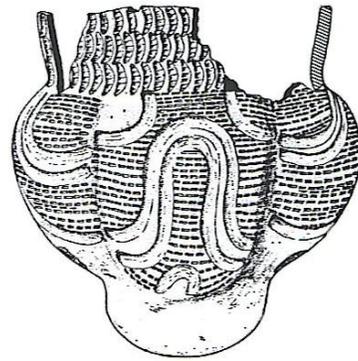


INDIANA ARCHAEOLOGY

Volume 5
Number 2
2010/2011



Indiana Department of Natural Resources
Division of Historic Preservation
and Archaeology (DHPA)

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Mission Statement: *The Division of Historic Preservation and Archaeology promotes the conservation of Indiana's cultural resources through public education efforts, financial incentives including several grant and tax credit programs, and the administration of state and federally mandated legislation.*

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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.

We are pleased to offer this volume 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. We received a large number of article submissions in 2010, and as a result, this is the first time we have offered two numbers in a volume of the journal. To view previous editions 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>).

In future volumes, the editors will be introducing a new feature—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.

This volume of *Indiana Archaeology* is dedicated to the memory of Dr. Elizabeth J. Glenn who passed away on Dec. 25, 2010. She was an anthropology professor at Ball State University in Muncie, Indiana for 30 years, retiring in 1997. Dr. Glenn contributed much to anthropology, ethnohistory, and Native American studies in our state.

-- JRJ, ALJ

ABOUT THE EDITORS AND AUTHORS

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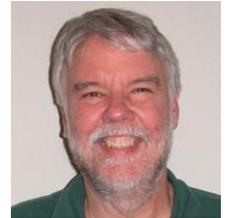
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EVIDENCE OF RITUALIZED MORTUARY BEHAVIOR AT THE MEYER SITE: AN INADVERTENT DISCOVERY IN SPENCER COUNTY, INDIANA

Anne Tobbe Bader
Falls of the Ohio Archaeological Society

[Editors' note: Please be advised that this article contains descriptions and illustrations of Native American human remains.]

Within the field of scientific archaeology, one may be understandably hesitant to attribute patterns observed in the ground to ritualistic behavior on the part of those unseen actors who left the remains. Unlike artifacts, ritual behavior cannot be labeled and packaged. It cannot be counted and subjected to statistical analyses. Yet ritual has played a significant role in the day-to-day lives of all peoples, and the tendency to shy away from this aspect of prehistoric behavior and the attendant effects of that behavior observable in the archaeological record may restrict our ability to interpret culture in a holistic fashion.

Nowhere is the expression of ritual more clearly observable archaeologically than in the mortuary realm. Yet, as will be more clearly articulated in this paper, burial sites by the very nature of their long term and repeated use by a prehistoric population over time often present conflated or ambiguous information as burial features lie amid features resulting from other non-mortuary activities, or are intersected by features of a later date or even a different group of people altogether. As a mortuary site that was utilized intensely but briefly, the Meyer Cemetery site (12Sp1082) in Spencer County, Indiana, offers an exception to this scenario and offers what appears to be a clear association of features associated with the rites of the dead.

The purpose of this paper is to examine a possible ritualistic explanation for enigmatic late Middle Archaic features found in association with an approximate 30 human interments at the Meyer Cemetery site. The data acquired from the emergency 2004 excavations (Bader 2004, 2005b) of this site are compared to ethnographic accounts of Shawnee mortuary behaviors. Similar features and associations are then documented at other regional late Middle Archaic mortuary sites. Finally, it is concluded that the behaviors apparent at the Meyer site, while suggesting the tenacity of ritual behavior over centuries, reflects a distinctive mortuary pattern that differs from other regional late Middle to Late Archaic sites. The data is offered as yet another means by which to distinguish inter-regional and temporal differences among late Middle to Late Archaic groups in the lower Ohio River valley.

The Meyer Site

In May 2004, while excavating trenches to emplace foundation footers for a planned expansion to a residence (Figure 1), landowners discovered an archaeological site on their property. Initially, it was thought that only several truncated firepits and a single human burial had been

disturbed during construction. In response to a call from the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (IDNR/DHPA), the Falls of the Ohio Archaeological Society (FOAS) proceeded to salvage and document the features to allow construction to proceed. The supposedly minor field effort represented an ideal opportunity for FOAS to obtain on-the-job training in archaeological techniques with qualified professionals while simultaneously assisting the landowner resolve outstanding issues regarding sensitive archaeological remains on his construction site. Contrary to early impressions, the site was revealed to be a very dense midden zone containing numerous features of several types and multiple human burials. The occupation was associated with the late Middle Archaic period and yielded Matanzas projectile points. Artifacts from other periods were scarce, suggesting transient use at other times. Calls for additional help went out, and experienced professional archaeologists from ten universities, state agencies, archaeological firms, and independent volunteers in three states sent crew, logging nearly 1,600 manhours every weekend from May through September 2004.

The Meyer site is located in Spencer County, Indiana. At first glance, the landform on which the site is situated appears to be broad and relatively flat, with little relief. However, it actually sits along a narrow low ridge that terminates in a small knoll at the edge of a drop-off to the lowlands along a river (Figure 1). A large spring flows from the hillside near the site into a creek. Southwest of this creek, three additional, closely spaced and roughly parallel streams provide additional drainage to the terrace. The low-lying areas between the terrace ridges through which the streams flow are wet and marshy, and wooded for a good portion of their length. Other sites of the late Middle Archaic demonstrate the same pattern of proximity to resource-rich sloughs. Although the feature density is less, the site bears resemblances to the Black Earth Site in Illinois, the Bluegrass Site in southwestern Indiana (Stafford and Cantin 2005; and the KYANG (Kentucky Air National Guard) Site in Louisville, Kentucky (Bader 1992; Bader and Granger 1989; Granger 1988; Jefferies and Butler 1982).



Figure 1. View of Meyer site looking north, showing small knoll at the terminus of the ridgespur.

Work at the site began with clearing the footer trench walls to identify the locations and nature of cultural features (Figure 2). Heavy rains had blurred the original clarity of these walls, leaving a hardened mud and silt coating over what had been fresh cuts in the ground. It required several weekends to clear the nearly 150 meters of footer trenches. It was not long before it became clear that even with volunteer amateur and donated professional help it would take many manhours to remove the midden between the trenches and identify and rescue feature and burial data. Consultations with the IDNR/DHPA ensued, and a sampling strategy was formed in which a minimum of 50 percent of the non-burial features would be excavated, and 100 percent of the burials within the construction site would be removed.

At that point, Ms. Cheryl Munson solicited the assistance of Dr. Nelson Shaffer of the Indiana Geological Survey. Dr. Shaffer graciously agreed to conduct remote sensing in an attempt to identify burial features non-invasively without excavation. Dr. Shaffer used ground penetrating radar (GPR) equipment for this purpose. With the assistance of Jocelyn Turner and Indiana Congressman Matt Pierce, Dr. Shaffer identified more than 20 anomalies he thought were probable cultural features. Although he ran out of time before he could investigate a wider area than the immediately impacted portion of the site, he did note the presence of several anomalies beyond the construction site. As Dr. Shaffer passed across an area he thought contained an anomaly, the spot was flagged and labeled, and targeted as a priority for future excavation. One meter square test units were excavated in the locations of the anomalies. Several of these units were excavated between the footer locations in an area where the upper layers of the midden had been truncated by soil removal during the excavation of the footer trenches and leveling of the intermediate areas. In other cases, however, test units were dug in areas that had not been disturbed and where the original ground surface was intact.



Figure 2. FOAS members Sundeia Murphy and Leslie Rumbley profile exposed features.

Following the excavation of the non-burial features exposed in the footer trench walls, controlled excavation of five 1 x 1 meter square test units to test the midden, and excavation of the exposed burials, the final phase of the fieldwork was implemented. First, documentation was made of all the non-excavated features. At a minimum, each feature was mapped, photographed, a vertical profile drawn, and a plan view prepared. Following this, mechanical stripping of the midden began. The purpose of the stripping was to ensure that all additional human burials were identified. A small backhoe with a smooth blade was used to peel back the midden in approximate 10 centimeter levels. The stripping was monitored at all times by a professional archaeologist. The backhoe was stopped whenever a feature was revealed, or if human bones were exposed. The feature was marked by pin flags, and left as a pedestal until the completion of the backhoe work. In areas where no features were observed, the backhoe operation continued until sterile clay subsoil was reached. There came a point in this process when the backhoe was no longer available. From that time on, the midden was removed by shovel, with the landowner providing a significant portion of the labor. As with the backhoe, this work was monitored continuously. By this means, additional features were identified, but no new burials were discovered. In all, over 125 features, including burials, were identified, excavated, and recorded (Figure 3).

The investigation of the site was restricted to the construction area, roughly 900 square feet that encompassed the addition to the house and a rear patio. This small area appears to have been restricted to mortuary use. Based on surface finds in an adjacent yard and cultivated field, the site extends considerably farther north of the excavations. Although it has not been field verified, it is reasonable to conclude that nearby areas contain evidence of residential and/or specialized work areas. Artifacts, floral and faunal remains, and features associated with day-to-day subsistence and resource processing were found during the excavations, indicating the group lived and worked at or very nearby the site.

Late Middle Archaic Matanzas occupation(s), assignable to the early French Lick Phase, was identified at the site. The upper zone, consisting of a thick, black earthen midden, contains thermal features, shallow and deep basins or pits of various function, and human burials. Features from the upper zone descend into the lower midden. The outlines of these pits are generally difficult to discern due to the dark color of the midden into which they intruded. However, the soil immediately surrounding the burials appeared as dark grayish brown lenses within the midden. The lower zone consists of a slightly lighter, more grayish brown midden with features extending into the yellowish-brown clay subsoil, rendering them more clearly visible during excavation (Figure 4).

Both zones contained fire-cracked rock, but not in high densities, fired clay, pieces of minerals such as hematite and limonite, bone, and a small amount of mussel shell (Figure 5).

Three radiocarbon dates were obtained from the Meyer site. A sample taken from a charcoal concentration associated with Feature 111 resulted in a conventional date of 5280 ± 70 radiocarbon years before present (rcybp) or 3330 B.C. (Beta-201488). This feature was a charcoal concentration adjacent to Burial 110 and produced an engraved bone pin depicted in Figure 8 below. A second date was obtained from Feature 3d. This assay resulted in a conventional date of 5330 ± 40 rcybp or 3380 B.C. (Beta - 274344). This feature, discussed below, is one of four small charcoal pits that surrounded an infant burial. The third date, from Feature 107, was 5200 ± 50 rcybp or 3250 B.C. (Beta- 274343). This feature was a very dense

charcoal concentration found near a fired clay pit. These dates suggest the cemetery may have been utilized for as few as 40 years, or as many as 220 years, during the terminal portion of the Middle Archaic period (6000 to 3500 B.C.) and into the Late Archaic period (3500 to 1500 B.C.).

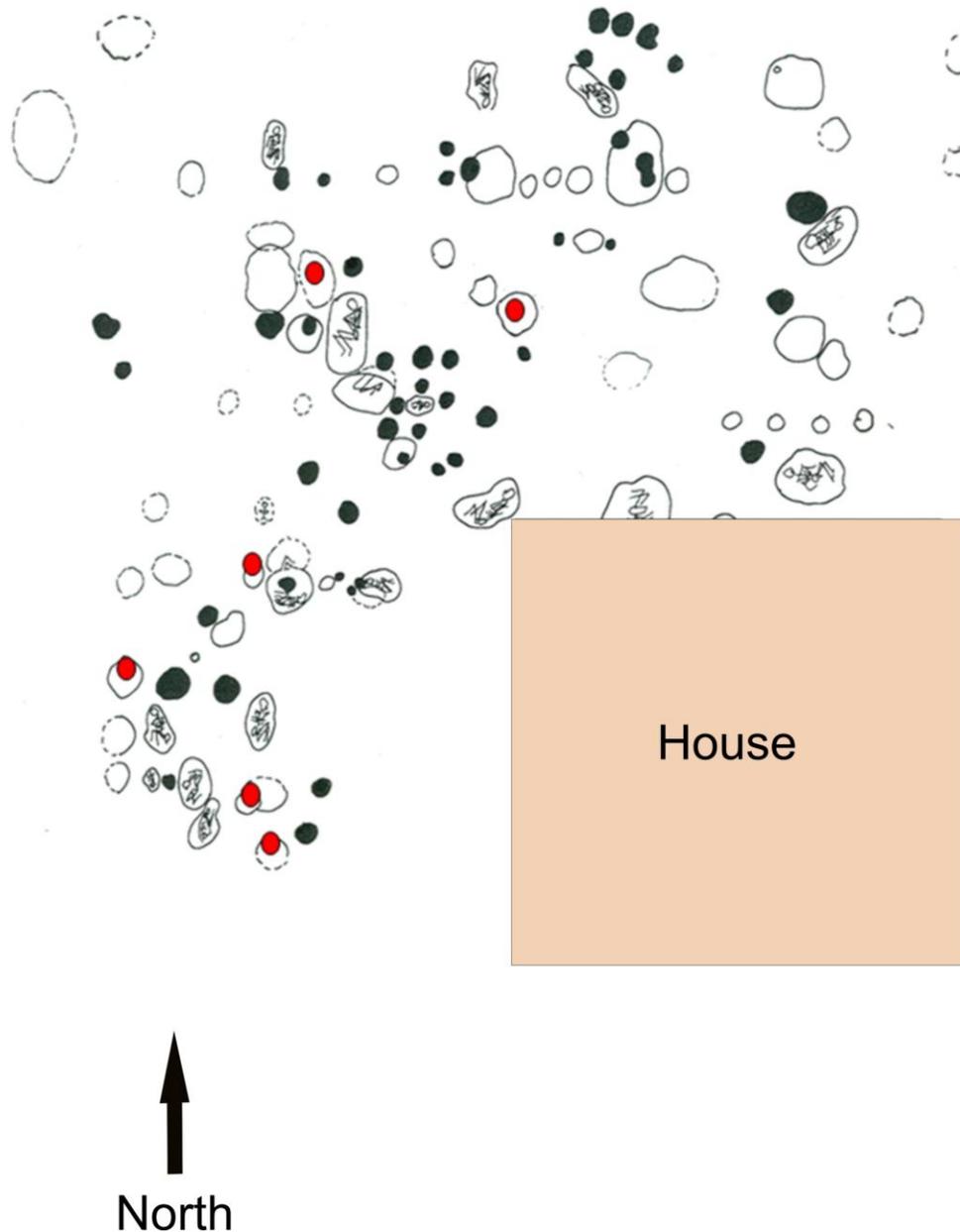


Figure 3. Distribution of features at the Meyer site. Black pits are charcoal concentrations; red dots mark the pits that were reddened by fire.

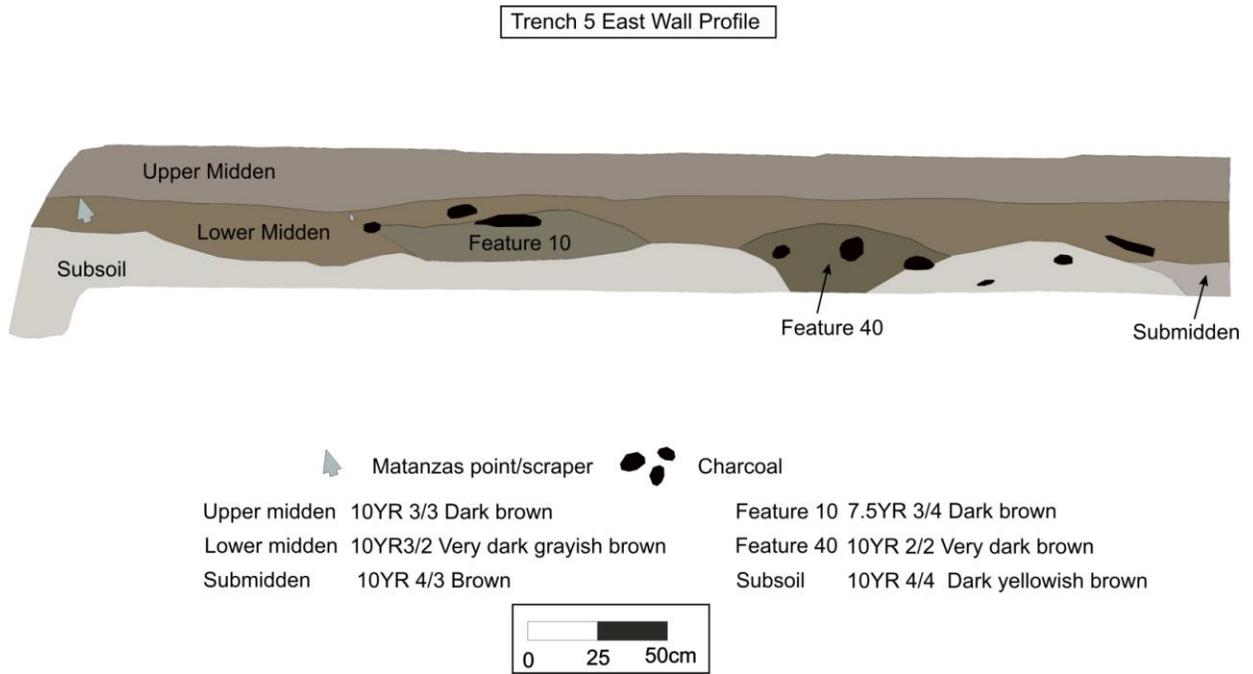


Figure 4. Composite profile.

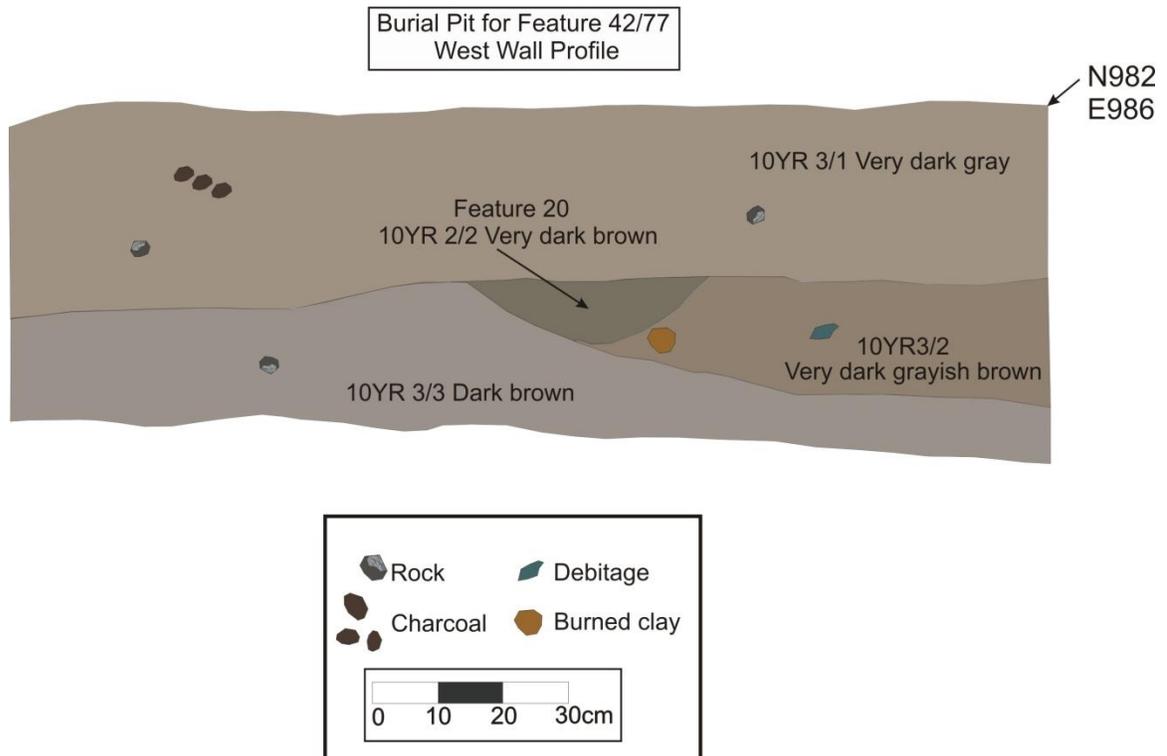


Figure 5. Profile of test unit in the southwest portion of the site.

Artifacts

Previous and current landowners of the Meyer site have long collected prehistoric artifacts from the ground surface. Among the diagnostic projectile points that have been found are Brewerton/Vosburg (Figure 6) and Matanzas (Figure 7) types. Matanzas examples dominate the assemblage by far. Sixteen of 34 (47 percent) identifiable bifaces were of the Matanzas cluster. Most of these were exhausted, broken, or heat damaged.

Controlled excavations in the midden produced relatively few artifacts, and only modest amounts of fire-cracked rock. Like some other regional Archaic burial sites, flint debitage was a minor occurring artifact type. The features, on the other hand, produced a wide variety of artifact types, including highly polished bone pins (Figure 8), bone awls, modified canine teeth that were likely ornaments, cut antler, bone bead fragments, projectile points, drills, scrapers, groundstone tool fragments (i.e. grinding stones), and turtle shells. Feature 1, for instance, contained a small cache of clustered artifacts including an entire articulated turtle carapace and plastron that may be a rattle, two side-notched projectile points, and two rodent mandibles (Figure 9). An unusual fragmented bannerstone was recovered from unprovenienced context (Figure 10). Other finds include a significant amount of animal bone, including deer, turtle, drumfish, large birds, small mammals, and mussels. In addition, moderate amounts of charred nut fragments were recovered.



Figure 6. Brewerton/Vosburg projectile points.



Figure 7. Matanzas projectile points.



Figure 8. Undecorated and engraved bone pins.



Figure 9. Cache of turtle carapace, projectile points, and mammal mandibles from Feature 1.

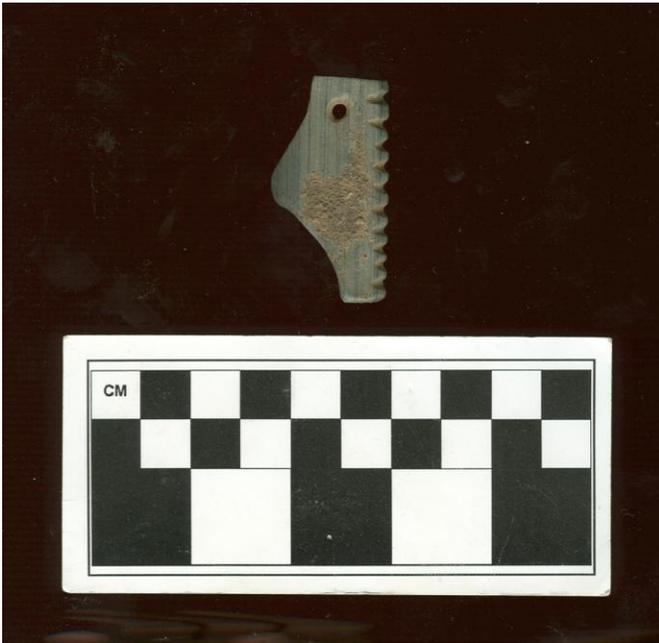


Figure 10. Unusual fragmented bannerstone, of green banded slate. The artifact exhibits a possible attempt at repair.

Features

A fairly restricted range of feature types was evident at the site. Aside from the primary burials, three principal feature types were identified, including charcoal concentrations, fired-earth stains, and large basins (Figure 11). These account for 80 percent of the total. Several isolated postmolds were also encountered, along with unique occurrences, such as a small pile of mussel shells. Residential features, such as earth ovens, cooking hearths, storage pits, and refuse pits were, however, lacking at the portion of the Meyer site examined during this project.

The features were concentrated in a roughly circular space located at the terminus of the low ridge spur. The area upon which the burials are concentrated was the highest point on the landform. In some ways, the site was “mound-like” in this location—the midden was accretional and thickest at its center where several burials were superimposed three deep.



Figure 11. Pit outline exposed in footer trench.

Charcoal Concentrations

Among the Archaic features documented were 50 very small pits that contained dense concentrations of charred soil and charcoal (Figure 12). These were generally small, circa 30 centimeters in diameter, although a few larger ones were also encountered. As a rule, they contained no artifacts. Three yielded a small amount of fire-cracked rock. One or more charcoal concentrations were found in direct association with most of the lower level burials. The placement of the pits varied, but was commonly at the knees, feet, and skull of the burial. One infant burial was associated with four charcoal pits arranged in the cardinal directions around it. The pits originated at the level of the burials, and were not observed in the upper levels. In only one circumstance did a charcoal concentration and burial actually intersect. In this case, the skull was burned.

The function of these pits is unclear. Binford (1967) noted a similar type of feature that he termed “smudge pits” at late prehistoric sites where cornhusks were burned. He presented ethnographic data indicating the pits were used to smoke hides during the tanning process. At first glance, this would seem to make sense at the Meyer Site Cemetery. Numerous hafted scrapers and bone awls were recovered at the site, both commonly used in hide-working (see Jefferies [1990] for a discussion of hafted scrapers). But this explanation is unsatisfactory for Meyer, where it does not seem likely that the smoking and processing of hides would occur in the immediate area of active burial.

Alternative suggestions can be speculated for the function of the charcoal pits, both of a practical and ritualistic function. Among the plausible explanations for these pits is that they were used to create dense smoke to ward off insects. This may have been necessary if the human burials were left exposed for some time before burial, perhaps for some specialized treatment. The charcoal concentrations could have been the result of a more practical, and perhaps ritualized, purpose of purifying the air in an area that may have contained very unpleasant odors. They could also represent burned offerings or incense, such as tobacco, sage, or willow during the burial service. Finally, the soot may have been used to actually smudge faces in a ritual context. While these explanations are all speculative at this point, this paper makes use of ethnographic sources to explore a possible association of these pits to mortuary ritual.



Figure 12. Charcoal concentration.

Fired-earth Stains

Six fire-reddened circular features were noted. These features, which appear to have been surface fires, contained no artifacts of any sort. As with the charcoal concentrations, these features were closely aligned with burials, and with one exception, did not contain any artifacts, charcoal, or burned rock. Because of their affiliation with the burials, it was tempting to attribute this coloration to ochre staining, but the features were actually patches of fired earth. As an experiment, samples of both the clay subsoil and midden were wrapped in foil and heated in a charcoal grill. After cooling, the heated samples were compared to unheated soils. The heating of the clay subsoil and the dark midden soil produced similar, though less vibrant, color changes as those documented in the field. Although it is clear that intense fires had caused the reddening of the soil, no charcoal, ash, burned wood, or fire-cracked rock was observed.

The red stains were located about ten centimeters or so above the level of the burials. These were upper level burials. None intruded into the clay subsoil as did the charcoal concentrations. Two of the six red stains were located at the heads of burials. The remaining stains were located nearby.

Large Shallow Basins

Eight large pits, which were relatively shallow in relation to their diameter, produced largely burned and unburned animal bone and fragmentary shell. Several yielded utilitarian artifact types, such as drills, hafted scrapers, and ground stone tools. A small number of chert flakes was found. Analysis of the debitage from a sample of the features was undertaken by Mr. Richard Stallings. Using the Johnson-Morrow flake analysis model (Johnson 1981; Johnson and Morrow 1987), Stallings concluded the major lithic industry at site 12Sp1082 involved the production of useable flakes from secondary amorphous cores (ones where most or all of the cortex had already been removed). A lesser activity was the tool maintenance/resharpening of late stage bifaces. The second highest frequencies of FCR were found in these pits. Several contained isolated elements of human bone.

It would appear these few pits served a processing function. Interestingly, most of these pits contained some amount of hematite and limonite. Feature 5, for instance, contained over 70 pieces of hematite. The dense presence of this material was noted at an early point in the excavations. Thereafter, the material was collected and bagged by provenience.

The low density of artifacts within the midden appears to be unusual for sites of this period. Because the site certainly extends beyond the area impacted by the house expansion, it is probable that nearby areas may contain more concentrated evidence of intensive occupation or specialized work areas.

Burials

Twenty-six primary burials were excavated. In some features, a small number of isolated human bones were identified. The isolated bones may reflect secondarily deposited elements scattered following the intrusion of a nearby or subsequent burial or some other activity. In several cases,

it appears that rodent activity or scavenging resulted in the disturbance and dispersal of an interment.

Seventeen of the burials contained one individual; nine housed multiple graves. As seen in Table 1, adults represent the highest percentage of the preserved burials. Infants were common, but children were poorly represented with only three found. At the time of this writing, only 12 individuals had been identified by gender. Analysis of the burials is ongoing by Dr. Christopher Schmidt and his students at the University of Indianapolis.

Table 1. Burial Data.

Feature No.	No. of Individuals	Age	Sex
1	2	20-25	M?
3	1	Fetal	I
6	1	Adult?	I
7	2	35-50 and 3-8	I/I
8	1	Adult?	I
11	3	35-50 and 18-23 and Fetal	M/I/I
15	1	35-50	F
17	2	25-35 and Infant	I/I
25	3	Infant	I
26	1	Adult?	I
42	1	12/15	M
46	2	12-15 and 20-35	F/I
50	1	Adult	I
54	1	20-35	M
63	2	35-50	M
73	1	Adult?	I
77	1	20-35	M
81	1	Infant	I
82	2	1-4 and Infant	I
91	1	20-35	M
102	1	Adult	I
104	1	20-35	M
104a	1	Infant	I
109	1	25-35	F
111	1	18-23	F
115	2	Infant and Adult	I/I

General Burial Patterns

There appears to have been unrestricted access to the cemetery, with individuals of all ages and sex represented, though the frequencies of subadults and infants seem to be comparatively high. The population has characteristics of an egalitarian society. Combined, the data suggests a uniform treatment of the dead.

All burials were moderately to very tightly flexed. There was no preference for burial on the right side or left, but 19 percent faced east; 56 percent faced west; 25 percent could not be determined because of the condition of the burials. Two of the burials were buried face down (Figure 13). In most cases, particularly in the lower zone, soil in the immediate area of the skeleton was much darker than the surrounding matrix. The bones were generally very well preserved. However, several burials, such as Feature 7 and Feature 68, had been reduced to meal.



Figure 13. One of two individuals buried face down. (Head was impacted by footer trench excavation).

One subadult was found with a large stemmed projectile in the area of his left shoulder blade. Another subadult was found “cradling” his head in his right hand which lay above his lap (Figure 14). Dr. Chris Schmidt reports there appears to be a cut mark on the C1 vertebrae of this individual. In addition, it appears as though some mutilation occurred regarding the tongue.

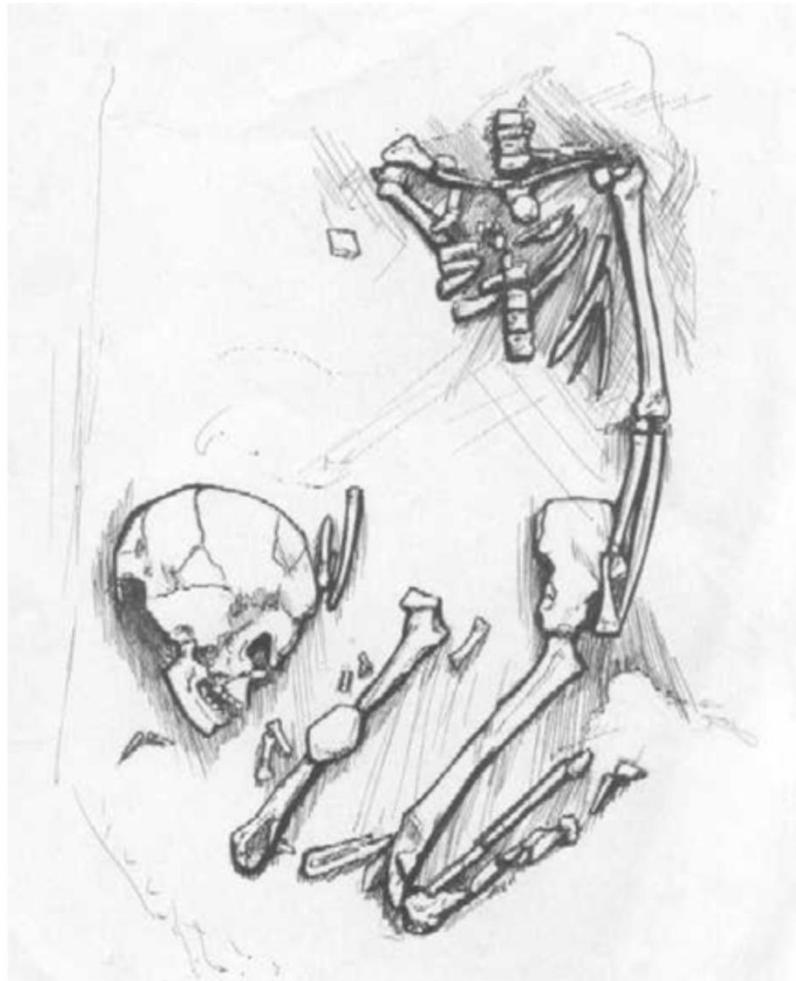
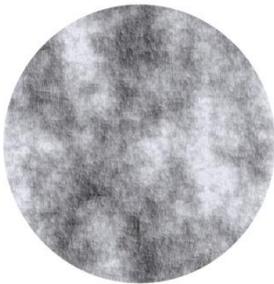


Figure 14. Individual with displaced cranium in Feature 42.

Most graves contained single interments. In those cases where multiple burials were in a single grave, these consisted of an adult and child, or an adult and infant. In one case, the bones of an adult were found with those of a young adult. Seven pits contain isolated human skeletal elements, including vertebrae, skull fragments, and phalanges. Infant bones appeared to be especially common elements in the larger primary burials. In several burials, there were missing and/or scattered elements. The burial in Feature 63, for instance, had undergone disturbance in the area of the spinal column. Vertebrae and ribs were present, but scattered throughout the grave. The disturbance does not appear to be the result of the excavation of later features prehistorically or with recent historic activity. Rather, the disturbance appears consistent with

rodent activity or scavenging. In another case, the burial in Feature 42 (see Figure 14) was missing its upper right arm and portions of the lower vertebral column and pelvic bones. Differential preservation does not seem to have been in play here or with the other cases. Trophy taking might have occurred in some cases, but considering the elements that are missing, it could not account for all of the missing bones.

Adults, children, and infants were all interred with artifacts, with no high status grave inclusions found. Some of the artifacts contained in the burials suggested a ritual “killing” in that they were broken, yet all or most of the pieces were present.

Nearly all burials had at least one large shell with them. A stack of mussel shells (Feature 116) was found near the burial in Feature 111. Shell was not present in sufficient amount to indicate it was a significant item in the diet. It is tempting to attribute the small pile of shells as a stockpile of digging implements for the excavation of the grave pits.

Importantly, all of the lower burials at Meyer—those that were dug into the clay subsoil—were associated with one or more small dense charcoal concentrations. These concentrations were found at the feet, knees, or heads of the burials (Figure 15). Most often these were small, as described above, measuring roughly 30 centimeters in diameter. In at least two cases, they were larger than 40 centimeters in diameter. These small pits contained no artifacts; rather, they consisted solely of dense charcoal. In only one instance, Feature 110 and Feature 15, did the evidence suggest that the fire that resulted in the creation of the charcoal concentration affect the burial. In this exception, the charcoal concentration was near the head, close enough that the skull of the burial was badly burned (Figure 16).

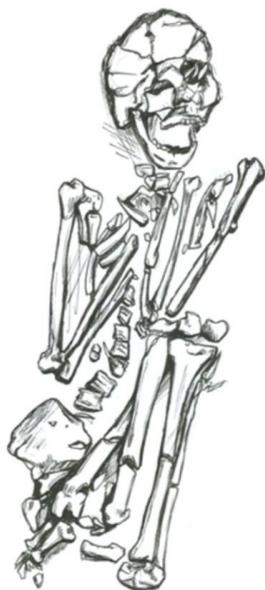
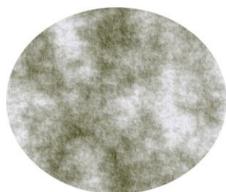


Figure 15. Very tightly flexed burial in Feature 109 with a charcoal concentration near the head.



Figure 16. Burial in Feature 15 associated with charcoal concentration (Feature 110).

One infant, Feature 3, was surrounded by four charcoal pits arranged in the cardinal directions surrounding the small grave (Figure 17).



Figure 17. Infant burial surrounded by four charcoal concentrations.

The remainder of this paper provides a review of ethnohistorical accounts to explore the relationship of the charcoal concentrations with the burials in an attempt to explain their functions. Insights relative to other archaeological observations at the Meyer site cemetery were also sought in historical accounts, as detailed below.

Ethnohistorical Accounts

To seek an explanation of the types of activities that might account for the features encountered at the Meyer site, historic ethnographical accounts of Shawnee mortuary customs and ceremonialism were reviewed (Bader 2005a). The Shawnee are known to have occupied the region historically, and there is a large body of ethnohistorical documentation for this tribe. There are undoubtedly inherent dangers in drawing direct comparisons between Middle and Late Archaic populations and historic ethnographic accounts of Native Americans who once occupied the Ohio River Valley because of the vast amount of time that separates the two. However, such information represents the nearest appropriate analogy to account for the behaviors that resulted in the creation of the feature types and patterns observed at the Meyer site.

The accounts referenced here derive primarily from the early nineteenth century manuscript of the traditions and customs of various Great Lakes and Ohio Valley tribes by C. C. Trowbridge (Kinietz and Voegelin 1939), noted primarily for his accounts of the Miami. Two previously unknown manuscripts were later identified among the Trowbridge family's collections that contained new information on the Shawnee. Permission to reproduce these papers, containing information from the Shawnee Prophet and Black Hoof, was obtained by ethnohistorian Vernon Kinietz in the 1930s. The papers were subsequently published by the University of Michigan Press (Kinietz and Voegelin 1939). Another important source of information was the research of Ermine Wheeler Voegelin that was undertaken following the 1935 Indianapolis Archaeological Conference at which there was significant discussion of the Madisonville Site and the relationship of the site's occupants to historic tribal groups (Voegelin 1944). In particular, Voegelin researched ethnographic accounts of Shawnee burial customs, ceremonies, and rites to investigate their relationship to observed archaeological phenomena observed at prehistoric sites in the Ohio River Valley. Additional information was obtained from the work of James H. Howard who conducted fieldwork among the various groups of Shawnee between 1969 and 1974 (Howard 1981). Brief nineteenth century anecdotal accounts (Anonymous n.d.; Anonymous 1837) and historic drawings provided by the Tippecanoe County Historical Association (George Winter 1837; n.d.) provided first-hand data of Native American burials in Indiana. While much of Winter's work focused on the Miami and Potawatomi along the Wabash River in northern Indiana in the late 1830s, he is also known to have documented the Shawnee who occupied adjacent territory.

These sources were reviewed to obtain information along several lines of Shawnee burial customs, including:

- Preparation of the body prior to burial;
- Preparation of the grave;
- Location of the cemetery;

- The use of sacred fire;
- The significance of the cardinal directions;
- Ritual feasting; and
- Marking the grave site.

These are discussed in turn below, and observations from the Meyer site augment the discussion.

Preparation of the Body

Ethnohistorical accounts relating to the preparation of the corpse for burial are interesting for several reasons in so much as they may explain the data observed at the Meyer site. In particular, the behaviors focus on painting the body, binding and wrapping the body in skins, and the length of time before the actual interment occurred.

Body Painting. Following the death of an individual, the body was prepared for burial. Preparations included washing, dressing, and painting the corpse. Body painting is mentioned in several accounts of Shawnee burial customs.

Then some friends, of a different tribe [clan] from that of the deceased, dress the body in new clothes & paint the face [Kinietz and Voegelin 1939:24].

The hair is combed, and before burial the face is painted, a man's being painted variously or not at all, and a woman's having a round red spot painted on each cheek [Voegelin 1944:243].

The supposition that painting was a significant part of the burial ritual is supported by the fact that it was also applied to living members of the deceased during the funeral observations:

At the condolence ceremony, the bereaved spouse sits near or between watch fires, in the midst of the assembled mourners. An affinal relative sits close beside him (her). The spouse and the attendant must remain awake the whole night; a pan of plant tea is set near them and at intervals the spouse's face is freshened with the tea to help keep him awake. At dawn, the spouse's hair is washed and his face painted [Voeglin, quoted in Howard 1981:149].

Unusually abundant iron-derived hematite and limonite was found during the Meyer site excavation. In several cases, the bones within a grave were stained with red ochre. Primarily, however, large chunks of pigments were found in the feature fill.

The presence of red ochre within the graves of numerous Archaic period burial sites of the region, and various symbolic explanations have been offered for this. The large abundance of this material in features was noted, for example, at site 12F148 in Floyd County (one site within the Paddy's West Archaeological Complex) by Ed Smith of the Glenn A. Black Laboratory (Smith and Mocas 1995:350). Smith suggested the hematite may have been processed for ochre

and used in mortuary ceremonialism, or secular activities such as dyeing hides and garments, or for body paint. In support of his idea, he noted a grinding slab was stained with ochre at the site.

Binding and Wrapping of the Corpse. Shawnee practices included wrapping the body in animal skins. It appears that the body may have been tied to secure it in some instances.

The body of the deceased is kept inside the dwelling house for about a half a day after death, then prepared for burial. It is bathed and the extremities tied if need be [Voegelin 1944:243].

After the body is dressed, it is laid supine, with the arms crossed over the chest, and is covered with a robe [Voegelin 1944:243].

The extreme tightness of the flexing of several of the Meyer site burials suggests the corpses were bound or wrapped, or both. A zone or lens of very dark grayish soil matrix, noted immediately surrounding the skeletons, may offer another indication the bodies were wrapped in skins. The sharp boundary between this lens and the surrounding dark midden may have occurred due to the containment of the decomposing body.

Additional evidence in support of the wrapping of the dead was the location of bone pins and bone pin fragments recovered from numerous burials at the Meyer site. These pins were not found near the head as though they were hair ornaments, but rather from the areas of the elbow, feet, and elsewhere along the perimeter of the flexed burial where the shroud might conceivably have been pinned together. Rocks were located around the outer perimeters of the bodies in several cases at the Meyer site. It has been suggested (Schmidt, personal communication 2004) that these rocks may have been deliberately placed to hold down a burial covering.

Elapse of Time before Burial. It can be speculated that the corpses were exposed for some time before burial at the Meyer site. The tightness of the flexing of the burials in Features 77, 109, and 111 appears so marked that it is hard to imagine fully fleshed and hydrated bodies could have been forced into such a position otherwise. The preparation of the body for burial may have been delayed for several days, during which time the body may have become somewhat desiccated. This may have made it easier to bind and wrap prior to being placed in the grave.

Among the possible explanations for leaving the corpse exposed for some time after death can be found in the following from Shawnee ethnohistory:

The funeral rites last four days. A vigil, either inside or outside the dwelling, is held beside the corpse during the first night. Disposal of the body may be on the first day after death . . . [Voegelin 1944:244].

The body of the deceased is kept covered inside the dwelling house for about half a day after death, then prepared for burial [Voegelin 1944].

The body was left in the dwelling house for four days after death. The face was left uncovered and the corpse frequently inspected for signs of life [Voegelin 1944:268].

Or, according to another account:

In this manner, the corpse is kept two days when it is carried to the grave by the same attendants who dressed & laid it out [Trowbridge 1824:24-25 in Howard 1981:150].

As mentioned previously, in several primary, otherwise well-preserved and articulated burials at the Meyer site, certain skeletal elements are totally missing. These include primarily upper arms, parts of vertebral column, and ribs. Vertebrae are scattered throughout the grave, and phalanges and rib sections are missing. This could be attributable to rodent activity or scavenging by carnivores, the latter of which would have been facilitated by the burial remaining above ground for several days. However, Shawnee accounts suggest that a vigil was kept by the body and that the body was tightly wrapped, making scavenging seem unlikely and suggesting that the disturbance occurred after burial.

Preparation of the Grave

Shawnee accounts were also reviewed for information regarding the preparation and configuration of the grave sites. These observations speak to the lining of the grave with bark, and the covering of the body with bark or wood.

Graves are dug about four feet deep, and have an east-west orientation. The interior of the grave is lined on the ends, sides, and bottom with wood or bark, and a piece of bark or wood is set over the body [Voegelin 1944:246].

People of the Illinois Nation do just the Contrary; for when any of them die, they wrap them up in Skins, and then put them into Coffins made of the Barks of Trees, then sing and dance about them for twenty-four Hours [Joutel 1867 in Howard 1981:150].

The 1837 eyewitness of the burial of a young Indian girl on the banks of Lake Ke-wah-na states that:

The body was raised by means of strips of white bark, and lowered into the grave. A few rude boards were placed above it. Upon these boards the Indian women, passing around in a circle, successively threw a small clod of earth [Anonymous 1837].

This may have been written by one Father Petit who had a mission near the lake.

In describing a vandalized grave, an anonymous observer noted that:

The decaying corpse had been dismantled of its shelter, and the humble pile of logs that piety and affection raised to a sacred memory has been leveled to the sod [Anonymous n.d.].

Wooden grave houses appear to have been introduced rather late. They are described as follows:

Among the Absentee (and perhaps among the Cherokee), poles are laid across the top of the grave flush with the ground, bark is laid over the poles, and the earth taken from the cavity is piled over this bark covering. All earth taken from the grave must be replaced. A grave house, built of logs four to five inches in diameter, is erected over the grave [Voegelin 1944:247].

As reported by an unknown observer in 1837, during the burial:

The Indians maintained an unbroken silence. Some were reclining upon the grass near the corpse---some sitting upon a pile of logs which had been collected to form a covering for the grave---others were standing apart, with folded arms and droop-heads [Anonymous 1837].

The image portrayed in Figure 18 captures this aspect of the ceremony.

A 1937 interview with John Bennett describing Shawnee graves testifies to the fact that some traditions were long-standing (Howard 1981:155; Oklahoma City 1937). Bennett was a white man who was familiar with Shawnee customs. He relates:

Shawnee graves were dug about three feet deep. The body was put in and covered with a layer of bark. Stout poles were then driven into the four corners of the grave and then a layer of other poles were “notched” to these so as to completely cover the corpse. Then a layer of 8 to 10 inches of dirt was thrown into the grave. Personal possessions of the deceased were put into the grave above this and a small gravehouse of poles covered with clapboards was built over the grave [Oklahoma City 1937].

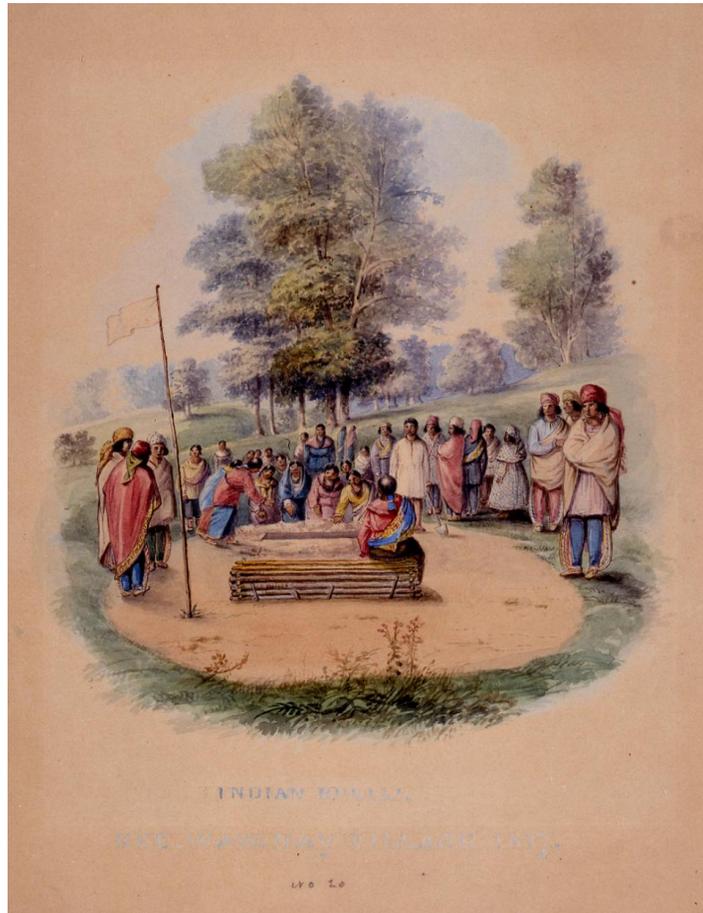


Figure 18. 1837 grave house at the Kee-waw-nay (Potawatomi) Village in northern Indiana, constructed of wooden poles. Image by George Winter, courtesy of the Tippecanoe County Historical Association, Lafayette, Indiana.

Recorded observations of Shawnee burials suggest an explanation for the abundance of bark and fibrous woody material in the grave pits at the Meyer site. A total of 23 botanical samples (of the 55 samples processed) recovered from features through flotation were analyzed by Dr. Jocelyn Turner (Turner 2007). The 23 samples originated from both burial and non-burial features. While Turner found that the recovered archaeobotanical assemblage reflected the typical plant food spectrum identified at other late Mid-Late Archaic sites in the Eastern Woodlands, she noted (2007:8, 12) that the primary botanical material recovered from the features was charred bark and wood charcoal (Figure 19 and Figure 20). Carbonized bark and wood were found to be present in nearly all of the 23 analyzed samples. Of these, 21 contained wood, and 18 contained bark. Bark was present in the largest numbers and the highest density than was wood, with 654 (+ uncounted) bark fragments compared to 291 wood fragments, and 9.60×10^{-2} g bark fragments/liter of soil compared to 1.62×10^{-2} g wood fragments/liter of soil (Turner 2007).

Turner noted no obvious patterns in bark or wood densities, regardless of context or weight densities when bark and wood fragments were compared. High density of wood did not correlate with a high density of bark. No one feature type (burial versus non-burial) contained larger amounts of bark. Feature 107, a dense charcoal concentration, had a significantly high density of charred bark. This feature also contained a medium density of wood fragments (1.13×10^{-2} g/L). Burial 15, which was nearby Feature 107, had similar densities.

Likewise, no pattern was identified regarding the frequencies and densities of charred wood or nutshell by feature type. Turner conducted a correspondence analysis and found that the majority of the samples (midden, burials, and non-burials) clustered when all variables were considered. All exhibited a similar content of wood, hickory and walnut shell, and seeds (Turner 2007).

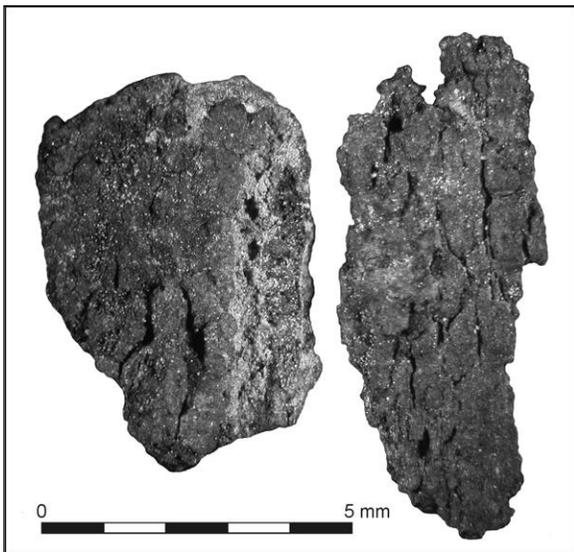


Figure 19. Two fragments identified as bark.

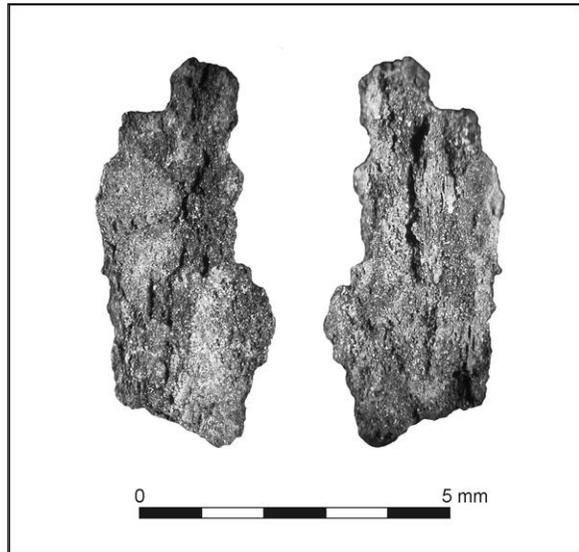


Figure 20. Fragment identified as wood with bark present.

Place of Burial

The locations of the place of burial is described variably as “near the house of the deceased” (Voegelin 1944:243, 259) or in a location removed from the village (Voegelin 1944:260). Both seem to have involved a procession of the grieving. Shawnee funerals observed during the nineteenth century tell the story of funeral processions out of the village to the grave site (Figure 21).

All of the relatives of the deceased, old & young, great & small, follow the corpse, and when arrived at the grave & the body is deposited, each of the friends, moving around towards the west, sprinkles over the body a small amount of tobacco, repeating the entreaties which have been mentioned as customary among

the Delawares, that the deceased would not look back to earth, or think about the friends which remain behind, but rather pursue the course pointed out for the dead & trouble none whose lot it is to survive him [Kinietz and Voegelin 1939:24].



Figure 21. Funeral procession, northern Indiana, undocumented affiliation. Image by George Winter, circa 1837-1838, courtesy of the Tippecanoe County Historical Association, Lafayette, Indiana.

Around 1820, John Collett reports of an account by one Fred Goss regarding several burials that suggest the dead may have been brought to a traditional place of burial from some distance away:

. . . on a small hillock or mound . . . a roving band of Shawnee Indiana had buried a dead child of the tribe. Shortly after the settlement of Gosport [Indiana], when the same band was in this region, their chief, “Big Fire,” died. They brought his body in a canoe ten miles by river, thence it was carried, by four elders of the tribe, on a bier made of two poles interlaced with bark, to the grave, where it was painted, dressed in his best blanket and beaded moccasins and buried with his ornaments and war weapons [Collett 1875].

Archaic burials may reflect disposal of the dead within either active habitation areas, associated refuse zones, or formally established cemeteries within a segregated area set aside specifically for that purpose. Milner and others note that the distinction between a formally established cemetery and other forms of burial is important if one wishes to make the argument that cemeteries functioned to establish territorial rights and group ownership (George Milner, personal communication February 17, 2005).

At the Meyer site, it appears there was a segregated burial area. The general lack of features related to day-to-day activities such as hearths, storage pits, refuse pits, other activity areas suggest a limited function for this portion of the site. Furthermore, the midden matrix of the burial pits was generally devoid of artifacts. Most of the artifacts recovered were found in features. Finally, the density of burials and charcoal concentrations also indicate that this area was dedicated to the interment of the deceased of the community. Only a small portion of the Meyer site has been investigated. The site continued northward into a large flat field. This area may have been the location of an associated residential area.

Use of Sacred Fire

The Meyer site burials appear to be associated with ceremony involving fire. The small charcoal concentrations so prevalent at the Meyer site are difficult to interpret in that they contain no artifacts to enlighten their functions. The obvious correlation with burials, however, indicates an association that may have been spiritual or ritualistic in nature. The charcoal concentrations could have been smudge pits or the result of burning tobacco, incense, or other offerings. However, ethnographic accounts suggest these may have been created by the burning of watch fires or lights that provided symbolic guidance for the departed soul. The following abstracts detail the importance of sacred fire in Shawnee burial ritual:

A fire is kept burning for three nights at the head of the grave of one just dead. A small opening was made from the mouth of the dead to the surface by inserting a long rod through the newly filled grave and withdrawing it. Provisions were also kept at the head of the grave for 3 nights. They [the Shawnee] explained this custom by saying it took three days and nights for the spirit to reach the spirit land . . . [Spencer 1908:391 in Howard 1981:154].

A few close kin of the dead remain [at the grave] with the surviving spouse, one kinsmen staying behind to light a fire at the grave each night until the fourth-day ceremonies. This fire lights the spirit on its journey [Voegelin 1944:245].

At the condolence ceremony, the bereaved spouse sits near or between the watch fires, in the midst of the assembled mourners. The spouse and the attendant must remain awake the entire night [Voegelin 1944:246].

Food and fire were placed at the head of the grave for three days and nights after death [Voegelin 1944:261].

A small fire was built near the grave on the fourth morning, and the leader delivered a speech to the dead, burning tobacco in the fire near the funeral so that his words would be taken upward in the smoke [Voegelin 1944:268].

The 1837 eyewitness of the burial of a young Indian girl observed by an unidentified person who telegraphed the ceremony via the Logansport Telegraph on October 21, 1837 relates the following:

The grave was about three feet deep; and near it, wrapped in white covering, the corpse was lying. A long pole, resembling a flag staff, was planted a few feet from the grave: from the top of this pole a little white flag was fluttering in the gentle wind that swept from the lake. Near the flag-staff a small fire was kept burning [Anonymous 1837].

Howard noted that the burning of sacred fires at Shawnee funerals continued into the present, as he saw at a 1971 funeral:

I was told that it [the fire] would burn this way the rest of that day, through the next night, and most of the following day. It would then be raked clean and rebuilt, this time oriented north and south, to burn for two more days [Howard 1981:156].

Significance of the Cardinal Directions

The cardinal directions are known to have special significance to the Native Americans continent-wide.

They pray also to four serpents who occupy the four cardinal points – to these their supplications are secretly made, accompanied by an offering of tobacco, thrown into the fire [Kinietz and Voegelin 1939:42].

The placement of sacred fires in the cardinal directions around the infant burial in Feature 3 may reflect the spiritual importance of the four directions.

Ritual Feasting

Crothers' (2004) suggestion relative to the Kentucky Green River shell mounds suggests those sites may not have been occupied for a sustained period of time, but only during periods of what he calls group flux, brought about for the sake of interring the dead and possibly accompanied by ritual feasting. The ethnographic accounts of Shawnee customs indicate that such feasting occurred in association with burial. A number of historic accounts relate to communal feasting in relation to funeral services.

At night they made a feast, which is termed the “death feast,” or the feast of death. They celebrate, in feasts of this kind, the good and worthy qualities and actions of some deceased person of the tribe, and mutually and undisguisedly lament their death by tears and lamentation [Voegelin 1944:262].

A large feast is served to funeral guests after interment. The gravediggers do not share in this feast, but are fed separately [Voegelin 1944:243].

When the mourners & friends return to the village they find a mourning feast prepared for them, of which they partake, and at the close one of the aged men addresses the mourners, exhorting them to forget the loss of their friend & reminding them that such must be the lot of all [Kinietz and Voegelin 1939:24-25].

On the third night after the death of either an adult or a child, the mourners reassemble at the home of the deceased for an all-night vigil. A meal is prepared for the deceased and served to the dead and his blood kin, prior to or during this vigil. Eating the food is referred to as “eating the last meal with the dead” [Voegelin 1944:245].

After dawn all the mourners undergo purification rites . . . the dwelling and surrounding premises are also purified; the yard surrounding the house is swept clean and new fires kindled . . . A breakfast is served, the food for the meal having been provided by the blood kin of the dead [Voegelin 1944:24].

And again:

The relatives mourn for the period of 12 days, at the end of which a feast is prepared and after partaking of this they wash themselves and again participate in the customary amusements & employments [Kinietz and Voegelin 1939:25].

The presence of faunal remains and food processing artifacts such as rolling pestles at the Meyer site could be explained as food preparation, consumption, and grave offerings during ritualized burial ceremony. Most of these references indicate the feasting occurred at or near the residences, however, rather than at the gravesite. While the amount of fragmented animal bone, shell, and charred nut remains from the investigated portion of the Meyer site seems insufficient to have supplied a group of any size with a feast, it is noted in the literature that a portion of the burial feast was brought to the grave itself for four nights.

The dead were feasted periodically lest they return and conflict illness on friends and kinfolk. Provisions were set out for them [Spencer 1908:391].

Provisions were also kept at the head of the grave for 3 nights. They explained this custom by saying that it took 3 days and nights for the spirit to reach the spirit land . . . [Spencer 1908:391].

After interment:

Food, consisting of bread and wild game which the hunters procured for the feast, was piled in the yard [Voegelin 1944:262].

Marking the Grave Site

Compared to other regional sites of the period, few graves at the Meyer site intruded upon one another. This may relate to the fact that the population of the cemetery was small and utilized only for several generations. Burials at other regional cemeteries number in the hundreds, increasing the likelihood over time that interment would intersect previous graves. However, the situation at the Meyer site also introduces the notion that the graves of previous years may have been well marked. Several ethnographical passages remark on the placement of markers at the gravesite. These markers served to identify the grave site over the passage of years to allow for future visitation of the grave.

A long pole, resembling a flag staff, was planted a few feet from the grave; from the top of the pole a little white flag was fluttering in the gentle wind that swept from the lake [Anonymous 1837].

Figure 18 (above) shows a flag-staff marking the head of the grave.

The 1820 account by Collett of the burial of a chief referred to above also provides information on marking the grave.

The grave was three feet deep, lined with rough boards and bark. Over it was planted an oak post, five feet high, eight inches square, tapering to a point at the top, which was painted red. The monument was often visited and long revered by the band. It has disappeared within a few years [Collett 1875].

The presence of these wooden markers speaks to the fact that the burial place was held sacred and revisited by the survivors. Of course, wooden markers would likely not have lasted more than a generation or two. However, several isolated post molds were found at the Meyer site. These were in no particular pattern, but were found in proximity to graves.

Regional Comparisons

The small charcoal pit features documented at the Meyer site have been identified at other French Lick Phase mortuary sites. They were noted by Della Cook at the Little Pigeon Creek Cemetery (Cook et al. 1986), located west of the Meyer site in Warrick County. The Little Pigeon Cemetery site produced a similar range of artifacts, including bone and antler tools and engraved bone pins. Like the Meyer site, the lower level of Little Pigeon Creek Cemetery is a Matanzas occupation containing a restricted range of feature types, namely hearths, ash lenses, and “smudge pits” (Cook et al. 1986).

The lower midden reflects activities responsible for the accumulation of the midden deposits. In situ hearths, ash lenses, and smudge pits are common. The stone tool assemblage reflects a limited range of activities. There is virtually no chert debitage, and there are few finished lithic artifacts, most of which are Matanzas forms [Cook et al. 1986].

Cook does not recall any direct association of the smudge pits with individual burials, but she reports that she sampled very little of the sub-mound surface. She plans to check into this as her study progresses (personal communication 2004). As at Meyer, the Little Pigeon Cemetery yielded little debitage, but finished bifaces were common. Unlike Meyer, however, no finished bifaces—in fact, few grave goods—were found within the 31 documented graves.

The “Type 3” features documented at Carrier Mills in Illinois also appear to fit the description of the charcoal concentrations in both size, and shape, as well as the general lack of artifacts (Jefferies and Butler 1982:147). Jefferies and Butler interpreted the pits to be small hearths that generated limited amounts of heat and light (Jefferies and Butler 1982:147). Like Cook, they noted no clear association with burials, although Jefferies has observed that the very high density and superimposition of burials, Type 3 features, and other features likely precluded the possibility of pattern identification (personal communication, October 2005). The charcoal concentrations appear to have been exclusively associated with the Archaic occupation of Area A of the site, and there was strong indication the features dated to the Middle Archaic occupation (Jefferies and Butler 1982:147). Jefferies and Butler observe in their commentary on these features that the Lamoka Lake Site in New York shares similar morphological characteristics. At that site, Ritchie described the small pits as containing “a pulpy black mass” and noted that the heat from these hearths discolored the surrounding soil (Ritchie, cited in Jefferies and Butler 1982:147). Ritchie interpreted features of this type as hearths that were basically basin-shaped masses of charcoal. This description matches well with the Meyer site features.

The Bluegrass Site (12W162), located to the northwest in Warrick County, Indiana, has been interpreted as a base camp and cemetery located near Bluegrass Creek, a tributary of Pigeon Creek. Six radiocarbon dates bracket an occupation sequence of 5020 ± 80 to 5290 ± 70 rcybp, with one earlier outlier (Stafford and Cantin 2005:22). The dates from the Meyer site are consistent with the older of these. The site consisted of a heavy rock-filled midden (Stafford and Cantin 2005). A total of 132 pits, and at least 80 human burials, were excavated over a three year period in the early 1980s. The late Middle-Late Archaic Period French Lick Phase site

yielded numerous hafted bifaces (n=434) including Matanzas and stemmed types. Ground stone tools were also recovered, along with numerous bone and antler artifacts. A variety of feature types was documented at the site, including human and dog burials, refuse pits surrounded by extensive burned clay floors, and hearths and cooking pits, some of which exceeded 10 feet in diameter (Pace 1983). Stafford noted no association of charcoal concentrations with burials in his study of the site (personal communication 2005), nor is a high frequency of such features reported in the various field season excavation reports. However, Carpenter reports one feature that she calls a smudge pit from the 1982 excavations at the site (Carpenter 1982:3). The pit measured 9 by 10 inches in diameter and was 3 inches deep. She suggests the feature may have been used for the smoking and preparation of hides.

During the late 1970s, eleven archaeological sites were subjected to rescue excavation by Cheryl Munson of Glenn A. Black Laboratory of Archaeology prior to the impoundment of Patoka Lake, Indiana by the U.S. Army Corps of Engineers (Munson 1980). These investigations formed the basis for defining the French Lick Phase of the Archaic period within the hill country of south-central Indiana (Munson 1980:721). The findings of this project concluded the major prehistoric occupation in the Upper Patoka River drainage occurred during the Archaic period. Middle-Late Archaic occupation in the Upper Patoka River drainage was characterized as diverse in “size, location, and artifacts” (Munson 1980:672). Seven hypothesized settlement categories were proposed that included shell middens and riverine locations; fishing camps along tributaries; base camps; unknown small camps; hunting camps along tributaries; rockshelter camps occupied during the fall and winter; and medium to large winter habitations (Munson 1980:678). There were five primary features types documented during this series of investigations, including caches, storage pits, hearths, indirect heating pits, and charcoal concentrations (Munson 1980:576). No mortuary data was recovered during the investigations. Munson termed the latter feature “circular cylinders.” The description of these pits compares favorably with those documented at the Meyer site, although there was no burial association. The pits contained high charcoal densities, mainly of nut and wood. Munson notes the small pits were filled with combustible materials. Since the pit margins did not exhibit fired earth this indicated the fires were smoldering with reducing atmospheres (Munson 1980:569). Based on studies by Binford (1967), she considered the likelihood these pits functioned to smoke hides, or possibly to smudge pottery. In the absence of bone tools generally thought to be used in hide-working, Munson examined the lithic tools, and concluded there were higher frequencies of scrapers, flake knives, and spurs at the site that contained smudge pits (Munson 1980:569). She concluded, therefore, that the charcoal concentrations were likely used in hide-smoking. Based on radiocarbon dates and artifact types, she assigned these pits to the Mid-Late Archaic periods.

Across the Ohio River in Kentucky, an almost identical pattern to the Meyer site is found at the Kentucky Air National Guard (KYANG) Site (15JF267). The KYANG Site in Louisville, Kentucky was excavated in 1972-1973 by the University of Louisville Archaeological Survey (Bader 1992; Bader 2005c; Bader and Granger 1989; Granger 1988). Much like the Meyer site, this site contained two primary midden zones. These zones were more clearly apparent at KYANG than at Meyer due to the fact that the lower midden contained significant shell deposits. The upper zone had little to no shell. Human interments occurred in both zones of the site. The lower zone burials were placed within pits excavated into the yellow clay subsoil, while the upper zone burials intruded into the lower zone. The lower zone of KYANG, as at Meyer, was

dominated by Matanzas points and assigned to the Old Clarksville Phase of the Falls Archaic (Granger 1988). A single radiocarbon date of 5010 ± 90 was obtained from a lower level feature, Feature 14 (Bader and Granger 1989). This pit was located near the lower arm and pelvis of Burial 17. The upper occupation yielded a substantial Late Archaic presence as seen in the predominance of Lone Hill Phase stemmed Rowlette/McWhinney forms.

Since no full report of the now 30-plus year old excavations was written, the original KYANG field notes and mapping were examined. The notes, photographs, and mapping revealed an association of burials with charcoal concentrations that went unappreciated at the time of the excavations. At this mortuary site, a total of 52 individuals (some accompanied by red ochre) in 38 burial pits were excavated. Only 28 non-burial features were identified, despite large block excavation, including several small hearths, two piles of burned rock, a few postmolds, and 15 small features that fit the description of charcoal concentrations. As at Meyer, the latter were located in direct association with burials. The concentrations of charcoal were of the same size and configuration as at Meyer, and similarly contained no artifacts of any type. In three instances, the charcoal concentrations were located near the head of the deceased. Others were found at the sides of the individuals near the elbow.

Few small charcoal filled pits have been documented at other Kentucky Late Archaic mortuary sites. Several were found at the Late Archaic Rosenberger Site in Jefferson County, Kentucky. However, there is no mention in the report that these were associated with any of the 104 burials investigated at this site (Collins 1979).

Small circular pits, with the exception of Feas. 138, 142, and 148, were distinguished by very dark stains and a high quantity of charcoal throughout the fill. Fea. 138 was a lighter gray stain, while Feas. 142 and 148 were moderately dark with small flecks and streaks of charcoal [Collins 1979:752].

The contents of these features ranged from nothing, to containing small amounts of nutshell, bone, a few flakes, or several small pebbles. Four other features, identified simply as “burned areas” by Collins, were noted for their small size and concentrations of charcoal and reddened fired earth (Collins 1979:775). The main occupation at the Rosenberger Site seems to post-date the Matanzas timeframe, as reflected by the fact the hafted biface assemblage is comprised primarily of stemmed, McWhinney-like points. Of the fourteen burials that contained diagnostic projectiles, 11 were of the McWhinney type, and one was classified as a Merom-Trimble (Collins 1979:792).

Several other Late Archaic sites containing human interments have been excavated at the Falls of the Ohio River. Absolute dates from these are later than those obtained from Meyer, KYANG, and Bluegrass. The later occupations at these sites were also indicated by the relative higher percentage of McWhinney projectile points to Matanzas forms. At none of these sites were charcoal concentrations present, suggesting a different mortuary regime.

The predominantly Late/Terminal Archaic period Habich Site (15JF550) was located along the Ohio River in northeastern Jefferson County, Kentucky a few miles above the Falls of the Ohio River. The entire site area was excavated in 1990 prior to the construction of a marina and housing development (Granger et al. 1992). Following a controlled surface collection and excavation of test units, the entire site area was stripped of the plowzone to reveal 100 features.

Among the feature types represented at the site were refuse pits, storage pits (some containing multiple groundstone artifacts such as pestles), pits associated with lithic manufacturing, hearths, earth ovens, and 27 human burials. No charcoal concentrations were observed at this site. Overlapping features indicate the long-term use of the site. Three radiocarbon dates were obtained. The dates are 4480 ± 80 (Feature 6); 3480 ± 100 (Feature 81); and 2440 ± 60 (Feature 2). Feature 81 yielded a stemmed projectile point that was typed as a McWhinney form. Feature 6 contained a side-notched projectile point (Granger et al. 1992). The features appeared to be patterned into approximately seven or eight clusters that each contained some combination of hearths/earth ovens, pits containing primarily lithic manufacturing debris, refuse pits, and pits that were used for storage and possibly later as refuse pits. Of these clusters, five or six also contain human burials. Although additional analysis is warranted, these clusters might represent individual household units. The burials may have been interred below the residence or within the household complex. Burials were generally flexed and placed within shallow pits. The exceptions were Features 1 and 31 that were quite deep. Feature 31 represented an ossuary with possibly three episodes of burial. The feature contained the remains of at least five individuals (Burials 12 through 16). The burial episodes were each capped with a layer of fired clay (Granger et al. 1992:126), as was the burial in Feature 1. Feature 18 contained the remains of four individuals, three of which were infants (Granger et al. 1992:129). Red ochre was observed at several of the burials. No charcoal concentrations were observed at the site. Matanzas projectiles were a minority point type at the site, although several were found in burial context.

The Railway Museum Site (15JF630) in Louisville was excavated in 1993 to salvage data from disturbed features and human burials. The occupation was characterized as “early” Late Archaic, and dated to 4700-4800 B.P. (2750-2850 B.C.). The artifacts recovered from the site included primarily stemmed projectile points, hafted endscrapers, ground stone tools and bone and antler tools (Anslinger et al. 1994). A total of 50 features were categorized into twelve groups based on their form. From a functional viewpoint, the features include hearths and earth ovens, storage/processing pits, refuse-filled pits, shallow basins, rock concentrations, post molds, and burials. Seventeen burials and several dog burials were documented at this site. The flexed burials appeared to have been interred in old refuse pits, and mostly contained a single individual, although several pits may have been used at least twice for burial (Anslinger et al. 1994:124). No charcoal concentrations were identified at this site; however, a few similarities are noted between this site and the Meyer site. Specifically, several burials at the Railway Museum Site were interred face down. The diverse artifact assemblage, variety of feature types, and “structured facilities” such as pits, burials, and caches indicate the site functioned as a relatively stable residential base (Anslinger et al. 1994:142).

A Late/Terminal Archaic site (15JF674) within a development in southern Jefferson County, south of the KYANG Site, was recently investigated (Kreinbrink 2008). Multiple burials were exposed. No charcoal concentrations were identified at this site that yielded primarily McWhinney projectile point forms (Jeannine Kreinbrink, personal communication 2005).

Conclusions

Several concluding comments are in order here. First, while acknowledging the tremendous gap in time between the late Middle Archaic occupants of the Meyer site and the historic Shawnee, it would appear that some aspects of Eastern Woodland mortuary ritual and ceremony could have their roots in ancient tradition, some of which may have been sustained over many centuries. Second, the data suggests that there may be cultural distinctions between Archaic groups who occupied the Ohio River Valley during the late Middle through Terminal Archaic periods. Identification and comparison of the mortuary programs evident at Archaic sites may serve as another avenue to distinguish and isolate Archaic group or corporate identities. Third, the Meyer site data argues that a segregated cemetery area was established at this early time.

One obviously cannot draw one-to-one comparisons of historic Shawnee burial practices to the Meyer site features. However, we as archaeologists should not shy away from using such ethnographic accounts as a starting point to formulate and test non-traditional explanations regarding the nature and patterning of features, especially at mortuary sites.

Speaking most likely of the late prehistoric period, Voegelin notes:

It is not proposed that some simple correlation be made between contemporary Shawnee burial practices and archaeological burial customs. There are, fortunately, a number of historical accounts of Shawnee burial practices of the late seventeenth, eighteenth, and nineteenth centuries, which are available and which bridge the gap between these two periods [Voegelin 1944:237].

This fact of absolute stability as well as relative stability of formerly associated features now lost from the main complex should give confidence to archaeologists considering data from historic tribes. Too often archaeologists assume that historic tribes change the totality of their culture with lightning rapidity under the impact of white contacts [Voegelin 1944:239].

Documented mortuary customs offer—if not an actual model—at least a starting point to interpret potential patterns of prehistoric mortuary behavior and to formulate and test these explanations at mortuary sites in the region. Ritual plays a significant role in the day-to-day lives of all peoples, and the reluctance to relate ritual activity and the effects of that behavior to features observable within the archaeological record restricts our ability to interpret culture in a holistic fashion.

Importantly, the recognition and mapping of mortuary practices provides yet another line of evidence to segregate or align regional Archaic groups through time and space. The cultural affinity and geographic ranges of late Middle through Terminal Archaic groups in the lower Ohio Valley have been based largely on artifact types and styles, supported by radiocarbon dates. But there are inherent problems with using technological systems to distinguish social or ethnic groups. Technologies cross-cut corporate or other social boundaries. They transfer easily and are readily adopted by outsiders. Furthermore, internal to a given group, variation in artifacts can be

related to social distinctions, such as age and social standing that are unrelated to group identity (Hegmon 1998:274). Shennan warns that by focusing solely on artifact types, there is a risk of confusing archaeological “cultures” with “self-conscious identity” groups (Shennan 1994:6).

Several studies, however, found that technological differences appear to correspond to different social groups or ethnic boundaries (Chilton 1998). Style, where it can be distinguished from function, may carry important information related to group identity. Dick Jefferies, in his study of engraved bone pins (Jefferies 1997), and Rick Burdin (Burdin 2004) through his study of bannerstones, have shown some interesting results along this line of research. Yet engraved bone pins and bannerstones are not always present in late Middle to Late Archaic assemblages, or they occur in too low frequencies to allow for meaningful inter-site comparison. This is certainly the case with the Middle-Late Archaic components within the immediate Falls of the Ohio River area.

If technological or stylistic data inherent in artifacts cannot be accessed, other lines of evidence must be incorporated into future studies to facilitate the identification and segregation of the various groups of peoples who interacted within the Ohio River valley during the Middle and Late Archaic periods. The question, then, becomes one of determining which types of information are least resistant to crossing social, political, or ethnic boundaries, and are therefore good markers of corporate identity.

There is a general concurrence that corporate or ethnic groups imply a self-conscious identification. That is, they are social constructs. As explained by Hegmon (1998:272) ethnicity “*does not simply exist, but rather, it is something that people do.*” Informative data regarding corporate identity, then, may be sought within the behaviors associated with the creation of an archaeological site. Without question, ideologies embedded in spiritual, social, and political organization, and manifest in their attendant ceremony and ritual, would lie within a body of shared knowledge held most dear by the members of a corporate group. One of the more obvious avenues to access this type of data is through the study of the mortuary domain. Shared ideas and customs can be witnessed in similar mortuary rituals . . . and, potentially, differences in ritualistic behavior can be linked to specific artifact styles and technologies.

Acknowledgments: A significant amount of data has already been recovered due to the dedication and selflessness of many volunteers. This project is a prime example of the many positive benefits of public archaeology. Amateurs and interested individuals have had the opportunity to learn archaeological techniques. The training of these individuals has established a ready-made support group for professionals on similar unfunded or under-funded projects in the future. The project has drawn the cooperative effort of professional archaeologists from within the state and across state lines to collectively focus their efforts on recovering information from a threatened significant archaeological resource. This experience has brought together professionals and amateurs, uniting them in a common cause as stewards of the past rather than adversaries competing for ownership of its secrets. The public has been invited to actively participate and learn the value of professionally conducted archaeological fieldwork. Finally, a private landowner has been assisted by caring individuals to off-set the costs of archaeological data recovery.

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SITE 12De772: AN OLIVER PHASE OCCUPATION IN THE UPPER EAST FORK WHITE RIVER DRAINAGE

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with contributions from
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Introduction

Site 12De772 is primarily a Late Prehistoric site located on an upland flat above the Little Flatrock River, in northwestern Decatur County (Figure 1). In the early fall of 2008, Gray & Pape, Inc. conducted Phase III data recovery excavations at site 12De772, for the proposed Rockies Express East (REX East) Natural Gas Pipeline Project (Baltz and Cochran 2009).

The site was identified during Phase I investigations within the proposed pipeline corridor, by Louis Berger Group, Inc. (LBG) in 2007, and consisted of a combination of surface survey and systematic shovel testing (Chadderdon et al. 2007). Phase II testing was conducted by LBG and consisted of systematic surface collection, the excavation of six 1 x 1 m (3.3 x 3.3 ft) units, and mechanical stripping of approximately 270 m² in five trenches (Rinehart et al. 2008). Three cultural features were identified at the site, two within Trench 3 and one in Units 3 and 6. Feature 1 was a hearth that produced a radiocarbon date with a 2-sigma calibrated range of A.D. 400 – 570. This feature falls within the construction travel lane and outside of the area designated for data recovery. Feature 5 was another hearth located near the center of Trench 3. A radiocarbon date from this feature produced a 2-sigma calibrated range of A.D. 1040 – 1240. Feature 9 was encountered in Units 3 and 6 and was partially exposed. A small sample of this hearth feature was excavated and the flotation sample produced carbonized maize (both cupule and kernel fragments). Site 12De772 was determined eligible for inclusion in the National Register of Historic Places and data recovery was recommended, with a focus on the eastern portion of the site (Rinehart et al. 2008; The Louis Berger Group, Inc., and John Milner Associates, Inc. 2008).

Gray & Pape conducted Phase III data recovery at site 12De772 between August 12 and September 9, 2008. In all, 106 m² of the site was excavated by hand in 2 x 2 m test units. Subsequent backhoe stripping of 1385 m² exposed 17 prehistoric features, including 10 smudge pits, one hearth, three pits, and three posts (Figure 1). Seven radiocarbon assays produced a cluster of dates between the mid 12th to early 15th centuries for the site. Ceramics and triangular projectile points confirm this time frame, which places the site within the Oliver Phase of central Indiana. Little information was encountered relating to earlier occupations of the site. Extensive flintknapping and manufacturing of triangular projectile points exclusively of the locally available Jeffersonville chert is examined. Abundant maize and beans were recovered from Feature 9 botanical samples, and were present within other features. The abundance of smudge

pits and absence of typical Oliver rock-filled pits suggests the site represents a special-use locale rather than a typical habitation site. Bark and rotted wood were used in the smudge pits, which is different than corn cob-filled pits found in contemporaneous Angel Phase, Oneota, and probably Vincennes Culture sites, as well as later Fort Ancient sites. Use of rotted wood and sometimes bark was documented in smudge pits for historic Plains and Northeast Indian groups (Binford 1967), as well as during earlier times in southern Indiana (Cochran 2009; Munson 1980).

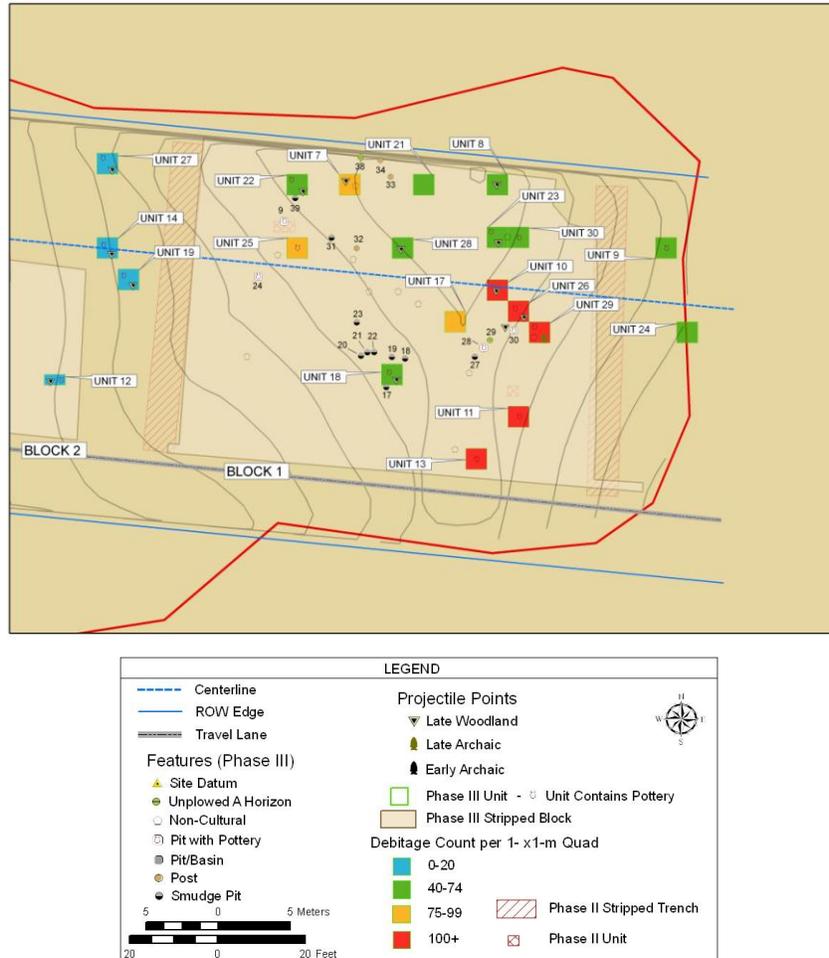


Figure 1. Site plan of eastern portion of site 12De772.

Environmental Setting

Site 12De772 lies in the northwest corner of Decatur County, which Schneider (1966) places within the Muscatatuck Regional Slope physiographic unit. The Muscatatuck Regional Slope is defined as a gently western-sloping plain situated on resistant Silurian and Devonian bedrock. The entire area is covered with glacial drift, but the northern portion (including much of Decatur County and site 12De772) was covered by the most recent Wisconsin Age glaciation

(Schneider 1966:44). Gray (2000) places the site area (and the remainder of the Wisconsin glaciated area of Decatur County) within the New Castle Till Plains and Drainageways portion of the Central Till Plain Region, thus north of the Muscatatuck Plateau. Gray (2000) points out that the southern portion (including the site area) has less glacial drift, allowing for some bedrock exposure, particularly along stream channels.

The site is situated in an upland flat above, and west of, the Little Flatrock River to the east. The portion of the site within the pipeline corridor lies on a gentle saddle between two slightly higher flats, to the north and south, along the bluff margin. There is a drop of approximately 10 meters in elevation from the site to the Little Flatrock River floodplain.

Most of northwestern Decatur County is underlain by Devonian rocks, primarily limestones (Gutshick 1966), including the Muscatatuck Group (Gray et al. 1987). The Jeffersonville Limestone Member of the Muscatatuck Group contains several varieties of Jeffersonville chert (Cantin 2008). Although no outcrops were observed in the immediate vicinity of the site, this chert type is abundant in the gravels of the Little Flatrock River immediately east of 12De772. This appears to be the source for the majority of lithic tools and debitage found at the site.

The Little Flatrock River and Hurricane Creek lie within the upper portion of the East Fork, White River drainage basin. Hurricane Creek is a tributary to the Little Flatrock River. The Flatrock River and the Driftwood River join near Columbus to form the East Fork of the White River.

Field Investigations

LBG recommended that data recovery excavations of the site area be focused on the eastern portion of the site, where they had observed the highest density of cultural materials. With this in mind, the fieldwork was separated into two major tasks: hand excavation and mechanical stripping (Figure 1). The hand excavation consisted of 111 m², or 2.5 percent of the site area within the pipeline corridor. Six square meters were hand-excavated during the Phase II testing, so an additional 105 m² was required during the Phase III investigations. In actuality, 106 m² were hand-excavated during the Phase III investigations (26 2 x 2 m units and one 1 x 2 m unit). The majority of these (15 2 x 2 m units) were placed within the target area.

Artifact density within the excavation units was greatest on the east-central portion of the recommended target area (Table 1). Five units (Units 10, 11, 13, 27, and 29) located on the eastern and southeastern slope of the highest point each produced in excess of 100 debitage per quadrant (1 x 1 m) within the plowzone. Unit 11 was placed near LBG's Unit 5, which produced the highest density of artifacts during the Phase II investigations (Rinehart et al. 2008). Three additional test units within the target area produced in excess of 75 debitage per quadrant. All of the ten units placed west of the target area produced less than 20 artifacts per quadrant.

Generally speaking, the plowzone is a dark yellowish brown sandy silt to loess, loose to moderately compact. It averaged 20-25 cm in thickness. The subsoil was yellowish brown to strong brown, compact to very compact silty clay to clay. Essentially all artifacts were recovered from the plowzone, unless in an anomaly.

Table 1. FREQUENCY OF ARTIFACT TYPES BY UNIT AT SITE 12DE772.

UNIT	DEBITAGE	POINTS	BIFACES	FLAKE TOOLS	CORES	FCR	POTTERY	TOTAL
7	222	2	2	2				228
8	85	2		6	1	4		98
9	95	1	2	1	1	1	3	104
10	325	1	4	6		1		337
11	457	1	5	3			6	472
12	10							10
13	278	2	1	1			2	284
14	24						1	25
15	16	1	1					18
16	13							13
17	245	1	2	1		1		250
18	230			1		1	8	240
19	35		3	1		1	2	42
20	17	1		2				20
21	128	2	2		1	3		136
22	267	1	1	5	1	1	18	294
23	182		1	1		2	7	193
24	85		3					88
25	228	1	1	2	1		17	250
26	390	3	4	2	1		8	408
27	61		2				3	66
28	156	1	2					159
29	388	1		2	2	4	6	403
30	111			1			14	126
31	22	1						23
32	20		1					21
33	14							14
Total	4104	22	37	37	8	19	95	4322

After completion of the hand-excavated units, scrape blocks were laid out and stripped of plowzone soils in order to identify cultural features. A total of four blocks were scraped, totaling 1,385 m². The majority of the scraped area was in the eastern portion of the site, the target area as defined by LBG (Rinehart et al 2008).

In all, 17 cultural features were identified during the course of the Phase III investigations. The 17 cultural features fall into four categories: smudge pits (n=10), posts/paired posts (n=3), pit features (n=3), and hearth/thermal pit feature (n=1). The 10 smudge pits consist almost entirely of charcoal remains, although a few contained a scatter of artifacts. All are circular in plan view, with diameters generally ranging from 24–35 cm and depths below the base of plowzone of 4–15 cm (Figure 2). Two of the smudge pits have much smaller diameters (12–15 cm), but these appear to represent the very bottom of features, exhibiting depths of 1 and

2 cm. One of the smudge pits, Feature 27, is larger and more ovoid in shape than the others (59 x 40 cm). This feature contains a wider variety of artifacts.

Seven of the smudge pit features are clustered in one area. Five of these, Features 18–22, are almost in a row, running east to west, with less than 4 meters separating the easternmost from the westernmost. Feature 17 (to the south of the line) and Feature 23 (to the north of the line) are each within 3.5 meters of Feature 22, located in the center of the line. The other three smudge pits are located in clusters with pit or pit and hearth features.



Figure 2. Plan view of Feature 23.

These pits fit Binford's (1967) description of smudge pits at the Toothsome site in Illinois. Binford describes 10 charcoal-filled features that averaged a mean length of 30.27 cm and a mean width of 27.40 cm. Outside of Features 18 and 39, which were much smaller, but represented the bottoms of smudge pits (1 and 2 cm in depth, respectively), all of the others fall within the range that Binford describes. His mean depth of 33 cm is essentially the same as at site 12De772 when considering the presence of a 20-25 cm plowzone above where the features were defined (Figure 3). The only real difference in the smudge pits from 12De772 and from Binford's site (and other Mississippian sites, such as Southwind (Munson 1994) is in the material used for smudging. Binford's Illinois site, and those at the Southwind site in southwest Indiana (Munson 1994), among others, primarily used corn cobs as the slow-burning fuel. Site 12De772 smudge pits are filled with decayed wood and bark. This is typical for smudge pits at other sites from central and south-central Indiana, including Late Archaic smudge pits at the Morganroth Site (12Or92) in Orange County (Munson 1980) and an early Late Woodland smudge pit in Daviess County (Cochran 2009). The Daviess County site (12Da514) also contained a smudge pit which appears to represent an Oliver occupation of that site. It is contemporaneous with 12De772 and was primarily filled with bark (Bush 2008:3). Binford noted that twigs and bark were found in the pits he reported on, and that other materials were used by Native American groups during historic times, including rotten wood (Choctaw, Dakota Sioux, Blackfoot, Crow), cottonwood bark (Arapaho), and white pine and Norway pine cones (Ojibwa) (Binford 1972:42-

44). Smudge pits were used for hide processing or coloring, but may have had other purposes, such as pretreating pots, as Munson (1969) points out.



Figure 3. Profile of Feature 19.

The three pit features were all somewhat oval in shape, measuring 134–143 cm in length and 80–85 cm in width. The depths ranged from 10–54 cm and each feature contained ceramics, debitage, and charcoal. The two deeper features (24 and 30) both exhibited moderate to extensive bioturbation.

The hearth feature, Feature 9, was identified in the Phase II investigations. At that time, about 1/3 of the feature was exposed, and a small amount of the southeast corner was excavated. Corn kernel and cupule fragments were identified in the flotation from this feature. The feature contained abundant blocks of limestone and charcoal, a few artifacts, including debitage and a single ceramic sherd, and extensive evidence of burning exhibited by reddened earth (Figure 4).

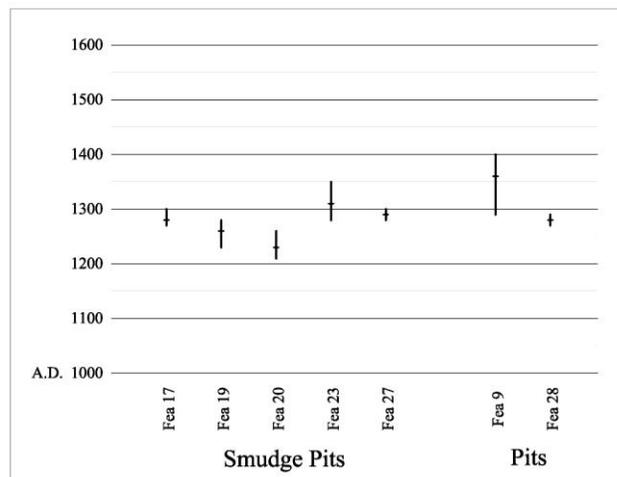
Of the three post features, only Feature 33 extended very deep (21 cm below plowzone). The paired posts (Feature 34) were both small in size (14–16 cm in diameter) and extended only 8 cm below plowzone. Feature 32 was comparable to the paired posts in size: 16 cm in diameter and 8 cm deep. With this small number of posts, no structural definition could be ascertained. However, with both Feature 33 and 34 located near the northern boundary of the proposed ROW, it is possible that a structure was located primarily outside of the REX impact area.



Figure 4. Profile of Feature 9.

Charcoal from eight of the features was submitted to Beta Analytic for dating: Features 9, 17, 19, 20, 23, 27, 28, and 30 (Table 2). Three of these features (9, 28, and 30) represent pits/basins while the other five represent smudge pits. Flotation data from each of these features, as well as Feature 39 (post), were submitted for paleobotanical analysis by Dr. Leslie Bush, of Macrobotanical Analysis.

Table 2. Calibrated Radiocarbon Dates from site 12De772.



Artifact Analysis

Data recovery efforts resulted in the recovery of a variety of artifacts including chert debitage, tools, projectile points, burned limestone, FCR, wood charcoal, and prehistoric ceramics. The overwhelming majority of diagnostic artifacts (projectile points and ceramics) point to a Late Woodland/Late Prehistoric occupation of the site. These artifacts include numerous triangular projectile points (Figure 5), drills (Figure 6), thin triangular bifaces, and grit tempered ceramics. This is consistent with the C¹⁴ dates and the botanical remains that include corn and beans. Additionally, the low ratio of FCR to debitage seen throughout the site area, particularly in the target area, argues for a predominately Late Prehistoric occupation for the portion of the site subjected to data recovery excavations. Other diagnostic artifacts that were present included a Late Archaic side-notched point and an Early Archaic LeCroy point (Figure 6). A Terminal Archaic Merom Expanding Stemmed point was recovered during the Phase I survey of the site.



Figure 5. Examples of triangular points from 12De772 (all Jeffersonville chert). Top row: Railey Category 5 and Cochran Category 2; Middle Row: Railey Category 5 and Cochran Category 3; Bottom Row: left - Railey Category 2 and Cochran Category 3; middle - Railey Category 2 and Cochran Category 1 or 2; right - Railey unclassified and Cochran Category 2.



Figure 6. Artifacts from site 12De772. Top row (l-r): Lake Erie Bifurcate point (Attica chert), side notched point base (unidentified heat-treated chert), 3 bifaces (Jeffersonville chert). Bottom row (l-r): drill base (tillite), 2 drill midsections (Jeffersonville chert), drill bit (fossiliferous chert).

Lithic Artifacts

There are abundant chert resources exposed in the Little Flatrock River, consisting of varieties of Jeffersonville chert. This was the primary material observed in the debitage at the site (Table 3). The one minor chert type represented in the assemblage was Wyandotte chert, which made up less than 2 percent of the assemblage. Wyandotte chert is a high-quality raw material that crops out in southern Indiana (Harrison and Crawford counties) and northern Kentucky (Meade and Breckenridge counties) nearby and adjacent to the Ohio River. The Lake Erie Bifurcate point was made from Attica chert. It was the only occurrence of this northwestern Indiana raw material in the assemblage. All of the triangular points/fragments are made of the locally available Jeffersonville chert, suggesting that the manufacture of these tools took place on site. The gravel cherts and unidentified cherts make up a small percentage of the total.

Three of the bifaces are likely drills (Figure 6), two of which may be made from triangular points. The third is a drill bit made of a fossiliferous chert similar to Allens Creek/Ramp Creek/Harrodsburg cherts.

Although the majority of the debitage was categorized as flake shatter (84.2 percent), all stages of reduction are present at 12De772. Again, the fact that the Late Prehistoric occupation dominates the site, and all of the triangular points are made of Jeffersonville chert, indicates that toolmaking, or the production of these points, was an important activity undertaken at 12De772.

Table 3. FREQUENCY OF CHIPPED STONE ARTIFACT CATEGORIES BY CHERT TYPE FOR RECOVERED MATERIALS AT SITE 12De772.

RAW MATERIAL	PROJECTILE POINTS (%)	BIFACES (%)	FLAKES TOOLS (%)	CORES (%)	DEBITAGE (%)	TOTAL
Jeffersonville	25 (89.3)	8 (57.1)	39 (92.9)	7 (87.5)	4067 (94.0)	4146
Wyandotte			2 (4.8)		59 (1.4)	61
Unidentified	2 (7.1)	4 (28.6)	1 (2.3)	1 (12.5)	144 (3.3)	152
Unidentified fossiliferous		1 (7.1)			9 (0.2)	10
Gravel Chert					44 (1.0)	44
Quartzite		1 (7.1)			1 (0.0)	2
Tillite					1 (0.0)	1
Attica	1 (3.6)					1
Total	28	14	42	8	4325	4417

Madison points, or Late Woodland/Mississippian Triangles were utilized in the Midwest for over 800 years (Justice 1987:225-227), beginning around A.D. 800. This period of time extended from the Late Woodland cultures (such as Albee in Indiana), through the Middle Mississippian groups/phases (such as Yankeetown, Angel, Vincennes, Prather, and Caborn-Welborn) and the Upper Mississippian groups/phases (such as Ft. Ancient, Oliver, and Huber). Subtle stylistic differences in the morphology of these points have been examined to try to sort out temporal differences within the point type. Railey (1990, 1992) has done this for Ft. Ancient, primarily for northern Kentucky. His approach has been used with mixed success in central Indiana at Albee and Oliver Phase sites (Cochran 2003; Hipskind 2005; McCord et al. 2005; Redmond 1994; Redmond and McCullough 1996). Don Cochran has developed a system which sorts triangular points by hafting technology (Cochran 2003; McCord et al. 2005). The points from site 12De772 will be examined using both systems (and a recent refinement of the Railey system developed by Kelli Carmean (2009a, 2009b), to aid in dating the site and also the determination of the cultural affiliation of the occupation, be it Ft. Ancient or Oliver (or something else).

Railey (1990, 1992) defined eight types for Ft. Ancient in northern Kentucky. Five of these (Types 2-6) are temporal indicators, with Type 2 assigned to the Early Ft. Ancient (ca. A.D. 1000 – 1300), Type 3 assigned to Middle Ft. Ancient (ca. A.D. 1200 – 1400), and Types 4-6 assigned to the Late Ft. Ancient (post- A.D. 1400), with Type 6 dominating after A.D. 1500 (Railey 1990). Bradbury and Richmond (2004) have both quantified and refined the typology, essentially suggesting that Types 4-6 be collapsed into one Late Ft. Ancient category. Carmean (2009a, 2009b) agrees, and suggests that Type 2 points extend well into the Middle Ft. Ancient. She also proposes extending the Type 5 dates back into the Middle Ft. Ancient, as this type (and Type 2) are the most common point types at the Broaddus Site, where radiocarbon dates cluster between A.D. 1250 and 1350 (Carmean 2009b:Table 1). Broaddus has produced 41.4 percent Type 5, 40.4 percent Type 2, 10.1 percent Type 3, 3.0 percent Type 4, and 5.0 percent Type 6 (Carmean 2009b:Table 2).

The classic serrated Type 3 point, assigned to the Middle Ft. Ancient in Kentucky, is absent from many Oliver Phase sites (Redmond and McCullough 1996; Redmond 1994; Robert McCullough, personal communication April 2009), even though most of the Oliver Phase dates

fall within the A.D. 1200 – 1400 period, correlating with the Middle Ft. Ancient of Kentucky and Ohio. Type 3 points are also absent at site 12De772.

Cochran looks at the hafting of the triangular point to a shaft and subsequent resharpening. He has three types, and has defined them as Early, Middle, and Late, irrespective of culture (i.e. Albee, Oliver, etc.). The Early type exhibits hafting where the binding catches the corners of the base and little else. His dates for these are roughly A.D. 800 – 1000. With resharpening, these points resemble the Hamilton Incurvate and Levanna points (Justice 1987), and are most similar to Railey's Type 2. The Middle type, ca. A.D. 1000 – 1300, exhibit binding that extends a centimeter or so up the side of the point. When resharpened, these points often resemble Railey's Types 4-6, but could still resemble Type 2. The Late type points exhibit no binding, but rather are likely glued into the slot at the end of the arrow shaft (McCord et al. 2005: Figure 68). The suggested dates for these points are after A.D. 1300. Note that Railey's Type 3 (serrated) is not accounted for in Cochran's sequence, as it is rarely found on either Albee or Oliver sites in central Indiana (Hipskind 2005).

A total of 11 Late Woodland/Mississippian triangular points/fragments were either whole or were proximal fragments. One additional fragment was a midsection that contained evidence of hafting. These were examined and categorized using the two approaches described above. Five points from the Phase I and II investigations were also examined. Table 4 illustrates the results of these examinations.

Carbon dates for the site generally match both analytical systems, as they cluster in the 1200-1400 range, which is where Railey's Type 2 ends and Type 5 begins, and where Cochran's Middle and Late types intersect (1300). However, if one looks at the seven C14 dates from the site, five fall before A.D. 1300 (one between 1200-1250; four between 1250-1300), while two fall after 1300 (one between 1300-1350 and one between 1350-1400). This matches the Cochran system better, where 12 of 17 points are Middle (up to 1300) while five are Late (after 1300). The opposite is true for the Railey analysis system, where 11 of 16 are Late (post-1350) and five are before 1300. Unfortunately, only one of the triangular points in the analysis came from a feature (Feature 30), which provided a bad date.

Analysis of points from Oliver Phase sites in central Indiana (Strawtown, for example) and Albee sites from east-central Indiana (Secrest-Reasoner, for example) have shown that the Railey system of categorizing Fort Ancient triangular points does not work exactly for either Albee or Oliver sites in Indiana (Cochran 2003; Hipskind 2005; McCord et al. 2005).

Carmean (2009a, 2009b) has proposed alterations to Railey's system for Ft. Ancient sites within Kentucky. She points out that Railey had the most confidence in Types 2 (Early), 3 (Middle) and 6 (Late), and had less confidence in Types 4 and 5 as temporal markers. Type 4 points appear to represent extensively resharpened versions of either Type 5 or Type 6 points. At the Middle Ft. Ancient Broaddus Site (ca. A.D. 1200 – 1400), in Madison County, Kentucky, Railey's system would anticipate a large number of Type 3 points, with fewer Type 2, 5, and 6 points. In fact, the Types 2 and 5 dominated, representing almost 82 percent of the points, and were nearly evenly distributed (Type 2 n=40; Type 5 n=41). Only 10 Type 3 points were recovered. She proposes that Type 2 points extend beyond the Early Ft. Ancient well into Middle Ft. Ancient, and that Type 5 extends back into the Middle and perhaps Early Ft. Ancient. This is based on Broaddus and other Middle Ft. Ancient sites in the central Bluegrass region of

Kentucky (Carmean 2009b:21). Her analysis matches the data for Oliver sites in central Indiana better than Railey's system. Table 5 compares Carmean's system with Cochran's system.

Table 4. Results of Triangular Projectile Point Analysis (Railey and Cochran Systems).

OA#	Railey Type	Railey Date	Cochran Type	Cochran Date	Consensus
833	5	Late (1350+)	3	Late (1300+)	Late
873	5	Late (1350+)	2	Middle (1000-1300)	
884	2	Early (950-1300)	1-2	E-M (800-1300)	
894	5	Late (1350+)	2	Middle (1000-1300)	
897	N/A (medial)	--	2	Middle (1000-1300)	
898	2	Early (950-1300)	3	Late (1300+)	
909	5	Late (1350+)	2	Middle (1000-1300)	
911	5	Late (1350+)	2	Middle (1000-1300)	
912	5	Late (1350+)	2	Middle (1000-1300)	
919	5	Late (1350+)	3	Late (1300+)	Late
928	5	Late (1350+)	3	Late (1300+)	Late
930	5	Late (1350+)	2	Middle (1000-1300)	
2-6	2	Early (950-1300)	2	Middle (1000-1300)	
2-4	2	Early (950-1300)	2	Middle (1000-1300)	
1-5	2	Early (950-1300)	2	Middle (1000-1300)	
1-7	5	Late (1350+)	3	Late (1300+)	Late
108-1	6	Late (1450+)	2	Middle (1000-1300)	

The OA# is the unique assigned number for the order of analysis. The last five points are from the Phase I (n=4) and Phase II (n=1) investigations at the site. All points are from surface or plowzone contexts except OA# 928, which was recovered from Feature 30.

Table 5. Results of Triangular Projectile Point Analysis (Carmean and Cochran Systems).

OA#	Railey Type	Carmean Date	Cochran Type	Cochran Date	Consensus
833	5	Early - Late (950-1600+)	3	Late (1300+)	Late
873	5	Early - Late (950-1600+)	2	Middle (1000-1300)	Middle
884	2	Early – Middle (950-1400)	1-2	E-M (800-1300)	Early - Middle
894	5	Early - Late (950-1600+)	2	Middle (1000-1300)	Middle
897	N/A (medial)	--	2	Middle (1000-1300)	
898	2	Early – Middle (950-1400)	3	Late (1300+)	
909	5	Early - Late (950-1600+)	2	Middle (1000-1300)	Middle
911	5	Early - Late (950-1600+)	2	Middle (1000-1300)	Middle
912	5	Early - Late (950-1600+)	2	Middle (1000-1300)	Middle
919	5	Early - Late (950-1600+)	3	Late (1300+)	Late
928	5	Early - Late (950-1600+)	3	Late (1300+)	Late
930	5	Early - Late (950-1600+)	2	Middle (1000-1300)	Middle
2-6	2	Early – Middle (950-1400)	2	Middle (1000-1300)	Middle
2-4	2	Early – Middle (950-1400)	2	Middle (1000-1300)	Middle
1-5	2	Early – Middle (950-1400)	2	Middle (1000-1300)	Middle
1-7	5	Early - Late (950-1600+)	3	Late (1300+)	Late
108-1	6	Late (1450+)	2	Middle (1000-1300)	

Carmean's (2009a, 2009b) reassigning of Type 2 to the Early–Middle Ft. Ancient and Type 5 to Middle–Late Ft. Ancient (perhaps even to Early Ft. Ancient) in Kentucky fits well with Cochran's analysis system, and with the radiocarbon dates for 12De772. Carmean's and Cochran's systems coincide on 14 of 16 triangular points, whereas Railey's initial dates coincided with Cochran in only four of 16 points. The 17th point is a medial fragment that could not be assigned to a category in Railey's system.

Of the 14 points that coincide between Carmean's revision of Railey's system and Cochran's system, one dates to the Early-Middle period, nine date to the Middle, and four date to the Late Period. It appears that Carmean's morphological approach and Cochran's technological approach are coming up with similar results, and that the thirteenth-fourteenth centuries in central Indiana were a time of change in the manufacture of triangular points.

Ceramic Analysis – Beth McCord

The ceramic assemblage recovered from site 12De772 is small and diagnostic attributes from the collection are lacking. The radiocarbon dates indicate a Late Prehistoric age for the site, and the ceramics fit a Late Prehistoric affiliation. Identifying a cultural phase or complex associated with the ceramics is more difficult.

The only documented Late Prehistoric cultural phase in Decatur County is the Oliver Phase (Redmond and McCullough 2000). The Oliver Phase is recognized by the distinctive cord impressed and incised decorations occurring on the ceramics showing a mixture of Late Woodland and Fort Ancient styles (Redmond and McCullough 2000:663). No Oliver Phase sites

have been confirmed in Decatur County, but Redmond and McCullough (2000:668) show the county within their distribution. Householder collected sherds from several sites located near site 12De772 (Glenn A. Black Laboratory of Archaeology collections), some of which exhibit curvilinear guilloche trailed lines on them. McCullough included them in his dissertation distribution of sites that contain “. . . Anderson-phase like or cord impressed decoration commonly associated with the Oliver Phase” (McCullough 2000: Figure 4.4). Most Oliver Phase sites are recorded along the White River. The Oliver Phase is dated between cal A.D. 1200 and 1450 (Redmond and McCullough 2000:674).

The ceramics from site 12De772 cannot be classified as Oliver Phase ceramics because the distinctive decorative elements are not present. The one rim sherd is undecorated and it does not have an added rim strip that is oftentimes present on Oliver ceramics (McCullough 2000; Redmond and McCullough 2000). The ceramics are similar to other non-diagnostic elements found in Oliver ceramics. For example, the one rim has a small rim fold with a rolled lip that does occur with Oliver ceramics (McCullough 2000). The small bowl or jar fragment could be associated with Oliver or Fort Ancient types (Dorwin 1971; Griffin 1966). However, the collection could also represent an unclassified Late Prehistoric manifestation.

The ceramic collection from 12De772 is characteristic of a Late Prehistoric period occupation. The collection is fairly small, consisting primarily of small body sherds. The lack of diagnostic decorative elements hinders the association of the ceramics to known archaeological phases or complexes.

Botanical Analysis – Leslie Bush

In all, eight flotation samples representing seven features and 41.5 cubic deciliters of soil matrix were examined. Five features were identified as smudge pits, one as a pit/earth oven, and the other as a simple pit. Only the pit/earth oven contained many non-wood botanical remains.

On open-air sites in the Eastern Woodlands, uncarbonized plant material is common and can be assumed to be of modern origin unless compelling evidence suggests otherwise (Lopinot and Brussell 1982). Site 12De772 has offered no compelling evidence, and rootlets, fresh seeds, and the like are not treated as ancient remains. Most flotation samples at 12De772 contained only two or three uncarbonized seed taxa. Besides the theoretical expectation, internal evidence also indicates that the fresh seeds at site 12De772 represent modern seed rain that has worked its way into the soil. All are seeds of weedy plants that quickly colonize disturbed areas such as archaeological sites. Further, some of the fresh seed taxa are of Eurasian origin (e.g., *Stellaria media*). Finally, no seeds occur in both carbonized and uncarbonized forms.

Semi-carbonized bark or decayed wood was recovered in quantity (between 1.66 g and 23.77 g) from all of the smudge pit samples. This material is tentatively interpreted as ancient for several reasons. First, the materials also occur in carbonized form in these features. In addition, the 12De772 material is relatively young, archaeologically speaking. Finally, the smudge pits contained such great density of plant materials that persistence of plant materials that are not fully carbonized seems possible.

Identification was attempted for 160 wood charcoal fragments, of which 140 were identifiable to the genus or better. Wood charcoal recovered from 12De772 is assumed to represent fuel wood since no samples were taken from structural features. The wood charcoal

assemblage for the site as a whole generally reflects the beech-maple forest that would have been present in the site area. The floodplain species ash and elm also have significant representation, and there is a smattering of oak, which most likely came from upland contexts.

A total of 147 corn kernel fragments and 181 cupule fragments were recovered from 12De772. All of the corn except two kernel fragments came from Feature 9, a smudge pit. Only loose cupules were recovered; no cob fragments are available to indicate row number or other attributes of the corn grown by inhabitants at 12De772. To gain some comparative understanding of the corn at 12De772, measurements were taken on 20 randomly-selected whole cupules. Distortion during carbonization, which is greater for loose cupules than for whole cobs, limits the precision of comparisons, especially those for cupule thickness. Nonetheless, the measurements show that cupules from 12De772 are narrower and not as thick as those from Ft. Ancient sites surveyed by Gail Wagner and Jack Rossen (Rossen 1992: Tables XV.9 and XV.10; Wagner 1987:Table 6.4). Whatever the variety grown, the quantity of corn and its presence in three of eight flotation samples (ubiquity = 37 percent) indicate occupation by agriculturalists at 12De772.

Bean fragments were recovered from three flotation samples, representing Feature 9 and Feature 20. Although wild legumes such as wild beans (*Phaseolus polystachios* and *Strophostyles helvola*) and honeylocust (*Gleditsia triacanthos*) are known from earlier archaeological sites, cultivated beans (*Phaseolus vulgaris*) do not appear in the eastern United States until A.D. 1270 or later (Hart et al. 2002). The Feature 20 bean is an entire cotyledon measuring 5.1 x 2.8 mm (carbonized), which places its length:width ratio within the range of typical Fort Ancient beans given by Wagner (1987:193).

Nutshell was neither abundant nor ubiquitous in the samples, with a total of only 0.44 g of nutshell (26 fragments) recovered from three of the eight flotation samples. Lower quantities of nutshell are typical of Late Prehistoric sites in Indiana, especially compared to Archaic sites. Interestingly, the nutshell at 12De772 consists mostly of hazelnut rather than the more common hickory. Hazelnut shrubs are an edge species, growing on forest margins and in open woodlands. They are generally a mid-successional species, absent from old-growth forests where the canopy is closed. The hazelnut at 12De772 implies breaks in the local forest, possibly on steep slopes above streams, or perhaps from agricultural activities in the site area.

Most wild seeds from 12De772 were recovered from the Feature 9 sample that produced most of the corn, beans, and nutshell on the site. Black nightshade is the most common small seed, followed by sumac (also recovered from Feature 23) and grass seeds. The *Polygonum* specimen from Feature 9 was in such poor condition it could not be assigned to smartweed (lenticular *Polygonum*) or knotweed (trigonous *Polygonum*). A lone blackberry seed was recovered from Feature 23.

The fruit represented by small seeds recovered from the site all have food uses. Even black nightshade, whose vegetative parts are most commonly used for medicinal purposes, was eaten by Cherokees (greens) and Native Americans in California (fruits) (Moerman 1998). Sumac, like hazelnut, is a shrub that thrives in edge situations. It may also indicate the presence of agricultural fields in the site area.

The small seeds recovered from 12De772 are common on Late Prehistoric sites in the region such as Sunwatch (Wagner 1987), Kentucky Ft. Ancient sites (Rossen 1992), and Castor Phase and Oliver Phase sites in central Indiana (Bush 2004, 2009).

Variation by feature type is evident in the macrobotanical remains at 12De772. Feature 9, an earth oven/pit, contained most of the subsistence remains recovered, as well as beech and maple wood charcoal. The only identifiable remains in Feature 28, a simple pit, were beech and ash wood charcoal. The remaining features, all smudge pits, consisted mostly of decayed wood/bark. Clearly, these are not the cob-filled smudge pits famously described by Lewis Binford (1967). Similar decayed wood smudge pits are known from other Late Prehistoric sites in Indiana, including the Oliver Phase Pottersville Site (12Ow431) and the Castor Phase Taylor Ten Site (12H987). Such smudge pits are also known from sites as far away as the Caddoan area (Dockall et al. 2008). An ethnographic analogy to these smudge pits is found in the western United States. Edith Van Allen Murphey describes California Indians tanning hides:

Smoked hides are pre-shrunk by digging a smoke-hole, both ends in the round of long curved branches, with hide stretched over the branches. Fire is built of old rotten wood, preferably juniper wood, and the hide is left until it takes on a uniform yellow color [Murphey 1990:55].

In summary, macrobotanical remains from 12De772 reflect the predominant feature type sampled (smudge pits) and typical Late Prehistoric subsistence practices of the greater Ohio Valley region. Cultivated foods such as corn and beans were supplemented with wild resources. Fuel wood reflects the local beech-maple forests.

Site 12De772 in Context

Site 12De772 is a multicomponent prehistoric archaeological site that is dominated by a Late Prehistoric sedentary farming group. Earlier occupations include Early Archaic and Late Archaic hunter-gatherers, evidenced by the Lake Erie Bifurcate and Riverton Cluster projectile points. The paucity of FCR recovered from the site indicates that these occupations were of a relatively short-term nature. A Terminal Middle Woodland-Early Late Woodland occupation is evidenced by the Phase II feature which dated to A.D. 400 – 570. The remainder of temporally sensitive materials date from the Late Prehistoric. The ceramics from the data recovery are unclassified Late Prehistoric. The abundant triangular points date to the Late Prehistoric (Late Woodland/Mississippian), and the C¹⁴ intercept dates range between A.D. 1230 and 1390.

The portion of the site that is dominated by the Late Prehistoric occupation exhibits a number of indicators of permanent settlements: storage pit features, smudge pits for hide tanning, intensive agricultural cultigens (maize and beans), and ceramics. However, structural remains are missing. It is unclear, based on the limited corridor through the site, whether house structures might occur on other portions of the site, or if the few shallow postholes are in fact representative of house structures. The typical deep, FCR-filled pits found at other Oliver sites within the habitation areas (McCullough 2000) are absent at 12De772.

It seems that the absence of structural remains is typical for many Late Prehistoric sites in central Indiana. Albee sites have not produced structures (Redmond and McCullough 2000:659). In fact, few Albee sites have been examined that are habitation-only. Redmond and McCullough

(2000:658) note: “Most recorded Albee sites are connected to mortuary activity.” Morell-Sheets (McCord and Cochran 1994) is a habitation-only Albee site, but the limited range of tools, faunal and floral remains, along with an absence of storage pits suggests a seasonal occupation (Redmond and McCullough 2000).

Not all Oliver habitation sites have produced structures, either. The Bowen Site, in Marion County, had a possible structure (Dorwin 1971) consisting of six posts arranged in a circle a little over 2 m in diameter. The Cox’s Woods Site, in Orange County, contained a roughly 6 m x 4 m rectangular wall trench structure (Redmond and McCullough 1996). The Sugar Creek Village, in Johnson County, contained parts of two rectangular structures (McCullough and Wright 1997). A number of other village sites, such as the Clampitt Site, in Lawrence County (Redmond 1994), the Bundy-Voyles Site, in Morgan County (McCullough and Wright 1997), the Crouch Site, in Johnson County (Ibid.), the Moffit Farm Site, in Hamilton County (McCullough 2000), and Bosson and Oliver Farm sites, in Marion County (Ibid.), have yet to produce firm evidence of structures. Site 12De772 has no aligned posts indicating structures.

McCullough (2000) has defined two types of habitation sites for Oliver: circular villages and linear villages. Sites such as Clampitt, Bowen, Strawtown, and Cox’s Woods are all circular in layout, with both Strawtown and Cox’s Woods containing a surrounding stockade. Bundy-Voyles, Bosson, Crouch, and Oliver Farm sites are examples of linear layouts, generally along the edge of a river or major stream. None of the linear sites exhibit stockades. Site 12De772 is certainly not circular, but may be linear along the bluff edge above Little Flatrock River. No evidence of a stockade was found at 12De772. All of the Oliver habitation sites exhibit numerous pit features containing abundant FCR in the habitation areas (McCullough 2000)—this feature type is missing at site 12De772.

Oliver sites in central Indiana contain smudge pits, found around the residential areas, but not in clusters (Robert McCullough, personal communication, April 2009). The Heaton Farm and Cox’s Woods sites both have at least one smudge pit (Leslie Bush, personal communication April 2009), but these have not been examined for content. Smudge pits at Pottersville (12Ow431) and at Taylor Ten (12H987), a Castor Phase site located near Strawtown, contain bark/decayed wood like the ones at 12De772 (Ibid.). Site 12De772 appears to be the first documented Oliver site with clustered smudge pits.

The Oliver Farm Site in Marion County is the only large habitation site where abundant smudge pits have been reported. It had 25-30 smudge pits in its central area (McCullough 2000:318). Most other Oliver Phase sites have produced few of these types of features. In addition, few smudge pits are reported for the Middle Fort Ancient sites in Ohio and Kentucky. The Wildcat Site, a Middle Fort Ancient site located near Dayton, Ohio, has produced some smudge pits, but no corn cobs were observed in their excavation. Floral analysis has not been completed on these features (Kristie Martin, personal communication August 2009). The only Fort Ancient site where a cluster of smudge pits has been reported is the historic-era Bentley Site in Greenup County, Kentucky (Pollack and Henderson 1984). The smudge pits at this mid-eighteenth century site are filled with corn cobs, which are commonly used in smudging during historic times (Binford 1967). In fact, the ten smudge pits at the Southwind Site are filled with wood charcoal and corn kernels, cobs, and primarily cupules (Crites 1994). Southwind is a Middle Mississippian Angel Phase site that dates to the earlier range at 12De772, ranging from

about A.D. 1140-1240 (Munson 1994). Recent dates from the site are similar, but extend to about A.D. 1270 (Striker et al. 2009).

Site 12De772 is probably an Oliver Phase site. The radiometric dates fit, but the ceramics do not have diagnostic designs. The ceramics could represent Oliver or Albee, or another undefined Late Woodland/Late Prehistoric group, but Albee habitation sites are rare, and few are recorded in this portion of the East Fork drainage basin. Typical Oliver (and Ft. Ancient) trailed (guillouche) ceramics are not present in the assemblage from 12De772, but several sites in northwestern Decatur County have produced such ceramics from surface collections, including 12De21, 12De33, 12De34, and 12De35 (McCullough 2000; personal communication February 2009). These sites were identified and collected by J.C. Householder (Glenn A. Black Laboratory of Archaeology collections).

The site lies nearly halfway between the Ft. Ancient sites found near the mouth of the Great Miami River in southeastern Indiana and southwestern Ohio, and the Oliver site cluster found in northern Marion and Hamilton counties along the West Fork of White River. However, it is unlikely to represent a Middle Ft. Ancient Anderson Phase site based on the absence of serrated Ft. Ancient points (Railey's Type 3). The serrated triangles are a key marker for the Anderson Phase of Ft. Ancient, but are absent from most Oliver Phase sites (and all sites in central Indiana). The size of corn cupules at 12De772 is smaller than those examined at some Ft. Ancient sites. It is also unlikely Ft. Ancient considering the absence of any Ohio cherts on the site.

The dependence upon local cherts in the manufacture of triangular points at Oliver sites has been documented in the West Fork, White River drainage. At Strawtown, over 94 percent of the triangular points (n=34) are made of locally available Fall Creek chert (Cochran 2002). The Taylor Ten site has 97 percent (n=32) of its triangular points made of local Fall Creek chert (McCord 2009), while the Taylor Village site has 67 percent (n=70) Fall Creek chert, but 30 percent Attica chert, from 50+ km to the northwest (Cochran 2002). Taylor Village is an Oneota site, not Oliver Phase, but Strawtown, Taylor Ten, and Taylor Village are all situated in close proximity to one another, along the West Fork of the White River in Hamilton County, Indiana. Other Oliver sites do exhibit a variety of chert types in the point assemblage. At Clampitt, in Lawrence County, nine different cherts are represented (n=45), none of which exceeds 25 percent (Redmond 1994). However, eight of the nine crop out within 15-20 km of the site. The ninth, Wyandotte chert, makes up a bit over 2 percent of the assemblage. So it looks as though site 12De772 is typical for an Oliver site with its heavy dependence on local chert for the manufacture of triangular points. Henderson (2008) notes that this selection of locally available cherts in lieu of higher quality near-local cherts is seen in Late Woodland and Fort Ancient groups in Kentucky, citing Evans' (1996) M.A. thesis based on lithics from the Enoch Fork Rockshelter, 15Pe50.

If site 12De772 is an Oliver site, it does not exhibit the characteristics of typical Oliver habitations, in that the most frequent feature type (FCR-filled pit) is absent at 12De772, and it does not appear to be either circular or linear in layout. Beans show up at some, but not the majority, of the Oliver sites. Bush (2004:Table 5.2) looked at macrobotanical remains from 14 Oliver Phase sites/components, including Heaton Farm, Baker's Trail, Strawtown (Oliver component), Clampitt, Bundy-Voyles, Pottersville, Cox's Woods, Prairie View Golf Course (Moffitt Farm), Sugar Creek, Noblesville, Bair, Abner, 12Mg195, and 12Mo624. All of the sites

produced corn as both kernels and cupules but only four sites (Strawtown, Baker's Trails [12H837], Sugar Creek, and Clampitt) produced beans. Cox's Woods contained material determined to be either bean or persimmon. Four of the 14 sites (Bair, Abner, 12Mg195, and 12Mo624) had relatively small amounts of botanical remains examined (16 to 50 liters), while the other 10 all had over 100 liters, except Strawtown, which was greater than 75 liters. Of the 10 sites with an abundance of processed flotation materials, only four (five, counting Cox's Woods) produced beans. A total of 11 beans were recognized on these four sites, with an additional ten bean/persimmon fragments from Cox's Woods, Clampitt and Baker's Trails. Site 12De772 produced a total of 15 beans, 14 from Feature 9 (out of 9.5 liters of flotation). A single bean was recovered from one of the smudge pits: Feature 20.

Squash shows up on six of the 10 aforementioned sites, although none was found at site 12De772. Of the potential cultigen starchy/oily seeds, such as chenopodium, maygrass, little barley marshelder, and sunflower, none are recorded as charred for 12De772. Also, tobacco is absent. All of these are represented at some of the ten Oliver sites noted above (Ibid.).

With respect to the smudge pits, it is interesting to note that those at Oliver sites are primarily filled with bark and rotten wood while those at the Angel Phase Southwind site are filled with corn cupules and cobs. The Moccasin Bluff Site in southwestern Michigan also contains cob-filled smudge pits (Bettarel and Smith 1973). This upper Mississippian (Oneota) site dates roughly to the same period as Angel, Middle Ft. Ancient, and site 12De772. Contact between Oliver Phase people and the Ft. Ancient people to the southeast and the Western Basin tradition people to the northeast is apparent through ceramic design elements. However, the classic serrated Ft. Ancient projectile point type does not make it into the Oliver toolkit. Serrated triangles are found in Angel Phase, although they are absent from the Oneota sites of northern Indiana and southwestern Michigan. Shell tempering is also seen at some of the Oliver sites, although not at 12De772. This influence could have come from the Mississippian societies to the southwest (Angel/Caborn-Welborn) or west (Vincennes Culture), or from the Ft. Ancient influence to the southeast. The Oliver people, however, did not adopt the use of corn remains in their smudge pits from the Angel Phase people of the southwest. Rather, they used bark and rotted wood materials as had been used in southern Indiana from Archaic times (Munson 1980) through earlier Woodland times (Cochran 2009). This suggests that their interaction with Middle Mississippian societies located along the Ohio River valley in southwestern Indiana was likely limited in comparison with the Ft. Ancient and Western Basin Tradition peoples, who were living a more Late Woodland or Upper Mississippian lifestyle. The absence at 12De772 of chert varieties commonly found in the Ft. Ancient heartland area (such as Brassfield, Boyle, Paoli, St. Louis, Muldraugh/Fort Payne, etc.) suggests the inhabitants of the site had little, if any, contact with their Ft. Ancient neighbors to the east/southeast.

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ARCHAEOLOGICAL INVESTIGATIONS OF AN EARLY FARMSTEAD IN SHELBY COUNTY, INDIANA

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Archaeological Investigations at site 12Sh450

JMA (John Milner Associates, Inc.) conducted a Phase III archaeological data recovery of site 12Sh450, located in Jackson Township, Shelby County, Indiana in the fall of 2008 (Heaton et al. 2009). The data recovery investigations were conducted on behalf of the Rockies Express Pipeline – East Project (REX East Project). Previous Phase I and II archaeological investigations at site 12Sh450 (conducted by the Louis Berger Group (LBG); Chadderdon et al. 2007; Rinehart et al. 2008) identified a small prehistoric component and an early-to-mid-nineteenth century Euro-American component. The Phase II investigation concluded that the historic component was eligible for listing on the National Register of Historic Places (NRHP) on the basis of Criterion D (potential to yield important information). The archaeological data recovery was undertaken as a component of the cultural resources treatment plan to mitigate the adverse effect to the site and was conducted in compliance with a Work Plan approved by the Indiana Division of Historic Preservation and Archaeology (IN DHPA).

The combined Phase I, II, and III archaeological investigations at 12Sh450 included surface collection of 15 10 x 10-meter (m) grid squares, the excavation of 10 shovel tests, 20 1 x 1 m test units (TUs), and mechanical stripping of plowzone soils in six trenches totaling 194 square meters (sq m) (Figure 1) (Chadderdon et al. 2007; Heaton et al. 2009; Rinehart et al. 2008). Analysis of the historic artifact assemblage from the site resulted in meaningful interpretations of the occupation period, activities, agricultural and subsistence practices, interactions with the regional and national economy, and clearing of the landscape that are perhaps typical for small farmsteads in early-to-mid-nineteenth century Shelby County (or south-central Indiana more generally). The historic artifacts recovered from the site generally date to the 1840s and 1850s. The sparse density of artifacts, relatively tight date-range of artifacts in the assemblage, lack of architectural features or structural remains, and evidence for land-clearing at site 12Sh450 are consistent with a relatively brief occupation. The site appears to represent an expedient house erected while the property was cleared, and abandoned after the occupying family had established their farm and perhaps acquired sufficient wealth or lands to improve their situation.

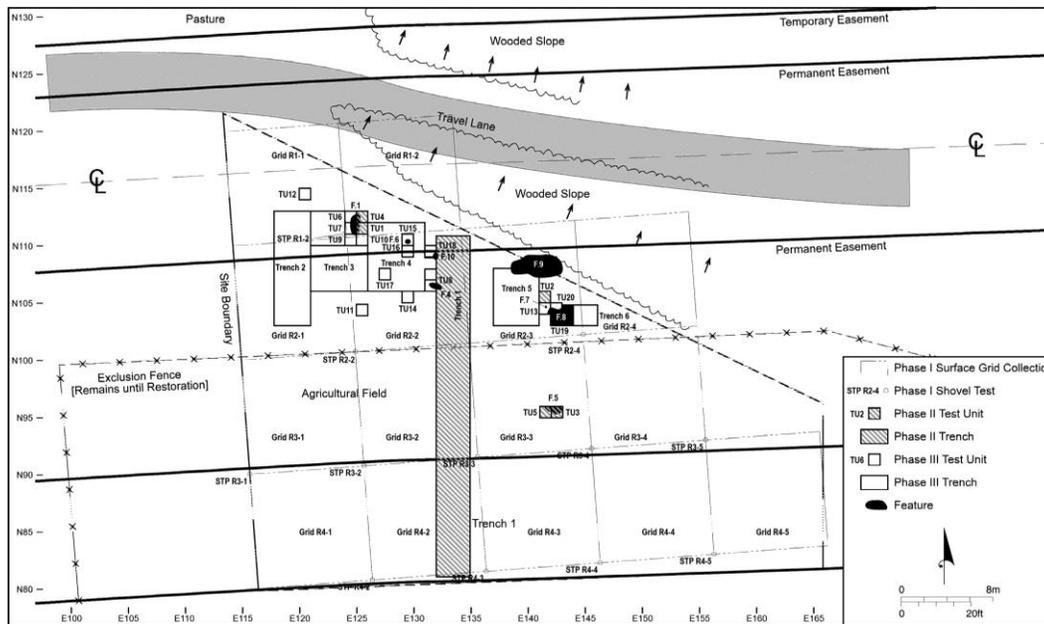


Figure 1. Detail of plan map of archaeological investigations at site 12Sh450.

Site Location, Setting, and Context

Site 12Sh450 is located in southwestern Shelby County near the southern margin of the New Castle (or Tipton) Till Plain. Topographic relief throughout the county is minimal, with the lowest areas located in the southwest corner of the county where the Big Blue River enters the extreme southeastern corner of Johnson County. The site is situated on the western edge of bluffs that overlook the broad floodplain of the Big Blue River to the east and south. Native vegetation throughout the county was deciduous hardwood forests (Brownfield 1974:21). Dominant species included tulip-poplar, oak, hickory, elm, maple, and ash. Maple, sweet gum, beech and other water-tolerant species dominated in poorly drained soils along rivers and streams. Today, the vast majority of the county and surrounding areas consist of active agricultural land cultivated for corn and soybeans.

The landscape of the area in the early-to-mid 1800s reflected much of the untapped western territory—deep, unbroken woodlands of oak, poplar, beech, maple and ash with a seemingly impenetrable undergrowth (Beers & Co. 1880:7). Through arduous labor and by a few acres at a time, early pioneers eventually penetrated the landscape to the point that it was transformed into wide open fields within a few decades. By the mid-to-late-nineteenth century, most citizens had replaced the log cabins they had constructed from cleared timber with more fashionable balloon frame houses sheathed in weatherboard. Large specialized farms replaced the small subsistence farms, and by 1880, Jackson Township earned praise as an excellent grain-growing region and cattle farming community (Beers & Co. 1880:7; Brant & Fuller 1887).

The Historic Artifact Assemblage

The historic artifact assemblage from the combined investigations at site 12Sh450 consisted of 2,545 artifacts (Heaton et al. 2009). Of these, 75 percent were recovered from plowzone contexts. The vast majority of artifacts were small sherds of kitchen vessels related to the service, storage, and preparation of food. Because most of the artifacts were recovered from the plowzone of a field that had been cultivated for at least 100-150 years, no clear spatial patterning of activity areas was suggested by the assemblage. The site also included two large pit features (Features 1 and 4) filled with burnt wood, charcoal ash, and low densities of nineteenth century artifacts (Figure 2). The activities represented by the artifact assemblage are consistent with a small farming household.

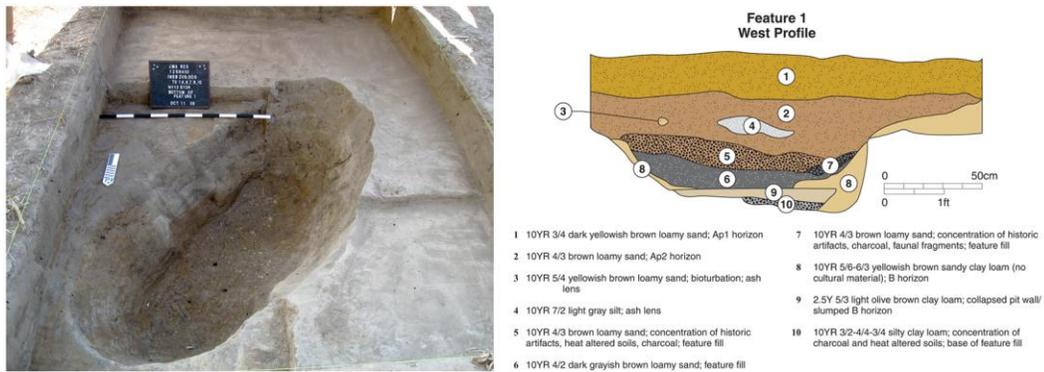


Figure 2. Plan and profile (west wall) of Feature 1, large trash pit.

The general character of the historic-period artifact assemblage suggests that 12Sh450 was occupied for a relatively brief period during the mid-nineteenth century. The ceramic assemblage is dominated by whiteware (69 percent of all the ceramics) in a variety of early decorative motifs (e.g., hand-painted, transfer-print, annular, and shell-edged wares). The scarcity of ironstone and porcelain and complete absence of granite wares suggests that the occupation of the site was relatively short-lived and did not extend past the middle of the nineteenth-century. Similarly, the complete absence of pearlware and creamware suggests that the site was not occupied as early as the 1810s or 1820s. The general lack of late-nineteenth-to-early-twentieth century artifacts of all kinds (e.g., wire nails, amethyst glass, machine-made bottles) suggests site 12Sh450 represents a fairly short-term occupation.

Most (69 percent) of the ceramic sherds recovered from the site were whiteware, which began to be produced in England in 1805 but did not become widespread in American until the 1820s (Miller et al. 2000). Decorative motifs represented in the whiteware assemblage included hand-painted (30 percent of the decorated whiteware sherds; Figure 3, bottom row), transfer-printed (25 percent) - including 37 blue, 12 red, eight flow blue, and one example each of mulberry ware/flow-black, brown, green, purple, polychrome, and overglaze (Figure 3, top and middle rows), blue-sponged (20 percent), shell-edged whiteware (these included 34 blue, 3 red, and 2 green; 15 percent), and annular or dipped (only 6 percent). Other ceramics recovered from the site included Yellowware utilitarian vessels which included plain, Rockingham (or

Bennington), annular/banded, and one with a mocha-dendritic decoration. Although the date ranges for these wares are somewhat variable (McConnell 2001; Miller 1991; Miller et al. 2000; Sussman 1997), in general the ceramics suggest a date range from the late 1830s through the 1840s.



Figure 3. Selected ceramic artifacts from 12Sh450 including transfer-printed whiteware (top and middle rows) and hand-painted whitewares (bottom row).

Partial maker's marks were found on only three sherds. The date ranges for these vessels were 1850-1861 for the "Imperial Ironstone" vessel manufactured by John Alcock of Colbridge, Staffordshire; 1833-1847 for the "BOLOGNA" pattern manufactured by the English pottery of Copeland & Garrett, Inc.; and 1842-1854 for the vessel with the partial mark of "J^E EDWARDS," or James Edwards, another Staffordshire potter (Kowlasky 1999). The maker's mark for the sherd of Imperial Ironstone provides an absolute *terminus post quem* (TPQ) date (i.e., the earliest date after which the artifacts from a site may have been deposited) for the ceramic assemblage of 1850.

The nails recovered from the site also indicate that the assemblage dates to the early-to-middle-nineteenth century. Of the 262 nails recovered from the site, 96 percent were identified as machine-cut nails. The other nails included nine unidentifiable nail fragments (these were too oxidized to positively determine manufacture) and one wire nail fragment. No handwrought nails were recovered from the site. The near-complete absence of wire nails from the site indicates that the site was not occupied as late as the 1880s (Adams 2002; Fontana 1965:89). Similarly, the lack of handwrought nails suggests that the site was not occupied prior to the 1820s or 1830s, and/or that no blacksmith who manufactured wrought nails was available in the local area.

The absence (or near absence) of many common late-nineteenth century artifacts in the assemblage serves as a strong indicator that site 12Sh450 represents a fairly short-term occupation during the early- to mid-nineteenth century. For example, the absence of Bristol glaze within the stoneware assemblage suggests that the site was occupied prior to the 1880s (Note: Bristol glaze, a carmel-colored glaze commonly used for Ginger Beer and pharmaceutical wares in England beginning in the 1830s, did not become popular in the United States until the 1880s; Joy 1996; Lebo and Cliff 2008). Likewise, no machine-made bottles, first produced in 1906

using the Owens machine, were included in the glass assemblage (Lindsey 2008; Miller and Sullivan 1984). Also notably absent in the assemblage were any fragments of lamp chimney glass. The lack of chimney glass from the site suggests the site was abandoned prior to the widespread adoption of oil lamps, which occurred after 1859 with the drilling of the first oil well in Pennsylvania (Miller et al. 2000).

The historic ownership and occupancy records for the property that includes site 12Sh450 are ambiguous for the period of the site's occupation—the 1840s and 1850s. Early property records indicate only that acreage was bought and sold that was located within specific parts of the SW one-quarter. In 1836, William Richardson purchased land in the SE of the SW quarter, and in 1839, Benoni Richardson purchased five acres in the E side of the W half of the SW quarter. Neither appears in a transaction concerning a significant portion of the W half of the SW quarter until Benoni Richardson sold 32 acres to James Hayes in 1853.

While it is not possible to determine with certainty that Benoni Richardson owned or occupied property that included site 12Sh450, his family did own and may have occupied part of the NW portion of the SW quarter between 1839 and 1853. This period of ownership is consistent with the date ranges of artifacts recovered from the site. In the 1850 US Federal Census, Benoni Richardson's listing records that he was a farmer, 64 years old, born in Virginia, with real estate valued at \$1,000 (USBC 1850). He resided with his wife Ruth, age 60, born in North Carolina and their adult daughter Lucretia, age 22, born in Indiana and listed as deaf and dumb (USBC 1850). In 1853, James Hayes purchased 32 acres from Benoni and Ruth Richardson in an unspecified part of the W half of the SW quarter. The abandonment of the site may have occurred at the time of Richardson's sale of the property to Hayes in 1853, at which time he would have been 67 and his wife 63.

Looking for a Log Cabin at site 12Sh450

The current landowner informed LBG personnel during the Phase II investigation in January 2008 that he recalled being told that a log cabin once stood at the site (Rinehart et al. 2008:37). As late as the 1850s, approximately one-half of the rural population of Indiana lived in log cabins (the other half lived in newly built brick or frame houses), although relatively few new log cabins were being built by this time (Carter 1946). JMA conducted research on log cabin architecture in Indiana to investigate whether the archeological record from site 12Sh450 conformed to documented patterns of typical log architecture and/or construction techniques.

Contemporary scholarship concerning the architecture of log "cabins" in Indiana provides detailed understanding of log construction. Much of the discussion presented below is drawn from the work of Warren E. Roberts, whose research (Roberts 1986, 1996) included field investigations of 470 extant nineteenth century log buildings in southern Indiana. Review of the scholarship concerning extant log structures provides many important details of typical log house construction that would presumably result in identifiable signatures in the archaeological record.

Roberts notes that early-nineteenth century pioneer log cabins (as described in the historical literature) refer to hastily constructed structures intended for temporary shelter (perhaps only a few winters) that were built with round, un-hewn logs. These cabins would be

daubed (or “chinked”) with mud and left un-sided, generally lacked glass windows, and were built without a chimney. Instead, a hole was cut in the roof to allow smoke from an open fire to escape. If windows were cut into the walls, then they were covered with grease paper. If a fireplace and chimney were built, then they were made of sticks covered with clay on the interior surface. The bottom logs of the walls rested directly on the ground (without a foundation) and the floor was either dirt or constructed of “puncheons” supported by joists that lay directly on the ground (Roberts 1986, 1996).

Lacking any true foundation or even stone piers, the archaeological signature of such a structure would be difficult to detect. Puncheons would typically be flat on only one side (forming the floor) with the natural curvature of the log on the bottom (Roberts 1996:42). If these hewn logs rested directly on the ground surface, then one would expect a reverse-corduroy pattern from the round logs impressed onto the ground surface, resulting in a potentially identifiable archeological feature. No indications of such a structure were observed at site 12Sh450. Roberts (1986, 1996) suggests that while some crude, hastily built cabins matching the above description may have indeed been built, they would have been strictly intended for temporary use. Being built directly on the ground, they would have decayed quite rapidly.

Of the 296 hewn timber houses in southern Indiana examined in Roberts’ (1996) study, 65 percent consisted of a single room on the ground floor with a sleeping loft overhead. These are almost entirely rectangular in floor plan with typical dimensions of 24 x 18 feet. Typically a door is located in the center of the front and back walls, with two windows on each of the front and back walls arranged symmetrically on either side of the door (Figure 4). The fireplace and chimney are usually centered on one of the shorter (gable) walls. Most log houses in Indiana were built on piles of stone used as pillars at each corner, as opposed to being built over an excavated cellar or on a continuous stone sill foundation.



Figure 4. View of a typical nineteenth century log home in rural Indiana (from Roberts 1996:129).

No stone pillars or other *in situ* architectural features indicative of a log cabin or other structures were encountered during the excavations. However, the recovery of 463 architecture-related artifacts from 12Sh450 (18 percent of all the artifacts recovered) suggests that one or more structures formerly stood on the site. The types, quantity, and distribution of recovered architectural artifacts provide some indications of the type of structure (or structures) that were built at the site. Of the 463 architecture-related artifacts recovered from the site, 262 were nails or nail fragments. The uniformity of nail types within the architectural artifact assemblage (machine-cut nails comprised 96 percent of the 262 nails recovered) suggests that occupation of the site included only one construction episode or several construction events within a relatively

short time span. This is consistent with the date ranges for the artifact assemblage in general, which suggest a relatively brief occupation during the 1840s-1850s.

The presence of brick fragments throughout site 12Sh450 suggests that the house had a hearth and/or chimney constructed (or repaired) at least partially of brick. The fireplaces and chimneys of southern Indiana log houses are invariably centered on exterior end (gabled) walls, although there is no clear preference for one end or the other. The masonry for the fireplace is built within and (for the most part) outside the wall, from which the chimney rises entirely outside the wall with a typical gap of at least three inches between the wall and chimney. Fireplaces and chimneys were most often constructed of fieldstone, typically mortared together with mud. Fireplaces and chimneys built entirely of brick are very rare among southern Indiana log structures, although combinations of stone and brick are not unusual. In many cases, the use of brick may represent repairs or rebuilt portions of stone masonry (Roberts 1996:97-108). The greatest number of brick fragments recovered (n=19) were from Feature 5 (Figure 1), a basin shaped sub-plowzone refuse pit, during the Phase II investigation. The apparent density of bricks in this feature was not matched by concentrations of nails or window glass.

Although round-log cabins (without siding) were common in the West (and in twentieth century rustic architectural styles, such as Adirondack camps), the majority of log houses built in the areas east of the Mississippi River during the eighteenth and nineteenth centuries were covered with cladding (Bomberger 1991). All of the 296 nineteenth century hewn-timber houses in southern Indiana studied by Roberts had siding, consisting of clapboards (or weatherboards) on exterior walls, and these weatherboards would have been installed when the house was originally built (Roberts 1986, 1996:75-89). The boards were nailed to vertical furring strips that were in turn nailed to the hewn timber walls of the house. Log houses in southern Indiana also had plank floors, typically with boards about six inches wide and tongue-and-groove joints that were also obtained from sawmills (Roberts 1996:114-115). The 262 machine-cut nails or nail fragments recovered from the site are consistent with the use of weatherboard siding and plank floors as described by Roberts.

An Early-Nineteenth Century Household in Rural Indiana

The decade of the 1850s has historically been regarded as a period of profound transformation in rural Indiana, which included a transition from romanticized frontier pioneer conditions to more settled, stable, established farmsteads and rural village centers. Mid-nineteenth century farmers in Indiana generally raised and produced all of their own food, with the exception of coffee, rice, salt, and spices—all of which would have been readily available from local or regional merchants (Carter 1946:108). The inhabitants of rural Indiana during this period were both self-sufficient, in the sense that they provided for most of their own day to day needs with their own labor, but they were also dependent on access to national markets for finished products such as tools, drygoods, and other implements (Fite 1976).

Agricultural Production and Subsistence Remains

As noted previously, it is possible that Benoni Richardson occupied 12Sh450 prior to 1853. The 1850 agricultural census (USBC 1850) for Jackson Township indicates he owned and operated an average size farm of 110 improved and 40 unimproved acres with a cash value of \$1,000. He owned four horses, five milk cows, five sheep, and 27 swine, with a total value of \$220. His grains included 60 bushels of wheat and 5,000 bushels of Indian corn. He also produced 50 pounds of wool, 20 bushels of Irish potatoes, and 260 pounds of butter. The value of homemade goods was \$25 and the value of animals slaughtered was \$75, which was slightly higher than average within Jackson Township. The subsistence remains recovered from the site are consistent with the listed crops and livestock in the agricultural census for Benoni Richardson, but it is perhaps more accurate to conclude that the botanical and faunal remains from site 12Sh450 are relatively typical for a mid-nineteenth, small, subsistence-oriented farm in Indiana.

The recovery of carbonized macroplant remains from the early nineteenth century component of site 12Sh450 (Heaton et al. 2009; Rinehart et al. 2008) was excellent (Table 1), and provides data concerning the overall character and composition of the local forest and fuel use practices, local food production, the gathering of wild plants for food and medicine, and seasons of occupation during the nineteenth century habitation (Branch-Raymer and Wettstaed 2009). The fruiting seasons of the recovered macroplant remains are indicative of year round occupation. Eighteen flotation samples totaling 118 liters were collected from Features 1 (78 L) and 4 (40 L). Both features were large refuse-filled pits that contained multiple fill deposits consisting of charcoal, ash, bone, eggshell, artifacts, and fire-altered soils. The poor representation of both burned and calcined faunal specimens suggests the recovered bone was dumped into rather than cooked in these pits.

The field crops, which collectively account for roughly 60 percent of the identified seeds, included both native, North American crops (common bean, maize) and imported European grains (European cereal, rye, wheat) (Branch-Raymer and Wettstaed 2009). The native crops (beans and maize) comprise 19 percent of the identified seeds and nutshell. The European cereals account for 40 percent of the identified macroplant remains (Branch-Raymer and Wettstaed 2009). It is likely that any surpluses generated by the cultivation of field crops would have been used as cash crops; however, there is no direct evidence for large-scale participation in market production.

Nuts, fruit seeds (wild or domesticated), and edible herbaceous plants comprise the remainder of the archaeobotanical assemblage. Hickory and indeterminate nutshells comprise 11.4 percent of the recovered seed remains (Branch-Raymer and Wettstaed 2009). Fruit seeds, which included blackberry/raspberry, blueberry, mulberry, and peach, account for 8.7 percent of the seed remains, and lastly, edible herbaceous plants represent 20.2 percent of the nineteenth-century macroplant assemblage (Branch-Raymer and Wettstaed 2009). Herbaceous seed remains included beebalm, dock, knotweed, pigweed, pennyroyal, plantain, and pokeweed. All seven edible herbs were utilized as herbal medicines in the nineteenth centuries (Crellin and Philpott 1989).

Table 1. Summary of archaeobotanical assemblage from site 12Sh450 by feature.

Feature	Feature 1	Feature 4	Feature 6	Feature 10
Depth (cmbd)	25-83 cmbd	26-81 cmbd	30-75 cmbd	22-54 cmbd
Volume (liters)	78	40	7	6
Wood Charcoal (g)	61.00	4.94	25.44	0.11
Wood Charcoal Density (g/L)	0.782	0.124	3.634	0.018
Total Charred Seeds	96	13		
Charred Seed Density (ct/L)	1.23	0.33		
Total Charred Nutshell	11	2	2	4
Nutshell Density (ct/L)	0.14	0.05	0.29	0.67
Total Uncharred Seeds	104	73	7	135
Uncharred Seed Density (ct/L)	1.33	1.83	1.00	22.50
Resin (g)		0.06	0.35	
Total Seeds and Nutshell	211	88	9	139
<u>Charred Nutshell and Field Crop Weights (g)</u>				
Hickory Shell Wt (g)	0.04			
Hickory/Walnut Shell Wt (g)	0.03	0.02	0.01	0.02
Common Bean Wt (g)	0.22			
European Cereal Wt (g)	0.05			
Maize Cupule Wt (g)	0.05	0.01		
Rye Wt (g)	0.03			
Wheat Wt (g)	0.2	0.04		

Analysis of the small faunal sample recovered from site 12Sh450 (Table 2) (Branch-Raymer and Wettstaed 2009) indicates that the site occupants relied on a limited number of domestic animals that were likely farmed on-site. Subsistence at the site consisted largely of domesticated taxa such as cow, pig, and chicken, with at least the occasional supplementation of wild taxa such as rabbit, squirrel, and fish. These supplemental taxa could have added variety to the diet rather than serving as a significant source of animal protein, with the main source of meat deriving from domesticated taxa. Animal husbandry could also have produced an excess of meat suitable for market exchange, although the minimum number of individuals and high quantity of low utility items is not suggestive of such activities. There is little evidence for participation within a market system given the skeletal distribution represented, lack of saw marks, and lack of wholesale or retail cuts (as defined by Ashbrook 1955). The distribution of domestic species elements included numerous low utility items (teeth, lower limb, and foot) suggesting that large portions of the represented carcasses were processed on-site versus purchasing from market.

In general, the archaeological data indicates that the occupants of site 12Sh450 focused their agricultural activities and labor on providing for their own subsistence needs as opposed to substantial participation in food production for markets. The inhabitants of the site would have needed to produce some surplus crops or other products in order to generate cash needed both for market goods and (eventually) to improve their situation via the purchase of new property, additional acreage, acquisition of livestock, and/or the construction of a new house or farm buildings; however, the archaeological assemblage from the site does not provide any clear indication of what these surpluses of products may have been.

Table 2. Summary of faunal remains from site 12Sh450 by NISP and weight.

Taxon	NISP Count (N)	NISP %	Weight g	Weight %
Cow (<i>Bos taurus</i>)	7	0.85%	326.97	41.34%
Pig (<i>Sus scrofa</i>)	33	4.01%	176.53	21.47%
Rabbit (<i>Syvilagus</i> sp.)	1	0.12%	1.27	0.16%
Squirrel (<i>Sciurus</i> sp.)	1	0.12%	0.2	0.01%
Mammal-Large (Unidentified)	43	5.23%	145.59	18.41%
Mammal-Medium-Large (Unidentified)	27	3.28%	21.55	2.72%
Mammal-Medium (Unidentified)	15	1.82%	17.5	2.21%
Mammal-Small (Unidentified)	2	0.24%	0.13	0.01%
Mammal-Unidentified (Unidentified)	136	16.54%	53.74	6.78%
Chicken (<i>Gallus gallus</i>)	6	0.85%	12.76	1.61%
Bird-Unidentified (Unidentified Aves)	189	22.99%	22.9	2.89%
Fish-Unidentified (Unidentified Osteichthyes)	3	0.36%	0.07	0.01%
Frog/Toad (Unidentified Anura)	5	0.60%	0.67	0.01%
Freshwater Mussel (Unionidae)	1	0.12%	0.1	0.01%
Commensal Invertebrates	<i>Not Counted</i>	<i>Not Counted</i>	0.08	0.01%
Bivalve/Gastropod-Unidentified	4	0.48%	0.15	0.01%
Bivalve-Unidentified	1	0.12%	1.06	0.01%
Shell-Unidentified	<i>Not Counted</i>	<i>Not Counted</i>	1.12	0.01%
Vertebrate-Unidentified	348	42.33%	8.4	0.01%
Total	822	100%	790.79	100%

Fuel Procurement

Wood charcoal was present in all 18 of the flotation samples recovered from Features 1 and 4 at site 12Sh450 (Branch-Raymer and Wettstaed 2009) (Figure 1). Identifications were attempted on 238 fragments from these contexts. The wood charcoal assemblage is well preserved, and no fragments were completely unidentifiable (Table 3) (Branch-Raymer and Wettstaed 2009). The high percentage of wood in this collection accentuates the excellent degree of preservation of carbonized macroplant remains at this site.

The identified wood fragments were placed into 17 categories including indeterminate hardwood, indeterminate monocot, pine, and 14 hardwood categories (Table 3). All of the identified taxa are common constituents of climax hardwood forests in Shelby County (Brownfield 1974). A number of the identified taxa (American basswood, black locust, cottonwood, hophornbeam, pecan, pine) represent relatively poor firewood sources. The species composition and relative proportion of the identified woods is not indicative of firewood purchased at market. Reynolds (1942) indicates that oak and hickory were the most common fuel-woods sold in east coast commercial markets during the nineteenth century. The heterogeneous mix of hardwoods and pine recovered from Features 1 and 4 is, in the opinion of the authors, indicative of local collection of firewood from an intact climax hardwood forest such as the one that surrounded the site prior to large-scale forest clearing (Table 3). Also noteworthy

is the fact that coal, which was a common household fuel in America by the early nineteenth century, is virtually absent from the archaeological assemblage.

Table 3. Wood charcoal from historic features at site 12Sh450.

Feature	Wood Charcoal (% w/in Feature)							
	1 25-83	4 26-81	6 30-75	All Features	1 25-83	4 26-81	6 30-75	% of All
Depth (cmbd)								
Hardwood	17	31	2	50	11.9%	32.6%	9.1%	19.2%
Monocot	1	3		4	0.7%	3.2%		1.5%
American Basswood	9	3		12	6.3%	3.2%		4.6%
Ash	24	3		27	16.8%	3.2%		10.4%
Beech	3	3		6	2.1%	3.2%		2.3%
Elm	13	1		14	9.1%	1.1%		5.4%
Hickory	25	14	20	59	17.5%	14.7%	90.9%	22.7%
Hophornbeam	3			3	2.1%			1.2%
Maple	12	11		23	8.4%	11.6%		8.8%
Oak	5	4		9	3.5%	4.2%		3.5%
Pecan	4	1		5	2.8%	1.1%		1.9%
Pine	1	2		3	0.7%	2.1%		1.2%
Possible Black Locust		1		1		1.1%		0.4%
Possible Cottonwood		4		4		4.2%		1.5%
Red Oak	4	6		10	2.8%	6.3%		3.8%
Walnut	1	2		3	0.7%	2.1%		1.2%
White Oak	21	6		27	14.7%	6.3%		10.4%
Total Identified	143	95	22	260	100%	100%	100%	100.0%

Market Goods

Historical archaeologists have demonstrated that by the early-to-mid-nineteenth century consumers, in even the most remote areas of the Midwest, had access to manufactured goods through regional and national supply networks (Adams 2002, 2003; Lofstrom et al. 1982, cited in VanderVeen 2007; Wettstaed 2003). These goods included recent ceramic wares from England. For example, at least four different retailers of ceramic wares were established in Indianapolis by the mid-1860s (Cowen 1866, cited in VanderVeen 2007). The first steam railroad in Shelby County, which ran 16 miles to connect Shelbyville to the Madison & Indianapolis railroad, was completed in 1849-1850. By the mid-1850s, three railroads passed through Shelbyville (Brant and Fuller 1887:402; Chadwick 1909:260-261). During the mid-nineteenth century, local country stores served as the primary source for manufactured goods in rural areas (Adams 2003; Wettstaed 2003). Mount Auburn, located southeast of the site, was the nearest sizable settlement and commercial center, and is the principal settlement in Jackson Township.

The architectural artifacts from the site suggest the interplay between purchased market goods and reliance on a family’s own labor and raw materials from their own property. The quantity of cut nails recovered from the site suggests that the former structure(s) on the site was a hewn-timber house. Hewn-log houses in southern Indiana had weatherboard siding and plank floors (both of which required nails) constructed with sawed boards that would likely have been

cut at a sawmill (Roberts 1996:114-115). The earliest recorded mill built in Shelby County was erected ca. 1823 by J.C. Walker on the Blue River in Shelbyville—at the present site of the Shelby Mills. Closer to the site, Joseph Hageman established a saw mill near Mount Auburn in 1839 (Brant and Fuller 1887:308, 448; also Chadwick 1909:58, 264). The historically recorded presence of these mills indicates that milled lumber would have been available to the site's occupants during the construction of the log house at site 12Sh450.

The dominance of machine-cut nails at the site (96 percent of the 262 nails recovered) may also inform the site's relationship to local and regional economic networks. Adams (2002) has hypothesized that in any analysis of nail assemblages “the local and regional transportation system as well as local industries should be considered as well as regional and local variations in chronology. For example, pioneer settlers in the Midwest might well have had access to more advanced nail varieties coming down the river from Pittsburgh or upriver from New Orleans” (2002:71-72). Thus, the lack of wrought nails at 12Sh450 may suggest the absence of a nearby blacksmith manufacturing wrought nails for local customers. Conversely, the high percentage of mass-produced machine-cut nails may indicate reliance on regional or national commercial suppliers (like a local general store) for access to hardware.

The recovery of clothing-related artifacts (a flat iron, scissors, 11 buttons, three straight pins, and two buckles) indicates that tailoring or mending of clothing (and likely other household goods such as blankets) was performed at the site. It is likely that the necessary articles and raw materials for these activities would have been purchased, but the cutting, sewing, and fitting work would have been done within the household—typically by women. Account books from country general stores in Indiana during the mid-nineteenth century list the types and costs of drygoods (sold by the yard) that were readily available, such as calico (the least expensive), gingham, lawn, muslin, cassimere, flannel, linen, lace, silk, and tweed (Carter 1946:116). While certain finished articles (shoes, hats, bonnets) or accessories (suspenders, ribbon) would likely have been purchased outright, most actual garments would have been sewn and mended from purchased materials.

Analyses of ceramic assemblages are often used to address questions of socio-economic status or class, but they are also indicative of awareness of prevailing tastes and access to national markets. In general, the ceramics from the site are relatively typical for mid-nineteenth century households. That is, the assemblage lacked any noteworthy vessels or sherds that clearly represented luxury items. For instance, during the mid-nineteenth century sponged wares (typically on tea wares) and edge-decorated (e.g., shell-edged) flat wares were quite common and represented the least expensive available option for decorated refined earthenware (Miller 1991)—both of these were well represented in the assemblage from 12Sh450. The assemblage also included a diversity of hand-painted and transfer-print patterns, reflecting an awareness of and concern with contemporary tastes and styles.

Analyses of ceramic assemblages from other mid-nineteenth century sites in Indiana provide a comparative basis for the artifacts from 12Sh450. Historical archaeologists often employ a simple ceramic value index formula developed by George Miller (1980, 1991) to infer socio-economic status of a site's inhabitants based on the quantities and relative amounts of various decorative motifs of refined white earthenwares. This method is based on price lists and price-fixing agreements of Staffordshire potteries and is not without problems (Klein 1991; LeeDecker 1991; VanderVeen 2007), but provides an expedient, simple, and readily comparable

indication of the consumer choices of a given household. The ceramic value index utilizes only refined white earthenwares and compares the relative quantities of undecorated wares, minimally decorated wares, hand-painted wares, and transfer-printed wares recovered from archaeological sites.

A ceramic value index analysis of the Reddick Site (VanderVeen 2007)—a mid-nineteenth century site in Marion County with a vague site history, no clear architectural features, and artifact assemblage generally similar to site 12Sh450—relied on sherd counts from the site (as opposed to vessel counts, a preferable method) and is therefore directly comparable to the data from site 12Sh450. The application of this index to the assemblage from 12Sh450 (Table 4) resulted in an index score of 1.14. This index value compares quite favorably with assemblages from other sites associated with middling farm families (Table 5; VanderVeen 2007), such as the Godeke (value index 1.15) (VanderVeen 2007) and Reddick (value index 1.20) (VanderVeen 2007) sites. Ceramic assemblages associated with wealthier individuals or families in Indiana, such as the Conner (a physician and politician in Hamilton County) and Richardville/Lafontane (a politician and merchant in Huntington County) sites, yielded considerably higher value-index scores (1.41 and 1.39, respectively; VanderVeen 2007).

Table 4. Ceramic cost index values for refined white earthenware sherds from site 12Sh450.

Ceramic Type	Sherds	Index Value	Total Value for Type	Ceramic Index Value
Undecorated wares	707	1.00	707	
Minimally decorated wares	116	1.16	134.56	
Painted wares	80	1.30	104	
Transfer-printed wares	63	2.50	157.5	
Total	966		1103.06	1.14

Table 5. Inter-site comparison of ceramic cost index values from site 12Sh450 with other mid-nineteenth century Indiana sites*.

Site Name	County	Date Range	Sherd Count	Ceramic Value Index	Listed Occupation
12Sh450	Shelby	1840s-1850s	966	1.14	Farmer
Reddick	Marion	Mean Ceramic Date 1845	1536	1.20	Unknown
Godeke	Warrick	Mean Ceramic Date 1845	1286	1.15	Farmer, clerk
Conner	Hamilton	Mean Ceramic Date 1851	1281	1.41	Physician, politician
Richardville/ LaFontane	Huntington	1830-1870	2051	1.39	Politician, merchant

*Inter-site comparative data from VanderVeen 2007.

It is perhaps too simplistic to equate these ceramic value index scores with a summary ranking of socio-economic status because any number of factors including, but not limited to, wealth, cost, household composition, age, ethnicity, frugality, regional origin, personal preferences, and market access could have played important roles in consumer behavior, including ceramic selection, during the nineteenth century (Klein 1991; LeeDecker 1991). Although railroads resulted in more ready supply chains from national marketing networks, consumers in rural areas of the Midwest typically would not have had unlimited selection or guaranteed access to the latest products. Country general stores typically stocked only limited

varieties and quantities of goods (Adams 2003). Most purchases at these stores would have been for fabric, shoes, food items (coffee, salt, spices), sewing supplies, whiskey, tobacco, and other incidentals, while ceramic purchases were rare and infrequent (Carter 1946; Wettstaed 2003). Additionally, rural merchants occupied the ends of the supply chain, where other retailers and consumers had first choice of goods and shipping costs would likely prohibit the return of un-bought or undesirable merchandise.

The lower ceramic value index scores for site 12Sh450 (and other rural middling farm sites) reflect the limited selection of locally available wares as much as the wealth, tastes, and/or frugality of the household. The ceramic assemblage included a variety of decorative motifs that were popular during the 1830s and 1840s. Among the highly-decorated white earthenwares, hand-painted sherds (n=78) are more common than transfer-prints (n=63). Among the minimally decorated wares, sponged (n=52) and shell-edged (n=39) were common. While some of these vessels may have been acquired during the occupation of site 12Sh450, it is likely that many of them were already owned by the household and transported from their previous home when the occupants of the site established residency. However, the presence of a few sherds with identifiable maker's marks—all Staffordshire (English) potteries with production dates of 1833-1847, 1842-1854, and 1850-1861—demonstrate that the site occupants continued to have access to and chose to purchase (at least occasionally) available English ceramics in contemporary styles.

Site 12Sh450 in the Early-Nineteenth Century Landscape

Site 12Sh450 conforms to an early pioneer settlement pattern, where house and farm location decisions appear to have been based more on physiographic and topographic features—as opposed to road networks, access to villages, or other factors related to the more established and formalized settlement system typical for the region during the latter part of the nineteenth century. In Warren Roberts' analysis (1996) of log cabin architecture in southern Indiana, he notes that most early houses were sited in similar and predictable topographic settings:

In Indiana, most log houses seem to have been built near springs. It is most unusual to find an early log house built near a stream of any kind unless, of course, we have a spring with a stream running from it. This means that most early log houses are not located on ridge tops or at the bottoms of valleys, but in the land in between where springs occur [Roberts 1996:12].

The physiographic setting and oral history data for site 12Sh450 perfectly matches the described typical locations for early cabins provided by Roberts. The current landowner recalled being told that an intermittent natural spring once flowed east of the log cabin which formerly stood at the site (Rinehart et al. 2008: 37). The site is located on the precipice of a bluff that overlooks the bottomlands of the Blue River Valley. Historic maps indicate that the location of the site does not appear to have been selected based on proximity to nineteenth century road networks (Figures 5). In addition, the occupation dates and archaeobotanical evidence recovered

from the site suggest that at the time the site was established (ca. late 1830s or 1840s), the landscape in the immediate vicinity included climax hardwood forest.



Figure 5. Detail of *Atlas of Shelby County* (Beers 1880) showing approximate location of 12Sh450.

The “Haw Patch Settlement” was the earliest identified settlement in Jackson Township, and is reported to have been located three miles northeast of Edinburgh (Brant and Fuller 1887:575; Chadwick 1909:9). Other sources place the Haw Patch settlement (perhaps also known as Slab Town or Sang Town) in the vicinity of 125 W, approximately eight miles east of Edinburgh (Cheatham and Burns 2009). Site 12Sh450 is located north-northeast of Edinburgh, and therefore within a few miles of the Haw Patch Settlement.

The term “Haw Patch” appears to have been a descriptive vernacular landscape term that was in common use among the early-nineteenth century pioneer settlers of Indiana. Locally, the Haw Patch was defined as “a great alluvial plain of wonderful fertility, in the southwestern part of Shelby and the northwestern part of Bartholomew” (Brant and Fuller 1887:253). The Haw Patch is compared favorably in historical sources to other notable locales such as the “Blue Grass” region of Kentucky (Goodrich and Tuttle 1875:498). A history prepared for the 125th anniversary of the hamlet of Clifford, located in Flat Rock Township, Bartholomew County (south-southeast of site 12Sh450), describes the Haw Patch:

Known from the beginning of history as the “HAWPATCH” plateau, level and fertile as any prairie, primevally covered with a magnificent forest of great trees, devoid of any undergrowth or fallen timber . . . Robert J. Marshall, a local historian, native of the county and long time on the staff of the local newspaper . . . says the area was thickly covered with “Haw” trees, therefore the name “Hawpatch” [Capper 2008];

or this account of a mature forested landscape of early-nineteenth century Shelby County:

The county was originally level forest land, with fertile bottoms along the streams, from half a mile to two miles in width. The uplands are elevated about forty feet above these bottoms . . . The timber in the bottoms was principally walnut, ash, etc.; on the uplands, beach, oak and hickory were the distinguishing feature of the forest” [Goodrich and Tuttle 1875:512-513].

The wood charcoal recovered from the pit features (Table 3) indicates that the site’s occupants harvested a wide variety of locally available woods for firewood. The wood charcoal samples suggest that a climax hardwood forest was in close proximity to the site throughout the period of occupation, and the occupants of the farmstead collected locally available wood for their heating and cooking needs. Thus, the wood charcoal assemblage consists of a heterogeneous mix of hardwoods and pine as well as some relatively poor fuel-woods. The composition of the wood charcoal assemblage closely resembles the pre-logging climax forest recorded in historical documents for the project locality in the nineteenth century (Branch-Raymer and Wettstaed 2009; Brownfield 1974; Reynolds 1942).

Seeds from herbs and grasses recovered from Features 1 and 4 (Heaton et al. 2009: Appendix VII) represent species whose natural habitat include edge zones and old fields. These plants would have been easily accessible in the yard and open fields surrounding the 12Sh450 farmstead. Three seeds from two naturally occurring grasses, panicgrass and an unidentified grass, were identified in the macroplant assemblage. Panicgrass is a widespread annual/perennial plant that is commonly found in open fields and open woods, and grows in wet conditions such as swampy areas and along streambanks. These grass taxa likely represent yardweeds that grew naturally in the vicinity of the farm.

The archaeobotanical data recovered from site 12Sh450 provides evidence of the active transformation of Indiana’s landscape undertaken by pioneers and early farmers during the early-to-mid-nineteenth century. The wood charcoal assemblage included both excellent firewood (ash, beech, elm, hickory, maple, oak, pecan, red oak, walnut, white oak) and less desirable sources of fuel (American basswood, black locust, cottonwood, hophornbeam, and pine). The heterogeneity of the wood assemblage, in combination with the inclusion of poor fuel-woods, is indicative of local firewood collection from a relatively intact climax hardwood forest. The clearing of the landscape was both a solution to practical problems experienced by individual families (e.g., the acquisition of fuel for heating and cooking; the clearing of acreage for use in agricultural production or for pasture), as well as a component to the more dramatic transformation and domestication of the Midwest during the mid-nineteenth century. The presence of seeds from herbs and grasses that typically occupy yards, fields, and edge zones documents the transformation of the spaces immediately surrounding the site from forest to farm yard. The recovery of various cultigens, presumably grown and harvested from the fields associated with the farmstead, provide further evidence of the transformation of the landscape.

By the second half of the nineteenth century, farmsteads in rural Indiana conformed to a more formalized, regular pattern. Farmsteads were typically 80 or 160 acres in size, numbered five to eight per square mile, and were rectangular in plan—with all buildings laid out square along cardinal compass directions. They typically included a farmhouse, barns, specialized outbuildings (e.g., chicken houses, smokehouses, corn cribs, tool sheds), pastures or pens, a garden, and orchard. The farmhouses built during the second half of the nineteenth century were

typically frame construction, one-and-a-half or two-stories with six or eight rooms, with clean, straight lines—most lacking elaborate stylistic flourishes or ornamentation. The houses were always sited on level upland settings, but typically would be located immediately adjacent to the road (unless a more favorable topographic setting was available elsewhere on the farmstead) and set some distance away from the other farm buildings. Most homes had a perimeter of shade trees around the yard with front door facing towards the road (Kiefer 1972).

This description of a typical late-nineteenth century Indiana farmstead is consistent with the depiction of the Cutsinger farm included in the 1880 Beers *Atlas of Shelby County* (Figure 6). Between 1861 and 1862, Samuel and Elizabeth Cutsinger briefly held the title for the 32-acre property that included site 12Sh450. Their farm depicted in the 1880 atlas was located north of the site, near the Shelby County line. The ca. 1880 Cutsinger farm is representative of the later orderly, formalized pattern of farmstead layout.

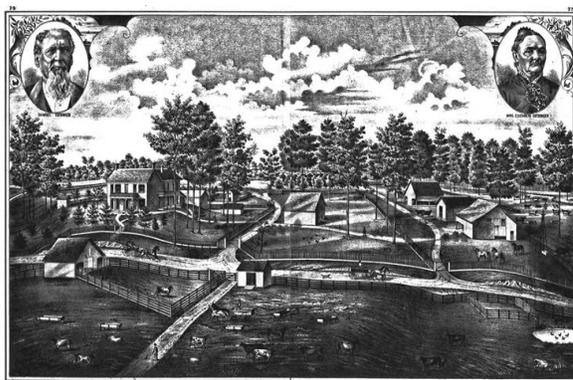


Figure 6. Illustration of Samuel and Elizabeth Cutsinger and their farm as presented in the 1880 Beers Atlas (Beers 1880).

Conclusions

The decade of the 1850s has historically been regarded as a sort of “golden age” and period of profound transformation in rural Indiana that marked a shift from the romanticized struggles of rugged pioneers clearing the forested landscape during the early-nineteenth century to the neat, orderly farmsteads of the late-nineteenth century (Carter 1946). Site 12Sh450 provides a representative example of a small, subsistence-oriented farm household in Shelby County during this transitional phase between the pioneer era and the Hoosier-era that followed the Civil War. The inhabitants of rural Indiana during this period were both self-sufficient, in the sense that they provided for most of their own day to day needs with their own labor, but at the same time, they were also dependent on access to national markets for finished products. The archaeological record from 12Sh450 indicates that the site’s occupants provided for their own subsistence with the products of their agricultural labor, but also demonstrates their reliance on regional and national supply networks for basic manufactured goods.

The Reddick site (12Ma648), located in Marion County (VanderVeen 2001, 2007), is perhaps the most directly comparable site that has been reported in the available archaeological literature for Indiana. Like 12Sh450, the historical record for site 12Ma648 is sparse and

confusing, the occupants or owners of the site remain unknown. The site is located on a ridge overlooking Fall Creek similar to the bluff overlooking the Big Blue River at site 12Sh450. No features or direct evidence of a structure were identified at the site. Artifacts recovered from the Reddick site indicated a habitation date of approximately 1845, and included brick fragments, window glass, and metal hardware, as well as ceramics and other domestic artifacts. The relative sparse density of artifacts and lack of features suggest a small, short-term residence (VanderVeen 2001). Site 12Ma648 appears to be situated in a comparable physiographic locale to site 12Sh450, consistent with the typical locations of early-nineteenth century cabins proposed for southern Indiana (Roberts 1996:12). The ceramic assemblages from the two sites yielded relatively similar ceramic cost index values (see Table 5), suggesting that the occupants of the two sites were of similar economic status and/or experienced relatively similar access to market goods.

The similarity in the date-ranges, types and quantities of artifacts, and lack of architectural features between sites 12Sh450 and 12Ma648 suggest an archaeological pattern for early, presumed cabin, settlements in Indiana that could be looked for and examined at sites in other parts of the state. The lack of *in situ* foundations or other structural remains from both these sites frustrates our ability to archaeologically examine and interpret architectural features at these sites. The quality and detail of scholarship concerning log architecture in Indiana (Roberts 1986, 1996) suggests that archaeological analyses of an undisturbed cabin site or related feature could yield significant data regarding various architectural styles and construction techniques indicative of specific time periods, ethnicity, or regions of origin (within the United States) for the site's inhabitants. Identification and investigation of intact (archaeological) cabin features at early-to-mid-nineteenth century sites in Indiana is a worthwhile goal for future research.

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LOOKING CLOSER: NEW INSIGHTS INTO GOODALL TRADITION CERAMICS

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The Goodall tradition (200 B.C. – A.D. 400) is one of the earliest defined prehistoric cultures in Indiana (Quimby 1941). It occupied northwestern Indiana and portions of northeastern Illinois and southwestern Michigan. Derived from the larger Havana culture in Illinois, the Goodall tradition is a separate, regional development and its study can shed insight into the activities of other Middle Woodland regional expressions. Of particular interest to the author are their ceramics and what can be learned from them.

Pottery is an ideal artifact for the studying of culture. It is made frequently, created in endless varieties for a wide range of functions, broken often, and preserves well in the archaeological record. It also has both a material (physical) and metaphysical (cultural) existence (Skibo 1999:2).

Learning the Craft

Clay accepts and later displays a large number of cultural identifiers, such as construction and decoration decisions. These decisions include choice of a non-plastic tempering agent(s), the ratio of temper to matrix, how to build the vessel, its form, and what decorations to use. James Watson (1990) described how learned behaviors are being expressed, consciously or subconsciously, in the making or decorating of material objects under *cultural diacritics*.

[Cultural diacritics] reflect familiarity, custom, habituation, and an acquired accommodation to the creatures, things, spirits, and . . . powers of a particular locale, added by the instruction and ritual and magical proclivities of parents and other elders of a community [Watson 1990:38].

Practice theory is a fundamental part of cultural diacritics. This study provides that much of learning, especially in a craft situation, comes from interaction with and influence from others at the same level of experience (Eerkens and Lipo 2008; Longacre 1970). While teaching art, the author saw this daily as students around the same table advanced at a similar rate and their resulting work often contained similar elements or applications. Anthropological field studies indicate that peers have a greater influence on the early development of decorative elements and combinations than do older individuals (Bowser and Patton 2008). As a potter ages, he/she becomes part of a practicing community who learn from and have an effect on each other's work and its acceptance. Their style is not monolithic, static, or shared uniformly within neatly bounded groups, but the stylistic influences exerted on them are like networks or cliques, unique but overlapping with those of others (Bowser and Patton 2008:124-125). This does not mean that creativity was suppressed.

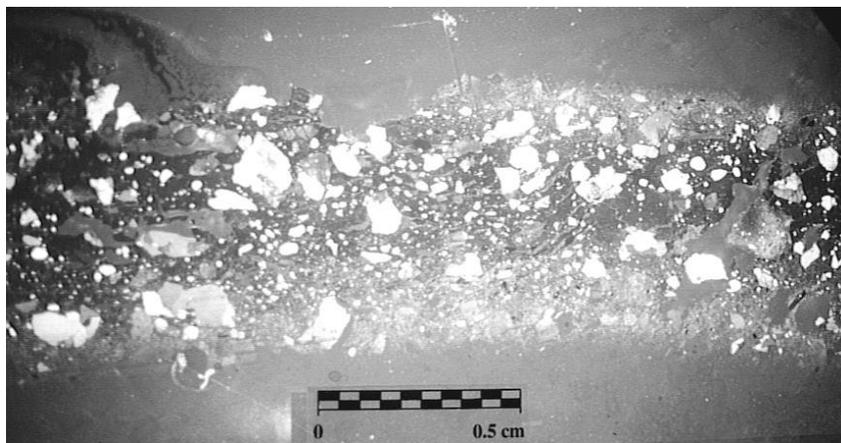
Goodall Ceramics

Personal research included the macro examination of over 2,000 potsherds from Goodall and other Middle Woodland sites that are curated by the University of Notre Dame; the Illinois State Museum; the Grand Rapids (MI) Public Museum; the Spurlock Museum at the University of Illinois, Champaign; the Center of American Archaeology, Kampsville, Illinois; the Illinois Transportation Archaeological Research Program (ITARP) office, Champaign, IL; the Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington; and numerous private collections. Thin sections were prepared for microscopic analyses of 83 of the sherds. This preparation was done by Dr. James Mills, a geologist at DePauw University, Greencastle University, in Indiana. The results of the analyses are presented in Table 1 (Mangold 2009). The indications are that the Goodall ceramics are remarkably similar in composition. The Goodall ceramics are also very similar to those from the Kuhne site, located in the middle Illinois River valley. Additional similarities will be discussed later in this paper.

Goodall ceramics consist of two main wares—Havana and Hopewell. Havana ware is primarily a straight-walled jar with a conical base. Hopewell wares occur in both jar and bowl forms. The jar may have a slightly constricted neck, a more rounded base and, occasionally, a slightly everted rim. It may also have four areas on the side walls that have been forced outward to produce lobes. The Hopewell wares may not have been made in the Goodall area. Many Hopewell vessels are limestone tempered which is not a trait found used by Goodall potters. Therefore, Hopewell wares were probably traded into the region, along with other minority wares, from the Illinois River Valley (Mangold 2009).

The invisible aspects of the ceramics may have had as much cultural significance as the visible ones. The paste and temper recipe seen in this study may be as potent a social identification of an association with a group as other more visible ones. In addition, the way an artifact was manufactured may have special meaning to those who knew its history (Wobst 1977). For example, ceramics from the Utica Mounds, LaSalle County, IL, have a totally different tempering agent, that being small particles of dark grit of either basalt or gabbro. Goodall ceramics and those found on other Middle Woodland sites in the upper Illinois River valley have grit tempering composed primarily of feldspar with some of those particles being quite large (Mangold 2009) (Figure 1). Externally, the vessels from both areas look similar in terms of shape and decoration.

Figure 1. Typical Goodall ceramic thin section showing density and size of feldspar temper.



The Goodall ceramics do have their own unique characteristics, however. During investigations, several things were noted. The ceramics constructed by Goodall potters had a much higher frequency of interior notched lips (Mangold 1998, 2009). This notching appeared on 26 percent of the Havana wares inspected (Mangold 1998). These notches were uniformly spaced and consisted of either tool or cord-wrapped stick impressions. Kenneth Farnsworth (personal communication 2005) does not see the same frequency in the Middle Woodland Havana pottery produced in the Illinois River valley.

Another unique feature found in Goodall Havana ceramics is a strong interior bevel of the lip. While interior beveled lips can be found elsewhere, the angle of the Goodall rims is consistently stronger. The angle of the bevel ranges from 15° to 60° from horizontal with some angles even greater (Figure 2). In conversations with other paleoceramicists, the Goodall beveled rim appears unique to the region (J. Brashler, personal communications 2005, 2006; K. Farnsworth, personal communications 2006, 2007; S. Fie, personal communications 2006). It is proposed that this feature be referred to in the future as a Goodall beveled rim (Mangold 2009).



Figure 2. Goodall beveled lip.

Relatively complete rims found at the Goodall (12Le9) and Mud Lake (12Le13) sites allowed observations of another design choice. Cross-hatched rims are diagnostic of Hopewell wares (Griffin 1952). This design motif was described based primarily on incomplete rims. Based upon analysis, a second variant of the traditional cross-hatched rim can be proposed. In this variety, the cross-hatching is not continuous around the entire rim on vessels with four, equally spaced bulges on the main body (quadrilobate). Interruptions in the design caused by sections of diagonally incised, but not cross-hatched, lines are found. These breaks correspond to the areas of the rim above where the extended lobes occur. The diagonally incised lines alternate from slant right to slant left. This format has also been noted in the Illinois River valley at sites including Smiling Dan, Snyders, Peisker, Macoupin, and Apple Creek (K. Farnsworth, personal communication 1999; Farnsworth 2006; Stafford and Sant 1985). “Less frequently, vessel rims may be partially cross-hatched and accompanied by non-cross-hatched sections displaying a series of parallel incised lines diagonal to the vessel lip” (Stafford and Sant 1985:202). We refer

to this variety as Hopewell Interrupted Crosshatch (Figure 3) and feel, with its occurrences in both the Illinois and Kankakee river valleys, that it deserves formal recognition. The pattern illustrates the continuing changes to traditional design appearance. It also indicates the interaction between the two regions. Farnsworth (personal communications 1999) proposes that the Hopewell Interrupted Crosshatch variety probably dates to the period A.D. 100 – A.D. 200, which correlates well with the Goodall phase of the Goodall tradition.

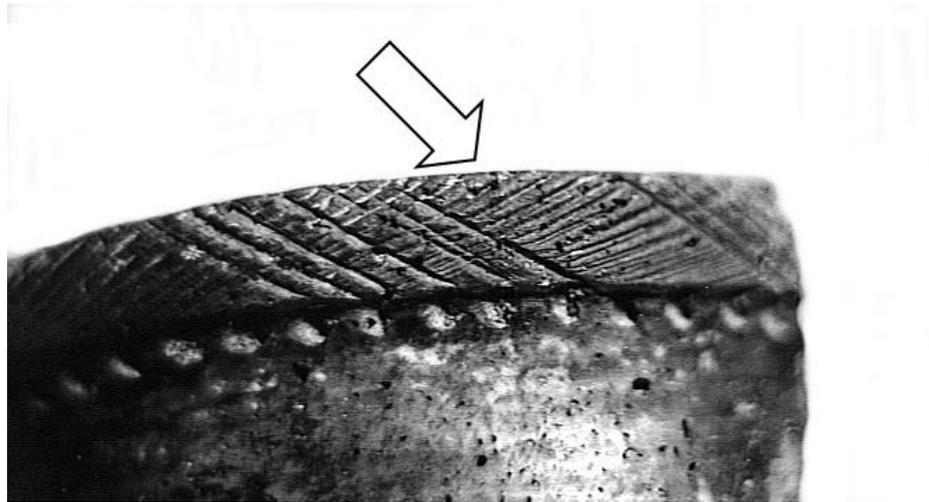


Figure 3. Hopewell Interrupted Crosshatch.

Discussions of Goodall ceramics have to include what the author refers to as the “Picasso pot” (Figure 4). This vessel is the result of a highly creative mind that was not held back by the norm being produced around him/her. Decorations were overlaid upon each other and the body’s lobes were very pronounced. The author is only aware of one other vessel with exaggerated lobes and that came from a site in the lower Illinois River valley. Other sherds with overlaid decorations reminiscent of the Picasso pot have been found on the surface of several other sites near the southern boundary of the Goodall tradition. However, no other complete vessels have been recovered. However, another vessel possibly made by the same individual may have been identified. It is far more restrained and follows a more traditional form and design application.

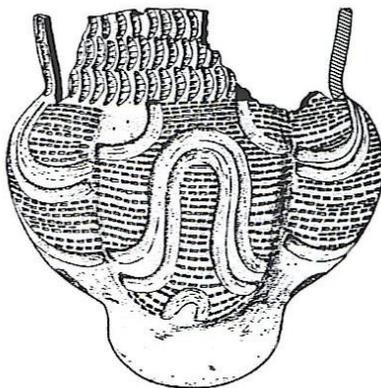


Figure 4. “Picasso pot,” 12Le9 (after Brown 1964).

Archaeologists in the Midwest rarely have an opportunity to see beyond the vessel to the potter. However, during research, the author was fortunate to have that chance. It was noticed that a curved dentate stamp had a unique “tooth” at the end of the tool that left a distinctive impression in the clay (Figure 5). Potters have their own toolkit for decorating their ceramics (Rice 1984a, b; Shepard 1948, 1956; Skibo and Feinman 1999). Therefore, other vessels having the same tool impression would likely have been made by the same individual. This feature allowed for the discovery of six other vessels from three sites that were probably made, or at least decorated, by this person.



Figure 5. Unique dentate stamp.

Whispering Sherds

James B. Griffin, noted archaeologist and paleoceramicist, once said that you have to poke, prod, and dissect every sherd until it spoke to you but to be careful because they are good liars (J. Griffin, personal communications November 1983). It is hoped that the Goodall sherds will eventually reveal a good deal about the social aspects of their makers. Some have referred to this as “ceramic sociology” (Hill 1970; Longacre 1970).

“ . . . (T)hese details collected on each piece of fired clay are our window into the lives of those who made and used these vessels” (Skibo 1999:1).

In particular, the author is looking for evidence of social groups; exchange or the movement of people/artifacts, and the signaling of group membership that might be present in the ceramic designs. Are certain patterns of decoration associated with a particular individual or group (family, clan, etc.)? May certain decorations be for use on vessels of specific function? Long ago, the idea that there were separate ritual and domestic vessels was dismissed. Was that premature?

The potter who used the tool that had the unique dentate “tooth” either moved to different locations during the duration of her/his life or the pottery was traded to others. Evidence of ceramics possibly created by the maker of the “Picasso pot” has been found on other sites. Is it exchange or different habitation by the potter?

The implication that opportunities exist to track the construction/distribution/exchange of ceramic wares has tremendous potential. Other unique tools were undoubtedly used but never identified during the analyses. Without closer examinations of both the designs used and the impressions left by the tools used for producing those designs, important data is missing. For example, ceramic replication studies produced in 2003 found that the hemi-conical impressions frequently used in conjunction with the Hopewell cross-hatched rims were made using a feather (Mangold 2003). The small “o” found in the impression was caused by the inferior *umbilicus* opening at the base of the quill. With the image of birds being found on Middle Woodland vessels, the decoration of them using a feather may have been ritualistic.

Middle Woodland ceramics in the Midwestern United States are some of the most highly decorated outside the American Southwest. Why? The decorations must have some kind of meaning, some kind of code that was understood by those people seeing them. Today, we can recognize a particular artist’s work, whether music, literature or fine art by their style and presentation. We can even recognize particular movements, such as Impressionism, through the shared ideas of those artists. Eckert (2008:1) believes that the study of ceramic designs will provide better understanding of the signaling of multiple social boundaries for the individual potters. “A consideration of social boundaries is inherent in studies of ethnicity, cultural groups, migration, gender roles, social hierarchies, economics and urbanism” (Eckert 2008:1). “Pottery, like any piece of material culture, is woven into the complex tapestry of people’s lives” (Skibo 1999:1). We just need to recognize the patterns.

Are the sherds whispering to us or do we just have to listen more closely?

Table 1. Ceramic Thin Section Analyses.

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. - Ign.	Rock Frag. - Chert	Rock Frag. - Meta.	Rock Frag. - Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
SWMI 1	63	1		tr	36				37	58.7	few		
SWMI 2	77	11	3	2	7				23	29.9	few		tr biotite
SWMI 2A	69	20		10		tr		1	31	44.9			tr hornblende
IL 1246	78	6		3					22	28.2			
IL 1246-13	78	15	5	tr					20	25.6	few		2% microcline
IL 590-18	67	12	5	5	11				39	49.3			
IL 590-43	84	7	1	3	5				16	19.0			rare plagioclase
IL 1246-8	75	12	tr	7	6				25	33.3	few		tr hornblende
WILS 262	76	tr	tr	1	23				24	31.6	few		
WILS 263	64	10	12	6	8				36	56.3	few		
WILS 264	61	16			23			tr	39	63.9	few	1	siltstone rounded 1 mm
WILS 265	65	27	1	tr	5	2			35	53.8	abundant		tr biotite, hornblende
WILS 266	80	10		3	4	2			19	23.8	some		tr biotite, muscovite
WILS 267	68	9		15	8	tr			32	47.1	few		tr hornblende
WILS 268	87	6		2	6				14	16.1			
WILS 269	73	16	tr	3	8				27	27.0	few		
WILS 270	79	17		2		4			23	29.1	some		
WILS 271	93	3	tr	4	Tr				7	7.5			
WILS 272	72	16	2	2	6				26	36.1	some	2	
WILS 273	85	4		11	Tr				15	17.6			

Continued on next page

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. - Ign.	Rock Frag. - Chert	Rock Frag. - Meta.	Rock Frag. - Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
IU 5186-26	64	7			29				36	56.3			
IU 5168-38	88	7		7	tr				14	15.9	few	one	
IU 5187-1	49	12	8	4	16				50	102.0	few		1% biotite / tr hornblende
IU 5187-2	62	4	tr	7	24				35	56.5			3% biotite / tr hornblende / tr muscovite
IU 5187-6	75	19	1	5	tr				25	33.3			
IU 5187-8	85	9		6	tr				15	17.4			
IU 5187-20	61	8	tr	18	13				39	63.9	few		
IU 1266-6	67	24	9	tr	tr				33	49.3	few		tr biotite
IU 5169-24	78	4	3	3	12				22	28.2	two		tr biotite, muscovite
IU 5171-2	80	15	tr	4	1				20	25.0	abundant		
IU 370-20	67	3	tr	30	tr				38	49.3			
IU 370-22	72	7		9	12				28	38.9	some	few	
IU 678-13	56	39	2		3			1	45	80.4		few	red matrix
IU 678-14	90	5	1	2	tr			2	10	11.1		one	red matrix
IU 678-15	76	2	tr	15	7				24	31.6	one		
IU 678-18	73	3	tr	10	6				19	26.0	two		
IU 678-27	79	3		tr	18				21	26.6			
ST 5001	70								70				
ST 1392-3	60	19	tr	13	8				40	66.7	few		30% vf grit temper

Notes: 1. Few = 2-4 grains; some = 4-5 grains; abundant = > 5 grains
2. The data is based on a 100-point count of each sherd. A random line or lines was selected across the sherd along which the percentages were tallied. 95% of certainty results for a 100-point count.

Continued on next page

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. - Ign.	Rock Frag. - Chert	Rock Frag. - Meta.	Rock Frag. - Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
GF 5443	75	7		12	6				25	33.3			thk
GF 6144	71	4	tr	7	18		tr		29	40.8			tr biotite
GF 7081	72	8	tr	16	8		tr		28	38.9	few		
GF 6629	74	11	2	2	11				26	35.1	abundant		
GF 7877	63	tr	1	1	16				18	28.6	one		
DSP 270	52	11	tr	16	21				48	92.3			tr biotite
DSP 280	65	8	11	10	3				32	49.2	some		3% biotite
DSP 333	87	3	6	4	tr				13	14.9			Tr biotite, 28% vf grit temper, 72% clay
DSP 301	62	31	1	2	4		tr		38	61.3		1	
ML 3486	85	tr	4	5	7				16	18.8			
ML 4890	90	9	1						10	11.1	few		15% vf grit temper
ML 7546	71	14	tr	7	8		tr		29	40.8			tr biotite hornblende
ML 4443	71	24	1	4					29	40.8	few		30% vf grit temper
ML 4560	64	4	3	12	12				31	48.4	few		5% hornblende
ML 4831	76	11	tr	7	7				25	32.9	few		tr biotite
ML 7237	78	8	4	4	6				22	28.2	few		
HAJ 22	79	3	tr	6	13				22	27.8	some		
IU 5180-11	46	28	1	3	24				54	117.4	few		tr biotite tr titanite / monazite
IU 5184-1	94	5	2		tr				7	7.4	abundant		
IU 5185-3	60	24	tr	18	tr				40	66.7			tr biotite
IU 5186-4	74	7	1	7	13				28	37.8			tr biotite / tr zircon
IU 5186-19	72	10	3	4	11				28	38.9	one		

Continued on next page

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. - Ign.	Rock Frag. - Chert	Rock Frag. - Meta.	Rock Frag. - Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
KUHNE 1	70	15	1	9	5				30	42.9		1	tr microcline
KUHNE 2	73	6	4	12	4				26	35.6	few		clinopy foxene 1%
KUHNE 3	75	7	tr	4	12				23	30.7	few		tr titanite, hornblende, epidote, 2% biotite
KUHNE 4	65	15	5	15					35	53.8	some		5% hornblende
KUHNE 5	65	16	tr	11	13				30	46.2	some		tr biotite, 1% hornblende
KUHNE 6	60	15	5	11	9				40	66.7	some		
IU 5447-1	61	10	1		22		6		39	63.9		1	phylite (?) 2 rf
IU 5447-2	63	17	2	13	Tr		4		36	57.1	1		tr hornblende
IU 5186-29	60	22	7	9	3				41	68.3			
G 2729	85	2	tr	11	2				15	17.6	some		
G 3167	72	4	14	10	tr				28	38.9	some		
G 3588	55	12	1	15		13			41	74.5	some		4% biotite
G 4634	91	tr	tr	tr	9				9	9.9	some		tr biotite
G 5339	74	7	1	8	10				26	35.1	many		tr biotite
G 5961	82	14	1	4	tr				19	23.2	many		tr biotite
G 2098	86	10		tr	4				14	16.3			
G 4621	75	10	tr	12	3				25	33.3	few		
G 4623	70	11	tr	7	12				30	42.9	few		
G 5334	62	15	tr	1	23				39	62.8	few		
G 5335	75	4	4	4	18				26	34.7	few		tr clinopyroxene
G 5340	68	2	tr	4	27				33	48.5	few		
G 6287	70	1		1					2	2.9			mostly EVF grit temp

Continued on next page

Notes (cont'd)

% Constituent	95% Certainty (+/-)	Range of True Value at 95% Certainty
90	6.0%	94.0 – 96.0%
80	6.0%	72.0 – 88.0%
70	9.0%	61.0 – 79.0%
60	9.8%	50.2 – 69.8%
50	10.0%	40.0 – 50.0%
40	9.8%	30.2 – 49.8%
30	9.2%	20.8 – 39.2%
20	8.0%	12.0 – 28.0%
10	6.0%	4.0 – 14.0%

Samples

SWMI 1: Bobinski Site (20BE282)
 SWMI 2: Behner Site (20BE255)
 IL: Illinois Sites 11W590, 11W1246
 WLS: Wilson Site (12LA46), University of Notre Dame Collection
 DSP: Dunes State Park (IN) Collection
 KUHNE: Kuhne Site, Center for American Archaeology Collection
 HAJ: Hajek Site (12LE28)
 G: Goodall Site (12LE9), Illinois State Museum Collections
 GF: Goods Ford Site (12LE7), Illinois State Museum Collections
 ML: Mud Lake Site (12LE14), Illinois State Museum Collections
 ST: Stillwell Site, Illinois State Museum Collections
 RF: Rock Fragment
 Rounded: Rounded sand/quartz grains

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MIDDLE WOODLAND COMMUNITY ORGANIZATION IN THE WHITEWATER RIVER BASIN

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The investigation of prehistoric community organization has increasingly become a focus for Midwestern archaeological studies (Dancey and Pacheco 1997; Pacheco 1996; Ruby et al. 2006; Smith 1996). This is partly due to the confining nature of the single site as a research topic, but also as a way to synthesize regional settlement data as it accumulates. While a single site can yield data regarding occupation period, subsistence, and settlement function, a single-site focus obscures long-term cultural developments and inhibits our ability to see the paths people followed in their everyday lives. Recent excavations at site 12Fr310 in Franklin County, Indiana, conducted as part of the Rockies Mountain Express-East (REX-East) Pipeline Project, identified the remains of two Middle Woodland domestic structures and provided data on site activities and organization. The structural remains uncovered are the first reported for the Whitewater River basin. This article discusses the Middle Woodland component at site 12Fr310 and its implications for reconstructing community organization in the Whitewater River Basin from 200 B.C. to A.D. 600. We begin with an overview of the Middle Woodland period and discussion of the region under review.

The Middle Woodland Period

The predominant Middle Woodland cultural manifestation in the Midwest is Hopewell. The hallmarks of this tradition consist of elaborate geometric earthworks, enclosures, and mounds often associated with multiple burials and wide range of exotic ceremonial goods (Brose and Greber 1979; Pacheco 1996). Materials used to make ceremonial items originated from various regions of North America. These include marine shells from the Atlantic and Gulf Coasts; barracuda jaws, turtle shells, and shark and alligator teeth from Florida, mica from the southern Appalachians; chlorite from the southern Appalachians; Wyandotte chert from southern Indiana; native copper from the upper Great Lakes; silver from near Cobalt, Ontario; and obsidian from Wyoming (Seaman 1979). Complementing these exotic items were locally manufactured products of symbolic importance including clay figurines and tablets, and gorgets and pipes made from stone. Diagnostic chipped stone artifacts included thin, expanding base points, leaf-shaped blades, prismatic bladelets, and associated polyhedral cores (Justice 1987). Hopewellian peoples also made pottery with grit or limestone temper and plain or cordmarked surfaces.

Initially, Middle Woodland settlement research focused on mounds and earthworks and explored whether these sites—as ceremonial centers—were empty or occupied. However, it is

now generally accepted that most Hopewell earthwork and burial mound centers were encircled by an abundance of small, dispersed artifact scatters representing small encampments or hamlets (Dancey and Pacheco 1997; Pacheco 1997). Drawing upon their research on the Ohio Hopewell and the pioneering work of Prufer (1964), which suggested earthwork centers were not the location of primary habitation, Dancey and Pacheco (1997) proposed a comprehensive, new interpretation of settlement patterns. Their model, referred to as the “Dispersed Sedentary Community” pattern, argued that Hopewell groups practiced a sedentary lifestyle within a series of small, dispersed hamlets or household units (Dancey and Pacheco 1997). Although distributed across the landscape, the hamlets also clustered around ceremonial centers within each watershed. Individual hamlets probably contained only a small number of families and often only a single-family unit. They relied on a range of wild and domesticated food sources, most notably white-tail deer (*Odocoileus virginianus*), maygrass (*Phalaris caroliniana*), erect knotweed (*Polygonum erectum*), and chenopodium (*Chenopodium* spp.) (Wymer 1997). These recovered remains would seem to suggest that the residents occupied individual locations for much of the year (Wymer 1997).

With more research throughout the Midwest—and more settlement data thus available—the Dancey and Pacheco model was recently challenged by a number of archaeologists who believed that the evidence for sedentary life in documented hamlets was insufficient and contradictory (Cowan 2006; Yerkes 1994, 2006). Based on the analysis of chipped stone artifacts, Cowan (2006) suggested that Hopewell tool kits were not especially diverse, as one would expect from sedentary populations. Yerkes (2006) also challenged the notion of sedentary Hopewell peoples (e.g., “farmers”) and instead argued that groups lived in semi-sedentary mobile communities that were widely dispersed, yet socially integrated. Yerkes saw little evidence to suggest long-term occupation at any known Hopewell habitation sites. Clay et al. (2005) argued that Middle Woodland settlement entailed the short-term movement of household groups, with specific occupations possibly lasting as little as months at a time.

Overall, it is probable that Middle Woodland settlement varied considerably from region to region and through time, and that no single over-arching model will fully explain all settlement patterns. This is evident even within the archaeologically better-known regions of Indiana where Middle Woodland Hopewell expressions vary. In particular, the Mann phase in southwestern Indiana reflects influences from the south and west, specifically from the Havana Hopewell of the lower Illinois Valley (Ruby 1997). The Goodall phase of Northwestern Indiana shares the same influences from the Havana Hopewell, but with distinct regional variations (e.g., Quimby 1941; Schurr 1997a, 1997b). And, in east central Indiana, the New Castle phase is regionally distinct but primarily influenced by the Ohio Hopewell in the Scioto River Valley (McCord 2006).

The Whitewater River Basin

The Whitewater River basin parallels Indiana’s eastern state line, extending slightly into southwestern Ohio at its junction with the Miami River and in its northern reaches into Drake and Preble counties, Ohio (Figure 1). It encompasses an area approximately 158 kilometers long

and 24 kilometers wide, situated between the much larger basins of the Miami River on the east and the East Fork of the White River on the west (Clendenon 1988). The archaeology of the basin is poorly understood, owing to the paucity of previous research, and much of what we do know about the Middle Woodland Period is a result of mound excavations. The earliest of these date to the late 1880s, with the excavation of Glidewell Mound in Franklin County by Homsher (1884). Setzler (1930) also excavated several earthen and stone mounds during the 1920s including Martin, Mound Camp, Pierson, Precht, Stoops, and Whitehead mounds. Although the mounds were the focus of important prehistoric burial and ritual activity within the basin, they were only one part of a much larger settlement system that would have included domestic sites, open campsites, and small activity areas.

Despite the numbers and magnitude of the earthworks themselves—there are over 100 recorded mounds within Franklin County alone (McCord 2005)—no Middle Woodland habitations had been found prior to the REX-East Pipeline Project. In addition, only three prev-

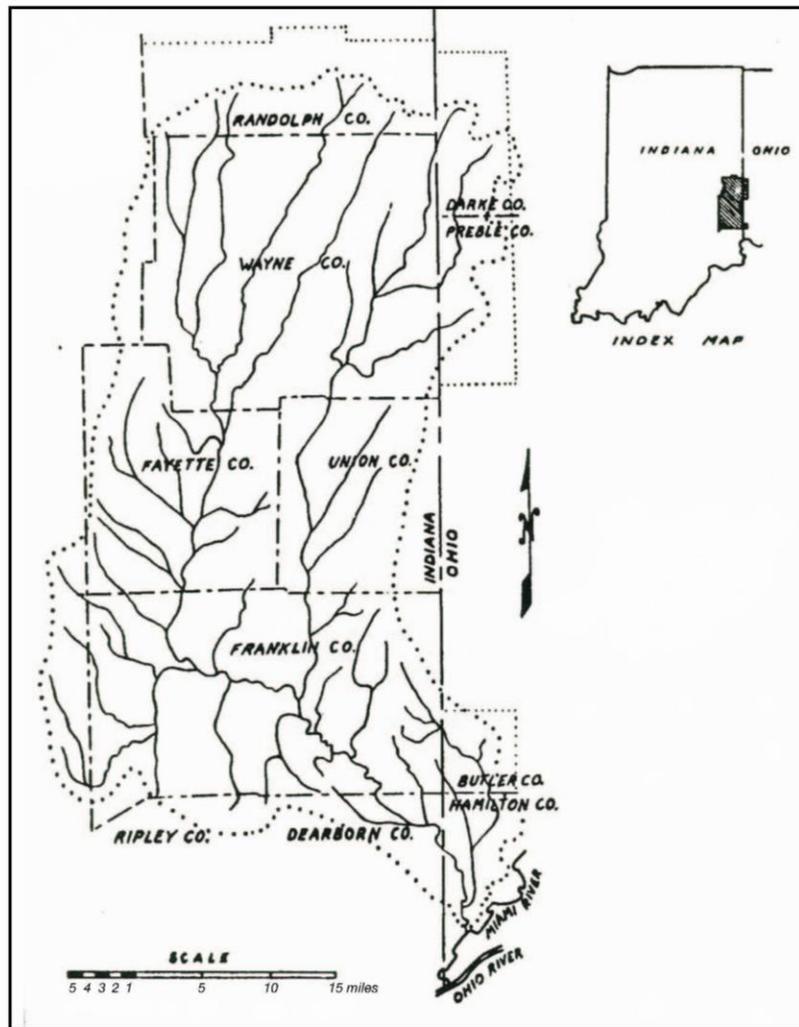


Figure 1. The Whitewater River Basin (from Gooding 1957).

iously recorded sites have been considered domestic in nature. These sites consist of artifact scatters with diagnostic projectile points, chert bladelets, and cordmarked and grit-tempered ceramic sherds (Kolbe 1992). While this data could indicate the lack of significant long-term domestic occupations within the region, McCord (2005) argues that it may point to our inability to recognize non-ceremonial Middle Woodland artifacts. Another factor could be that the domestic sites lay deeply buried in the river floodplains within the region and have not been identified as a result (McCord 2005).

If we look immediately adjacent to the Whitewater River Basin, settlement data may approximate what we can expect to find within the basin. To the south, the Jennison-Guard Site in Dearborn County, Indiana, is a large habitation site dominated by Middle Woodland artifacts (Blosser 1996; Kozarek 1987). Diagnostic artifacts include Twin Mounds ceramics, Snyders and Steuben Expanding Stem projectile points, bladelets, and mica cut-outs (Blosser 1996). Although no structural remains have been identified at the Jennison-Guard Site, the recovery of twig-impressed daub is considered indirect evidence for structures (Kozarek 1987:137). There is also evidence for community planning at the site, specifically the arrangement of cooking facilities in a large, centralized cluster, and identifiable refuse disposal patterns (Kozarek 1987). The Oberting Site, also situated in Dearborn County, represents a fortified hilltop consisting of earth embankments around the edges of the hilltop and several mounds. A radiocarbon date of A.D. 70 ± 40 was obtained from an embankment wall at the Oberting Site (Coon 2008:156). The ceramic assemblage from the site was highly fragmented, eroded, and mostly consisted of plain, limestone-tempered sherds. Diagnostic ceramics were limited to two rims and one broadly incised sherd (Coon 2008:150-154).

Middle Woodland sites that may relate to contemporaneous sites in the Whitewater River basin have also been recorded to the east, within the area called the Great Miami locality (Seig 2005). Unfortunately, these sites are primarily known from late nineteenth century documents and most have not been professionally excavated (Riordan 2004). Focusing on Butler County, Ohio, 16 earthworks were classified as Middle Woodland (Riordan 2004:226). However, no mounds in Butler County have been assigned to the period because of a lack of excavation data (Riordan 2004). While the Middle Woodland sites in Butler County, Ohio, may have relevance to interpretations of the Middle Woodland sites in the Whitewater River basin, unfortunately it is not possible to make connections between the two regions without more excavations.

Site 12Fr310, Franklin County

Site 12Fr310 is a multi-component site dating from the Early Archaic to Late Prehistoric periods (8000 B.C. to about A.D. 1000). It is situated in the south-central portion of the Whitewater River basin, encompassing approximately two acres on a high terrace about 90 meters from the Whitewater River. Bluffs border the river valley. Archaeologists first discovered site 12Fr310 in 2006, during the initial cultural resource work for the REX-East Pipeline Project survey. Limited excavations at the site recovered over 3,500 prehistoric artifacts and identified three cultural features: two post molds of unknown age and a Middle Woodland trash pit containing

ceramics, flaking debris from the manufacture of chipped stone tools, charcoal, and burned nutshell (Schoen 2008). The site was determined eligible for the National Register of Historic Places.

In 2008, Gray & Pape, Inc., conducted intensive excavations at site 12Fr310, ahead of REX-East pipeline construction (Figure 2). Archaeologists collected over 25,000 prehistoric ceramic, chipped stone, ground stone, and botanical and faunal remains and identified 64 additional cultural features. The features included one hearth, eight storage pits, 54 post molds, and one trash pit.



Figure 2. Overview of 2008 excavations at site 12Fr310.

The most intensive occupation of site 12Fr310 occurred during the Middle Woodland Period—six calibrated radiocarbon dates from the site for this period range from 10 B.C. to A.D. 610. This probably reflects multiple Middle Woodland occupations, but variation in the material being dated may be a factor. In particular, the contents of many cultural features suggest that at least some secondary deposition of botanical remains occurred after those features were abandoned. Despite this, the disparity of dates for a Middle Woodland site is not uncommon within the Midwest. Wide date ranges are present for many sites in Indiana and Ohio including McGraw, Li 79.1, Smith, Murphy I, Marsh Run, Jennison-Guard, Decco, Harness-28, Newark Campus, and Locust sites, as well as the Smiling Dan Site in Illinois (Cowen et al. 2003; Ruby et al. 2006). At these sites—all of which are domestic—the range of radiocarbon dates has been interpreted to reflect the periodic movement of residential sites in connection with subsistence strategies (Ruby et al. 2006:153).

Nearly all of the Middle Woodland diagnostic artifacts found at site 12Fr310 consisted of McGraw Plain and Cordmarked ceramics of the Scioto Ceramic Series (Figure 3). McGraw represents a local ceramic tradition originally identified within archaeological assemblages throughout the entire middle and upper Ohio Valley (Seig and Sunderhaus 2004). The presence of this pottery at site 12Fr310 suggests that residents held closer affinity to cultural groups in eastern Indiana and southwestern Ohio rather than south-central Indiana. Although temporal

distinctions are present within the McGraw types at other sites—mainly an increase in cordmarking and a decrease in plain types that occurred towards the end of the Middle Woodland Period (Hawkins 1986; Prufer 1965)—the ceramics from site 12Fr310 could not be seriated due to the mixing of materials from the same contexts. Interestingly, this does at least support the length of the occupation range provided by the radiocarbon dates.



Figure 3. McGraw Cordmarked ceramics and Southeastern Ceramic Series tetrapod.

Additional Middle Woodland diagnostic artifacts from site 12Fr310 are limited to one ceramic tetrapod (e.g., a “foot” from a four-footed vessel) (see Photo 2), one prismatic bladelet (Figure 4), and one Snyders projectile point, which dates to the first half of the Middle Woodland Period (Justice 1987). The recovered tetrapod fits within the Southeastern Ceramic Series that contains Turner Simple Stamped and untyped sherds (Prufer 1965:24-25). As described, tetrapodes are small, typically grit-tempered, and molded from the vessel body (Prufer 1965:25).

Figure 4. Prismatic bladelet.



Prismatic bladelets, in the most general sense, are unifacial flakes whose lengths are at least twice the width and have roughly parallel lateral edges. These tools are frequently found in Middle Woodland mounds and burials in Ohio and Indiana, and have been traditionally associated with Hopewell ceremonialism. However, in recent years, they have been recovered in the hundreds from more mundane contexts at domestic sites (e.g. Converse 1993; Pacheco and Pickard 1992). At these sites, they are further often recovered in higher quantities than non-blade tools (e.g., projectile points, bifaces, drills, scrapers, etc.), which suggests they were used for a variety of general tasks, such as cutting, scraping, or piercing, and substituted for a range of other tool types (Genheimer 1996; Odell 1994). Analysis of bladelets from the Stubbs Cluster in Warren County, Ohio, revealed use and retouch along lateral edges and proximal and distal ends while tip use, notching, and possible hafting have also been noted (Genheimer 1996). The single bladelet from site 12Fr310—recovered from a storage pit (Feature 66)—did not reveal evidence of use-wear or retouching; since it was the only sample recovered, it is difficult to ascertain its specific function (e.g., ceremonial versus mundane, etc.).

The majority of the botanical remains at site 12Fr310 date to the Middle Woodland and are typical for the period. The remains indicate that the site's occupants cultivated indigenous domesticated plants and collected a variety of edible plants and nuts. These include erect knotweed maygrass little barley (*Hordeum pusillum*), sunflower (*Helianthus annuus*), sumpweed (*Iva annua*), chenopodium, panicum (*Panicum* spp.), cheno-am (*Chenopodium/Amaranthus* spp.), hickory (*Carya* spp.), black walnut (*Juglans nigra*), acorn (*Quercus* spp.), hazelnut (*Corylus americana*), sumac (*Rhus* spp.), elderberry (*Sambucus nigra*), purslane (*Portulaca oleracea*), sandmat (*Chamaesyce* spp.), and tick-trefoil (*Desmodium* spp.). No evidence of corn or tropical plants was identified. The types of fuel woods present point towards a preference for high quality oak (*Quercus* spp.) and hickory, while hickory was the most common nut resource represented (Niemel 2009).

A very small, poorly preserved, faunal assemblage was recovered from site 12Fr310. Although white-tail deer and eastern cottontail rabbit (*Sylvilagus floridanus*) remains were identified, the majority of the assemblage could only be classified as indeterminate large or small mammal, bird, or unknown. There is no evidence that warm-weather animals, such as turtles, fish, and freshwater mussels, were procured by site inhabitants, but this absence may be more a factor of poor bone preservation. Deer were taken by all site inhabitants during the fall and winter months based on the recovery of unshed antler and immature deer remains. An extremely small sample of cut and modified bone indicates that animal butchering, bone-tool manufacturing, and chert-tool production and maintenance activities occurred at the site.

Overall, the chipped stone assemblage from site 12Fr310 was very general and does not provide for much assessment of variation in stone-tool reduction strategies, raw material selection and use, or manufacturing techniques. The assemblage is characterized by an overwhelming use of locally available raw material throughout its history, very few formal stone tools, and low percentages of debitage classes associated with formal stone tool production (e.g., biface reduction flakes, etc.) In addition, no significant concentrations of specific debitage classes, which might be used to infer cultural and temporal variation, were present across the site. Formal tools present in the assemblage include 36 projectile point fragments, 55 bifacial tools and fragments, and 37 retouched flakes or unifaces (Figure 5). As such, general hunting and plant/animal processing activities can be inferred, as well as stone tool manufacture. The tools were largely uniformly distributed across site 12Fr310; only six of the total 36 tools were collected from intact, non-post cultural features.



Figure 5. Chert biface and drill.

Most of the structural remains (e.g., post molds) and other facilities investigated at Site 12Fr310 are associated with its Middle Woodland component. Middle Woodland features include the partial remains of two structures (as represented by 40 post molds; designated Structure 1 and Structure 2), several storage/trash pits (Features 7, 9, 66, and 68), and a shallow hearth (Feature 70) (Figure 6). Only four of the remaining 22 features (Features 18, 65, 94, and 96) could be dated to a specific prehistoric period: Feature 65 dated to the Late Prehistoric Period and the other three to the Late Archaic Period.

The Middle Woodland features at the site are spatially concentrated, while the remainders appear more as isolates across the site area. An exception is Feature 65, which overlaps with Structure 1. The random and isolated nature of the non-Middle Woodland Period features is taken to mean that these were less intensive occupations—such as campsites—and that small groups of people were returning to the general location. In contrast, the Middle Woodland component, with its two structures and multiple facilities, required planning and points to more energy investment by the site’s occupants. Considering the degree of cultural continuity reflected

by the very homogenous ceramic assemblage recovered, groups utilizing site 12Fr310 may have had a precise return location in mind during their seasonal, yearly, and/or periodic movements.

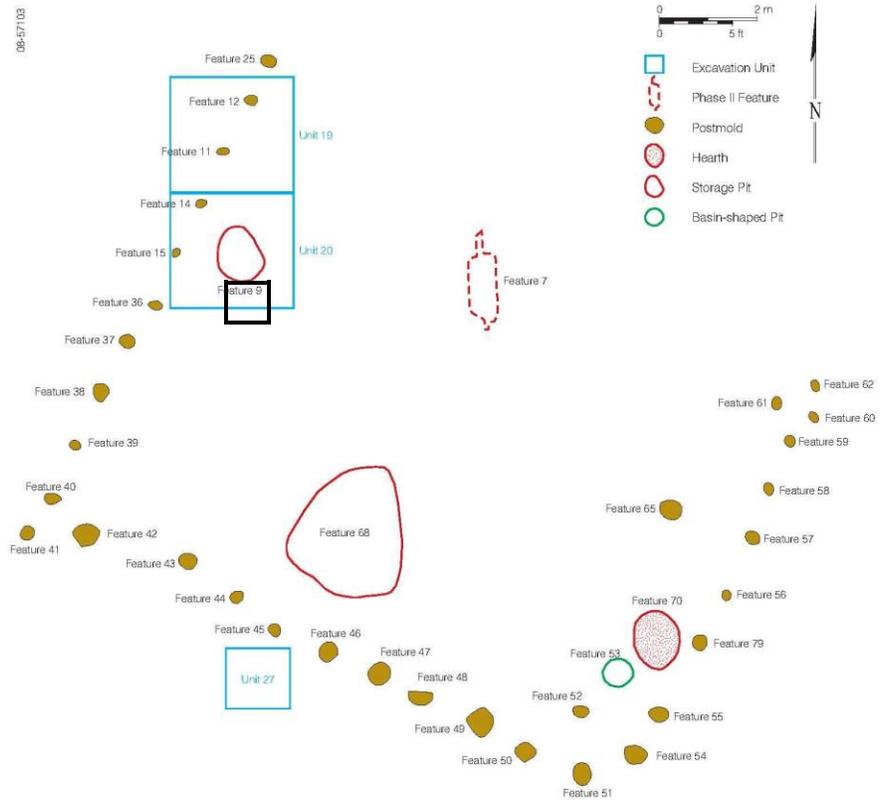


Figure 6. Shallow hearth.

Middle Woodland Structure 1 is estimated to have been 8 by 9 meters in size, containing approximately 72 square meters of interior floor space (Figure 7). Its single row of posts were regularly spaced (approximately 90 centimeters apart), with the exception of the corners where additional posts were added for more structural support, the installation of small corner benches/platforms, rebuilding/repair, and/or a combination of these factors. There is no evidence suggesting post replacement occurred. The interior of the structure contained relatively few artifacts from non-feature contexts when compared to other portions of the site. This suggests that it was regularly cleaned of debris or swept during its use-life.

The remains of the second structure at site 12Fr310 consist only of a row of eight post molds, presumed to correspond to portions of the southern and eastern walls of a building similar to Structure 1. No cultural features were identified within the area immediately to the north, which would have been the interior of the structure. The posts aligned to the same northwest-to-southeast direction and were regularly spaced (approximately 90 centimeters apart) like those of Structure 1. Based on these similarities, these remains were assigned to the Middle Woodland Period. Unfortunately, the limited nature of the remains does not allow for much speculation as to whether the structure was precisely co-existent with Structure 1. The orientation of the two structures, however, does seem to indicate that construction activity was associated, if not conducted in tandem.

Figure 7. Plan View of Structure 1.



In conclusion, the data from site 12Fr310 suggests that its Middle Woodland component was domestic. There is no evidence of specialized activities or ceremonialism typically considered the hallmarks of the Middle Woodland Period. In addition, Structure 1—and very likely Structure 2—are classified as a habitation structure. As noted, Structure 1 contained approximately 72 square meters of interior floor space. Smith (1992) estimates that 35 square meters was the modal size for Middle Woodland habitation structures, which places Structure 1 at the upper limits of known size ranges. It is probable that Structure 1 could have accommodated about 15 people; with that number, it is also likely that it housed an extended family or was multi-family. As a “household,” Structure 1 would have provided the focal point for the pragmatics of daily life. Presumably, inhabitants comprised a family with daily tasks allocated based on gender and age. The inhabitants would have formed the basic element of larger and more inclusive social groups, in turn defined by kinship, residence, occupation, or ethnicity.

Site 12Fr310 was repeatedly occupied during the Middle Woodland Period. Floral and faunal data point to seasonality, while the presence of several storage pits indicates that inhabitants were saving items for later use. As noted, inhabitants cultivated a variety of indigenous domesticated plants and collected a range of edible plants and nuts that was very typical for Middle Woodland sites in Indiana and southwest Ohio. This period was marked by an

overwhelming reliance on locally-available chert materials procured from the nearby Whitewater River and ceramics belonging to a local tradition found throughout eastern Indiana and southwestern Ohio. The seasonality suggested by floral and faunal data may support the hypothesis of multiple occupations: the small faunal assemblage indicates that deer were taken by all site inhabitants during the fall and winter months based on the recovery of unshed antler and immature deer remains; the presence of erect knotweed and tick-trefoil seeds among the botanical remains points to fall-winter seasonal activity; while the presence of maygrass points to a late spring harvest. In addition, the shallow storage pits and hearth identified are feature characteristics more commonly found at shorter-term sites than single-long term occupations (Yerkes 2006:56).

There is data from surrounding regions about multi-structure, repeatedly-occupied domestic sites. In their review of Middle Woodland community organization, Ruby et al. (2006) discuss similarities and differences between domestic sites found within the lower Illinois Valley, the lower Wabash-Ohio River confluence area, and the Scioto-Paint Creek confluence area. While anywhere from one to three domestic structures have been recorded at many sites, in some instances post molds overlapped, indicating a certain amount of time had passed between constructions. On the other hand, when structures were spatially discrete, such as at site 12Fr310, contemporaneity was obscured by disparity in radiocarbon dates from the sites (Ruby et al. 2006)—for site 12Fr310, this means that even if radiocarbon dates were available from Structure 2, the results may not have clarified the situation. Overall, based on the available data, it would appear that short-lived domestic occupations were the norm within the Whitewater River basin during the Middle Woodland Period.

Exploring Middle Woodland Community Organization

Site 12Fr310, as a domestic site, comprised only one segment of a much larger community. Communities can be viewed as an organizational response by individuals and households to a variety of problems, including subsistence risk, competition, defense, labor demand, and trading partners (Ruby et al. 2006:122). Three kinds of communities have recently been differentiated in Hopewell studies as a way to blend differing theoretical approaches (Ruby et al. 2006). These include residential, sustainable, and symbolic or political communities. Residential communities are territorially-based, reflecting co-residence or close residence, and regular face-to-face interaction. However, residential communities are not necessarily viable in terms of long-term reproduction and for reducing the local problems noted above. There is, therefore, an incentive for individuals and households to form “sustainable communities” by building and maintaining social ties beyond the residential community. The concept of Symbolic or Political Community is quite encompassing, including a variety of different kinds of social groups or networks, such as “age grades, gender-based groups, cult societies . . . families or larger groups networked in form trading relations, and transitory groups centered on particularly powerful and charismatic individuals” (Ruby et al. 2006:124). This concept relies on symbols such as public architecture, iconography, ornaments, or dress in order to define and negotiate membership.

As previously noted, Middle Woodland settlement data in the Whitewater River basin, which would provide the basis for understanding community organization, is limited by the scarcity of previous work. Although it is possible to have an idea of domestic life at site 12Fr310 and discuss occupation date, subsistence, and site function, the lack of regional-scale, multi-site, intensive investigations greatly inhibits understanding the complex web of community organization within the basin itself. Known Middle Woodland site types can be categorized as small artifact scatters, which were probably open habitations/camps; larger scatters interpreted to be domestic sites; and mounds, traditionally considered the focus of mortuary ceremonialism and ritual activity. Nearby site 12Fr377, which was excavated concurrently as part of the REX-East pipeline project, is a repeatedly-occupied, multi-component site. Chadderdon and Rinehart (2009) report the recovery of a wide range of artifacts including debitage, ceramics, and stone tools and the identification of 35 cultural features, most of which have been tentatively identified as hearths. Middle Woodland ceramics of the Hopewell series are also present at the site (as represented by a single rim sherd, however), which do not occur at site 12Fr310.

Eight prehistoric mound and earthwork sites dating from the Early/Middle Woodland to the Late Prehistoric Periods are also within the general area of site 12Fr310. The closest of these is Mound Camp. Frank Setzler (1930:467-481) excavated the mound in 1928, collecting artifacts, burials, features, log molds, and post molds found near a burned clay floor at the mound's base. The mound was associated with the Early Woodland Adena complex based on the recovery of distinctive remains such as gorgets, tubular pipe fragments, pendants, and a Robbins point, diagnostic of Late Adena. A tetrapodal vessel from the mound indicates a Hopewell association (McCord and Cochran 2000), as well as a connection to site 12Fr310, as indicated by the ceramic tetrapod recovered.

Mound Camp is notable in that it was situated on the edge of the Whitewater River while the other identified mounds within the area, such as Stoops, Meyncke, Brown Stone, Case, and Quick, sit upon ridgetops. Recent attention has been given to spatial relationships between mounds and earthworks and the significance of these relationships in terms of community organization (e.g., Clay 1991; McCord and Cochran 2008; Ruby et al. 2006; Seeman and Branch 2006). Clay (1991), in particular, proposes two models that may prove useful in understanding the mound configurations surrounding site 12Fr310. The first model is the "bull's eye" model, which supposes that mounds or large earthworks formed the spatial focus of communities, standing at the center of corporate group territories. The alternative model proposes that mounds and earthworks were located along the edges rather than at the center of corporate group territories and were instrumental in providing the context for intergroup interactions and negation. Inasmuch as the landscape can be both structured and structuring for cultural groups, the placement of mounds around site 12Fr310 may provide insight into the spatial distribution of Middle Woodland communities themselves. Mound Camp is thought to have been completely excavated in 1930; however, it is possible that marginal sections or submound features remain (McCord and Cochran 2000:54). Future work at the site could provide additional data to allow further exploration of its relationship to site 12Fr310 and allow for further exploration of Middle Woodland community organization.

The excavations at site 12Fr310 in Franklin County, Indiana, have provided us rare data on Middle Woodland habitation, and represent a significant advancement in the understanding of prehistoric lifeways within the Whitewater River basin. While previous archaeological research

within the basin has lacked representative samples and synthesis, interpretive leaps drawn from minimal data is also a problem that has only recently been highlighted within Midwestern archaeology (Clay et al. 2005). It is hoped that the data collected from site 12Fr310 will gain additional value as a foundation for future archaeological research within the region.

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**12Fr336: A LATE ARCHAIC AND LATE WOODLAND SETTLEMENT
ALONG THE LOWER WHITEWATER RIVER IN
FRANKLIN COUNTY, INDIANA**

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Abstract

Site 12Fr336 is a large multicomponent habitation located on a broad Holocene terrace along the lower Whitewater River. The earliest component, which produced 47 features dates to the Late Archaic period. Nine radiocarbon assays produced intercept dates ranging from 1410-1010 cal B.C. Archaeobotanical remains from the Late Archaic features suggest a series of short-term, warm season occupations that focused on nut processing and the collection of starchy seeds, fruits, and edible herbs and grasses. The most prolific component at the site dates to the Late Woodland period. Six radiocarbon assays produced intercept dates ranging from cal A.D. 970-1010. Ninety percent of the 2,400 identifiable sherds are classified as Argosy Cordmarked. Argosy Cordmarked pottery is defined as containing large and numerous particles of crushed limestone (and/or grit), cordmarked exteriors, outward flaring rims and square or rounded lips (Clay and Kerr 2005). Roughly 30 percent of the rims are decorated with a single row of punctations. Based on the number and diversity of Late Woodland features and the associated archaeobotanical remains, this component also appears to represent a short-term, warm season occupation. The contents of one large anomalous feature, which contained over 20 vessels, a beaver skull, and an etched slate gorget, suggest this feature may have served a ceremonial purpose.

Introduction

The Rockies Express Pipeline-East Project (REX East) extends 639 miles from Audrain County, Missouri to Monroe County, Ohio. Construction activities associated with the pipeline were found to impact archaeological sites that were eligible for inclusion in the National Register of Historic Places. As a result, John Milner Associates, Inc. (JMA) conducted a Phase III archaeological data recovery at site 12Fr336 between August and November 2008. Site 12Fr336 is a multi-component prehistoric and historic site that is located on a broad, Late Holocene-age terrace of the Whitewater River in southeastern Indiana. The site lies adjacent to, and north of, the Whitewater River at an elevation of 186 m (610 ft). Phase I and II investigations were

conducted by the Louis Berger Group (LBG) in the winter and spring of 2008 (Artz et al. 2007; Chadderdon et al. 2007a, 2007b; Rinehart et al. 2008), and Gray and Pape, Inc. (G&P) (Norr and Cochran 2009) conducted field investigations at proposed well-monitoring locations after completion of the Phase III field work.

Phase I and II investigations demonstrated that the site measures 293 m (961 ft) east to west and 117 m (383 ft) north to south. Due to constriction of the pipeline corridor in the vicinity of the site, the actual data recovery corridor only measured 30 m (100 ft) x 290 m (950 ft) (Figure 1). The Phase II evaluation of 12Fr336 demonstrated the site retains good stratigraphic integrity, and produced evidence of a prehistoric midden or living floor as well as several hearths and trash or storage pits. Based on the Phase II evaluation, LBG suggested that the primary occupation at the site dated to the Middle Woodland period.

The Phase III field methodology developed for 12Fr336 was the result of consultation between the Indiana Division of Historic Preservation and Archaeology (IN DHPA), Caprock Environmental Services (Caprock), and JMA. Field strategies were flexible throughout the excavation in order to adapt to a growing body of geomorphological data on the site formation processes. Data recovery field investigations followed a multi-staged approach, which included the following: (1) a two-step geophysical investigation, (2) excavation of five backhoe trenches, (3) hand excavation of 113 sq m of test units (TUs), (4) mechanical stripping of 1,050 sq m of site area, (5) excavation of all exposed features, and (6) hand excavation of 66 sq m within the midden deposits exposed during mechanical stripping.

Geomorphology and Soil Stratigraphy

Based on the results of various geoarchaeological investigations, including deep hand-excavated and mechanical auger borings and the excavation and analysis of numerous backhoe trenches, it appears that the landscape containing 12Fr336 is very dynamic and has been so throughout the Holocene (Stevens and Lloyd 2010). The western one-quarter of the site is composed of alluvial deposits associated with a late Holocene terrace (T1), as identified by Artz et al. (2007). The eastern half of the site is slightly lower in elevation than the western one-quarter of the site although it was still identified as a T1 terrace by Artz et al. (2007). Several stacked plowzones (generally between three and five) were observed in test unit profiles across most of the eastern half of the site. A buried A horizon was found to underlie the stacked plowzones in most of the test units located in the eastern half of the site. The presence of the stacked plowzones suggested an aggradational landscape in this part of the site within the historic period. In order to clarify the depositional history of soils identified in the TU's across the eastern half of the site and to assess the integrity and the relationship of the various cultural deposits with the different strata across the central and eastern three-fourths of the site, JMA conducted a geomorphic assessment by excavating a series of backhoe trenches (Figure 1). Figure 2 illustrates an idealized transect across the core area.

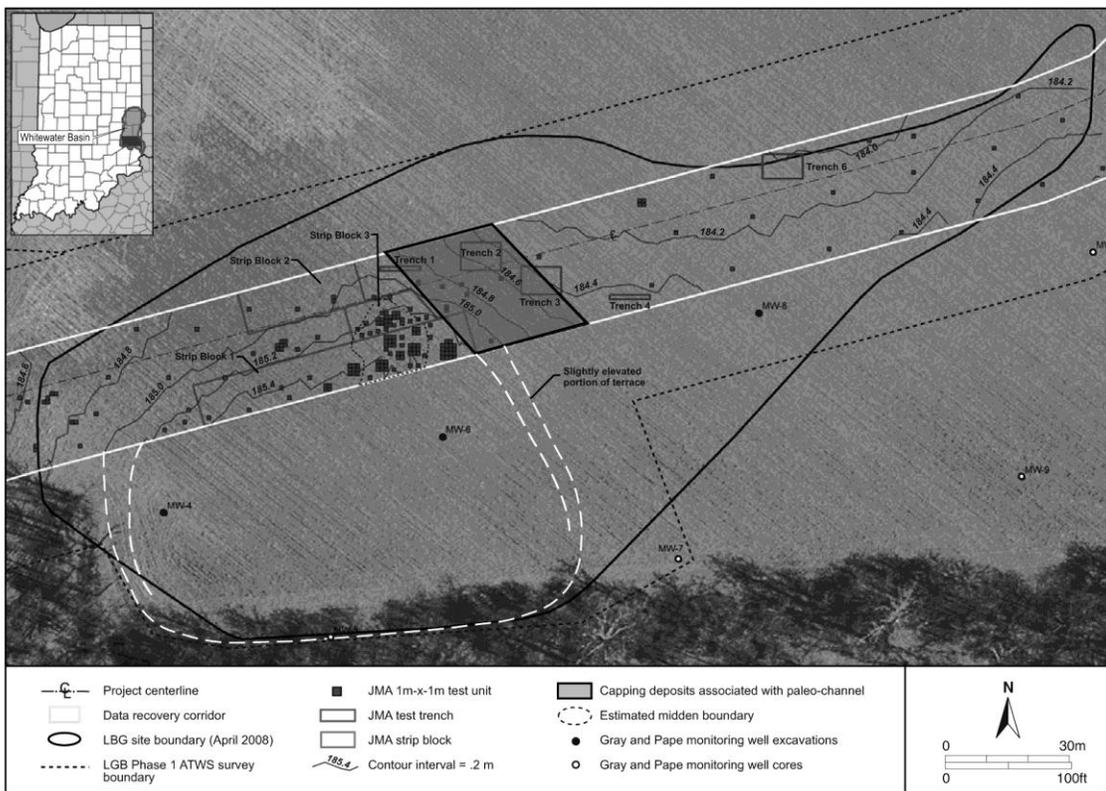


Figure 1. Aerial view of site 12Fr336 showing site boundaries, data recovery corridor, and location of Phase III investigations.

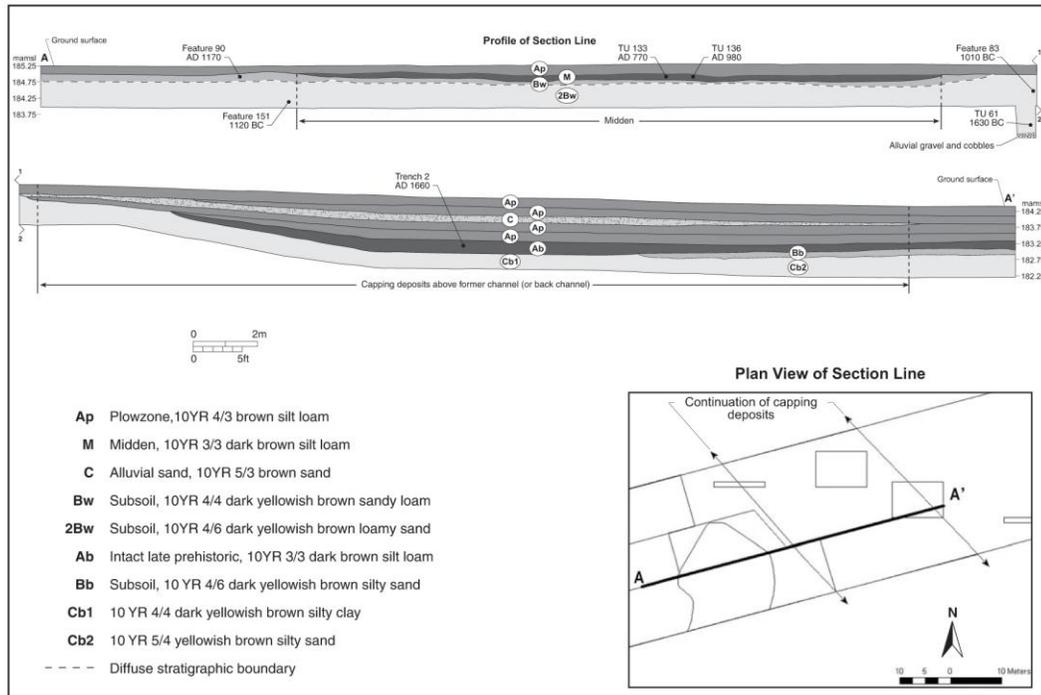


Figure 2. Idealized profile through the midden and capping deposits associated with the paleochannel, with selected radiocarbon dates shown in horizontal and vertical locations.

The purpose of Trenches 1-4 was to determine the horizontal and vertical extent of a swale identified by JMA field crews during the hand excavation of several test units. Trench 1, the northern and westernmost of the four trenches, was situated on the edge of an interpreted former levee (or possibly a T2) on top of a cut bank in the former T1 terrace. Trench 2 was situated in the middle of what is interpreted as a former backchannel or oxbow of the Whitewater River. Trench 3 was situated on a former point bar (T0 terrace), and Trench 4, the southern and easternmost trench, was situated on the T1 (floodplain) terrace. As such, the western portion of Trench 1, all of Trench 2, and the eastern portion of Trench 3 are interpreted as containing sediments associated with the filling of a former backchannel or oxbow of the Whitewater River.

The core area of the site was originally interpreted as a T2 surface by Artz et al. (2007), but JMA's subsequent investigations suggest this higher topographic surface represents levee deposits on top of the T1 surface. The core area of the site rises about 1 meter above the T1 surface and slopes very gradually to the west whereas the eastern margin of the core area is defined by the cut bank above the former backchannel. Excavations in the core area of the site revealed the remnants of two buried soils as well as a relatively large midden area. The soils in the core area of the site were categorized into three primary stratigraphic levels (Stevens and Lloyd 2010). These are as follows:

Stratum I: 0-35 cmbs (centimeters below surface) is the plowzone (Ap horizon). This stratum consists of a brown (10YR 4/3) silt loam with minor amounts of gravel and cobbles. Prehistoric artifacts consisted of lithics and pottery fragments associated with the Late Woodland period.

Stratum II: 35-68 cmbs includes the midden deposits and the underlying Bw horizon. This stratum was generally a dark yellowish brown (10YR 4/4) sandy loam. Prehistoric artifacts and features were more or less equally distributed within this stratum. Cultural materials above 55 cmbs were limited to the Late Woodland, whereas artifacts from 55-68 cmbs appear to include Late Archaic and various Woodland period artifacts.

Stratum III: 69-200 cmbs is the 2Bw horizon, which generally consists of a dark yellowish brown (10YR 4/6) loamy sand. Prehistoric artifacts and features encountered within this stratum were primarily concentrated between 90-135 cmbs. All cultural materials recovered from Stratum III date to the Late Archaic period.

During post-field analysis, JMA characterized the cultural materials into three broad temporal categories (Groups A, A/B, and B) that more or less matched the stratigraphic data. That is, Group A (0-55 cmbs) consisted of various Late Woodland artifacts and features, and 10 radiocarbon assays produced Late Woodland (and early Fort Ancient?) dates ranging from cal A.D. 690-1220. Group A/B (56-68 cmbs) contained artifacts and features that included both Late Archaic and Late Woodland materials. Three features, which lacked diagnostic artifacts and were not dated, were classified as "indeterminate cultural period." Finally, artifacts and features associated within Group B (69-200 cmbs) were concentrated between 90-135 cmbs. The only

diagnostic artifact was a Lamoka point. However, 11 radiocarbon assays from this stratum returned intercept dates ranging from 1630-1010 cal B.C. or the Late and Terminal Archaic periods.

Chronology

Site 12Fr336 produced 25 radiocarbon dates, including 20 dates from the data recovery investigations, three dates collected by LBG during the Phase II evaluation, and two dates collected by G&P during the post-Phase III well monitoring. Figures 3 (Late Archaic) and four (Late Woodland) depict the calibrated date ranges and intercept dates. Twenty-four of the 25 radiocarbon assays cluster within three cultural time periods. That is, 11 dates fall within the Late Archaic period, 1740-920 cal B.C. (2σ); three dates fall within the early Middle Woodland period (ca. 200 B.C.-A.D. 200); and 10 dates fall within the Late Woodland period, 660-1270 cal A.D. (2σ). The final assay, recovered from a buried A horizon in the paleo-channel, produced an intercept date of 1660 cal A.D. This late date apparently reflects the rapid filling and subsequent burial of the paleo-channel associated with the Little Ice Age, the onset of Euro-American settlement, and initial forest clearing and Euro-American farming practices.

Review of the spatial distribution of the radiocarbon assays indicates some interesting patterning. All three of the early Middle Woodland dates were located south of the data recovery corridor. Eight of the 10 Late Woodland dates are concentrated in the “core area” of the site which occupies the highest portion of the old terrace remnant and the extension of this higher portion of the terrace south of the data recovery corridor. Finally, the 11 Late Archaic dates are scattered across the entire length and width of the data recovery corridor, but no dates were recovered south of the data recovery corridor. The two earliest assays (1740-1520 cal B.C. (2σ) and 1620-1420 cal B.C. (2σ)) were obtained from wood charcoal within TU 61, but they are not associated with a feature or other cultural material. The charcoal samples were collected at depths of 185 cmbs (Stratum IV, Level 5) and 209 cmbs (Stratum V, Level 1). The nine remaining Late Archaic dates are associated with cultural material or derived from features. The nine dates (1460-920 cal B.C. (2σ)) fall within a two-sigma calibrated date range of 540 years, and intercept dates fall within a 400 year period (1410 to 1010 cal B.C.).

Figure 4 illustrates the temporal range of the 10 Late Woodland dates from the site. Two assays with calibrated intercept dates of A.D. 690 and 770 fall within the early Late Woodland period (ca. A.D. 600-850), six assays produced intercept dates that fall within a 40 year time span (970-1010 cal A.D.) of the late Late Woodland period (ca. A.D. 850-1100), and two dates (1040-1260 and 1160-1270 cal A.D. (2σ)) fall into the early Fort Ancient period (ca. A.D. 1100-1300). Diagnostic artifacts associated with the late Late Woodland and possible early Fort Ancient occupations at the site were limited to various ceramic types (discussed below) and triangular points, including traditional types such as Levanna and Madison points.

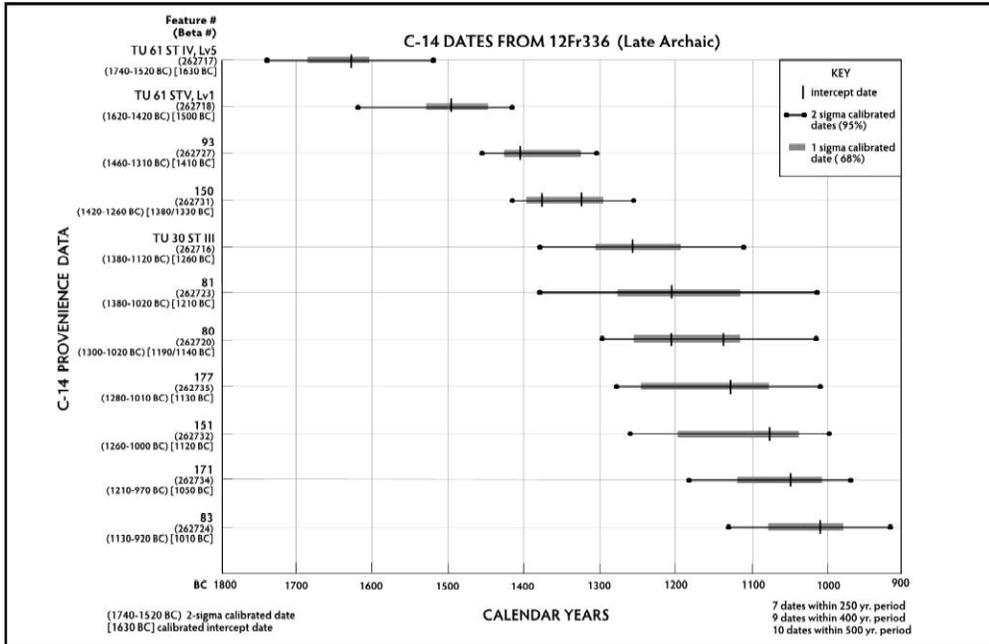


Figure 3. Two-sigma calibrated dates and intercept dates for Late Archaic radiocarbon assays.

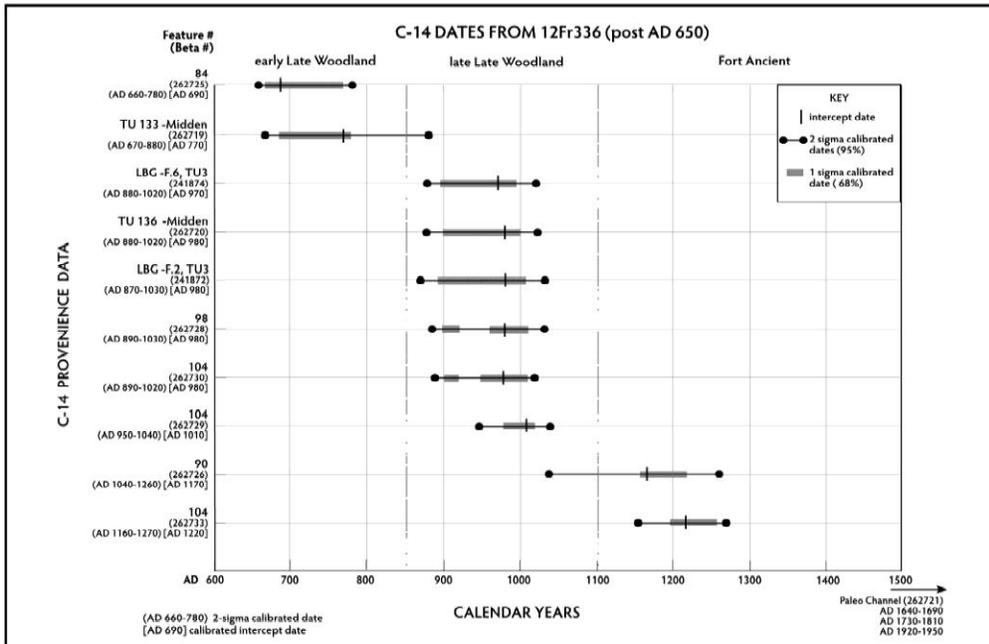


Figure 4. Two-sigma calibrated dates and intercept dates for Late Woodland radiocarbon assays.

Late Archaic Component

Lithic Assemblage

The number of lithic artifacts recovered from a demonstrably Late Archaic context (i.e., Temporal Group B) was very limited and consisted of only 149 artifacts (Stevens and Lloyd 2010). These included one Lamoka projectile point, one celt, eight cores, 131 flakes, and eight shatter. In addition to the Lamoka point, other Late Archaic points recovered from either Temporal Group A/B or A included two Buck Creek Barbed points and one untyped Late Archaic point (possibly a Motley point). An Adena-like cache blade was recovered from Stratum II (Group A/B) at a depth of 68 cmbs. The debitage profile of the Late Archaic component was characterized by the use of locally available Laurel chert (> 91 percent), with unidentified cherts accounting for less than 10 percent of the lithic assemblage. Late Archaic lithic assemblages across southwestern Ohio, southern Indiana, and northern Kentucky demonstrate a marked preference for locally available chert resources; perhaps in response to increased territorialism accompanied by increased sedentism and population. Three sites at the Argosy Casino complex near Lawrenceburg, Indiana (Old Town, Keller, and Greendale) produced evidence of at least 12 Late Archaic components (Bradbury 2005). Laurel and Jefferson cherts are considered local to the Argosy site complex, yet Laurel chert accounted for over 90 percent of the Late Archaic assemblage at these sites (Bradbury 2005).

At 12Fr336, roughly 50 percent of the Laurel chert assemblage consists of non-cortical flakes, with both primary and secondary flakes accounting for another 20-21 percent of the assemblage. Conversely, unidentified cherts are equally divided between primary, secondary, and non-cortical flakes. These data suggest that the unidentified cherts may have been derived from glacial till deposits or glacio-fluvial outwash cobbles in the Whitewater River and brought to the site for further reduction. The ratio of non-cortical to cortical flakes (both primary and secondary) is less than 2:1, suggesting that the late stage biface reduction was not the most important activity at the site. In fact, much of the non-cortical flake debris may derive from refurbishing stone tools. The absence of unfinished bifaces (i.e., early, middle, or late stage bifaces) corroborates this interpretation. Finally, the presence of shatter, coupled with the recovery of eight cores, suggests that core reduction and/or the detachment of flakes for tool manufacture was an important activity at the site. Moreover, the relatively high percentage of flakes in the medial and large size range (i.e., > 26 mm) among both primary and secondary flake categories and the high incidence of cores attests that core reduction and some degree of early stage biface reduction occurred on site.

Features and Feature Clusters

JMA identified and excavated 47 Late Archaic features (50 features if the three features from the indeterminate group are included). These included 23 pit hearths, two hearths with large quantities of pea-gravel in the feature fill, six surface hearths, one fire-cracked rock (FCR) cluster, and 15 indeterminate pits (Stevens and Lloyd 2010). No postmolds attributable to the Late Archaic occupation were identified. While JMA was able to identify nine well-preserved,

rock-lined hearths, most of the Late Archaic features showed evidence of having been cleaned out, and/or subjected to scouring and leaching. Few artifacts were associated with the Late Archaic features, and only 13 of the 50 features (26 percent) had associated artifacts, ranging from one flake to 13 flakes. The only diagnostic artifact recovered from the Late Archaic levels was a Lamoka point found at the same depth as Feature 154 and 35 cm to the east of the feature.

JMA identified five spatially discrete clusters of Late Archaic features within the core area of the site, with one cluster (Cluster 3a and 3b) divided into two portions. These clusters were identified and defined based on a consideration of both the horizontal and vertical distribution of the features. The five feature clusters are depicted on Figure 5. No feature clusters were identified for the 16 Late Archaic features located in the eastern half of Strip Block 1 because these 16 features were not clustered in terms of depth below surface, horizontally, or both.

Cluster 1 consists of seven features (five pit hearths, one surface hearth, and one FCR cluster) identified on the eastern side of Strip Block 2 that were located in an area roughly 8 m x 11 m. The range in elevation of the upper surfaces of these seven features varied by only eight centimeters. Feature 93 produced a radiocarbon assay with an intercept date of 1410 cal B.C. Feature 102, the only feature within Cluster 1 to have any associated artifacts, produced three flakes. Faunal remains, also recovered from Feature 102, included one unidentified mammal bone and fresh water mussel shells. Charred seeds, recovered from six of the features in Cluster 1, included cultigens such as maygrass, little barley grass, goosefoot, and knotweed. Nutshell remains were recovered from three of the six sampled features. Feature 92 (Temporal Group A/B) produced one maize cupule. It is likely that this feature either dates to the Late Woodland occupation, or the maize cupule is the result of contamination.

Cluster 2 consists of five pit hearths identified on the western side of Strip Block 2 within an area roughly 4 m x 8 m. The elevation range of the upper surfaces varied by 15 cm. No artifacts were identified in any of these five features during excavation, but nine micro-flakes were recovered from the soil sample of Feature 150. Feature 150 has a radiocarbon date with intercept dates of 1380 and 1330 cal B.C. Soil samples from Cluster 2 features produced a relatively low density of nuts and other plant remains but cultigens were not recovered.

Cluster 3 consists of 13 features (eight pit hearths, three surface hearths, and two indeterminate pits) identified at the western end of Strip Block 1 and located within an area roughly eight meters in diameter. The elevation range of the upper surfaces is great (54 cm), suggesting these features may represent multiple occupations. Eight features in this cluster occur at comparable depths and are designated Cluster 3a, while the remaining features are designated Cluster 3b. Within Cluster 3a lithic artifacts were recovered from four of the eight features, and four features contained faunal remains. All eight features contained nutshell fragments, and four contained charred seeds, but no cultigens were present. Feature 171 produced a radiocarbon assay with an intercept of cal 1050 B.C. and Feature 177 had an intercept of cal 1130 B.C.

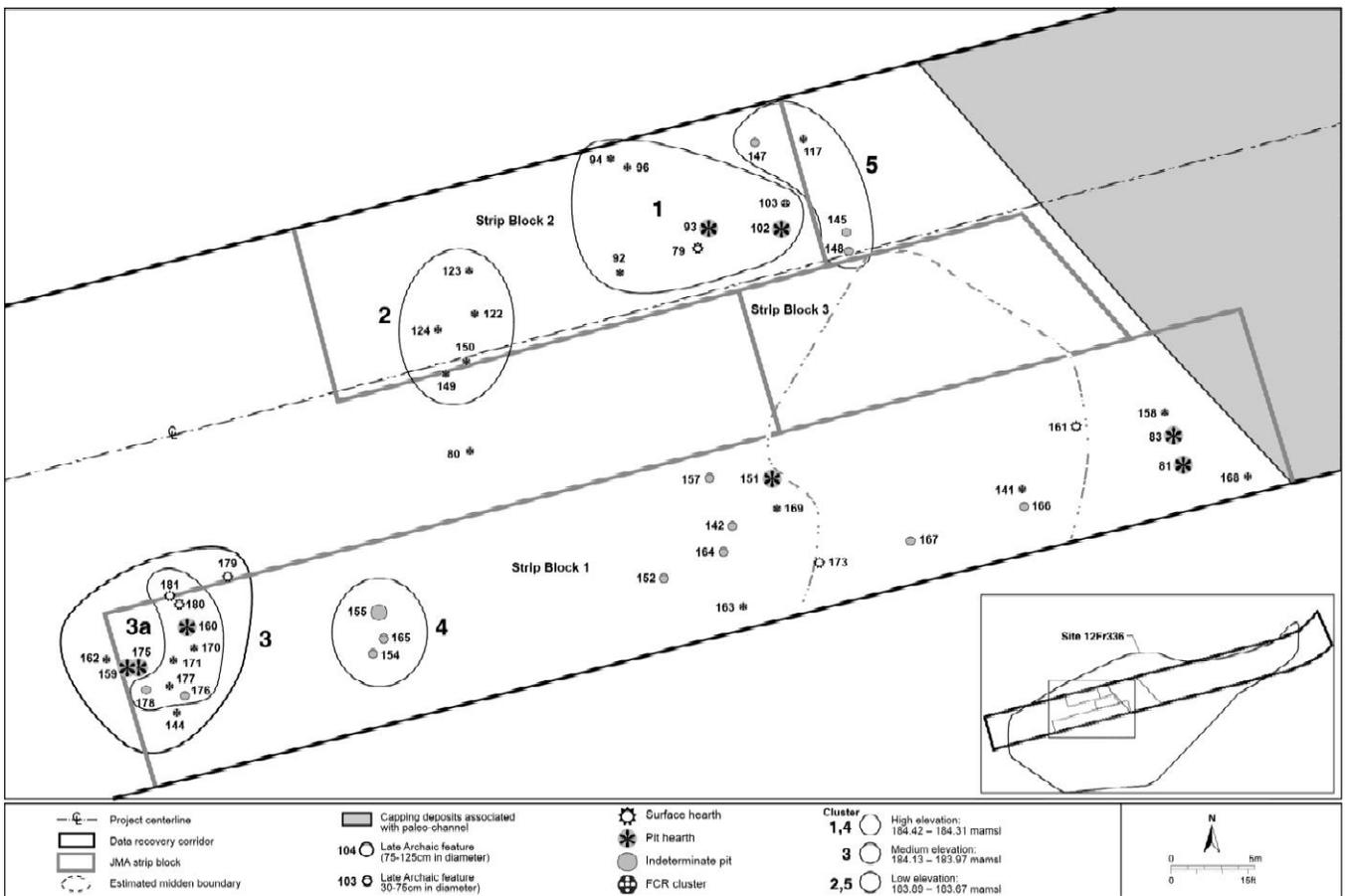


Figure 5. Late Archaic features showing feature clusters in the core area of 12Fr336.

The 13 features in Cluster 3a and 3b appear to form a crescent-shaped pattern around an open central area. Nutshells were identified in 12 of the 13 features in Cluster 3, and the cluster contained the three features with the highest density of nutshell at the site: Features 160, 176, and 180. Cluster 3a also included Features 160 and 170, the two pit features that consisted of high concentrations of pea gravel, and Feature 170 was the only feature at the site that had straight sides and a flat bottom. Cluster 3 is interpreted as a late summer to fall nut collecting and processing station. Thoms (2008:446) describes the use of pits with straight side and flat bottoms lined with bark, or some other material, for stone boiling.

Cluster 4 consists of three indeterminate pit features identified near the western end of Strip Block 1 and approximately 10 m east of Cluster 3. These features, located in an area 3 meters in diameter, had upper surface elevations that occurred within a range of 11 cm. No artifacts, faunal remains, or radiocarbon dates were associated with these features. Archaeobotanical remains associated with these features included cultigens, nutshell, and other wild seeds.

Cluster 5 consists of four features (three indeterminate pits and one pit hearth) identified on the east side of Cluster 1. These features occurred within a range of 22 cm. The only artifact in the five features was one flake from Feature 145; no faunal remains were recovered, and there are no radiocarbon dates from these features. In spite of the proximity to Cluster 1, Cluster 5 is much lower in elevation. That is, the vertical distance between the top of the lowest feature in Cluster 1 and the top of the highest feature in Cluster 5 is 44 cm, or nearly the same elevation range as Cluster 2.

Archaeobotanical and Zooarchaeological Remains

Archaeobotanical Remains

The archaeobotanical studies are based on the flotation of over 464 liters of soil collected from 47 Late Archaic features (Branch-Raymer and Wettstaed 2010). These features produced almost 51 grams (gm) of greater than 2.0 mm wood charcoal, 452 walnut shell fragments, eight hickory shell fragments, 944 indeterminate hickory/walnut shell fragments, one acorn shell fragment, one maize cupule, and 53 identifiable seeds (Branch-Raymer and Wettstaed 2010). The maize cupule is intrusive and probably reflects post-occupation rodent activity that brought the cupule into the feature matrix. The identified seed assemblage consists of 22 indigenous cultigens (goosefoot, little barley grass, maygrass, indeterminate cultivated grain), five fruit seeds (grape, mulberry, plum, sumac), 12 herb and grass seeds (bean family, mint family, nightshade, plantain, spurge, grass family), and 14 unidentifiable seed fragments. Indigenous cultigens represent a 42 percent proportion of the seeds recovered from these features. It is possible that little barley grass and maygrass were not fully domesticated at this time.

Feature Cluster 3a, which produced a large majority of the nutshell fragments, is interpreted as a late summer to fall nut collecting/processing station that was utilized over several seasons. Clusters 1, 2, 4, and 5 appear to represent more generalized occupations than the focal nut processing station represented by Cluster 3. For example, Feature Clusters 1 and 4 are interpreted as late spring to fall encampments that included the harvesting of indigenous cultigens, nuts, and other wild seeds, and Feature Cluster 2 is interpreted as a low density, short-term habitation whose features were not heavily used for plant processing activities. With the exception of the features in Cluster 3, the macroplant data indicate that nuts and other plants were collected for immediate consumption and were not processed with the intent of storing food for use over the winter.

Low wood densities in many of the Late Archaic features are suggestive of warm season and/or short-term occupations. Wood densities would be expected to be higher if the inhabitants were maintaining cold season heating fires. Overall, the well-preserved and diverse macroplant assemblage is suggestive of a series of warm season (late spring through early fall) habitations focused on harvesting and processing wild plants, indigenous starchy seeds, nuts, as well as animal foods. The feature clusters associated with the Late Archaic occupation(s) of the site likely represent special purpose extractive sites by a small household unit.

Zooarchaeological Remains

Faunal remains associated with the Late Archaic occupation were extremely rare, and if present, were highly fragmented. Deer represent the most common animal remains followed by unidentified large (deer or elk) and medium-sized (rabbit, squirrel, opossum, etc.) mammals (Branch-Raymer and Wettstaed 2010). Bird remains, presumably turkey and/or quail, were present, albeit in low numbers. Fish remains were not present, and reptiles comprised <.1 percent of the assemblage. Freshwater mussel shell fragments were also recovered from this component. The faunal remains recovered from the feature samples indicate a summer through fall occupation and corroborate the findings of the archaeobotanical study.

Discussion of the Late Archaic Component

Given the nature of the features associated with Temporal Group B (i.e., the low amount of FCR, absence of storage pits, and presence of cultigens and mast crops), the paucity of artifacts, the absence of lithic-related activity areas, the absence of postmolds and midden deposits, and the low density of wood charcoal recovered from the features, the Late Archaic component at site 12Fr336 is considered to represent a series of sporadic, short-term, warm season (summer through fall) occupations between ca. 1400-1000 B.C. With the exception of the features in Cluster 3a, which may have been a nut processing station for generating a food surplus for transport to another location and/or use during the winter and early spring, it appears as though the occupants of the site collected and processed nuts and other plants, including cultigens (maygrass, knotweed, and little barley grass), fruit seeds, and edible herbs and grasses, for immediate consumption. Excavated Late Archaic sites in the area are somewhat limited, and include the Metamora Church site (Erikson et al. 2000), located several miles to the west in Franklin County; the Old Town and Keller sites near Lawrenceburg, Indiana (Clay 2005), and several sites from southwestern Ohio (Purtill 2009). The Metamora Church site was occupied from approximately 2800-1500 cal B.C., or somewhat earlier than 12Fr360, whereas the Old Town (ca. 1800-800 B.C.) and Keller sites (1700-1000 B.C.) span the periods of occupation at 12Fr336. The Late Archaic features and deposits at both of the Argosy sites were similar to those at 12Fr336 in that they contained only a few artifacts, had a limited variety of artifact types, and exhibited a limited variety of feature types (scattered surface hearths or small pit hearths) (Clay 2005). It is interesting to note, that walnut was the preferred nut crop at 12Fr336 during the Late Archaic occupation, whereas hickory is the preferred nut crop at almost all other Late Archaic sites in the Middle Ohio River drainage as well as the Illinois River Valley (Simon 2009).

In southwestern Ohio, Purtill (2009:583) has suggested two primary site types were operative during the Late and Terminal Archaic. In addition to specialized site types such as lithic extraction sites, nut (or plant) processing sites, and ephemeral hunting or collecting sites, Purtill argues the other site types include “semiannual to year-round occupations with midden development, feature clusters, house structures, and burials;” and “late summer-early winter domestic base camps from which bulk processing was undertaken” (Purtill 2009:583). Based on the archaeological data recovered from 12Fr336, the site either falls into the “late summer-early winter domestic base camp” or the “specialized, short-term processing camp.” Purtill (2009) notes that the second major site type, i.e., late summer-early winter domestic base camps, are principally bulk food processing sites for collecting, parching, and roasting nuts for the winter. With the possible exception of Feature Cluster 3, the other feature clusters from the site suggest nut processing for immediate consumption rather than for storage. Thus, the Late Archaic occupation at site 12Fr336 appears to fall into Purtill’s “specialized short-term processing” site type.

In summary, data from the Late Archaic component at 12Fr336 indicate multiple, short-term occupations during the summer through fall months occurred over several hundred years from ca. 1400 to 1000 B.C. Lithic activities were limited and consisted of tool resharpening, core reduction, and early stage biface reduction. The occupations appear to have been limited to small

household groups (perhaps one or two extended families) that hunted (presumably deer and turkey) and collected walnuts and hickory nuts as well as cultigens and other wild plants.

Late Woodland Component

Lithic Assemblage

The Late Woodland component produced 32 triangular projectile points or point fragments, three drills, two graver-perforators, 15 preforms/unfinished bifaces, one scraper, eight utilized flakes, three adzes/celts, one hammerstone, and a total of 2,229 pieces of lithic debris including 2,147 flakes, 56 pieces of shatter, and 26 cores. The lithic assemblage is overwhelmingly composed of Laurel chert (88.4 percent), and the balance of the raw material types are represented by various unidentified cherts, which may or may not be derived locally, as well as a very small number of non-local (or exotic) cherts such as Harrison County (Wyandotte), Indian Creek, Liston Creek, Kenneth, and Four Mile Creek. The debitage profile for Laurel chert indicated all stages of core and biface reduction occurred at the site. That is, Laurel chert accounted for 84.6 percent of the cores, 83.3 percent of the primary flakes, 93.2 percent of the secondary flakes, and 87.6 percent of the non-cortical flakes. Although the limited assemblage of formal tools derived from the Late Woodland component is consistent with Late Woodland lithic assemblages in the Middle Ohio Valley, the number of expedient flake tools is underrepresented, especially given the very high number of flakes recovered from the Late Woodland component. One feature also produced two fragments of a polished slate gorget. One side of the gorget exhibits a finely-etched, horizontally-oriented, chevron design with a fine cross-hatched design that occurs within the chevron pattern. The gorget also exhibits a drill hole, presumably so the gorget can be worn around the neck and prominently displayed on one's chest.

The Late Woodland projectile point assemblage did not include any Chesser Notched, Jack's Reef, or Lowe points (typically associated with Newtown ceramics), but rather included 19 triangular projectile points (Figure 6), 13 triangular point fragments, three drills from re-worked triangular points, and 1 biface fragment from a failed attempt to create a triangular point. Three triangular points, all classified as Levanna points (Justice 1987), were recovered from dated contexts. The intercept dates for these points include a date of cal A.D. 770 and two dates of cal A.D. 980. Various studies, including those by Railey (1992), Bradbury and Richmond (2004), Cochran (2005), and Carmean (2009), have attempted to develop point typologies for triangular points with varying degrees of success. A review of these studies, in conjunction with an analysis of the triangular points from 12Fr336, suggests an occupation between ca. A.D. 900 and A.D. 1300. In contrast to regional syntheses prepared by Seaman and Dancey (2000) for southern Ohio and Pollack and Henderson (2000) for northern Kentucky, the lithic assemblage from 12Fr336 (and other sites in the area) demonstrates that late Late Woodland (A.D. 800-1000) projectile point assemblages in the vicinity of the Ohio and Great Miami rivers were dominated by triangular points (Levanna and Madison types), to the almost complete exclusion of so-called "terminal Late Woodland points" such as Jack's Reef.

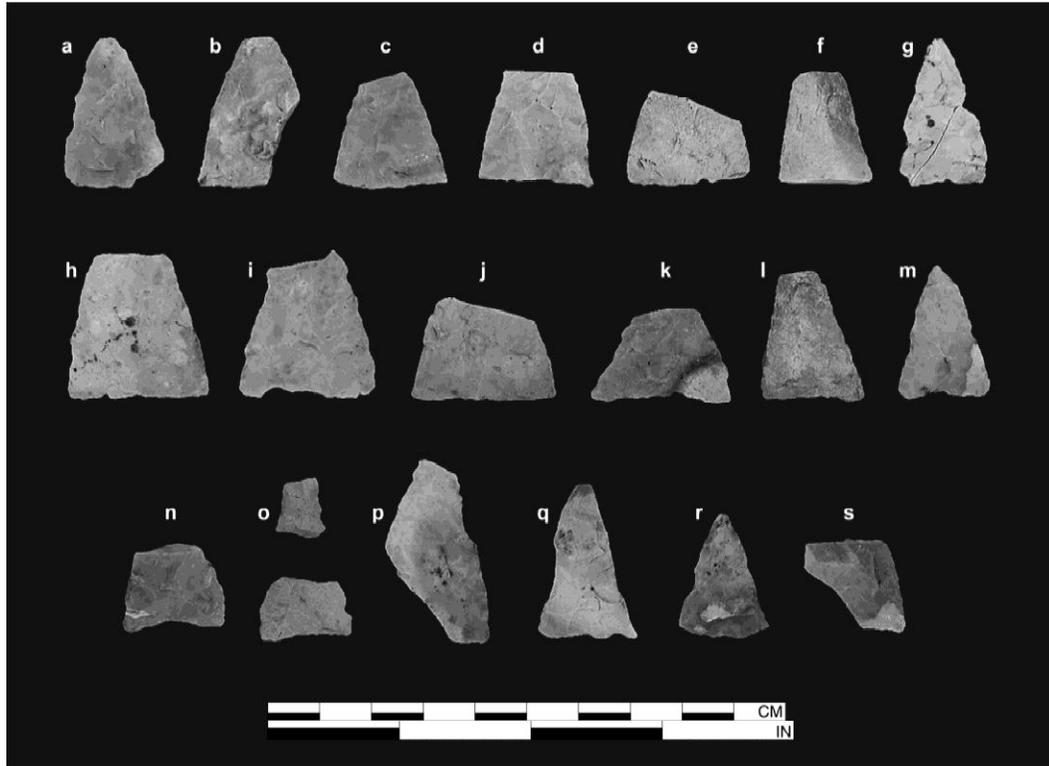


Figure 6. Triangular points recovered from site 12Fr336 (all made from Laurel chert).

Ceramic Assemblage

A suite of eight radiocarbon assays (Figure 4), as well as the ceramic assemblage, indicate the site contains two principal Late Woodland occupations: namely an early Late Woodland occupation and a late Late Woodland occupation. The early Late Woodland occupation is suggested by the presence of sand and grit-tempered Rogers Plain and Rogers Cordmarked ceramics (new type) and two radiocarbon assays from features with intercept dates of 690 and 770 cal A.D. The Rogers phase (A.D. 450 to 700/800) was defined on the basis of grit-tempered, cordmarked or smoothed over cordmarked ceramics that lack pronounced shoulders from the Levee (A.D. 675), Old Town (A.D. 450 and 645), and Keller sites near Lawrenceburg, Indiana (Clay and Kerr 2005). The authors also noted similarities between this new ceramic type and ceramics described by Kreinbrink (1992) at the Rogers Lower Village (A.D. 635) and Rogers Mound sites, which she initially classified as Newtown. Clay and Kerr (2005) also argue that the grit-tempered, cordmarked ceramics described by Reidhead and Limp (1974) at the Turpin Site in southwestern Ohio should be reclassified as Rogers Cordmarked rather than Newtown. At 12Fr336 the Rogers phase ceramics exhibit a distinct spatial distribution from the more recent limestone-tempered Argosy ceramics. In cases where Rogers ceramics and Argosy ceramics were recovered from the same test unit or feature, the Rogers ceramics were consistently found to underlie the more recent limestone-tempered Argosy ceramics.

The late Late Woodland occupation at the site is characterized by limestone-tempered Argosy Cordmarked pottery (ca. A.D. 800/850 to 1100), and six radiocarbon assays with intercept dates between 970 and 1010 cal A.D., including four intercept dates of 980 cal A.D. Argosy ceramics, as originally defined by Clay and Kerr (2005:84-86, 97-100), are tempered with large (“almost gravel-like”) particles of crushed limestone that average at least 2 mm or more in size. The limestone aplastics in the paste are poorly-sorted and frequently protrude from the interior and/or exterior of the vessel. Temper typically accounts for 30-50 percent of the paste, and sherds tend to be very thick (average thickness is 8.2 mm with a range of 4.9 to 11.8 mm). Cordmarkings on the vessel are applied in a “sloppy” and haphazard manner and extend from the base to the rim. Argosy vessels lack pronounced, angular shoulders, suggesting most of the vessels are probably conoidal in shape. Some vessel rims are collared (or folded) while others exhibit a single horizontal row of punctuations below the rim. Some rims exhibit diagonal cordmarkings or cordwrapped impressions on the lip. At 12Fr336 Argosy ceramics were spatially confined to the core area of the site, and vertically limited to Strata I and II.

According to Clay and Kerr (2005), the purpose of defining the new ceramic types (i.e., Rogers Cordmarked and Plain and Argosy Cordmarked and Plain) was to address various problems that have developed as a result of the uncritical application of the term “Newtown ceramics,” i.e., Newtown Cordmarked, Newtown Plain, and Newtown Punched. The uncritical application of Newtown ceramics is manifested in several areas: (1) the definition of Newtown pottery has suddenly become a “catch-all” category for any limestone or limestone and grit tempered ceramic in the Middle Ohio Valley, (2) the exceptionally broad (500-600 year) temporal span associated with this pottery type (i.e., A.D. 400/500 to A.D. 1000/1100), and (3) the broad geographic distribution associated with this pottery type, which includes both sides of the Ohio River from the Big Sandy River on the east to the Falls of the Ohio on the west.

The Argosy ceramic complex, as proposed by Clay and Kerr (2005), refers to late Late Woodland ceramics in the vicinity of the Great Miami and Ohio rivers (including the confluence of the Whitewater River) and extending up the Ohio River at least as far as the Little Miami River and downstream to perhaps as far as the Kentucky River. Important sites containing Argosy ceramics include Haag, Turpin, Sand Ridge, Newtown, Stateline, Schomaker, Clark, and Burkham. Several sites (Levee, Keller, and 12D366) at the Argosy Casino project produced Argosy Cordmarked pottery. Features containing charcoal and Argosy pottery were dated to 855 and 995 cal A.D. at the Keller Site and 985 cal A.D. at the Levee Site. Figure 7 illustrates important late Late Woodland sites in the area.

At 12Fr336 Argosy Cordmarked and Argosy Plain sherds represent nearly 90 percent of the 2,376 identifiable ceramics and 26 of 30 vessels from the site. Although small numbers of Argosy ceramics were recovered from most of the excavation units and several of the Late Woodland features, over 76 percent of the Argosy ceramics (1,294 sherds and 521 crumbs) were recovered from Feature 104. The Argosy ceramics from Feature 104 weighed a total 7.7 kilograms (kg) (17 lbs) and accounted for 59 percent of the ceramic assemblage by weight. Argosy ceramics from 12Fr336 are primarily cordmarked or smoothed-over cordmarked (although some “plain” sherds do occur) and tempered with large particles of crushed limestone which often protrude from the vessel wall. Vessels are conoidal (i.e., conical) to sub-globular (i.e., roughly-globe-shaped), and orifice diameters range from 22.9 cm to 27.9 cm with an average of 24.9 cm. Rims are straight (50 percent), slightly everted (19 percent), or everted (31

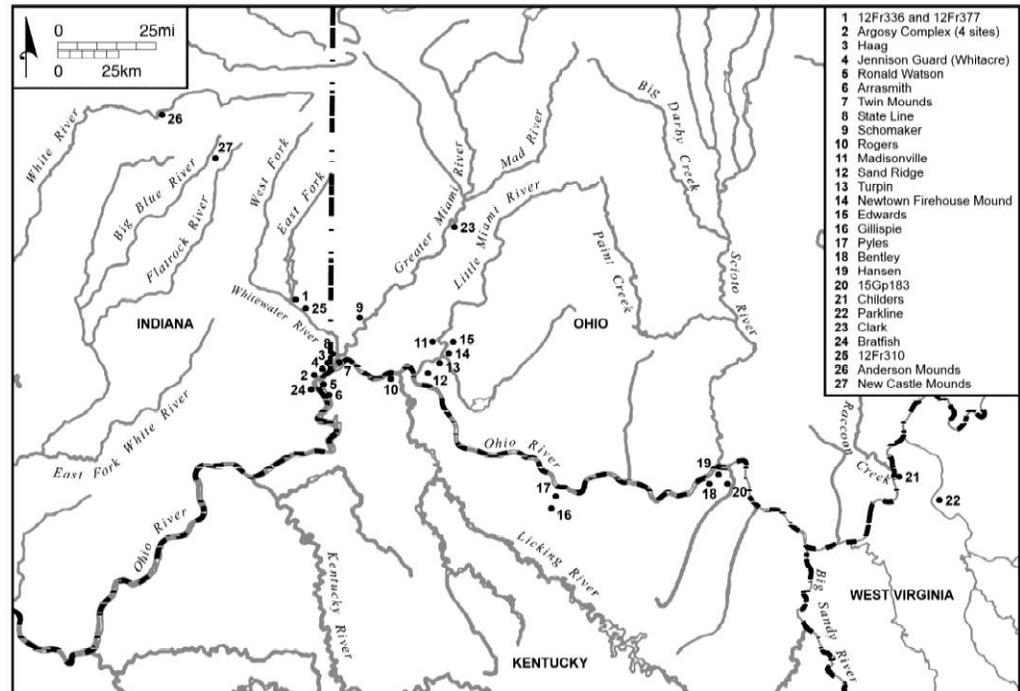
percent), and nearly 65 percent of the rims are undecorated (Figure 8). Decoration, which occurs in 31 percent of the rim sherds, is limited to a single row of punctations at varying distances below the rim (Figure 8). Another three percent of the rims are thickened and one percent of the rims are incised. Lips are primarily square and flat (73 percent), but can also be rounded (10 percent), angled (beveled) outward (13 percent), angled (beveled) inward (3 percent), or peaked (1 percent). Lip decoration is variable. Forty percent of the lips are plain, 32 percent have diagonal cordmarkings on the lip, 12 percent have smoothed-over cordmarkings on the lip, 15 percent exhibit some other type of cordmarking on the lip (e.g., parallel or perpendicular), and 1 percent were notched. Roughly 85 percent of the Argosy ceramics exhibit Z-twist cordage. The Argosy ceramics at 12Fr336 have a date range from 880 to 1040 cal A.D. (2σ), thus falling into the second half of the Argosy Ceramic Complex.

Features

Postmolds and Possible Structures

JMA (Stevens and Lloyd 2010) identified a total of 178 prehistoric features: 108 postmolds and 70 hearth and pit features. One hundred and seven of the 108 postmolds were identified in the core area of the site, and all of these postmolds were associated with the Late Woodland occupations. The postmolds can be separated into three horizontally distinct groups and two vertically distinct groups, namely those located west of the midden stratum (n=19), those located below the midden (n=23), and those located east of the midden (n=65).

Figure 7. Map showing location of selected Late Woodland sites in the region.



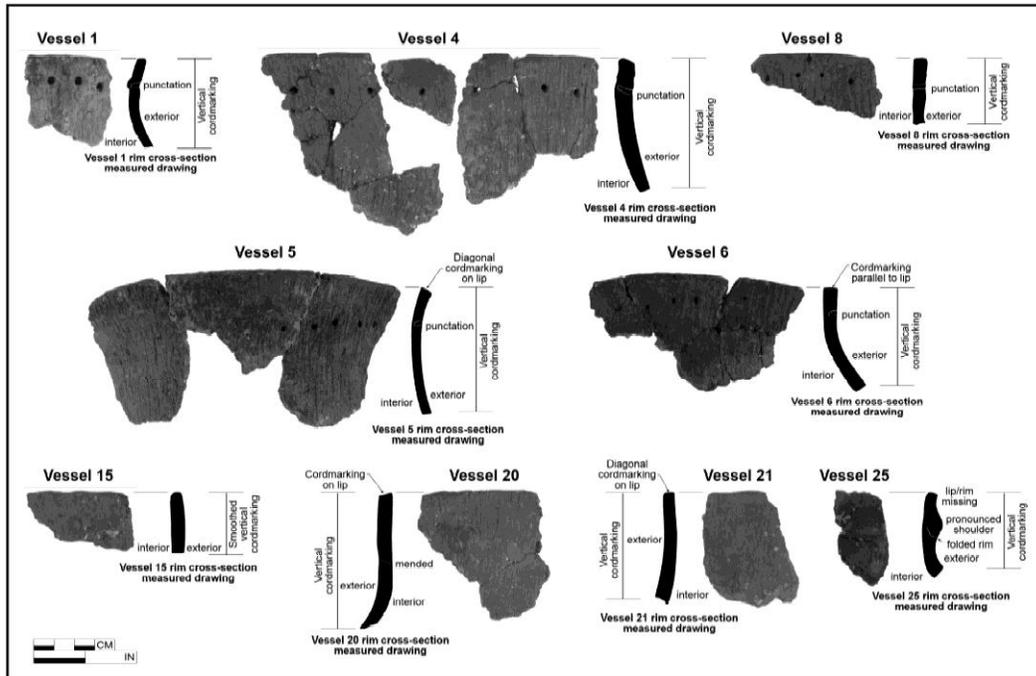


Figure 8. Selected Argosy Cordmarked rim sherds from Feature 104, site 12Fr336.

The 23 postmolds identified below the midden deposits were attributed to the early Late Woodland occupation, and the five lowest postmolds may be part of a former structure (Figure 9). These postmolds are roughly equidistant (i.e., 3 to 5m) between two early Late Woodland features (Features 84 and 108), and three other early Late Woodland features (Features 60, 116 and 156) are located at the far eastern and western ends of the “core site area.” In addition, four postmolds form a straight line northeast of the possible structure and may represent a possible windbreak or drying rack. The 23 postmolds and five related features (Features 60, 84, 108, 116, and 156) are associated with the early Late Woodland Rogers phase occupation of the site.

The remaining 84 postmolds are associated with the late Late Woodland occupation and are located on either side of the midden and at the same elevation or above the midden (Figure 9). The posthole patterns suggest four possible structures associated with this occupation. These include one structure west of the midden and possibly three structures east of the midden. The two overlapping structures on the east side of the midden indicate at least two occupations during the late Late Woodland. The estimated structures measure approximately 2 to 2.25 m (6.6 to 7.4 ft) wide by 3.5 to 4 m (11.4 to 13.1 ft) long (or roughly 8-9 sq m or 85 sq ft). The size and pattern of the postmolds suggest these were relatively simple warm season structures, or perhaps wind breaks or lean-tos. The small size of the possible structures would necessarily indicate habitation by a single family household. Seaman and Dancey (2000:592) present information on relative house size for about 30 Late Woodland houses from 11 different Late Woodland sites in southern Ohio and northern Kentucky. All of the houses were recorded from large nucleated villages and therefore are not entirely comparable to 12Fr336. Seaman and Dancey (2000) report houses with mean diameters ranging from 4 m to 10+ m. They suggest that sites with smaller

structures (i.e., a mean diameter of 5.5 m or less) were appropriate for a nuclear family and were probably warm-weather houses. The possible structures from 12Fr336 seem to fit this pattern.

Cooking and Storage Features

The late Late Woodland component contained as many as 19 features including 1 surface hearth, 2 FCR clusters, 7 pit hearths, 7 indeterminate pits, and 2 large pits. Surface hearths, which lacked an excavated pit, ranged from 40 to 80 cm in diameter and were identified on the presence of FCR, charcoal, and/or oxidized soils. FCR clusters varied from 55 to 85 cm diameter and consisted of a concentration of FCR on the surface, but there was no evidence of a pit, charcoal, or oxidized soils. FCR clusters may have been surface hearths subjected to leaching, or they may be a secondary deposit of FCR from a hearth. Pit hearths were generally basin or bowl shaped, averaged 70 cm in diameter (with a range of 34 to 130 cm), and varied in depth from 8 to 35 cm.

Some pit hearths contained little to no FCR while others were characterized by a pit completely lined and filled with up to 100 kg or more of rocks. Indeterminate pits were comparable in size to most of the pit hearths, but these features had little or no FCR, little or no charcoal, and lacked oxidized soils. Profiles were either basin or bowl-shaped, and if FCR was present, it weighed less than 6 kg. The final feature category, large pits, were only associated with the Late Woodland occupation of the site. Large pits had opening diameters in excess of 100 to 175 cm, and the depth of these features ranged from 85 to 90 cm.

Except for Features 84 and 104, few, if any, artifacts were associated with the Late Woodland features. Rogers phase ceramics were recovered from five features (Features 60, 84, 108, 116, and 156), and Argosy ceramics were found in only four features (Features 84, 95, 104, and 174). Thirteen features contained two or fewer artifacts, and eight features contained no artifacts. Feature 104, the largest and most unique feature, measured 125 cm in diameter and was at least 90 cm deep (Figure 10). Excavation of the feature indicated four distinct strata (three cultural strata [I, II, and IV] and one stratum [III] indicative of slumping). Feature 104 contained a total of 307 kg (675 lbs) of FCR, or nearly five times the average weight of FCR (64 kg) in other pit hearths or large pits.

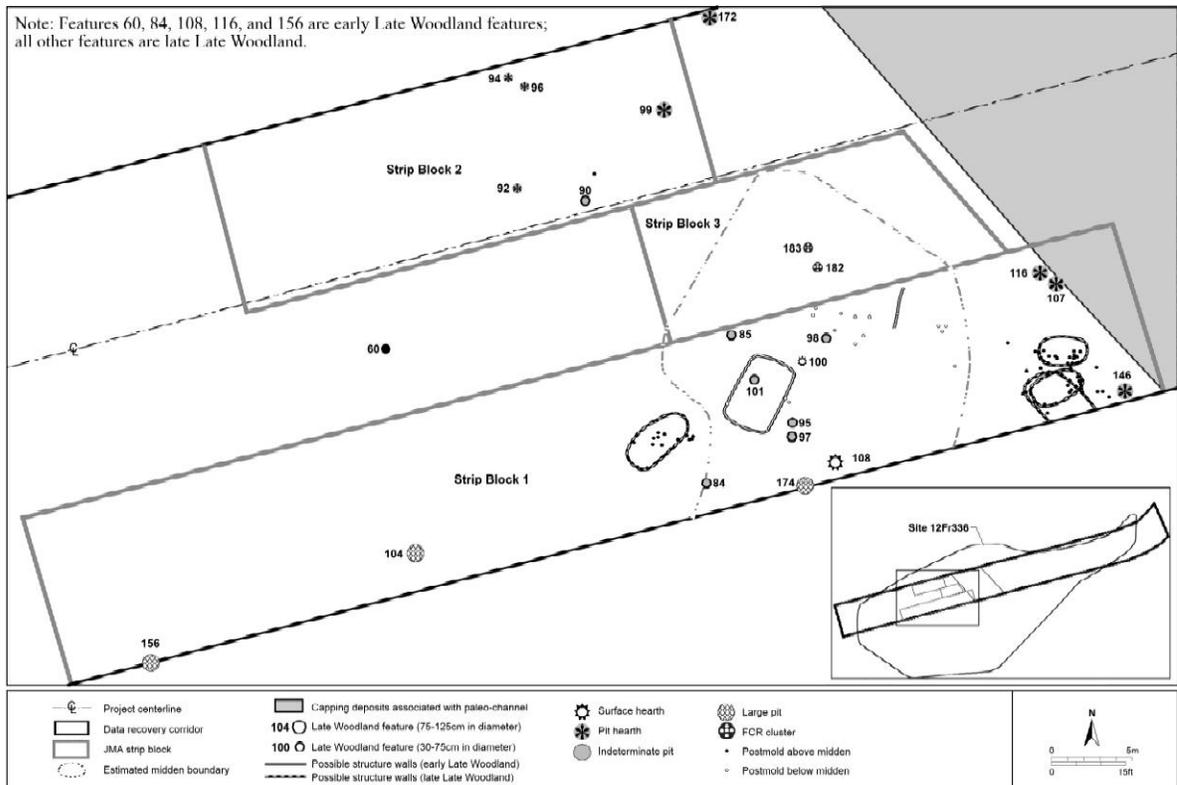


Figure 9. Late Woodland features, postmolds, and possible structures in the core area of 12Fr336.

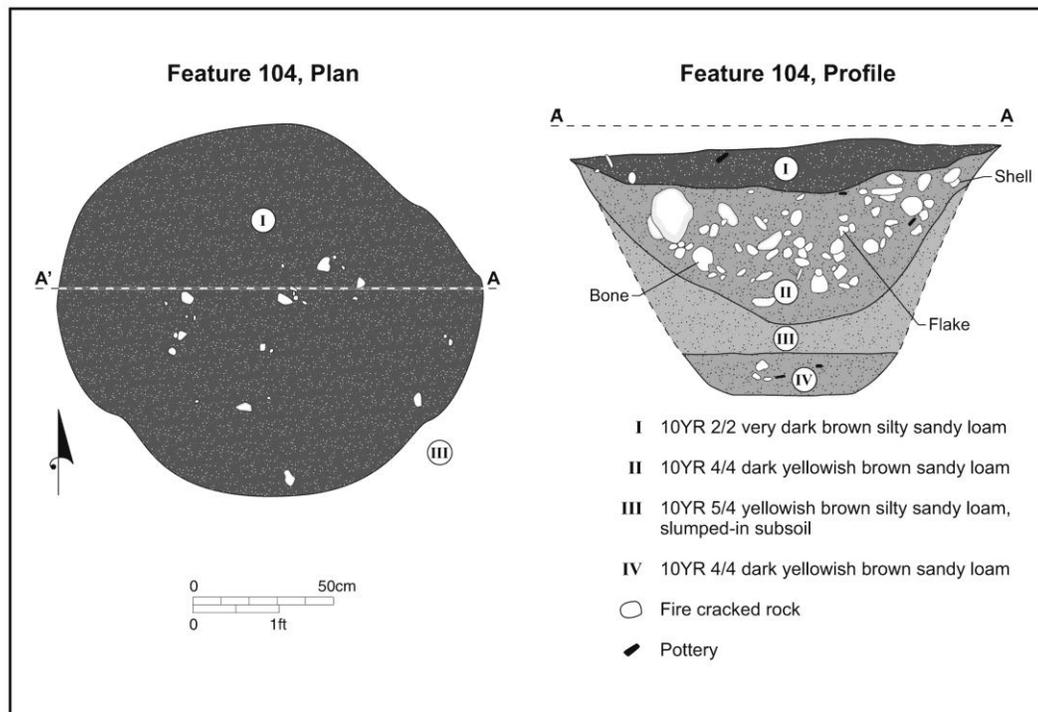


Figure 10. Plan and profile of “large pit” Feature 104, possible feasting pit.

Archaeobotanical and Zooarchaeological Remains

Archaeobotanical Remains

The archaeobotanical and zooarchaeological studies are based on over 370 liters of soil collected from 19 Late Woodland features as well as 11 soil samples collected from the Late Woodland midden deposits. Recovered macroplant remains included 66 walnut shell fragments, 104 hickory shell fragments, 399 indeterminate hickory/walnut shell fragments, 12 acorn shell fragments, four maize cupules, four maize kernel fragments, and 1,465 seeds (Branch-Raymer and Wettstaed 2010). The identified seed assemblage consists of 1,294 cultigens of the Eastern Agricultural Complex (EAC) (including little barley grass, maygrass, goosefoot, knotweed, and either sunflower or sumpweed,), 14 fruit seeds (blackberry/raspberry, blueberry, grape, mulberry, strawberry, sumac), 67 herb and grass seeds (pigweed, bean family, bedstraw, burclover, lespedeza, mint family, plantain, spurge, grass family), and 90 unidentifiable seed fragments. Cultigens of the EAC represent an 88 percent proportion of the seeds that were found in these features.

The preponderance and high ubiquity of late spring (e.g., maygrass) through late summer and early fall ripening cultigens (e.g., goosefoot and knotweed) points to occupation during these months. Likewise, the low wood densities associated with the majority of the Late Woodland features are suggestive of warm season occupations. Finally, relatively low nutshell densities indicate the inhabitants were not engaged in a concentrated harvest of nuts for winter storage. The location of this site on an active floodplain that is susceptible to frequent flooding, coupled with the lack of substantial structures and storage pits, supports an interpretation of a short-term, warm season occupation.

The Late Woodland archaeobotanical assemblage offered clear evidence that agricultural activities focused on the cultivation of starchy seeds of the EAC (particularly maygrass and little barley grass). Oily seeds such as sunflower and sumpweed were practically nonexistent, and only four maize kernels and four maize cupules were recovered from three Late Woodland features. The scarcity of maize compared to the large quantity of EAC cultigens indicates a continuity of subsistence patterns from the early Late Woodland through the late Late Woodland periods in this part of the Whitewater River Valley. Early Late Woodland archaeobotanical assemblages in the Middle Ohio River drainage are marked by a substantial increase in the cultivation of indigenous plants; however, by the end of the late Late Woodland period, circa A.D. 900 to 1000, most groups in the Middle Ohio Valley placed a greater emphasis on maize at the expense of the EAC seed crops (Muller 1987; Smith 1992; Smith and Cowan 2003). Fort Ancient groups instituted a maize-based economy in the Middle Ohio Valley around A.D. 1000.

The adoption of a maize-based economy, the last of three major cultural transformations during the Late Woodland period (McElrath et al. 2000), is a time-transgressive event. That is, it appeared in the American Bottoms and Lower Illinois Valley ca. A.D. 800, but it did not occur in the Middle or Upper Ohio Valley until ca. A.D. 1000. The subsistence economy at 12Fr336 during the late Late Woodland period is based on the continued reliance of EAC cultigens, in conjunction with the collection of nuts and wild fruits and seeds. The paucity of maize (which evidently continued into the early Fort Ancient period-1170 and 1220 cal A.D.) stands in stark contrast to regional subsistence trends described elsewhere in the Middle Ohio Valley (cf.

Johannessen 1993; Pollack and Henderson 2000; Seeman and Dancey 2000; Simon 2000; Wymer 1987, 1993).

Zooarchaeological Remains

Over 50 percent of the mammalian biomass for the Late Woodland period is comprised of undifferentiated large and medium mammals, which, due to fragmentation, could only be identified to class. White-tail deer account for 35 percent of the mammalian biomass, while elk, rabbit, raccoon, and squirrel comprise the balance. The presence of deer, elk, rabbit, and squirrel indicate upland faunal resources were preferred over riparian resources. Birds, including bobwhite quail and turkey, are the next largest contributor to the overall biomass. Other vertebrate taxa from the Late Woodland component include a small sample of unidentifiable fish remains, as well as turtle and snake. Lastly, freshwater mussels contributed less than one percent of the biomass. The presence of reptiles and mussels suggest the site was occupied during non-winter months, while the preponderance of white-tail deer suggests occupation during the fall when the quality of deer meat and hides were at a maximum.

The faunal remains from 12Fr336 are similar in some aspects to other faunal assemblages in the area, but at the same time exhibit some important differences. In comparing the 12Fr336 assemblage with the faunal remains from the Argosy Casino site (Yerkes 2005) and some sites (including the Haag, Turpin, and Sand Ridge sites) in the region (Styles 2000), a few consistent patterns emerged. One pattern was the emphasis on deer, which was easier to hunt with a bow and arrow. Another pattern was the presence of medium-sized mammals (e.g., beaver, raccoon, rabbit, and squirrel) in these assemblages. The diversity of animals exploited at the Argosy sites (Yerkes 2005) and the sites studied by Styles (2000) is greater than those exploited at 12Fr336. Unlike 12Fr336 or the assemblages described by Styles (2000), fish remains (including sturgeon, catfish, bowfin, and drum) were common at the Argosy sites (Yerkes 2005). The lower representation of fish at 12Fr336 may represent geographical differences in resource exploitation, given that the Argosy Casino sites are located near the confluence of the Great Miami and Ohio Rivers, and groups living in this area would have access to larger numbers (and a wider variety) of aquatic taxa than would have been available at 12Fr336. Surprisingly, at sites such as Haag, Sand Ridge, and Turpin, aquatic resources were poorly represented despite the fact that these sites were located in riverine areas with access to several aquatic habitats and occupied for hundreds of years (Seeman and Dancey 2000:595).

Discussion of the Late Woodland Component

Various lines of evidence (e.g., low wood charcoal density; presence of various reptiles and mussels in the faunal assemblage; emphasis on starchy seeds of the EAC along with nuts, and wild plants and fruit seeds; lack of storage pits, and the presence of small single household structures) argue in favor of short-term, warm season occupations (i.e., late spring/early summer through early fall) during the early Late Woodland and the late Late Woodland periods. With the exception of the two possible overlapping structures east of the midden (Figure 9), none of the

other Late Woodland structures or features overlap, and only two features (Features 84 and 104) show evidence of having been used, cleaned out, and re-used. The distribution of structures and features during the late Late Woodland occupation suggests the community pattern consisted of an oval-shaped midden (perhaps a central plaza) in the middle of the site, with small, seasonal household units surrounding the midden or plaza. The oval-shaped midden extended south of the data recovery corridor, and although the full extent of the midden deposits were not delineated during the Phase III investigations, the extension of the midden beyond the data recovery corridor would explain, in part, the artifact densities and features encountered during the Phase II evaluation and subsequent well-monitoring investigations. As indicated in Figure 9, the larger cooking features and roasting pits were situated away from the structures, but surface hearths, FCR clusters, and smaller indeterminate pits were found scattered across the midden. Thus, the larger cooking features were located away from the houses and outside of the ovoid-shaped midden deposits.

The community pattern described for 12Fr336 is dissimilar to those described by Pollack and Henderson (2000) in northern Kentucky and Seeman and Dancey (2000) in southern Ohio. Pollack and Henderson (2000:628-632) describe a number of different community patterns during the early Late Woodland. Some village sites, such as Pyles and Gillespie, covered 1.5-2 hectares (ha) and consisted of a midden ring that surrounded a central plaza, while other villages, like Rogers and Jackstown, contained a circular or oval midden but lacked a central plaza. Still other sites (Hansen and Bentley) consisted of clusters of structures and associated activity areas and features. These larger villages contained 15-20 households. Smaller sites often did not contain any evidence of structures, but if structures were present, they consisted of clusters of postmolds and associated activity areas with large pit features located at some distance from the domestic structures (Pollack and Henderson 2000:630). At the Froman site, a C-shaped (but probably a circular midden if fully excavated) midden enclosed a central area that was void of artifacts or features (Pollack and Henderson 2000:630; Ross-Stallings and Stallings 1996). Postmolds and other pit features were located around and outside of the circular midden. During the late Late Woodland period in northern Kentucky settlements are smaller and more dispersed. Artifact densities are much lower and evidence of structures (particularly permanent structures) is rare to non-existent.

Settlements in southern Ohio during the early Late Woodland period, like those described above for northern Kentucky, were characterized by large, nucleated villages (Seeman and Dancey 2000). During this period, the authors suggest that villages or settlements from Pittsburgh to Cincinnati tend to occur in clusters of two or three, which they suggest is indicative of village fission of the sort associated with a lineage organization (Seeman and Dancey 2000:594). However, they also note that village patterns in the Middle Ohio Valley show considerable variation. Some sites do not exhibit overlapping features and appear to represent relatively brief occupations. Conversely, sites such as Haag, Sand Ridge, and Turpin appear to have been continuously occupied for hundreds of years with the development of very thick and highly organic midden deposits (Clay and Kerr 2005; Reidhead 1981; Reidhead and Limp 1974 Seeman and Dancey 2000). The range of community patterns described for sites in southern Ohio is similar to those noted by Pollack and Henderson (2000) for northern Kentucky. During the late Late Woodland, settlement patterns for the most part returned to a small-site orientation although Haag, Sand Ridge, and Turpin are notable exceptions. Seeman and Dancey (2000)

maintain that the smaller open sites reflect increased mobility and hunting efficiency associated with the adoption of the bow and arrow, which is the second of the three major cultural transformations outlined by McElrath et al. (2000) for the Late Woodland.

As noted previously, only two features (Features 84 and 104) showed evidence of reuse. In many ways, Feature 84 is a smaller and earlier version of Feature 104. Feature 84, which produced an early Late Woodland date (660-780 cal A.D. (2σ) and a limited amount of Rogers Cordmarked pottery), is the largest pit feature associated with the Rogers phase occupation of the site. Plant remains from Feature 84 included 991 cultigens (consisting of 910 maygrass seeds, or 70 percent of all cultigens at the site, and other EAC seed remains such as goosefoot and little barley grass), 50 percent ($n=4$) of all maize remains at the site, various wild plants and fruits, and 73 walnut and hickory(?) nut and/or shell fragments. Identifiable zooarchaeological remains were limited to deer and bird, but 79 unidentifiable mammal bone fragments were burned or calcined. Surprisingly, Feature 84 did not produce any lithics (Stevens and Lloyd 2010).

Feature 104, by far the largest and most anomalous feature, produced 202 lithic artifacts (including one Levanna point and several bifaces and scrapers) and 1,800 Argosy ceramics (including parts of at least 20 Argosy vessels). Four flotation samples totaling 34.5 liters produced an extremely abundant and diverse plant and animal assemblage. Zooarchaeological remains included 232 faunal specimens (including deer, elk, raccoon, beaver, frog, turtle, fish, and mussel shell), and 40 percent of these faunal remains consisted of burned or calcined bone (Branch-Raymer and Wettstaed 2010). Archaeobotanical remains were equally abundant and consisted of 123 charred seeds (including maygrass, which represents 94 percent of the charred seed remains from the feature, blueberry, sumac, goosefoot, plantain, pigweed, and bedstraw), as well as 315 walnut, hickory, and acorn nut and shell fragments (Branch-Raymer and Wettstaed 2010). Two maize kernels were also recovered from the feature. The presence of turtle and frog remains and low wood charcoal density argue in favor of use during the late spring through fall. By way of comparison, Feature 104 produced four times as many faunal remains as the next highest feature total, more than 4.5 times as many nutshell fragments as the next highest feature, and produced the third highest total of charred seed remains (after Features 84 and 172).

Feature contents and radiocarbon assays from wood charcoal recovered within Feature 104 indicate it was used on at least two occasions, cleaned out, and later re-used during the Early Fort Ancient period (based on a radiocarbon assay of A.D. 1160-1270 (2σ)). Not only were Features 84 and 104 the only features that were unequivocally reused, but also the abundance and diversity of both ceramic artifacts and charred plant remains from Features 84 and 104 stand in stark contrast to all other features from the site. Together these features produced six of the eight maize kernels or cupules recovered from the site, and they are the only features that contained more than four different types of edible seeds. Also of note is the fact that maygrass accounts for 92 percent and 94 percent, respectively, of the charred seed remains from each of these features. In addition to the impressive amount of FCR and the abundant and diverse archaeobotanical and zooarchaeological remains recovered from Feature 104, this feature also produced a few exotic artifacts, including a deer ulna bone awl, a complete beaver skull, and two conjoinable fragments of an etched slate gorget (Figure 11) (Stevens and Lloyd 2010).

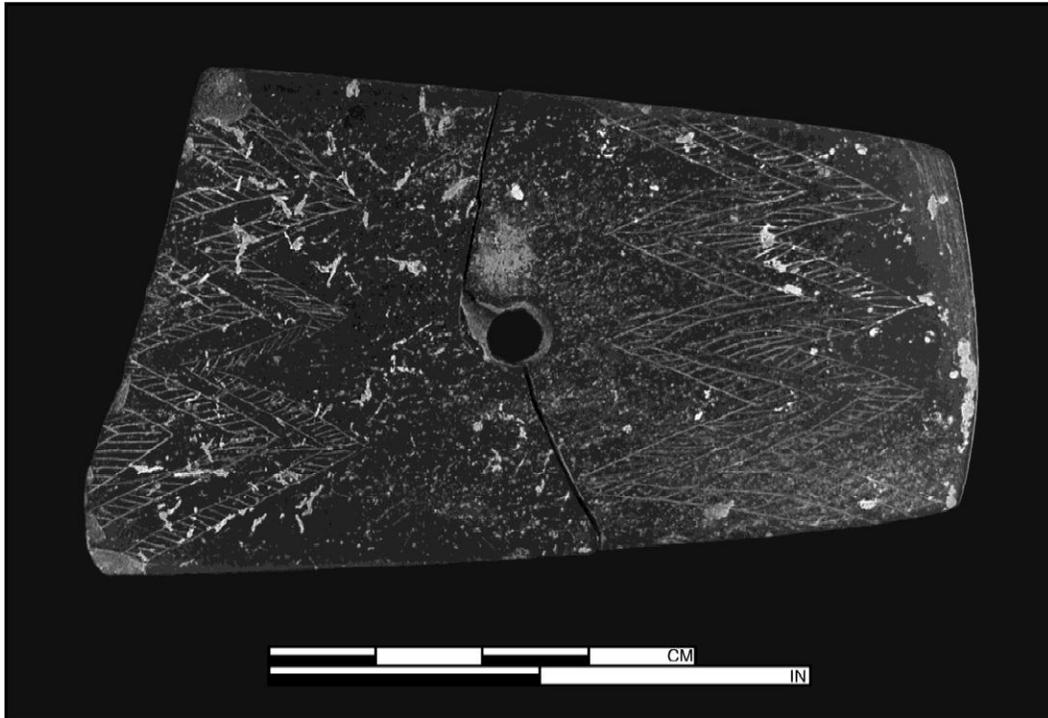


Figure 11. Ground slate gorget with etched chevron design recovered from Feature 104.

The gorget from 12Fr336 resembles the Chilton-style gorgets (i.e. oblong to sub-rectangular slate gorgets originally defined from the Chilton site in Kentucky, but common in late Middle Woodland and Late Woodland sites in Ohio and Kentucky) in shape and size, but the etched design (i.e., horizontal chevron-shaped narrowly incised lines) is not common on Chilton-style gorgets. Other sites containing Chilton-style gorgets include Rogers Mound, Newtown, Chilton, and Philo Mounds. Seaman and Dancey (2000:601) note a marked decline in extra-regional trade relations during the early Late Woodland period, and in particular they note a decline in the trade of Ohio Pipestone and Flint Ridge and Upper Mercer chert. However, they also argue that the exchange of distinctive gorgets was important in maintaining regional relationships in the Middle Ohio Valley during the Late Woodland. Finely crafted slate gorgets and elbow pipes, manufactured from Ohio Pipestone, continued to be exchanged in the Middle Ohio Valley throughout the Late Woodland period.

Given the large size of Feature 104, the large number and diversity of ceramics and lithics, the abundance and diversity of floral and faunal remains, and the large amount of FCR (307 kg) recovered from Feature 104, JMA believes that this feature served some type of feasting or ceremonial purpose during the late Late Woodland. Ritualistic feasting has been used to describe the archaeological materials recovered from the sub Mound 51 borrow pit at Cahokia (Fritz and Lopinot 2007; Kelly 2001; Kelly and Fritz (2006); Pauketat et al. 2002). The archaeological materials recovered from the sub Mound 51 feature included exceptionally large numbers (more than 10,000) of carbonized seed remains, faunal remains, and broken pots, as well as many finely crafted exotic objects. The contents from sub Mound 51, which is dated to

ca. A.D. 1050, are interpreted as the remains from communal gatherings for ceremonial events and ritual feasting (Fritz and Lopinot 2007; Kelly 2001; Kelly and Fritz 2006; Pauketat et al. 2002). Of note, starchy seeds, and in particular maygrass, account for over 58 percent of the selected plant count at the feature while maize accounts for only 1.2 percent of the plant assemblage.

Summary of the Late Woodland Component at 12Fr336

Based on the ceramic assemblage, notably the Rogers Plain and Cordmarked ceramics (ca. A.D. 450-800) and the Argosy Plain and Cordmarked ceramics (ca. A.D. 800/850-1100), and associated radiocarbon assays, Site 12Fr336 appears to have been occupied sporadically during the early Late Woodland (ca. A.D. 660-780) and late Late Woodland (ca. A.D. 880-1040) periods. Comparison of the late Late Woodland ceramics from 12Fr336 with contemporaneous ceramics from the Argosy sites and other sites near the confluence of the Great Miami and Ohio rivers indicates these ceramics share a number of attributes, including, but not limited to, type (limestone) and percentage (25-50 percent) of aplastics in the paste; vessel size and shape (conoidal to sub-globular); surface treatment (primarily cordmarked but also smoothed over cordmarked and plain); rim decoration (generally undecorated but about 30 percent of vessels exhibit a single row of punctuations below the lip); and lip decoration (primarily diagonal cordmarkings across a square, flat lip). The studies by Clay and Kerr (2005) suggest that the very thick limestone-tempered, cordmarked ceramics in southeastern Indiana, southwestern Ohio, and northern Kentucky that date between ca. A.D. 800/850-1100 do not resemble “Newtown” ceramics as originally defined from the Newtown site and other nearby sites in southwestern Ohio. Clay and Kerr (2005) refer to the ceramics described above as Argosy Cordmarked and Argosy Plain, and the authors of this article concur with that interpretation and designation. Thus, the term “Newtown” ceramics does not apply to the late Late Woodland pottery in lower Whitewater River and the confluence region of the Great Miami and Ohio rivers between A.D. 800/850 and 1100.

Archaeobotanical remains and the zooarchaeological remains indicate the occupations associated with each cultural period were short-term, warm-season (i.e., late spring-fall) occupations. This interpretation is also supported by the low density of wood charcoal recovered from the features and the lack of storage pits at the site. The number, size, and diversity of features and the size and number of structures associated with each of these occupations suggest that group size and duration and/or intensity of occupation may have increased over time. Feature 84, associated with the Rogers phase occupation, and Feature 104, associated with the Argosy ceramic occupation, suggest use during feasting events.

The community pattern that emerges at 12Fr336 is a short-term, warm-season occupation, with small, single-family household structures situated around the outside of a circular or ovoid midden or central plaza. Unlike other Late Woodland occupations that are described in the literature as “short-term and warm season,” this site appears to have served in the capacity as a feasting or ceremonial location during one or more of the late Late Woodland occupations. That is, based on feature patterning, the nature and amount of contents recovered

from Feature 104 (including exotic artifacts), six radiocarbon assays with calibrated intercept dates within a 40-year period (A.D. 970 to 1010), and the fact that over 75 percent of the ceramic assemblage consists of Argosy Cordmarked ceramics, it is argued that the primary occupation at 12Fr336 was a late Late Woodland habitation (ca. A.D. 1000) that served in some capacity as a communal or integrating mechanism associated with a ceremonial event that included feasting for a small group of people that were not operating within the customary framework of Ohio Valley Fort Ancient settlement and subsistence systems.

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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 1,500 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 1,000 A.D.

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 1,000 A.D. until possibly as late as 1650 A.D. 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.