, a very large amphitheater, and numerous smaller park facilities.

The grave of Lincoln's sister Sarah, the site of the church he attended, the Crawford School where he received his only formal education, and the farms of family friends and neighbors, are all located within the nearly two thousand acres of LSP. The store where he possibly worked as a clerk, may also be within the park, but this is not as well-attested as the other sites mentioned above. In particular, the location of Gordon's Horse Mill where Lincoln had a near-fatal accident, and the location of the store are very vague or are in dispute (Bartelt 1986:9-11, 2008:151; Warren 1991:187-8). These conflicts in the historical record appear unresolvable with the available documentary information by itself. Moreover, any sites present in LSP may have been disturbed or destroyed by later land use and development. Therefore, one of the goals of the project was to conduct broad scale remote sensing surveys at these locations followed by targeted excavations in order to gain chronological and other diagnostic information on the presumed locations of historic period structures and facilities. In addition to the challenge of locating these structures important to Lincoln, there also was an excellent opportunity to investigate the material record of pioneer period small-holders and merchants who lived in the community.

A few small scale compliance surveys have occurred at LSP, but the archaeological resources in the park have otherwise never been professionally investigated. The current project used multiple subsurface imaging surveys, followed by focused excavations. Ground penetrating radar and magnetometry surveys were conducted at three locations within the park, including Colonel Jones' property where Lincoln may have worked as a clerk or meat packer, the Gordon residence and a nearby parcel where attempts were made to locate the site of Gordon's Horse Mill (where Lincoln had his near fatal accident as a child). The results of these surveys on their own provided much needed information for both interpretation and site management purposes. In addition, they help in planning an excavation at the Jones property—possibly on the site of the store where Lincoln's "Honest Abe" reputation was in part earned. The third part of the research was an investigation of a sandstone rock formation where historic period rock carvings and geomorphology were documented.

The Gordon and Jones properties were selected as the core study area for this project for both scientific and practical reasons. These are ideal locations because of all the historically

known areas, they have the clearest history of ownership and land use, yet they also appear to have the least disturbance. By contrast, the federal land where the Lincoln cabin site is located has been extensively modified by the construction of the memorial, likely meaning that little of what may have been present prior to construction remains.

At the Gordon family home and putative horse mill (Figure 2)¹, no further development appears to have occurred after their tenure. Today the home site is in grass with no surface features except for a masonry well. The mill site is lightly forested, and no record of later development is available.

At the Jones home site (Figure 3) the large Early Republic style mansion (sub-style Federal, with Classic Revival embellishments) sits on about two acres of mown grass, with a reconstructed barn nearby. Approximately two acres in this core of the site was surveyed. Just in the vicinity is a sandstone bluff which has historic period carvings which were documented as part of this project. Earth auger cores were taken from the sediments below this bluff in order to characterize the nature of the fill and to investigate the possibility that this bluff face has a filled-in rock shelter below the surface.

Project Area - Gordon Home and Horse Mill
Lincoln State Park, Spencer Co., IN

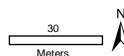


Figure 2. Gordon Home and purported Horse Mill area at LSP. (Indiana Geographic Information Council aerial imagery – 2005).

¹ Unless otherwise noted, all aerial images presented in this article are from the Indiana Geographic Information Council, Inc. 2005 1m Color Imagery dataset.

Project Area - Jones Home - Lincoln State Park
Spencer Co., IN

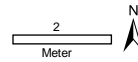


Figure 3. Jones Home at LSP. (Indiana Geographic Information Council aerial imagery– 2005).

Prior Research

The history of archaeological research at LSP has until this project been entirely one of compliance archaeology. This is in contrast to the much smaller and much more developed adjacent federal Lincoln Boyhood National Memorial which has had investigations of varying purpose and method for over seventy years, including most recently a shovel test reconnaissance at 10m interval across all 114 acres (Frost and Stadler 2000; see also Mauck 1996). The 2000 survey is the most comprehensive assessment of subsurface cultural resources in the general vicinity of this project. It found that much of the federal property has been disturbed by early construction of the memorial and landscaping by the Civilian Conservation Corps in the 1930s. Nevertheless, the comprehensive survey discovered fifteen previously unknown prehistoric sites and nine historic sites, though none dated to the Lincoln era. By way of contrast, archaeological investigations in the area now within LSP are limited to six small scale compliance projects conducted between 1981 and 2008. The site inventory at the federal property stands in stark contrast to the six sites of any type listed for the two thousand acres of LSP. The Lincoln Boyhood National Memorial contains approximately one known site per four acres while LSP has one known per 330 acres. It's reasonable to assume then, that this disparity is largely due to the level of survey at these two adjacent areas, and that LSP contains a large number of unrecorded archaeological sites.

Research Questions: Archaeology of the Lincoln Boyhood Landscape

Because LSP has never been systematically surveyed, basic archaeological information is lacking. Consequently, there are major gaps in the understanding of the location, character, and integrity of both historic and prehistoric cultural resources, and what these can tell about life in the area prior to the modern era. Such research questions for the Lincoln Boyhood Landscape, including the nature of engagement of residents with larger trade networks, consumer preferences in material culture, and architectural traditions in the locality during and subsequent to the pioneer period, can be answered through integrated geophysical studies followed by targeted excavation and geomorphology.

The evidence that is expected to be encountered is both architectural and artifactual, including the remains of structures and the contents of subsurface features such as pits, privies, cellar holes, and filled wells. A final caution involves positive identification of historically known structures. Short of finding inscriptions, detailed plat book information, or highly diagnostic artifacts or structural attributes, there is not a direct link of any one structure location to any one person. Thus, our best efforts may result in building reasonable circumstantial cases for Lincoln locations.

Excavations at the Colonel Jones Home – 12Sp1109

Excavations at the Colonel Jones home (12Sp1109) took place on September 18th and 19th, 2009 and April 4th, 2010. All subsurface investigations were supervised by the co-principal investigators (PI), Michael Strezewski (University of Southern Indiana) and Staffan Peterson (Indiana Department of Transportation). In addition to the co-PIs, the excavation crew consisted of INDOT employees David Moffatt, Jeff Laswell, and Rachel Greenlee, and Allen Wolf, USI student.

Excavations at 12Sp1109 were designed to ground-truth anomalies encountered during the geophysical survey of the site. The resulting excavations were to be used as a means to allow the public to see an ongoing archaeological excavation. After examination of the geophysical maps, the co-PIs chose two areas for excavation. The first was to the west of the Jones house, in an area where Jones' store may have been located (Bartlet 1986:9-11, 2008:151; Warren 1991:187-8). The second excavation area was northwest of the house. A total of six square meters was opened up in the course of the investigations. A total of six 1.0 x 1.0 meter units were opened. Each unit was given a letter designation (A through F). Two of the units (A and B) were located to the west of the house, while the remaining four (C through F) were placed to the northwest of the house. Following the investigations, four permanent datums were placed at the Jones home location.

Units A and B

Units A and B (Figure 4), which were located to the west of the Jones home, were exposed simultaneously on September 18th, with the soil from the two units screened separately. The southwest corner of Unit A was located 7.0 m south and 13.0 m west of datum 4. At the base of

level 1, a number of artifacts were showing and the soils seemed to be thoroughly mixed within a matrix of silt loam and clayey silt loam. Areas with pieces of coal and broken bricks were noted, but no clear feature outline could yet be discerned. As the excavation proceeded through the second 10 cm level, two areas consisting of nearly pure coal were identified. Both continued into the eastern wall of the two units. Other areas within the two units were cultural as well, containing varying amounts of coal, brick fragments, and other cultural debris. No sterile matrix was yet noted. Materials in levels 1 and 2 dated primarily to the late 19th century and early 20th century.

The profile drawing (Figure 5) indicates that the uppermost portion of the profile consists of approximately 10-20 cm of fill dirt, possibly laid down when the Colonel Jones home was refurbished in the 1980s. Lying underneath the fill were intact deposits, albeit ones of relatively recent age. The earliest portion of the feature consists of zone 5 in Figure 5. Later, a wide, shallow depression was excavated (for unknown purposes) and was eventually backfilled with coal fragments and garbage, including plastic sheeting, pieces of vinyl, and other relatively recent garbage. Given the materials present, it would appear that this feature was backfilled within the last 30 years, though the date of its original excavation is uncertain.



Figure 4. Photo of units A and B, east profile wall.

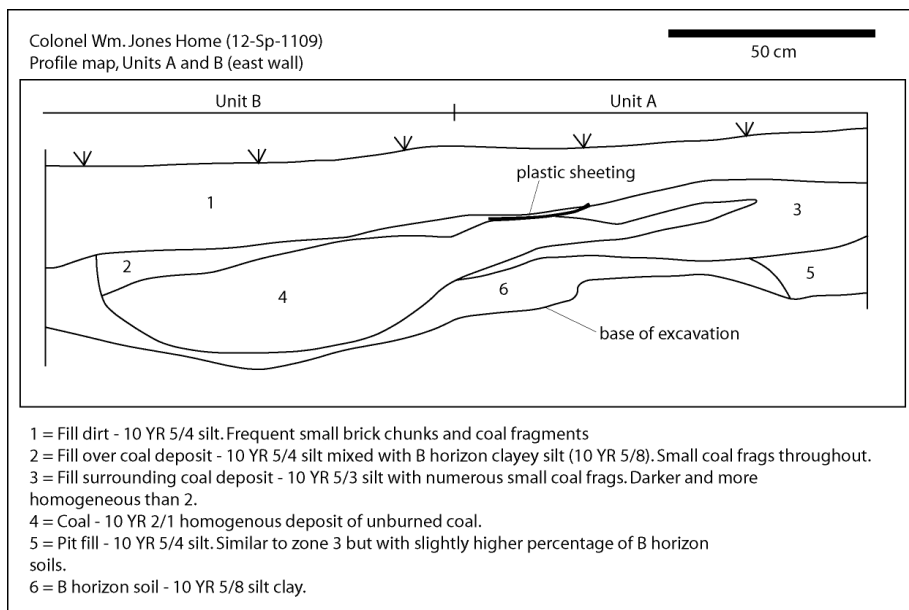


Figure 5. Map of units A and B, east profile.

Units C through F

Units C through F (Figures 6, 7) were located to the northwest of the Jones house, in an area of the yard with an approximate 10 percent downward slope to the north. Materials, including mortar, sandstone, and brick fragments were scattered about the unit, forming a general east-west line of construction material, possibly from a foundation, though it was unclear at this point whether any of the material was in primary context. Two more units (E and F) were opened up the following day in order to follow the likely path of the foundation. The archaeological strata are shallow, extending between approximately ten and thirty centimeters below surface (Figure 8). Like units C and D, level 1 artifacts consisted of both recent (e.g., wire nails) and artifacts dating to the early to mid-19th century. Artifacts identified in these two units included a French gunflint, a military button, a suspenders buckle, and a number of stoneware fragments. To further explore the interior of the structure, a second level was removed from units C and D. Unfortunately, materials from the structure's interior are not highly diagnostic and do not clearly indicate a period for its use. The presence of undecorated whiteware and salt-glazed stoneware indicate only a post-1830 date for the structure. Other materials include a mold-made glass container fragment, window glass, and a number of unidentifiable nails.

Materials from the exterior of the structure were similar in general, though a few artifacts were clearly more recent. These included a wire nail and a piece of amethyst glass, both of which indicate deposition during the late 19th to early 20th century. Amethyst glass was produced from 1880 to 1918, for example (Stelle 2001). Overall, the artifacts recovered from the structure's interior point to a 19th century date for its construction. The absence of recent artifacts such as plastic, wire nails and other 20th century debris within the structural floor suggests that it may have been demolished by the early 20th century or before. Unfortunately, due to the short duration of our investigations, excavation did not continue past this point--to reach the base of the interior floor deposits (i.e., intact B horizon soils were not reached in the excavation of units C and D).



Figure 6. Photograph of units C through F, base of excavation, looking north.

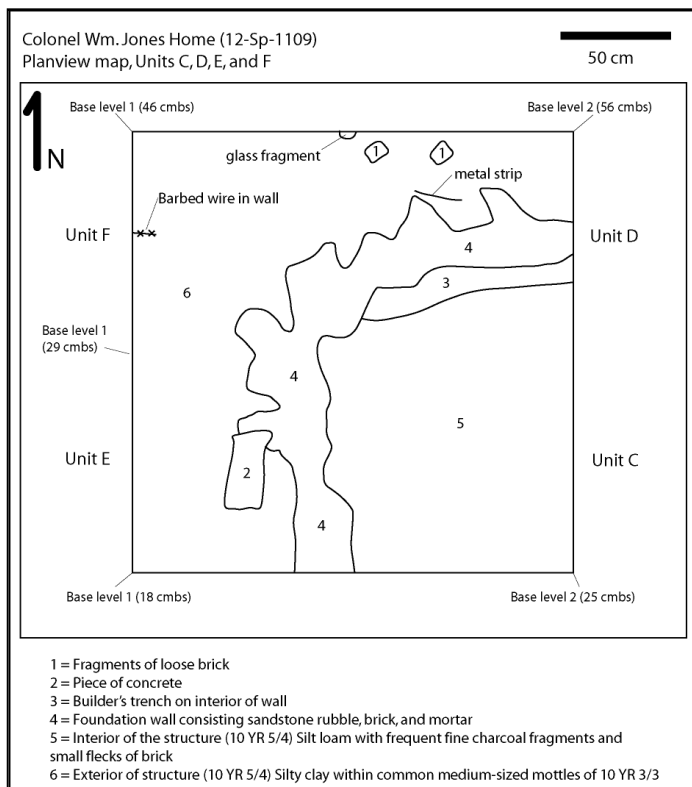


Figure 7. Planview map of units C through F at base of excavation (units C and D, base level 2, units E and F, base level 1).

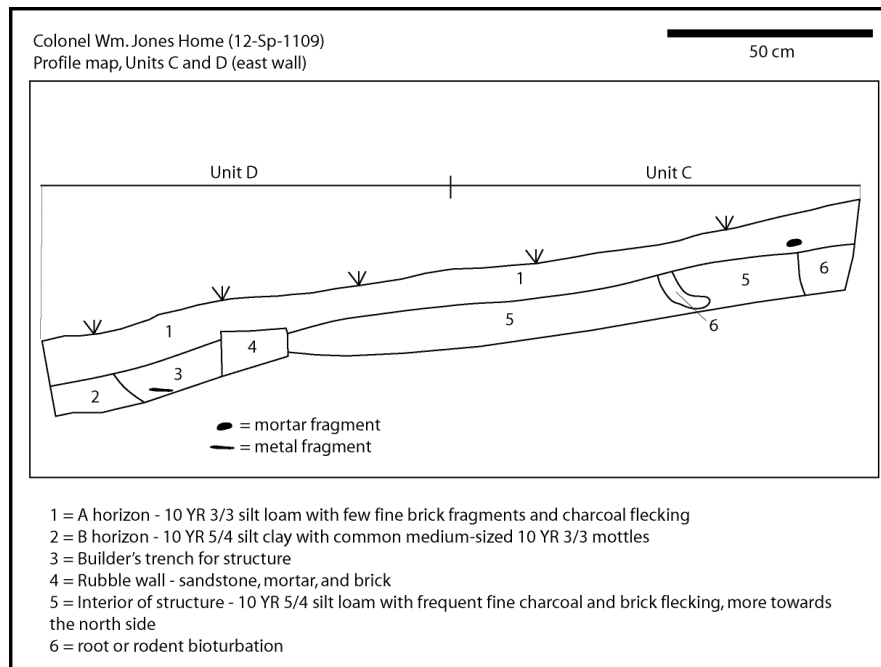


Figure 8. Units C and D, east profile wall.

The southernmost portion of the wall (i.e., that portion going into the south wall of units C and E) was thought to be possibly in situ, due to the regular arrangement of the sandstone blocks in this area (Figure 7). Overall, information derived from the construction technique and materials used is slim. The presence of low-fired handmade bricks most likely indicates a structure dating to the 19th century, while the presence of concrete points to its use and/or modification in the 20th century. Because only one corner of the structure was identified, we cannot say much about its overall size. There is also relatively little information on the structure's possible function. A total of five pig teeth were noted (in units C, E, and F) suggesting that the structure may have been a smokehouse or separate cooking facility behind the house. This supposition, however, is highly speculative. It is clear that additional investigations are needed to gain greater understanding of this structure and its possible role in domestic activities.

Cultural Materials from the Col. Jones Home – 12Sp1109

The excavations conducted at 12Sp1109 resulted in the recovery of 1,228 artifacts in total, weighing a total of 10,095.7 grams. Of this total, 1,178 artifacts (95.5 percent) date to the Euroamerican occupation of the site. The remainder ($n=50$) resulted from a number of prehistoric occupations. All materials, including the artifacts, maps, and other field forms will be accessioned at the Indiana State Museum under accession number 71.19.858.

Historic Artifacts from 12Sp1109

In total, 1,178 historic artifacts, weighing 9,113.3 g, were recovered from 12Sp1109.

Ceramics ($n=108$, 463.0 g)

Ceramics were divided up into a number of well-recognized categories, determined by the type and color of the fabric, the hardness of the ceramic, the type of glaze utilized, and the method of decoration.

Creamware ($n=4$, 7.9 g). Four plain creamware body sherds, possibly from the same vessel, were recovered from Unit F (Figure 9). All exhibit the cream-colored, soft fabric and yellow pooling of the glaze that are characteristic of this type. Creamware was produced from about 1760 through 1820, somewhat earlier than the occupation of the Colonel Jones house (Stelle 2001), suggesting that its minor presence at 12Sp1109 may be the result of curation of an older ceramic piece. One of the fragments exhibits an embossed design, though the small size of the fragment precludes its further identification.

Pearlware ($n=1$, 4.0 g). Pearlware was first developed in the 1770s as an attempt to create whiter colored ceramics similar to Chinese porcelain (Noel Hume 2001:243). It is characterized by a relatively soft fabric with distinctive blue colored pooled glaze in the crevices of the piece that was caused by the addition of cobalt to the glaze (Figure 10). Pearlware becomes more common than creamware by ca. 1800 and had maximum popularity by 1830 or so. Curated pieces were in use through the 1870s (Stelle 2001). One small fragment of plain

pearlware was recovered from Unit D (71.19.858.170) (Figure 9). It derives from the base of a vessel, possibly a teacup.



Figure 9. Pearlware (71.19.858.170) and creamware (both 71.19.858.149) from 12Sp1109.

Whiteware ($n=36$, 54.3 g). Whiteware was the next major development in the search by the English potteries for whiter colored ceramics. Whiteware tends to be harder with a colorless glaze. By the 1830s, around the time of the initial occupation of 12Sp1109, whiteware had only recently become the most familiar earthenware ceramic in the United States. It remains common to the present day (Stelle 2001). Whiteware ceramics were found in small quantities in all six excavation units. All of the whiteware fragments recovered during the Colonel Jones excavation were plain and small in size. One small fragment of whiteware was from a thick annular ware vessel of undetermined type, possibly a pitcher (71.19.858.65). Annular decorations on whiteware vessels were most popular from 1830 to 1860 (Mansberger 1988:228-229). The example from the Colonel Jones excavations was partially covered with a blue slip. The nearly complete absence of any decoration on the ceramics recovered from 12Sp1109 (e.g., transfer ware of any color, hand painting, or shell-edge decoration) makes it difficult to assign a particular date to the material, as plain whiteware was produced from 1830 through the present day (Mansberger 1988:228-229). The annular ware vessel fragment is the only whiteware artifact that could conceivably date to the time in which William Jones occupied the house.

Yellowware ($n=3$, 5.7 g). When compared to pearl- and whiteware, yellowware has a relatively hard fabric, which is pale buff to yellow in color. Yellowwares were mass-produced, usually in utilitarian forms such as bowls, pie plates, commodes, spittoons, and pitchers (Branstner 2007:17). Most were slip or press molded. The earliest yellowwares were produced in the Midwest (Cincinnati) beginning in the 1830s (Mazrim 2005) and beginning in nearby Perry County, Indiana in 1839 (Godspeed Bros., and Co. 1885:673). Production peaked in the 1860s and 1870s. Only a few fragments of yellowware were identified in the current investigations. One small piece was noted from Unit A, and consisted of a body fragment with a clear (lead?) glaze (71.18.858.5). One small body fragment of yellowware with a mottled Rockingham-type exterior glaze was noted from Unit E (71.19.858.56). Rockingham wares reached their peak production in the 1850s with an apparent resurgence in popularity near the end of the 19th century (Branstner 2007:18).

Ironstone ($n=15$, 110.9 g). Beginning in 1813, a utilitarian ceramic with a harder, whiter paste was introduced into the American market (Stelle 2001). It was common in Illinois by 1845 and its popularity in the United States continued through the end of the 19th century (Mazrim 2002:93; Stelle 2001). Most ironstone was relatively thick and plain, often with embossed decorative motifs in the clay fabric. It was produced in a variety of forms for the table (e.g., cups, plates, serving trays, pitchers, etc.). Embossed ironstone dates primarily to the period 1840 to

1910 (Mansberger 1988:228-229). One fragment of ironstone recovered from the current investigations consists of the rim of a plate with a brown-colored band around the perimeter (71.19.858.40). This type of decoration (often times found with a "tea leaf" motif in the center of the plate) was most popular through 1860s and 1870s (Stelle 2001). The remainder of the ironstone was plain. Five fragments could be identified as cup rims, one of which had an embossed floral edge (71.19.858.7). One rim was likely from a plate (71.19.858.62). Two other fragments consisted of a saucer base (71.19.858.61) and a probable handle fragment from a pitcher (71.19.858.60). Ironstone was found in small quantities in all six units and most likely dates to the post-Colonel Jones occupation of the house.

Redware (n=24, 26.8 g). Redware fragments were recovered from nearly every unit excavated, albeit in small quantities. The fragments themselves were invariably small, most likely due to the soft nature of the ceramics and their consequent fragility. Though many of the fragments are spalled, it seems that most were covered with a lead glaze on both sides of the vessel. The glaze is typically dark brown and somewhat mottled, superficially resembling Rockingham glaze. With few exceptions, the fabric of the sherds is buff colored. The overall similarity of most of the redware vessel sherds suggests that they were manufactured by the same anonymous potter. With one exception, all of the redware fragments were body sherds. The single exception to this (71.19.858.191) was a small rim fragment from an unidentified vessel. These sherds likely pre-date 1850 and are some of the most likely candidates for the Colonel Jones-era occupation of the house (Ketchum 1991; Mansberger 1994).

Stoneware (n=24, 249.2 g). Of the 24 fragments of stoneware recovered from the 12Sp1109 excavations, all were body sherds of indeterminate vessel type. Eight sherds had an Albany slip on the interior. Of these eight, six were salt glazed on the exterior, one had an Albany slip on the exterior, while the eighth example was unidentifiable. One of the Albany slipped sherds was impressed with "...CYPU...ELTON...", which presumably was the maker of the vessel. Individuals with the surnames "Shelton" and "Skelton" are both known from 19th century Warrick County histories though pottery manufacture is not mentioned among their trades (Godspeed and Bros. Co. 1885). Additional research needs to be done on the possible manufacturer of this vessel.

Other salt glazed vessel fragments include nine with a salt glaze exterior and unglazed interior, two with salt glazing on both sides, and two that were salt glazed on one side and spalled on the other. The remaining three stoneware fragments include one small piece that was spalled on both sides, one that was unglazed on both sides, and one with an unusual blue glaze on one face that looks superficially like an annular ware slip but with a more vitrified body typical of stoneware.

Porcelain (n=1, 4.2 g). The single piece of porcelain recovered from 12Sp1109 is a body fragment from an unidentified plain vessel. It is "soft-paste" porcelain, which was manufactured by English potters beginning after 1800 (Stelle 2001).

Glass (n=564, 1050.4 g). Though the color of glass fragments can be used as a temporal indicator, the resultant periods are quite broad. In general, olive and aqua-colored glass was common until the first half of the 19th century. Because of the expense in its manufacture, clear glass was uncommon until the second half of the 19th century. Manganese dioxide was used to produce clear glass from ca. 1880 to 1918, but exposure to the sun caused the glass to turn slightly purple in color (i.e., "amethyst glass"). Brown and amber glass were used by the beer industry after the Civil War, while white "milk glass," was first manufactured after ca. 1870

(Wagner and McCorvie 1992:145). Changes in the means of bottle manufacture are also temporally sensitive (Firebaugh 1983).

Tableware (n=17, 101.3 g). This group includes one piece of pressed amethyst glass and twelve clear pressed glass fragments. Four drinking glass rims were also identified in the assemblage; three are clear glass while the fourth is a light pink color. Pressed glass was manufactured over a long period of time and is therefore of limited use in identifying occupation dates (Wagner and McCorvie 1992:146).

Container glass (n=341, 666.9 g). By far, the largest number of container glass fragments were clear (n=235). This alone suggests a later date for most of the assemblage. Vessel types were most often unidentifiable, though a few exceptions were noted. Five fragments were portions of screw-top jars, the technology for which was not perfected until 1919 (Firebaugh 1983:20). Three clear medicine bottle necks or rims were also identified. Two of these were mold manufactured with a hand-tooled rim. Bottles of this type date from 1840 to 1880 (Firebaugh 1983:15). The third medicine bottle had a mold seam that extends all the way to the edge of the lip. Such bottles postdate 1903 (Firebaugh 1983:15). Two other fragments were embossed with letters or numbers. The technology used for this process was not developed until after the Civil War (Firebaugh 1983:11).

Cuprous metal artifacts (n=6, 7.5 g)

In contrast to the aluminum artifacts, some of the cuprous materials certainly date to a much earlier time. One artifact, a brass military button (Figure 10) was recovered from level 1 of unit F. The button is a two-piece hollow, rounded type, with an eagle device on the front. A shield with an "I" in the center is on the chest of the eagle. The back of the button indicates that it was made by Horstmann Bros. and Drucker, New York. This manufacturer made U.S. military buttons for only a short period of time (1844 to 1855). The "I" on the shield is an indication of the type of unit with which the individual was associated. "I," for example, indicated that the wearer was a member of an infantry unit, while "A" stood for artillery (Albert 1976). Army infantry buttons with the "I" on them were worn by enlisted men during the period 1821 to 1854, and by officers only from 1821 to 1902 (Albert 1976). Figure 11 shows a comparable undamaged button, also manufactured by Horstmann Bros.



Figure 10. Front (left) and back (right) of military button from 12Sp1109 (71.19.858.155).

All of this information points to a button manufactured before the Civil War, though the date at which it was affixed to a uniform (and subsequently lost) may have been much later. If

the button was on a uniform before 1854, it belonged to either an enlisted man or officer, but if after 1854, it was that of an officer only.



Figure 11. Comparable, undamaged military button of similar type (Leigh 2011).

Ferrous metal artifacts (n=392, 7187.2 g)

By far, the vast majority of ferrous metal artifacts (by count) were nails (n=309, 1403.5). Most of these (n=253) were too rusted, however, to accurately determine the type of nail. Of those identifiable, 19 were determined to be cut nails, while 37 were wire nails.

Mineral/Stone (n=18, 341.0 g)

Mineral/stone artifacts recovered include cinders (n=15, 332.2 g), two rod-shaped artifacts, possibly of graphite, and a single French blade gunflint, which was recovered from level 1 of Unit F. The gunflint is small in size (2.0 x 1.9 cm), possibly made for a pistol, and is lightly used. French gunflints, like the one recovered in the excavations, are honey-yellow or blond in color, while English gunflints ranged in color from an opaque gray to a fine, translucent, near-black. The French flint quarries were located in the Seine and Marne river valleys. French gunflints were the most commonly used type in the Colonies and (later) United States prior to 1800. Once the English Brandon gunflint quarries were opened up around 1790, however, they quickly begin to dominate archaeological collections in the United States (Kenmotsu 1990:93-96), through the point at which percussion cap firearms began to be used (i.e., after 1830). These facts suggest a relatively early date for the Jones home gunflint.

Prehistoric Artifacts from Site 12Sp1109

The presence of numerous prehistoric artifacts indicates Native American use of the area around the Jones house. All indications are that occupation of this spot was repeated and somewhat ephemeral, due to: 1) the absence of prehistoric ceramics at the site, and 2) the presence of three diagnostic projectile points dating to the Early Archaic, Late Archaic, and Early Woodland periods. Prehistoric materials were thoroughly intermixed with the historic artifacts, indicating that all are in secondary context.

Hafted Bifaces (n=3)

This analytical category includes all bifaces that possess a partial or complete hafting element and show signs of having been finished tools. This includes projectile points, projectile point

tips, knives, drill bases, and fragments of drills, hafted scrapers, and humpbacked knives. Hafted bifaces recovered from 12Sp1109 are shown in Figure 12.

Kirk Corner Notched Cluster. One hafted biface (71.19.858.301) was classified as Kirk Corner Notched projectile point. It was recovered from Unit A. The tip and one corner of this small point are snapped off, but it is otherwise whole. It was manufactured from medium gray Wyandotte chert, which outcrops in Harrison County ca. 35 miles to the east of the project area (Cantin 2008:9). Kirk Corner Notched points are diagnostic of the Early Archaic, dating to between 7500 and 6900 B.C. (Justice 1987:71).

Table Rock Cluster. The second hafted biface (71.19.858.11) was classified as Bottleneck Stemmed, which is part of Justice's Table Rock Cluster (Justice 1987:124). It was also manufactured from Wyandotte chert but shows a "pebbly" texture typical for Wyandotte specimens which have been heat damaged. Bottleneck Stemmed points date to the Late Archaic, though few radiocarbon dates are available to pin down its maximum period of use. Current information indicates that the point type may date to the period 3700 to 3000 B.C. (Justice 1987:126).

Dickson Cluster. The final hafted biface recovered from the current investigations was a whole Adena Stemmed projectile point (71.19.858.26). It was most likely manufactured from the dull-black variety of Lead Creek chert, which outcrops in Spencer County (Cantin 2008:54). Adena points like this one are diagnostic of the Early Woodland, dating to the period 800 to 300 B.C. The point appears to be snapped off at the base but this is a product of its manufacture. The "snap" point at the base is the cortex of the raw material.

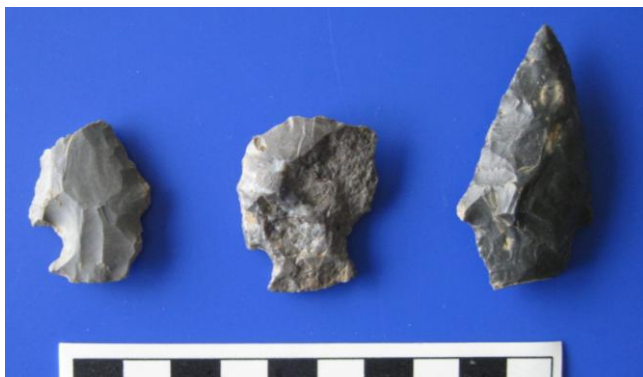


Figure 12. Hafted bifaces from 12Sp1109 (L to R: 71.19.858.301, 11, and 26).

Refined and Unrefined Bifaces (n=1)

This category consists of all tools that have been bifacially thinned, have evidence for at least an initial attempt to shape the piece, but lack evidence for a hafting element. The scope of this category runs from early-stage attempts at bifacial reduction ("unrefined bifaces") to late stage preforms, which are finished tools that lack only a hafting element ("refined bifaces"). One midsection portion of a refined biface was recovered from 12Sp1109. It was manufactured from an unidentified fossiliferous chert that shows signs of heat treating.

Chipped Stone Debitage (n=40)

A total of 40 pieces of debitage, weighing 49.7 g, was recovered from the excavations. Debitage was recovered from all six units and was intermixed with the historic period materials. Twenty-

eight of these were positively identified at Wyandotte chert, one was from an unidentified pebble chert, while eleven were unidentified. Materials were identified representing all stages of tool manufacture, from initial flaking to bifacial thinning.

Fire-cracked rock (n=6)

Six fragments of fire-cracked rock, weighing 902.7 g, were also collected. The prehistoric origin of these materials could not be determined without a doubt, but considering the presence of other prehistoric materials coupled with a general absence of burning in association with the historic component, suggests that the FCR is prehistoric in nature.

General Discussion

The overall goals of the excavation were the identification of intact subsurface archaeological deposits via geophysical survey and limited ground-truthing. Ideally, the investigators wanted to locate features and/or materials dating to the first half of the 19th century (i.e., the occupation of the Jones home by Jones himself). With regards to the deposits recovered, the shallow pit in units A and B clearly does not fit these criteria. The structure in units C through F, however, may date to a relatively early occupation of the house site. Unfortunately the excavations that were initiated in 2009 were exploratory only and did not reach the "floor" of the structure, nor was there time to completely expose its perimeter.

Nevertheless, a small portion of the artifacts may date to the Jones-era occupation of the house. The most likely candidates are redware, pearlware, and creamware artifacts, all of which likely pre-date 1840. Another early artifact is the single piece of whiteware with an annular design. This type of decoration was popular through 1860 (Mansberger 1988:228-229). Most of the other ceramics recovered are definitely post Civil War (e.g., ironstone) or are relatively non-diagnostic (e.g., undecorated whiteware and stoneware).

Another probable early artifact is the French gunflint as flintlock guns began to be replaced by percussion-cap firing mechanisms around 1840 or so. Many flintlock guns continued to be used even after the invention of the percussion cap, while others were retrofitted to take advantage of the new technology. Overall, it seems likely that the gunflint pre-dates 1850.

The final and most interesting artifact is the military button. With regards to this item, the obvious question is, is this button from Colonel Jones' uniform? The evidence will be addressed, both pro and con. First of all, it is known that Jones was a Lieutenant Colonel in the 53rd Indiana Regiment, an infantry unit, beginning early in 1862 (Bartelt 1992:39). Colonel Jones, being an officer in that unit, would have been assigned a uniform with buttons that had an "I" on the shield. Both facts point to Jones as the probable owner of the button. However, sources indicate that although Jones owned the property until 1863, he no longer lived at the home by 1851, having moved his residence to nearby Gentryville (Bartelt 1992:31-32, 1996:5, 2001:1). The home and 345 acres of land were sold in 1863 as part of a legal settlement while Jones was in the army (Bartelt 1996:4).

Since he was still the landowner at the time, it is conceivable that Jones may have made visits to his former residence during the period he was serving in the Civil War (1862-1864). Five other Gentryville men served as officers in the 53rd Indiana Infantry during the Civil War.

These include Captains John F. Townsend, Alfred H. McCoy, and Thomas N. Robertson, 1st Lieutenant John W. Lamar, and 2nd Lieutenant Lewis M. Crist (Terrell 1865:523-532). At least 19 other Gentryville residents served as enlisted men in this unit (Terrell 1866:563-589). Additional research needs to be conducted on the other Gentryville residents who may have been military officers in and around the time of the Civil War, not only in the 53rd Indiana regiment, but other units that were formed of Spencer County residents. Special attention should be made to the resident of the home during this period (if known).

Geophysical Surveys

Introduction

Geophysical surveys have been conducted over three locations within the Lincoln State Park (LSP), Spencer County in August 2009. The three sites are 1) Colonel Jones' property; 2) the Gordon homestead; and 3) the presumed location of the Gordon Horse Mill. Each site is significant in the story of Lincoln's life in Indiana; however, no archaeological investigations have been undertaken at any of these prior to this study. It was hoped that non-invasive geophysical methods could help to accurately locate and map buried archaeological remains at each site, help assess the condition of the surviving cultural resources, and provide the foundation for future investigations.

The Colonel Jones Property

Surveys were undertaken in the open land around the restored 1834 Federal-design home that belonged to Colonel William Jones. This area may include the site of Jones' store, built before the later home and where Lincoln may have worked (Bartelt 1986:9-11, 2008:151; Warren 1991:187-8). It was therefore hoped that this survey would reveal evidence for buried structural remains associated with the store, in addition to possible subsurface features such as pits, privies, cellar holes, and filled wells.

Gordon Home site

The farm of Noah Gordon, a friend and neighbor of the Lincoln family, was situated near Little Pigeon Creek; however, other than a masonry well that indicates the approximate location, no traces of the home survive today. It was hoped that the surveys would provide evidence for the location of this house and any associated features. The well and presumed site of the house lie within a small grassy clearing in the woodland. Geophysical surveys were largely confined to the open clearing, extending slightly into the dense undergrowth to the east and south to encompass a greater area. The soils at the Gordon Home site are described as Zanesville silt loams (ZaC3 and ZaB2), formed on silty loess material (Williamson and Shively 1973:31-32).

Putative site of Gordon's Horse Mill

Close to the Gordon Home is believed to have been the horse mill where Lincoln had a near-fatal accident in 1818. The exact site of the mill is unknown since no traces of the mill survive and no maps indicate its location. Today, two possible areas within the LSP are thought to be the location of the mill site. One of these is on a gentle slope NNW of the Gordon Home site, and the other is further northeast at the bottom of the slope over a small stream. The nature of this horse-mill is also unknown. Such mills could either be as simple as a two mill stones revolved by the traction of a horse harnessed to a wooden shaft, or a building could be constructed to house the turning area and mill apparatus (Bennett and Elton 1898:195-197). It is not clear how the location of a horse-mill might be detected and positively identified. As at the nearby Gordon Home site, the soils are described as Zanesville silt loams (ZaC3 and ZaB2), formed on silty loess material (Williamson and Shively 1973:31-32). The mill site is lightly forested, and no record of later development is available. The site does, however, lie close to the parking lot and buildings associated with the modern Lincoln Amphitheatre. The geophysical survey was undertaken over the slope area where the trees and undergrowth were less dense and allowed measurements to be taken.

Geophysical prospection methods

Geophysical methods include a range of non-destructive techniques for detecting subsurface disturbances associated with buried remains. It is important to note that these techniques do not detect the features themselves, but rather physical variations—or *anomalies*—that require interpretation. For a buried feature to be detected there must, therefore, be some physical contrast between it and the background soil and subsoils. If no such contrast exists, that feature will be effectively invisible. Many archaeological features exhibit physical contrasts to the natural soils and sediments, either through the addition of foreign material into the soil (e.g., building materials such as bricks and rocks), or by altering the soils and subsoils (e.g., conversion of magnetic properties through heating, or the silting up of cut features such as pits and ditches).

A selection of non-destructive geophysical techniques is available for archaeological prospection, including magnetometry, earth resistance, and ground-penetrating radar (GPR). Each method measures a different physical property and, therefore, a particular method or combination of methods may be chosen that will be best suited to the conditions at a site.

Magnetometer survey

Magnetometer surveys were undertaken at all three sites using a *Bartington Grad601-2* dual fluxgate gradiometer. Within each 20 m grid square, data were collected at 0.125 m intervals along traverses 0.5 m apart, recorded walking using the integrated automatic sample trigger. Each line was walked in the opposite direction to the previous line, in the so-called “zigzag” fashion. Before the survey the electronic and mechanical setup of the instrument was adjusted to correct for drift and variations in orientation. The magnetometer was set to a recording sensitivity of 0.1nT. Magnetometer data were downloaded using *ArcheoSurveyor* and then processed using *Geoplot 3.00*.

Earth resistance survey

Earth resistance surveys were conducted at both the Jones Property and the Gordon Home using a *Geoscan RM15* earth resistance meter adopting the twin-probe array. The mobile probes were spaced at a distance of 0.5 m, corresponding to a maximum depth of investigation of around 0.5-0.75 m. Readings were collected at 0.5 m intervals along traverses spaced 0.5 m apart. The remote electrodes were spaced approximately 2 m apart and, when necessary, they were re-located so as to normalize the reading (see Gaffney and Gater 2003:32-33).

GPR survey

Following the magnetometer and earth resistance surveys, a ground-penetrating radar (GPR) survey was undertaken over an area at the Jones Property. A Sensors and Software Noggin GPR system was employed, using a 250MHz antenna. Each 20 m grid was surveyed at a traverse interval of 1.0 m, with each line being surveyed in alternate directions. Individual radargrams were combined to produce the time-slices presented here.

Results

The Colonel Jones Property

The magnetometer and earth resistance data are interpreted and presented in Figure 13. The most distinct responses in these data are the intense bipolar anomalies caused by iron metal on and in the ground. Some of these anomalies are due to visible features, such as the lights, and other modern uses of iron for fences, where they are associated with existing trees and in a retaining wall at the west of the site. Underlying these intense anomalies it is possible to see a general spread of smaller scale magnetic “noise” throughout much of the data. This is common on historic sites and can be due to both iron metal (from nails, and general trash) and fired brick and tile. Such material becomes incorporated into the soil over time and can help indicate the locations of historic buildings and activities. At this site, the spread of bipolar anomalies can be seen to extend to the north, east and west of the Jones Home. While these results do not clearly show the locations of former buildings, they do not rule out the presence of structural remains to the east or west of the Home. Some of these intense magnetic anomalies and noise may in part be due to the recent restoration of the Home, and unfortunately it is not possible to distinguish between modern and historical iron artifacts based on the magnetometer data alone. Examples of this include the areas of more intense responses to the east of the house, which could either represent modern or historic activities.

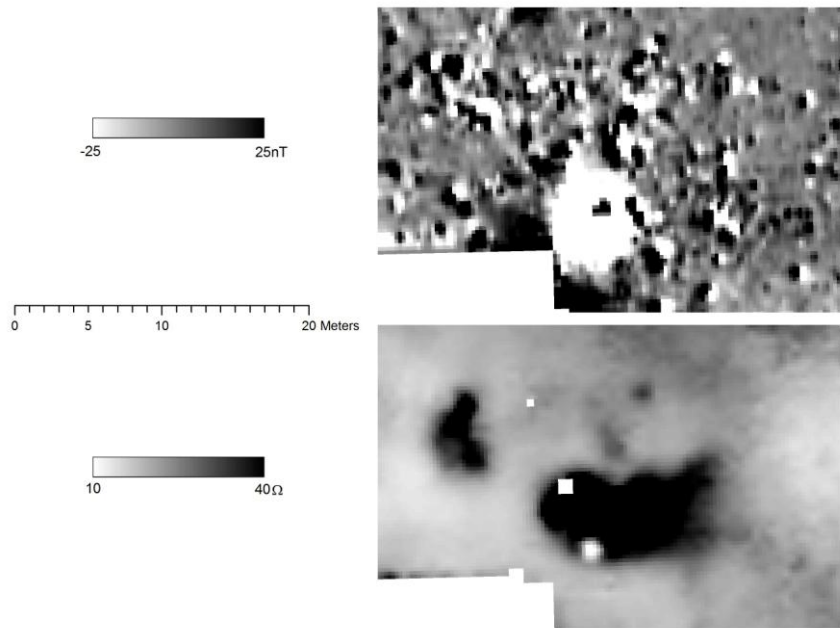


Figure 13. Extracts of the geophysical results from the Jones Home illustrating the complementary nature of these two data sets. The magnetometer data, (top), reveal areas of intense magnetic ‘noise’ indicating buried cultural material such as bricks and iron objects; the earth resistance results from the same area, (bottom), provides details about probable buried structural remains.

A narrow band of the magnetic noise extends to the SSW from the Jones Home, and when compared with the resistance data, likely indicates the position of a former drive to the house or a structure to the west. This need not be evidence for the location of the Jones’ Store, since a garage is understood to have more recently stood at this position. Further work is recommended to identify when this drive was in use and whether it predates the modern driveway up to the house. North of the west side of the Jones’ Home is a cluster of small positive anomalies that make up three sides of a square, roughly 1.4 m on a side. These strongly suggest a small structure constructed from brick and subsequent small scale excavation appears to confirm this interpretation.

Other discrete positive anomalies throughout the survey area may also be due to clusters of bricks, but may instead provide evidence for prehistoric features. Such responses are produced by pits containing soil and material that has been magnetically enhanced through burning, and may therefore indicate trash pits or pit ovens. Again, it is not possible to date these based on the survey data alone and further investigation using more intensive methods would be necessary to confirm their sources. In the northeastern part of the survey area are a number of parallel linear negative anomalies that are most likely modern in origin and due to a septic field. Running away from the south side of the Home are two linear anomalies that are probably due to service pipes related to the house.

The earth resistance survey reveals anomalies of both archaeological and a natural origin. Firstly, the majority of the most distinct high resistance responses are seen to be associated with trees and their root systems. At the northeastern corner of the survey area, the broad high resistance response may be geological in origin or could again be due to trees beyond this position. However, not all such anomalies can be explained by moisture variations due to trees. In the area where the Jones Store may have been located (Bartelt 1986:9-11, 2008:151; Warren 1991:187-8), is an irregular, well defined discrete high resistance anomaly. This response measures a maximum of 6 m x 2.5 m and is consistent with being due to buried brick or masonry

remains, although whether these are in situ foundations or material within a pit is unclear. The irregularity of the response makes an interpretation difficult; however, it could relate to a stone-lined cellar or chimney foundations related to a structure at this position—possibly the Jones Store. Alternatively, it may be due to a more recent feature associated with later occupation of the house. To the NNE is a broader area of high resistance that extends far beyond what would be expected to be due to the tree at its southern end. This coincides with an area of sloping ground and seems more likely to have a geological source than to be due to buried structural remains. This would be worth further investigation to rule out an anthropogenic origin.

To the southeast of the house, and away from any standing trees, is a fairly regular high resistance anomaly that measures approximately 6 m x 6 m. This, and a similar rectilinear response to the west, (partly obscured by tree root disturbance), may also indicate buried structural remains or possibly evidence for landscaping. Comparison with the GPR results, (discussed below), appears to rule out a geological origin such as shallow bedrock at these locations, strengthening an anthropogenic interpretation. Numerous linear trends can be seen in the area to the south of the Jones Home, and these might also be due to landscaping or garden features. A similar interpretation is suggested for the linear high and low resistance trends to the east of the house. Coinciding with the magnetic anomalies interpreted as indicating a former drive to the house are low resistance responses. These are consistent with such an interpretation.

To the east of the house is an interesting linear low resistance anomaly measuring just 1 m across and extending some 30 m towards the trees. Based on its dimensions and location, this is interpreted as indicating a former path that ran from the back of the house into the woods or possibly a structure that once stood down the slope, perhaps indicated by the area of higher resistance. Two paths that are still partly visible and in use today are on either side of the house and are responsible for the clear high resistance anomalies. Another structure may be indicated by the rectilinear weak high resistance response to the north of the Jones Home. It measures approximately 4.0 m x 2.5 m and will require further investigation to confirm this interpretation and assess its function. Further evidence for the septic field can be seen in the parallel low resistance anomalies, and for a service trench in front of the house.

GPR results

The GPR time-slices are presented in Figure 14, representing depth intervals of 0.5 m down to a maximum depth of 2.5 m. As these images reveal, the shallow time-slices show excellent correlation with both the magnetometer and earth resistance data, and serve to confirm the interpretations of the other data sets. The GPR results have the added benefit of allowing features at different depths to be distinguished. In this way they can help to differentiate between relatively shallow spreads of material and intact foundations. They also help to distinguish between the high resistance anomalies due to tree root disturbances from those due to anthropogenic sources. Deeper time-slices have been used to determine whether anomalies seen in the resistance data are due to bedrock or more shallow anthropogenic sources.

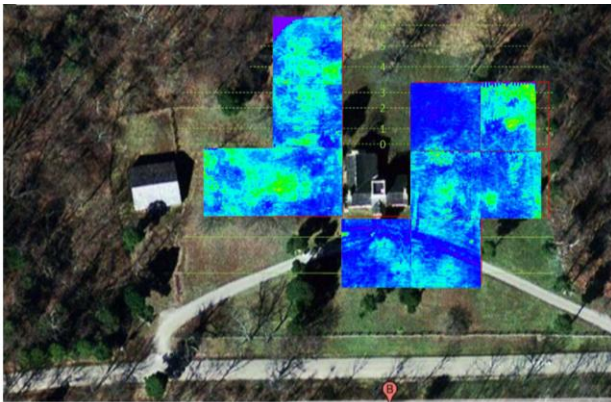


Figure 14. GPR results 0.5-1 m depth slice.

Gordon Home site

The magnetometer and earth resistance data are interpreted and presented in Figure 15. As at the Col. Jones Home, the most intense magnetic anomalies detected in this area are due to modern features containing iron. To the west of this, and running parallel with the track is the distinct bipolar pattern that indicates a buried iron pipeline. Part of another intense ferrous response has been detected but it is not possible to identify the cause of this as it lies at the edge of the survey area. It is most likely due to a modern feature, possible part of an iron fence.

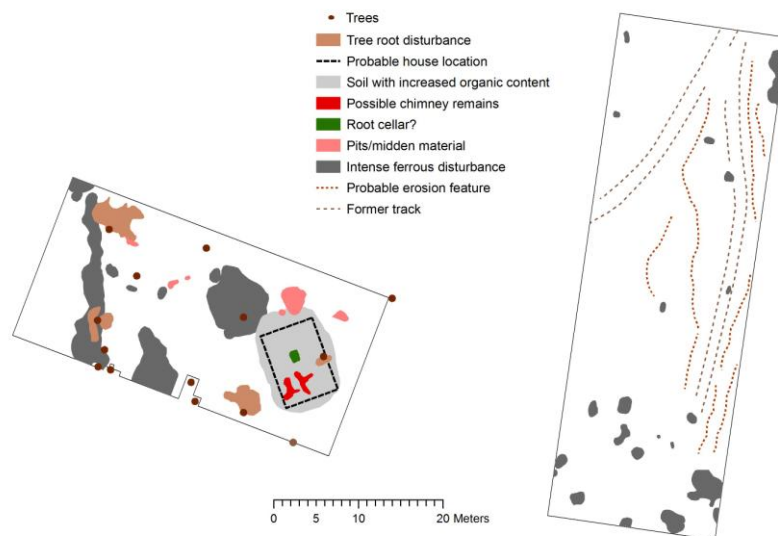


Figure 15. Gordon Home Site (left) and Gordon Horse Mill putative site (right)- magnetic and earth resistance data interpretations.

Of greater interest are areas of increased magnetic noise that often accompany historical human activity and can help to indicate areas of archaeological potential. The spread of these small scale bipolar anomalies includes a number of discrete positive anomalies that are all interpreted as being due to archaeological features and, when analyzed in conjunction with the earth resistance results, are believed to indicate the former location of a structure, possibly the

Gordon cabin itself. Two of these positive anomalies appear to lie within the structure itself and are accompanied by high resistance anomalies respectively. These two anomalies are discussed in further detail below.

The large, strong positive magnetic anomaly measures approximately 3.0 m x 2.5 m and indicates an area of quite intense magnetic enhancement. Such a response is more likely due to a pit containing burnt soil material, possibly a midden, rather than ferrous material. Part of a similar anomaly can be seen, although it was not possible to survey all of this area due to dense undergrowth. Whatever the precise cause of these responses, both are believed to be due to significant buried archaeological deposits and warrant further investigation.

The earth resistance data again reveal a number of anomalies of both archaeological and natural origin. The high resistance responses due to tree roots have been detected. Away from these, there are a group of interesting anomalies that strongly suggest the location of a structure that may be the Gordon cabin site. Within an area of weak low resistance, approximately 12 m x 9 m, is a rectilinear high resistance response, roughly 7 m x 7 m in size. These are believed to be due to the buried remains of a log cabin on a NNW-SSE alignment. The increased organic content of the soil from the decomposed wood would produce lower resistance values, with the interior of the cabin retaining a slightly higher resistance. Close to the center of this, is an area of higher resistance, measuring roughly 1.5 m x 1.0 m. This coincides with a positive magnetic anomaly, and one interpretation is that this might be due to the remains of a root cellar within the structure, with walls constructed from brick or possibly naturally magnetic rocks. It is possible that this represents a buried spread of rubble; however, the response is very regular and suggests an intact feature.

At the southern end of the proposed structure is an irregular and intense high resistance anomaly. It measures approximately 2.5 m x 1.2 m, and corresponds to a positive magnetic anomaly. Log cabins often had a fireplace and chimney at one end, and this anomaly would certainly be consistent with such an interpretation. Bricks or rocks with a naturally high magnetic content would produce such a magnetic anomaly, and the collapsed material would result in a distinct high resistance response like this. Both magnetic and resistance anomalies appear to indicate that this feature is closer to one corner than actually being centered on the structure; however, this may partly reflect the way such a feature collapsed and became incorporated into the soil. An interpretation based on both sets of data is presented in Figure 15.

Putative site of Gordon's Horse Mill

As stated above, only magnetometer data were collected over this possible site of Gordon's mill. An interpretation of magnetic anomalies is provided in Figure 15. No clear evidence for archaeological features has been identified in this survey. A number of discrete ferrous responses can be seen throughout the survey area, but are more numerous at the southern end. As these are close to the modern buildings associated with the amphitheatre, these are most likely due to modern surface iron, rather than indicating buried historical features.

A number of linear trends are also visible running through the survey. These are quite clearly due to vehicle tracks and are unlikely to be particularly old, although it is not possible to drive through this area of woodland today. While they could date to any period, they may be associated with the Civilian Conservation Corps time in the park. Based on their irregular nature and correspondence to visible signs of soil erosion, the other linear anomalies are most likely natural and due to erosion features. An interpretation of these results is presented in Figure 15.

Given that this area lies on a slope and a flat area would seem to be more appropriate for a horse mill, this might not be the most likely location for Gordon's mill. The other proposed site is at the base of the slope and, while flatter, the ground here has the potential to be wet and so might also not be an ideal location. Flatter areas of higher ground exist around the probable site of Gordon's cabin, and it is suggested that future investigations for the mill site might be better focused in these areas.

Bluff Face Investigations – 12Sp1110

A sandstone bedrock exposure becomes visible as a bluff face west of the Jones Home area, running roughly east-west, and parallel to a road. The bluff face exposure continues beyond the park boundaries for approximately 600 m, where it again becomes less vertical and is covered by soil and forest. This area was selected for investigation because it is the location of a spring which may have been present during Lincoln's time (according the Bullock Map). At the area where the spring emerges near the base of the bluff face are two relatively clear petroglyphs (hereinafter called A and B). These features have been registered as site 12Sp1110 with the DHPA. These are both approximately 1.6 m above the ground and are carved into nearly vertical faces. One is approximately 1.8 m east (A) of the center of the declivity and the other approximately .4 m east (B).

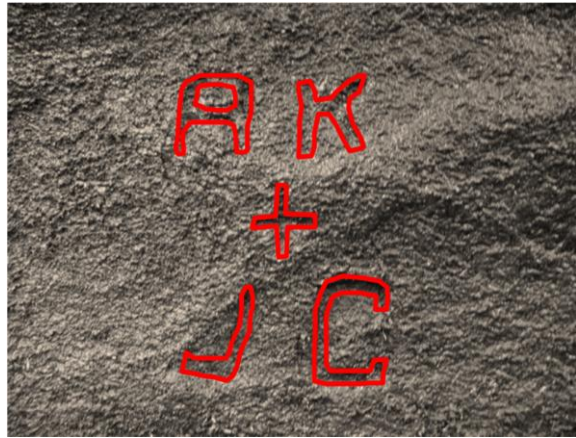
Petroglyph A is clearly of historic period origin. It may be read as "RK + JC," though the "C" is possibly a "G" and the "R" is possibly an "A" or a "B" (Figure 16; Figure 17). The script is blocky upper case and is not readily identifiable as a known historic font. The condition of the glyph is moderately good, with the outlines of most letter margins still present, though weathering is actively eroding the sandstone face generally. Given the ambiguity of the letters and their age, and the fact that they are only initials, any attempt to attribute them to know persons can only ever be speculative. The prime source consulted in casting these speculations is Bartelt's authoritative book on Lincoln's life in Indiana (Bartelt 2008). Persons present in the area in the first half of the 19th century with such initials include: Josiah Crawford and John Carter. Crawford is best known as the person who lent Lincoln his copy of Weem's "Life of Washington" (Bartelt 2008:161). Carter owned the farm to the south of the Lincolns, a part of which became the local cemetery and where Nancy Hanks Lincoln was buried (Bartelt 2008:103).

If the lower initials are read as "JG" then other possibilities arise. The Gentry family, who settled the area west of Little Pigeon Creek, including the Jones Home, had at least three members with those initials, including James Sr., James, and Joseph, all of whom were well known in the locality. No potential identities for "RK" or "AK" are apparent, though further research may suggest some possibilities.



Figure 16. Petroglyph A. Image depicts an area 48 cm wide by 35 cm tall.

Figure 17. Petroglyph A – interpretation. Image depicts an area 48 cm wide by 35 cm tall.



Petroglyph B is an enigmatic set of grooves of unknown meaning or origin (Figure 18; Figure 19). They measure approximately 50 cm across and 27 cm at their tallest extent. There is little to suggest that they are of Native American origin, though the possibility cannot be excluded. There is a suggestion of a Maltese cross or an anthropomorphic figure in the right half of the glyph, though this resemblance may be coincidental. It is possible that these are simply “graffiti” created prehistorically or historically, but perhaps it is just as possible that they resulted from sharpening or reducing some other substance on the sandstone face. The condition is variable, and it was difficult to trace the glyph in the field and later during on screen digitizing. Further research is warranted, if only to eliminate possible interpretations. This could include latex casting in order to capture microrelief not otherwise visible, provided that this causes no risk of harm to the resource.

Figure 18. Petroglyph B. Image depicts an area 60 cm wide by 43 cm tall.

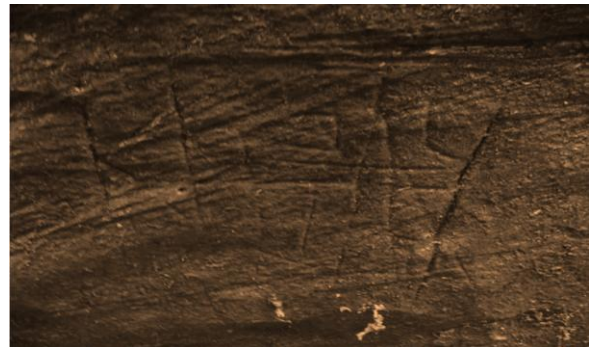




Figure 19. Petroglyph B - interpretation. Image depicts an area 60 cm wide by 43 cm tall.

Geomorphological Investigation

In order to assess the depositional history of the bluff face, hand auger samples were taken at its base. As discussed above, the shape of the bluff face suggests that it could be a favorable location for human activity, e.g., a rock shelter. The depositional pattern found in the two cores suggests that the bluff formation extends lower vertically and begins to expand horizontally at no more than 2 m below the modern surface. Above this is a zone of eroded sandstone, possibly containing breakdown fragments, and clayey deposits which grades into a more organic A horizon. No presence of buried soil horizons or cultural activity was detected. Rather, the sequence appears to reflect a natural decomposition of the sandstone bedrock and soil aggradation, possibly with colluvial additions from soil originating atop the bluff formation. If further testing is performed, a power core device will be useful in order to penetrate the solid or consolidated deposits found around 1.8 m below surface.

Educational Outreach

As this project was funded as an archeology education project, considerable effort was devoted to outreach—specifically to increase public awareness of archaeology through interactive public engagement with excavations, and later during more formal presentations. The excavation was widely publicized and entirely open to the public on September 18th during Archaeology Month 2009 (Figure 20). School and adult groups were able to participate in hands-on archaeological work of screening and identifying artifacts while the excavation was in progress. Over 150 park guests visited the excavation.



Figure 20. Public excavation event.

The educational experience was enhanced by the fact that it occurred at a highly significant Lincoln location during the Bicentennial Celebration of his birth. Park staff used the occasion as the context for additional interpretive efforts on Lincoln and the cultural landscape. DNR-SP&R interpretive staff worked closely with us in order to accommodate the large number of visitors during the project. The DNR publicized it via newsletters which reached over two hundred thousand potential visitors. This was a unique opportunity to reach the public with presentations and printed materials on the research, the methods, and the potential significance of what is in the ground to the understanding of Lincoln within the context of this landscape.

At the second event the results of the research were presented, and color informational pamphlets on the park were distributed. This occurred on April 24, 2010, in the conference room at the Col. Jones Home. The presentation materials (excepting the detailed site geophysical site maps) were later provided to the park for use in creating interpretive materials. In addition to these already completed activities, project results will be widely presented to other groups including avocational archaeologists and historians, and at academic conferences.

Project Summary

Geophysical surveys undertaken at Lincoln State Park clearly provided evidence for a number of buried features at locations with possible association with Lincoln's time in Spencer County. The chronological distribution of artifacts does not point to discrete occupations in time but rather continuous occupation from the early 19th through the 20th centuries. However, the northern units lacked much of the later types of artifacts found in Units A and B.

While it has not been possible to positively identify the site of Colonel Jones' store, a number of archaeological deposits have been identified that may indicate the location and help to provide new information about the property and its various structures. The excavation in the purported area of the store yielded a very disturbed trash pit with artifacts from prehistory through 20th century, indicating a modern origin. The excavation data yielded good evidence of an intact mid to late 19th century outbuilding. Other than the foundation itself, the features and artifacts detected could not be conclusively linked with specific activities. However, further testing of the unit, along with expansion of it, may clarify the nature of this relatively intact architectural feature and its chronology. Evidence of disturbance at all areas was clearly evident in the geophysical data and in the excavation of Units A and B, though what is modern disturbance and what is of a historic nature is not always evident.

At the Gordon Home site, the geophysical surveys have provided strong evidence for the location of the cabin, along with associated features including a possible fireplace, cellar, and trash pits. A buried pipeline and septic field was also mapped which may be useful for future management of this site. Limited test excavation of the potential cabin site is certainly warranted.

At the assumed location of Gordon's Horse Mill, no evidence for buried archaeological features was discovered, suggesting that this was not the location as assumed. However, features associated with the use of the mill site, if any, may be ephemeral and hence not detected. Further research may be required. The survey indicated that gulying in the form of vehicle tracks is apparent though these cannot be attributed to a specific temporal period.

These results have accurately located and mapped many archaeological remains and deposits that can now be targeted using more intrusive methods in order to better understand them and obtain important dating evidence. The project has opened up several new lines of investigation and created educational opportunities for many students and adults. It also demonstrated that LSP is an excellent venue for future archaeological education projects.

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DATA RECOVERY EXCAVATIONS AT SITE 12Fr377: A MULTI-COMPONENT PREHISTORIC SITE IN THE WHITEWATER RIVER VALLEY

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In Memoriam-- Charles R. Rinehart, Senior Archaeologist with the Louis Berger Group, Inc., passed away in January 2011. He completed archaeological surveys, site evaluations, and data recovery investigations in several parts of the United States.

Introduction

This article describes the 2008 archaeological excavations conducted at site 12Fr377, a multi-component prehistoric site in Franklin County, Indiana. The excavations were completed by the Louis Berger Group, Inc. (LBG) and were performed in accordance with a data recovery plan approved by the Federal Energy Regulatory Commission and the Indiana Division of Historic Preservation and Archaeology prior to construction of the Rockies Express-East (REX-East) Pipeline Project (LBG 2008; Rinehart et al. 2010).

Site 12Fr377 is located along the Whitewater River in the vicinity of Brookville, Indiana (Figure 1). The site is situated on the point bar of a paleochannel abandoned during the early to middle Holocene. This point bar landform was used periodically by prehistoric groups during the Late Archaic/Terminal Archaic, Early Woodland, Middle Woodland, Late Woodland, Late Prehistoric, and Mississippian/Fort Ancient periods (Rinehart et al. 2010). While the adjacent channels and swales were subject to episodic in-filling during the Late Holocene, the point bar landform itself remained predominantly stable throughout this period. Since Euroamerican settlement, most of the site has been capped with a veneer of recent alluvium.

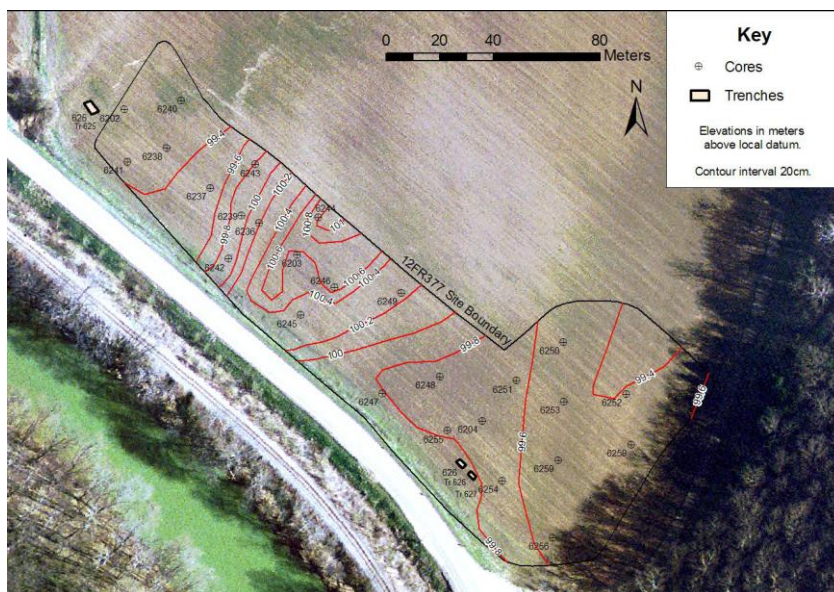


Figure 1. Surface contour map of site 12Fr377 showing location of ge archaeological survey cores and trenches. Light tone soils mark the location of the point bar landform. Dark tone soils mark the location of paleochannels. Figure prepared by EarthView Environmental LLC.

No single cultural component dominates the archeological record at site 12Fr377, and although there were horizontally discrete activity/occupation areas on the site, temporal markers were mixed in each of the site areas that were investigated. As a result, it is difficult to associate any given activity/occupation area at the site with any individual cultural component. Structural features such as post molds or wall trenches were not found, but there is circumstantial evidence for two temporary shelters that appear to be associated with occupations that occurred during the Middle Woodland and Late Woodland periods. Site 12Fr377 appears to have been used on a temporary and short-term basis by small family or extended family groups who camped along the Whitewater River to take advantage of locally available upland, lowland, and river resources. Site deposits extend beyond the pipeline easement to the northeast and perhaps to the southwest.

Physical Setting

Site 12Fr377 is located along the Whitewater River in eastern Franklin County. The Whitewater River was a major outlet for meltwater runoff from the Wisconsin glacier and alternating periods of outwash deposition and downcutting associated with the retreat of the Wisconsin glaciers created a series of terraced floodplain deposits within the valley (Artz et al. 2009; Riley 2009). Two Wisconsin-age terrace complexes are recognized in the site vicinity. The high Wisconsin terrace (HWT) has a tread elevation of 670 to 690 feet above mean sea level and the low Wisconsin terrace (LWT) has a tread elevation of 620 to 640 feet. A more recent Holocene terrace (HT) complex is situated at an elevation of 600 to 620 feet.

Site 12Fr377 has an elevation of 610 feet and is situated on a point bar complex positioned on the inside meander of an early Holocene-age paleochannel of the Whitewater River. A second paleochannel also separates the point bar from the river bluff southeast of the site. As defined within the project right-of-way, the point bar landform measures approximately 75 to 100 meters wide and extends approximately 200 meters northeast from U.S. Highway 52.

Environmental Setting and Available Resources

In Franklin County, the bedrock consists of limestones and shales of Ordovician and Silurian age. Ordovician limestone and shale associated with the fossiliferous Dillsboro Formation make up the majority of the exposed bedrock in the county. In northern and western Franklin County, Ordovician bedrock is overlain by Silurian limestone and shale, including the Laurel Member limestone which occurs in the northwestern portion of the county and west of the West Fork of the Whitewater River (Camp and Richardson 1999; Shively 1989). The Laurel limestone has particular relevance to the archaeology of the Whitewater River basin as it is the only rock formation containing chert that crops out in the Whitewater River basin, as currently known. Laurel chert (Cantin 2008:48-50) is characteristically white in color and thinly banded with light grey, light blue-grey, or light purple-grey color. The bands are slightly more silicious than the surrounding white matrix. A variety of fossils, including bryzoans, sponge spicules, crinoids, and brachiopods may be present. The chert is considered to be of high-medium quality. Multiple layers of chert are present in the Laurel limestone, but because it is a bedded chert, blocks tend to

shatter along internal stress fractures (Cantin 2008). The Laurel limestone is present along a north-south corridor of eastern Indiana and Laurel chert is reported from Wayne County to the Ohio River in Jefferson County (Angst 1994; Cantin 2008). The chert is common in local assemblages from the Paleoindian (Tankersley 1987) to the Late Prehistoric (Cantin 2008) with heavy usage occurring in the Late Archaic (Cantin 2008:49-50).

The Jeffersonville limestone contains another important regional chert source (Cantin 2008). Jeffersonville limestone outcrops in a band extending from the Ohio River at Madison to eastern Hamilton County (Cantin 2008; Smith et al. 2008). Jeffersonville chert occurs in different layers and can be quite variable in appearance, but is generally light grey or nearly white and fossiliferous. Jeffersonville chert is poorly reported from archaeological assemblages and Cantin (2008) suggests this could be because it is easily confused with Laurel chert. Both cherts also share macroscopic similarities to other Indiana cherts including Indian Creek and other fossiliferous cherts. Careful review of fossil inclusions and other attributes at low magnification is often necessary to distinguish between the similar types (Cantin 2008).

Both Laurel and Jeffersonville cherts can be found among gravel deposits in the Whitewater River (e.g., Gooding 1973:13). The river gravels also provided a source for other glacially-derived hard and soft stones that may have been considered useful for tool manufacture. Hard stones include a variety of igneous rocks that were glacially transported from the Canadian Shield and were used to manufacture formal ground stone tools such as axes, celts, grooved hammers, and pestles, as well as a variety of informal hammerstones and anvils (e.g., Setzler 1930). Rocks for stone boiling and other methods of hot rock cooking were derived from the same sources, as was crushed rock for tempering ceramics. Banded slate, also available in the river gravels, was used for manufacturing gorgets and pendants (e.g., Setzler 1930). Limestone from both outcrop and stream beds was used for a variety of mound and other constructions, as well as for the manufacture of pipes and possibly other objects (Setzler 1930).

Reconstructions of past environments in the Whitewater drainage are derived from pollen profiles at Sunbeam Bog in the headwaters of the basin (Kapp and Gooding 1964) and two sites just west of the Whitewater River basin, the Christensen Bog in Hancock County (Graham et al. 1983) and a kettle basin in Shelby County (Jackson 1983). All three sites contain similar data relevant to the period of approximately 12000 B.C. to 9000 B.C. Additional palynological data from the Darke County, Ohio region, adjacent to the headwaters of the Whitewater River basin (Shane 1976), indicates a sequence of floral succession that can be extended into the historic period. The earliest environmental data indicates that the area probably hosted an open spruce parkland prior to 11000 years B.C. and that this was replaced by a more diverse forest dominated by fir-birch-cypress by 10000 B.C. and by an open mixed spruce and hardwood forest by approximately 9000 B.C. (Graham et al. 1983; Jackson 1983; Kapp and Gooding 1964). Deciduous forests were established by about 8,000 B.C. (Kapp and Gooding 1964) and were replaced by prairies and open vegetation by approximately 6000 B.C. The warmer and dryer conditions of the Hypsithermal were once again replaced by cooler and moister conditions by 1000 B.C. which led to establishment of the modern deciduous forest (Shane 1976).

The glaciated portion of the Whitewater River basin was dominated by beech-maple forests while the unglaciated portion of the basin was dominated by oak-hickory and western mesophytic forests. The beech-maple forest prefers soil with higher moisture content and tends to develop on north-facing and east-facing slopes, while oak-hickory forests are generally dominant on pronounced south-facing and west-facing slopes. Western Mesophytic forests thrive on limestone-derived soils and steep slopes (Petty and Jackson 1966).

The faunal communities within the Whitewater River basin would have changed with the climatic and floral succession following the retreat of Wisconsin glacial ice. Extinct Pleistocene forms documented within Indiana include mammoth, mastodon, dire wolf, moose, caribou, giant short-faced bear, giant tortoise, giant beaver, sabertooth tiger, jaguar, flat headed peccary, musk ox, sloth, armadillo and camel (Lyon 1936; Moodie 1929; Richards 1984). During the Holocene, fauna typical of the eastern woodlands adapted to the shifting climate and plant communities. Historically, 66 species of mammals (Mumford 1966) were estimated to be present within Indiana, as well as 366 species of birds (Webster 1966), 177 species of fish (Gammon and Gerking 1966), 200 species of mollusks, 400 species of crustaceans, and 82 species of amphibians and snakes (Minton 1966).

Previous Archaeological Investigations in the Whitewater River Basin

The earliest published account of archaeological resources in the Whitewater River basin appears in the Wayne County geological report prepared by the Indiana Geological Survey (MacPherson 1878:219-222). The first survey and excavation in the basin was Homsher's (1884a, 1884b) investigations of mound and habitation sites in Fayette, Union and Franklin counties, including the excavation of Glidewell Mound.

Quick (1880, 1885) provides some early details on two mound sites near site 12Fr377. One of these, the Magnesia Springs Group (site 12Fr125), was mapped on the high Wisconsinan terrace and was described as a group of 10 earthen mounds and one circle of earth (Quick 1880:371-373). A second mound, known as the Brown Stone Mound (site 12Fr129), was reported by Quick (1885) as being constructed of rough stone collected from adjacent hillsides, as no stone small enough to be carried by hand was evident near the site. He noted the mound's dimensions as approximately 40 feet (12.2 meters) by 30 feet (9.1 meters) with a height of roughly four feet (1.2 meters). In 1996, as part of an archaeological survey of Woodland sites in eastern Indiana, the Brown Stone Mound was measured as being only approximately 62 feet (18.9 meters) in diameter and 2.6 feet (0.8 meter) high. Erosion and past excavation were listed as the causes for the decreased size of the mound (McCord and Cochran 1996:64).

During the late 1920s the Indiana Historical Bureau sponsored and initiated a state-wide program to record and excavate sites. Setzler's (1930) Whitewater Valley survey was conducted by reference to previous publications, particularly those by Homsher (1884a, 1884b), and interviews with artifact collectors and landowners in each county drained by the Whitewater River. In addition to recording sites, Setzler (1930) also excavated three earthen mounds (Mound Camp, Stoops, and Whitehead) and three stone mounds (Precht, Pierson, and Martin). Setzler's report remains a primary reference for archaeological research in the Whitewater River basin.

Following Setzler, archaeological research in the Whitewater Valley was not undertaken again until Kellar's (1967) survey of the Brookville Reservoir prior to impoundment. Morris (1970) conducted archaeological survey in Randolph County and participated in an excavation of the Law Mound near the headwaters of the Whitewater River basin. Koleszar (1972) carried out a survey of Union County in the East Fork Whitewater River. Heilman (1976) conducted surveys and excavations in Wayne County, including excavations of three mounds and a large circular enclosure at the Bertsch site. Swartz (Berg et al. 1979; Reseigh 1984) carried out test excavations

at the Bertsch site with Ball State University field schools in 1979 and 1981 (Berg et al. 1979, Reseigh 1984).

During the 1990s, two large scale surveys were conducted in the Whitewater River basin. Kolbe (1992) carried out a systematic survey of the Brookville Reservoir shoreline, and documented the remains of the Glidewell Mound that was previously excavated by Homsher (1884a). Angst (1994) surveyed over 700 acres in Fayette County divided between several environmental zones. In addition to these projects, several other investigations have included sites and data from the Whitewater River basin (Cochran 1992, 1996; Griffin 1942; Kellar 1960; Kellar and Swartz 1971; McCord and Cochran 1996, 2000, 2008; Parish and McCord 1995).

The intensive survey, testing and excavation of sites associated with the REX pipeline crossing of Franklin County, Indiana (Chadderdon et al. 2007a, 2007b; Chadderdon et al. 2008; Chadderdon and Schoen 2008a, 2008b; Hornum et al. 2008) represents the most extensive addition to the archaeological database for the Whitewater River basin since Setzler's 1930 project. Surveys completed for the REX-East Pipeline Project have added 164 new sites to the archaeological site inventory for Franklin County.

Preliminary Site Investigations 2007-2008

Site 12Fr377 was first identified in 2007 as part of the initial Phase I survey for the REX-East project (Chadderdon et al. 2007a:152-154). This initial investigation included a systematic pedestrian survey and subsurface testing due to the potential for buried cultural deposits. A total of 153 shovel tests were excavated along 14 staggered transects at ten-meter intervals. Artifacts were recovered from 44 of the 153 shovel tests. The Phase I investigation also included excavation of 29 auger holes along the project centerline, extraction of three geologic cores, and mechanical excavation of two trackhoe trenches to look for deeply buried soils that might contain intact archaeological deposits. This work confirmed the presence of two buried soils in portions of the site. The Phase I investigations recovered 249 artifacts from both surface and subsurface contexts as deep as one meter below the ground surface. Prehistoric artifacts included one biface, one freehand core, two decortication flakes, four early reduction flakes, 40 biface reduction flakes, seven finishing flakes, 20 flake fragments, eight pieces of block shatter, 42 pieces of burned rock, three pieces of burned clay, 12 prehistoric ceramic fragments, 73 unidentified bone fragments, one bird bone fragment, 13 mammal bone fragments, 17 shell fragments, and one unidentified nutshell. The prehistoric pottery included two sand-tempered cordmarked body sherds, one sand-tempered plain body sherd, one grit-tempered plain base sherd, and two grit-tempered plain body sherds. The remaining six fragments were unidentifiable crumbs with no temper. The sherds suggested the features were Early to Middle Woodland in age (ca. 1000 B.C. to A.D. 600).

Two features (Features 1 and 2) were identified during trench excavations in the southeast portion of the site (Trench 626). Feature 1 was identified as a possible prehistoric midden. It was defined at a depth of 65 centimeters below the ground surface and included fragments of pottery, burned clam shell, burned limestone and sandstone, burned earth, and charcoal. The feature was sampled with a shovel test in the floor of the trench and determined to extend to about 160 centimeters (63 inches) below ground surface. Feature 2 was identified at 65

centimeters (26 inches) below ground surface and also contained pottery, fire-cracked rock, and animal bone. It was identified as a possible hearth.

Based on the results of the Phase I survey, site 12Fr377 was described as an extensive artifact scatter with undisturbed subsurface deposits and at least two subsurface features associated with probable Early to Middle Woodland period occupations.

LBG was asked to return to site 12Fr377 in the spring of 2008 for additional site testing and evaluation. Site testing was designed to sample at least ten percent of the site area and included hand excavation of 81 1x1 meter test units and machine excavation of five exploratory trenches. A total of 60 test units was distributed systematically across the site on a staggered grid. Twenty-one additional test units were used to investigate previously identified site features, areas that appeared to exhibit high artifact density during initial sampling, and landforms judged to have high geological potential for buried archaeological deposits. Trenches were also arranged systematically across the site.

Excavators identified and sampled seven prehistoric cultural features (1, 2, 3, 4, 5, 8, and 9). Two potential features were determined to be non-cultural (Features 6 and 7). Features 1 and 2 were investigated as possible features, but results were inconclusive. Feature 3 was identified as a possible refuse pit. Feature 4 (later renumbered as Feature 13) was identified as a possible roasting pit. Feature 5 was identified as a small refuse pit or possible hearth. Feature 5 contained a dense concentration of crushed shell, charcoal, and burned earth. No artifacts were found in association with the feature and only a few pieces of debitage and bone fragments were in the surrounding matrix, including the excavation levels above and below the feature. Feature 8 was a very small refuse pit. No artifacts were found in the feature fill; but a small number of artifacts were recovered above and below the feature, including one pottery sherd. Flotation samples from Feature 8 yielded five species from the wood charcoal including: hickory (*Carya sp.*), American chestnut (*Castanea dentate*), ash (*Fraxinus sp.*), white oak (*Quercus sp.*), and elm (*Ulmus sp.*). Feature 9 was also identified as a small refuse pit or possible hearth. It contained wood charcoal (*Ulmus sp.*), but no associated artifacts.

Carbon samples from Features 3, 5, and 9 were submitted for radiocarbon analysis. The sample from Feature 3 yielded a conventional (corrected) date of 1810 ± 40 years B.P. with a 2-sigma calibrated dates of A.D. 120 to 260 (Cal 1830 to 1690 B.P.) and A.D. 280 to 330 (Cal 1670 to 1620 B.P.). This age estimate suggests an association with the Middle Woodland period (ca. 200 B.C. to A.D. 600). A Middle Woodland Affinis Snyders projectile point was recovered about 30 centimeters above Feature 3. Samples of wood Charcoal from Features 5 and 9 appeared to yield modern results. The sample from Feature 5 yielded a conventional (corrected) radiocarbon age of 210 ± 40 years B.P. The 2-sigma calibrated range for the sample had three peaks: at A.D. 1640 to 1690 (Cal 310 to 260 B.P.), at A.D. 1730 to 1810 (Cal 220 to 140 B.P.), and at A.D. 1920 to 1950 (Cal 30 to 0 B.P.) suggesting the presence of modern carbon. The sample of wood charcoal obtained from Feature 9 yielded a conventional (corrected) age of 190 ± 40 years B.P. The 2-sigma calibrated range included four peaks: A.D. 1650 to 1700 (Cal 300 to 250 B.P.), A.D. 1720 to 1820 (Cal 230 to 130 B.P.), A.D. 1840 to 1880 (Cal 110 to 70 B.P.), and A.D. 1920 to 1950 (Cal 40 to 0 B.P.). A sample obtained from buried topsoil (A horizon) in Test Unit 64 (98 to 108 centimeters below ground surface) also yielded a modern date. This sample produced a conventional (corrected) age of 200 ± 40 years B.P. The 2-sigma calibrated range included three peaks: A.D. 1640 to 1700 (Cal 310 to 260 B.P.), A.D. 1720 to 1820 (Cal 220 to 140 B.P.), and A.D. 1920 to 1950 (Cal 30 to 0 B.P.).

The test excavations yielded a total of 1,142 prehistoric artifacts. Seventy-two pottery sherds and 88 pottery crumbs were collected along with five pieces of burned clay. Twenty sherds (27.8%) showed cordmarked exterior surfaces, all of the sherds had plain or smoothed interior surfaces. Limestone was the most common temper (n=43; 59.7%) in these sherds, but grit (n=22; 30.6%), sand (n=3; 4.2%), and quartz (n=4; 5.5%) also were used. Pottery sherds and crumbs were found across the site in 31 of the test units and in nearly every level.

Three projectile points were recovered. One broken Middle Woodland Affinis Snyders projectile point was found in Test Unit 32 at about 60 to 70 centimeters (24 to 28 inches) below ground surface. The point was fashioned from heated Wyandotte chert. One nearly complete Late Woodland Madison point was collected from Test Unit 70 at 110 to 120 centimeters (43 to 47 inches) below ground surface, and the proximal half of a second Madison point was found on the ground surface about five meters (16 feet) northwest of Test Unit 1. Both points were of Laurel chert. Other formal chipped stone tools recovered included three finished bifaces and two indeterminate biface fragments. One utilized flake was also recovered.

The chipped stone from the site represents all stages of lithic reduction. The debitage assemblage suggested that biface blanks and finished tools of Laurel chert were being fashioned on site. Blanks or tools of Indian Creek, Wyandotte, and unidentified cherts appear to have been further shaped and/or sharpened on site.

One fragment of a groundstone tool was recovered from Test Unit 8 at 80 to 90 centimeters (32 to 35 inches) below ground surface. The limestone was concave on one surface and appeared to be a small mortar, possibly for crushing pigment or some other substance in small amounts.

Excavations produced a small faunal assemblage that consisted of 342 bone fragments or teeth and 39 mussel shell fragments. Only two species could be identified from the bone sample: white-tailed deer (n=10) and turtle (n=3). The remainder of the bone was unidentified mammal, bird, or rodent bone fragments.

Fragments of burned or heated rock were common at the site and were recovered from 22 test units. Limestone is available in the hill adjacent to the site and constituted 46.4% of the rock type in the assemblage. Quartzite, probably available in the nearby river bed, constituted another 32.6% of the fire-cracked rock. The remainder included igneous/metamorphic rock (24.2%), gabbro (19.7%), sandstone (18.0%), granite (10.1%), diorite (2.8%), gneiss (1.1%), schist (0.6%) and basalt (0.6%).

The Phase II test excavations confirmed that site 12Fr377 contained intact archaeological deposits in buried context that included prehistoric features. Based on the presence of Middle Woodland artifacts and radiocarbon dates from that period, LBG recommended that the site be considered eligible for listing in the National Register of Historic Places (Schoen et al. 2008).

2008 Data Recovery Excavations

Data recovery excavations (Figure 2) were conducted at 12Fr377 from October 22 to December 23, 2008 and were supervised by LBG Archaeologists Charlie Rinehart and Thomas Chadderdon. LBG site investigations were completed following specifications in the approved Treatment Plan and Scope of Work which outlined five major tasks with the results of each task serving to guide decision making for the next task: (1) geophysical survey; (2) geomorphological investigation; (3) hand excavation of test units; (4) machine stripping to further expose cultural deposits identified during hand excavation and to investigate anomalies identified during the geophysical survey; and (5) hand excavation of all cultural features.

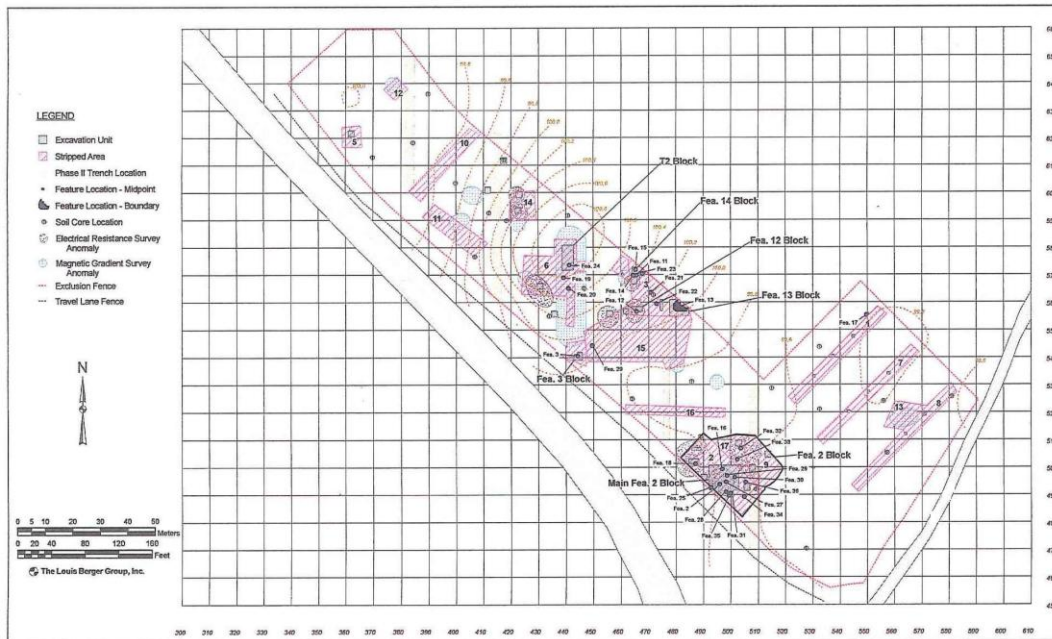


Figure 2. Site 12Fr377, location of data recovery investigations.

It quickly became apparent during the data recovery investigation that the site area included six areas with high concentrations of fire-cracked rock and/or burned and unburned limestone. Five of the six areas were assigned separate feature numbers (Feature 2, Feature 3, Feature 12, Feature 13, and Feature 14). A sixth area (T2) was ultimately defined on the high scroll bar landform, which was also referred to as a T2 terrace. Hand excavations in each of these areas were expanded appropriately to expose the extent of the archaeological deposits in each area. Upon completion of the hand excavations, machine excavation was then used to further explore each area to insure that no significant cultural deposits had been overlooked.

The data recovery excavations at site 12Fr377 included hand excavation of 292 1x1 meter test units, excavation of 26 additional archaeological features, ground-truth investigation of 22 geophysical and geomorphological soil anomalies, and mechanical stripping of the surface soil and recent alluvial deposits from 17 site areas. Considered collectively, the combined hand and machine excavations examined 3,144 square meters.

Geophysical Survey Results

Geophysical investigations were initiated prior to excavation and carried over into the first several days of excavation. The initial results of that work, combined with the results of previous site testing, were used to target areas for hand excavation. The geophysical survey was conducted by ArchaeoPhysics, LLC, Minneapolis, Minnesota (Jones 2008). The entire site was subject to a magnetic survey using both single sensor and gradient measurements. This was followed by an electrical resistance survey over nearly the entire site, dropping off only portions of the southeast end of the site where little of geophysical interest was found in the magnetic survey.

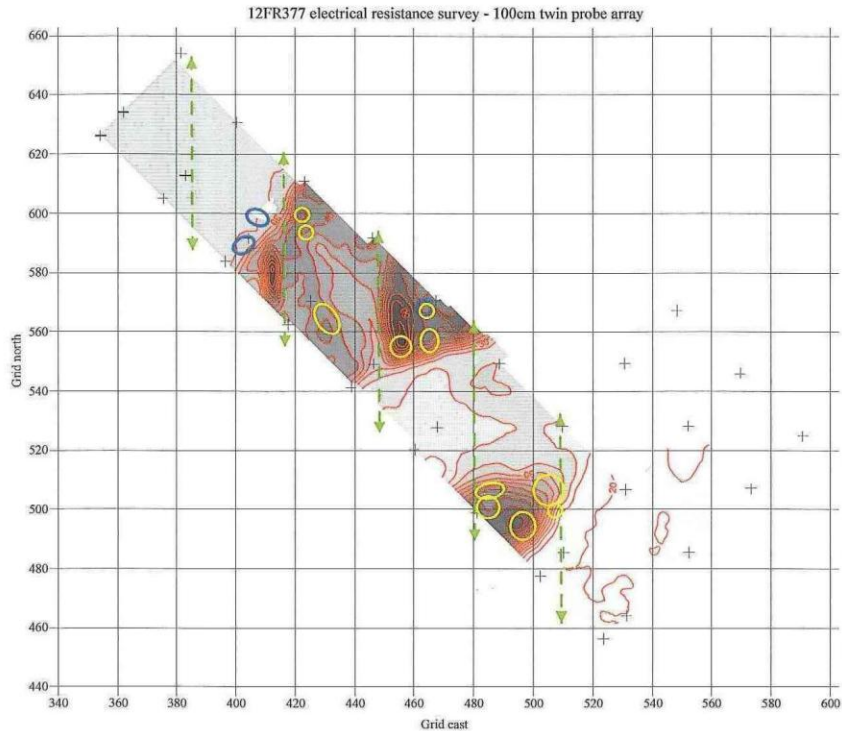
The results of geophysical survey did not provide strong evidence to suggest archaeological patterning. A total of 21 anomalies was identified as being of possible archaeological interest (Figure 3) and, in general, they correlated with areas of interest identified by previous testing. Most magnetic anomalies proved to be metal objects (detected with a metal detector) or isolated rocks. Electrical resistance anomalies were more likely to be of cultural origin and tended to correlate with rock clusters or pits. Ultimately, only four geophysical anomalies were confirmed as cultural features: Feature 2, an extensive scatter of burned rock located at grid N495/E495; Feature 12, a large pit located at grid N556/E466; Feature 14, a small hearth located at grid coordinate N568E464; and Feature 18, a small hearth located at grid N501/E487.

Geoarchaeological Evaluation

Geoarchaeological investigations were conducted by EarthView Environmental, LLC, Coralville, Iowa (Artz et al. 2009) and included advancing 27 three-inch diameter cores using an ATV-mounted Giddings rig. The locations for the cores were selected based on preliminary geomorphological and archaeological data, as well as on-ground observations of the landform and cumulative results of the coring. Because those investigations overlapped with the early days of excavation, the geomorphologists were also able to describe in detail several unit profiles.

Site 12Fr377 was determined to have occupied an elevated point bar landform flanked by two paleochannels of the Whitewater River. The point bar itself extends outside the limits of the project right-of-way so its full extent is not known, but coring within the project area was sufficiently informative to allow reconstruction of the site area's paleotopography or its appearance at the time it was occupied during the Late Holocene.

- Blue circles indicate resistance lows. Low resistance values are often associated with organic enrichment, finer-grained soils, and compaction. The example indicated by a light blue circle (N567/E464.5) is correlated with a diffuse magnetic high (Figure 8).
- Not marked are the large-scale phenomena that dominate the resistance data. The relatively high resistance areas are suspected to be remnants of an original terrace surface, surrounded by lower-resistance areas suspected to be modern disturbance or natural fluvial features (also see Figure 5 and accompanying text).



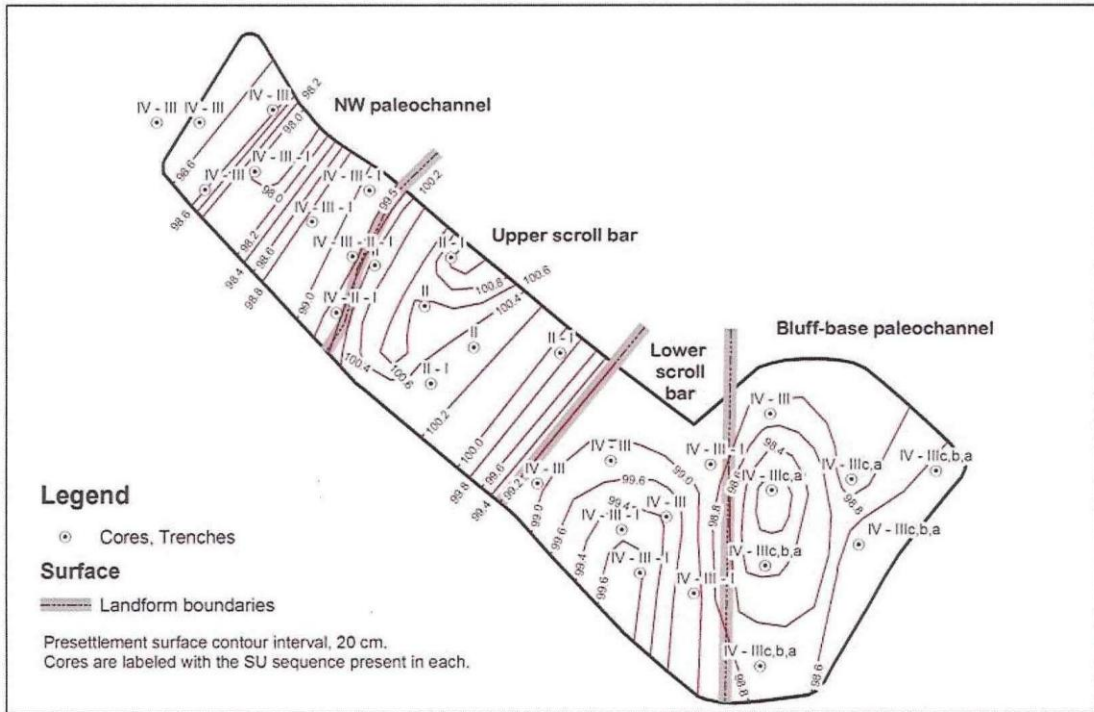
Key to interpretations :

- Yellow markings indicate suspected features expressed in resistance data.
- Blue markings indicate magnetic anomalies thought most likely to be of interest

Archaeo-Physics, LLC

Figure 3. Resistance contour map with previously identified and suspected features.

The site area currently has about 70 centimeters (2.3 feet) of topographic relief; however, geomorphological information obtained from 27 soil cores extracted across the site area demonstrated that the original surface of the point bar complex once had as much as four meters (13 feet) of relief from the highest surface of the point bar to the base of the paleochannel located immediately northwest of the site (Figure 4). The reconstructed paleotopography of the site area also indicates that the point bar complex itself had an irregular surface with two ridge-like scroll bar formations separated by an intermediate swale or overflow chute channel. The northwest scroll bar ridge measures approximately 1.4 meters higher in elevation compared with the southeast or lower scroll bar. This original topography is currently obscured by deposition of recent alluvium that has infilled the paleochannels and buried all but the highest portion of the northwest or high scroll bar formation.



EarthView Environmental, LLC

Figure 4. Geomorphic reconstruction of late Holocene landscape at 12Fr377. (SU refers to Stratigraphic Unit).

Prehistoric occupation at the site was spatially concentrated on the two elevated scroll bar portions of the point bar complex. Stratigraphically, the pre-settlement surface of the point bar is represented by a buried topsoil (2Ab) horizon that ranged from 26 to 145 centimeters (10 to 57 inches) below the modern ground surface. The depth of the buried soil varied according to how much recent alluvium had accumulated on that portion of the point bar landform and whether it was positioned on one of the ridge-like scroll bar formations or the intervening swale. The 2Ab horizon at the site is underlain by a 2Bw horizon. Most archaeological deposits were concentrated at the base of the 2Ab horizon. For instance, excavators frequently noted that slab-like pieces of limestone were typically found resting horizontally on top of the 2Bw horizon and extended upward into the lower part of the 2Ab horizon.

Archaeological Excavations

The data recovery excavations were concentrated on six excavation blocks of units where features were identified. Isolated blocks of units were also excavated in nine other locations.

Two features identified during previous site testing (Features 2 and 3) were targeted for further investigation as part of the data recovery program and the area around each of these two features was subsequently examined in great detail. The Feature 2 Block eventually included 102 units (35% of the total units). The Feature 3 Block eventually included eight units. The Feature 12 Block was expanded to investigate a geophysical anomaly identified as Feature 12 and ultimately included 10 units (3.4 percent). The Feature 13 Block included 34 units (11.7 percent). The Feature 14 Block included 14 test units (4.8 percent) and was also surrounding a geophysical anomaly that proved to be a small fire-cracked rock concentration. A sixth block excavation consisting of 45 test units (15.5 percent) was situated on top of the high scroll bar landform, which was also referred to as a T2 terrace where a long geophysical anomaly was identified.

The remaining units were placed to investigate geophysical anomalies or further refine Phase II results. A 2x2 meter block at the northwest extreme of the site explored Late Woodland deposits found during Phase II testing, but no evidence of a discrete living surface or features was found. Around the periphery of the T2 surface, a series of 2x2 meter blocks explored geophysical anomalies or geomorphological concerns. Finally, nine 1x1 meter units were systematically excavated at 10 meter intervals within strip trenches to more fully explore a deeply buried soil horizon (3Ab) identified as part of the geoarchaeological investigation.

Test units were excavated following procedures outlined in the Treatment Plan with the plowzone and recent alluvial deposits removed without screening. Once the 2Ab horizon or subsoil was reached, excavation continued in arbitrary 10 centimeter levels. Undisturbed soils were excavated within these levels by natural stratigraphy. Units continued until at least 10 centimeters were excavated into culturally sterile soil. All soil, with the exception of soil sampled for flotation, was sifted through ¼-inch mesh hardware cloth. When feasible, all culturally diagnostic artifacts were piece plotted. Soil samples were collected from each feature.

Soil profiles were consistent in the units with the sequence consisting of the plowzone, 2Ab horizon, and 2Bw horizon. Artifacts were recovered from the 2Ab horizon and the 2Bw horizon, and were concentrated at or slightly below the interface of these two soils, as first indicated by preliminary site testing.

Machine Excavation

Approximately 2,750 square meters were excavated using a Komatsu PC 200 LC trackhoe equipped with a smooth edged bucket. The machine was used to expose the sub-plowzone surfaces and inspect them for evidence of additional features. Stripping was initiated after geomorphological investigations were complete and approximately 50 percent of the hand excavation was underway. That is, mechanical stripping began after site formation processes were understood and hand excavation had confirmed the natural and cultural stratigraphy at the site.

Hand excavation had demonstrated that cultural features were located at the interface of the 2Ab and 2Bw horizons, generally in the upper 10-20 centimeters of the 2Bw horizon. Machine stripping was therefore used to remove the modern plowzone and alluvial deposits

down to the 2Ab horizon. Once that was exposed, shovel skimming was used to remove the remainder of the 2Ab horizon and to identify cultural features at the interface with the 2Bw horizon. All potential features were flagged for later investigation. Following excavation of exposed features, the trackhoe was used to strip through the cultural bearing horizons to ensure that the base of cultural deposits was reached.

Seventeen strip areas (SA) were excavated. SA-2 opened a wide area around the Feature 2 Block to fully expose the rock concentration. This was later expanded with SA-9 and SA-17. SA-3 opened a wide area around the Feature 13 and Feature 14 blocks to fully expose those rock concentrations. This was later expanded with SA-15. SA-6 opened a large area on the T2 surface to expose a disperse scatter of FCR. SA-4 and SA-5 were used to open wider areas around the deeply buried Feature 3 and Late Woodland cultural deposits, respectively. The remaining strip areas were placed selectively to ensure that no other significant cultural deposits were overlooked.

Excavation Summary

The site appears to have been occupied from the Late Archaic (3000 to 1000 B.C.) through Fort Ancient (A.D. 1000 to 1600) periods. This is in contrast to temporal data recovered during preliminary site testing which suggested the site was used only during the Middle and Late Woodland periods. Temporally diagnostic artifacts including projectile points and prehistoric ceramics dating from the Late Archaic through Late Woodland periods were recovered. In addition, ten wood charcoal samples were submitted for radiocarbon analysis (Table 1); four radiocarbon dates provide evidence for occupation during the Early Woodland period (1000 B.C. - 200 B.C.; Feature 2 Block, Feature 3 Block, Feature 13 Block), a sample from Feature 3 provides support for occupation during the Middle Woodland period (200 B.C. - A.D. 600) and four dates suggest use during the Fort Ancient phase (A.D. 1000 - A.D. 1600). Five other dates appear to be modern and come from either historic soil layers or from a modern intrusion (i.e. tree root).

Table 1. Radiocarbon Dates for site 12Fr377

PROVENIENCE (ANALYTICAL UNIT)	BETA NO.	ANALYSIS METHOD	MATERIAL	RADIOCARBON AGE (BP)	2 SIGMA CAL. RADIOCARBON RANGE
Unit 194 (Feature 13 Block)	262417	AMS	Wood Charcoal	2330±40	410-370 B.C.
Unit 152 (Feature 13 Block)	262414	AMS	Wood Charcoal	2280±40	400-350 B.C. and 300-210 B.C.
Unit 230 (Feature 3 Block)	262418	AMS	Wood Charcoal	2270±40	400-340 B.C. and 320-210 B.C.
Feature 30 (Feature 2 Block)	262420	AMS	Wood Charcoal	2190±40	380-160 B.C.
Unit 32 (Feature 3)*	247450	AMS	Wood Charcoal	1810±40	A.D. 120-260 and A.D. 280-330
Stripped Area 13 (ATWS)	262422	AMS	Wood Charcoal	910±40	A.D. 1030-1220
Feature 34 (Feature 2 Block)	262421	AMS	Wood Charcoal	550±40	A.D. 1310-1360 and A.D. 1380-1440
Unit 164	262416	AMS	Wood Charcoal	390±40	A.D. 1440-1540 and

(Isolated Block 7)					A.D. 1540-1630
Feature 29 (Stripped Area 15)	262419	AMS	Wood Charcoal	310±40	A.D. 1460-1660
Feature 5* (Unit 72)	247451	AMS	Wood Charcoal	210±40	A.D. 1640-1690; A.D. 1730-1810; A.D. 1920-1950
Unit 64*	247450	AMS	Wood Charcoal	200±40	A.D. 1640-1700; A.D. 1720-1820; A.D. 1920-1950
Feature 9 * (Trench 2)	247452	AMS	Wood Charcoal	190±40	A.D. 1650-1670 A.D. 1720-1820 A.D. 1840-1880 A.D. 1920-1950
Unit 192 (T2 Block)	262415	AMS	Wood Charcoal	190±40	A.D. 1650-1670 A.D. 1720-1820 A.D. 1840-1880 A.D. 1920-1950
Unit 105 (Feature 13 Block)	262413	AMS	Wood Charcoal	140±40	A.D. 1660-1960

* Sample collected during Phase II investigations

Artifacts were most densely concentrated at or slightly below the interface of the 2Ab horizon and the 2Bw/2Bt horizon. The top of some features was slightly in the 2Ab horizon, but most features were completely in the subsoil. Some portions of the site, most notably the T2 Block and related SA-6, plus the central portion of the main Feature 2 Block, lacked any evidence of an intact A horizon with soil profiles exhibiting plowzone over subsoil.

Only 2,152 artifacts were recovered from the site, and very few of those were culturally or temporally diagnostic. There is no evidence of stratification of archaeological deposits at the site. In the Feature 2 Block, a Terminal Archaic Wade/Buck Creek projectile point and a Middle Woodland Lowe Flared Base projectile point were found in the same soil layer in adjacent units. Elsewhere in the Feature 2 Block, a Late Archaic Brewerton Eared-Notched projectile point and a Middle Woodland Snyders projectile point were both recovered from the buried A horizon. There is, however, some indication that individual features may be associated with individual cultural components. For example, two features in Feature Block 2, Feature 30 and Feature 34, appear to date from the Early Woodland and Fort Ancient periods, respectively. Similarly, Feature 13 appears to date from the Early Woodland period, and Middle Woodland Hopewell ceramics were recovered from Feature 12.

Approximately 53 percent (n=1,120) of the artifacts collected during data recovery investigations from site 12Fr377 consist of chipped stone, and these artifacts are primarily bifacial reduction flakes indicative of on-site tool maintenance. A relatively wide variety of tool types was retrieved, including cores and hammerstones that provide information about probable lithic resource procurement and processing activities. Both locally and regionally available raw materials were used, but the chipped stone assemblage indicates a clear preference for the locally available Laurel chert which represented 88 percent of total debitage and 69 percent of the tool assemblage.

The horizontal artifact distribution is consistent across the site. Most excavation units had less than 10 artifacts per unit. Several units had 10 to 20 artifacts per unit, but none had more than 60 artifacts. The Feature 3 Block units are an exception as most of them had 40 to 55 artifacts per unit, but this material does not come from intact prehistoric deposits.

Stratigraphically, most of the artifacts are concentrated in the 2Ab horizon. The deposits immediately below this horizon, typically a Bt or Bw horizon, contain the bulk of the remaining material.

Eleven whole or fragmentary projectile points were recovered from the site during preliminary site testing and data recovery excavations (Table 2; Figure 5). These include: Late Archaic Brewerton Ear-Notched and Saratoga points (one of each), a Terminal Archaic Wade/Buck Creek point, Middle Woodland Snyders (2 specimens) and Lowe Flared Base points (1), three Late Woodland Madison points (3), one possible Mississippian/Fort Ancient Nodena Elliptical point, and one fragmentary expanded stem point.

Table 2. Projectile Points Recovered from site 12Fr377

TYPE	PROVENIENCE	RAW MATERIAL	CULTURAL AFFILIATION (JUSTICE 1987)
Brewerton Eared-Notched	Block 2, Unit 366	Laurel Chert	Late Archaic
Saratoga	Block 14, Unit 143	Wyandotte Chert	Late Archaic-Early Woodland
Wade/Buck Creek	Block 2, Unit 266	Unidentified Chert	Terminal Archaic
Lowe Flared Base	Block 2, Unit 342	Laurel Chert	Middle Woodland
Affinis Snyders	Block 2, Unit 100	Wyandotte Chert	Middle Woodland
Affinis Snyders	Test Unit 32*	Wyandotte Chert	Middle Woodland
Madison	Trench 2, Surface	Laurel Chert	Late Woodland
Madison	Test Unit 70*	Laurel Chert	Late Woodland
Madison	Surface*	Laurel Chert	Late Woodland
Nodena Elliptical	Block 3, Unit 336	Unidentified Chert	Mississippian
Untyped Expanded Stem	Block 14, Unit 368	Wyandotte Chert	Probable Woodland

*Denotes Discovery During Preliminary Site Testing



Figure 5. Projectile Points. (Left to Right: Brewerton Eared-Notched [775-1]; Lowe Flared Base [739-1]; Affinis Snyders [209-1]; Wade/Buck Creek [609-1]; Madison [879-1]).

The prehistoric ceramic assemblage from site 12Fr377 includes 791 items and includes sherds from at least three vessels (Table 3; Figure 6). The assemblage includes six decorated rimsherds, eight undecorated rimsherds, seven undecorated neck sherds, 328 undecorated body sherds, four decorated body sherds, four base sherds, 429 crumbs, and five pieces of burned clay. Approximately two-thirds of the sherds in the assemblage show use of limestone temper. Approximately 19 percent of the sherds are grit tempered. Only five sherds could be positively typed, and these can only be generally typed as Middle Woodland rimsherds based on cross-hatched rim decoration with a punctate border. The rest of the pottery sherds exhibit general traits that can be attributed to more than one cultural period.

Table 3. Prehistoric Ceramics Recovered from site 12Fr377

TEMPER	VESSEL SHERDS									BURNED CLAY	TOTAL
	RIM		LIP	NECK	BODY		BASE	CRUMB	TOTAL		
	DEC	UNDEC	UNDEC	UNDEC	DEC	UNDEC	UNDEC				
Limestone	5	5	1	6	4	216	3	289	529	.	529
Grit	.	2	.	1	.	109	1	36	149	.	149
Indeterminate	1	.	.	.	.	3	.	104	108	.	108
No Temper	.	.	.	.	.	.	.	.	.	5	5
Total	6	7	1	7	4	328	4	429	786	5	791



Figure 6. Prehistoric Middle Woodland Ceramics (Left to Right, Upper Row: Specimen 811-1, Specimens 811-2 & 811-3 [mended]; Bottom Row: Specimen 319-1).

Preservation of organic remains was generally poor. Flotation samples taken from feature matrices yielded only a few carbonized seeds and very small amounts of wood charcoal. Plant remains which could represent evidence of edible plants included squash rind fragments (*Cucurbita sp.*) retrieved from Excavation Unit 230 in the Feature 3 Block and hickory nutshell fragments (*Carya spp.*) from hearth Features 17 and 26. The squash rind could also represent an organic storage vessel. Seasons of harvest represented by the plant remains indicate late summer to fall (squash) and fall (hickory nuts). The charcoal samples did provide information on the wood resource preferences of the site's inhabitants; upland species were used slightly more than bottomland or riparian species. White oak (*Quercus spp.*) dominated the charcoal followed by elm (*Ulmus spp.*), black locust (*Robinia pseudoacacia*), hickory (*Carya spp.*), maple (*Acer spp.*), and red oak (*Quercus spp.*).

Faunal remains were relatively numerous and found in all parts of the site. White-tailed deer (*Odocoileus virginianus*) was the most common animal species represented. Other identified species include elk (*Cervus elaphus*), wolf or dog (*Canis sp.*), beaver (*Castor Canadensis*), opossum (*Didelphis sp.*), pig (*Sus scrofa*), chicken (*Gallus gallus*), turtle (*Emydidae*), fish, eastern mole (*Scalopus aquaticus*), mouse (*Muridae*), and fox squirrel (*Sciurus niger*). Mole, mouse, and squirrel are believed to be present through natural site formation processes. Chicken, fish, and pig remains were all found in association with a historic refuse pit (Feature 16). However, fish bone tends to preserve poorly and it seems likely, given the proximity to the Whitewater River, that fish were also consumed prehistorically. Gastropod and mussel shell also were common throughout the site, and while many or most were probably non-cultural in origin, it is possible that they also formed part of the prehistoric diet. On the whole, the faunal assemblage suggests that prehistoric people were using both upland resources (deer and other large mammals) and riverine resources (turtle, gastropod, and mussel) for subsistence. It is likely these resources were utilized on a seasonal basis and most likely during the fall.

Features

Thirty-five features were identified at site 12Fr377. Nine were identified during initial site testing and 26 were identified during data recovery excavations. All features were fully exposed in plan view, plotted on a site map, and hand excavated as individual provenience units. Excavation included a cross-section and profile of the feature. One half of the feature matrix was excavated in arbitrary 10 centimeter levels with all matrix sifted through ¼-inch mesh hardware cloth, and the second half of the feature was to be excavated following natural stratigraphy, with each stratum sampled for small-object recovery or flotation.

Nineteen prehistoric features were identified. Thirteen features are classified as hearths or possible hearths and are represented by clusters of burnt limestone and/or fire-cracked rock. Feature 21 was a firepit and contained fire-cracked rock in a visible pit with some of the rock vertically oriented. Three large clusters of limestone adjacent to one another in Feature 13 represent three separate roasting pits. The very bottom remnant of what appears to be a pottery kiln was exposed in Feature 29, and Feature 15 was apparently a small pit of unknown function that contained clay or limestone powder. Two linear arrangements of limestone of uncertain function, Features 31/35 and 36, were located near each other and appear to form an alignment.

All features are listed in Table 4. Hearths are defined as small to large clusters of burnt limestone and/or fire-cracked rock. These clusters are round to oval in shape. Firepits are small clusters of fire-cracked rock within a visible pit and contain at least some rocks in a vertical

orientation. Roasting pits consist of large concentrations of limestone rock and slabs which generally do not exhibit clear evidence of burning. Though no actual pit is visible, this is likely due to the location of these features in sandy soils where the pit outline has leached out over time. The rock associated with the roasting pits has presumably been thermally altered, but to a lesser degree and not as visibly so as the rock associated with hearths or firepits. Deep basins are basin-shaped pits with a visible soil stain. Linear features are of unknown function and consist of large, linear arrangements of both tabular and rounded limestone. While these linear features may give the appearance of being the remains of a wall of a prehistoric structure, the lack of associated postholes and of other similar features that would have formed additional sides of a structure prevents them from being defined as part of a confirmed structure. The possible kiln consists of burned earth, ash, and charcoal with degrading pottery sherds.

Excavation Blocks

The data recovery investigations were concentrated in five excavation blocks: Feature 2, Feature 3, Feature 13, Feature 14, and T2. These were targeted based on the result of the preliminary site testing and/or the results of geophysical survey. Extensive mechanical stripping at the site confirmed that these areas were indeed the principal loci of archaeological deposits.

The Feature 2 Block

This excavation block was located on the lower scroll bar of the point bar complex that underlies the floodplain. Archaeological deposits were protected from cultivation by the alluvial deposits that obscured the underling topography of the point bar. The feature block contained nine prehistoric hearths and the two linear arrangements of limestone. Most of these hearths are scattered in the main Feature 2 block of 100 contiguous excavation units (Figures 7 and 8). One hearth (Feature 30) yielded an Early Woodland radiocarbon date and one hearth (Feature 34) yielded a Fort Ancient radiocarbon date. Temporally diagnostic projectile points from other parts of the block indicate the presence of Late Archaic, Terminal Archaic, and Middle Woodland components. The combined evidence indicates that the Feature 2 Block was initially used during the Late Archaic period and subsequently utilized again through the Early and Middle Woodland periods. The Fort Ancient radiocarbon date shows the landform was used once more during the Late Prehistoric Period. Feature 2 Block is the only analytical unit with intact strata where mussel shells were recovered, suggesting that that resource was processed in this portion of the site.

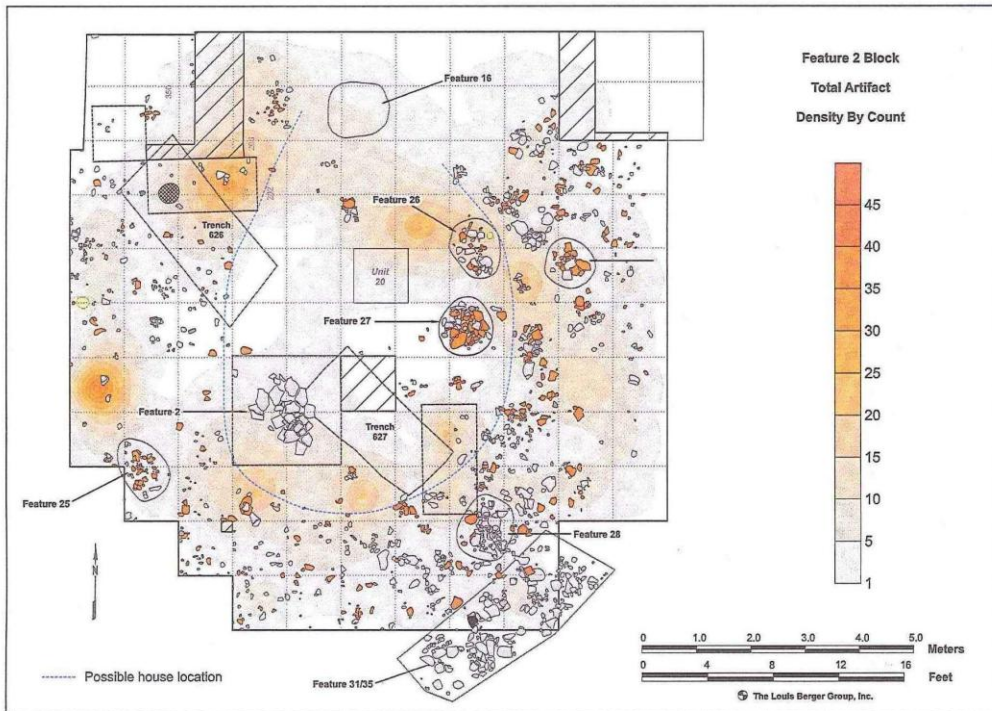


Figure 7. Site 12Fr377, Feature 2 block, total artifact density by count.



Figure 8. Site 12Fr377, Feature 2 Block excavation. View looking southwest.

There appears to be a structure present in Feature 2 Block, defined by a void of rocks that corresponds with a void of artifacts. The void is an oval measuring approximately four meters (13 feet) east to west by an estimated six meters (19.68 feet) south to north, covering an estimated area of 19 square meters (172 square feet). The structure appears to have a north-facing entrance. No structural elements such as postmolds or wall trenches were identified, suggesting the structure was likely a simple brush shelter. This void corresponds with the area in Feature 2 Block where the 2Ab horizon was absent, perhaps reflecting sweeping of the structure floor that removed an incipient A horizon and affected subsequent soil formation in a way that prevented what is today the 2Ab horizon from developing.

Table 4. Summary of Features Identified at site 12Fr377

FEATURE NO.	FEATURE LOCATION	FEATURE TYPE	FEATURE SIZE	DEPTH	RESULTS
<i>Identified during Phase II Testing</i>					
1	Geomorph Trench 626; TUs 63, 67, & 68	Midden	380 cm N-S x 140 cm E-W	65-160 cm bgs	First identified in geomorph trench in 2007; Phase II investigations in 2008 did not conclusively identify a midden and Phase III work confirms that there is not a midden present. This area is part of the Feature 2 Block.
2	Geomorph Trench 627; TUs 59, 60, 61, 62, 80, & 81	Hearth	142 cm N-S x 126 cm E-W	54-59 cm bgs	Excavation complete during Phase III; feature proved to be a cluster of limestone slabs. This area is part of the Feature 2 Block.
3	TUs 8 & 32; EU 88, 89, 90, 91, 229, 230, 336, & 337	Possible refuse pit	84 cm N-S x 67 cm E-W	120-172 cm bgs	During Phase II interpreted as a refuse pit. Excavation completed during Phase III. Not clearly cultural in origin, appears to represent redeposited alluvial and colluvial material rich in cultural material
4	TUs 71 & 79	Possible roasting pit	78 cm N-S x 116 cm E-W	60-112 cm bgs	Feature 4 is outside of the Phase III APE but appears to be related to Feature 13
5	TU 72	Refuse pit or hearth	45 cm N-S x 12 cm E-W	92-111 cm bgs	Completed at Phase II
6	TU 81	Rodent burrow	30 cm N-S x 24 cm E-W	40-43 cm bgs	Non-cultural
7	TU 65	Rodent burrow	15 cm N-S x 15 cm E-W	130-140 cm bgs	Non-cultural
8	TU 77	Small Refuse Pit	42 cm N-S x 40 cm E-W	105-113 cm bgs	Completed at Phase II
9	Trench 2	Refuse pit or hearth	56 cm N-S x 19 cm E-W	97-106 cm bgs	Completed at Phase II
<i>Identified During Phase III Data Recovery</i>					
10	--	--	--	--	Feature number was unassigned.
11	Feature 14 Block (EUs 123, 232, 317, and 318)	Phase I or Phase II shovel test	62 cm vertical x 30 cm horizontal	34-96 cm bgs	Initially appeared to be a historic post hole originating in the 2Ab horizon
12	Feature 12 Block (EUs 150, 151, 206, & 207)	Deep basin	176 cm NE- SW x 105 cm NW-SE	58-114 cm bgs	Basin-shaped pit; 1.7 m long by 1.0 m wide, ca. 0.74 m deep
13	Feature 13 Block	Three roasting pits	6 m N-S x 7 m E-W	47-102 cm bgs	Expanse of limestone rock and small slabs. Concentrations of rock piled in three clusters each representing a roasting pit; two possible postmolds on the periphery.

FEATURE NO.	FEATURE LOCATION	FEATURE TYPE	FEATURE SIZE	DEPTH	RESULTS
14	Feature 14 Block (EUs 122 & 231)	Hearth	66 cm N-S x 49 cm E-W	76-91 cm bgs	Pit with large FCR
15	Feature 14 Block (EUs 277 & 294)	Possible pit	20 cm N-S x 28 cm E-W	50-70 cm bgs	Very compact gray clay or limestone powder
16	Feature 2 Block (EUs 315, 319, 320, & 321)	Historic refuse pit	126 cm E-W x 103 cm N-S	15-50 cm bgs	Over 200 animal bones, 32 ceramics, 2 buttons, 1 bone-handled knife
17	ATWS Block; SA-1	Possible hearth	55 cm SW-NE x 30 cm SE-NW	57-63 cm bgs	Small cluster of burnt limestone
18	Feature 2 Block (EU 311)	Hearth	31 cm E-W x 33 cm N-S	26-42 cm bgs	Very small cluster of approximately 5 kg of FCR and burned limestone rocks
19	SA-6	Tree root/ Rodent disturbance	38 cm N-S x 35 cm E-W	29-60 cm bgs	--
20	SA-6	Historic posthole	21 cm N-S x 23 cm E-W	22-29 cm bgs	Shallow depth and lack of other postholes suggests an isolated historic posthole
21	SA-3	Firepit	70 cm N-S x 68 cm E-W	75-98 cm bgs	Approximately 22 kg of FCR in vertically lined pit; some staining visible
22	SA-3	Tree burn	108 cm N-S x 120 cm E-W	53-93 cm bgs	--
23	SA-3; immediately east of Feature 14 Block	Possible hearth	140 cm NW-SE x 130 cm NE-SW	75-87 cm bgs	Small concentration of FCR (17 kg)
24	T2 Block (EU 254)	Hearth	25 cm N-S x 20 cm E-W	34-40 cm bgs	Small cluster of FCR (36 kg)
25	Feature 2 Block (EUs 285 & 287)	Hearth	90 cm NW-SE x 75 cm NE-SW	48-54 cm bgs	Large cluster of FCR (10 kg)
26	Feature 2 Block (EUs 278 & 280)	Hearth	104 cm N-S x 66 cm E-W	46-86 cm bgs	Small cluster of FCR (38 kg)
27	Feature 2 Block (EUs 262 & 284)	Hearth	85 cm NE-SW x 82 cm NW-SE	45-69 cm bgs	Large cluster of FCR (84 kg)
28	Feature 2 Block (EUs 118 & 200)	Possible hearth	66 cm E-W x 86 cm N-S	41-61 cm bgs	Large cluster of FCR (27 kg)
29	SA-15	Possible kiln	130 cm E-W x 90 cm N-S	85-88 cm bgs	Burned earth, ash, and charcoal with degrading pottery sherds
30	Feature 2 Block (EUs 279 & 357)	Hearth	45 cm E-W x 38 cm N-S	63-68 cm bgs	Soil staining with associated FCR (3 kg) and burnt limestone (2 kg)
31/35	Feature 2 Block (EUs 116 to 119)	Linear feature	110 cm E-W x 98 cm N-S	54-65 cm bgs	Very large, linear arrangement of limestone, both tabular and rounded (136 kg)
32	SA-17	Hearth	94 cm NE-SW x 38 cm NW-SE	73-81 cm bgs	Large, semi-circular cluster of burned limestone (9 kg)
33	SA-17	Possible hearth	75 cm E-W x 70 cm N-S	56-66 cm bgs	Circular cluster of burnt limestone (7 kg) and FCR (5 kg)
34	SA-17	Possible hearth	55 cm N-S x 46 cm E-W	116-124 cm bgs	Circular stain with only three small pieces of FCR
36	SA-2	Linear feature	375 cm NE-SW x 175 cm NW-SE	131-159 cm bgs	Very large, linear arrangement of limestone, both tabular and rounded (242 kg).

Contained within the structure are Features 2, 26, and 27 (Feature 16 is historic and not associated with the structure). Feature 2 was composed of large limestone slabs that were only lightly, if at all, burned. That feature does not appear to have been a primary hearth and may have served as a rock platform of unknown purpose. Features 26 and 27 do appear to have had thermal functions, though neither feature appears to have been a primary hearth. Their location against the wall of the structure further argues against having an active fire in the features. It is possible that the rocks were heated outside of the structure and brought inside for heating the structure or boiling water for cooking.

Data from various archaeological and ethnographic studies document house floors (Benn 1990; Cook and Heizer 1968; Divale 1977; Faulkner 1977; Hollinger 1995; Wedel 1979), and other studies consider the structure of features and artifact scatters around various types of occupational structures (Hitchcock 1987; Kelly et al. 2005; Kent 1992). Activities within ephemeral camps often occur outside of the physical limits of shelters or structures (Kelly et al. 2005). Ethnoarchaeological research among various cultural groups has documented cooking and production activities outside of short-term use structures (O'Connell 1995; Yellen 1977). The occurrence of extra-structural activities seems especially likely during seasons when conditions are favorable for outside activities (i.e. late spring, summer, or early fall), as seems to have been the case at site 12Fr377.

Archaeologists have observed that more formal occupations, such as villages, also have more formal methods of trash disposal, such as a midden (Kent 1992). Middens are found farther away from activity areas and structures than are less formal trash deposits. A Middle Woodland example of a site with formal structure, including a midden, is documented in neighboring Dearborn County, Indiana, located on the Ohio River (Kozarek 1987). At the Jennison Guard site (12D29) the midden was located away from the central activity area, suggesting that refuse disposal was very systematic (Kozarek 1987). Archaeologists and ethnographers have also documented spatial patterning of trash around informal occupations such as hamlets and camps (Hitchcock 1987; Kelly et al. 2005). These occupations tend to have trash rings or arcs where materials are left without being deposited into a subterranean feature or midden (Kelly et al. 2005).

The posited brush shelter in Feature 2 Block would clearly qualify as an informal occupation, and the distribution of artifacts around it as illustrated in Figure 5 would seem to support that interpretation. The counts used to construct the figure are combined counts for lithic, ceramic, and faunal items. Counts on individual classes of artifacts are too small to be meaningful. Artifacts are distributed around the periphery and outside of the structure. The high density clusters of artifacts on the west side of the structure may represent activity areas. Both have a high count of large mammal bones, particularly the southwestern-most cluster in TU 366, and may have been processing areas for deer. The low density cluster of artifacts around the periphery of the structure may be the result of sweeping to clean the floor of the structure and clear debris from the center to the periphery of the structure.

At an estimated 19 square meters, the structure falls within a size range documented for Early and Middle Woodland structures elsewhere in the Midwest (Benn 1990:65). A Middle Woodland period Lowe Flared Base projectile point recovered from within the structure broadly suggests that the structure dates from that period, but a Terminal Archaic Wade/Buck Creek projectile point was also recovered from within the structure. The lack of stratified deposits at site 12Fr377 makes it impossible to attribute the structure to a specific period. A structure of this size could have accommodated a small extended family.

The linear arrangements of limestone in Features 31/35 and 36 (see Figure 7) are enigmatic. Feature 31/35 had discrete boundaries on the southeast, northeast, and southwest, but graded into Feature 28 and the overall rock scatter of Feature 2 Block on the northwest. This suggests that Feature 31/35 crosscuts the Feature 2 Block and thus dates from a later period. Feature 36 was discreetly bounded on all four sides. There is a three meter (10 feet) gap between the two features devoid of rock or any other archaeological features or deposits, but the two features appear to form an alignment.

Because no evidence of additional alignments that could be part of an enclosure were found within the easement, if these features do form one side of an enclosure, the enclosure would have extended to the southeast outside of the easement. Feature 34, a small concentration of charcoal and burned earth that is a possible post hole, may be inside of the postulated enclosure. A radiocarbon assay on Feature 34 yielded a Fort Ancient date, suggesting that Features 31/35 and 36 could be part of a late prehistoric enclosure.

Most of the stone in Feature 2 Block and across the site is limestone, much of it tabular in shape. The nearby bluff, some 100 meters (328 feet) east of the feature, is composed of limestone and that material would therefore have been readily available to prehistoric inhabitants. There was no evidence of a quarry on the bluff face. Other types of stone would have been available in the Whitewater River, an even shorter distance to the south and west.

The T2 Block

This excavation block was located on the upper scroll bar of the point bar complex that underlies the floodplain (see Figure 2). Overlying alluvium on the T2 was thinner than that over Feature 2 Block. But archaeological deposits were still relatively protected. The excavation area consisted of 45 contiguous excavation units (Figure 9). Strip Area 6 extended exposure on the T2 surface south and west of the excavation block. One hearth (Feature 24) was identified in the south-central portion of the block. No temporally diagnostic artifacts were recovered from this block, but a Late Woodland Madison projectile point was recovered on the surface of Strip Area 6 near the block. A series of four radiocarbon assays were conducted on charcoal samples recovered in the block, all returned dates that are modern and the charcoal was probably worked into archaeological deposits by cultivation on the modern ground surface.

Archaeological deposits on the T2 were largely defined by a scatter of rock and fire-cracked rock. However, the rock on the T2 was notably smaller than rock elsewhere on the site, consisting more often of fist-sized pieces that were rounded rather than tabular. A structure also appears to be present in the T2 Block, again defined by a void of rock and artifacts.

The T2 structure is round, rather than oval like the Feature 2 Block structure, with a diameter of about two meters and an area about six square meters. The opening to this structure appears to be oriented south and Feature 24 is immediately in front of the opening. Corresponding to Feature 24 is a relatively high density of artifacts. Most of the artifacts are crumbs of ceramics. Although the artifact count is arguably inflated by the presence of many crumbs of ceramics, it remains that there is a concentration of artifacts at that location. There are virtually no artifacts on the interior of the structure.

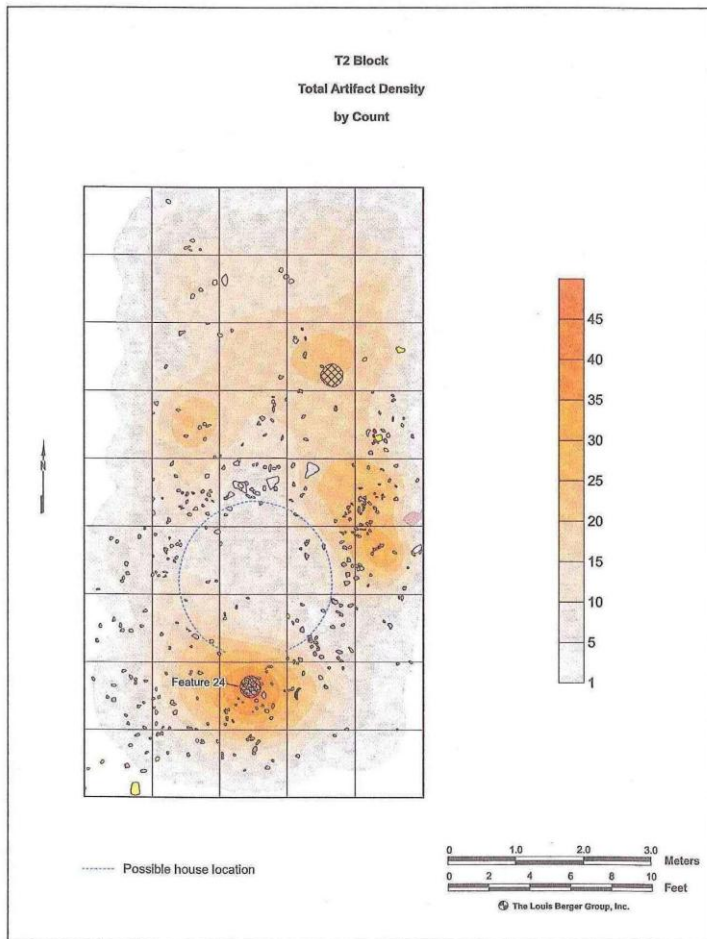


Figure 9. Site 12Fr377, T2 block, total artifact density by count.

Like the Feature 2 Block structure, the T2 structure was probably a brush hut. However, the small size of the structure suggests that it was occupied by a nuclear family. The hearth immediately in front of the opening may have helped warm the structure, suggesting that it was occupied in colder times of the year. The structure may represent a short term bivouac for a nuclear family. Based on the recovery of the Madison projectile point nearby on the same landform, the structure may date from the Late Woodland, but that temporal designation should be considered tenuous.

The Feature 3 Block

This excavation block is small in size horizontally, but archaeological deposits extended much deeper than elsewhere on the site. Each of the 10 units in the block unit was excavated more than 200 centimeters (78 inches) below the ground surface. Part of the reason for such a great depth of archaeological deposits is an extremely thick package of two plowzones which extended to approximately 80 centimeters (31 inches) below the ground surface. Feature 3 was initially identified during Phase II investigations and interpreted as a refuse pit.

The data recovery fieldwork found that artifacts in this excavation block were spread over a large area and the excavations failed to expose discrete refuse pit edges or a distinct feature outline. While a concentration of charcoal and gastropod shells was exposed, it did not

match the vertical and horizontal characteristics of an intact prehistoric feature. If the area originally defined as Feature 3 was truly a prehistoric feature, little of its original context remains. Instead, heavy weathering or water action has caused the feature to erode to such a degree as to prevent any meaningful analysis.

Natural, rather than cultural, processes are a more likely explanation for the stratigraphy revealed in the Feature 3 Block. The block is located in what is now understood to be a swale in the buried point bar complex that underlies site 12Fr377. As such, the area saw extensive infilling with alluvium that contained cultural material. Much of that infilling took place after Euroamerican settlement of the Whitewater River valley, as indicated by two thick, stacked plowzones.

The Feature 13 Block

This excavation block consisted of 34 contiguous excavation units surrounding three large clusters of burned limestone. The block is against the northeast edge of the Phase III excavation limits and it was apparent that the rock continued to the northeast (Figure 10). Phase II testing included a unit that was just outside the Phase III limits and immediately adjacent to the Feature 13 Block, and that unit uncovered a similar feature (Feature 4). In addition to the burned nature of the limestone, the size and weight of the rocks making up the feature imply each cluster is a roasting pit. No temporally or culturally diagnostic artifacts were recovered from this block, and the only tools retrieved were utilized flakes. No charcoal was recovered from the features, but two samples of charcoal recovered from excavation units each gave Early Woodland radiocarbon dates.



Figure 10. Site 12Fr377, Feature 13 block excavation. View looking north-west.

The Feature 13 Block has similar types of faunal remains to other excavation blocks, but contains more turtle bones and shell fragments than any other block. The lack of bifacial tools and the presence of faunal remains is an indication that the Feature 13 complex served as a food cooking area after the various animals had been processed for food preparation elsewhere on the site. Radiocarbon dates suggest that the feature dates from the Early Woodland period.

Topographically, Feature 13 Block is located on the gentle slope of the T2 surface/upper scroll bar. That landform continues to the northeast out of the excavation area and, as noted above, the feature continues in that direction. It is likely that substantial portions of site 12Fr377 are present outside of the Phase III excavation area.

The Feature 14 Block

This excavation block consisted of 14 excavation units. Two hearths (Features 14 and 23) and one possible prehistoric pit (Feature 15) were identified; the hearths were exposed at the same depth below ground surface. A Late Archaic projectile point was found less than one meter (3.3 feet) southeast of Feature 14, suggesting the feature dates from that period.

Concluding Remarks

Site 12Fr377 is one of three prehistoric archaeological sites excavated in the Whitewater River valley under the sponsorship of the REX-East Pipeline Project. Site 12Fr336 is located west along the river and site 12Fr310 is located about 2.5 kilometers (1.6 miles) southeast and set back nearly one kilometer (.62 miles) from the river. Prior to these excavations, the archaeological record of the valley was known mainly by studies, many dating from the late 1800s, of mounds and enclosures that line the uplands along the river. These three new investigations provide important data on domestic life in the Whitewater River valley.

Site 12Fr310 contained the remains of Archaic, Late Woodland, and Late Prehistoric campsites, but the most intensive occupation was during the Middle Woodland Period (Niemel 2010). The partial remains of two rectangular structures were defined by patterns of post molds, and at least one of the structures included interior storage/trash pits and a hearth that overlapped with the structure. The Middle Woodland component at site 12Fr310 is interpreted as a small hamlet where resources were seasonally collected and where some cultivation of indigenous domesticated plants took place.

Site 12Fr366 included Late/Terminal Archaic, early Late Woodland, and late Late Woodland components, as well as a possible Middle Woodland component (Stevens and Lloyd 2010). The Late Archaic occupation appears to have been a specialized camp where nuts were harvested and consumed. The early Late Woodland component included evidence for a possible structure and appears to have been a short term occupation by one or two households. The late Late Woodland occupation was the richest and most prolific. Sixteen features that included pits and pit hearths were recorded along with 84 post molds associated with at least four structures. The component is interpreted as a short term warm season occupation.

At 12Fr377 there was evidence for Late Archaic/Terminal Archaic, Early Woodland, Middle Woodland, Late Woodland, Late Prehistoric, and Mississippian/Fort Ancient occupations. No single component dominated the archeological record, and although there were horizontally discrete activity/occupation areas on the site, temporal markers are mixed in each of the areas. Therefore, it is difficult to associate a given activity/occupation area with any single cultural period. What can be said from the evidence recovered is that 12Fr377 was the locus of short-term and informal occupations, for there is no evidence for substantial structures such as that found at 12Fr366, or multiple structures such those found at site 12Fr336.

The immediate environment around the point bar complex on which site 12Fr377 is located was probably marshy most of the year, and that may have limited the appeal of the area for occupation during much of the year. In contrast, 12Fr310 is located on a high terrace set back from the river and would have been an amenable environment year round. The levee on which site 12Fr336 is situated would have offered a greater expanse of dry, well-drained land for occupation than was available even 500 meters away at site 12Fr377. These environmental differences may account for why occupation was seemingly so much more prolific at the two sites that neighbor site 12Fr377.

It is important, however, to remember that only the narrow slice of site 12Fr377 that was in the REX-East corridor was excavated. There is no question that the site extends northeast beyond the easement, and it is reasonable to assume that the site extended southwest towards the river and portions of it were either destroyed by, or remain preserved under, under a highway. Further excavation of those portions of the site may cast the site in a new light.

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REPORTS / FEATURES

With this volume, the editors are introducing a new section—occasional “reports” or “features” on various archaeological topics pertinent to specific regions, counties, or city/towns of Indiana—to disseminate further archaeological information of local, topical, and community interest.

THE LICK CREEK SETTLEMENT: AN INDIANA NINETEENTH CENTURY BIRACIAL COMMUNITY

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On October 28, 1871, a group gathered at the Thomas household to attend an auction of the estate of Matthew Thomas, who died almost a year earlier. Mary Thomas, his wife, had died three years before. The Thomas's were an African American family living about 30 miles north of the Ohio River in what is now called the Lick Creek settlement, a biracial agricultural community that was founded, flourished, and mostly abandoned within a span of about fifty years (Wepler et al. 2001). The Thomas family, and others like them, had been the reason for the success of this settlement by clearing and placing hundreds of acres of steeply dissected southern Indiana upland forests into cultivation and creating viable and, in many cases, prosperous farmsteads. The farms were settled during a time when the absence of the possession of a piece of paper upon traveling outside one's community, could immediately strip the freedom of an individual of African descent (Robbins 1994). The reality of this situation for African American residents of the Lick Creek community was compounded by the existence of slavery in Kentucky just 30 miles to the south.

Most African Americans who settled in southern Indiana during the early nineteenth century migrated from North Carolina and Virginia, where quality land was becoming increasingly scarce. In addition, oppressive laws and racist attitudes within many of the communities were growing at an alarming rate (Vincent 1999). These laws, called Black Codes, stripped voting rights, the movement of individuals between counties and states, bound children out as involuntary apprentices, and threatened bondage at the first hint of vagrancy. Many free third and fourth generation African American farmers within these southern communities were left without the prospect of increasing their land holdings for the first time in decades and experienced a severe erosion of civil rights. This increasingly harsh climate was responsible for much of the migration out of North Carolina and Virginia (Thornbrough 1982).

As a result, African American migration into Indiana greatly increased in the 1830s. In many instances, African American farmers established farmsteads near Quaker communities, which appeared to have provided an additional level of support that was absent where Quaker influence was not as strong. As these communities prospered, more African American settlers were encouraged to enter the state. However, supply and demand resulted in the escalation of property costs within the more popular settlement areas, which pushed newcomers onto less expensive tracts of land that was typically not optimal for farming (Vincent 1999). By 1850,

African Americans lived in all but 6 of the 92 Indiana counties. By 1860, Indiana hosted over 20 separate agricultural settlements, occupied primarily by both African American and non-African American residents, in mostly the southern and eastern portions of the state (Cord 1993).

One such community was the Lick Creek Settlement, located just a few miles southeast of the town of Paoli in Orange County, Indiana. Although the settlement has been known by many names locally, the name of Lick Creek, derived from a small stream that runs westward through the area, has remained (Robbins 1994). In May of 1831, Matthew Thomas was the first African American to buy land (80 acres) within the settlement area. He purchased the property after he had completed an eight-year apprenticeship for what appears to have been farming under the direction of a nearby Quaker named Zachariah Lindley. The following year, three more African American families migrated from North Carolina and bought 40 acres each just south of the town of Chambersburg, establishing the first concentration of African American land holdings for the now burgeoning community (Robbins 1994). The lands south of Chambersburg were heavily wooded and hilly, making the establishment of a farmstead a difficult task. Nevertheless, the settlement expanded and remained mostly centralized and eventually included the Union Meeting House and an African Methodist Episcopal Church (A.M.E.) by the early 1840s. Both buildings were utilized for a combination of religious and educational purposes. Prior to this period, it is believed that schooling and religious services were held at various households within the community (Robbins 1994).

Although, African American landowners tended to purchase contiguous tracts of land with one another, non-African American ownership of land within these settlements was typically intertwined (Krieger 1999; Wepler et al. 2001). Neighbors, be they black or white, Quaker or Methodist, shared all of the common labors of the day, such as threshing, harvesting, planting, butchering, and even numerous civic duties. The vast majority of settlement inhabitants were farmers; however, many pursued other occupations on the side, especially during downtimes within the farming calendar. These extra-curricular jobs helped solidify community relations, as well as further encourage interaction beyond that of social obligations.

By 1850, approximately two-hundred and fifty African Americans lived within every Township of Orange County. However, a vast majority of residents settled in Paoli and South East Townships, which encompassed much of the Lick Creek Settlement (Robbins 1994). At the height of the community in 1855, African American landowners held 1,557 acres, but totaled at least 1,920 acres over the course of the settlement's existence (Krieger 1999). Additionally, during this same period, most Lick Creek residents had been born in Indiana. Few after 1850 arrived from other states. Certainly this was due in part to Indiana State House legislation barring African Americans continued entrance into the state.

In the years after 1860, families began to leave the settlement, beginning a 50-year period of population decline. September of 1862 saw the community's most profound exodus when seven African American families sold all of their land, totaling 539 acres. By 1880, only six African American families owned land within the area, although most agricultural parcels were probably not all under cultivation due to the lack of available labor. Ten years later, only William Thomas, the son of Matthew Thomas, the first settlement landowner, was still tilling the soil. William Thomas sold his remaining 204 acres in 1902, moving outside of the settlement, closer to the county seat of Paoli. John Chavis was the last African American to own property within the Lick Creek community, selling his land in 1911 (Arthur 2001).

In 1935, the United States government purchased the settlement land and incorporated it into the Hoosier National Forest. It is believed that upon the acquisition of these lands by the

United States Department of Agriculture Forest Service, any remaining structures, including settlement cabins, were most likely removed due to safety and potential squatting concerns. Archaeological sites within the boundaries of the settlement now consist of rock piles from chimney falls, sporadic foundation stones, overgrown farm roads, fence lines, and surface/subsurface artifacts (Krieger 1999; Laswell 2008). Detection of these sites is not always apparent. The most visible remnant of the Lick Creek community is the cemetery, which was located near the prior location of the Union Meeting House and the A.M.E. church. It is the one distinct piece of evidence that a community once existed, with weathered headstones displaying the names of a number of the settlement's nineteenth-century residents.

The Hoosier National Forest has led the effort in not only to preserve the varied cultural resources located throughout the settlement, but to investigate the community with respect to broader historical themes in Indiana, while emphasizing educational outreach (Krieger 1999). Since 1999, the United States Forest Service, Ball State University, Indiana University, and the Indiana State Museum have conducted a variety of archaeological investigations that have involved surface and subsurface reconnaissance, test excavations and geophysical research (Figure 1). At least 30 sites have been located at various stages of preservation, many of which have been determined eligible for inclusion to the National Register of Historic Places. Recovered materials have included eating utensils (Figure 2), highly decorated ceramic tableware (Figures 3, 4), a scroll flask, a cup plate, pencils, gun parts, munitions, harmonica parts, marbles, sewing machine parts, and a variety of butchered animal bones (Laswell 2002; Wepler et al. 2001, 2004). In addition, historic documentation, particularly that of probate inventories and agricultural census records, which is utilized in conjunction with archaeological data, provides an added dimension for research (Figure 5). These types of studies address aspects of behavior, cultural identity, as well as the level and type of community interaction for particular families within the settlement (Laswell, 2008; Wepler et al. 2001, 2004).



Figure 1. Excavation of the domestic structure (Thomas site 2001).

Figure 2. Recovered utensils from the Thomas site.





Figure 3. Handpainted ceramics recovered from the Thomas site.



Figure 4. Decorated ceramics recovered from the Thomas site.

Account of the sale of the personal property of
Elias Robert deceased sold by auctioneers
Adams at the late residence of the decedent at
public auction on the 24th day of Aug. 1866.

No.	Name of Article	Value	To whom sold
1	Set of plates	4.50	William H. Smith
2	One shot gun	3.50	Northrup Thomas
3	One bushel	5.00	Thomas Burnett
4	One quill wheel	3.00	Samuel Payton
5	One top wheel	2.30	William H. Smith
6	One fallen log table	1.50	Nancy Roberts
7	One saddle	1.50	Thomas Thompson
8	One top	3.15	Samuel Payton
9	Two shingles	1.10	Simon Lewis
10	One shank	1.50	Northrup Thomas
11	One shank	1.50	Samuel Payton
12	One shank	2.50	Samuel Payton
13	One shank	1.10	Samuel Payton
14	One shank	1.10	William H. Smith
15	One shank	3.35	Leaac Erwin
16	One shank	3.00	John G. North
17	One shank	3.10	William H. Smith
18	One shank	2.10	Northrup Thomas
19	One shank	1.10	Simon Lewis
20	One shank	2.60	Samuel Payton
21	One shank	3.00	Samuel Lindley
22	One shank	3.50	David Wade
23	One shank	7.00	William H. Smith

Figure 5. Copy of Elias Robert's Probate Inventory, August 24, 1866.

Now, as part of the Hoosier National Forest, the Lick Creek settlement is nestled among stands of native hardwoods and, while little remains upon the surface, multiple-use recreational trails offer access to this historic Indiana landscape (United States Department of Agriculture, Hoosier National Forest 2003). Future investigations in the area will continue to address and possibly shed light upon this little known yet important chapter of Indiana history.

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URBAN ARCHAEOLOGY AND THE COLOR LINE IN INDIANAPOLIS

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Like many American cities that were transformed in the relatively recent past, Indianapolis' near-Westside today bears relatively little visible evidence of its earliest European settlement. Indiana University-Purdue University Indianapolis (IUPUI) occupies a vast swath of the neighborhoods (Figure 1) that lie west of the original "Mile Square" grid plan for the city, and the campus is a stark expanse of recently built structures, parking lots, and scattered garages. The university landscape is rather invisible to the many students, employees and visitors who are on campus every day, few of whom would ever characterize it as a historic landscape. Most of the neighboring government buildings and condominiums are relatively recent additions as well that might appear to make the neighborhood a poor candidate for archaeological research.

This would not seem like an especially productive place to conduct archaeology, but in fact few places could be better suited to archaeological work. From a research perspective, Indianapolis experienced relatively typical material declines and social shifts after the Civil War, during the Depression, and following World War II, so the city reflects many of the predominant currents in American history over more than a century and a half (cf. Baker 1904, Barrows 2007, Pierce 2005, Thornbrough 2000). Most urban archaeologists recognize that even in such cities with dramatic material transformations, preservation can still be extremely good, and that is indeed the case in the near-Westside. The IUPUI campus is dotted with scores of features like wells, cisterns, and privies that were well-preserved by miles of asphalt, and dense historical records make it possible to connect particular features with the households that discarded their contents. Perhaps most critically, there are descendant and campus communities who jointly feel stewardship for the space and its complex neighborhood heritage. The University's own role in the near-Westside's massive transformation really was never evaded on campus, but it also had not ever been very effectively made a topic of public discourse (Mullins 2006, 2007). In a renewed commitment to civic engagement in the past decade, IUPUI has attempted to forge relationships with past and present near-Westside residents and revisit its own role in remaking the city (e.g., Mullins and White 2010). Archaeology has been one surprisingly powerful mechanism to tell this story and build relationships that can link descendants, former residents, University students and staff, and the many people who feel some claim to these neighborhoods.



Figure 1. In about 1940, the area that is today the IUPUI campus was densely settled with structures that had been in the neighborhood since the 1860s and 1870s in most cases. This photo was taken looking east back toward Indianapolis (Photograph courtesy IUPUI University Library Special Collections and Archives).

Since 2000, the Department of Anthropology at IUPUI has conducted field excavations (Figure 2) throughout the near-Westside to examine the relatively recent historic past, probe the concrete reasons why the neighborhood was materially effaced after World War II, and assess how archaeology can help us think critically about the ways such heritage shapes contemporary life. The IUPUI archaeology project uses sites as public spaces to demonstrate and discuss how near-Westside communities became “invisible” to much of the contemporary campus community and city. Even the most prescient archaeologist would be hard-pressed to simply look at the campus’ starkly flat topography and see the traces of eradicated neighborhoods. Eventually when the University demolished structures to build the campus, existing houses were razed and then paved, so the campus quickly became dominated by remarkably flat parking lots. When these parking lot surfaces are excavated, they reveal dense stratified deposits. Archaeological tours inevitably present the stark juxtaposition of a barren asphalt surface with structural foundations, dense household debris, and various cultural and ecological features that reflect past uses of the space. Much of this project’s power is a direct product of simply displaying this archaeological record in the midst of busy public spaces. Visitors literally stand atop a series of stratified landscapes (Figure 3), which stresses the relations between those landscapes and illuminates the campus community’s role in this dramatic transformation. We connect these landscapes to the social processes that produced them over the last century-and-a-half. We examine material patterns along the color line in this historically multicultural community and use material culture to illuminate and defuse present-day caricatures about social and material differences across color lines. Ultimately, transparent expectations that archaeology will reveal a “Black ghetto” are dealt their death rites by material assemblages that do not reveal especially crystalline distinctions across color or ethnic lines.



Figure 2. In 2003 the IUPUI Field School conducted excavations on the university campus where the Campus Center now stands. The excavations examined a series of about eight structures occupied between 1870 and 1970 (Photograph courtesy of author).



Figure 3. Public interpretation programs have been a central element of all IUPUI archaeological projects. This site tour was being given by a field school student in Summer 2001 (Photograph courtesy of author).

Many people realize that the neighborhood has a rich heritage masked by the campus structures, apartment complexes, and state government buildings that cover the near-Westside today. Those who know the area relatively well also can locate Ransom Place, a modest six-block space of 19th and 20th century vernacular homes that is in many ways the only surviving remnant of the much larger community that once covered the area. Like much of the near-Westside, Ransom Place has been most closely associated with a long-term African-American residency that reaches back into the years immediately after the Civil War. African-American residents had been in Indianapolis since the 1830s, and pockets of African-American communities were scattered throughout the near-Westside from the 1860s and 1870s onward. Indianapolis' City Hospital was completed in the near-Westside in 1857, when the surrounding area was almost entirely unsettled open space in frequently flooded space along the White River drainage. Nevertheless, by the 1870s the surrounding expanse had been divided into lots and most were already settled. Indiana University first taught courses in Indianapolis in 1891, including Medical School courses at the City Hospital. In 1914 the University's first Hospital was opened on the present-day IUPUI campus, near the existing City Hospital, and in 1919 the Indiana University School of Medicine relocated to the same area.

When the Indiana University Medical Center emerged at the turn of the twentieth century, the neighborhood immediately around it was a predominately African-American community. That African-American population around the Medical Center tripled between 1870 and 1920, during a period when a series of migration waves delivered a steady stream of African Americans fleeing the Jim Crow South. Many Indianapolis neighborhoods became strictly segregated around World War I, so the rapid shift to an overwhelmingly Black neighborhood was relatively common in many other communities as well. A few of these local Black residents worked in the neighboring City Hospital, but most men worked in factories along the White River, where massive pork packing plants, railroad yards, and foundries employed African Americans. Most women were domestic day laborers. In 1920, for example, 390 residents were living on North Street on the present-day IUPUI campus, and 39 of them were Black women employed as laundresses for private families.

Into the 1920s most of the near-Westside's residents were native-born White Hoosiers. Their neighbors included European immigrants from every corner of the continent as well as White and Black Southern migrants and many farmers who left the fields for Indianapolis' industrial workplaces. While the census reveals a rainbow of ethnic groups, this was by no means a settled multicultural community. The area quickly became a racially segregated space at the turn of the century, and informal hostilities were persistently showered onto most of the community's African-American and European immigrant residents alike. In the Ransom Place neighborhood working-class and genteel African-Americans did live alongside each other, but in large part that appearance of cross-class integration was forced on African-Americans by *de facto* racism from realtors and neighborhood associations with restrictive covenants.

Many African-Americans worked for White people in industry, businesses, and their homes and had a quite intimate understanding of their White employers' lives, so much of the research has focused on the hidden connections between White and Black Hoosiers. In Summer 2001, for instance, a project was conducted on the IUPUI campus at the Evans-Deschler Site, a neighboring German-American meat packing shop and post-1904 African-American boarding house. The public project focused on labor relationships that connected Hoosiers across the color line. We recovered a concentration of straight pins and buttons from the boarding house that likely would have been ignored on most sites, but the Evans boarding house was home to a series

of African-American women who appeared in the census as laundresses and seamstresses. In this context these otherwise innocuous objects were clear material indications of the gendered dimensions of racism that relegated many African-American women to domestic labor. Archaeological tours are especially powerful when they can situate the most commonplace objects within such broad social and structural issues.

This project has aspired to complicate such relationships along the color line and over the contemporary landscape. Ransom Place escaped the wrecking ball and secured Conservation District status in 1998, so it survives today as the sole physical remnant of the vast neighborhoods that once covered the near-Westside. By World War I Ransom Place became home to many of Indianapolis' African-American entrepreneurs and professionals. Madam C.J. Walker's home and her well-known cosmetics factory sat alongside Ransom Place, and Walker's lawyer Freeman Ransom was among the African-American professionals who lived in the neighborhood that now bears his name. Ransom Place's idiosyncratic vernacular housing and gradual recovery in the past decade ensure that it is commonly showcased as a preservation success story, and many of the residents are African-American elders.

The Ransom Place Neighborhood Association has emerged as one of the clearest community voices for those people who once lived in the near-Westside, but the project has also included the voices of numerous elders committed to near-Westside institutions like Crispus Attucks High School, Lockefield Gardens, or the numerous churches in the community. The University community also has emerged as a crucial constituency that has begun to lay claim to the near-Westside's heritage. A walk from the heart of campus to Ransom Place demands a hike across parking lots that accommodate the University's commuter student population. For the most part, this landscape of parking lots and Ransom Place remains relatively disconnected, the processes that created this disconnection pass unexamined, and the University and neighborhood communities have no systematic relationship. Much of the research focuses on Ransom Place, but in the past 10 summers IUPUI Archaeology Field Schools have worked to connect the otherwise-ignored campus with Ransom Place and illuminate the concrete social processes that produced this landscape.

Much of the archaeology project's impact has simply been its ability to contribute to historical consciousness and foster public dialogue. Some of the products of this consciousness appear modest, but they indicate a clear shift in how the campus materializes its past. For instance, in May 2003 several hundred visitors from across the country convened on a steamy afternoon to commemorate 21 new dormitories named after community historical figures. Many former campus residents were troubled that only one University building bore an African-American name (i.e., the Mary Cable Building), and that structure was slated for demolition and has since been razed. The new dormitories were named after a range of professional and working-class people, some well-known and others anonymous, representing men and women from most of the groups who once lived in the near-Westside. This is a modest but critical effort to materially historicize the campus landscape.

By doing these things the project aspires to place the contemporary landscape—and the people on the IUPUI campus and in Ransom Place today—within over a century of urbanization. Archaeology can potentially re-claim spaces that are now de-historicized, transforming the parking lots and University buildings into a landscape concretely linked to Ransom Place. This process should illuminate the ways in which race, class, and urban inequalities have been written into material culture ranging from mass-produced commodities to campus landscapes over 150 years.

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EXCAVATIONS AT THE HARMONIST REDWARE KILN

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The Harmonists were a millennial and utopian religious group founded in Iptingen, Germany in the late eighteenth century. The spiritual leader of the group was George Rapp, who believed that the second coming of Christ was near, and that all Christians must make preparations to lead a model life for his return. Due to their unorthodox ideas (for example, beliefs in celibacy and communal living), the Harmonists were persecuted in their homeland, and they immigrated to the United States in 1805. They first settled in Pennsylvania, but in 1814, Rapp moved the entire community to present day Posey County, Indiana, and built a new town, New Harmony, adjacent to the Wabash River. New Harmony was home to the Harmony Society from 1814 to 1824 and consisted of 180 buildings with a maximum population of about 750 residents (Pitzer and Elliot 1979).

Over the past three field seasons, the University of Southern Indiana (U.S.I.) field school in archaeology has conducted investigations at the former site of the Harmonist redware pottery kiln (12Po1288)--one of the earliest Euroamerican pottery manufacturing sites in the state of Indiana. Redware, a relatively low-fired earthenware made of easily-obtained clays (Figure 1), was the dominant form of locally-produced ceramics in the Midwest through the 1840s (Ketcham 1991). Although there were many redware manufacturers in the pioneer-era Midwest, very little is known about the individual potters, methods of manufacture, and types of vessels made. This is due, at least in part, to the fact that few redware manufacturing sites have been identified and excavated (Mansberger 1994; Mazrim 2003).

Figure 1. Portion of a redware mug found in 2010.



The Harmonist potter, Christoph Weber, lived adjacent to his shop and kiln and worked full-time manufacturing vessels for the residents of the town, as well as the non-Harmonist settlers in the area. Weber's products included storage jars, jugs, plates, mugs, serving bowls, and pitchers. Though the aboveground portions of the kiln, potter's shop, and accompanying structures are no longer extant, historic maps and magnetometry survey were invaluable in identifying the precise location of the operation.

Work at the site (Figure 2) has uncovered substantial, intact evidence for the Harmonist occupation. Most interesting was the discovery of a U-shaped kiln firebox. The soil around the firebox was burned brick-red, and was accompanied by large amounts of ash and charcoal. A square pit, 75 cm deep was located at the firebox opening. This was most likely used as a receptacle for the ashes that accumulated while the multi-day firing was in process. The kiln foundation was constructed of flat dressed limestone blocks placed in a clay-filled trench. Though not preserved intact, the upper portions of the kiln were manufactured of soft red brick. Not surprisingly, large quantities of broken pottery and kiln waste have also been found. Also identified, to the east of the kiln, was a large pit filled with kiln waste and bricks that may have been originally used for clay storage. When analysis is complete, we hope to better understand what types of pottery Weber was manufacturing, and what this might indicate about Harmonist cooking techniques and food preferences.



Figure 2. Excavation in New Harmony, IN.

U.S.I. will be returning to the site to further explore the Harmonist kiln. One of the main objectives will be to uncover more of the kiln foundation to determine its shape and overall size.

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GLOSSARY OF ARCHAEOLOGICAL TERMS

A-horizon soil

The upper layer of soil, nearest the surface.

Anthropology

The study of humankind, with particular emphasis on its cultural and biological adaptations.

Archaeology

The anthropological study of past lifeways, cultures, and cultural processes through the investigation of material remains left behind by humans.

Artifact

Any portable object made, used, and/or modified by humans. Or, more generally, any evidence of human behavior. Common prehistoric artifacts found archaeologically include spear points, arrowheads, knives, chipped or broken stone debris, ground stone axes, grinding stones, mortars and pestles, awls, adzes, gouges, pottery, clothing and ornamental pins, decorative items and ornaments, scraping tools, hammerstones, bone fishhooks, stone perforators, and beads.

Associations

The relationships of artifacts and features at a site, based on provenience and context.

Atlatl

A spearthrower.

Avocational archaeologist

A person who participates in archaeology but does not practice it as a profession. Avocational archaeologists may volunteer to work with qualified professional archaeologists, and many take courses and gain substantial experience in archaeological methods and techniques. Others may be involved in archaeology as a hobby. Generally, avocational archaeologists subscribe to a preservation ethic to protect archaeological resources and to responsibly and legally preserve and study information from sites.

B.P.

Before present. By professional agreement present was established to be A.D. 1950 based on radiocarbon dating. For example, 1000 B.P. means 1000 years before A.D. 1950, or A.D. 950.

Celt

An ungrooved axe. Celts may be made of pecked and ground stone, or hammered copper. It is thought that celts appeared in Late Archaic times, and they continue to occur through later prehistory.

Ceramics

Pottery vessels or potsherds.

Chert

Stone of microscopic or small quartz particles used for the making of stone tools. Some types of chert include flint, agate, and jasper.

Chieftdom

A non-egalitarian hierarchial social organization with a fixed and permanent role for a chief/leader.

Collared

A thickened area present below the rim and above the neck on a clay pottery vessel.

Complicated stamped

Decorations of curvilinear or rectilinear design on a paddle stamped into a clay vessel.

Context

The position of an artifact or feature in its soil matrix, horizontal, and vertical location, and its relationship with other artifacts and features, related to the behavioral activities which placed it there.

Cord impressed

Impression into a clay vessel surface before firing by a stick wrapped with cord, or cord on the edge of a paddle.

Cordmarked

Cordage impressions on a pottery vessel as a result of stamping with a cord-wrapped paddle.

Core

A stone which exhibits one or more flake scars, showing that it has been used as a raw material for flintknapping.

CRM

Cultural resource management. The protection, preservation, and recovery of information from archaeological sites, under federal and state laws. Universities and private archaeological companies often are hired to conduct CRM archaeology mandated under federal or state statutes.

Culture

A system of shared, learned, symbolic human behavior for adaptation to our natural and social environment. Culture may be thought of as a system composed of interrelated parts or subsystems, where a change in one part affects or influences the other parts. Subsystems interrelated with culture include technology, communication (and language), biological and physical characteristics, psychology, economics, social and political organization, beliefs and values, subsistence, settlement, environment, etc.

Excavation

The systematic recovery of archaeological deposits through the removal and screening of soil. These can be either test excavations or large-scale data recovery excavations.

Fabric impressed

Impressions of woven fabric in the surface of a pottery vessel.

Feature

Non-portable evidence of past human behavior, activity, and technology found on or in the ground. Prehistoric features commonly include fire pits and hearths, burned earth and clay, trash and garbage pits, post molds, evidence of house floors or basins, storage pits, clusters of artifacts (e.g., chipped and broken stones, caches of projectile points, ceramics or pottery sherds), human and animal burials, clusters of animal bone, earthworks (such as mounds and circular enclosures), petroglyphs and pictographs, and middens.

Flake

A byproduct of flintknapping, toolmaking, use, or other human activities, resulting in a fragment of stone detached from a parent stone. Often, a flake has evidence of purposeful removal, including a bulb of percussion, ripple marks, a striking platform, etc.

Gorget

Decorative object worn on the chest.

Grog tempered

Ceramics tempered with fragments of crushed pottery.

Lithics

Stones used or modified for human activities such as the manufacture of prehistoric tools, cooking, hunting, etc.

Microtools

Small tools, predominately of stone, manufactured and used to perform certain tasks.

Midden

Cultural refuse or deposition built up at a site.

Multicomponent

An archaeological site with occupations from more than one culture or time period.

Petroglyphs

Naturalistic or symbolic representations or depictions carved into stone.

Pictographs

Pictures or drawings painted on rocks, cave walls, stone outcrops, or rockshelters.

Prehistory

Human activities, events, and occupations before written records. In North America, this primarily includes Native American prehistoric cultures, but does not imply that these cultures did not have long, rich, and varied cultural and oral histories and traditions.

Protohistory

Protohistoric cultures can be defined as those prehistoric groups developing or continuing directly into early recorded history, some associated with early historic artifacts.

Provenience

The horizontal and vertical location of an artifact at a site.

Red Ochre

Late Archaic-Early Woodland culture with burial practices, usually in mounds, involving the use or placement of red ochre (a red hematite pigment).

Shell-tempered

Ceramics (pottery) tempered with fragments of crushed shell.

Site

The presence or occurrence of one or more artifacts or features indicates an archaeological site. An archaeological site is an instance of past human behavior or activity, where humans conducted some activity and left evidence of it behind, on or in the ground. Some common prehistoric site types include artifact caches, villages and camps, cemeteries, burials, workshops (e.g., stone debris from flintknapping activities), quarries, and earthworks (mounds, embankments, enclosures, fortifications, etc.).

Stratigraphy

Horizons, strata, or layers of soil deposited at a location, where the deepest strata were deposited the earliest, and the more recent layers deposited higher in the stratigraphic sequence.

Survey

The systematic discovery, recovery, and recording of archaeological information such as site locations, artifacts, and features by visually inspecting the surface of the ground if the soil is visible. Or, the use of shovel probes, cores, and/or augers near the surface, if surface visibility is restricted or poor. Termed Phase I in CRM investigations.

Test excavation

Systematic excavation of a representative portion or percentage of a site to evaluate and determine its nature and extent, what information is present, whether there are intact or in situ deposits present, and the degree of disturbance to the site, often to determine whether it is eligible for the National Register of Historic Places. Termed Phase II in CRM.

Wyandotte

A type of dark blue-gray chert found in southern Indiana.

For those with access to the Internet, the following sites also provide opportunities to access definitions and additional information regarding archaeological terms and concepts:

<http://www.nps.gov/archive/efmo/parks/glossary.htm>

<http://www.nps.gov/history/seac/terms.htm#a>

<http://archaeology.about.com/od/rterms/g/radiocarbon.htm>

PREHISTORIC INDIANS OF INDIANA

Note- The word prehistory is a technical term used by archaeologists to indicate information about cultures before written records were kept—in North America at first by Europeans and people of Old World descent—in that area. It does not imply by any means the cultures described did not have long, rich, and varied cultural and oral histories and traditions. All of the cultures certainly did.

Paleoindians:

Paleoindians are the first known people who lived in the Americas, including Indiana. They lived here during the last stages of the last glacial advance, or ice age, and the early part of a changing environment and climate as the glaciers retreated. These people occupied the area now known as Indiana some 12,000 years ago, and lasted until about 10,000 years ago.

These early peoples probably lived in small groups of related individuals who moved around a lot, hunting large game animals, including some now extinct, such as the Mastodon, a large elephant-like creature. They also relied upon the gathering of wild plants to eat for their survival. Their population was very low.

The Paleoindians had very well-made stone tools, made out of a type of stone archaeologists call chert, which is a fine-grained rock that breaks a little like glass when hit by hard materials like another rock or a piece of deer antler. The tools they made by chipping, flintknapping, and flaking included long spearpoints, cutting and scraping implements, and engraving items. Some of their spear and piercing tools are called Clovis, Gainey, Barnes, Cumberland, Holcombe, Quad, Plainview, Hi-Lo, and Agate Basin points.

Evidence of these peoples is often found in Indiana on land near water sources like major rivers and springs, and where chert is found. Little is known about the Paleoindians since they moved around a lot and did not occupy any one place for a very long time. Therefore, they did not leave behind much evidence of their lives in any one place.

Archaic Indians:

American Indians known as the Archaic peoples lived here for a long time: some 6-7,000 years. Although these people did change over time, increasing in population and using new tool types and food preparation techniques, they did share certain general characteristics. These included new types of spear points and knives, with various types of notches and stems for hafting to wooden handles and shafts. Some of the projectile point types of the Archaic Period are called Kirk, Thebes, MacCorkle, LeCroy, Faulkner, Godar, Karnak, Matanzas, Brewerton, Riverton, and Terminal Archaic Barbed points.

They also used ground stone tools such as stone axes, woodworking tools, and grinding stones. The grinding stones were used to pound, crush, and grind wild nuts, berries, seeds, and other plant foods. They were hunters and gatherers of wild plants and animals, and moved around in their natural environments by season, often scheduling their movements to coincide with the

appearance of foods like nuts, fish, deer, and wild seeds. Over time, they became very selective in what kind of resource they were pursuing.

During the Archaic Period, the spearthrower was used. This consisted of a shaft with a handle, weighted for balance with a ground and smoothed stone, and a hook on the end. A spear was fitted onto the hook, and was thrown with the spearthrower shaft.

Towards the end of the Archaic, more evidence of mortuary activities is found, including human burials with a red pigment coloring remains or grave goods. Burial mounds appear. During the Archaic, the cultures became more different from one another, and more types of artifacts were used. Their settlements became more permanent. One type of settlement was along large rivers, where they discarded large amounts of mussel shells. These sites are called shell middens or "mounds," although they are not really constructed, burial mounds. The general Archaic period ended at about 1500 B.C., although some Terminal Archaic peoples lived until 700 B.C.

Woodland Peoples:

During the Woodland Period, a number of new cultural characteristics appear. A notable event was the appearance and use of ceramics and pottery vessels. Another significant occurrence was the use and increase of horticulture. A remarkable feature of some Woodland sites is earthen mounds and earthworks, such as embankments. The Woodland peoples persisted for over 1,500 years in Indiana.

During the early portion of the Woodland Period, the pottery was thick and heavy. One early Woodland culture called the Adena people had elaborate mortuary rituals, including log tombs beneath earthen mounds. Projectile points during this time included Adena, Kramer, Dickson, and Gary Contracting Stemmed types.

A little later in time, in the Middle Woodland, there were also elaborate burial rituals, but also long-range trade of exotic goods like mica, marine shells, copper, obsidian, copper axes, drilled wolf and bear teeth, and other goods from region to region throughout the Eastern Woodlands area of North America. Some of these groups were called Hopewell peoples. Their ceramics had all kinds of incised and stamped decorations. During this time, the Woodland Indians were likely organized into groups we might recognize as what we today call tribes. Projectile points from the Middle Woodland include Snyders, Lowe Flared Base, Steuben, Chesser, and Baker's Creek.

The latter part of the Woodland Period is called Late Woodland. In Late Woodland, two important events occur. One is the first appearance of agriculture; that is, intensive cultivation and modification of crops such as corn and squash. Another important occurrence is the appearance of the bow and arrow. Prior to this time, most of the chipped stone tools were either spearheads, knives, engraving tools, or scrapers. In Late Woodland, however, small, triangular points occur which are true arrowheads. One type of these arrowheads is called Madison. Other point types are termed Jack's Reef Pentagonal and Raccoon Notched. Settlement during the Late Woodland time changed from the earlier more permanent and nucleated villages to a pattern of smaller sites dispersed more over the landscape. In some regions of the state, Woodland groups

may have persisted almost until historic times, although in general, the Woodland Period ends at A.D. 1000.

Mississippian Period:

The Mississippian peoples in Indiana lived in some cases almost until contact with Early European explorers, missionaries, soldiers, and traders. They lived from about A.D. 1000 until possibly as late as A.D. 1650. A noticeable change during this period is the nucleation of some peoples into large settlements akin to "towns," such as at the Angel Mounds site near Evansville, Indiana. These towns had large public areas such as plazas and platform mounds—like truncated or flat-topped pyramids—where influential or important public individuals lived or conducted rituals. Thus, there was social stratification and ranking of individuals in Mississippian societies. There were probably chiefs and religious leaders. The towns were supported by the harvesting of large agricultural fields growing corn, beans, and squash. People living in sites such as these are termed Middle Mississippian.

Notable artifacts indicating Mississippian settlements include large, chipped stone hoes, and pottery bowls and jars tempered with crushed shell. Straps, loops, and handles for these containers characterize this time period as well. Stone tools include point types known as Madison, Nodena, and Cahokia, and other implements such as mortars, pestles, pendants, beads, anvils, abraders, and other items.

Another less elaborate type of Mississippian society called Upper Mississippian was present in the state, with people living in hamlets and villages. Many of these people lived in northern and southeastern Indiana. They also grew and harvested maize, beans, and squash. One group to the southeast was called Fort Ancient, and lots of shell-tempered vessels with straps are found at these sites. In northern Indiana, incised shell-tempered pottery fragments are found on Upper Mississippian sites that are often located near the beds or former beds of lakes.