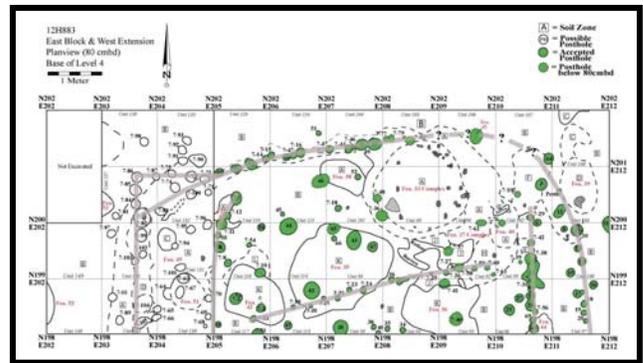


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Division of Historic Preservation
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Indiana Department of Natural Resources

Robert E. Carter, Jr., Director

Division of Historic Preservation and Archaeology (DHPA)

James A. Glass, Ph.D., Director

DHPA Archaeology Staff

James R. Jones III, Ph.D., State Archaeologist

Amy L. Johnson

Cathy L. Draeger-Williams

Laura R. Black

Cathy A. Carson

Editors

James R. Jones III, Ph.D., State Archaeologist

Amy L. Johnson, Senior Archaeologist and Archaeology Outreach Coordinator

Editorial Assistance

Cathy A. Carson

Publication Layout:

Amy L. Johnson

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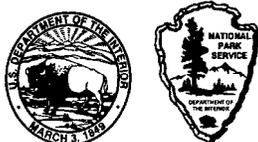
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For further information contact:

Division of Historic Preservation and Archaeology
402 W. Washington Street, Room W274
Indianapolis, Indiana 46204-2739
Phone: 317/232-1646
Email: dhpa@dnr.IN.gov
www.IN.gov/dnr/historic



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INTRODUCTION

This is the fourth, and first electronic, volume of *Indiana Archaeology*, a journal designed for the professional archaeologists and the public. This fourth volume presents a variety of articles which highlight some of the exciting archaeological discoveries which have been occurring in the Hoosier state. The focus of the journal is slightly different than in previous volumes. The articles are written for a broader audience, scholars and professionals alike. In order to share information regarding the archaeology which is being conducted using monies from the United States Department of the Interior, National Park Service's Historic Preservation Fund (HPF), administered through the Division of Historic Preservation and Archaeology, a requirement of each Indiana archaeology HPF grant was to submit an article summarizing the goals and accomplishments of the project. The target audience includes the general public, professional archaeologists, avocational archaeologists, and anyone else interested in the history and prehistory of Indiana. Additional articles (Johnson, and Ross-Stallings et al.) on archaeological topics or projects which did not utilize HPF funds are also included.

An overarching goal is to provide access for everyone to information about archaeology and past cultures in Indiana. Everyone has an interest—indeed a stake—in the past, and is continually influenced by history, whether familial, local, regional, state, national, or global. In one way, archaeology can be viewed as a local discipline, recording local artifacts, features, sites, cultures, and history that many cultures, groups, residents, former residents, and/or relatives feel closest to. Thus, archaeology and the information it recovers (and interprets) must be widely and locally available. Everyone has a connection to the past, whether based on the individual, family, culture, tribe, occupation, avocation, scientific, or other interests exist, and it is our responsibility as stewards to record, archive, maintain and make available our history.

This journal continues a tradition of scholarly research and important contributions to the science of archaeology. The topics are specific to Indiana but they also have importance in the broader context of Midwestern archaeology. For those who have not seen the previous periodic volumes of *Indiana Archaeology*, we are pleased that you have found this one. We hope that you find the articles informative and that they will pique your interest in helping to preserve and protect the irreplaceable archaeological resources in our state. We invite professional archaeologists, professionals in fields related to archaeology, avocational archaeologists, and knowledgeable nonprofessionals to submit articles for publication.

The editors wish to thank all of the authors who contributed to this project. We appreciate the important work which you are doing in our field. The articles cover a wide range of research topics, educational projects and matters, and past cultures in Indiana, from Early Archaic times to the mid-nineteenth century.

Rick Burdin investigates general modes of adaptation over three millennia for Mid-Late Archaic hunting-gathering groups living on the Ohio River in southern Indiana. His account of archaeological investigations at the Breeden and Overflow Pond sites, shows, among other things, changes in subsistence strategies from emphasis on hickory nuts and freshwater mussels to more emphasis on starchy seed plants (pp. 15, 31), and resulting changes in community and settlement patterns. Sites such as these, and the information they contain, are endangered by erosion and unauthorized digging.

Stream valleys, such as the Stony Creek Valley in Hamilton County, are threatened by development and resource use, and recording sites in these lesser-known areas affords more protection and knowledge of archaeological resources therein. Smith, McCord, and Cochran's

survey of this area archaeologically surveyed some 400 acres in the drainage, and 168 new sites recorded, ranging from Early Archaic through Late Prehistoric in time. A notable number of sites with Early Archaic bifurcate points were found. In comparison to known prehistoric occupations in the White River Valley, site occupation in the Stony Creek Valley tends to be of shorter duration and less intensive. The relationship of Fall Creek chert to Jeffersonville chert was also investigated.

Wells and McCullough discuss a regional survey and site analysis in Clark County using remote sensing, traditional survey and excavation methods, statistical analyses, and GIS, to record and analyze archaeological sites and cultural occupations in the county. One hundred thirty-one new sites were recorded, 12 of them Mississippian. In analyzing previously and newly recorded Mississippian sites, the authors demonstrate a focus on upland settlement, which is counter to the traditional Mississippian focus on bottomlands. They also viewed Mississippian through the lens of a specific site, the Smith-Sutton Farm site. Geophysical investigations and limited test excavations at the latter indicated possible village type structure, including a possible ritual alignment of the site related to the winter solstice. The importance of macro (regional) to micro (local, site specific) studies in archaeology is emphasized by such research programs.

The Strawtown Enclosure, a unique earthworks and village site in Hamilton County, discussed in McCullough, is an archaeological site that reflects three Late Prehistoric cultures: Anderson Phase Fort Ancient, Oneota, and Western Basin Tradition. This is a site with a circular earthwork and ditch that had a plaza, task areas, residential/occupation area, storage pits and midden, and palisade (pp. 94-96). This is an excellent example of a long-term research program at specific archaeological sites, as well as placing them into a regional perspective of Late Prehistoric sites in the Forks of the White River region. The enclosure site affords an opportunity to study cultural interaction in a prehistoric frontier situation, as well as the organization and structure of a Late Prehistoric community. A significant aspect of the archaeological investigation is the public education component, where thousands of members of the public, including large numbers of students, are able to experience archaeology at a variety of levels of participation. The material and information recovered from the excavations are available to the public in a museum setting, public participation, and publications.

Andres, McCullough, Strezewski, and McCullough review efforts to discover two historic forts in Fort Wayne, Indiana. This was a historic and urban archaeology initiative to find the sites of the French Fort St. Philippe Des Miamis (1722) and the American Fort Wayne (1794) through historical documentation, remote sensing, and archaeological survey and test excavations. Although the fort sites were not determined in this initial effort, artifacts from, or possibly dating to, the 18th century, including glass trade beads, copper alloy fragments, an iron arrow point, an olive green glass bottle sherd, and a lead bale seal were found in this urban setting. These could reflect at least contemporaneous 18th century occupations in the vicinity of the forts, and certainly emphasize that archaeological remains related to these important historical resources may still remain in, or under, the city.

The Archaeology Month public education project (McGill and Munson) at the Hovey Lake site (12Po10) in southwestern Indiana is an example of a collaborative archaeological effort to educate students (especially fourth grade), teachers, and the public about archaeology using various methods such as an excavation open-house, archaeology learning kits, exhibits, presentations, printed materials, and a website (pp. 133-146). Undergraduate and graduate students also assisted in the project. Assisted by an HPF archaeology education grant, this project incorporates research and education to impart basic concepts about archaeology (pp. 134-135;

Hawkins 2000:213, cited in McGill and Munson, pp. 134-135). The excavations investigated the site palisade and a burned house floor, providing information about community structure and defense.

Amy Johnson summarizes the archaeology outreach efforts in Indiana, of the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, the lead archaeological agency in the state, and the many partners and groups conducting archaeology outreach. The Division is the organizer of Indiana Archaeology Month, the state-wide public celebration of Indiana archaeology that takes place every September. Archaeology Month has grown every year since its inception in 1996 as the then Archaeology Week. The Division conducts numerous public outreach efforts in archaeology, including presentations, training of state employees and DNR law enforcement officers, publications, partnerships for recording and managing archaeological resources, an annual historic preservation conference, and Historic Preservation Grants for identification and evaluation of archaeological sites. Many other groups expend considerable effort, time, and resources to conduct notable outreach efforts in Indiana. These include universities and their associated centers, laboratories, and surveys; various state agencies; museums; federal agencies; counties; parks; powwows; cultural resource management firms; avocational groups; libraries; and many others.

The relocation, in Indianapolis, of the mid-19th century Wright-Whitesell-Gentry Cemetery from a congested interstate interchange situation to the notable Crown Hill Cemetery is a good example of a collaborative effort involving state agencies, an engineering firm, a cultural resource management company, a university, cemetery officials, a historical society, and the relatives/families of those interred. The complexities, legalities, science, and respectful relocation of human remains are indicated in the article. Ross-Stallings, Koepfel, Nawrocki, Peterson, and Kienitz explain the intricacies of an unavoidable relocation of a cemetery for a road expansion project, where history, scientific recovery and analysis, public outreach, media interest, and family interests and concerns were integrated into a successful endeavor. Unmarked burials were discovered, and the human remains and gravestones relocated to a peaceful, secure, and perpetual location in the pioneer section of Crown Hill Cemetery. The original arrangement of the Wright-Whitesell-Gentry Cemetery was mirrored in their new location at Crown Hill (p. 201). This successful project resulted in the 2008 Section 106 Achievement Award to the Indiana Department of Transportation.

For those who may not be familiar with some archaeological terms, a helpful glossary of some of these general terms is also 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 might wish to visit an archaeological site, feel free to access our Indiana archaeological travel itinerary (http://www.in.gov/dnr/historic/files/_travelsarchaeo.pdf). You are also urged to participate in the annual Indiana Archaeology Month in September.

--JRJ, ALJ

PRELIMINARY RESULTS OF THE 2007 INVESTIGATIONS OF TWO LATE MIDDLE TO LATE ARCHAIC (CA. 6000-3000 B.P.) SITES IN HARRISON COUNTY, INDIANA: THE BREEDEN (12Hr11) AND OVERFLOW POND (12Hr12) SITES

Rick Burdin
Ph.D. Candidate
University of Kentucky
Lexington, KY

Note: This article uses B.P (before present). By professional agreement, present was established to be AD 1950 based on radiocarbon dating. For example, 1000 B.P. means 1000 years before AD 1950 or AD 950.

In 2006, a research project was designed to address several questions about prehistoric hunters and gatherers who lived in the Lower Ohio River Valley during the Middle-Late Holocene (8000–3000 B.P.). This period coincides with the late Middle and Late Archaic periods in the North American Midcontinent. The project was designed to examine particular aspects of the emergence of sociocultural complexity among these societies (Arnold 1996; Price and Brown 1985). Based on previous studies (Burdin 2004; Bellis 1972), the Overflow Pond area (Figure 1), situated along the Ohio River in Harrison County, Indiana was selected as the initial research area to begin addressing such questions. Archaeological investigations of the project area were initiated in the summer of 2007 and a variety of information was collected from two sites that contain well-stratified deposits: the Breeden site (12Hr11) and the Overflow Pond site (12Hr12). The project was supported with a National Park Service Historic Preservation Fund Grant administered by the Indiana Division of Historic Preservation and Archaeology.

The results of the 2007 investigations (Burdin 2008) demonstrate that the Overflow Pond site was an extremely significant location of Archaic hunter-gatherer life, and important information has been obtained about the groups who lived there during the latter part of the Archaic period. Because the 2007 investigations were extensive, herein a summary of these investigations is provided along with some initial observations and interpretations.

Figure 1. Overflow Pond area.



Background and the Project Area

Hunter-gatherer use of the unglaciated portion of the Lower Ohio Valley during the Late Middle and Late Archaic (ca. 8000-3000 B.P.) has been understudied, and what has been accomplished primarily has been driven by modern development plans/activities. Results are two-fold: first, there has been no systematic study of Archaic hunter-gatherer adaptation in this critical region of the Midcontinent; second, although strategically located along the main trunk of the largest drainage system in Eastern North America, attempts have not been made to place sites situated in this part of the river valley within the interior riverine adaptive pattern documented in other regions of the Midcontinent. In sum, little is known about the Late Middle-Late Archaic occupation of the unglaciated portion of the Lower Ohio River Valley. Consequently, little information exists to answer basic questions about the nature and extent of deposits within such sites, the settlement and subsistence practices of the people who lived at these locations, or how these groups fit socially within the wider regional context of Midcontinental hunter-gatherer life.

About 20 kilometers downriver from the Falls of the Ohio, the Mississippian Plateau (Mitchell Plain in Indiana) marks the beginning of the unglaciated portion of the Lower Ohio River Valley. It is characterized by karst topography with hundreds of caves, springs, and thousands of sinkholes. This portion of the valley is a narrow section of the Ohio River drainage that has relatively steep valley walls, small floodplains, and Pleistocene terrace systems scattered along the valley floor. Many of these floodplain and terrace settings are situated where secondary streams join the Ohio River.

Uplands in this portion of the river valley are characterized by their dissected nature (Figure 2) with numerous deep-cutting streams (Figure 3) cross-cutting the area. As a consequence, high quality Mississippian chert formations have been exposed (Figure 4), which were used extensively by prehistoric groups. To the west, an area that consists of limestone and sandstone hills delineates the Crawford Uplands from the Mississippian Plateau. Farther west, the unglaciated part of the Lower Ohio River Valley is generally bounded by the Anderson River at Tell City, Indiana.



Figure 2. Dissected topography.

Figure 3. Secondary stream valley.



Figure 4. Chert outcrop.

The research area is characterized by the presence of a small floodplain at the confluence of a creek and the Ohio River. Farther inland, Pleistocene terraces are present, which grade into the tow slopes of the steep valley walls. Within this setting, the only oxbow impoundment in the unglaciated part of the river valley is present and is commonly referred to as the Overflow Pond. Prior to these investigations, the area was best known for its Early Archaic occupation (Swan's Landing site; Smith 1995). Parts of the area had been archaeologically surveyed, but the only previous subsurface investigations conducted in the current research area were confined to the Breeden Site (Bellis 1972). The portion of the site investigated by Bellis has now been entirely eroded away as a result of higher water levels caused by the construction of the High Lift Navigational Lock and Dam system. Including the Swan's Landing, Breeden, and Overflow Pond sites, 17 prehistoric sites were documented in vicinity of the project area, but most are currently of unknown cultural affiliation. Three previously unknown prehistoric sites were documented during these investigations.

The 2007 investigations were designed, in general, to conduct a survey of the Overflow Pond site and the surrounding floodplain, to excavate a limited number of test units at the site, and to obtain a comparative sample of cultural materials from the nearby Breeden site (12Hr11). Because of the field conditions encountered, the entire project area was surveyed (175 acres) and excavations at the Breeden site were expanded. As the major focus of the current project, investigations at the Overflow Pond site were more intense and included surveying and mapping, a geophysical survey, collecting a sample of surface materials, the excavation of 22 soil auger tests, and hand excavation of five test units. A sample of the data from both sites is described and includes a summary of the stratigraphic contexts of deposits, the chipped stone assemblages, the results of the ethnobotanical analysis, and the radiocarbon date sequence.

Investigations of the Breeden Site (12Hr11)

Two 1 m x 2 m test units were excavated perpendicular to the eroded river bank. Data collected from Test Unit 1 are provided since it was excavated to the limit of the shell midden deposits at 1.52 m below the surface. Three prehistoric features present at this level were excavated to about 2.03 m below the surface. As a result, the deposits documented in Test Unit 1 represent the entire sequence of the Late Middle Archaic shell midden phenomenon. In profile (Figure 5), nine distinct cultural strata are visible.

These strata represent four episodes associated with the development of the Late Middle Archaic shell midden (Levels 6-10), a Late Archaic occupation (Level 5), a rock-filled midden that might be related to a Late Archaic-Early Woodland occupation (Level 4), an Early-to-Middle Woodland occupation (Level 3), and two stratigraphically distinct, but mixed historic/prehistoric occupations (Levels 1 and 2). Within the shell midden, four distinct strata were present. The presence of well-stratified deposits in shell middens is not common in Eastern North America. As a result, a sense of the timing of the onset, intensification, and decline of the shell midden phenomenon during the Late Middle Archaic in the Lower Ohio River Valley can now be articulated and can be compared with that observed in other parts of the Midcontinent.

In addition to the presence of these cultural strata, twelve anomalous stains were encountered during unit excavation. Of these, three were determined to be root disturbances, and one was an amorphous midden stain. Eight were intact cultural features consisting of one historic feature and seven prehistoric pit features. The seven prehistoric features varied in size and depth, but all were circular-to-oval in plan view and had bowl- or basin-shaped cross sections.

Within the well-defined stratigraphic sequence documented in Test Unit 1, chronological changes in both the kind and frequency of major artifact categories can be examined. A total of 5,725 artifacts was collected from Test Unit 1. Of these, 24 were temporally diagnostic consisting of projectile points ($n = 19$; e.g., Figure 6), hafted end-scrapers ($n = 2$), and three ceramic sherds (Table 1). The stratigraphic context of these artifacts indicates a lengthy prehistoric occupational period extending from the Late Middle Archaic (ca. 5700 B.P.) to the Middle Woodland (ca. < 2500 B.P.) during which the shell-bearing deposits (~ 37 percent of all cultural materials) represent the most intense occupational episode.

Beginning at Level 5 (the first discernable intact stratum), a 25 cm x 25 cm fine screen column was established in the southwest corner of the unit from which 10 cm thick flotation samples were obtained. Four of these samples were selected for further analysis, including ethnobotanical and radiocarbon dating. They included: one sample from Level 5, the Late Archaic Occupation; one from Feature 14, Level 7, Stratum 2 of the Shell Midden; one sample from Level 8/9, Stratum 3 of the shell midden; and one sample from Level 10, Stratum 4 of the shell midden representing the first episode of mussel shell accumulation.



Figure 5. West profile of Test Unit 1.

Figure 6. Level 6 projectile points: a) Matanzas; b) Matanzas; c) Matanzas; d) Brewerton Eared Triangle.



Table 1. Stratigraphic Distribution of Temporally Diagnostic Materials from Test Unit 1.

Excavation Level	Point Type	Justice (1987) Dates (B.P.)	Mid-Point (B.P.)	Culture Historic Period
Surface	Motley	3000-2500	3750	Early Woodland
Surface	E. Woodland Stemmed	3300-2400	3750	Early Woodland
2	Grit & Grog Tempered Decorated Ceramic Sherd	NA		Early Woodland
2	Grit & Grog Tempered Plain Ceramic Sherd	NA		Early Woodland
2	Falls Plain Ceramic Sherd	NA		Middle Woodland

2	Saratoga Broad Blade	4000-2650	3325	Late Archaic-Early Woodland
3	Snyders	2130-1800	1965	Middle Woodland
5	Late Archaic Stemmed	5700-5000	5350	Late Archaic
5	Late Archaic Stemmed	5700-5000	5350	Late Archaic
6	Matanzas	5700-4000	4850	Late Archaic
6	Matanzas	5700-4000	4850	Late Archaic
6	Matanzas	5700-4000	4850	Late Archaic
6	Brewerton Eared Triangle	4890-3723		Late Archaic
6	Raddatz	8000-5000	6500	Late Middle-Late Archaic
6	Karnak Stemmed	5700-5000	5350	Late Archaic
6	Unidentified Side Notched	8000-5000	6500	Late Middle-Late Archaic
6	Brewerton Eared Notched*	4980-3723	4350	Late Archaic
6	Table Rock*	5000-3000	4000	Late Middle-Late Archaic
7	Unidentified Side Notched	8000-5000	6500	Late Middle-Late Archaic
7	M-L Archaic Side Notched	8000-5000	6500	Late Archaic
8/9	Raddatz	8000-5000	6500	Late Middle-Late Archaic
8/9	Raddatz	8000-5000	6500	Late Middle-Late Archaic
8/9	Graham Cave	10000-7500	9750	Early - Middle Archaic
8/9	Raddatz	8000-5000	6500	Late Middle-Late Archaic
8/9	Raddatz	8000-5000	6500	Late Archaic
10	Unidentified Side Notched	8000-5000	6500	Late Middle-Late Archaic
10	M-L Archaic Side Notched	8000-5000	6500	Late Middle-Late Archaic

*Hafted End Scraper

Botanical Analysis

Based on the analysis of the botanical remains collected from these fine screen samples, the stratigraphic sequence of plant usage at the Breeden site suggests that initially, the procurement and use of hickory nuts was a primary factor for occupying the site. Through time, the harvesting

of freshwater mussel and floodplain weedy plants became more important. By the Late Archaic (ca. 4800 B.P.), the intensive use of freshwater mussel had declined and the exploitation of other resource-rich settings resulted in a shift in both settlement locations and the addition of a variety of new plants to the diet.

The use of plants during the earliest occupations (Levels 8/9 and 10) of the Breeden site reflects a focus on hickory nuts and a medium use of a variety of wood. Ninety-six percent (n = 44/46 specimens) of nutshell was present in these levels suggesting that one of the initial reasons people occupied the site was due to the availability of hickory nut. The only carbonized seeds present were from wild plants that would have been present in vicinity of the site. Mussel shell was present in a moderate density indicating that the occupants were supplementing their reliance on nut-bearing trees with these aquatic resources. Eighty-one percent (n = 79/97) of wood remains occurred in these levels. Overall, a medium diversity of plant usage is reflected by the assemblage, but is somewhat skewed by the large amount of nut present.

Above these earlier occupations, Level 7 represents a continuation of the moderate use of mussel, but was also a period of intense burning as indicated by a very high amount of charcoal and oxidized clay. Interestingly, the remains of nutshell (two percent of total) and wood (11 percent of total) decrease significantly. On the other hand, 45 percent of all plant seeds recovered and all of the wild chenopodium (n = 2) documented was collected from this level. This might be reflective of the short-term nature of the occupation represented by Level 7 (only 7 cm thick). However, it also reflects the first appearance of starchy, seed bearing plants and might signal the initial recognition of such plants as a food resource.

Whatever the apparent shift in activities as indicated by the botanical assemblage, it began around 5620 B.P. \pm 80 (ISGS #6249) when the intense use of freshwater mussel significantly declined (Level 7). By 4850 B.P. \pm 110 (ISGS #6252), the Late Archaic occupation (Level 5) became less intensive at the Breeden site. Because a low density of nutshell (two percent of total) and only two seeds of non-edible plants were recovered from this level, it is inferred that the use of plants like chenopodium declined, or for some unknown environmental factor, was no longer widely available in the vicinity of the site. Another possibility is that people had shifted their settlements to other locations, such as wetland settings, and had started to take advantage of different plant regimens.

Radiocarbon Dates from the Breeden Site

Radiocarbon analysis of charcoal samples was focused on the earlier hunter and gatherer use of the site. Four conventional radiocarbon dates (Table 2) were obtained from charcoal collected from the same floatation samples as were the botanical remains (Levels 5, 7, 8/9, and 10). Stratigraphically, these samples correspond to the earth midden-like stratum immediately above shell midden deposits (Level 5) and three strata within the shell midden component (Levels 7, 8/9, and 10). While the date from Level 8/9 appears to be chronologically out of sequence, it was derived from charcoal samples collected from the bottom of Feature 14, which originated in Level 7. As such, the radiocarbon date obtained from Feature 14 is consistent with the date directly associated with Level 7 (5420 \pm 100 B.P. and 5620 \pm 80 B.P., respectively).

Table 2. Radiocarbon Dates from Test Unit 1, 12Hr11.

Provenience	Depth (cmbs)	ISGS #	Material	¹⁴C age	±	Stratum
Level 5	74-84	6252	Charcoal	4850	110	Midden Above Shell
Level 7	114-124	6249	Charcoal	5620	80	Shell Midden Stratum 2
Level 8/9	162-172	6250	Charcoal	5420	100	Shell Midden Stratum 3*
Level 10	152-162	6248	Charcoal	5750	70	Shell Midden Stratum 4

*Feature

The dates obtained from the well-stratified deposits at the Breeden site demonstrate that the shell midden phenomenon was the result of people harvesting freshwater mussel at increasing intensities over a period of several centuries. From a regional perspective, if the Breeden site is typical of other shell midden locations in the main trunk of the Lower Ohio River Valley, the shell midden phenomenon occurred somewhat earlier (ca. 5750-4850 B.P.) than in other parts of the region like the Green River in Kentucky (5500 B.P.-4250 B.P.; Marquardt and Watson 2005, Table 6.1). This might be attributed to the differences in the timing of the stabilization of river regimens and the establishment of shoals.

The 2007 investigations revealed not simply a continuation of Archaic occupation within the research area, but also major shifts in settlement and subsistence patterns during the final stages of the Archaic period. These shifts are evident at the Overflow Pond site, situated about 500 m to the southeast on a low terrace and adjacent to the Overflow Pond (a wetland-like setting).

Investigations of the Overflow Pond Site (12Hr12)

Prior to these investigations, an estimated site boundary had been established, and the site was characterized as a “shell midden” (Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology Site Files). However, as a result of the 2007 investigations, what we now know is that the Overflow Pond site is much larger than previously known (ca. 60,000 m²), perhaps encompassing site 12Hr419 at its northern limit; it is primarily an earthen midden site (ca. 21,000 m²) with evidence of limited mussel shell usage; and that its major occupation occurred during the Late Archaic from about 4900-4300 B.P (Figure 7; site map).

The current research was designed to begin answering questions about the often cited “complex” character of Late Archaic hunting and gathering societies. For example, if a hunting and gathering society had indeed become more socially and culturally complex, then there should be archaeological evidence of multiple intense behaviors and spatially discrete organization of specific activity areas detectable within site boundaries. In addition, specifics were sought that would provide insights on the timing and tempo of the onset of these kinds of more complex and/or intense behaviors.

Other than previous law enforcement-related evaluations, the site had not been professionally studied prior to these investigations and as a result, little was known about the extent and nature of cultural deposits. To begin answering basic questions about the characteristics of the site, four methods were used. First the site was surveyed, which consisted of mapping and defining two dense artifact concentrations, a large area of lithic material around these distinct site elements, and an historic occupation including an historic cemetery that dates to the early 19th century. Second, after establishing a 20 m x 20 m site grid, a series of 22 hand-excavated soil tests were placed across the suspected midden area of the site to determine the stratigraphic characteristics of both cultural and natural deposits. Concurrently with the excavation of soil tests, a controlled 100 percent collection of surface materials within the midden area was completed using 12 collection areas that were 10 m in diameter situated along the north-south and east-west baselines of the site grid (Figure 8).

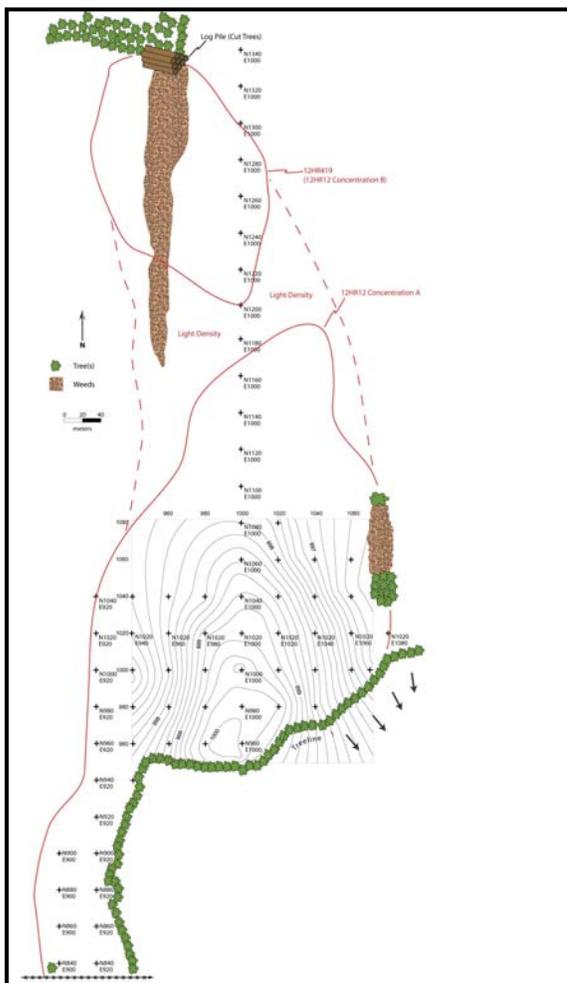


Figure 7. Map of the Overflow Pond Site boundary.

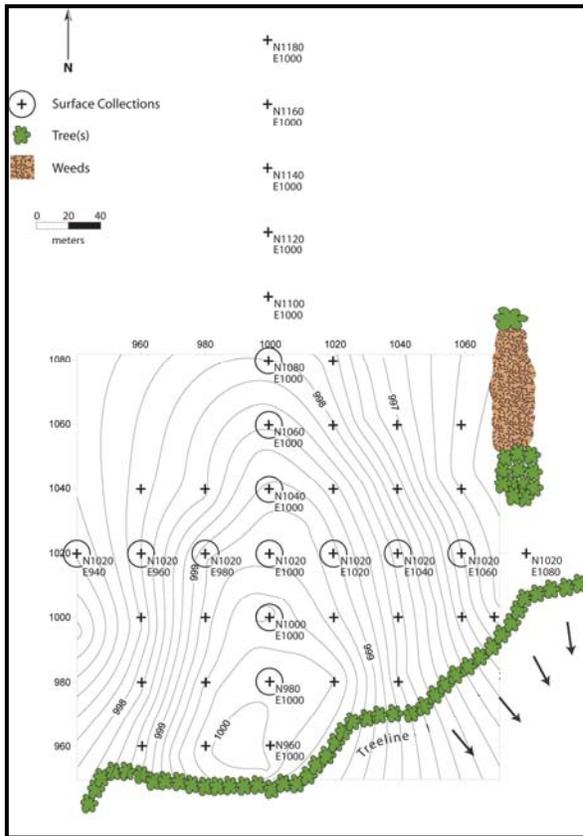


Figure 8. Controlled surface collection areas.

Third, a geophysical survey of 12 of the 20 m grids was conducted to gain a sense of the location and distribution of subsurface anomalies within the midden area of the site. Finally, based on the results of the above methods, five test units were hand-excavated in various locations within or near the earth midden portion of the site.

Geophysical Survey of the Overflow Pond Site

Two geophysical techniques were used at the Overflow Pond site: conductivity, which was inconclusive, and magnetometry, the results of which are shown in Figure 9. The extreme positive readings are shown in red and the extreme negative readings are shown in blue. The pairing of red/blue readings further highlights anomalies that are due most likely to ferrous objects.

The ferrous anomalies include a possible fence line in the north portion of the survey area and possible remains of a historic barn in the south portion of the survey area. In addition, a linear-like feature in the southeast portion of the site may be evidence of a farm road that once approached the barn.

Figure 10 shows only the highest positive anomalies after removing anomalies with lower readings like the “iron spike” features. While these lower readings cannot be interpreted as meaning that prehistoric features are not present, the high positive anomalies shown in Figure 10 are interpreted as the best candidates for prehistoric features. Two of these positive anomalies were partially excavated during these investigations.

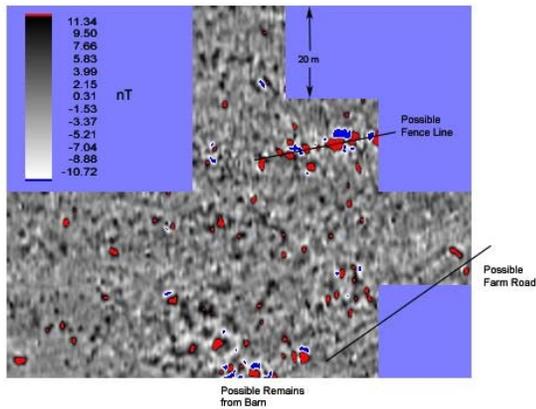


Figure 9. Results of the gradiometer survey.

In addition to the identification of these potential prehistoric features, the high positive anomalies also appear to cluster within parts of the surveyed area of the site. What these possible clusters of anomalies might suggest is unknown, but the potential significance might be related to longer or more frequent occupations of the site. If these possible clusters appear to have served different functions, a more formal site organization may be inferred. Finally, these clusters might represent distinct occupational episodes or the presence of more than one group during a single use event at the site. Future investigations will be designed to further document the presence or absence of such clusters. If present, feature types, functions, and distributions must be identified and eventually individual clusters must be compared to one another.

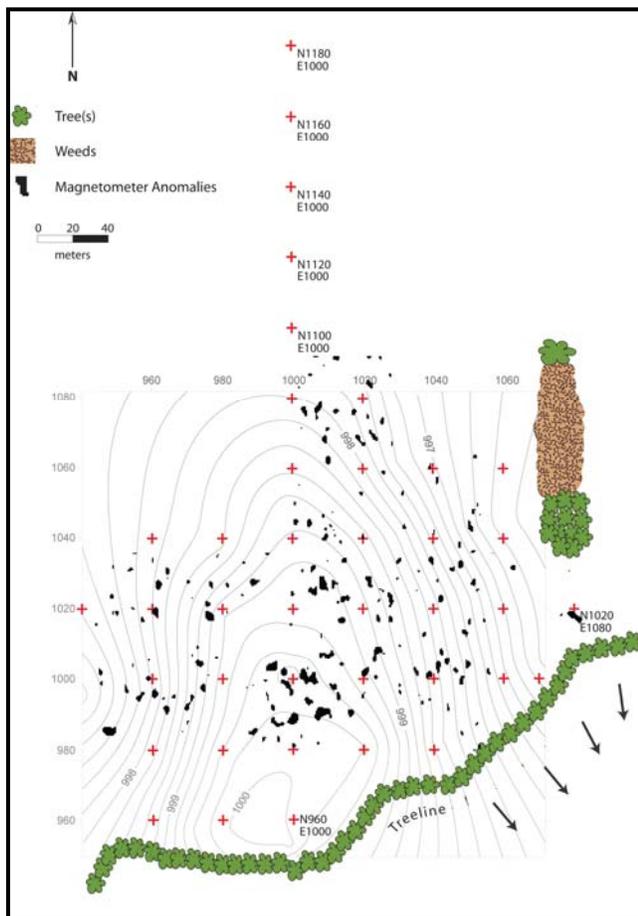


Figure 10. Distribution of high positive anomalies.

Excavation of Test Unit 1 at the Overflow Pond Site

Test Unit 1 was excavated to investigate the largest anomaly detected during the geophysical survey (Figure 11). The unit was excavated in four levels that represent three distinct cultural strata: a plowzone that consists of midden materials, a prehistorically disturbed stratum, and an intact midden stratum below which significant intact features were encountered. The overall integrity of these cultural strata is evident in all four test units excavated within the midden area of the site (e.g., Figures 12 and 13).

Below the midden deposits, significant features were documented in these four test units. Like at the Breeden site, the integrity of these deposits allows the examination of how the site was occupied and used through time as reflected by the stratigraphic context of cultural deposits.

Stratum 1 consists of the plowzone, but as previously stated, it contains a historically mixed prehistoric midden resulting from modern agricultural practices. Unlike most locations where modern farming has resulted in plowzones that can be greater than 30 centimeters deep, at the Overflow Pond area, such practices have been somewhat limited. Deep mechanical plowing has only been undertaken within the last decade or so and currently, the area is no longer plowed, farmers opting for a “no-till” method. Even through mixed and out of specific archaeological context, the modern practices described have resulted in minimal disturbance to the prehistoric deposits at the site compared to other such locations. Midden soils and cultural debris are present on the surface.

The characteristics of the cultural deposits themselves also contribute to the discouragement of deep, mechanical plowing. The rock content of deposits within the midden is so dense that large plows would be “kicked” out of the ground as concentrations of rock were encountered. A result is that an undulating plowzone between 10 cm and 25 cm thick is present. In light of these conditions, it can be assumed that the plowzone represents the last prehistoric occupation(s) of the Overflow Pond site, which occurred sometime after about 4300 B.P.

Based on the above assumption, plowzone artifacts represent the most intense occupational period at the Overflow Pond site and constitute over 56 percent of the cultural materials collected from Test Unit 1. It also reflects the mixed nature of the deposits that contain diagnostic materials from the Early Archaic to the Middle Woodland period, plus historic debris. In profile, it is clearly visible that plowing has disturbed midden deposits.

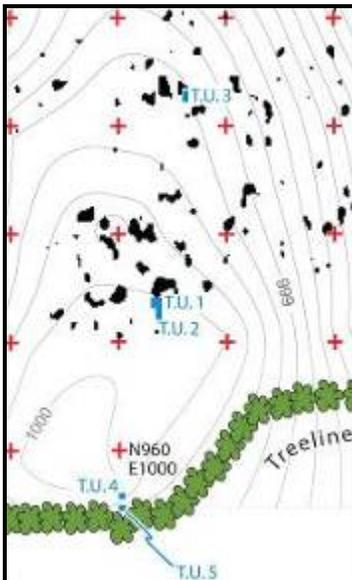


Figure 11. Location of Test Units 1 and 2.



Figure 12. Test Unit 1, west profile.

Figure 13. Test Unit 2, south profile.



Below the plowzone, Stratum 2 consists of a prehistorically mixed midden that dates to sometime between about 4600 B.P. and 4300 B.P. In some places (Figure 12), the prehistoric disturbances intruded into pit features that are present below midden deposits. During excavation of test units, these prehistoric disturbances were signaled by the presence of large areas of clay mottling that was mixed with Stratum 2 deposits. It is inferred that these areas of mottling were the result of people digging new pits through the midden into the subsoil. In addition to the prehistoric disturbance of the midden, limited evidence of historic activities intruding into the earlier deposits was documented.

Below the prehistorically mixed levels, a stratum of intact midden deposits is present (Stratum 3), which in some places has been intruded into by the activities evident in Stratum 2 (Figure 12). However, these deposits represent the earliest midden accumulating use of the Overflow Pond site, which began sometime around 4700 B.P. Below this stratum, intact features were encountered in all four test units excavated within the midden area of the site, the most substantial of which were encountered in Test Unit 1. Based on radiocarbon dates obtained from Feature 15 (Test Unit 1), the Late Archaic use of the site began as early as about 5000 B.P.

During the early stage of site occupation, the use of freshwater mussel is evident, but at a lesser intensity compared to that documented at the Breeden site. Shell deposits were present below and near the bottom of the intact midden stratum and, as encountered in Test Unit 2, pit features associated with the intact midden intruded into the shell (Figure 13).

In Test Units 2 and 3, an ephemeral cultural stratum was noted below midden deposits (Level 5). While the data collected from these units is not discussed herein, it is suggested that this stratum tentatively can be associated with an Early Archaic occupation of the site. The presence of this earlier cultural stratum might, in part, account for the presence of Early and Early Middle Archaic projectile points.

Feature 15, Test Unit 1

Feature 15 is the most substantial and significant feature discovered during these investigations. It represents the largest anomaly detected during the geophysical survey and was initially encountered in Test Unit 1 at 52 cm below surface. It was defined by the presence of a very dark, large stain situated along the north wall extending east-west across all of Unit 1 and into both the east and west walls. It had an oval/circular outline and extended southward from the north wall of the unit about 60 cm at the apex of its arch. Soil within its matrix was very dark brown (10YR3/2 to 3/1) silt loam with a moderate density of shell present near the northeast corner of the unit.

Along the edge of Feature 15, several dark circular post-like stains were present (Figure 14). One somewhat larger stain (P-17) was visible within the feature’s matrix. Each of these stains was given a post mold number (2 through 17) and excavated individually. One was a root mold (P-8) and Post 17, situated at the northwest corner of the unit within the feature matrix, was an area of heavily oxidized clay, and another post was identified in its sloping wall (P-3). Post molds were defined by the shape of their basins and other than the two non-post stains, all had bowl-shaped profiles. Post diameters ranged from between 8 cm to 17 cm (\bar{x} = 10.4 cm) and had depths from 2 cm to 25 cm (\bar{x} = 6.7 cm) deep. The two largest posts measured 17 cm in diameter and 25 cm deep (P-3), and 15 cm in diameter and 16m deep (P-13). Four additional posts measured ≥ 10 cm in diameter (Posts 4, 7, 12, and 16), but were ≤ 6 cm in depth. Charred remains collected from Post 13’s fill produced a radiocarbon date of 4940 \pm 100 B.P. (ISGS Sample # 6230).

The feature fill contained two distinct strata. The upper stratum was a dark brown (10YR3/2 to 3/3) silty loam midden soil and was about 20 cm thick. At its greatest depth it extended downward to around 80 cm below the surface. Stratum 2 contained a moderate density of mussel shell in dark yellowish brown (10YR3/4) clay loam with higher moisture content. This stratum was 30 cm thick at its deepest point (about 110 cm below the surface). Feature 15 had a bowl shaped profile with steep walls (Figure 15). After excavation was completed and the profile drawn and photographed, a 25 cm x 25 cm fine screen column was removed from the north profile wall in 10 cm levels (Figure 16).



Figure 14. Photograph showing post molds along the edge of Feature 15.

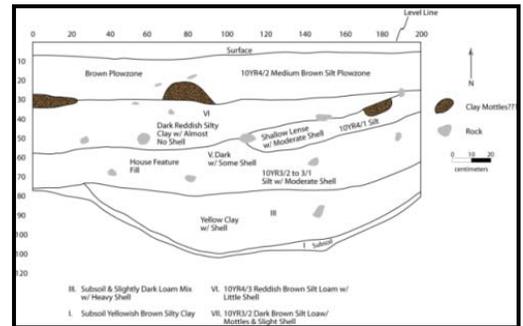


Figure 15. Feature 15, north profile.

Figure 16. Fine screen column in north wall of Test Unit 1.



A total of 442 stone and bone artifacts was collected from Feature 15. Bone preservation was excellent throughout the feature with 220 (228.7 g) specimens collected. A moderate density (12 kg) of rock was also present in Feature 15. Other than the rock, the majority of these materials were collected from Stratum 1. Of the chipped stone and bone artifacts, 89 percent (n = 395) were from Stratum 1. By weight, 64 percent of the bone materials (146.3 g) came from this stratum. The Stratum 1 artifact assemblage includes six formal and thirteen informal chipped stone tools, one bone pin fragment, and chipped stone debitage (n = 376). Formal tools include one somewhat crude, Late Middle-to-Late Archaic side notched projectile point (Figure 17), three complete bifaces, and three cores. Informal tools include one scraper and five blades. While bone preservation was good, the only bone implement collected from Stratum 1 was an undecorated fragment of a bone pin.



Figure 17. Late Middle/Late Archaic Side Notched projectile point (Stratum 1, Fea. 15).

Compared to Stratum 1, there is a distinct difference in the composition of the artifact assemblage from Stratum 2 of Feature 15. Most notable is that the assemblage is much smaller, consisting of only 46 specimens. No informal chipped stone tools were present and the only formal tools collected were one complete biface and one core. Both the number (35) and percentage (76 percent) of chipped stone debitage was significantly lower than in Stratum 1. Dramatically different is that nine ground stone tools are represented in the Stratum 2 assemblage consisting of one hammerstone, one pitted stone, and seven pieces of unidentified ground stone implements. Assuming the actual size of Feature 15 (ca. > 6 m in diameter) is accurately depicted by the anomaly detected during the geophysical survey, only a small sample of cultural materials has been collected from the feature. At this stage of investigation, what functions the feature might have fulfilled are not clear. However, some tentative suggestions can be provided.

In profile (Figures 6-12), the first episode of filling (Stratum 2) might be related to either the storage or discard of mussel shell. Little evidence of burning was present and therefore,

preparation of mussels for eating is not inferred. Based on the presence of ground stone tools and the low density of chipped stone materials, activities associated with this episode of filling might have been related to food preparation. However, the absence of nutshell and edible plant remains indicate that such activities were focused on the use of freshwater mussel. The last filling event (Stratum 1) resulted in the deposition of midden materials that also filled the posts around the edge of the feature. This event occurred sometime around 4950 B.P., based on radiocarbon dates obtained from charcoal collected from Post 13 and from Stratum 1. At that time, activities became more intense and diverse.

The artifacts collected from Stratum 1 suggest that food preparation continued to be important and that chipped stone production tasks were more intensive. During the occupation represented by Stratum 1, subsistence practices changed, and compared to Stratum 2, included a broad spectrum of food resources such as hickory nut, huckleberry, deer, and turtle. The greater variety of foods being used, and the quantities present, suggest that people were occupying the site for longer periods, or more often, and possibly in greater numbers.

A high density of bone was present in Stratum 1 and included a variety of species such as deer, turtle, and birds. Botanical remains recovered from Stratum 1 suggest that people were primarily harvesting and preparing hickory nuts (*Juglandaceae Carya* sp.) and perhaps opportunistically collecting huckleberry (*Gaylussacia baccata*). Weedy plant species were probably growing at or near the site, but if edible varieties were present, the people who occupied the site were not using them.

Although only a small part of Feature 15 was excavated, size, shape, and that it has associated posts suggests that it might be the remains of an Archaic structure. Multiple lines of data suggest that it probably dates to the Late Archaic period. The presence of a Late Middle-Late Archaic side notched projectile point, chenopodium and seeds from the sunflower family, and the radiocarbon dates of 4940 B.P. (Post 13) and 4950 B.P. (Stratum 1) all support a Late Archaic association. The posts are situated primarily along the edge of the feature and were the only posts encountered in Test Unit 1. While post-like features were documented in other test units, no similar pattern of post molds was present in the other excavation units.

Many questions remain about the size, depth, and function of Feature 15. Further investigation of the feature can focus on addressing these questions and on determining whether the pattern of post molds documented in Test Unit 1 continues around the edge of the feature. At this stage of investigation, it is suggested that it does represent a Late Archaic structure: what type, how large, and its specific characteristics must be addressed before further interpretations can be made about the function(s) it might have served. The possibility that it represents a very large Late Archaic structure is potentially an extremely significant finding that will provide, for example, new insights about the community organization of hunter-gatherers at the end of the Mid-Holocene.

While unusual in Late Archaic contexts, other structures have been reported (e.g., Ledbetter 1995; Peterson 1973; Otinger et al. 1982). However, the size and depth of Feature 15 seems to be unique and that posts appear to have been used to demarcate its boundaries is significant. Feature 15 is potentially extremely significant in the contexts of Eastern Woodlands Archaic societies, and it is certainly unique in the Lower Ohio River Valley. Further archaeological work is necessary to provide a more specific interpretation of Feature 15, and additional investigations will undoubtedly provide data that will clarify the function(s) that it fulfilled.

Artifact Assemblages (Test Unit 1)

In addition to the presence of well-stratified cultural strata and substantial features, the increasing intensity of the Late Archaic occupation at the Overflow Pond site is observable in changes in the densities and composition of the artifact assemblage (Table 3). Important is that temporal changes in the kinds and intensities of tasks undertaken provide a sense of how the Overflow Pond site increasingly became an important location for hunters and gatherers near the end of the Archaic period.

Assuming that materials present in the plowzone represent the latest episodes of occupation and the features present below midden deposits are the remains of the earliest Late Archaic use, an increasing intensity of activities can be seen in the stratigraphic distribution of artifacts. In Test Unit 1, a significant increase in the number of artifacts of nearly every major artifact category can be observed stratigraphically from the lowest deposits to those in the plowzone. Both the total number of artifacts present in each cultural stratum and the percentage of the total artifact assemblage they represent, clearly demonstrates that through time, occupation at the site became more intensive.

The most abundant class of artifacts collected during these investigations was chipped stone debitage. The amount of debris collected from Test Unit 1 (n = 15,370; Table 3) is remarkable and combined with the distribution of these materials by cultural strata, there is little doubt that the production of chipped stone implements increasingly became an important activity at the Overflow Pond site.

Table 3. Distribution of Artifacts Collected from Test Unit 1 by Cultural Strata.

Provenience	Formal Chipped Stone Tools	Informal Chipped Stone Tools	Chipped Stone Debitage	Bone Tools	Groundstone Tools	Personal Adornment	Prehistoric Ceramic	Historic Material	Total/ Level	% of Total Assemblage
Level 1	38	198	8621	5	7	1	2	44	8916	56.3
Level 2/3	22	47	4501	9	7	0	1	4	4591	29
Level 4	11	27	1518	1	5	1	0	2	1566	9.9
Features Below Midden	9	17	729	1	6	0	0	1	763	4.8
TOTALS	80	289	15370	16	25	2	3	51	15836	100

In contrast to the Breeden site, instead of episodic periods of intense chipped stone production activities, a pattern of continuously increasing intensity of such tasks is evident at the Overflow Pond site. While plowzone deposits have most likely been affected by deflation and/or soil loss, the distribution of these materials by cultural strata (Table 4) suggest that chipped stone production increased during the period the site was used potentially nearly twelve-fold doubling or nearly doubling, with each subsequent major occupational episode.

Table 4. Distribution of Chipped Stone Debitage (Test Unit 1).

	Total	%
Stratum 1: Plowzone	8621	56.1
Stratum 2: Prehistorically Mixed Midden	4501	29.3
Stratum 3: Intact Midden	1519	9.9
Features: Below Midden Deposits	729	4.7
TOTALS	15370	100

Temporally Diagnostic Materials

The stratigraphic distribution of temporally diagnostic projectile points and hafted end scrapers collected from Test Unit 1 clearly demonstrates that the major occupation at the Overflow Pond site occurred during the Late Archaic period (Table 5).

Stratigraphically, projectile points indicate that the Late Archaic occupation occurred between ca. 5700 to 3000 B.P. After that time, ephemeral Early and Middle Woodland use of the site is indicated by the presence of a single Late Archaic-Early Woodland projectile point and one Middle Woodland sherd, both collected from the plowzone.

The mixed nature of the upper strata might be reflected by the presence of point types (Late Archaic Stemmed Cluster) that traditionally have been thought to be associated with the early part of the Late Archaic period. Stratigraphically, the Woodland projectile point and ceramic sherd were collected from the plowzone. Late Middle to Late Archaic side notched projectile points were present in the intact midden and the underlying features. Between these chronologically earliest and latest strata, only Late Middle to Late Archaic eared, notched, and stemmed projectile points were present. While some prehistoric mixing of materials occurred, it is also likely that the date range of the Late Archaic Stemmed Cluster might extend into the third millennium B.C. In any case, the stratigraphic context of these materials is indicative of the intensive Late Archaic occupation at the Overflow Pond site.

Table 5. Stratigraphic Sequence of Projectile Points Collected from Test Unit 1.

Provenience	Excavation Level	Diagnostic Item	Date Range (B.P.; Justice 1987)	Mid-Point (B.P.)	Culture Historic Period
Plowzone	1	Limestone Tempered Falls Plain Ceramic Sherd	NA	NA	Middle Woodland
Plowzone	1	Saratoga Parallel Stemmed	<4000	<4000	L. Archaic - E. Woodland
Plowzone	1	Late Archaic Stemmed	5700-5000	5350	Late Archaic
Plowzone	1	Late Archaic Stemmed	5700-5000	5350	Late Archaic
Plowzone	1	Brewerton Eared-Notched	4980-3723	4350	Late Archaic
Plowzone	1	Brewerton Eared-Notched Hafted End Scraper	4980-3723	4350	Late Archaic
Mixed Midden	2,3	Late Archaic Stemmed	5700-5000	5350	Late Archaic
Mixed Midden	2,3	Late Archaic Stemmed	5700-5000	5350	Late Archaic
Intact Midden	4	Brewerton Eared-Notched	4980-3723	4350	Late Archaic
Intact Midden	4	Table Rock	5000-3000	4000	Late Archaic
Feature 15*	5	Matanzas	5700-4000	4850	Late Archaic

* At the Bottom of the Intact Midden

Subsistence activities also changed throughout the occupation of the Overflow Pond site. Both the intensity of these activities and the diversification of the diet are stratigraphically evident in the size of the bone assemblage, the composition of the botanical assemblage, and the amount of rock present as a correlate of fire pits used to prepare food. As suggested by the stratigraphic distribution of the bone and rock assemblages, the use of animal resources increased through time. In conjunction with the intensified use of animal resources, there were also significant changes in the use of plants.

Botanical Remains

The botanical samples analyzed from the Overflow Pond site were collected from the mixed midden, the intact midden, and from Stratum 2 of Feature 15. These samples represent the earliest Late Archaic occupation (Stratum 2 of Feature 15; below Level 4), the first midden accumulating episode (intact midden stratum; Level 4), and the most intense period of site occupation (mixed midden; Level 2/3). As such, the results of the analyses of these

stratigraphically distinct botanical assemblages provide a view of how plant usage changed throughout the Late Archaic occupation of the site.

At the Breeden site, Late Middle Archaic (prior to about 5500 B.P.) hunter-gatherers seemed to have focused on the use of hickory nuts and the harvesting of freshwater mussel. Unlike at Breeden, the botanical assemblage from the Overflow Pond site suggests that a different subsistence pattern had been adopted sometime after about 4950 B.P. This new subsistence strategy depended less on hickory nut and freshwater mussel and began to take advantage of a variety of new plant species, many of which thrive in wetland and stream-side settings.

Over four times the amount of nut remains were present at the Breeden site: 46 specimens versus 11 at the Overflow Pond site. All but one of the Breeden nut specimens were collected from the shell-bearing deposits. In Level 5 at the Breeden site, which is contemporary with the Overflow Pond site, a single nut specimen was recovered. This significant decrease in the use of hickory nut around 4800 B.P. is also reflected in the Overflow Pond assemblage. Because the nut sample is very small and due to the mixed depositional character of midden deposits, it is difficult to determine a stratigraphic sequence of nut usage. What is clear is that the Overflow Pond occupants were not using the quantity of nuts documented from the earlier deposits at the Breeden site.

Assuming that Stratum 2 of Feature 15 represents the earliest Late Middle-Late Archaic midden accumulating occupation at the site, no evidence for the use of plants for food was documented other than hickory nuts. Botanical remains collected from Stratum 2 of the feature indicate that the only difference from earlier subsistence strategies was that people collected locally available berries like huckleberry. However, a variety of wild weedy plants were growing in vicinity of the site.

The botanical specimens collected from the intact midden suggest that people living at the Overflow Pond site had, by about 4700 B.P., recognized the utility of some of the starchy, seed-bearing plants that were growing in vicinity of the site. While a variety of weedy and grass plant remains were documented from the intact midden botanical sample, it is significant that wild *Chenopodium* (n = 9; 82 percent of total) and seeds from the sunflower family (n = 1; 100 percent of total) also were present. Considering the low frequency of hickory nut shell, the presence of these plant remains suggests that people had recognized the utility of some of these plants as food resources and added them to their diet.

This pattern of the use of wild seed-bearing plants generally continues perhaps another 400 years as indicated by the botanical assemblage collected from the mixed midden stratum. The use of chenopodium seems to decrease in intensity (n = 2; 18 percent of total), but it should be noted that the sample was taken from non-feature, prehistorically mixed midden context.

Even though the stratigraphic sequence of plant usage at the Overflow Pond site is not as clear as that documented at the Breeden site, it is evident that the reliance on nuts had decreased and the use of starchy seed-bearing plants was increasing. Combined with the dramatic decrease in the use of freshwater mussel, this pattern indicates that a shift in the subsistence program had occurred. Based on the assemblages from the Breeden and Overflow Pond sites, this shift happened sometime after about 5000 B.P.

The initial use of native cultigens like chenopodium and seeds from the sunflower family are well-documented from Late Archaic contexts throughout the American Midcontinent and are domesticated sometime during the Late Archaic period (Smith 1992). The composition of the botanical assemblage from the Overflow Pond site generally fits this large-scale pattern, but

combined with remains collected from the earlier, Breeden site, provides a view of the timing of this significant shift in the use of plant resources during the last stages of the Archaic period.

Radiocarbon Dates

Finally, radiocarbon dates indicate that the Late Archaic use of the Overflow Pond site happened over a relatively short period. Four samples of charred materials obtained from 10cm levels of the 25 cm x 25 cm fine screen column in Test Unit 1 were submitted for radiocarbon analysis (Table 6). Considering the maximum standard deviation of these dates, they suggest that the Late Archaic occupation of the Overflow Pond site occurred over a period of about 400 (4390-4230 B.P.) to 800 (5080-4230 B.P.) years.

Table 6. Uncalibrated RC Dates from the Overflow Pond Site.

Provenience	Depth Below Surface (cm)	ISGS #	Material	¹⁴C age	±
Test Unit 1, Mixed Midden	20-30	6233	Charcoal	4620	70
Test Unit 1, Mixed Midden	30-40	6236	Charcoal	4310	80
Test Unit 3, Intact Midden	40-50	6231	Charcoal	4710	90
Test Unit 1, Feature 15	70-80	6232	Charcoal	4950	130
Test Unit 1, Post 13	ca. 55	6230	Charcoal	4940	100

Stratigraphically, the radiocarbon dates demonstrate the degree of chronological integrity of cultural strata at the Overflow pond site. Interestingly, an earlier date (4620 B.P.) was obtained from the upper part of the prehistorically mixed midden than from its lower depths (4310 B.P.). Although obtained from a single stratum, these two dates point to the prehistorically mixed nature of Stratum 2/3 deposits. A radiocarbon date of 4710 B.P. (ISGS #6231) was obtained from Stratum 4 (Intact Midden) in Test Unit 3.

Below the intact midden, Stratum 1 of Feature 15 produced a date of 4950 B.P. (\pm 130) and Post 13 was dated at 4940 B.P. (\pm 100). Remarkably, the dates associated with Feature 15 are nearly identical and have extremely similar standard deviations. While at their maximum deviations, these dates provide about a two century window during which Feature 15 was used. On the other hand, the dates suggest that this event might have occurred within the span of a decade, which seems more likely.

The radiocarbon dates obtained from the Overflow Pond site clearly demonstrate that the major prehistoric occupation occurred during the Late Archaic period from about 4950 B.P. to at least 4300 B.P. Plowzone deposits suggest that the Late Archaic occupation continued for some

time after this date and was followed by what appears to be ephemeral Early-to-Middle Woodland occupations.

Summary

The stratigraphic integrity of cultural deposits at the Breeden and Overflow Pond sites is exceptional. The co-occurrence of sites within the same geographical and ecological setting provides an opportunity to examine a variety of questions about how Archaic hunter-gatherers adapted to the Middle to Late Holocene natural environment and the ensuing, more complicated social environment. These important locations allow for the investigation of human adaptation over a period of about 3000 years during one of the most dramatic periods of culture change among the native populations that lived in the Midcontinent. Not only are these locations important in terms of the Lower Ohio River region and the Midcontinent, but potentially can provide significant insight regarding the global pattern of human adaptation at the end of the Mid-Holocene climatic period.

The presence of highly stratified and temporally sequential cultural strata at both sites is significant: well stratified deposits in shell bearing sites are not common in the Eastern Woodlands and the detection of distinct cultural strata within earth middens is unusual. The current investigations of the Breeden and Overflow Pond sites have documented intact cultural strata at both sites. The presence of these highly stratified deposits have allowed for the examination of several lines of evidence from which a relatively fine-grained chronology has been established for the prehistoric occupations at both sites. In addition, stone and bone artifact assemblages, temporally diagnostic artifacts, subsistence data, and radiocarbon dates have been collected and analyzed by the stratigraphic contexts in which they occurred.

In contrast to the assemblages collected from the Breeden site, several personal adornment items were present at the Overflow Pond site. These items consisted of stone and bone beads (e.g., Figure 18), fragments of engraved bone pins (Figure 19), and a bone pendant. While none were collected during the current investigations, several Late Archaic atlatl weights have been reported from the site as well (Lutz 2000). These kinds of artifacts provide insight on how people expressed beliefs about social identity and social status (e.g., Burdin 2004; Jefferies 1997).



Figure 18. Stone bead fragment collected from Test Unit 1 at the Overflow Pond Site.



Figure 19. Engraved bone pin fragment collected from Test Unit 1 at the Overflow Pond Site.

The results of these initial analyses revealed that the Breeden site was occupied from about 5800 B.P. to 4800 B.P. The site primarily represents the Archaic shell midden phenomenon that has been documented widely throughout the interior river system of the Midcontinent. In general, this phenomenon occurred during the Late Archaic (ca. post 5000 B.P. in the Green River area of Kentucky) and resulted in the accumulation of large, deep, and homogenous deposits of freshwater mussel remains that often contain high densities of other cultural materials. Unfortunately, chronology is difficult to discern at these locations because of the absence of well-defined strata. Deposits at the Breeden site provide the opportunity to examine the onset of this phenomenon, how it intensified through time, and the timing of its decline. The archaeological ability to do so is directly related to the high degree of stratification of deposits present at the site.

In any case, the last Late Archaic occupation at the Breeden site consisted of an earth midden-like stratum (Level 5). Based on the presence of Late Archaic Stemmed projectile points and a radiocarbon date of 4850 ± 100 B.P. obtained from charcoal collected from Level 5, this stratum is contemporary with the initial Late Archaic occupation of the Overflow Pond site, which began around 4900 B.P.

The earliest Late Archaic use of the Overflow Pond site appears to have involved limited exploitation of freshwater mussels, but by 4950 B.P., gave way to increasingly intense occupations that resulted in the accumulation of a relatively shell-free earth midden.

Several Late Archaic sites have been documented in the Lower Ohio River Valley that are situated in wetland environments and in confluence areas where secondary streams meet rivers. Other than in broad terms, specific information about the shift from the intensive harvesting of freshwater mussel to the adoption of new settlement and subsistence practices during the Late Archaic has not been articulated. The stratigraphic character of deposits documented during these investigations at the Breeden and Overflow Pond sites have allowed the documentation of this kind of information. The observed depositional stratigraphy and the data derived from the well-defined cultural strata demonstrate the temporal relationship(s) between these sites (Table 7). As the shell midden phenomenon waned, people began to shift subsistence strategies to incorporate a broader range of resources including locally available starchy seed-bearing plants as indicated by Level 5 in Test Unit 1 at the Breeden site. This basic

change in subsistence practices ultimately encompassed a relocation of settlements to loci where access to these new resources might have been better, such as the Overflow Pond site.

Multiple data sets collected during these investigations clearly demonstrate the importance of the Breeden and Overflow Pond sites. Archaeologically, these locations of Middle to Late Holocene hunter-gatherer settlement provide the opportunity to examine a variety of questions about the dramatic and important sociocultural changes that took place among hunting and gathering societies at the end of the Archaic period. These changes involved the human-environmental relationship and the interaction of multiple aspects of cultural and social behaviors people used to successfully adapt to changing natural conditions.

Table 7. Chronological Relationships: Breeden and Overflow Pond Sites.

Culture-Historic Period	Temporal Data by Site and Stratigraphic Sequence	
	Breeden	Overflow Pond
Middle Woodland	Ceramics	Ceramics
Early Woodland	Ceramics	Ceramics
Late Archaic	X	4310 B.P.
	X	4620 B.P.
	X	4710 B.P.
	4850 B.P.	X
	X	4940 B.P.
	X	4950 B.P.
Late Middle Archaic	5420 B.P.	X
	5620 B.P.	X
	5750 B.P.	X

Based on these investigations, the Overflow Pond Area is one of, if not the most, significant locations of Late Archaic hunter-gatherer occupation in the unglaciated portion of the Lower Ohio River Valley. In combination, data collected from the well-stratified Breeden and Overflow Pond sites will produce information that will not only add to our knowledge of hunter-gatherer life in the Lower Ohio River Valley and the Midcontinent, but also has the potential to contribute to what we know about the world-wide phenomenon of human adaptation at the end of the Mid-Holocene.

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GLACIAL SLUICEWAYS AND MODERN STREAMS: AN ARCHAEOLOGICAL SURVEY OF THE STONY CREEK VALLEY IN HAMILTON COUNTY, INDIANA

Andrew Smith, Beth K. McCord and Donald R. Cochran
Archaeological Resources Management Service
Ball State University, Muncie, IN

Abstract

This Historic Preservation Fund grant project investigated the archaeological resources of the Stony Creek Valley in Hamilton County, Indiana. During the project, 388 acres of agricultural land were surveyed, and 168 new archaeological sites were recorded. The survey recovered 1,937 prehistoric artifacts and 249 historic artifacts from nine locations within the Stony Creek and William Lock Ditch valleys. Early Archaic, Late Archaic, Middle Woodland and Late Woodland/Late Prehistoric components were documented from the precontact era. The average site density recorded for the project area for precontact sites was one site per 2.3 acres. This density was one of the highest in the region and higher than that encountered in the White River valley. The highest artifact densities were encountered in survey areas with Milton Variant silt loam. This soil overlies shallow limestone deposits that likely contain both Fall Creek chert and Liston Creek chert. Investigations of the locally available Fall Creek chert, Fall Creek quartzite and Liston Creek chert revealed issues related to chert sourcing and identification. It was proposed that Fall Creek chert be classified as a variety of Jeffersonville chert. The project suggests that precontact populations used the Stony Creek valley and its tributary valleys for repeated short term settlements. Site duration was most intensive at focal resource areas such as chert locations.

Introduction

The Archaeological Resources Management Service (ARMS) at Ball State University conducted a FY2007 Historic Preservation Fund grant to investigate threatened portions of unsurveyed glacial sluiceways and modern stream valleys in eastern Hamilton County, Indiana. Hamilton County is one of the fastest growing counties in Indiana, and urban sprawl and gravel operations are threatening archaeological resources. The project involved a pedestrian survey of approximately 400 acres of agricultural land. The goals of the project were to investigate previously unsurveyed portions of Stony Creek and its tributary valleys, refine settlement patterns of the precontact and early Euro-American era, and increase Indiana's site data base.

For the proposed research, we targeted valley settings that have not been previously surveyed in eastern Hamilton County. Specifically, the areas targeted include the Stony Creek valley and William Lock Ditch (sluiceway) valley located in Noblesville, Wayne and White River Townships (Figure 1). This area was selected for its expansive braided sluiceway valley combined with recent river terraces (Gefell 1983: map). Within these valleys extensive outwash deposits occur (Gefell 1983:25). The area within and around the Stony Creek and William Lock

Ditch valleys are seriously threatened by urban sprawl and gravel mining as evidenced by a comparison of circa 1980s USGS topographic maps and recent aerial images (Google Earth). Not only is the population expanding rapidly in Hamilton County, but large sand and gravel operations as well as crushed stone industries are also expanding. The smaller stream valleys, particularly glacial sluiceways, are rich in gravel resources and several gravel operations already exist in the Stony Creek valley.

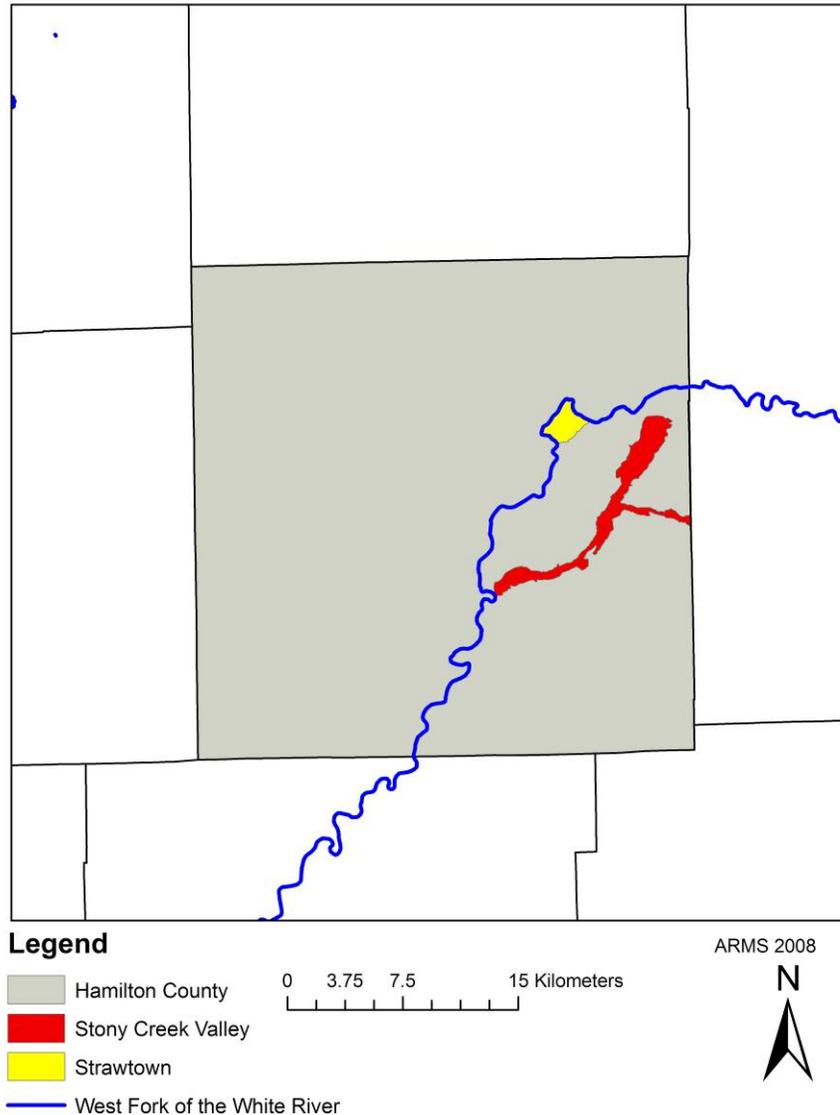


Figure 1. Location of the Stony Creek Valley in relation to the West Fork of the White River and Strawtown.

The project was constructed to provide data to expand on the extensive research that has already been conducted at Koteewi Park (Cantin et al. 2003; McCord and Cochran 2003; McCord 2005; McCullough et al. 2004; McCullough 2005; White et al. 2002; White et al. 2003) and Hamilton County (Brinker 1984; Carmany 2002; Conover 1988; Cree 1991; Cree et al. 1994; Ellis 1982; Hixon 1988). While these projects have provided substantial archaeological

information, we have very little information on smaller stream valleys in the county and throughout the till plain region in general.

Background

To provide a framework for interpreting the data collected during this project, a review of the natural and cultural setting was undertaken. The background information presented in this paper includes environmental and archaeological information concerning Hamilton County and the Stony Creek drainage.

Location

Hamilton County is located in central Indiana and is bounded to the east by Madison County, to the south by Hancock and Marion counties, to the west by Clinton and Boone counties, and to the north by Tipton County (Figure 2). The county is approximately 256,640 acres in size (Hosteter 1978:1). For the proposed research, we targeted valley settings that have not been previously surveyed in eastern Hamilton County.

Figure 2. Location of Hamilton County within the State.



Setting

Hamilton County lies within the Tipton Till Plain physiographic division of Indiana, a member of the Till Plain Section of the Central Lowland Province of the United States (Schermerhorn 1967:83). This gently rolling, almost featureless plain is almost entirely composed of glacial till and only slightly modified by post glacial stream erosion. The flat till plain is broken by end moraines, eskers, esker troughs and meltwater drainages (Schneider 1966:49-50). The project falls within one of the larger glacial sluiceway valleys that occur across the eastern third of the county (Gefell 1983:12-16). As the glacial ice melted and retreated to the north, the flat till plain of Indiana was inundated with water and numerous broad valleys leading southward and southwestward were created (Malott 1922:10). Stony Creek follows the same pattern as most modern rivers and streams in the till plain as an underfit stream in a broad glacial sluiceway (e.g. Cummings and Schrock 1928:27-37; Malott 1922:109).

The drainage pattern for the county is regionally dendritic and locally parallel to sub-parallel (Gefell 1983:9). Drainage is best developed along the White River and its main tributaries, Cicero Creek, Duck Creek and Stony Creek, since they are entrenched in the ground and ridge moraines. Drainage in most of the county is still controlled to some extent by old glacial sluiceways. Water resources are extremely important to human occupation and influence

human habitation. The Stony Creek valley has a year round flowing stream that is fed by small intermittent streams. Wetland areas also occur within the valley.

The General Land Office (GLO) survey notes for the Stony Creek valley describe the types of vegetation encountered in 1819 and 1821 (MacDonald 1819; Brown 1821). These notes record a variety of timber including beech, ash, walnut, elm, white oak, red oak, burr oak, Spanish oak, buckeye, ironwood, hackberry, poplar, sugar maple, and hickory. Other flora varieties included dogwood, spice, pawpaw, sassafras and briars. In addition to the timberlands, both wet and dry prairies were noted. The prairies were encountered more at the northern end or headwaters region where the sluiceway valleys are the broadest.

Potential Resources

The natural environment of the Stony Creek valley provided many resources important to precontact populations. Plant and animal remains recovered from archaeological sites provide evidence of the types of food resources being exploited in the White River valley. Several archaeological sites in the White River valley in the Strawtown area that date between A.D. 1250 and 1450 provide insights into the foods available within the valley (Bush 2002, 2003, 2004, 2005; Garniewicz 2002, 2003, 2004; Hadley and Peres 2005; McCullough et al. 2004; White et al. 2002, 2003).

The presence of several cultivated and wild floral species has been documented at Strawtown (Bush 2002, 2003, 2004, 2005). Corn was the most important cultivated crop. Both 8-row and 10-row cob fragments have been recovered. Other cultivated or possibly cultivated crops included beans, tobacco, squash, little barley, chenopod, amaranth, maygrass and probably sunflower and perhaps knotweed. Nutshell at the sites included hickory, walnut, hazelnut, butternut and acorn. Other wild plants included bramble (blackberry, raspberry, etc.), strawberry, sumac, bedstraw, purslane, grape/virginia creeper, mulberry, wild legume, smartweed, stick-tight, tick-trefoil and grass. Nutshell was dominated by hickory, then acorn and hazelnut.

Faunal analysis from archaeological sites in the Upper White River valley provided direct information of animal resources utilized (Garniewicz 2002, 2003; Hadley and Peres 2005; McCullough et al. 2004). White-tailed deer were a dominant species, but wapiti, elk, bear, turkey, dog, porcupine, raccoon, gray fox, muskrat, beaver, turtle, cougar, Canada goose, wood duck, passenger pigeon, grouse, gray squirrel, chipmunk, mice and several fish species were documented. Animal bones from deer, elk, bear, turkey, porcupine, turtle shell and mussel shell were used to manufacture tools.

Artifacts manufactured from chert provide the most common artifacts that survive in the archaeological record. Chert is identified in the glacial till in the region (Gooding 1973:13-14). Fall Creek chert is reported from gravel deposits in Hamilton and Madison counties (Stephenson 1984; Hixon 1988; Cree 1991; Cochran 2002, 2005, 2007), and Liston Creek chert is recorded being plowed out in a cultivated field along Stony Creek (Cree 1991). A potential source of Jeffersonville chert is also reported along the White River in the southern part of Hamilton County (Angst 1994). Quartzite containing small fragments of Fall Creek chert is identified in gravel deposits in Hamilton County (Cochran 2005).

Recently, the relationships between Fall Creek and Liston Creek cherts and the local source of quartzite were investigated (Cochran 2007). Fall Creek chert appeared to originate in the Jeffersonville limestone and the local quartzite at the interface between the Jeffersonville limestone and the Pendleton Sandstone. Liston Creek chert outcrops were recorded in Madison

and Hamilton counties and the distribution of bedrock sources for Liston Creek chert is much larger than previously reported (Cochran 2007). The same can be said for cherts in the Jeffersonville limestones since Fall Creek chert originates in this limestone member.

Archaeological Background

We reviewed the background information for data relevant to an understanding of what archaeological resources we should expect to find during the project, both in terms of the types and densities of archaeological data, as well as the history of use of the landscape. Within the proposed project area, approximately 60 acres were systematically surveyed at the upper reaches of William Lock Ditch (Cree 1991). This survey recorded 22 archaeological sites and several were recommended for test excavations. The sites were generally small lithic scatters or isolated finds of unidentified prehistoric age. Identified components included Early, Middle and Late Archaic. No other large scale systematic surveys have been conducted within these small stream valleys. The sample of archaeological information currently available was inadequate to determine the precontact settlement of the Stony Creek and William Lock Ditch. It seemed unlikely that only Archaic era occupation occurred in these areas, but Woodland components were not identified. In addition to precontact occupation of these valleys, Euro-American occupations were anticipated. The General Land Office (GLO) survey in 1821 recorded a grist mill (12-H-465) and cabin (12-H-478) on Stony Creek (Brown 1821). Other early historic sites were likely to exist within the valleys.

Summary

As the ecological and natural setting of the project area changed over the last several thousand years, human settlement would also have changed. Settlement and use of resources within the project area would have been influenced by potential plant and animal resources and, conversely, may have influenced changes in flora and fauna (Delcourt and Delcourt 1991:87-89). The diversity of habitats that existed in the project area would have attracted prehistoric populations for the wide variety of natural resources available as food and raw materials in the production of tools, clothing, adornment, and shelter.

Archaeological Survey

Introduction

Approximately 400 acres of agricultural land were surveyed by pedestrian transects during this project. The survey sampled 135.5 acres of outwash terrace, 132.6 acres of upland till plain and 37.7 acres of floodplain. The field survey was executed using pedestrian transects spaced at 10 meter intervals. The survey interval was reduced to 5 meters when artifacts were encountered. The areas surveyed by pedestrian transects had between 30 and 90 percent ground surface visibility. All artifacts, excluding fire-cracked rock and brick, were collected and bagged by site provenience. All artifacts were taken to the ARMS laboratory for processing, identification, and analysis. Artifacts were cleaned, classified and catalogued. Diagnostic point types were classified

using Justice (1987). Lithic raw materials were identified by comparison with reference samples and published descriptions on file in the ARMS laboratory (Cantin 2005). All artifacts and chert identifications were made microscopically at 10X or greater.

Results

Stony Creek and its tributary valleys were sampled from nine agricultural fields and 168 new archaeological sites were recorded (12-H-1193 to 1228, 1230 to 1255 and 1261 to 1366). The survey documented human occupation and use of the Stony Creek valley as early as 7500 B.C. The precontact settlement in the valley can be characterized as a high density of small, short term extractive camps. Some sites in the valley were repeatedly occupied throughout the precontact era. Chert resources, in addition to animal and plant resources, attracted people for brief periods, but the larger and more intensive occupations occur in the main White River valley. Locations of chert outcrops, signaled by the presence of the Milton Variant soils, contained the highest density of artifacts. The Fall Creek, Liston Creek and Fall Creek quartzite raw materials were focal resources that attracted people to the valley for re-tooling.

Artifacts

The project recovered 1,937 precontact and 249 historic artifacts (Table 1). The majority of prehistoric artifacts consist of lithic debitage (flintknapping debris). The edge modification of several hundred flakes indicates the debitage could function as expedient tools. The majority of formal tool types recovered were projectile points dating to the Early Archaic, Late Archaic, Middle Woodland and Late Woodland/Late Prehistoric periods (Table 2). Other chipped stone tools consist of endscrapers, gravers and perforators. Figures 3 – 6 provide examples of the diagnostic precontact and historic artifacts recovered.

Table 1 Artifacts Recovered			
<u>Precontact</u>	<u>No.</u>	<u>Historic</u>	<u>No.</u>
Unmodified flake	1308	Ceramics	173
Edge modified flake	360	Container glass	46
Core	136	Canning lid liner	12
Bipolar	18	Flat glass	7
Biface	33	Button	1
Endscraper	13	Cast iron	1
Graver	5	Metal, unidentified	2
Perforator	2	Nail	1
Points and point fragments	44	Shotgun shell	2
Block	9	Brick	2
Other chipped stone	6	Coal	2
Chipped slate disk	1		
Pendant	1		
Anvil	1		

Table 2

Projectile Points by Period

<u>Cultural Period</u>	<u>Projectile Point Styles</u>
Late Woodland/ Late Prehistoric	Triangular point (8)
Middle Woodland	Steuben Expanding Stem (1) Middle Woodland Expanding Stem (1)
Late Archaic	Karnak (3), Unclassified Late Archaic Stem (1), Riverton (2), Brewerton (2), Matanzas (4), Unclassified Late Archaic (1)
Early Archaic	LeCroy (1), St. Albans (2), Kanawha (1), Wabash Diagonal Notched (1), Unclassified Bifurcate (1), Palmer (2), Unclassified Early Archaic (2)

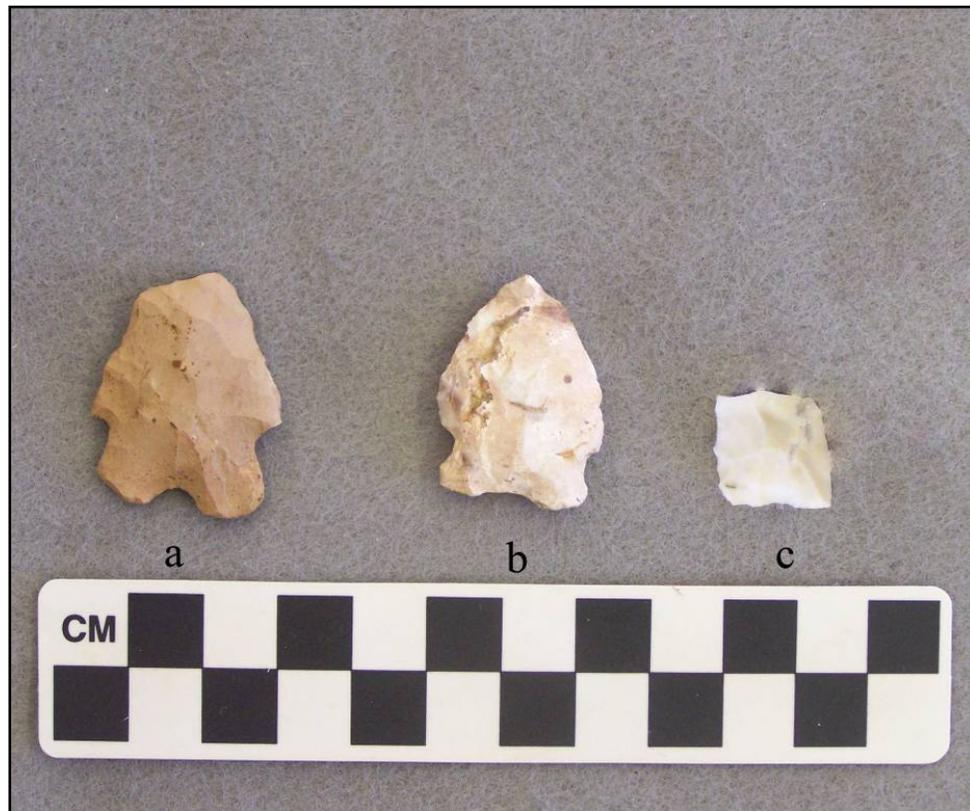


Figure 3. Diagnostic prehistoric artifacts from Survey Area 5: a) Saint Albans point (12-H-1272), b) Brewerton point (12-H-1270), and c) Triangular Cluster point (12-H-1277).

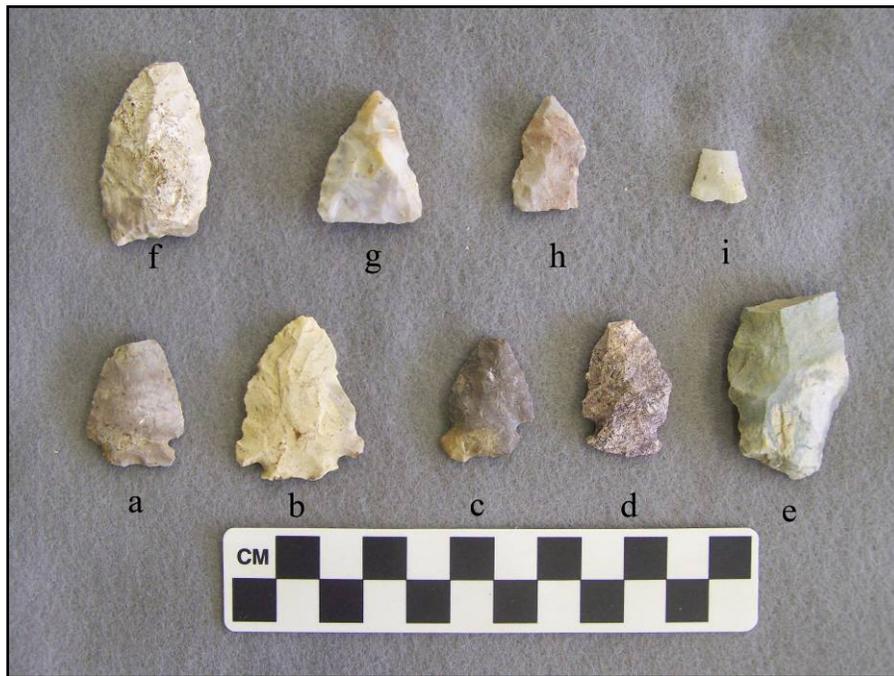


Figure 4. Diagnostic prehistoric artifacts from Survey Area 6: a) Palmer point (12-H-1283), b) Wabash Diagonal Notched point (12-H-1301), c) unclassified Early Archaic point (12-H-1291), d) Matanzas point (12-H-1303), e) Karnak Stemmed point (12-H-1291), f) unclassified Late Archaic point (12-H-1302), g) Triangular Cluster point (12-H-1277), h) Triangular Cluster point (12-H-1303), and i) Triangular Cluster point with serration (12-H-1303).



Figure 5. Diagnostic prehistoric artifacts from Survey Area 7: a) Kanawha point (12-H-1320), b) LeCroy point (12-H-1318), c) Saint Albans point (12-H-1306), d) unclassified Bifurcate point (12-H-1306), and e) Triangular Cluster point (12-H-1309).



Figure 6. Diagnostic historic artifacts from Survey Area 7 (all from site 12-H-1306): a) Red and blue sponge decorated whiteware body, b) Blue glazed whiteware body, c) Purple transferprint whiteware body, d) Blue transferprint whiteware body, e) Flow blue whiteware rim, f) Blue sponge decorated whiteware body, g) Blue transferprint whiteware rim, h) Red and blue sponge decorated whiteware base, i) Green hand-painted whiteware base, j) Blue hand-painted whiteware base, k) Pearlware body, and l) Blue shell edge whiteware rim.

Chert

The chipped stone artifacts were dominated by Fall Creek chert (76.06 percent) (Table 3). Liston Creek chert was the second most utilized raw material (14.84 percent). Together these two locally available cherts comprised 90 percent of the raw material recovered during this project. The relationships between Fall Creek and Liston Creek cherts and local sources of Fall Creek quartzite are presented in the discussion section.

**Table 3
Chert Raw Materials**

<u>Chert</u>	<u>No.</u>	<u>%</u>	<u>Chert</u>	<u>No.</u>	<u>%</u>
Fall Creek	1309	67.96	Upper Mercer	5	0.26
HT Fall Creek	151	7.84	Allens Creek	2	0.10
HD Fall Creek	5	0.26	Burlington	2	0.10
Liston Creek	268	13.91	Kenneth	2	0.10
HT Liston Creek	18	0.94	HT Kenneth	1	0.05
Attica	58	3.01	Middle Jeffersonville	1	0.05
HT Attica	1	0.05	HT Middle Jeffersonville	1	0.05
Fall Creek Quartzite	40	2.08	Delaware	1	0.05
Unknown	25	1.30	Dongola	1	0.05
HD Unknown	1	0.05	Flint Ridge	1	0.05
Wyandotte	19	1.09	Holland	1	0.05
HD Wyandotte	1	0.05	Indian Creek	1	0.05
Jeffersonville	8	0.42	Meta-quartzite	1	0.05
HT Jeffersonville	1	0.05	Zaleski	1	0.05

HT= heat treated
HD= heat damaged

Sites

Of the 168 archaeological sites recorded, 166 had prehistoric components (Table 4). The identified precontact components consisted of Early Archaic, Late Archaic, Middle Woodland, and Late Woodland/Late Prehistoric. Fourteen sites had historic components.

Table 4
Site Components

<u>Component</u>	<u>No.</u>	<u>Comment</u>
Unidentified Prehistoric	140	7 multicomponent (Historic)
Early Archaic	9	3 multicomponent
Late Archaic	12	8 multicomponent
Middle Woodland	2	
Late Woodland/Late Prehistoric	8	4 multicomponent
Historic	14	12 multicomponent (Prehistoric)

The frequency of identified components encountered in the project area was similar to that previously noted for other portions of the till plain of east central Indiana (Cochran 1994, McCord 2005, McCord 2007). Late Archaic component sites were the most commonly encountered followed by Early Archaic and Late Woodland/Late Prehistoric. Paleoindian, Middle Archaic (non Matanzas) and Early Woodland were absent in the project area, but these components are more uncommon in the Till Plain region.

Density

The project documented a high density of archaeological sites with an average of one site per 2.3 acres. Table 5 demonstrates site density by landform. The outwash terrace had a very high density. Compared to regional densities, the project had one of the highest average densities documented for the region (Table 6).

Table 5
Landform Density

<u>Landform</u>	<u>Acres Surveyed</u>	<u>No. Sites</u>	<u>One Site per Acre</u>
Outwash Terrace	184.1	97	1.9
Till Plain*	141	56	2.5
Floodplain	60.7	14	4.3

* most of the Till Plain surveyed was at the valley margin

Table 6
Regional Site and Artifact Densities in Valley Settings

<u>Area</u>	<u>Acres Surveyed</u>	<u>One Site per Acre</u>	<u>Artifacts per Acre</u>
White River Valley (McCord 2005)	155	3.97	7.45
Strawtown – White River Valley (McCord and Cochran 2003)	276	4.76	6.57
Strawtown – White River Valley* (White et al. 2003)	129	3.70	8.52
White River Valley^ (Carmany 2002)	124	9.54	4.49
Hamilton County (Cree 1991)	8	2.00	1.37
White River Valley (Hixon 1988)	345	9.86	4.49
White River Valley (Ellis 1982)	400	14.8	1.42

* Intensive survey data removed
^ Survey utilized shovel probes

Since a large number of sites recorded by this project and regional surveys are isolated finds, the density of artifacts per acre may provide a better indicator of occupation. This project found an average of 4.99 artifacts per acre. This figure is comparable to some of the regional surveys, but lower than that encountered at Strawtown (Table 6).

Two Survey Areas within the project area did have an anomalous density of artifacts (Table 7). Survey Areas 2 and 6 were both in the Stony Creek valley. Both areas contained large quantities of Fall Creek and Liston Creek cherts being plowed out in the fields. Both areas are also associated with Milton Variant silt loam that overlies shallow limestone.

Table 7
Artifact Densities

<u>Survey Area</u>	<u>Acres</u>	<u>No. Sites</u>	<u>Sites per Acre</u>	<u>No. Artifacts</u>	<u>Artifacts per Acre</u>
Area 1 (Wm. Lock valley)	80.0	15	5.3	96	1.2
Area 2 (Stony Creek valley)	43.1	25	1.7	533	12.4
Area 3 (1/4 mile off Stony Creek)	20.2	3	6.7	5	0.25
Area 4 (Stony Creek valley)	20.7	19	1.1	73	3.5
Area 5 (Stony Creek valley)	30	22	1.4	100	3.3
Area 6 (Stony Creek valley)	35.1	21	1.7	764	36.3
Area 7 (Stony Creek valley edge)	37.9	21	1.8	107	2.8
Area 8 (Stony Creek valley edge)	40	17	2.4	77	1.8
Area 9 (Wm. Lock valley edge)	80	25	3.2	180	2.3

The site and artifact densities recorded for Stony Creek and its tributary valleys support the interpretation of repeated short term forays to the valley. Site duration was likely not intensive except at focal resource areas, such as chert locations. Site and artifact densities for the White River valley indicate more intensive and longer duration occupations.

Discussion

Early Archaic

Nine sites with Early Archaic components were discovered in the project area. Diagnostic Early Archaic artifacts include Wabash Diagonal Notched, Palmer, Kanawha, LeCroy, St. Albans, unclassified Bifurcate, and unclassified Early Archaic. While high frequencies of Early Archaic points were anticipated, there were a surprising number of Bifurcate Tradition points recovered (50 percent of Early Archaic). The Bifurcates were found in upland till plain settings near the valley margin. All of the sites except one (12-H-1301) were small isolated finds or lithic scatters. Site 12-H-1301 is multicomponent with a Late Woodland/Late Prehistoric component that may explain the larger number of artifacts (> 100).

The large number of Bifurcate Tradition points along the Stony Creek valley margin in Survey Areas 5, 6 and 7 is unique in the region. Bifurcate points do occur in the surrounding region and in the White River Valley, but Kirk Cluster and Thebes Cluster points typically outnumber Bifurcate Tradition points 2:1 (McCord and Cochran 2003:25,49; White et al. 2003: 53). The higher number of Bifurcate points is difficult to explain. Bifurcate points occur at the later end of the Early Archaic period when the climate is generally thought to have become drier and the vegetation changed from deciduous forest to prairies and more open vegetation. A climatic change does not explain the increased density of Bifurcates along Stony Creek and not other areas. We did not identify any unique resources within Survey Areas 5, 6 and 7 that would explain this higher density. Perhaps the small drainages were being utilized more frequently during the later end of the Early Archaic than the main river valleys. Further surveys focusing on this unique situation may provide a better explanation for this phenomenon.

Late Archaic

Twelve sites with Late Archaic components were identified during the project. As expected, Late Archaic sites represent the most frequently occurring sites. Most of the sites were small lithic scatters with a limited range of artifact types. These sites likely represent procurement, processing or temporary camps (Wepler and Cochran 1983:37). These small sites were primarily dispersed across terrace settings (n = 10) and upland till plain settings (n = 2).

Four sites, 12-H-1214, 1233, 1302 and 1303 did contain higher quantities of artifacts (>100) suggesting a more intensive occupation. However, the density and range of materials is less than that documented at the McKinley site (Munson 1980; Justice 1993). These four sites are not base camps, but more likely locations of resource extraction. All four sites were associated with chert resources and near the Milton Variant soil series. While no other components were documented at sites 12-H-1214, 1233, or 1302, site 12-H-1303 also had a Late Woodland component. It is highly probable that these sites were re-occupied on multiple occasions during the precontact era for chert extraction and perhaps re-tooling.

None of the sites represented an intensive or base camp occupation similar to the McKinley site. The McKinley site is located along the White River valley at the confluence of Stony Creek. The site is multicomponent but dominated by a Late Archaic McWhinney

occupation. The McKinley site has been placed at the northern extent of the French Lick phase defined from excavations in the Patoka River Valley in Southern Indiana (Munson and Cook 1980). More recently, Justice (1993) correlated McKinley with sites such as Maple Creek and related sites near Cincinnati, Ohio referred to as "Central Ohio Valley Archaic" (Vickery 1976, 1980).

Based on the sample obtained from this project, it is more likely that large Late Archaic sites would occur along the White River valley. The location of Late Archaic base camps along terraces of the major river valleys in the till plain region has been previously documented (i.e. Cochran 1994:8). The Stony Creek valley was more likely used for temporary and extractive activities while intensive occupations occurred in the nearby White River valley.

The Late Archaic diagnostic artifacts recovered during the project consist of Brewerton, Matanzas, Late Archaic Stemmed, Karnak, and Riverton. The Late Archaic populations are related to three recognized archaeological phases: Laurentian, French Lick, and Riverton. McWhinney points were absent, but as the McKinley site demonstrates, these points and the Ohio Valley Archaic phase are known from the region.

Late Woodland/Late Prehistoric

The Late Woodland/Late Prehistoric use of the prairies in the White River valley was quite intensive (Cantin et al. 2003; McCord and Cochran 2003; McCord 2005; McCullough et al. 2004; McCullough 2005; White et al. 2002; White et al. 2003). The valley floor is dominated by Late Woodland/Late Prehistoric occupations. The Late Woodland/Late Prehistoric settlement in the valley of the White River ranged from short term occupations to intensive seasonal villages. The fertile prairie soils were attractive to the Late Woodland/Late Prehistoric horticulturists.

The Stony Creek valley contains smaller tracts of fertile soils and was not apparently utilized as intensively as the main river valley. Eight sites with Late Woodland artifacts were encountered during this project. The Late Woodland/Late Prehistoric occurred third in frequency of identified components. This is consistent with previous surveys in the till plain region (Cochran 1994:7-8; McCord 2007:106).

The sites ranged from single component Late Woodland/Late Prehistoric to multi-component sites. Generally the sites were small lithic scatters, but two sites contained a large number of artifacts (> 100). Site 12-H-1303 was the largest Late Woodland/Late Prehistoric site documented with nearly 300 artifacts. No ceramics were recovered during the project. The lack of ceramics suggests a lack of longer term occupations. The Late Woodland/Late Prehistoric use of the Stony Creek valley appears to be consistent with the short term extractive use documented by other precontact populations.

Historic

Within the areas sampled by this project, historic sites were encountered, but most were not attributable to early occupations. Sites 12-H-1306, 1343 and 1363 do have early 19th century artifacts. Site 12-H-1306 in particular may provide further insights into early Euro-American habitations. One schoolhouse, Wayne Township No. 6, dating to circa 1895 (Anonymous 1992:89) was located adjacent to Survey Area 5. The project provided a limited sample of Euro-American resources in the Stony Creek valley.

Chert

During the Hancock County Survey (McCord 2007), one research question under investigation was whether chert outcrops were present in the county. No outcrops were found or reported, but the investigation resulted in a better definition of the relationship between Fall Creek chert and Liston Creek chert. Based upon geological references, it was determined that Fall Creek chert originates in the Jeffersonville limestone and that outcrops of Liston Creek chert are present over a wider area than previously thought. In addition, the role of the Pendleton sandstone as a stratigraphic marker between the two cherts was revealed. Part of the impetus behind the investigation of the Stony Creek Valley in Hamilton County was the report of the Pendleton Sandstone outcropping in the creek bed (Brown 1884). The current survey revealed that the relationships between Liston Creek chert, Fall Creek chert, and Fall Creek quartzite are complex and interconnected within central Indiana.

The geological literature review conducted for the Hancock County survey revealed the stratigraphic relationship between Fall Creek chert and Liston Creek chert. It was surmised that the Fall Creek quartzite occurred at the interface between the Jeffersonville limestone and the Pendleton Sandstone. While no bedrock sources of chert were found during the Stony Creek survey, we did observe Liston Creek chert and limestone being plowed out in Survey Area 2. Fall Creek chert was found in the same location, but stratigraphically above the Liston Creek. We found unmodified Fall Creek and Liston Creek chert on the surface in all of the survey areas. We also found unmodified blocks of Fall Creek quartzite in several survey areas which has strengthened the arguments for the stratigraphic relationships between the three materials. In addition, Survey Area 6 in the valley of Stony Creek produced an unusual artifact assemblage consisting of high numbers of large flakes, cores, and a few biface fragments. Liston Creek chert was the predominant raw material of the artifacts and indicated a nearby source of the chert was present. The water level in Stony Creek was too high to investigate the presence of a chert outcrop in the creek bed at the time of the survey, but the presence of an outcrop seemed likely. Thus, while we did not directly observe bedrock chert or quartzite outcrops, the circumstantial evidence certainly indicates that they are highly likely along Stony Creek and probably along White River as well.

Although no outcrops were directly observed during the project, several observations are relevant to the presence of chert and quartzite during future research within the survey universe. First, the bedrock surface is undulating and not flat as Liston Creek chert was being plowed out at different elevations (Gefell 1983:17). Second, a potential predictor for the location of chert and quartzite raw materials on the surface along Stony Creek was identified during the course of the project. The Milton Variant (MxA) silt loam is defined as having a depth to limestone ranging between 24 and 60 inches (Hosteter 1978:13-14). This soil borders the north bank of Stony Creek across from Survey Area 6 as a further indication that bedrock (and probably chert/quartzite) is at the surface. Finally, while the gravels containing chert and quartzite observed during the surveys of cultivated fields were not likely visible when the area was covered by forest, the density of chert and quartzite in these gravels are an indicator of the density of chert and quartzite that could be expected in the gravels within and along Stony Creek. The amount of raw material available for chipped stone technologies along Stony Creek would certainly represent a fixed resource that would attract aboriginal people to the valley.

The recent investigations into the bedrock sources of Fall Creek and Liston Creek cherts have revealed a variety of issues related to chert sourcing and identification. Foremost among

these is the difficulty of confidently separating all Fall Creek from Liston Creek cherts. At the extreme ends of the range of variation in these two cherts, they are radically different. However, in many specimens, particularly with small artifacts, confident sorting between the two cherts is a serious issue. Crinoids and brachiopods are the most common fossils in both cherts (Cantin 2005) and the fabric can be very similar. As discussed here, the issue is prevalent at the microscopic level and certainly macroscopic sorting of the cherts is a dubious enterprise.

In addition to these sorting issues, we have discovered that other Jeffersonville chert varieties are present in the local gravels, particularly Middle Jeffersonville as defined by Cantin (2005:29). Middle Jeffersonville is also very similar to Kenneth chert and the same sorting issues apply to these cherts as well. Middle Jeffersonville does have a higher incidence of sponge spicules and this can work as a sorting mechanism.

Given the connection between Fall Creek chert and the Jeffersonville limestone and the distinctive varieties of cherts that are currently identified with this limestone member, and having discussed this issue with Mark Cantin and Curtis Tomak (personal communications 2007), we suggest that it is time to revisit Jeffersonville cherts in general and specifically. More precise definition of the varieties of cherts present in the Jeffersonville limestones are needed, and it is apparent that we need to subdivide the Jeffersonville chert into varieties. In this scheme, Fall Creek chert would become the Fall Creek variety of Jeffersonville chert. The proposed revision would involve collecting bedrock samples across the wider area of distribution of Jeffersonville chert as is now established.

Conclusion and Recommendations

This project targeted archaeological resources in the Stony Creek valley and William Lock Ditch (sluiceway) valley located in Noblesville, Wayne and White River Townships of Hamilton County, Indiana. The project area was selected for its expansive braided sluiceway valley combined with recent river terraces that contain extensive outwash deposits. The area within and around the Stony Creek and William Lock Ditch valleys are seriously threatened by urban sprawl and gravel mining. The goals of the project were to investigate previously unsurveyed portions of the Stony Creek and tributary valleys, refine settlement patterns of the precontact and early Euro-American era and increase Indiana's site data base.

Approximately 400 acres of agricultural land were surveyed during this project, and 168 new archaeological sites were recorded. Precontact era components were identified from 166 sites and Historic component were identified from 14 sites. The survey recovered 1,937 prehistoric artifacts and 249 historic artifacts. Most of the precontact sites were unidentified by cultural period, but Early Archaic, Late Archaic, Middle Woodland and Late Woodland/Late Prehistoric components were documented.

Of the 168 archaeological sites discovered by this project, 158 were not considered eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places. Most of these sites were isolated finds or small scatters of artifacts with no or low numbers of fire-cracked rocks. Ten sites were recommended for further assessment or testing. Sites 12-H-1214, 1291 and 1320, were recommended for additional surface archaeological assessment. Site 12-H-1320 did not appear to be eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places.

However, the presence of a large percentage of exotic materials on the site was intriguing and was recommended for an intensive survey to better determine whether testing of the site is warranted. Sites 12-H-1214 and 1219 were lithic scatters that were very large in size. It is recommended that prior to testing, a Phase Ib intensive survey of the sites should be carried out to locate any areas of concentration. Sites 12-H-1214, 1219, 1233, 1291, 1299, 1301, 1302, 1303 and 1306 were recommended for testing because it appears that they may be eligible for listing on the State and/or National Registers. Sites 12-H-1214, 1219, 1233, 1291, 1301, 1302, 1303 were large lithic scatters with multiple prehistoric artifacts. These sites are all on or very near Milton Variant soils. It appears that the sites may have functioned as raw material procurement areas. Site 12-H-1306 was a moderately dense historic scatter that dates to the early part of the 19th Century, and it may potentially provide information important to early Euroamerican settlement in Hamilton County.

The survey resulted in some distinctive characteristics in the archaeological record of the Stony Creek valley. Data recovered from the Late Archaic, Middle Woodland and Late Woodland/Late Prehistoric periods suggests short term occupations within the Stony Creek and tributary valleys. Several Late Archaic sites were encountered, but none were classified as base camps. The Late Woodland/Late Prehistoric sites were smaller than the White River valley occupations. The Stony Creek valley was not likely used for farming activities when larger floodplains were in close proximity in the White River valley. The Middle Woodland sites occurred in low frequency and provided little new information for defining the local unnamed Late Middle Woodland component. The high number of Bifurcate Tradition points along the valley margin of Stony Creek suggests a possible focus on smaller drainages during the end of the Early Archaic.

The average site density recorded for the project area for precontact sites was one site per 2.3 acres. This density was one of the highest in the region and higher than that encountered in the White River valley. The highest artifact densities were encountered in survey areas with Milton Variant silt loam. This soil overlies shallow limestone deposits that likely contain both Fall Creek and Liston Creek cherts.

Investigations of the locally available Fall Creek chert, Fall Creek Quartzite and Liston Creek chert revealed issues related to chert sourcing and identification. The relationship of these materials is complex and interconnected. The Jeffersonville limestone member derived cherts need redefinition. It was proposed that Fall Creek chert be classified as a variety of Jeffersonville chert.

The project suggests that precontact populations used the Stony Creek valley and its tributary valleys for repeated short term forays. Site duration was most intensive at focal resources areas such as chert locations. The presence of high numbers of Bifurcate Tradition points at the valley margin of Stony Creek is an intriguing phenomenon that bears further exploration.

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MULTIPLE SCALES OF DATA ON FALLS MISSISSIPPIAN SETTLEMENT PRACTICES

Joshua Wells and Robert McCullough
Indiana University-Purdue University Fort Wayne
Archaeological Survey (IPFW-AS)
Fort Wayne, IN

This article focuses on particular findings related to the Falls Mississippian phase in Clark County, Indiana, generated through Historic Preservation Fund supported research conducted by the Indiana University-Purdue University Fort Wayne Archaeological Survey (IPFW-AS) during 2007 and 2008. The primary objective of this work was to collect data to clarify and address gaps in our basic knowledge of the archaeological record in Clark County. Data relevant to all periods of prehistory in the region were collected through field survey and through inspection of privately held archaeological collections. The full report of this project (Wells and Arnold 2008) is on file with the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (IDNR-DHPA).

An important finding in this project is the definition of a dense and organized pattern of upland settlement practiced during the Falls Mississippian phase. Previous research has documented extensive floodplain settlements and activity areas, as well as the presence of an important mound center (the Prather site) in the uplands that was considered aberrant in previous research, including by the IPFW-AS (Munson and McCullough 2004; Munson et al. 2006). This project expands and augments the model of Falls Mississippian settlement with data that show a significant distribution of Falls Mississippian sites in the uplands of Clark County, including at least one village (the Smith-Sutton site) exhibiting intentional Mississippian layout.

Research activities discussed in this article include: 1) production of a Geographic Information Systems (GIS) framework for site and survey data from Clark County through analysis of artifacts in private collections; and 2) test excavation and geophysical survey of a Mississippian village (Smith-Sutton site, 12-CI-130) recognized by local professional and avocational archaeologists as having high potential for intact subsurface deposits.

Landscape-Level Collections Research with a Geographic Information System

The IPFW Archaeological Survey used a Geographic Information System (GIS) as an organizational and analytical tool for landscape-level data on site locations generated through private collections research. GIS applications have an established place in archaeological research and management, and have proven especially useful for estimating densities of sites and predictive modeling of site locations across a landscape (e.g. Bevan and Conolly 2002; Fry et al. 2004).

Spatial Data Production and Management

Private artifact collections from Clark County were assessed for individuals who brought their collections to the attention of IPFW-AS personnel (cf. Brown et al. 2004). Collections research from sources outside of academic and research curatorial settings can yield important data on site locations and temporal components (cf. Hays and Katchen 2006; Liwieratos 2004; McCullough and Wright 1997a, 1997b; White 2006, 2007). Site locations and temporally diagnostic artifacts were recorded, artifacts were photographed, and any other pertinent information regarding site density and preservation was noted. A combination of spatial data resources helped identify locations of sites known to local informants: IPFW-AS researchers took paper USGS quadrangle maps, digital raster graphics of USGS maps and aerial photos on laptop computers, and plat books detailing local land ownership into the field with them when doing collections research. When informants were unfamiliar with topographic maps, the plat book defined a general area of interest based upon local knowledge of land ownership, after which the aerial photographs and topographic maps were utilized to define the specific location of an artifact to a level of accuracy sufficient for landscape-level analyses. Having marked locations upon a series of printed quadrangle maps during the interviews, IPFW-AS personnel then digitized the point locations of collector-reported sites onto digital raster graphic maps of the same landforms.

As a result of these efforts, the IPFW Archaeological Survey was able to record 131 previously unrecorded sites; 12 of these contained Mississippian components. Positions for all new sites were recorded related to the Universal Transverse Mercator North American Datum 1983 (UTM NAD83). Although much of the existing data held by the state of Indiana is in NAD27 projection, these can be translated for comparison with the NAD83 projection, which was defined using 1980 satellite data (versus 1866 survey data for the NAD27 datum) and provides the most accurate and reliable measurements for North America, and it is the physical standard to which most federally sponsored environmental data are defaulting (NRCS 2005). ArcGIS 9.1 was the GIS software package for all data management and analyses.

Spatial Data Analysis

A comparison is made between the new data and existing landscape-level site data for archaeological sites in general and Mississippian sites in particular, in Clark County. Existing data were taken from IDNR-DHPA database records (DHPA 2007) predicated on the presence of UTM position data already available for the site: 483 of 763 sites (63 percent) in the database met this criterion; and 19 of 763 sites of sites were noted in the database as having a Mississippian component, and 15 of these (three percent of sites with UTMs) had UTM positions defined.

Nearest neighbor analyses were conducted to determine the significance of spatial clustering in these data sets (Table 1). The nearest neighbor index is the ratio of the observed distance divided by the expected distance in a hypothetical random distribution. If the index is less than 1 the pattern trends towards clustering, and if the index is greater than one the pattern trends toward dispersion. The z-score value indicates the significance of the difference between the observed data and a random distribution (ESRI 2004).

Table 1. Nearest Neighbor Analysis of Site Distribution in Clark County, Indiana.

Temporal Period	N	Observed MNN	Expected MNN	NN Index	z-score	Sig <i>p</i>
All Periods (DHPA)	483	309	2662	0.12	-37.2	$p < 0.001$
Mississippian (DHPA)	15	3415	4171	0.82	-1.3	$p < 0.200$
All Periods (new)	131	883	1739	0.51	-10.8	$p < 0.001$
Mississippian (new)	12	3683	5745	0.64	-2.4	$p = 0.016$

To plot and compare the spatial presence of recognized clustering, density maps were produced for all temporal components using the ArcGIS kernel density function (Silverman 1986) with 1 km raster cells and a 5 km search radius to create a smoothed topographic surface based upon the presence of geographic point data. Kernel density calculates the density of point features in a circular area around each output raster cell. The surface value is highest at each point location and decreases to reach zero at the analytical radius, which is 5 km here. The definition of the analytical radius has little effect on the calculated presence or absence of density, but instead helps to create a more specific or general measure of density definition such that a larger radius will be more generalized (ESRI 2004). In this case the maximum distance across Clark County is close to 50 km and the area of the county is approximately 979 square km, so each density cell calculation took up to eight percent of the Clark County area into account.

These densities are presented with a 10-step Jenks' natural breaks classification based on available previously documented sites (Figure 1), previously documented Mississippian sites (Figure 2), all newly documented sites (Figure 3), and all newly documented Mississippian sites (Figure 4). The densest areas for each set, as represented in a 2-step Jenks' natural breaks classification, are compared in Figure 5. The Jenks' natural breaks creates classes based on groupings calculated to minimize the intra-class sum of squared differences, thereby maximizing the differences between classes (i.e. class boundaries represent relatively big jumps in the data values) (ESRI 2004).

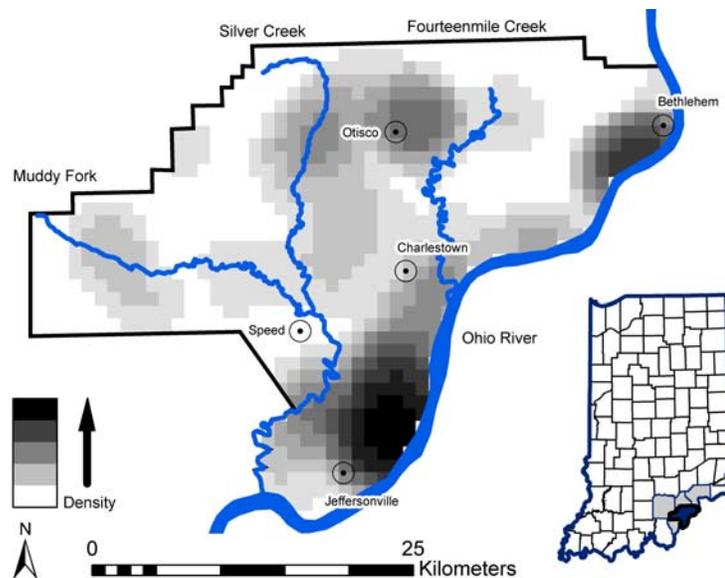


Figure 1. Density of all available DHPA-recorded sites ($n = 483$) with UTM positions in Clark County, Indiana.

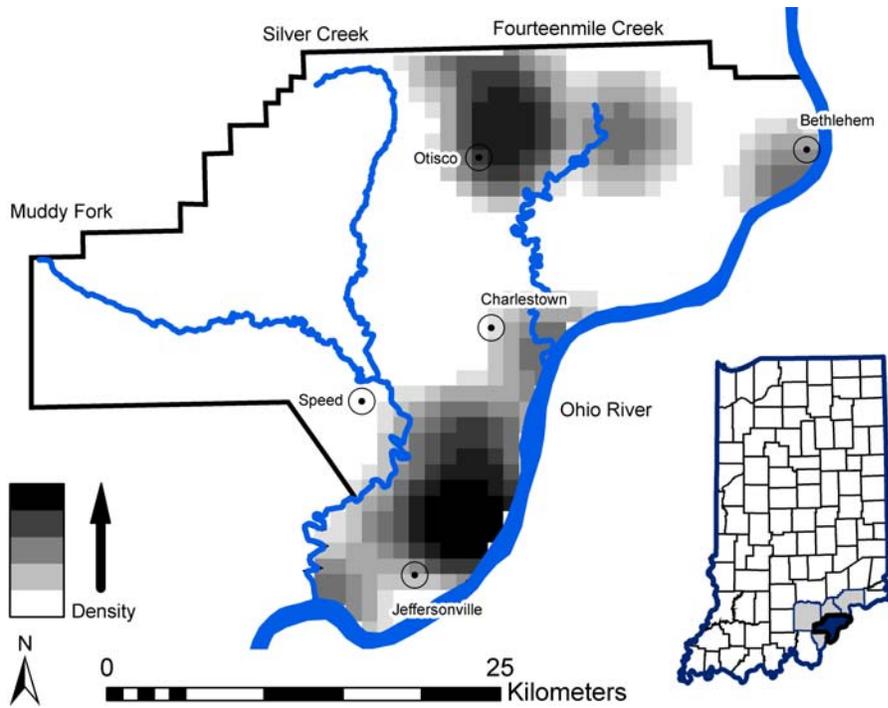


Figure 2. Density of all available DHPA-recorded sites ($n = 15$) with Mississippian components and UTM positions in Clark County, Indiana.

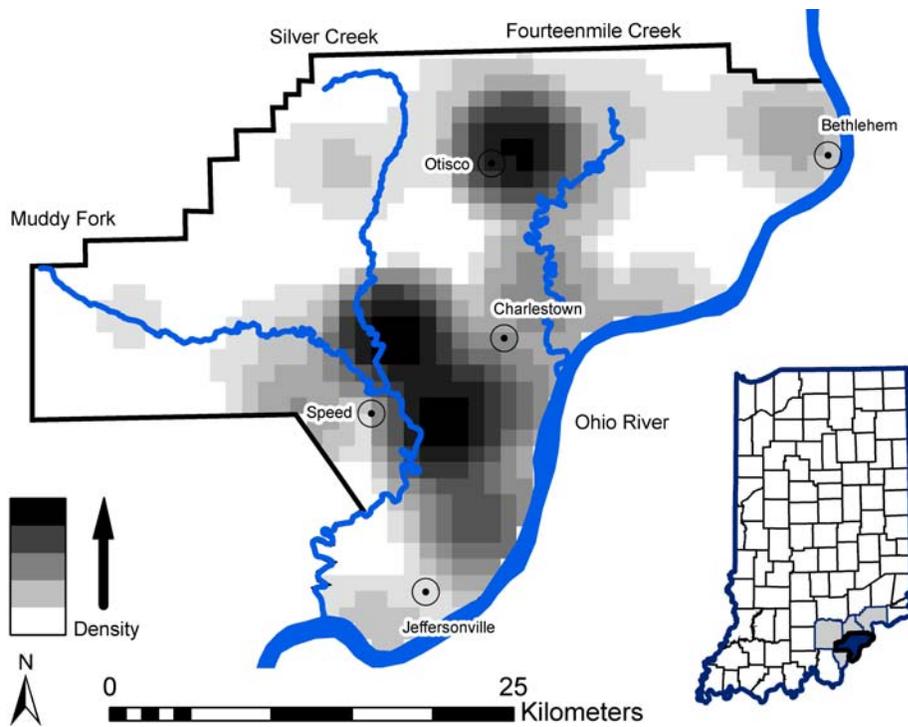


Figure 3. Density of all newly-recorded sites ($n = 131$) from collections research in Clark County, Indiana.

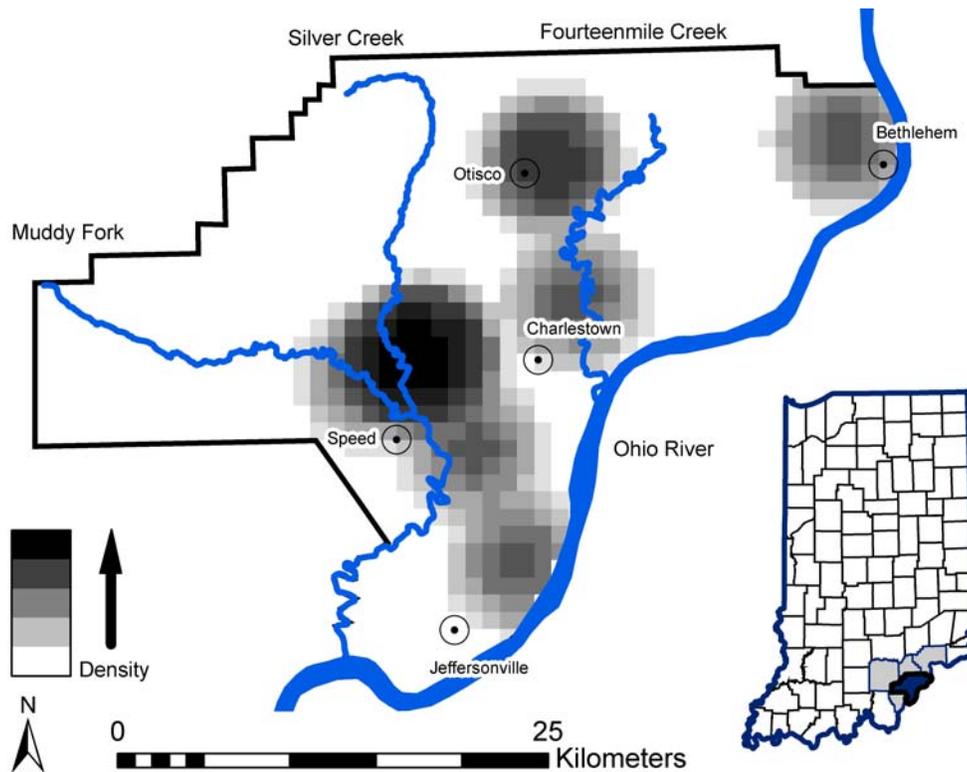


Figure 4. Density of all newly-recorded sites ($n = 12$) from collections research with Mississippian components in Clark County, Indiana.

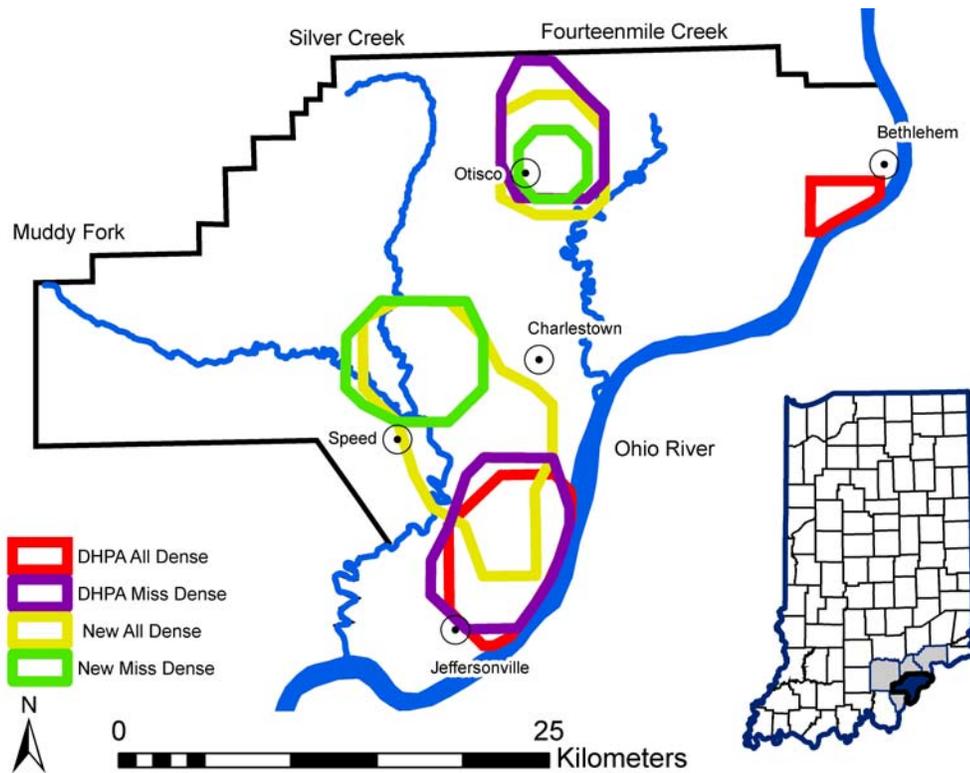


Figure 5. Areas of highest site density for DHPA-recorded sites, new sites, and Mississippian-component subsets of both groups.

A nearest neighbor analysis of the previously documented sites indicates that there is a highly significant clustering of these sites: they are most dense in the vicinity of Jeffersonville and the Clark Maritime area, and also in the Bethlehem Bottom (see Figure 5), all areas of intense archaeological survey in the last 30 years. A nearest neighbor analysis of all new sites indicates that there is a highly significant clustering of these sites: these are most dense in the middle Silver Creek drainage and downstream toward the Ohio River, and in the vicinity of Otisco (see Figure 5), which may be partially accounted for in sampling bias by individual collectors. A nearest neighbor analysis of previously documented Mississippian sites does not indicate a significant clustering of these sites, however these sites are most dense in the Jeffersonville and Clark Maritime vicinity and also around Otisco (see Figure 5). A nearest neighbor analysis of newly documented Mississippian sites indicates that there is a highly significant clustering of these sites in areas to the north of Speed and to the east of Otisco (see Figure 5).

Spatial Data Discussion

There seems to be salient information on Mississippian site distribution within the apparent clustering of the previously documented sites and also the newly recorded sites. Although previously recorded Mississippian sites somewhat follow the overall density of all previously recorded archaeological sites in being weighted toward areas along the Ohio River, the Mississippian sites are also particularly dense in the uplands near Otisco. Similarly, the newly recorded Mississippian sites are significantly clustered near Otisco, and there is a larger cluster in the uplands near Speed.

These data indicate a stronger upland character to Falls Mississippian site distribution than has been previously discussed in the literature. This finding is bolstered by the presence of known intense Mississippian occupations in the upland areas, the Prather and Ellingsworth sites (Munson and McCullough 2004; Munson et al. 2006), the Smith-Sutton site (Wells and Arnold 2008), and the Willey and Spangler-Koons sites (Guernsey 1939, 1942; Munson and McCullough 2004; Munson et al. 2006). As noted by previous investigators (Munson and McCullough 2004; Munson et al. 2006), an upland settlement pattern is aberrant in comparison to the bulk of known Mississippian settlement strategies, which were focused on floodplains, but it is not unknown. Upland Mississippian settlement strategies have been documented at various temporal points in Illinois (Cobb and Butler 2002; Pauketat 2003). The historical and processual reasons behind the Falls Mississippian settlement pattern, and the relationships between upland and floodplain localities, are in need of definition.

In order to confirm or revise this inference, there is a need for more general data from defined sites and from new surveys of the Clark County region. The advent of Indiana's new State Historic Architectural and Archaeological Research Database (SHAARD) in 2008 should provide a capability for pursuing these and other landscape-level research and management goals, as GIS-compatible data becomes more the norm for all levels of work reported into and exported from that system.

Site-Level Research at the Smith-Sutton Farm Mississippian Village (12-CI-130)

Site 12-CI-130 is also known as the Smith-Sutton Farm site, in which the largest component consists of the buried remains of a walled Mississippian village that appears to have contained a small central plaza and may have had a specially defined habitation area for persons of higher status. The site is located about 2.5 km from the Ohio River and approximately 5 km south-southeast of the Prather site, a Mississippian ceremonial town that has four mounds surrounding a central plaza (Munson and McCullough 2004; Munson et al. 2006). The socio-temporal relationship between these two sites is not yet known, although it is quite plausible that Smith-Sutton was a satellite of Prather in a hierarchical settlement system and that the evidence found at 12-CI-130 for localized ritual and hierarchical differentiation was a result of that system's political and religious processes.

Previous to this survey, the site was briefly investigated and defined in 1975 during archaeological work related to the construction of the Clark Maritime Center (Reidhead 1975; Sieber and Ottesen 1985). The previous survey was limited to a pedestrian surface survey at about 10-m intervals, during a season of poor surface visibility. However, this previous investigation still yielded a large collection of artifacts that were overwhelmingly Mississippian in character. The IPFW-AS chose 12-CI-130 as a site for detailed reinvestigation based upon substantial local encroachment (the site is currently bounded by a public school, an industrial park, and growing residential neighborhoods) and interest on the part of the Clark County archaeological and historical community.

During this current project the 12-CI-130 site and its surroundings were investigated with a two-pronged approach that 1) assessed the density and extent of the occupation and site structure at the site using noninvasive geophysical methods, and 2) systematically sampled subsurface archaeological deposits with a series of test excavations.

Geophysical Survey

Concurrent with the test excavations a geophysical survey of 12-CI-130 was conducted using magnetometry and electrical resistivity, in order to develop a more detailed understanding of the natural and cultural stratigraphy beneath the ground surface at the site. This survey was designed to generate rapid, replicable, and noninvasive data on the site's structure and the potential of archaeological deposits there to yield data of sufficient quality to answer important scientific research questions.

The data from the magnetometer survey were highly effective in revealing the site plan at 12-CI-130. Thus, the IPFW-AS focused most of the geophysical survey on collecting magnetic data since collecting soil resistivity data is very time consuming. By collecting more magnetometry data, the investigation was able to achieve greater coverage as well as high-quality site structure data. To ensure that the geophysical data were of sufficient quality, however, a test of the effectiveness of the soil resistivity technique was conducted by collecting four survey grids. This test also helped evaluate this technique's effectiveness for future geophysical surveys at the site.

Basics of Magnetic and Electrical Geophysical Surveys

Magnetic gradiometry is a passive method for detecting gradients in magnetic fields created from the total of remanent and induced magnetism, both natural and anthropogenic, within the survey area (Kvamme and Ahler 2007). Magnetic fields are present in all soils and many archaeological artifacts. These fields can be produced through a process of thermoremanent magnetization in which soils or rocks are heated to the ferromagnetic Curie temperature, above 500° C (Burks 2004). Or a soil can develop a magnetic field in response to the earth's background magnetic field, as a product of that soil's magnetic susceptibility; this is heightened in soils with an organics-rich content that can feed bacteria which produce small magnetic particles, examples include topsoils, or archaeological features with organic content (Burks 2004).

Subsequently, magnetometry data at varying levels of resolution are capable of resolving differential strengths in magnetic fields between objects and their surrounding soil matrix to indicate the presence of cultural materials such as fired clays, fire-cracked or other heated rocks, and metal artifacts with ferrous content; similarly, it can detect the presence of archaeological features due to differences in contrasting magnetic fields between differential soil zones (Marshall 1999; Martin et al. 1991; von Frese and Noble 1984).

Electrical resistivity is an active technique that uses probes to both introduce an electrical current into the soil and measure changes in voltage. The relative amount of voltage to current reveals resistance according to Ohm's Law (Clark 2000). The electrical properties of soil are a helpful guide to understanding the theory behind resistivity and interpreting the data produced from resistivity survey. The electrical resistivity of soils and/or materials underground is directly connected to porosity, permeability, saturation, and the chemical nature of retained liquids (Heimmer and DeVore 1995:30). High-resistant soils can be dry, consist of coarse sand, and have low salinity. Low-resistant soils may be moist, have a presence of fine clay particles, and have high salinity. These are important factors when interpreting whether anomalies detected by resistivity are caused by natural geological features or cultural activity. A measurement of depth can also be controlled by the separation distance between the probes.

Geophysical Methods

This project involved two types of geophysical surveys, magnetic and electrical. All geophysical surveys were conducted by IPFW-AS staff, using equipment owned and maintained by the IPFW-AS. All data were collected in a 20 m x 20 m geophysical survey grid (Figure 6) that was laid out with a laser theodolite.

The magnetic component of the survey was conducted with a Bartington Grad 601-2 dual gradiometer. The gradiometer was recalibrated after every three survey blocks. Data were produced in a raster format, with 0.125-m cells.

Electrical resistivity data were collected using a Geoscan Research RM 15 with the MPX-15 multiplexer in geophysical grids 6, 30, 31, and 33 (see Figure 6). A twin parallel probe array configuration in a zigzag arrangement was used to accelerate survey speed. The mobile resistivity probes were set for a 0.5-m depth and were taken at 0.5-m traverse intervals with 1.0-m sample intervals. Data were produced in a raster format, with 0.5-m cells.

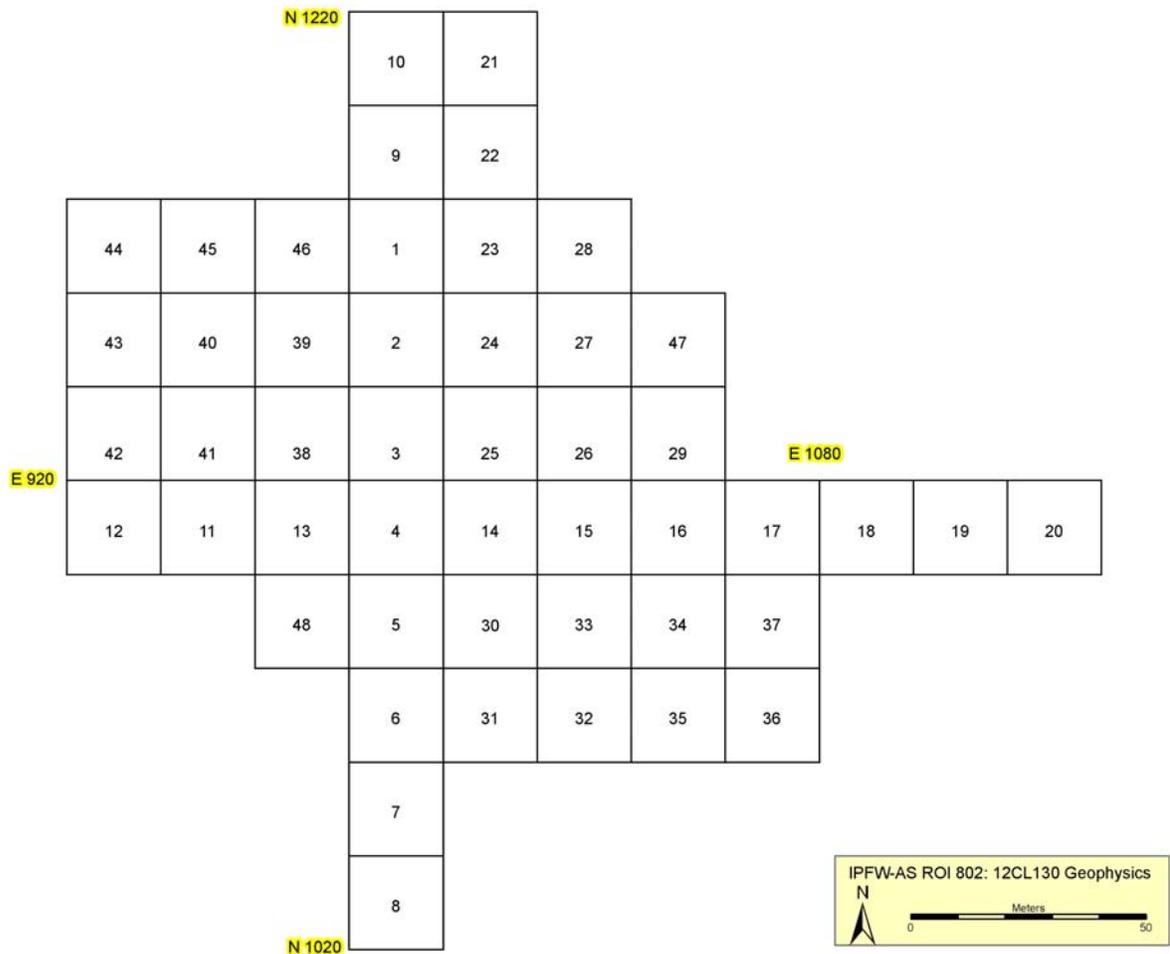


Figure 6. IPFW-AS geophysical survey grid at Smith-Sutton site (12-CI-130).

All magnetometry and electrical resistivity data were processed with ArcheoSurveyor version 2.2 software to remove the influence of non-archaeological phenomena such as external magnetic fields (magnetometry), natural stratigraphy (both), modern rubbish (magnetometry), and data spikes that occur when using electrical resistivity. ArcheoSurveyor was also used to sharpen the resolution of magnetic and electrical anomalies that indicated anthropogenic areas of interest. Processed data were exported to an ESRI grid file format for manipulation in ArcGIS 9.1, in order to analyze the geophysical data in context with correlated excavation data and aerial photography.

Geophysical Results

The magnetic survey of 12-CI-130 was highly successful in delimiting much of the boundary of the village, defining the presence of a screening wall, and identifying the presence of numerous structures, probable storage pits, and other anthropogenic features. These archaeological features are all represented in the magnetic data as anomalous magnetic values that are distinctly different from other values surrounding them. These values are reported in nanoteslas and depicted alone in Figure 7a, and with interpretations of magnetic anomalies in Figure 7b. In total, 48 geophysical survey squares were completed, covering an area of 1.92 ha or 4.7 acres.

The electrical resistivity survey of 12-CI-130 was limited in scope, but successful where it was practiced. Four 20 m square geophysical grids were investigated (Figure 7c) in order to compare and contrast the results from this and the magnetometer survey. The results indicated that soil resistivity can provide good-quality data from this landform, but the data from the magnetometer is more detailed, and not all of the anomalies identified in the magnetic data are visible in the resistivity data. In general, only the larger cultural anomalies are identifiable in the resistivity data. As shown in Figure 7c, the structure located on the western edge of grid 30 is clearly visible in both the magnetometer and soil resistivity data. Also, the southern corner of the screen wall visible in the magnetic data shows as an area of general low resistance interior to the village, and areas of high resistance exterior to this wall.

On the other hand, soil resistivity appears to be effective in detecting those anomalies that penetrate deeper into the subsurface. With a probe spacing of 50 cm (the sample size used in this survey), one is effectively looking at soil differences at a depth of up to 50 cm. The use of targeted soil resistivity in conjunction with large-scale magnetometry at the Smith-Sutton site would be effective in identifying which structures represent the semisubterranean pit structures at the site. For example, the structure mentioned above in grid 30 is believed to be a prehistoric house basin structure. Other large features such as ditches may also be more easily detected with a resistivity survey.

The demonstration of the effectiveness of soil resistivity on the 12-CI-130 landform indicates that this technique can aid in investigating other sites in the vicinity. This technique would be especially useful when ferrous metal is present, when utility lines are present, or near moving vehicles, all of which hamper a magnetometry survey. The Ellingsworth site (another small Mississippian village site), located just southwest of Smith-Sutton, is located in an area with such modern disturbances, but subsurface deposits may appear in resistivity survey.

Village Dimensions

Based upon the presence of a discontinuous linear magnetic anomaly that is presumed to indicate the remnants of a screening wall (see Figure 7b), and the presence of other anomalies indicative of structural architecture, inferences about the dimensions of the Mississippian village at 12-CI-130 can be made. The village appears to be organized in a subrectangular fashion, with the long axis oriented roughly northwest to southeast. The cardinal limits of the village core, as is visible through magnetometry, appear to be near the extent of identified anthropogenic magnetic features points depicted in Figure 7b. These data correspond well with the findings from the shovel test probe survey (discussed below).

Structures

Twenty-one linear magnetic anomalies were recognized with shapes and dimensions that correspond to the recognized forms of prehistoric Mississippian structural architecture (see Figures 7b and 7c). Several of these anomalies appear to represent rebuilding episodes of individual households, since the outlines of the structures overlap substantially; Mississippian buildings were constructed with wattle-and-daub walls and thatched roofs, and had a presumed use-life of about ten years. Consequently, rebuilding episodes would be expected in most Mississippian localities, even if that habitation site was occupied only for a single generation.

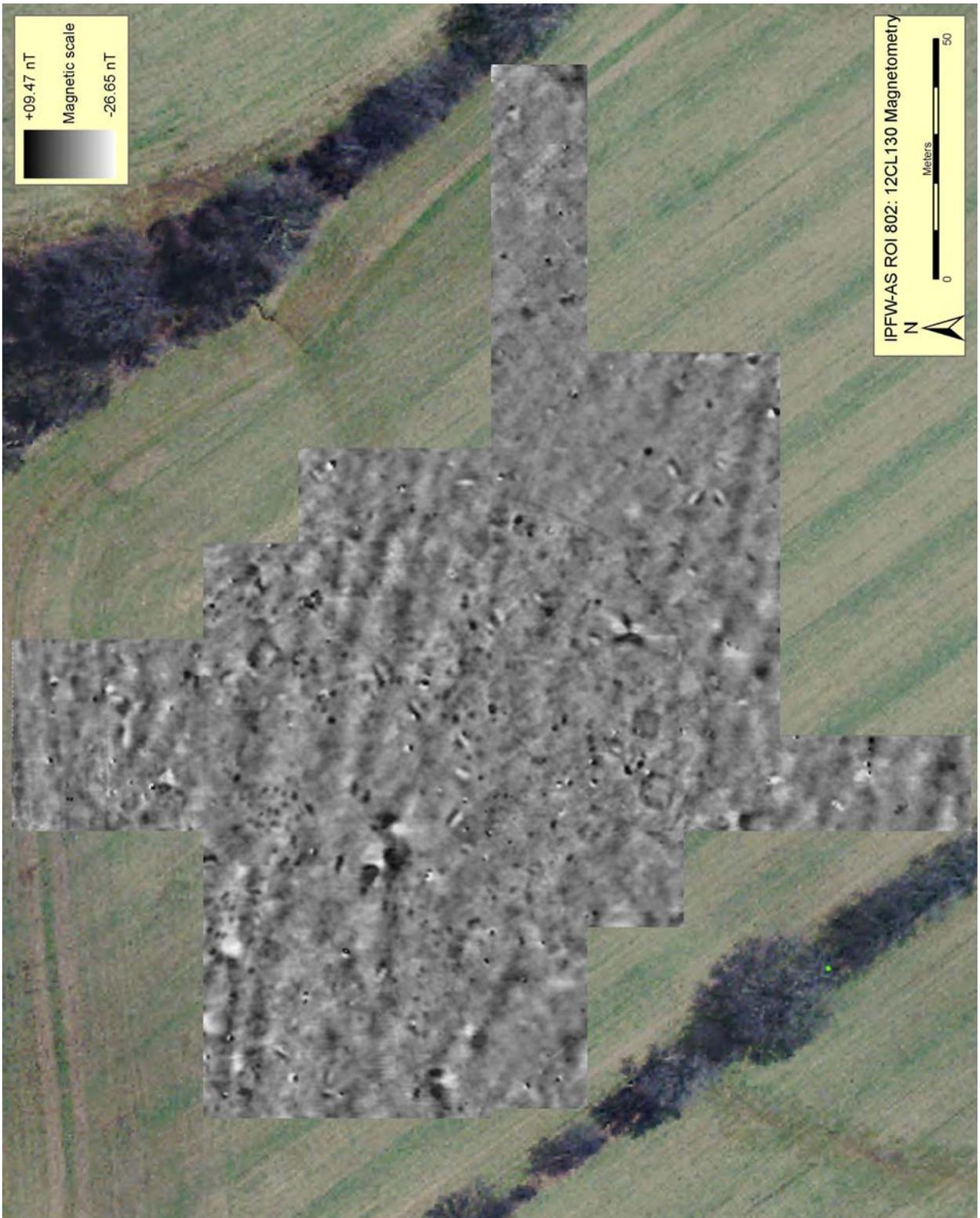


Figure 7a. Processed IPFW-AS magnetometry data from 12-Cl-130, Smith-Sutton Farm.

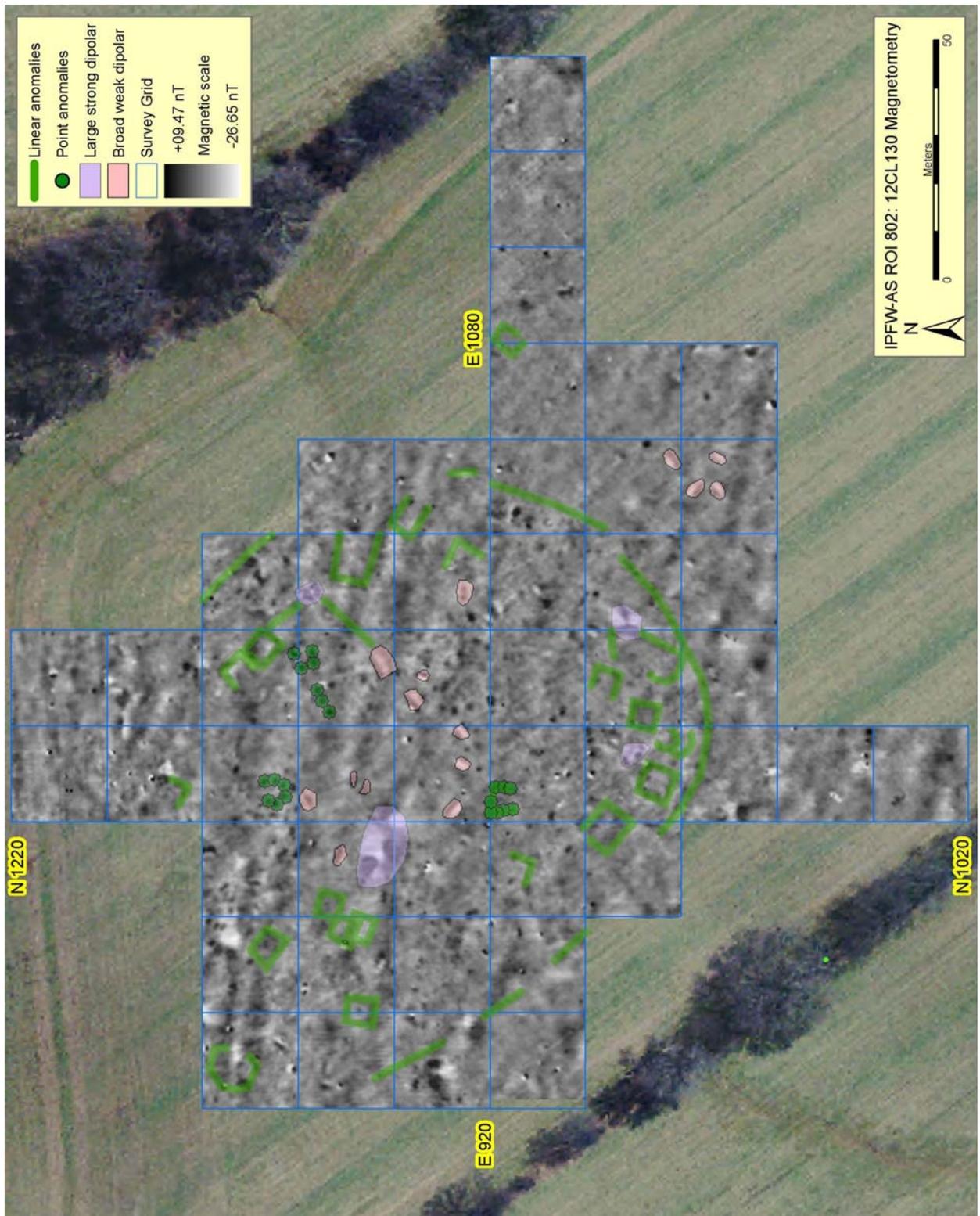


Figure 7b. Interpreted IPFW-AS magnetometry survey results at the Smith-Sutton site (12-CI-130).

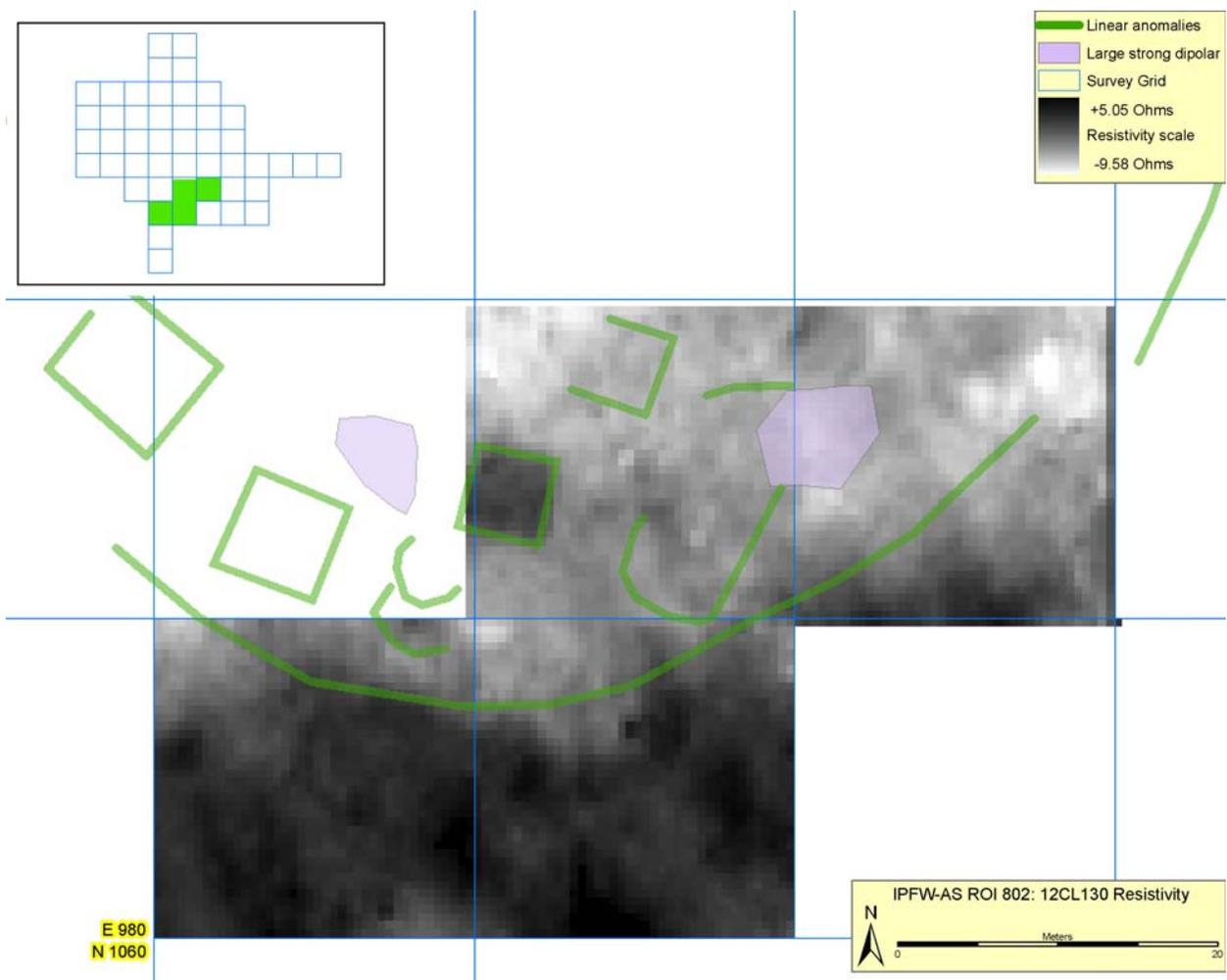


Figure 7c. IPFW-AS electrical resistivity survey results at the Smith-Sutton site (12-CI-130).

Other Magnetic Anomalies

There is a large number of monopolar positive anomalies distributed within the presumed village dimensions of 12-CI-130. These anomalies are likely the product of discrete soil pockets with an increased magnetic susceptibility, created through organic processes as described above. Many of these monopolar positive anomalies are presumed to correspond with the locations of abandoned storage pits and refuse pits within the village. Most of the monopolar positive anomalies recognized in this survey are between 0.5 and 2.0 m in diameter, within the size range of Late Prehistoric pit features. Even though monopolar positive anomalies are scattered throughout the site, several dense clusters of these anomalies are clearly identifiable and are highlighted in Figure 7b.

Several dipolar simple anomalies are clustered around what appears to be a plaza near the center of the village site, and these simple anomalies may represent some sort of communal feature type. It is possible that these anomalies are caused by a magnetic object that contains

both magnetic poles in rough equilibrium—such anomalies may represent ferrous metal objects or magnetic rocks. But in a Mississippian village they could also represent archaeological features such as an earth oven, cremation area, or other site of intense burning, or a scatter of a magnetic material like red ochre. Without further subsurface study, the exact nature of many of these anomalies remains a topic for future research. Most of the dipolar simple anomalies recognized in this survey are ovoid, and between 3.0 and 4.5 m in maximum diameter. These anomalies are highlighted in Figure 7b.

Test Excavations

Site 12-CI-130 was investigated with an ordered series of shovel test probes (STPs), placed to determine the potential extent, preservation, and informational quality of subsurface archaeological deposits. The STPs were arranged at 5 m spaces along two transects in a Cartesian axial formation, one running south-north on E 1000, the other west-east on N 1120, placed to run approximately through the center of the Mississippian component in each direction. The resultant data indicate the presence of a domestic perimeter to the village that was bounded externally by the screening wall, and internally by a central area that was generally free of domestic refuse, construction debris, and storage pits. Plots of the density of general artifacts, and also of shell-tempered Mississippian pottery over the site both indicate similar external boundaries and internal organization (Figure 8).

Diagnostic Artifacts

Hafted Bifaces

Six hafted bifaces (15 g), which were likely used as projectile points, were recovered from excavation contexts at 12-CI-130. All of these artifacts are representative of the Late Woodland/Mississippian Triangular Cluster as defined by Justice (1987). Five of these bifaces are of the Madison triangular type, an isosceles triangular shape that is common across many cultural groups in the Midwest after A.D. 800. One biface from a disturbed plowzone context is of a Fort Ancient triangular type, with deep serrations, which likely postdates A.D. 1100.

Pottery

The Smith-Sutton site is dominated by characteristically Mississippian shell-tempered pottery. A total of 1,907 sherds (6 kg) was recovered that contained shell tempering or ground shell as a temper with other materials. The most common type had shell as the sole tempering material ($n = 1,867$, 5.8 kg), followed by a mixture of shell and grit ($n = 37$, 191 g), a mixture of shell and grog ($n = 2$, 4 g), and a mixture of shell and sand ($n = 1$, 4 g). The last case may conceivably contain a paste matrix that came from a naturally sandy clay deposit.

The recovered pottery is almost wholly composed of plain, shell-tempered sherds that fall under the general category of Mississippian Plain; the few decorated or cordmarked sherds that

were recovered are otherwise identical to the plain ware with regard to the paste matrix and condition of the shell tempering. Mississippi Plain, shell-tempered pottery has been summarized in relationship to Indiana contexts, most recently, by Hilgeman (2000): “The type Mississippi Plain is characterized by large particles of shell temper—generally greater than 1 to 2 millimeters in diameter—and undecorated vessel surfaces that are smoothed but not polished” (Hilgeman 2000:34). Mississippi Plain shell-tempered pottery has been noted as the dominant pottery type at the nearby Prather site (Munson and McCullough 2004; Munson et al. 2006).

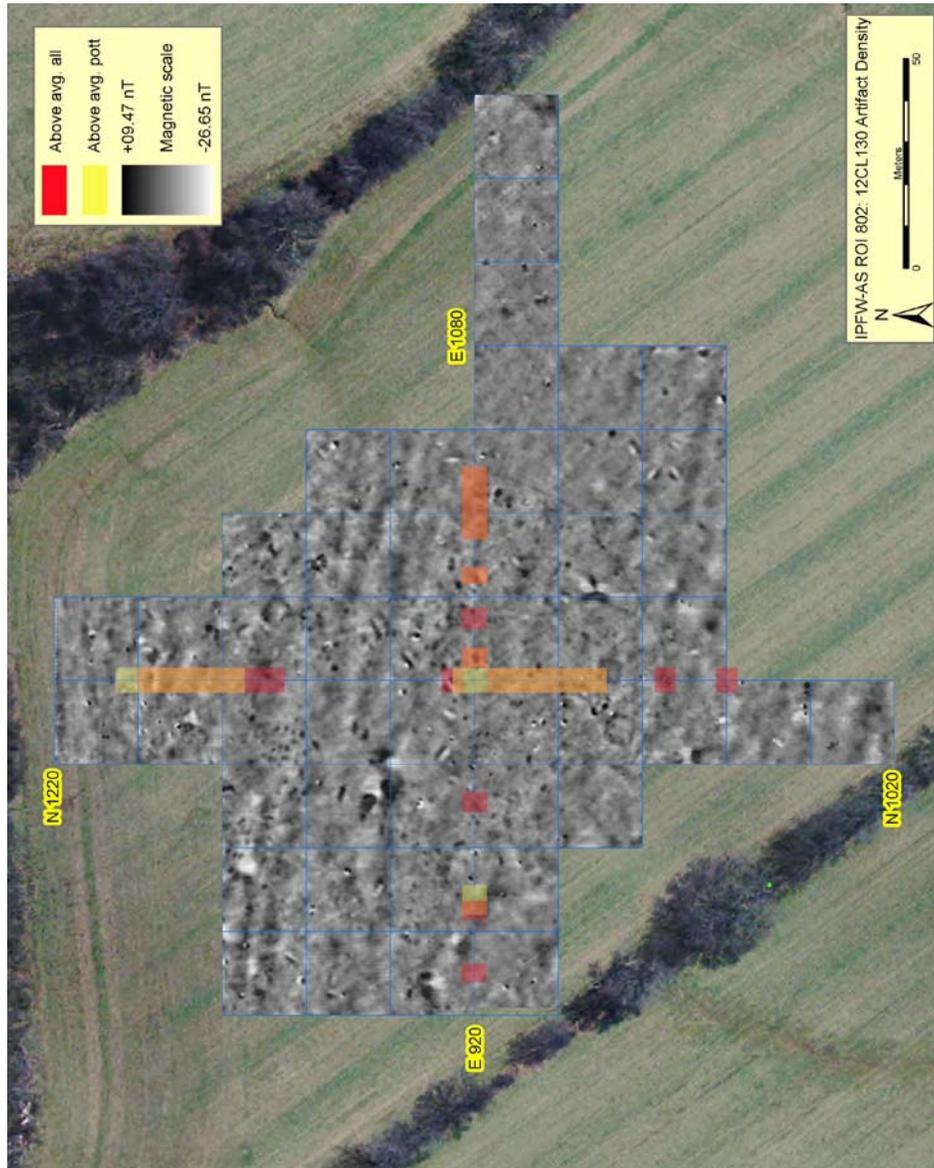


Figure 8. Above-average artifact density from shovel test probes overlaid on magnetometry survey results at the Smith-Sutton site (12-CI-130). Averages computed from masses for all artifacts and pottery alone.

Decorative motifs and handles on the shell tempered-pottery sample are quite rare, consisting of less than one percent of recovered items by count, and less than four percent by weight. Three examples of pottery with a blackened exterior were recovered, as were three examples of pottery made with a reddish clay paste (the dominant color is buff). Two examples were recovered of red-slipped pottery. Two examples of incised designs were recovered, one broad line on the exterior of a vessel and one with a thinner interior line. Two handles were recovered, one lug handle, and one loop handle, both of which are indicative of earlier Mississippian pottery styles at the Angel site (Hilgeman 2000). One rolled rim was also recovered. These items are summarized in Table 2.

Table 2. Pottery Decorative Motifs at 12-CI-130.

Motif Category	Specific Attribute	N	g
Coloration			
	Blackened Exterior	3	34.4
	Red Slip (Interior)	1	6.2
	Red Slip (Interior & Exterior)	1	9.6
	Red Paste	3	21.2
Design			
	Broadline Incising on Exterior	1	43.6
	Incising on Interior	1	61.2
Vessel Modification			
	Loop Handle	1	3.2
	Lug Handle	1	12.6
	Rolled Rim	1	9.6
Total		13	201.6

Identified Vessel Types

Thirty-five sherds or refitted series of sherds were large enough to determine individual vessel forms from different recovery contexts. These items are summarized in Table 3. The typological distribution of identifiable vessel forms is indicative of a socioeconomic effort that focused on mundane production and storage in the Mississippian village. Jar forms that could be used for storage and cooking were the most common type of vessel at 44 percent of identified items; this percentage includes everted-rim and miniature everted-rim types of the jar form. The next most prevalent vessel forms are salt pans and bowls, each at nine percent of identified items; salt pans are heavy and heavily cordmarked vessels designed for recovering salt from evaporated water (Muller 1986), and bowls are frequently associated with household-level domestic consumption in Mississippian villages (Wilson 1999). The most rare vessel form was the plate, with two identifiable vessels, at four percent of identified items; both plates came from an undisturbed stratum near E 1000 N 1095. The most complete plate is depicted in Figure 9. Both plates are undecorated. Plates are generally associated with elite domestic consumption or ritual practice in Mississippian contexts (Wilson 1999; Hilgeman 2000). The consolidation of plate sherds in a few excavation contexts at 12-CI-130 suggests that the ownership and use of plates was restricted at this site.

Table 3. Identifiable Forms of Pottery Vessels at 12-CI-130.

Vessel Form	Subtype 1	Subtype 2	N	Percentage of Identifiable Vessels
Bowl			5	14
Jar	Straight Rim		7	20
	Everted Rim		15	43
	Everted Rim	Miniature	2	6
Plate			2	6
Salt Pan			4	11
Total			35	100



Figure 9. Profile and exterior view of a plate recovered from the Smith-Sutton site (12-CI-130).

Site Structure

The data produced through geophysical survey and test excavation indicate that 12-CI-130 contains the remains of a Mississippian village approximately 1.2 ha in size, with a perimeter of about 400 m. The considerable depth and structure of the village midden suggest an extended or intense occupation of unknown duration. The cultural deposits within the village are over 40 cm thick in some areas, with approximately half of that depth consisting of undisturbed strata; the plowzone also continues to yield artifacts of considerable informational quality.

In its general structure, the village area of 12-CI-130 appears to have a standard Mississippian village layout (Lewis and Stout 1998). The site contains a well-defined residential perimeter surrounding a core plaza that is relatively free of artifacts (see Figures 7b and 8). During the Mississippian occupation, this was probably a plaza that was kept clean for ritual purposes and served as a focal point for community organization (Wesson 1998). The village, as is evident through magnetometry, has a definably ovoid or subrectangular shape that has its long axis oriented northwest to southeast. The southeasterly linear orientation may have ritual significance related to the winter solstice sunrise, a direction that archaeologists hypothesize that

Mississippians in general related to religious beliefs in rebirth and the natural order (Lewis and Stout 1998; Milner 1998). This premise is also supported by the excavation of a large concentration of specialized pottery (plates and miniature jars), from the southern area of the site, that would have been considered of high status value in a Mississippian community. The sociocultural importance of these arrangements was described by Lewis and Stout (1998):

If there can be said to be any physical representation of Mississippian views of the cosmos, it is the town. At the macro level, it reflects the political organization, economy, and religious beliefs of Mississippian peoples. At the micro level, its archaeology is the primary means by which we reconstruct Mississippian household organization, kinship, gender relations, technology, and subsistence. Its deliberately planned elements are as close to a direct mapping of the Mississippian world as we are likely to get. It is the critical mass of what it was to be Mississippian. It is the ultimate metaphor for these extinct societies [Lewis and Stout 1998:227].

Because of the very explicit nature of standard Mississippian spatial organization and symbolism at 12-CI-130, it appears likely that this site was a satellite site of nearby Prather site. The Prather site, 5 km to the north-northwest of 12-CI-130, contains four flat-topped, pyramidal mounds arranged around a central plaza. The construction of earthen mounds, spatially paired with central plazas, was integral to many Mississippian town structures, especially towns that were important to a regional population. Access to one or more mounds at these central sites would have been controlled by a social order of religious and political elite individuals and corporate groups in residence at the site. The presence of specialized and restricted pottery at 12-CI-130 is suggestive of social differentiation that may have been based in a larger order that was maintained by leaders from Prather. Without firm absolute dating data for 12-CI-130, this hypothesis is considered likely but tentative.

Discussion

Site 12-CI-130, the Smith-Sutton Farm site, was defined 30 years ago as having a Mississippian component. A reinvestigation was undertaken utilizing geophysical survey, subsurface survey, and targeted test excavations. This study has provided definitive data describing the density and extent of a village occupation, with a central plaza (perhaps surrounded with cultural features), a screening wall, and possibly a specially defined habitation area for persons of higher status. Based upon recovered artifactual materials, it appears highly likely that this site was a satellite settlement related to the Prather site (5 km to the north-northwest) in a local settlement system within the Falls Mississippian phase, however, without firm radiometric dating this interpretation is open to revision.

The Falls Mississippian calibrated radiocarbon timeline stretches for approximately six centuries between A.D. 1000 and 1650, with most date ranges terminating before A.D. 1400 (Munson et al. 2006). The Prather site, probably one of the earliest of the Mississippian phenomena, yielded dates between A.D. 1000 and 1250. The Newcomb site (12-CI-2), along the Ohio River terrace and floodplain near Clarksville, Indiana, yielded a date range between A.D. 1150 and 1300 from a Mississippian habitation (Munson and McCullough 2004:13). Other dates come from Mississippian components on the Kentucky side of the Falls of the Ohio: Mississippian habitations at the Shippingport Island site (15-Jf-702, A.D. 1000 to 1450) in the Ohio River channel; and from midden and burial materials recovered from a coeval

Mississippian and Fort Ancient village at the Eva Bandman site (15-Jf-668, A.D. 1250 to 1650) in downtown Louisville, Kentucky (Munson et al. 2006).

At present the artifactual materials and data regarding site organization recovered from 12-CI-130 suggest an earlier Mississippian manifestation, probably related to the Prather site in a settlement hierarchy. The effects of distance on administrative practices within Mississippian political organizations has been discussed by Blitz (1993, 1999), Hally (1987; cited in Hilgeman 2000), and Muller (1997), and a radius of 20 kilometers is considered to be practicable for exercising direct control between sites in a Mississippian social system. The position of an organized village such as 12-CI-130 within a short walking distance of Prather would have been useful for the administration of agricultural and procured resources and the mobilization of labor to those ends, while the central site of Prather would have functioned as a location of communal organization and source of local identity (Blitz 1993). However, the economic system was likely not dominated by elite control, and economic concerns alone would not have been likely to prevent dissatisfied groups from “fissioning” away from Prather or any other central organizing force (Blitz 1993; c.f. Anderson 1994; c.f. Muller 1997, 1998). The full history of the Smith-Sutton site, its place in the Mississippian archaeological record, and more complete anthropological interpretations await further work at the site.

Concluding Remarks

The data presented here add to a growing body of landscape-level and site-based data on the Mississippian occupation around the Falls of the Ohio region. In combination, the data and methodologies detailed in this report strongly bolster an argument for continuation of both broad and intensive surveys of areas in Clark County, Indiana where the archaeological record is currently undefined or under-defined. Highly effective practices toward achieving these survey goals involve: 1) public outreach to access privately held information, coupled with geographic information system management of the results; and 2) intensive geophysical surveys coupled with systematic test excavations in order to gauge the informative potential of subsurface deposits at recognized sites.

During the time span between A.D. 1000 and 1650 the modern area of Clark County sat along the geographic border between the Mississippian and Fort Ancient worlds, and questions about the nature of interactions along and across that border are of particular archaeological and anthropological interest (Griffin 1943, 1978; Drooker 1997). The collections survey, geophysical surveys, and test excavations employed in this project revealed very little in the way of artifacts or behavioral patterns that could be characterized as Fort Ancient. Falls Mississippian appears to dominate the Late Prehistoric horizon in Clark County, substantial settlement around the Ohio River floodplain has been previously documented, and collector-reported sites with Falls Mississippian components are shown to be significantly clustered in the uplands away from the Ohio River. Comparable data from DHPA database records bolster this interpretation.

The Smith-Sutton Farm site (12-CI-130) was shown to have substantial subsurface deposits and feature preservation that combine to indicate that it is a Mississippian village with high informational potential for future research. Data at 12-CI-130 were gathered rapidly and efficiently, using targeted shovel probing in tandem with magnetometry and electrical resistivity surveys to define and delimit the site with minimal intrusion (see Wells and Arnold 2008 for

descriptions of two test excavation units). These practices enabled the definition of a screening wall around the exterior of the Mississippian village, a central plaza within the village, and an organized arrangement of domestic structures and unspecified communal features within the habitation area. The presence of these features indicates a strong emphasis on Mississippian spatial organization and architectural grammar in the uplands of Clark County, away from the Ohio River floodplain. This behavioral pattern is even more elaborately exhibited at the Prather site, an upland mound center.

In combination, and in regional perspective, these landscape-level and site-level data indicate that the Falls Mississippian phase peoples densely occupied the floodplains and uplands of Clark County. This settlement was likely organized through political and religious structures iterated from a central location, probably the Prather site (Munson and McCullough 2004; Munson et al. 2006). The data produced during this project broaden the definition of Falls Mississippian and suggest a geographic scale of settlement and localized network organization on par with Indiana's other Mississippian cultures: the Angel phase (Black 1967; Griffin 1978; Hilgeman 2000; Muller 1986), the Vincennes phase (Griffin 1978; Wells 2008; Wells and de la Cova 2007; Winters 1967), and the Caborn-Welborn phase (Munson 1997, 1998; Munson et al. 2000; Pollack 2004). Farther downstream from Angel, the effects of earlier and contemporary influences from the Kincaid region (Muller 1978, 1986, 1998) should also be considered. Certainly, there will be important historical and processual differences that have yet to be recognized and defined (c.f. Pauketat 2007). In light of these findings, we strongly suggest that the Mississippian settlement of the Clark County region be given high research priority and continued attention through professional studies at both the site and landscape levels, which are designed to consider theoretically-nuanced definitions of Mississippian settlement patterns and socio-political structures.

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EXCAVATIONS AT THE STRAWTOWN ENCLOSURE, 2007

Robert G. McCullough, Ph.D.
Indiana University-Purdue University Fort Wayne
Archaeological Survey (IPFW-AS)
Fort Wayne, IN

The Strawtown enclosure was added to the National Register of Historic Places in March 2008. To understand its national significance, this article provides a brief overview of the enclosure and its history of investigations, as well as a description of the results of the 2007 excavations conducted by the Indiana University-Purdue University Fort Wayne Archaeological Survey (IPFW-AS) during Indiana Archaeology Month. Funding for two weeks of the investigations was provided by the Historic Preservation Fund (grant number 22618-10) administered by the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (DHPA). A third week of investigations was funded by the Hamilton County Parks and Recreation Department (HCPRD), and the Legacy Fund of the Central Indiana Community Foundation provided support for interpreters during Archaeology Month programming. The primary objective of this research was to increase public awareness of archaeology in Indiana through interactive visitation of excavations in progress. An equally important goal of the project was to collect household-level information to clarify patterns of cultural interaction found among the Late Prehistoric frontier horticultural societies who inhabited central Indiana. A domestic structure identified late in the 2006 field season (Arnold et al. 2007), the first one to be discovered within the enclosure, was a particular focus of the 2007 investigations.

While excavation activities were focused on collection of primary data, the broader research agenda was integrated with a proactive public program (Figure 1) to increase awareness of archaeology and archaeological methods and goals during Indiana Archaeology Month 2007. During the three weeks of excavations in September and October 2007, at least 3,620 individuals visited the Strawtown enclosure site; 57 percent (2,055) of these visitors attended through scheduled school and educational group tours in a structured program co-staffed by HCPRD and IPFW-AS personnel. Activities included hands-on participation in screening and identifying artifacts, as well as demonstrations of actual archaeological methods, nature walks, and talks on the park's long history of human occupation.



Figure 1. Hands-on experience in identifying artifacts, Archaeology Month 2007, at the Strawtown enclosure.

The Strawtown Enclosure

The Strawtown enclosure (12-H-883)¹ is a circular, earthen embankment with an exterior ditch, located along the West Fork of the White River in Hamilton County, Indiana. The enclosure is situated on an upland prominence (about 30 feet above high water) across the White River from the Taylor Village site (Cochran et al. 1993). The vicinity is bottomlands and an upland remnant in a near-oxbow bend of the river where it broadens onto a wide floodplain. At the time of European settlement, the upland overlooked a large prairie along the river bottoms. The Strawtown enclosure has been recognized as a significant prehistoric earthwork since the late nineteenth century, and recent investigations have confirmed that it is a Late Prehistoric (ca. A.D. 1200-1450) fortified village with a central plaza ringed by a zone of domestic occupation. It was originally enclosed by a substantial palisade atop an earthen embankment with an exterior ditch. Evidence of three Late Prehistoric, maize-growing peoples—Fort Ancient, Western Basin (Lake Erie), and Oneota, each living at the far margin of their core settlement area—has been recovered from the enclosure, suggesting that it was a central focus in a complex sequence of cultural occupations and accommodations.

Environmental Setting

The Strawtown enclosure lies on a Pleistocene terrace and upland till remnant. Like most of the midcontinent, the physiography of the area is dominated by the results of Pleistocene glaciation (Melhorn 1997:18-20; Wayne 1966:32-36). The Central Till Plain Region of Indiana was shaped by mid-Wisconsinan ice advances that deposited glacial till where glacial ice stagnated, forming large areas of very little relief. Along the borders of the major glacial meltwater channels, such as the White River, wind and erosion formed elevated terraces and sand dunes. Later, sediment formed as alluvial deposits along drainageways, as bog sediments in wetlands, and as colluvial deposits on slopes. Soils at the enclosure belong to the Shoals-Genesee (floodplain) association (Hosteter 1978), with the major soil type being a well-drained, gravelly Ockley silt loam (OcA), 0 to 2 percent slopes.

Such a diversity of glacial effects on topography is matched by ecotonal diversity. Although the presettlement vegetation of the Central Till Plain Region was dominated by beech-maple-oak forest, floodplain plant communities can differ from more upland areas, increasing the available floral resources (Petty and Jackson 1966:276). Prairie tracts were also recorded at Strawtown during the early settlement period (Brown 1821). Tall-grass prairies, more common along the Wabash River, supported “hundreds of plant species. . . . It was not unusual to find twenty different species growing in one square meter of ground” (Post 1997:190).

The drainageways and primary forests of central Indiana contained as abundant a range of animal species as of flora, most of which were common throughout the eastern United States

¹ Current names for the enclosure can be confusing. The area contains the “Strawtown enclosure” (12-H-883) and what archaeologists and others have called the Strawtown site, referring to the several known prehistoric features in the vicinity of 12-H-883. There is also a nearby town called Strawtown. Older references and institutions labeled the archaeological resources on or around the enclosure as 12-H-3. However, in 2001, the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (DHPA) assigned the enclosure the number 12-H-883, and assigned a village site, located 200 meters to the north of the enclosure, the designation 12-H-3. Thus, in references dating prior to 2001, 12-H-3 refers to the enclosure and immediate vicinity, and after 2001, the enclosure is 12-H-883.

(Mumford 1966:474). Riverine environments supported a variety of fish and mussels; along their banks and in the floodplain forests were reptiles and amphibians, waterfowl, and mammals adapted to aquatic environments, such as muskrat and beaver. Land animals of importance to Late Prehistoric subsistence, such as white-tailed deer, raccoon, and turkey, were widely distributed and mobile, moving through upland and lowland regions in response to seasonal or climatic changes. Other species known to have been common in the project areas in pre-statehood Indiana included elk, black bear, eastern cottontail, Virginia opossum, grey and fox squirrels, and passenger pigeon (Richards and Whitaker 1997:152). Species that once were found in the study area, such as porcupine, river otter, mountain lion, lynx, Carolina parakeet, spotted skunk, timber and red wolves, and wolverine (Richards and Whitaker 1997:154), have been extirpated in the last few centuries, along with elk, black bear, and the passenger pigeon. Bison did not enter Indiana until the protohistoric period (Tankersley 1986:105), at the beginning of the Little Ice Age (ca. A.D. 1650), and so were not available to the prehistoric populations of central Indiana.

While Late Prehistoric peoples relied heavily on farming, they also utilized a range of wild flora and supplemented their diets with a variety of faunal resources available to them, such as deer, elk, bear, raccoon, turkey, and other fowl, fish, and mussels.

Cultural Setting

Although the ecotonal diversity of the Strawtown area has been exploited in all periods of human history, it was the focus of activity during the Late Prehistoric period. In very general terms, the last 600 years prior to European intrusion into Indiana can be described as a period during which prehistoric peoples: 1) completed a shift to a largely sedentary, agricultural way of life; 2) followed a nucleated pattern of settlement that centered around villages or towns; and 3) established some level of ranked socio-economic organization. There is evidence that the social landscape may have been increasingly unpredictable by A.D. 1400. The period is not only marked by the rise of maize agriculture, but by considerable cultural complexity, as well as by widespread population movement and dispersal and evidence of violent conflict (e.g., Emerson 1999). In Indiana, the Late Prehistoric period is characterized by considerable diversity in settlement size, form, and location and ceramic style. Earlier attempts to understand this variability were hampered by a limited amount of (and possibly incorrect) radiocarbon dates, previously unidentified cultural complexes, and a paucity of Late Prehistoric research, which had a profound influence on the interpretation of this time period. The relationships among these various populations have long been poorly understood, and it is only recently, especially with a number of carbon dating results, that temporal and spatial correlates can be considered. As a result of recent investigations, it is possible to characterize central Indiana as a borderland region where groups with Fort Ancient, Western Basin, and Oneota cultural affiliations interacted over a wide spatial and temporal span.

Pottery and other elements of material culture from all three of these groups—Anderson phase Fort Ancient, Western Basin Tradition, and Oneota-like Taylor Village—has been recovered from midden contexts within the Strawtown enclosure (Arnold et al. 2007; McCullough 2005, 2008; McCullough et al. 2004; White et al. 2002; White, R. McCullough, and D. McCullough 2003²). These three distinct Late Prehistoric archaeological populations all

² These are reports of investigations related to the Strawtown area by the Indiana University-Purdue University Fort Wayne Archaeological Survey, and most can be accessed on line at www.ipfw.edu/archsurv/home.html.

followed a sedentary lifestyle with a reliance on tropical cultigens. Both the Western Basin Tradition centered in the Lower Maumee River valley (Cochran 1980; McCullough 2003; Mohow 1987; Moore 1987; Stothers and Schneider 1998) and the Anderson phase Fort Ancient from southeastern Indiana and southwestern Ohio (e.g., Essenpreis 1982; Heilman et al. 1988; Henderson 1992; McCullough 2000) practiced swidden or slash-and-burn cultivation within the mostly forested regions of Indiana. Villages shifted as resources and soil fertility were depleted within the proximity of the village (McCullough 1997). The Oneota populations commonly associated with northern Illinois and southern Wisconsin (Griffin 1943; Overstreet 1997) exhibit a sporadic distribution in central Indiana but appear to be situated within prairie pockets adjacent to wetland resources within the extensive deciduous forest that once covered most of central Indiana (Cochran et al. 1993; McCullough and Wright 1997). The Oneota population also followed a sedentary settlement system, often cultivating wetland edges and exploiting prairie and woodland resources. The Taylor Village site, an Oneota occupation, is located across the White River in proximity to the Strawtown enclosure.

Recent radiocarbon dates have begun to allow us to place these groups temporally to begin to understand the complex series of cultural interactions, accommodations, and confrontations that were occurring during the Late Prehistoric in central Indiana. By about A.D. 1100 the drainageways of central Indiana were only sparsely or seasonally occupied and its agricultural potential only minimally exploited. Yet the White River drainage represented a vast, highly desirable area to peoples dependent on a subsistence economy based on maize cultivation, such as the Fort Ancient, Western Basin, and Oneota peoples. Rather than an in situ development from the dispersed indigenous inhabitants (Albee phase), the peopling of central Indiana after A.D. 1100 most likely is the result of in-migration of at least three already established cultural groups. There is little evidence before A.D. 1100 of a substantial population in the area, nor is there evidence of cultural continuity in terms of material culture, settlement patterns, or mortuary behavior between the earlier Albee and the later groups (see White et al. 2002:123-126).

Survey and investigations on park property have established that people with a tradition of general Great Lakes Impressed ceramic styles, which is most similar to those of the Western Basin of Lake Erie, were living in small hamlets and farmsteads throughout the bottomlands surrounding the enclosure by the early 1100s (Figure 2). In addition, at least one large village (12-H-3) is present on the bottoms. Their pottery was sand and grit- or grit-tempered and exhibited cord-marked or fabric roughened bodies. Specimens with decoration often had smoothed necks and rims (Figure 3). The decoration is placed on a typically tall, often collared rim and consists of cordage or cord-wrapped dowel decorations aligned in various configurations (most commonly horizontal lines). Castellated vessels are also common, and sometimes the rim extrudes (incipient node) outward below the peak. These Great Lakes people, like most migrants, however, did not transplant the full range of Western Basin cultural characteristics identified along the Maumee River. Rather, they developed a set of cultural responses to the new conditions along the White River distinctive enough to be designated the Castor phase (McCullough 2005). Instead of the dispersed hamlets known from northeastern Indiana or northwestern Ohio, nearby site 12-H-3 was a large (estimated at 6 to 10 acres), Castor phase, palisaded village with paired, semisubterranean communal structures. This large concentration of people associated with palisades and the communal structures is unique to central Indiana. Based on recent radiocarbon dates, these Castor phase peoples remained in the bottoms until the early fifteenth century.

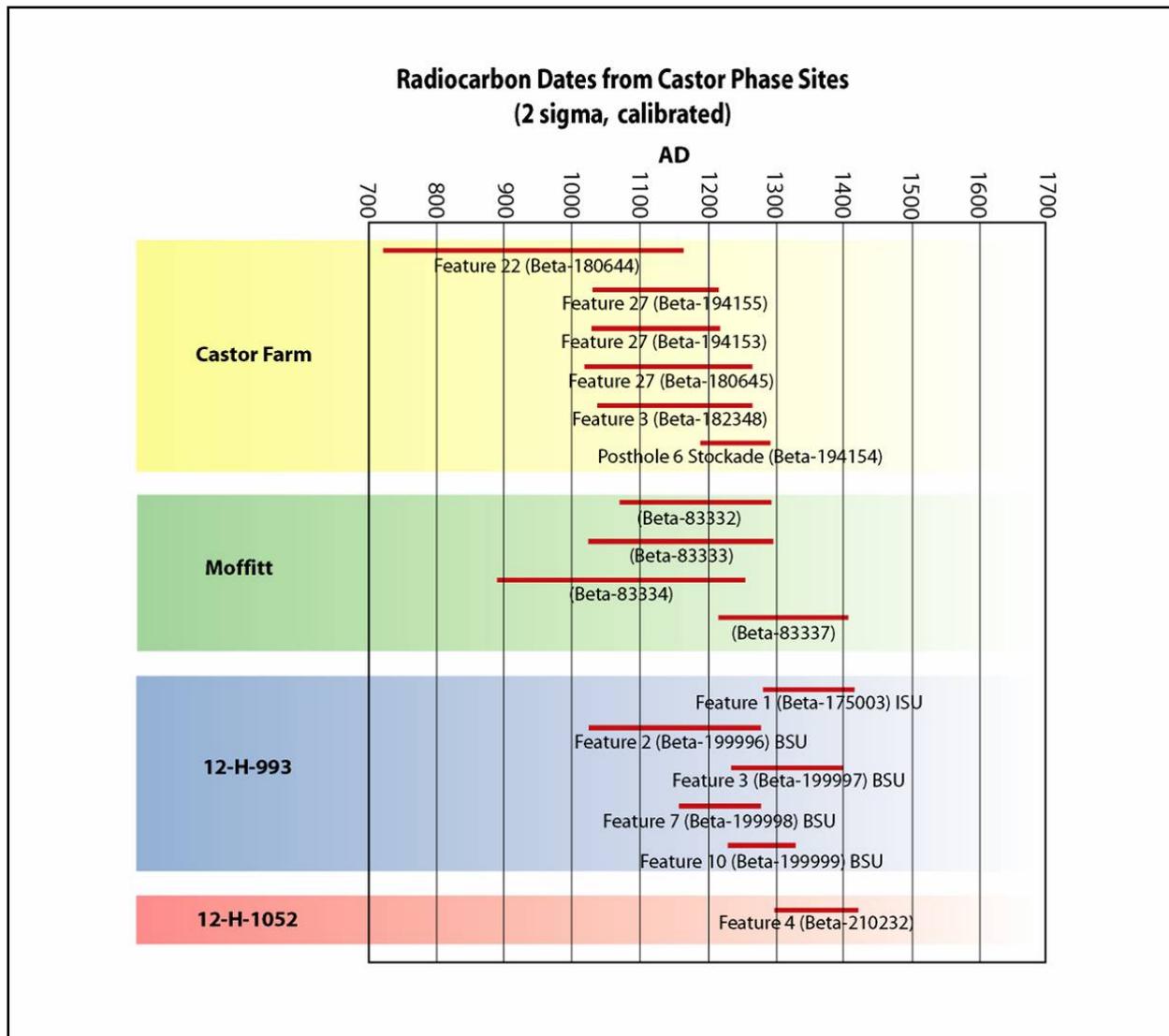


Figure 2. Radiocarbon dates from Castor phase sites in central Indiana.

By A.D. 1200, people with a cultural tradition most like Middle Fort Ancient were occupying the Strawtown enclosure (Drooker 1997; Henderson 1992). As with the Western Basin peoples, the full range of Fort Ancient cultural expression is not present at the enclosure, but the distinctive, guilloche-decorated ceramics (Figure 4) and nucleated circular settlement pattern were retained. The enclosure is strikingly similar to the SunWatch site, near Dayton Ohio, with a central plaza encircled by activity and domestic zones, storage and refuse zones, and a palisaded earthen embankment (Heilman et al. 1988), but even though the Strawtown enclosure ceramics are dominated by Fort Ancient sherds, both Fort Ancient and Western Basin-like (Castor phase) wares are found in association from feature context (White et al. 2002; Cantin et al. 2003; McCullough et al. 2004).



Figure 3. Castor phase vessel from 12-H-3.

This co-occurrence of two ceramic traditions in central Indiana was first noted by Griffin (1943) and designated “Oliver”; later, investigations at the Bowen site (Dorwin 1971), which also contained this co-occurrence of ceramic types, established it as the Oliver phase type site. Currently the Oliver phase can best be described as a sedentary, village-dwelling society that settled along the drainages of the east and west forks of the White River between about A.D. 1200 and 1450. Based on recent radiocarbon dates (Figure 5), the Strawtown enclosure is one of the earliest, if not the earliest, Oliver site in Indiana (McCullough et al. 2004), where a Fort Ancient migration stream was interacting with Castor phase people whose ceramics are distinguished by Great Lakes impressed styles. While a portion of the Castor population undoubtedly integrated with the newly arrived Fort Ancient people, others remained autonomous and were contemporaries of, and persisted later than, the Oliver phase in the Strawtown area.



Figure 4. Guilloche-decorated, Fort Ancient vessel from the Strawtown enclosure.

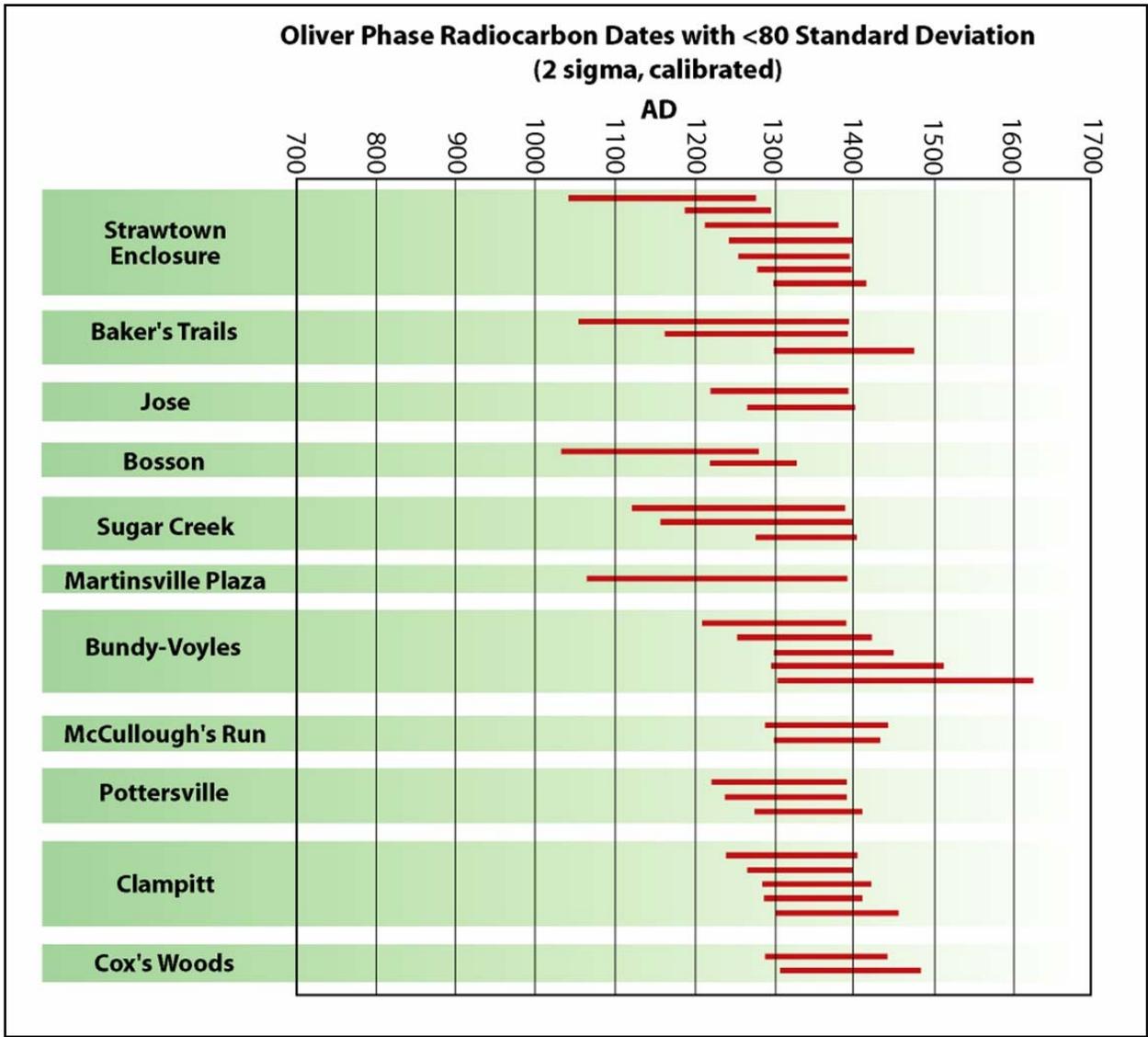


Figure 5. Radiocarbon dates from Oliver phase sites in central Indiana.

Like the macrobotanical Oliver signature (Bush 2004), which varied in resources exploited from site to site, the percentage of the two ceramic styles may vary from site to site, but their co-occurrence marks an Oliver site. What mechanisms brought about this integration are unclear, but a small migrating Fort Ancient population, shared cultural traits that included a reliance on maize, and economic organizations that emphasized the need for labor may have led to a social environment encouraging fluid, inclusive societal boundaries. The integration of styles that makes Oliver unique probably represents a social and economic organization that drew upon diverse traditions to effectively exploit the rich floodplains of the White River drainageway. So successful was this Oliver integration that Oliver occupations are found throughout central Indiana and south-central Indiana along both forks of the White River, dating up to the early 1400s. Hundreds of sites with Oliver phase components have now been documented across central and south-central Indiana with the two ceramic traditions in direct association. During the latter portion of the Oliver sequence, this mixture appears on the same vessels at sites in southern

Indiana (McCullough 2000; Redmond and McCullough 1996), as well as at the Strawtown enclosure (McCullough et al. 2004).

By the 1300s, Upper Mississippian, or Oneota-like, groups also were present in central Indiana (Figure 6). In Johnson County, near the town of Smith Valley, was a cluster of sites that differs from Oliver phase occupations in terms of material culture, location, feature morphology, site structure, and, to some degree, botanical remains. Typically, Oliver phase villages are located adjacent to large floodplains along the major drainageways, often at the confluence of substantial creeks. They are roughly circular in configuration, or they may be in a linear distribution along a riverbank. Unlike Oliver phase villages, the Crouch site (12-Jo-5) is not only approximately three miles from a major drainage, but it lies on a sand dune formation adjacent to a former grassy wetland. In terms of material culture, this site complex exhibited a surprisingly low number of artifacts given the size and number of features encountered. Shell-tempered pottery made up the vast majority of the sherds recovered from the Crouch site, and the most distinctive trait was heavy cordmarking on the rim, or, rather, the underneath side of the rim. These vessels lack decoration, except for a few examples that carried deep scalloping by a large cordwrapped dowel along the lip.

There is some evidence of interaction between these Smith Valley people and Oliver phase groups: a single, sharply everted shell-tempered vessel section with cord-marking on the underneath side of the rim, like those recovered from the Crouch site, was found at the Bowen site (Dorwin 1971:Plate XXI), the Oliver phase type site; a few pieces of Oliver pottery were recovered from 12-Jo-5; and a single shell-tempered rim sherd similar to the Smith Valley material also was observed in a surface collection of Oliver pottery in Owen County along the lower west fork of the White River. However, the paucity of Oliver sherds associated with this Smith Valley material (and vice versa), along with the deviation from the Oliver settlement-subsistence system, suggests that while contact between the groups definitely occurred, the Smith Valley group maintained its autonomy.

In the last half of the fourteenth century (see Figure 6), another Oneota group was occupying the Taylor Village site, across the White River from the Strawtown enclosure. Their presence is mostly known from the distinctive pottery that most closely resembles late Fisher materials from northwestern Indiana and northeastern Illinois, as defined recently by Emerson (2006). Taylor Village pottery is marked by a narrow range of styles and consists of jars with rims mostly set at sharp angles to the shoulder and tempered with finely ground shell. The decorative fields on this pottery are found on the interior of the rim, the top of the lip, and the shoulder of the vessels (Figure 7). Cord-marking on Taylor Village sherds is typically very fine and often difficult to observe, although about 75 percent of the body sherds exhibited cord-marking, with slightly more than half of the rim exteriors cordmarked. Notably absent are strap or lug handles, decoration on the exterior of the rim, and finger trailing, which are found in northwestern Indiana, suggesting that only a limited number of potters were present in the Strawtown area, rather than a large group who could produce the variety of styles known elsewhere.

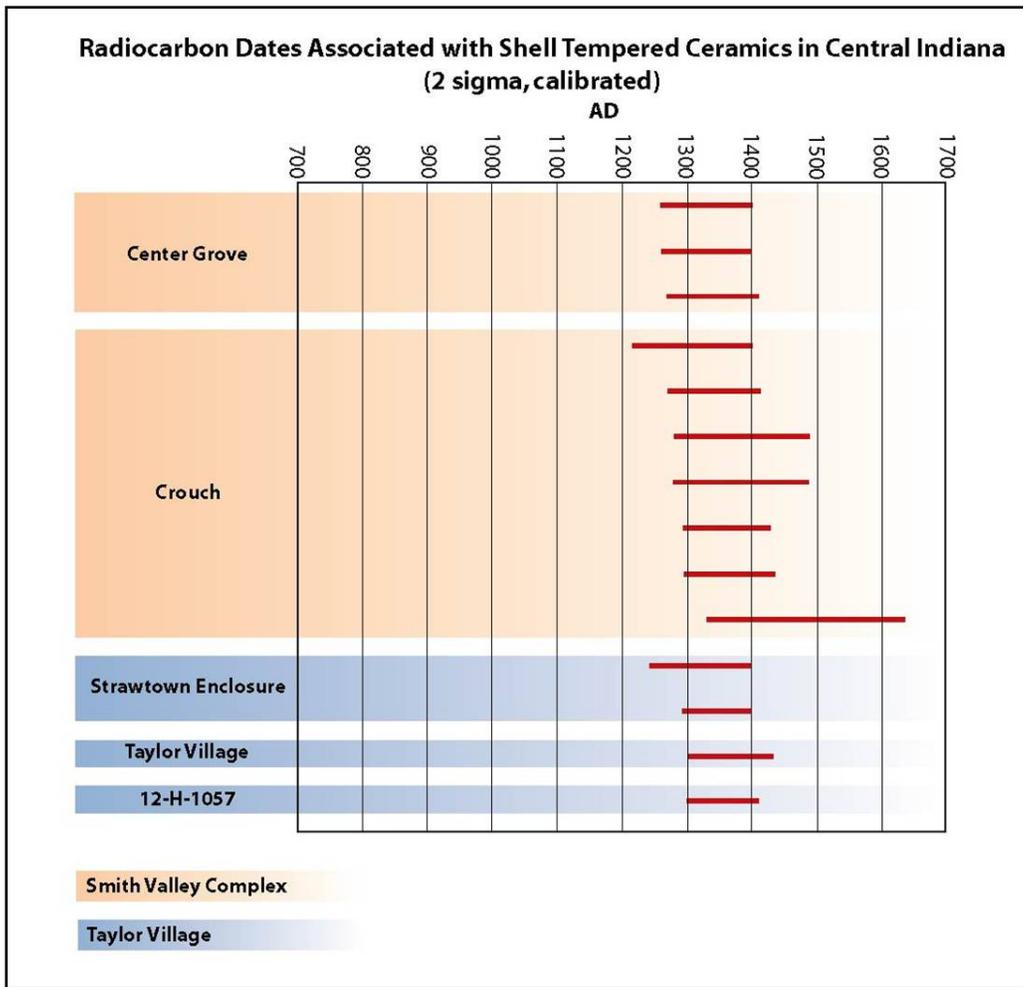


Figure 6. Radiocarbon dates from Oneota-like groups in central Indiana.



Figure 7. Taylor Village vessel rim reconstructed from sherds recovered in 2006 and 2007 from the Strawtown enclosure.

The mechanisms that brought together and blurred the boundaries between populations associated with the Fort Ancient and Great Lakes impressed ceramic traditions—creating the Oliver phase in the thirteenth century—evidently did not significantly influence the later Oneota-related populations. The Smith Valley group demonstrated some evidence of interaction with the Oliver population, and a few Taylor Village ceramics have been recovered from the Castor phase settlements in the bottoms around the enclosure. However, within the enclosure, the Taylor Village materials are superimposed rather than coterminous. These superimposed features at the enclosure indicate a Taylor Village occupation of that site by the 1400s. Drooker (1997) has noted trade connections between Oneota and Fort Ancient groups during the post-1400 Madisonville Horizon, and the Taylor Village occupation of the Strawtown area may have been an important, early node in that contact.

Previous Investigations

The Strawtown enclosure was first recorded by Government Land Office surveyors as Indian “mounds. . . adjacent to a large prairie” (Brown 1821), before Hamilton County was created in 1823. The next official mention was by E. T. Cox (1879), the state geologist, who reported in the 1879 Indiana Geological Survey report that:

The principal works in Tipton [*sic*] county are close to Strawtown and in a cultivated field. The largest is a circle, with an open gateway on one side. It has been so badly obliterated by the plow that I was unable to make a complete survey of it, especially as the field was covered with a heavy crop of corn at the time of my visit. Enough was left to show that it was several hundred feet in diameter, and had a ditch or fosse on the outside—being singular in this respect, as all other works in the State of which I have any knowledge have the ditch on the inside of the wall [Cox 1879:128-129].

In 1880 Helm furnished a more complete account of Cox’s visit in his history of Hamilton County, attributing to Cox a remark that the “main work is a circle, about three hundred feet in diameter, thrown up in the center, but apparently level, and surrounded by a ditch that Mr. Parker says was about six feet deep when he first saw it” (Helm 1880:28). After quoting Cox’s observations, Helm continued with additional information and included a map he had prepared (Helm 1880:29; Figure 8), which is the first known of the site, showing the location of the enclosure in relation to the river:

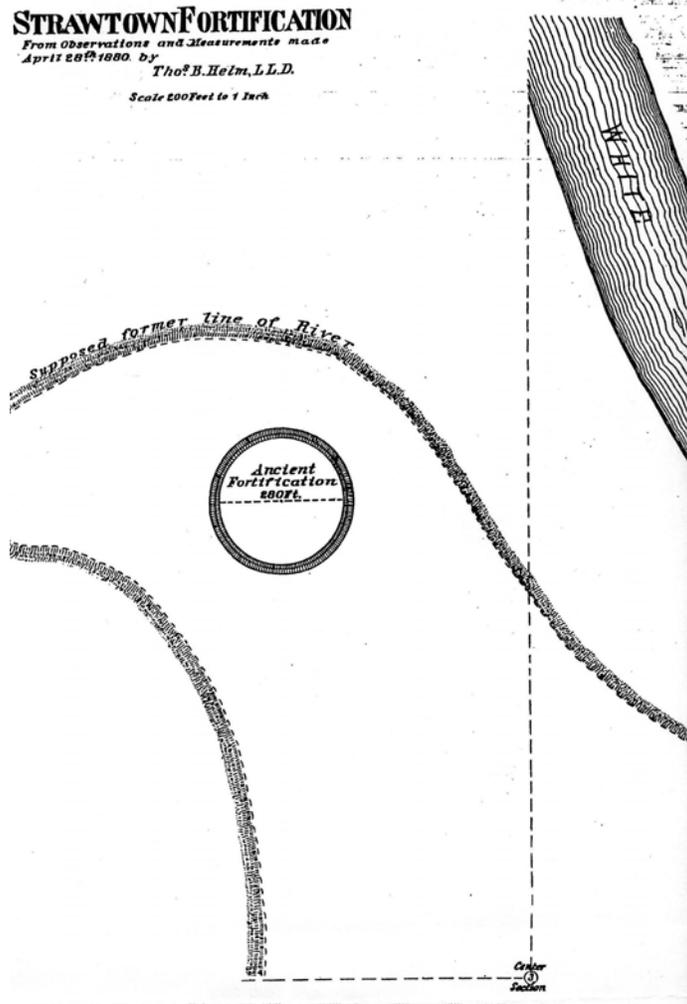


Figure 8. Portion of Helm’s (1880) map of the Strawtown enclosure.

This principal inclosure [*sic*] is situated about seven hundred feet west of the river and about one thousand feet . . . on an elevated point of land extending in a northwesterly direction into the bend of White River, surrounding the major part of the northwest quarter of the same section. This elevated point overlooks a strip of low bottom land . . . An accurate measurement of the works shows a diameter of two hundred and eighty feet from the middle of the embankment on one side to that on the opposite side. From this point the outer slope to the middle of the ditch surrounding is about twenty feet, the ditch having been about thirty feet wide and nine feet deep, the earth and gravel excavated therefrom forming the embankment . . . Inside the inclosure, the middle area was originally, no doubt, of equal elevation with the surface outside, since the embankment is still visible from the inside, and apparently two or two and a half feet high. The purpose of this construction, it can scarcely be doubted, was for defense, the ditch on the outside being designed to resist assault. Within the inclosure numerous specimens of ancient pottery have been found; flint arrow-heads, also, of various designs and degrees of skill in workmanship, are discovered, indicating with reasonable certainty the character of the works [Helm 1880:128].

Not long after Helm’s history, there was an account of the Strawtown site by Brown (1884), which noted the historic Delaware occupation in the area, “confirmed by the large district

of bottom land cultivated by the squaws when the whites first visited this locality, as well as by the extensive burying ground, on which the river is now encroaching, and exposing the bones of the red men at every freshet,” but Brown (1884) ascribed the enclosure to “the period of the mound builders” and described it as:

a circular embankment, now about three feet high, and twelve feet on the base. It has a ditch on the outside, which evidently furnished a portion of the earth for the embankment. The diameter of the circle, measured from the bottom of the ditch on each side, is 315 feet [Brown 1884:28-29].

After this flurry of attention by nineteenth-century investigators, the site dropped from scholarly notice for nearly 50 years. In the 1920s, local newspapers reported the discovery of skeletal remains in the vicinity of the enclosure (*Noblesville Daily Ledger*, April 23, 1923, p. 1).

Only in 1930 did the site again attract professional scrutiny. Local newspapers reported the visit of Professor Frederick Eggan of the University of Chicago who was to survey Hamilton County’s prehistoric sites. Eggan’s report acknowledged that “a study of these earth-works and an analysis of the related culture is an important problem in Indiana Archaeology,” adding that “there have been practically no excavations of a scientific order, or any other order, in Hamilton County. Most of the material that has been uncovered has been lost and no record remains” (Eggan 1930:1-3). Eggan’s report, however, was brief and served mainly to advance his own theory that the enclosure was ceremonial rather than defensive. In an undated and unsigned “Review of the Hamilton County 1930 Survey” (site files, Glenn A. Black Laboratory of Archaeology [GBL], Indiana University, Bloomington), the diameter of the enclosure is given as 293 feet, while “the ditch is 40 feet wide and at another point 50 feet wide” with “no entranceways crossing the ditch and leading to the interior” (pp. 1-2). The brief “Review” may be by Eli Lilly, who published an aerial view of the Strawtown enclosure and a photograph of sherds from the site (Lilly 1937), noting their similarity to Fort Ancient styles. Griffin (1943:265) concurred, adding the Strawtown site as an important central Indiana site showing a Fort Ancient influence, as well as evidence of a “Fisher Focus” (Griffin 1943:266). Jack C. Householder surveyed and collected both the Strawtown site and the Taylor village site from the 1930s through the 1960s. By midcentury, the two sites (Strawtown and Taylor Village), the materials recovered from them, and memories of a historic Delaware occupation near Strawtown were becoming conflated.

Later, under the ownership of another landowner, access to the Strawtown enclosure and related sites was denied to both amateurs and professional archaeologists for several decades. During those decades, two grass airstrips were laid out in the bottomland and a large collection of antique machinery was stored throughout his property. The area within and immediately adjacent to the enclosure was used as a dump for vehicles and other large historic debris (automobiles, boats, farm equipment, aircraft, concrete rubble, scrap metal, etc.). This debris was reportedly placed to protect the site from unauthorized excavation and vandalism.

Despite the lack of access to the site, efforts to understand the relationship between Taylor Village and the Strawtown enclosure and their place in Indiana prehistory continued. Large-scale systematic data-base enhancement surveys (e.g., Brinker 1984; Cree 1991; Stephenson et al. 1984) of the upper West Fork of the White River in Hamilton County and an overview by Hixon (1988) of the Strawtown vicinity were conducted. Some past literature has linked the limited amount of pottery in curated collections to the earthwork (Lilly 1937:106;

Griffin 1943:265) and related it to the Oliver phase (Dorwin 1971); in other cases, the materials recovered from the Taylor Village site have been confused with the earthwork at Strawtown (McCullough 1991:130, 1992:55).

The property was sold again in 2000. Since then, the area has been professionally surveyed, discrete sites have been identified, and some tested and/or excavated (Cantin et al. 2003; McCord 2006; McCord and Cochran 2003; McCullough et al. 2004; White et al. 2002; White, R. McCullough, and D. McCullough 2003; and White, D. McCullough and R. McCullough 2003). Most important, a master plan (Schmidt and Associates 2002) has been developed that will preserve and promote the project area's archaeological resources.

In 2001, the surface of the Strawtown enclosure (12-H-883) was mapped, and test excavations confirmed the presence of features within the enclosure, an exterior ditch at least five feet deeper than its current dimensions, and the presence of ceramic debris related to at least three distinct cultural traditions—Fort Ancient, Western Basin, and Oneota—dating to the thirteenth and fourteenth centuries. Bone preservation, as well as preservation of the archaeological deposits in general, was excellent. Deposits associated with the construction and deterioration of the ditch and embankment structures were stratigraphically complex (White et al. 2002). The intensive occupations suggested by the amounts and kinds of cultural debris presented numerous challenges to analysis, and it was clear that further investigations were warranted to clarify the nature of the remains within the enclosure.

During 2002, excavations were focused on opening larger, contiguous areas of 12-H-883 to expose and excavate features and search for evidence of a stockade wall (White, R. McCullough, and D. McCullough 2003). Excavations over and interior to the embankment revealed a profusion of well-preserved cultural features, including a series of postholes suggestive of a stockade, several large, deep storage/refuse pits (some extending as much as seven feet below the surface), and smaller pits. Slump deposits associated with the embankment had protected many of the features from agricultural disturbance, and in many cases it was possible to document where the features had been cut through the prehistoric A horizon. The large storage/refuse pits were diverse and stratigraphically complex: one contained a large deposit of carbonized maize at its base (Figure 9), while another contained an articulated dog burial and large deer skull fragments. A smaller block unit placed closer to the interior of the enclosure revealed much shallower deposits representing food processing pits. Despite these discoveries, no house or domestic structure was identified. Further investigations in 2003 and 2004 revealed only food processing pits, storage/refuse pits, and some burials, which were recorded but left in place (McCullough et al. 2004; McCullough 2005).



Figure 9. Sack of carbonized corn at the base of a deep storage pit, Strawtown enclosure.

In 2006, additional geophysical survey of the enclosure in the southeastern quadrant indicated a possible house basin, as well as a possible line of posts along the central plaza area. Although the line of posts proved to be geological anomalies, a small lithics-related activity area was found in that area, and a corner of a domestic structure was located in the final days of the investigations. This was the first domestic structure identified within the enclosure (Arnold et al. 2007).

Investigations in 2007

Currently, the Strawtown enclosure is the remains of a Late Prehistoric, earthen embanked, ditched, and palisaded village. Once approximately 90 m in diameter with an exterior ditch, the circular embankment is still visible as a slight rise in most of its circumference; the exterior ditch is also discernible. As a village site, intensively occupied for over two and a half centuries (ca. 1200 to 1450 A.D.), a full range but unknown number of features is present: ringing a nearly empty central plaza are activity areas, such as lithic reduction (Arnold et al. 2007), domestic structures (Arnold et al. 2007), hearths and storage pits (White, R. McCullough, and D. McCullough 2003), storage pits filled with refuse and midden areas, postmolds and postholes, and human interments and a dog burial (White, R. McCullough, and D. McCullough 2003), all encircled by a palisaded embankment and exterior ditch; deep storage pits extend over two meters below plowzone, and several gallons of charred corn were recovered from one such “underground silo” (White, R. McCullough, and D. McCullough 2003). Superpositioning is extensive, and multiple lines of postholes indicate many episodes of rebuilding and repair.

The 2007 Archaeology Month excavations continued to yield additional information about the occupations at the enclosure. The house basin identified within the Main Block during

the final days of the fall 2006 excavation was the focus of most of the excavations during the 2007 field season. The Main Block excavation was expanded to the west and the south, exposing the western edge of the structure and many more postholes. The southern part of the structure has yet to be identified and this task will be the goal of the 2008 public program at Strawtown.

Community Structure

To date, the Oliver phase habitation of the Strawtown enclosure seems to be most similar to the contemporaneous Anderson phase of Middle Fort Ancient (A.D. 1200-1400) in terms of radiocarbon dates, ceramic assemblages, features, and site structure. Middle Fort Ancient villages were larger, more nucleated sites than Early Fort Ancient villages. With structures arranged around a central plaza, they were circular, planned, and more permanent, having multiple zones of activity within them (Drooker 1997). Many also have thick midden deposits and large storage/refuse pits. Henderson and Pollack (2004) conducted a comparative village structure analysis of three Middle Fort Ancient circular villages—the SunWatch site, the Florence site complex, and the Slone site—concluding that even though all three are organized similarly, each has a unique community structure. Within a circular pattern, each site varied in the placement of activity zones, which included refuse disposal, residential, mortuary, and storage/food preparation areas. Although these sites are broadly comparable, the differences suggest that Middle Fort Ancient people organized their villages according to their own local needs and preferences (Henderson and Pollack 2004).

The SunWatch site consisted of three concentric rings of features surrounding a central plaza. Starting from the inner “zone” outward, the village consisted of mortuary, storage/refuse, and residential areas, all surrounded by a palisade. The house structures were square to rectangular in shape within a 9 m wide residential zone. Structures were two to ten m away from the palisade (Henderson and Pollack 2004).

The Florence site complex has not been extensively excavated, so more limited information about community structure is available. Although there was no evidence of a palisade wall, the Florence site did have an empty, central plaza surrounded by mortuary, residential, and then refuse disposal zones. The residential zone measured 12 m in width and contained rectangular house structures; refuse disposal pits were located behind the residential zone (Henderson and Pollack 2004).

The Slone site also had an empty, central plaza surrounded by multiple activity zones. Starting from the plaza outward, these zones consisted of a storage and food preparation area, a residential area, a mortuary/refuse area, and an outer palisade wall. The residential zone was 12 to 15 m in diameter, consisting of rectangular house structures with rounded corners. The mortuary area was mixed in with refuse pits, which were located behind the residential zone; a palisade encircled the village.

Broadly, the Strawtown enclosure follows this Middle Fort Ancient pattern: a circular village with a central plaza surrounded by concentric activity zones. 50 x 50 cm SVS units placed in two lines across the Strawtown enclosure demonstrated substantially reduced artifact densities within the center of the enclosure (White et al. 2002), indicating a central plaza. At the edge of the plaza, however, is an activity zone, evidenced by the quantity of lithic debris recovered from Trench 1 in fall 2006 (Arnold et al. 2007). Shallower processing type pits and non-prepared hearths are also found in the activity zone (McCullough et al. 2004; McCullough 2005). This activity zone is followed by a residential zone as evidenced by the domestic structure

identified in the 2006 and 2007 Main Block. At Strawtown, a zone of storage pits and middens surrounds the residential area, unlike SunWatch but similar to the Florence site. The Strawtown enclosure, like the Slone and SunWatch sites, also had an outer palisade. The Strawtown enclosure, however, is unique because it had a ditch outside the palisade wall with an interior embankment. Thus, preliminary evidence demonstrates that the Strawtown enclosure may have been organized in a manner similar to Middle Fort Ancient villages, but its community structure also shows a degree of contrast as well.

Other Oliver sites in Indiana have also shown similarities in community structure to Strawtown. Two recently excavated examples are the Clampitt and Cox's Woods sites, both defined by a circular outline with a palisade or stockade wall. Evidence of a ditch and earthen embankment is found only at the Cox's Woods site. Both sites date within the time period A.D. 1200-1450, which is when the Strawtown enclosure was occupied.

Cox's Woods was a fortified Oliver phase village that dates to A.D. 1300-1450, with an earthen embankment and stockade. It is circular to ovoid in plan and is also surrounded by a ditch enclosure. No features were found within the central plaza, similar to Fort Ancient circular villages. There were indications that a habitation area was situated between the embankment/stockade and the central plaza, suggested by the presence of many pit features (Redmond 1994a; Redmond and McCullough 1993, 1995, 1996).

The Clampitt site was also a circular Oliver phase settlement and dates to around A.D. 1280-1400 (Redmond 1994b). As at Strawtown, a stockade and exterior ditch were also present at the Clampitt site. Pottery and stone tool assemblages are contemporary with Middle Fort Ancient sites as well. There was a broad ring of pit clusters and postmolds located just within the stockade, as well as a central plaza containing little to no features or artifact debris.

Although these sites have many similarities to the Strawtown enclosure, 12-H-883 has not yet been completely explored. At present, the settlement pattern of Strawtown and other circular enclosures in central and southern Indiana are congruent with Middle Fort Ancient village structure, but they also seem unique. For example, Middle Fort Ancient circular villages appear to lack an exterior ditch and interior embankment. The unique mixture of Western Basin/Castor phase and Fort Ancient material cultural characteristic of the Oliver phase could also be reflected in their village community structure. The enclosures identified with the Oliver phase may be a merger of the Fort Ancient circular village pattern and the Late Prehistoric earthen enclosure template found in northern Indiana, northern Ohio, and Michigan.

Structures

An ongoing and, until last year, an elusive goal of the Strawtown enclosure project was to collect contextual information related to a domestic structure. Structures provide valuable information relating to family, community organization, and ethnic affiliation. Such information can serve to clarify patterns of cultural interaction, based on household-level patterning, found among the Late Prehistoric societies who inhabited central Indiana. The structure identified during the final days of the 2006 investigation was investigated further in 2007. Expansion to the west and deeper excavation to Level 4 within the 2006 Main Block revealed a wall-post pattern set in and around a shallow structure basin (Figure 10), although the structure still needs to be exposed to the south. The 2007 excavations extended between E202 and E208, south of the N198 line (Figure 11). However, these units were only excavated to the base of Level 3, and because of the

relative depths of A-horizon soils and various superpositions, these units will need to be excavated more deeply before the structure can be identified clearly.



Figure 10. Photograph showing western boundary of structure basin (Feature 49) at base of Level 3. (Note basin profile along west and south wall in 2006 Main Block.)

Even though the entire structure cannot yet be discerned, some general observations can be offered. There is a clear north line, with the possible resetting or replacement of some posts, about one m south of the north wall of the Main Block. A possible eastern edge of the structure is visible in Units 97, 100, and 103. Interior to this line (west) is a second line of posts that may represent an interior bench and/or support posts. A similar configuration is observable along the western portion of the structure, except the lines are spaced somewhat farther apart. A line of

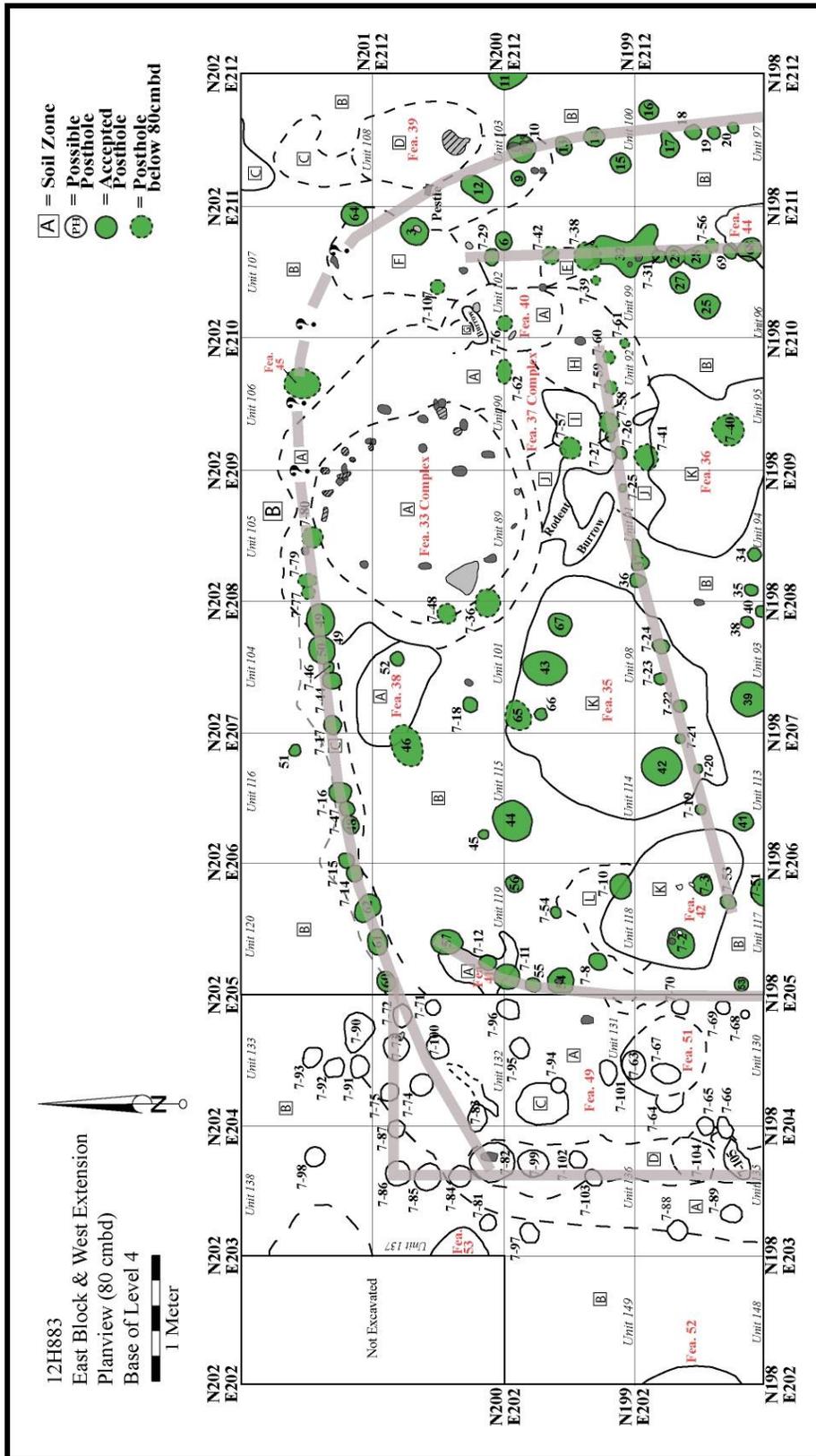


Figure 11. Plan map of Main Block at the base of Level 4 showing possible structure outline.

possible posts was observed between Units 135 and 137 (see Figure 11). The corner of the structure may either curve inward in Unit 119 or form more of a square with posts 7-72 through 7-75. The interior line is not as regular and runs along the west wall of the 2006 Main Block. It appears to curve inward toward the north wall. A similar convergence of interior and exterior posts can be observed in the eastern lines. And what appears to be an interior screening wall, consisting mostly of stake-sized posts, possibly extends from postholes 7-53 or 7-3 in Unit 117 to postholes 7-60 or 7-61 in Unit 92. Alternatively, this line of smaller posts could represent a more ephemeral superimposed structure.

Several superpositions related to the basin structure also are evident in the Main Block (see Figure 11). The two prepared hearths (Features 35 and 42) have postholes cutting through them, indicating that the features either predate the construction of the structure or predate a later modification to the structure, or that the posts are related to a later structure superimposed on this one. Feature 36 was an intensively burned area but was not a prepared hearth. It has been interpreted as a hearth, but it is possible this burning could have been an unintentional fire on the floor of the basin structure. No postholes were identified protruding into this feature, but two large “support” posts containing cultural material were found underneath the burned soil. This stratigraphy suggests that Feature 36 formed while the structure was in use or there was a fire that left traces in the eastern portion of the basin. Feature 33, which was a large Oliver phase storage pit with a Taylor Village component (or shallow basin) covering the top, appears to be superimposed over the northeast corner of the structure. As the upper portion of this feature was excavated in plan, a few posts became visible under the edge of the original Feature 33 Complex. Potential superpositions west of the E202 line are unknown at this time because the possible posts have not yet been confirmed at a deeper level.

Occupation History

While the initial Late Prehistoric occupation of the Strawtown enclosure was by Oliver phase peoples, or Middle Fort Ancient-like groups interacting in central Indiana with an already settled Castor phase population (McCullough 2005), the Oliver phase occupation was succeeded by one of an Oneota-like group, as evidenced by features with Taylor Village ceramics superpositioned over Oliver phase remains. The recovery of shell-tempered Taylor Village pottery has consistently been from the upper levels of the deposits at the Strawtown enclosure. This stratigraphic relationship was first observed during the earliest excavations at Strawtown (White et al. 2002; White, R. McCullough, and D. McCullough 2003) where Features 1 and 2 (Oliver phase) were overlain with Taylor Village ceramics mixed in a densely packed pile of bone. A similar situation was identified in Feature 7. Once excavation got below the mostly shell-tempered and some grit-tempered pottery mixed together and the bone clusters, only sand/grit-tempered Oliver phase pottery was recovered. Other smaller cache pits containing Taylor Village pottery and bone were identified, such as Feature 5, which was clearly superimposed on top of Oliver phase deposits (White, R. McCullough, and D. McCullough 2003).

During the 2007 investigation, Feature 33, an Oliver phase storage pit below a Taylor Village component, again clearly demonstrated this stratigraphic relationship. The upper portion of Feature 33 was full of bone, including a large portion of a bear skull. The pottery recovered consisted of mostly Taylor Village pottery, and the greater part of a large Taylor Village vessel was also recovered. As would be expected on any densely occupied nucleated site, sand/grit-tempered ceramics were also recovered from the upper strata due to mixing from continued

construction and soil moving. Most of the Taylor Village component of Feature 33 was recovered in plan by unit/level. However, between 95 cmbd and the termination of excavation at 131 cmbd in Feature 33, only two small shell-tempered pot sherds, together weighing less than one g, were recovered. The Oliver phase sherds recovered from the same level consisted of 306 sherds, weighing 925 g. Thus, by weight, the shell-tempered sherds composed only about 0.1 percent of the ceramics recovered from the original Oliver storage pit.

The deposits associated with the basin structure (Feature 49), also exhibited the upper Taylor Village, lower Oliver relationship, although not as clearly demonstrated as with the superpositioning over the deep storage pits. Even though shell-tempered pottery was present in the lower portion of the basin fill, the Taylor Village ceramics were eroded and relatively low in quantity compared to those in the overlying deposits.

To confirm this relationship, a quantitative analysis of the pottery distribution was conducted. The west wall of the 2006 Main Block excavation indicated that the Feature 49 house basin was mostly contained within Level 4, although the base of the Level 3 excavation also confirmed most of the limits of the subplowzone basin. The author believes that the majority of Level 3 was contained within an old plowzone that mixed the upper deposits of the basin. However, it is important to note that the arbitrary base of Level 3 (70 cmbd) does not accurately represent the base of the older plowzone across the entire block.

A quantitative analysis comparing Levels 3 and 4 from the units associated with Feature 49 in the west extension (Units 130, 131, 132, 135, 136, and 137) showed that 2,378 g ($n = 1,351$) of sand/grit-tempered and 180 g ($n = 86$) of shell-tempered sherds were recovered from Level 3. Level 4 produced 1,362 g ($n = 719$) sand/grit-tempered sherds and 28 g ($n = 35$) shell-tempered sherds. The shell-tempered sherds represented about 7 percent of the pottery in Level 3 by weight (6 percent by count) and only about 2 percent by weight (4.6 percent by count) in Level 4. The larger pieces were also contained in Level 3. When dividing the weight (in g) by the number of shell-tempered sherds, Level 3 had sherds averaging about 2.1 g, while the shell-tempered sherds from Level 4 were about 0.8 g per sherd. A similar calculation for the sand/grit-tempered sherds was done to ensure that depositional context and temper type was not responsible for the eroded nature of the shell-tempered sherds. The calculation indicated that the non-shell-tempered sherds did not reveal the same amount of erosion: 1.8 g per sherd from Level 3 and 1.9 g per sherd from Level 4. Thus, the quantitative data matches qualitative observations from the fieldwork. This difference in average size suggests to the author that the sand/grit-tempered sherds in Levels 3 and 4 were deposited within their respective contexts in similar ways. The shell-tempered sherds in Level 3 were probably deposited in a similar manner as the non-shell-tempered sherds; however, the eroded nature of these sherds in Level 4 suggests some type of post-depositional migration. The presence of these sherds in Level 4 is probably partly the result of bioturbation, which can work smaller pieces down through the soil, and the inexactness that is inherent in using arbitrary levels when the base of the plowzone undulates.

The stratigraphic relationship of the enclosure strongly suggests that the Oneota occupation of the enclosure postdates the Oliver occupation. The pattern of Oneota discard appears to be one of infilling the depressions left on the site after its abandonment by Oliver peoples, since the majority of the Taylor Village ceramics and faunal material has been recovered from above large Oliver storage pits. The deep storage pits (some over 2.5 m deep) and house basins (i.e., Feature 49) would either have not been filled completely or could have settled as organic materials decomposed. The presence of depressions on the site after the Oliver abandonment suggests a relatively rapid reuse, although the radiocarbon dates from Oliver

contexts in the enclosure and those associated with Taylor Village are not refined enough to identify separate occupations, further suggesting that the succession was relatively quick.

The successional occupation of an Oliver village fits with the overall distribution of Taylor Village materials in central Indiana. Taylor Village pottery was recovered with Castor materials in feature context at site 12-H-1057, a small habitation site in the vicinity of the enclosure. Further, these materials have been found together in a few contexts on the Castor Farm site, most recently in a semisubterranean domestic structure discovered during the summer of 2007 Research Experience for Undergraduates Program (REU). The Castor phase both predates and is contemporary with the presence of the Oliver phase in Indiana, but the later Castor phase peoples maintained at least some type of interaction with the Oneota presence in central Indiana. What is not evident thus far is any interaction between Oliver groups in central and southern Indiana and the Taylor Village people. The author examined all the available pottery assemblages in a 27-county area (albeit 10 years ago, see McCullough 2000) and was unable to identify this relationship. Thus, it is not unreasonable to assume that the presence of both Taylor Village and Oliver materials at the Strawtown enclosure reflects successive occupations rather than social integration.

The most impressive evidence of this Oneota occupation on top of the Fort Ancient settlement was found at the center of the enclosure in the plaza in 2007. Prior to the Archaeology Month excavations, geophysical data showed an anomaly in this area that excavation confirmed was a feature. The investigators originally thought the feature (Feature 46) was a large post pit and ramp for a central pole similar to the center pole or other marker poles discovered at the contemporary Fort Ancient SunWatch site.

During Indiana Archaeology Month 2007, excavation was resumed in this area, but instead of the remains of a Fort Ancient center pole, the anomaly proved to be the deep burial shaft of a high-status Oneota individual who was buried with at least one pot decorated with bird talons and a copper plate behind the head. The burial was not excavated, and it is unknown what else is associated with the burial. This is, however, the first clear evidence of a Taylor Village burial anywhere, and this one is placed in the geographic center of the enclosure.

This placement of an important individual points to a possible ceremonial use of the enclosure after the Oliver abandonment. A further indication of a ceremonial function is the presence of large amounts of faunal material found in association with Taylor Village pottery. The faunal material represents higher-quality cuts of meat, such as deer, elk, and bear. In fact, bear remains have been recovered from all (or almost all) of the Taylor Village contexts; bear bone and Taylor Village ceramics occur in an about one-to-one relationship. Even a broken bear maxilla was recovered from the fill overlying the central Oneota burial (Feature 46). It is documented that people will bury their dead in areas previously occupied by others as a means to legitimize their claim to the new territory (Charles and Buikstra 1983; Kuznar 2003). At present, it appears as if the Oneota people at Strawtown were burying their dead and feasting on the village of their enemies.

Conclusion

A large part of what makes the public excavations at Strawtown compelling to visitors is that they are integrated into an ongoing research program at the park that provides both continuity

and yearly progress. Fieldwork during Archaeology Month 2007 was centered on excavation of a domestic structure at the enclosure, which was identified in 2006 but more fully investigated in 2007. The house structure remains a focus of investigation and will be exposed and excavated completely in 2008 during Indiana Archaeology Month public excavations at the park. Identifying its size, method of construction, and cultural affiliation is a key element in reconstructing the complex occupational history at the Strawtown enclosure.

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ARCHAEOLOGICAL INVESTIGATIONS OF FORT ST. PHILIPPE DES MIAMIS (1722) AND THE FIRST AMERICAN FORT (1794) IN FORT WAYNE, INDIANA

Christopher R. Andres, Dorothea McCullough, Michael Strezewski,
and Robert G. McCullough
Indiana University-Purdue University Fort Wayne
Archaeological Survey (IPFW-AS)
Fort Wayne, IN

This article details archaeological research conducted by the Indiana University-Purdue University Fort Wayne Archaeological Survey (IPFW-AS) during summer 2007. The investigations were carried out at two locations within the city of Fort Wayne in an effort to identify remains of the first French fort (Fort St. Philippe des Miamis) and the earliest American fort (Fort Wayne) known to have been constructed in the area. These forts, built in 1722 and 1794, respectively, reflect an effort to establish first French, and then American, control over the portage between the Maumee and Wabash rivers. This strategic thoroughfare was contested by these emergent colonial powers because of the access it provided to the Mississippi drainage and, by extension, to the Gulf of Mexico. In this article, we discuss the effectiveness of the field methods employed and present the preliminary results of our investigations with an emphasis placed on archaeological materials that may reflect activities associated with Fort St. Philippe des Miamis.

Introduction

The fieldwork component of the investigations discussed in this article was initiated in late May of 2007 and completed in September and October of 2007. The archaeological investigations were concentrated in the area of the reported location of the 1722 Fort Miamis and on property directly adjacent to the reported location of General Anthony Wayne's 1794 fort. Since the Fort Miamis location (12-A1-2150) produced evidence of early contact period presence, the bulk of this article is limited to discussion of this site. The primary objective of our research was to conduct intensive geophysical survey and subsurface testing at locations suggested to have been occupied by the forts in an effort to identify architectural remains or evidence of associated activities. The fieldwork was motivated by the fact that fundamental data relating to the forts' location, stratigraphy, and knowledge of their possible disturbance by modern development activities were almost entirely lacking at the project's outset. This information is clearly important to the State in evaluating the potential eligibility of these reported sites for the National Register of Historic Places and in beginning to address questions of potential site preservation. Investigations were also viewed as important in contributing to an improved understanding of a variety of issues including eighteenth century military technology, social life, and the complex relationships that existed among French, British, American, and Native American interest groups vying for control of the strategically important Maumee-Wabash portage.

As discussed in detail below, the investigations associated with this project consisted of staged methodologies designed to establish whether remains of these military outposts were present in the two project areas. The research design combined geophysical remote sensing techniques (resistivity and ground penetrating radar surveys) with pedestrian reconnaissance (visual survey, river bank survey, and intensive shovel test probe survey) and limited subsurface investigations (1 m x 1 m hand-excavated test pits, larger hand excavations, and backhoe trenches) at the suggested locations of the two forts.

While the intensive survey activities were focused on collecting primary archaeological data, the project also included a public outreach component intended to increase awareness of the project's goals and methods and the city of Fort Wayne's rich historic past. Hand excavations in the vicinity of the reported location of Fort Miamis coincided with the 2007 Indiana Archaeology Month and were in part conducted to facilitate public participation and education. Relevant promotional information was distributed to Fort Wayne area schools and community members to encourage participation. This was the first time in recent years that public archaeological activities were organized in Fort Wayne, and the tours were enthusiastically received by local educators and community members. Structured tours of the archaeological field sites were provided by IPFW-AS personnel and attracted a variety of individuals, including public and private school students, undergraduate anthropology students from Indiana University-Purdue University Fort Wayne and personnel from various local organizations, including the local historic preservation group (ARCH), Cinema Center, and the City of Fort Wayne.

Historic Context

The first Europeans to enter what is now Indiana were French traders and trappers. LaSalle portaged near South Bend in 1669 (Lockridge 1980), and shortly thereafter, other Frenchmen came to the river valleys of the area to trap fur and trade with the Native Americans. In the first quarter of the eighteenth century, the French were attempting to consolidate their control of the Great Lakes region and to deter rising British influence over the Native peoples of the area. Two military posts were constructed in what is now the state of Indiana to supplement earlier French-garrisoned trading posts, such as Fort St. Joseph (1691), located in southwestern Michigan (Nassaney et al. 2004). The first of these later French installations, Fort Ouiatenon, was built in 1717 near present-day Lafayette. A few years later, in 1722, a second fort, Fort St. Philippe des Miamis, was established at the junction of the St. Joseph, St. Mary's and Maumee rivers in northeastern Indiana, at what is today Fort Wayne (Figure 1). Both forts were under the administrative control of the colony of New France, which was governed from Quebec. Soon after, in 1732, Post Vincennes was established on the lower Wabash River. This settlement was considered part of the Louisiana Territory. As a result, the French had three main centers to help control the flow of goods and people through the territory. Although the French lost control of this strategic territory to the British after the French and Indian War (1754-1763), the British never maintained a strong presence at Fort Miamis (Fort Wayne), and they did not occupy Vincennes until 1777 (Barnhart and Riker 1971).

Fort Miamis was strategically placed near the portage linking the Maumee and Wabash rivers (Figure 2). This portage is reported to have followed high ground away from the St. Mary's River to the southwest. The route extended into where the Little River provided access to

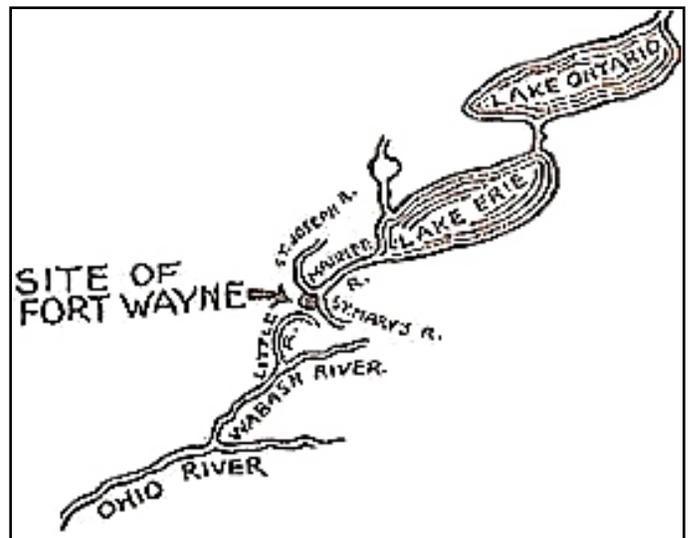
the Wabash. The Wabash then provided access to the Ohio River which, in turn, merges with the Mississippi at Cairo, Illinois.

Depending upon water levels and time of year, the length of the Maumee-Wabash portage varied. While it is generally estimated to have covered about nine miles, high waters often made it much shorter, and may at times have eliminated the need to portage watercraft all together (Beatty 2006:10). During periods of drought, it would have been considerably longer: up to twenty-five miles (Bicentennial Heritage Trail Committee 1994:143). The French goals in constructing the fort were to establish French control over the strategic portage and to provide an additional point of commerce for the thriving Native American fur trade. The vital importance of the portage was well known, as it served as a link between the Great Lakes and the Mississippi River drainages, and thus linked the French colonies in New France (Canada), Louisiane, and the Illinois Country.



Figure 1. Dutch map of the Great Lakes from *Hedendaagsch historie of tegenwoordige staat van Amerika* by Issac Tirion (1769), showing locations of Fort St. Joseph and Fort Miamis.

Figure 2. Map (n.d.) showing Fort Wayne's location between the Great Lakes and the Mississippi watershed (History of Fort Wayne 2003).



The Three-Rivers confluence continued to function as a strategically important area during the French and Indian War of the mid-eighteenth century, with members of the Miami Indian community of Kekionga helping defeat British and American forces at Fort Necessity and Fort Duquesne (Beatty 2006:12). The British ultimately overwhelmed the French, however, and a series of French forts, including Niagara, Detroit, and Fort Miamis, came under British control in 1760. The British themselves only maintained direct control of the area for a relatively brief period, before Forts Sandusky, Michilimackinac, St. Joseph, Ouiatenon, and Miami (Post Miami) fell to the Native Americans during Pontiac's Rebellion in 1763. During the Revolutionary War, the Miami and French traders still occupying the three rivers area sided with the British due to the belief that American control would disrupt existing trade relationships (Beatty 2006:12). With the signing of the Treaty of Paris in 1783, the British lost control of the Northwest Territory, a region including Ohio, Indiana, Illinois, Michigan, Wisconsin, and eastern Minnesota to the new United States. As early as 1784, George Washington sent military expeditions to the three rivers region in Indiana in order to quash the Miami. The first, under Josiah Harmar, met defeat just north of the confluence of the three rivers; the second, under Arthur St. Clair, was defeated some 70 miles to the southeast (Font 1994). Washington finally sent General Anthony Wayne, who defeated the Miami and their allies at Fallen Timbers on the Maumee River near Toledo in 1794. Wayne then marched to Kekionga (Miami Towns) and built a fort to control this portage area.

Fort Miamis: The First French Fort

While the initial French fort (1722) was officially named Fort St. Philippe des Miamis, this was usually shortened to Ft. Miamis in official correspondence (Barnhart and Riker 1971). There is no known map of Fort Miamis. However, it is described as being constructed of upright logs with a number of interior structures and was proclaimed in 1722 to be a strong fort and "the finest in the upper country" (Poinsatte 1976:6). Structures within the fort included a barracks, powder magazine, and a blacksmith forge (Krauskopf 1953:154, 194, 270). The fort was garrisoned with up to thirty men, though it is likely that, more often than not, significantly fewer soldiers were present. A British estimate states that about ten percent of French merchandise distributed to the Indians west of Niagara changed hands at Fort Miamis (Woehrmann 1971:12).

Repairs made to the fort in 1745 may give some indication as to its size. In February 1746, Pierre Rabot presented a bill for the construction of a sentry box and for cutting, sharpening, and planting nine hundred oak stakes (Krauskopf 1953:234). These stakes were presumably used for the replacement of the fort's palisade. If one were to assume that individual stakes measured about 20 cm in diameter and directly abutted one another, this would form a perimeter about 180 meters in length. Archaeological excavations at the site of Fort Ouiatenon, built only five years before Fort Miamis, indicate that the original 1717 fort was rectangular and 48.8 m by 36.6 m in size (Tordoff 1983:147). This forms a perimeter about 171 m long, nearly identical to that calculated for Fort Miamis.

In 1747, discontent with the reduced numbers of presents given by the French led to a Native revolt in the Great Lakes region (White 1991:199). A band of Miami, under the leadership of La Damoiselle, partially burned Fort Miamis and temporarily took its eight-man garrison prisoner. A list of personal possessions lost by a soldier named Lépine gives some

insight as to the living conditions within Fort Miamis. His losses included a featherbed, two pillows, cloth, eighteen napkins, twelve plates, two large basins, a frying pan, an iron spit, a copper baking dish, an iron pot, two copper kettles, a milk cow, a horse and harness, and three hundred pounds of meal. The damaged fort was soon repaired, however, and the garrison was temporarily strengthened to thirty men (Ankenbruck 1972:10).

Despite the repairs, by 1749, the fort was in poor condition. One observer stated that:

the fort of the Miamis was in a very bad condition when we reached it; most of the palisades were decayed and fallen into ruin. Within there were eight houses, — or, to speak more correctly, eight miserable huts, which only the desire of making money could render enduring. The French there numbered 22; all of them, even to the commandant, had the fever [Thwaites 1896:69:187].

In 1750, arrangements were made for the construction of a new fort, and work began soon after. The new fort was completed in 1752 (Krauskopf 1953:326, 359) and was located a short distance to the northeast.

After its abandonment by the French, the remaining structures from the first French fort were occupied by the Miami chief Cold Foot (Le Pied Froid), and the site became the center of a small settlement known as Cold Foot Village (Poinsatte 1976:9). Many of the villagers, including Cold Foot and his son, died of smallpox during an epidemic in 1752 (Krauskopf 1953:350; Poinsatte 1976:10).

The American Forts

In 1794, following the American defeat of the Miami Confederacy at the Battle of Fallen Timbers, General “Mad” Anthony Wayne proceeded with his troops up the Maumee River to establish an American fort at “Miamitown.” This settlement, also known as Kekionga, was a locus of Native unrest during the period immediately following the Revolution. Wayne hoped that by establishing a military presence at the strategic portage, Native resistance to American control would cease and British influence over Great Lakes Native peoples would be diminished.

The first American fort was hastily constructed in September and October of 1794 and was named Fort Wayne in honor of the general (Beatty 2006:15). It was described as “a regular fortification,” not just “a common picketed one” (Griswold 1917:142) and included earthenwork bastions, two blockhouses, and a square palisade (Bicentennial Heritage Trail Committee 1994:40; Woehrmann 1971:46). Unlike some of Wayne’s less substantial installations constructed during his movements against the Miami Confederacy, this fort was constructed to withstand British artillery (Simmons 1977:19). It measured approximately 250 ft on a side with a separate blockhouse in front of the fort. In 1795, Antoine Laselle built a trading house near the fort (Woehrmann 1971:46, 48, 51). Wayne himself described the fort as “the most respectable now in the occupancy of the United States” (Griswold 1917:147). The fort was occupied by a small garrison of less than 100 men (Woehrmann 1971:60). At the time of its construction, Fort Wayne was to serve as headquarters for a number of western posts, including Forts Deposit, Defiance, Adams, Recovery, Greenville, Jefferson, St. Clair, Hamilton, and Washington (Griswold 1917:155).

However, by 1800, the first fort was falling into disrepair and a new one was constructed to the north (Griswold 1917:140; Woehrmann 1971:60). Fort records indicate that a number of outbuildings were also constructed near the fort about this time, including a council house and a large, two-story storage house, both of which were built in 1804 (Griswold 1917:173). Although the Americans were nominally in control of the western Great Lakes region, the continuing British presence at Detroit and rising Native American opposition to the pace of American settlements, often in advance of treaty cessions, made the three-rivers area one of tension and uncertainty. The Battle of Tippecanoe in 1811 only temporarily quelled Native resistance, and with the beginning of hostilities between the Americans and British the following year, the fort was put on high alert. In September of 1812, a large force of approximately 500 Indians surrounded and laid siege to the fort. Fewer than 100 men were present during the siege, as well as 25 women and children (Griswold 1917:200, 207). During this siege of the second American fort, all of the buildings in the immediate vicinity were burned, either by the Natives or by the garrison, in order to prevent them from providing cover to the enemy (Griswold 1917:178; Woehrmann 1971:242). Buildings destroyed during the siege included the large “factory” (Indian store), the council house, the Indian agent’s and sutler’s houses, a blacksmith shop, and the French village surrounding the fort (Griswold 1917:21; Woehrmann 1971:90, 220, 259). The Indian attack on Fort Wayne was lifted on September 10 with the arrival of a 2,500 man force under the command of William Henry Harrison.

Despite a number of repairs to the fort (Woehrmann 1971:60, 268), by 1815 the commander noted that “the Picquets [fortification of upright logs] in the works at Fort Wayne are so much decayed that it will be necessary to rebuild the fort” (Griswold 1917:229). A fire had also broken out in the hospital due to the bad condition of the chimneys (Woehrmann 1971:268). The third American fort was constructed at the same location as the 1800 fort and was completed in 1816 (Griswold 1917:229; Woehrmann 1971:268). With the passing of the Indian threat and the incorporation of the state of Indiana into the United States, the military importance of Fort Wayne diminished. Its garrison was formally removed in April 1819. At the time of its decommissioning, about 30 log cabins and two frame houses stood in the vicinity of the fort. The inhabitants were described as being “nearly all French” with a number of these being mixed-blood individuals. The village had been much larger than this prior to the 1812 siege (Griswold 1917:242, 246-248). The fort continued to be used as the Indian Agency until 1828 and as a school for a number of years after that (Woehrmann 1971:257).

Numerous accounts indicate that there were many outbuildings surrounding the forts at any given time. These included stables, Indian agent, interpreter, and sutler’s houses, a council house, and a bake shop. The local French inhabitants also lived in the vicinity of the fort. Considering the imperfect recordkeeping and mapmaking at the time the forts were occupied, it is not known where many of these buildings were located in relation to the fort. The agent’s storehouse and interpreter’s quarters, for example, are described as being 200 yards from the fort (Woehrmann 1971:270), though no further information is available. Artifacts related to the occupation of the American forts have been found from time to time during construction in the area. Items identified include military buttons and a pair of andirons (Griswold 1917:146, 151).

Timbers from the old fort palisade were still standing in 1830 (Griswold 1917:235). Soon after, the Wabash and Erie Canal was constructed through the northern edge of the former fort site. The last building from the 1815 fort, the officers’ quarters, was finally removed in 1852, due to the fact that it harbored “undesirables” (Woehrmann 1971:157 facing).

Fort Locations

While the locations of Fort Wayne's French and American forts had not been archaeologically documented prior to the outset of the IPFW-AS' investigations, a variety of early maps and historic accounts provided some sense for where they stood relative to the three rivers confluence and landmarks in the modern community.

The French Forts

Completed in May 1722, Fort St. Philippe des Miamis is generally reported to have stood on low ground downriver from the Maumee-Wabash portage road (Poinsatte 1976:5; Barnhart and Riker 1971:111). The fort is placed at such a location on several nineteenth-century maps. These maps, including one produced by Helm in 1880 (Figure 3), show the fort on the south bank of the St. Marys River (Ankenbruck 1972:7; Woehrmann 1971:2). Although Griswold (1917) provides a map showing Post Miami farther to the south and east, he is the only historian to suggest this location.

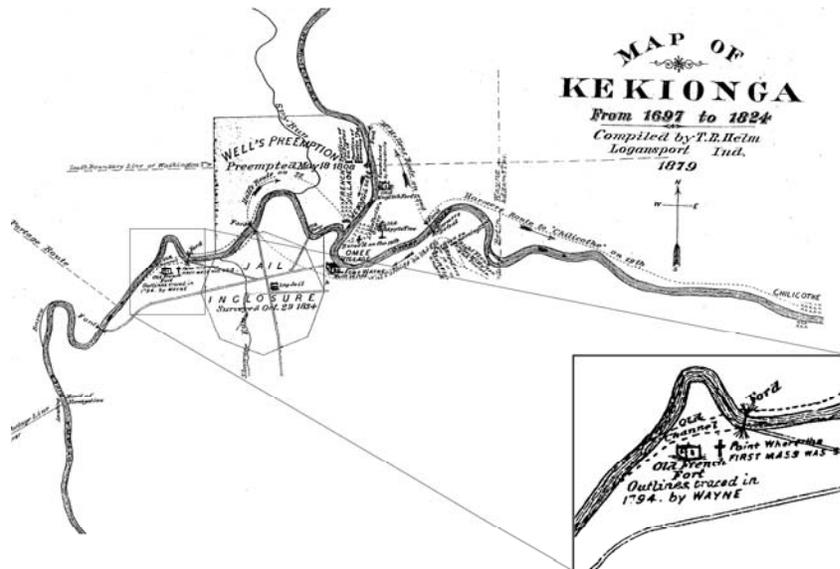


Figure 3. Early map of the Three Rivers confluence showing Kekionga and the location of the first (1722) French fort (adapted from Helm 1880).

Post Miami appears to have been repaired and briefly reoccupied following the Miami attack of 1747 (Ankenbruck 1972:10). However, the decision was soon made to rebuild the outpost on higher ground, and in 1750, the fort was reconstructed on the eastern bank of the St. Joseph River (Beatty 2006:11; Krauskopf 1953:326, 359). Historians place this later fort in an area that has been heavily impacted by residential development and levee construction (Beatty 2006; Griswold 1917).

The American Forts

By 1800, the first American fort (1794) - this initial, hastily constructed fort- was decaying and a new one was constructed several hundred feet away. This fort was presumably larger and more secure than its predecessor, and it saw use until 1815 (Griswold 1917:140; Woehrmann 1971:60). The last of the three American forts constituted a replacement of the second fort and was constructed at the same location as the 1800 installation. This final fort was completed in April 1816 (Figure 4).



Figure 4. Photograph showing the location of the final American fort (Allen County Public Library [ACPL] Community Album 2005a).

While the buildings associated with the 1815 American fort were removed in the 1850s, the area does not appear to have been severely impacted by urban development until the 1950s. However, in 1956, the area was bulldozed and leveled, and the fill that was removed was used to construct an embankment for the Chicago-St. Louis (Nickel Plate) Railroad line. George Miller, an archaeologist from Detroit, subsequently carried out limited archaeological investigations in the area to determine if any evidence of Whistler's 1815 fort remained. Miller's (1975) investigations concluded that the railroad-related construction had removed as much as eight feet of fill and that any traces of the two later forts had been obliterated. Since the potential location of the 1794 fort that we investigated in 2007 lay several hundred feet to the southeast, and had been covered by a building in the 1950s, it was not directly impacted by construction of the railroad embankment. However, our investigations revealed that late nineteenth- and early-twentieth-century residential development had likewise destroyed any intact cultural deposits once associated with the first American fort (Figure 5) (Andres et al. 2008). Due to the substantial amounts of disturbance we documented in the site 12-A1-2166 area, the remainder of this article concentrates on the results of the investigations focused on the earlier of the two French forts.

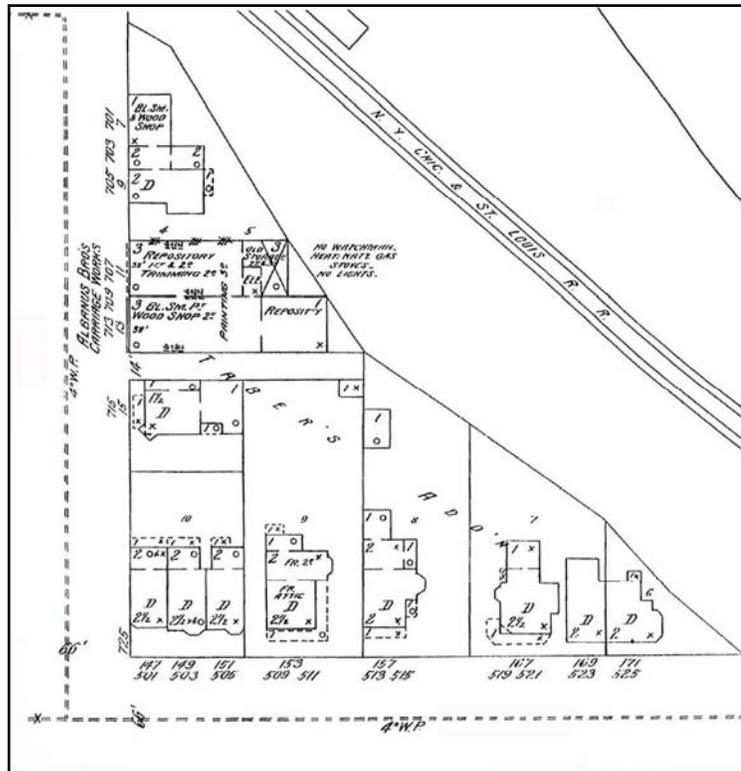


Figure 5. Sanborn Fire Insurance Map (1902) showing urban development in the suggested vicinity of the first American fort.

Investigations in the Area of the First French Fort

The investigations which were carried out involved a combination of archival research and archaeological field investigations. In this section, we present the results of the historical research and briefly discuss the staged field methodology implemented in an effort to identify the remains of Fort Miamis. Historic sources proved particularly important in informing the fieldwork and assisting with interpretation of the geophysical survey and excavation results.

Historic Research

In the early part of the twentieth century the area was undeveloped and was used for public events: in 1908 and 1910 the Cole Brothers and the Barnum and Bailey's circuses convened at this location (Gaff 2007:4). In 1911, C.R. Lane and M.F Porter received permission from the board of public works to establish a playground at the site (Bicentennial Heritage Trail Committee 1994:111). The project was spearheaded by individuals who were concerned about a lack of safe locations for children to play in turn of the century Fort Wayne. The project began with a public appeal for some 10,000 loads of ash and cinders which were used to level the area. This effort is documented in a series of articles appearing in the Fort Wayne *Journal Gazette* in February 1911. As one of these states: "the ashes, according to the plan, will be used for a porous subsoil, over the top of which will be placed a foot of soil. This will furnish a natural drainage

which cannot be excelled” (*Journal Gazette* February 26, 1911). The same article goes on to suggest that the project was anticipated to cost an estimated \$5,000 and that “it [would] be the most completed playground, with baseball diamond, tennis courts, etc. to be found any place in the country.” A prominent leader in the Women’s Christian Temperance Union, and who went on to serve as director of Indiana’s Women’s Franchise League, is suggested to have personally supervised the grading and installation of the playground equipment (Griswold 1917).

Contemporary photos, maps, and descriptions of the playground indicate that it contained athletic fields, see-saws, swings, and wading pools, with separate boys’ and girls’ sections (Board of Park Commissioners 1912). A large wooden pavilion with bleacher-type seating was also constructed (Figure 6). As discussed by Gaff (2007), the area was in use only briefly before it was destroyed during the flood of 1913. At this time, flood waters are reported to have cut great furrows through the newly constructed facility and to have severely damaged buildings and deposited large amounts of debris (Fort Wayne *News*, May 1, 1913). While there are no photographs of the 1913 flood’s immediate aftermath, photographic documentation exists for later floods that substantially impacted the area (Figure 7) (Gaff 2007). As comparison of these historic photographs with earlier maps (see Figure 3) suggests, the St. Marys flood waters seem to have repeatedly followed the path of least resistance, reverting to the river’s earlier channel, and flowing across the landform. In view of this fact, the ash and cinders called for in conjunction with the 1911 construction location were most likely used to fill erosional features resulting from earlier flooding episodes.

Following the area’s destruction in the flood, subsequent articles in the Fort Wayne *News* document use of the area as a garbage dump by the city’s citizens (Gaff 2007; Fort Wayne *News*, June 2, 1914). Following this period, this area seems to have remained undeveloped, and it is suggested to have been “plowed and sold as garden plots to be used in support of the war effort” in 1918 and 1919 (Gaff 2007:5).

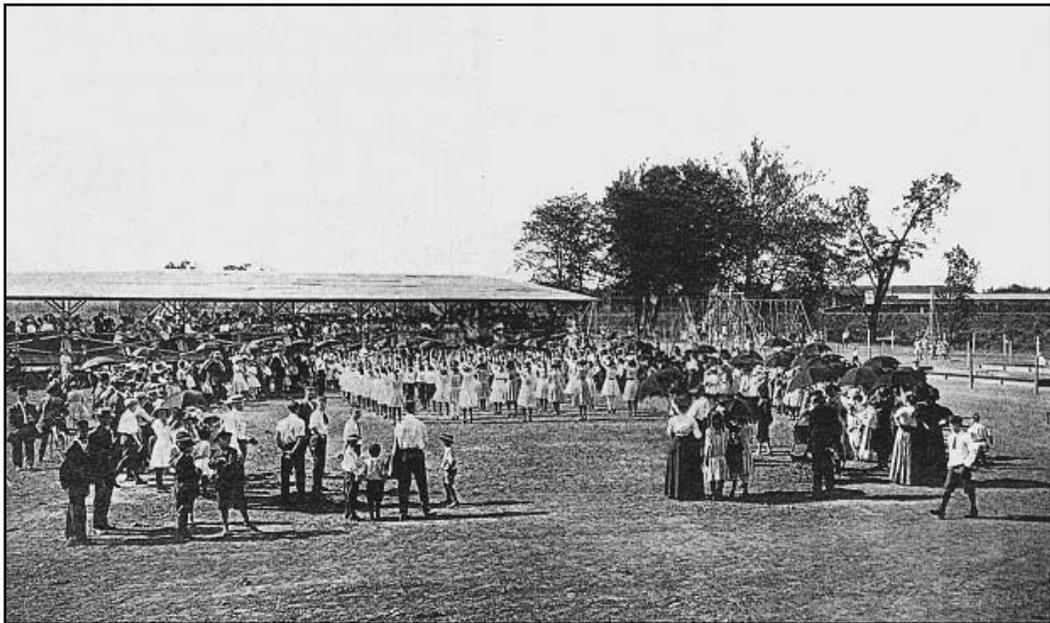


Figure 6. Pavilion area shown in May 10, 1910 (Board of Park Commissioners 1912).



Figure 7. Photograph of Fort Wayne showing flooding along the St. Marys River in the 1940s (ACPL Community Album 2005b).

Prior to our investigations, Dr. Donald Gaff of Michigan State University undertook limited archaeological excavations in an effort to identify remains of the fort. Gaff's (2007) investigations documented large amounts of urban fill along the area's northern edge. Some of this material dated to the early twentieth-century and was consistent with the pre-World War I filling described in the early newspaper articles. However, the presence of later materials suggested that the area had also been impacted by later flood control measures and/or efforts to fill erosional features resulting from floods. While the backhoe trenching that we carried out failed to identify any fort-related materials, it established that large amounts of fill extended all the way to the southern edge. The presence of both sand and clay supports reports that material dredged from the St. Mary's channel may also have been used to build up the land in the mid-twentieth century. While the riverbank was carefully examined and shovel test probe survey was also conducted within the area's boundaries, lack of potential for archaeologically accessible fort-related deposits caused us to shift our investigations to the area immediately south of this location.

Field Investigations

The field investigations undertaken south of this playground location combined shovel test probe survey with geophysical investigations, excavation of both small and larger (areal) hand excavations, and additional backhoe trenching.

Consultation of historic maps prior to initiation of the archaeological fieldwork revealed that late nineteenth and early twentieth century residences were present in this area, and our investigations revealed that these areas had been subjected to extensive, recent disturbance. Members of the IPFW-AS staff employed resistivity and ground penetrating radar survey in the surrounding areas and successfully detected buried remains of several of these demolished homes (Figure 8). Sanborn Fire Insurance maps available for the area proved particularly valuable in linking these remotely-sensed remains to the specific residential addresses. The results of the geophysical survey were confirmed through mechanical excavations which verified the presence of intact structural remains and large deposits of buried architectural debris at these

locations. While large numbers of historic artifacts were recovered during the shovel test probe survey conducted in the bordering areas, all dated to the mid to late nineteenth-century and later, and presumably reflect relatively recent residential activities.

Excavation Results

The riverbank inspection and screened shovel test probes did not recover any eighteenth-century cultural materials and the geophysical survey failed to produce evidence of any potentially fort-related deposits or features. However, the hand excavations proved to be much more productive. A series of six 1 m x 1 m test pits was excavated within the late-nineteenth and early twentieth-century neighborhoods examined during earlier stages of the investigation. Several of these units produced artifacts that have relevance to eighteenth century activities in the area. (We have not included a map showing the locations of these units that produced artifacts of historic significance in an effort to protect these areas from illicit archaeological investigations.) However, the zone where these materials were recovered was designated site 12-AI-2166, and we expanded our initial text excavations in an effort to increase the artifact sample and to define any early historic period features that might be present.

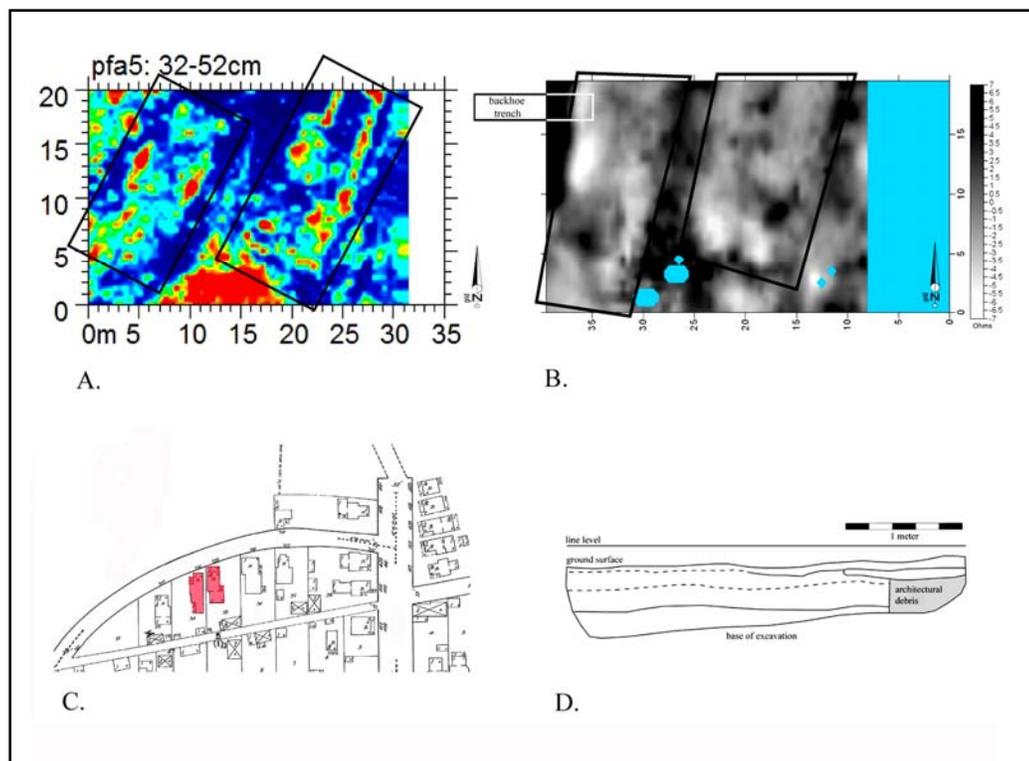


Figure 8. Correlation of geophysical data with historic documents and mechanical excavations. a) Ground penetrating radar results; b) resistivity survey data; c) Sanborn Fire Insurance Co. map (1918) showing late nineteenth century residences in the area where the geophysical survey was carried out; d) profile of backhoe trench excavated into concentration of debris from the easternmost residence illustrated in Figure 8C.

Eighteenth Century Cultural Materials

While small in number, a relatively impressive range of artifacts likely to date to the mid-eighteenth century was recovered from the excavations and may potentially reflect fort-related activities or settlement. These materials are significant because they potentially reflect settlement or other activities associated with 1722 Post Miamis. Artifacts dating to this time period include several glass trade beads, a copper or brass bracelet fragment, an “aglet,” a lead bale seal, a bone button, and a perforated iron projectile point. In addition, fragments of cut copper or brass and a large fragment of olive glass cannot be dated with certainty to the period of the French fort but are consistent with that era. And a small brass keyhole escutcheon and a carved bone pipe pin or tenon are of types that date to the mid-eighteenth century but continued in use for several decades after the abandonment of the fort. None of these artifacts was recovered in a primary context, and the lack of military items, such as musket balls, gun parts, or flints, may indicate the fort-era artifacts represent an encampment or settlement outside the fort itself that has not been entirely destroyed by later construction and demolition episodes.

Trade Beads

Three trade beads were recovered during the investigations. This first of these consisted of an elongated glass bead that is spheroidal in shape and which measures approximately 1.5 cm in length (Figure 9, 1810/760). The artifact is matte white in color with inlaid, brick-red spiral lines, and based on collections from Fort St. Joseph, Michilimackinac, and Natchez, George Quimby (1966:85-87) considered beads “with straight or spiral stripes in a single contrasting color” diagnostic of what he called the “Middle Historic period,” the years of French control in the western Great Lakes from 1670 to about 1760. The other two beads from excavations consisted of bright red, shiny, faceted beads (Figure 9, 1810/881 and 1810/790) that are similar to opaquely colored beads that are generally dated to this same period (Quimby 1966:87; Brain 1979: Plate IV).



Figure 9. Photograph of eighteenth century artifacts from the archaeological investigations.

Personal Adornment Artifacts

An object classified as an “aglet” was also recovered during the investigations (Figure 9, 1810/687). Aglets, also known as tags, points, or tips, are “coverings over the tips of laces or strings” which help thread them through eyelets or openings and keep the laces or strings from unraveling at the ends (White 2005:31). While these objects were made from materials ranging from gold and silver to thread, in the seventeenth and eighteenth centuries, many, like the example we recovered, were manufactured from “copper-alloy sheets that were bent into a tube” (White 2005:31, 32). The example that was recovered has a small hole at its proximal end which would have facilitated securing it to the end of a lace with thread or a rivet.

The other two eighteenth century personal artifacts consisted of a bracelet and a bone button. The bracelet fragment (Figure 9, 1810/751) was fashioned from a larger item with a stamped or engraved checkerboard pattern and may be of Native manufacture. Both of the bracelet’s long edges are folded under, somewhat unevenly, and while only a portion survives, it is likely to have originally consisted of a C-shaped wrist bracelet.

The bone button (Figure 9, 1810/537) is defined by a single center hole and beveled edges. The artifact is probably a bone “blank,” made to be covered by thread, fabric, or thin sheet brass; most eighteenth century bone buttons were utilitarian, as were nineteenth century examples, but they were more often two- or four-hole sew-throughs (Luscomb 1967:25; White 2005:66).

Bale Seal

Although textiles were the largest category of imported goods during the fur-trade era both in quantity and value (Anderson 1994:107), their importance is reflected in the archaeological record primarily by the lead bale seals once affixed to lengths of cloth. The investigations recovered a single lead bale seal (Figure 9, 1810/526), which is most similar to the Type C seal identified at Fort Michilimackinac (Adams 1989). There is stamping on the face, but only a numeral 2 is legible.

Ferrous Arrow Point

Also of Native manufacture, is a triangular projectile point (Figure 9, 1810/374) with a perforation centered basally. Such artifacts are not uncommon and have been recovered from French-era sites throughout the western Great Lakes (e.g., Good 1972; Strezewski et al. 2007:159), as well as from sites that date into the nineteenth century (e.g., Stothers and Pratt 2006:146; Wagner et al. 2001:87). These points are often found in documented association with chert triangular points (Wagner et al. 2001) like the late Madison point which was also recovered during these investigations and is discussed below.

Cut Copper/Brass Fragments

Two cone-like artifacts (Figure 10, 1810/524 and 1810/670) that are similar but not identical to tinkling cones were also present among the unidentified copper/brass scraps recovered from excavations south of the playground area. While these were initially tentatively identified as powder horn tips, it has been suggested they are more likely to be parasol tips contemporaneous

with the French fort (Rex Garniewicz, personal communication 2008). Other scraps of metal include cut, circular, and incised fragments (Figure 10, 1810/524 and 627); and a crumpled scrap that appears to have been a brass triangle, roughly accordion folded (Figure 10, 1810/890). Such potential evidence of Native American manufacture is typical of fur-trade era sites throughout the eighteenth and into the nineteenth centuries (Nassaney et al. 2003, 2007). These artifacts may be associated with the French fort or reflect ephemeral usage of the current park area in the decades after the fort's abandonment, when the three-rivers area remained a strategically occupied locale.



Figure 10. Photograph of possible eighteenth century items which were recovered.

Other Early Historic Period Artifacts

Like the copper/brass scraps that cannot be dated to specific decades, an olive-green glass bottle fragment that was recovered is hand blown and possibly fort related, but little more about it can be determined without a diagnostic finish or base (Figure 10, 1810/606). Similarly, a thin brass keyhole escutcheon (Figure 10, 1810/613) resembles hardware on chests and document boxes of the period, but this type of escutcheon also appears on a wide variety of furniture well into the 1800s. The bone pipe tenon (Figure 10, 1810/873) was used to fit a pipe stem to an elbow-type

bowl; such pins were used in the eighteenth and nineteenth centuries, but in the later 1800s were more often of metal (Richie 1983:145-147).

Chipped Stone Artifacts

Finally, a modest number of potentially prehistoric artifacts was also recovered during the investigations. These consisted of 106 pieces of chipped stone (including 2 refined bifaces, 1 unrefined biface, and 103 pieces of chert debitage), 22 pieces of fire-cracked rock, and 1 undiagnostic grit-tempered ceramic body sherd.



Figure 11. Photograph of chipped stone tools recovered from archaeological investigations.

As mentioned above, the single diagnostic chipped stone tool consisted of a partial triangular projectile point. This artifact, which is typical of the Late Woodland/Mississippian Triangular Cluster (Madison) (Figure 11, 1810/342) consisted of the proximal two-thirds of a point manufactured from light grayish-brown chert that may be Liston Creek. As discussed by Justice (1987:224-227), Madison points are the “standard point style represented by a myriad of Late Woodland and Mississippian cultural phases across eastern North America.” Since Madison projectile points first appear in the archaeological record about A.D. 800 and persist into the early historic period, they generally can only be dated to the Late Prehistoric or later. However, as previously indicated, the fact that such points have been found in association with metal

projectile points at other early historic periods sites (Wagner et al. 2001) raises the possibility that 1810/342 could reflect Fort Miamis-related activities.

Interpretation of the Artifact Assemblage

While the artifacts recovered in the southern area represent significant discoveries and clearly reflect eighteenth century use of the area, the fact that they were commingled with nineteenth and twentieth century cultural materials unequivocally indicates that they were redeposited. No intact eighteenth century cultural deposits or features were documented during the investigations. Since no eighteenth-century architectural remains were encountered, it is difficult to determine if this early historic period material reflect activities actually associated with Fort Miamis or may be the remains of Native American settlement focused upon the fort. Since no definitively French or military artifacts were recovered, the latter possibility appears the most likely. Such a scenario is supported by the available accounts of the Fort St. Philippe de Miamis history of occupation. As previously indicated, the facility served uninterrupted use as a garrisoned French trading post from its construction in 1722 until it was attacked by the Miami in 1747. The Native American offensive reflected growing French-British tensions in the region and took place after the Huron chief Sanosket led the Miami to believe that the French outpost at Detroit had been captured by the British (Ankenbruck 1972:10; Beatty 2006:10; White 1991:199). Already angered by a reduction in the number of gifts given by the French, the Miami, under the leadership of the war chief La Damoiselle (or Old Britain) launched a successful attack on Fort Miamis. The fort was partially burned at this point, and “the Miami took its garrison of eight soldiers as prisoners rather than put them to death, and later released them” (Beatty 2006:10).

Following its abandonment by the French, the original fort was occupied by the Miami under the leadership of their civil chief Pied Froid or Cold Foot (Wiseaukautsche), who had previously administered the Native community of Kekionga on the opposite side of the St. Marys River (Griswold 1917). According to the historic accounts, the Miami appear to have occupied the fort’s remaining structures, and the site became the center of a small Native American settlement (Pointsatte 1976:9). Known as Cold Foot’s Village, this Miami community was struck by a smallpox epidemic in 1752, which claimed the lives of Cold Foot and his son (Krauskopf 1953:350; Pointsatte 1976:10).

Based upon the remains recovered during the IPFW-AS’ investigations, it is possible that the area investigated is the location of Cold’s Foot Village or earlier extramural habitations associated with the fort. Judging from what is known about other fur trade-era Native American-French communities, they consisted of “colorful mosaic[s] of different peoples” (Strezewski et al. 2007; Tanner 2000:404). Due to the tendency of French traders and trappers to marry into Native communities, it would not be surprising for members of the French garrisons stationed at Fort Miamis to have wives and mixed-blood families who resided in the trading post’s immediate vicinity. While no intact archaeological deposits were identified during the IPFW-AS’ investigations, the range of material culture appears more consistent with Native American than French occupation of the locale. To this extent, despite dating to the eighteenth century, the aglet, bale seal, and three glass beads all appear to be European-introduced trade items. The cut brass and copper scraps (perhaps remnants of kettles) and probable parasol tips are also likely to have been introduced through trade. The co-occurrence of these items with a chert projectile

point, a metal projectile point, and a moderate amount of chert debitage, and the absence of definitive evidence of a French presence, strengthen the argument that they reflect a Native American occupation. Although our investigations ultimately did not identify physical remains of Fort Miamis, the fact that the residents of Kekionga apparently inhabited the deteriorating fort and that indigenous residences are reported to have developed around the trading post, suggests that the fort's architectural remains could still lie nearby.

Summary and Conclusions

The IPFW-AS' archaeological investigations carried out in this area are valuable in contributing to an improved understanding of the history of the locations of the French and American forts in Fort Wayne.

While the archaeological investigations undertaken adjacent to the suggested location of Anthony Wayne's first (1794) fort suggested that this area has been severely impacted by urban development and has little potential to contain any intact fort-era deposits, the research focused on Fort Miamis produced much more provocative and potentially significant results. Data gained from the backhoe trenching carried out expanded upon the results of Gaff's (2007) investigations. To this extent, our mechanical trenches demonstrated that the same deep fill deposits that Gaff identified close to the riverbank extend across much of the park. This is significant because it indicates that the "original" eighteenth century ground surface within the park is deeply buried and inaccessible to hand excavations. The urban fill documented in Gaff's (2007) and our investigations appears to reflect leveling and stabilization efforts within the park. In the case of the fill identified closer to the river, it appears likely that these deposits reflect the early twentieth century public improvement activities documented in a sequence of articles in the Fort Wayne newspapers. While some late-nineteenth- to early twentieth century cultural material was encountered in our backhoe trenches, at least some of this fill appears to be later than that documented by Gaff (2007). The large amounts of sand present in our trenches may reflect backfilling activities suggested to have accompanied removal of a water pumping station that may have stood at this location along the St. Marys River. The fill we documented closer to the southern edge may have been deposited during relatively recent levee construction activities or may represent sediments dredged from the St. Marys River and spread across the park.

The investigations concentrated along the project area's southern edge recovered a light scatter of eighteenth century cultural material. The fact that these artifacts were recovered from mixed contexts is indicative of the amount of disturbance that has impacted the area's bordering locations. However, the presence of these early materials is also significant for it provides clear evidence that this zone was in use during the early historic period. The presence of this material is promising from the perspective of possibly pursuing further archaeological fieldwork because it suggests that undisturbed eighteenth century deposits may lie in the adjacent neighborhoods. Ultimately, it is reasonable to conclude that the range of fur trade-era cultural material that was recovered reflects extramural fort-related settlement that is either contemporary with the 1722 French fort or somewhat later. Although a few French trade goods were present, the overall nature of the assemblage and the fact that it includes items of apparent Native American manufacture suggests that it reflects eighteenth century Native American occupation of the vicinity as opposed to deposits produced by the French garrison.

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**THE 2007 INDIANA ARCHAEOLOGY MONTH
PUBLIC EDUCATION PROGRAM IN SOUTHWESTERN INDIANA:
COMMUNITY, COLLABORATION, AND PARTICIPATION**

Dru Evan McGill and Cheryl Ann Munson
Department of Anthropology
Indiana University
Bloomington, IN

Introduction

In 2002, National Endowment for the Humanities Chairman Bruce Cole wrote a commentary in the *New York Times* about “American Amnesia.” In the essay, Cole discussed the lack of historical knowledge being taught to and, more importantly, retained by American students. Cole (2002) wrote: “Such collective amnesia is dangerous. Citizens kept ignorant of their history are robbed of the riches of their heritage, and handicapped in their ability to understand and appreciate other cultures.”

Perhaps more devastating to archaeologists is the apparent “amnesia” concerning the histories and heritage of those groups who, before European contact, inhabited what is now the United States. Native American prehistory and history are often overlooked aspects of American education and public dialogue. Yet, the stories available in oral traditions and archaeological sites and artifacts in the U.S. are important to the education of every American citizen. Researchers have found that culturally sensitive and inclusive heritage education helps citizens become more motivated and proud of their own cultural heritage, which results in greater educational opportunities for students (Banks 1995; Bennett 1999:11; Ladson-Billings 1995; LeRoux 2001a, 2001b). Learning about local and national history can be empowering and engaging for American citizens, but, in order for the public to connect to and understand history, heritage education needs to address varied local interests through diverse methodologies (Lerner 1997; McManamon 2002; Sleeter 1996). Often times, the interests of the community are not all that different from those of archaeologists.

In September 2007, Project Co-Coordinator Cheryl Ann Munson (Indiana University Research Scientist) and Dru McGill (Indiana University Doctoral Candidate) led a combined project of research and education at the Hovey Lake site (12Po10) near Mt. Vernon, Indiana, to coordinate with Indiana Archaeology Month. Small-scale excavations were utilized as a space for educating children and adults about archaeological methods, Indiana prehistory, and the importance of preservation of archaeological sites. The many educational goals of this project were successfully accomplished through diverse methods, and with the help of numerous project volunteers and co-sponsors. This project was titled “Community, Collaboration, and Participation” because of the importance of local community support of, and participation in, our activities. Hundreds of volunteer hours provided by concerned citizens of southwestern Indiana, such as teachers and university students, were spent distributing educational literature, advertising project events, preparing project materials, and working on-site.

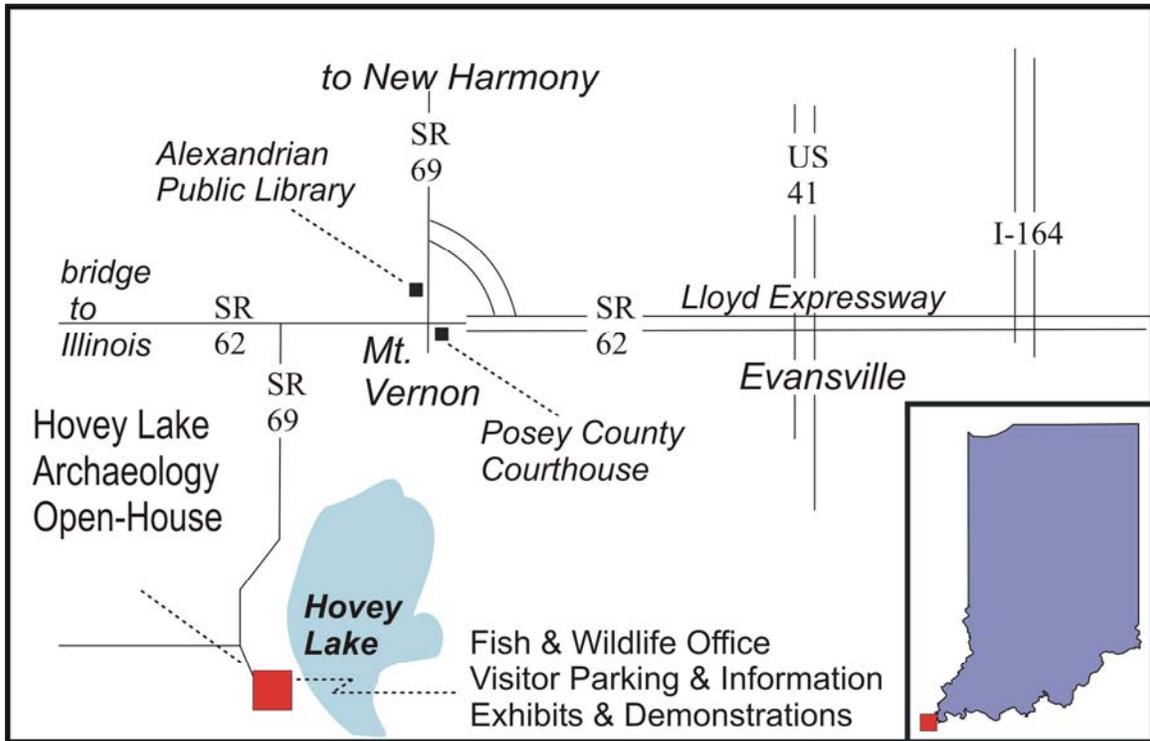


Figure 1. Schematic map showing the locations of the Archaeology Open House at Hovey Lake and other public education venues. Maps like this one were included in brochures and made available to the news media.

In the end, the project successfully organized, disseminated, and executed numerous archaeology education products, including: 4th grade fieldtrips to the archaeological site of Hovey Lake, distribution of Archaeology Learning kits, an Excavation Open-House for the public, informative brochures and bookmarks, temporary exhibits displayed in southwest Indiana, public lectures, updated and expanded website resources, and more. The most significant accomplishment of this project was bringing educational activities and products to thousands of people in southwest Indiana during Indiana Archaeology Month. We hope as citizens in the region become more familiar with the goals and ethics of modern archaeology, the chances for long-term preservation at some of the unique sites in the region are more likely to be realized. We also hope that long-term public education programs achieved through community collaboration (like this one) will reverse the growing “American amnesia” and result in citizens who are knowledgeable and proud of the prehistory in their own region. This goal will be integral to the future success of archaeology, and important to local communities and the state.

Overview and Background

Archaeology education programs for children and adults began at the Hovey Lake site in 1996. Hovey Lake is a large village of the late Mississippian Caborn-Welborn culture. From about A.D. 1400 to 1650, or somewhat later, the Caborn-Welborn people had their homeland in the region centered around the confluence of the Wabash and Ohio Rivers (Green and Munson 1978; Munson and Green 1973; Munson 2003; Pollack and Munson 2003; Pollack 2004). The locale is southwest of Mount Vernon, Indiana (Figure 1). The prehistoric/protohistoric village site is situated on the bank of Hovey Lake, on a former river terrace that floods only very rarely. The village is ideally situated in close proximity to diverse forest and aquatic wild plant and animal resources, since the lake is connected to the nearby Ohio River and its floodplain. The cypress trees growing in Hovey Lake are near their northern limit and show the southerly nature of the natural environment.

Since 1996, we have learned a great deal about this late prehistoric/protohistoric community and about archaeology education. This knowledge has contributed greatly to our evolving project. Indiana University has offered combined programs of archaeological research and public education at Hovey Lake in 1997, 1999, 2000, 2001, and 2003-2005 thanks to the support from the Historic Preservation Fund (HPF), the Indiana Humanities Council, the federal Transportation Enhancement program, co-sponsors for Archaeology Week/Month in Southwestern Indiana, local and regional financial contributions, and thousands of contributed volunteer hours. In 2006, additional private foundation grant funds were not awarded, but the IU archaeology team and co-sponsors volunteered to meet most costs for a limited public education program that did not include site excavations. The program was successful, but local citizens and many teachers noted how they missed the full program and offered their support in attempting to receive additional funding in future years.

With the help of HPF funds administered by Department of Natural Resources (DNR), the 2007 archaeology education project was carefully designed to again combine archeology public education with Indiana University's program of archaeological research at the Hovey Lake site. The Transportation Enhancement grant provided additional support. The Hovey Lake site is partly located on State land managed by the Hovey Lake Fish and Wildlife Area (HLFWA), part of the Indiana Department of Natural Resources. The Visitor's Center and other resources of the HLFWA make it possible for people of all ages to visit the site and learn about archaeology. In addition to what the archaeology program offers, our visitors have always enjoyed the unique features of the natural environment at Hovey Lake, and many have visited nearby nature preserves and other local landmarks.

The 2007 archaeology education program included both public education and archaeological research, each with particular goals and methods. Public education at Hovey Lake has a two-part primary focus: (1) teaching, at age-appropriate levels, appreciation for what archaeology can tell us about ancient cultures ("people who lived before us"), and (2) teaching the value of preserving archaeological and historic sites for people of the future. Our program included active participation by the public in answering research questions and doing part of the field work. Visitors were not allowed to "dig" and, in fact, we explained that extensive training is needed to excavate, since mistakes in excavating or recording are destructive. We shared with all participants our research questions and the methods used to gain answers. Then, we invited

participants to join us in the basic but all-important work that does not take formal training, such as carefully screening excavated soil to recover artifacts from specific locations, or washing artifacts. What has hands-on participation in archaeological fieldwork meant to young and adult participants? Simply stated, they have been thrilled and honored, and they loved being part of the research. We believe the vast majority of youth and adults who have worked with us on-site, even for 10 minutes, will positively remember their archaeological experiences. For those participants who were unable to visit Hovey Lake archaeological site, we still provided educational opportunities to teach about people who lived before us and the value of preserving archaeological sites through temporary exhibits, brochures, booklets, and more.

Project Objectives: Goals and Methods

The overall goal of the 2007 education project was to expand the public's appreciation of local archaeological resources in order to foster understanding of archaeology and preservation of heritage resources. During this project, people of all ages and backgrounds learned more about archaeology and preservation in their own region. Our educational goals, methods, and products were diverse because it is hard to predict the ways people will connect with the past and we have realized everyone learns differently. Our audience was also diverse, consisting of children and adults, those who have never heard of archaeology, and amateur archaeologists. Our archaeological goals were somewhat limited by the fact that our excavations were based around funding and a timeframe for public education. The Hovey Lake site has an interesting set of fortifications built among and within houses. We conducted small-scale excavations at the Hovey Lake archaeological site both in order to discover more about Hovey Lake villagers' "homeland security" and to demonstrate the practice of archaeology to visitors as part of our educational program.

Our team approach—combining regional historic and educational organizations, volunteers from three universities, and regional elementary school personnel with our small group of researchers—was extremely successful and well received.

Educational Goals and Methods

Educational Goals

Determining exactly what people should learn and want to learn about prehistory, history, and the science of archaeology is difficult. Our educational goals have evolved over years of experience and assessment. We feel there are major points everyone should understand in order to fully appreciate the value and relevance of archaeology. Hawkins (2000:213) has summarized the work of other archaeology education programs and has determined four fundamental concepts of archaeology:

- “1. Archaeology is the study of material remains such as artifacts and features and their contexts.
2. The purpose of archaeology is to learn about past peoples [and] their cultures...
3. Archaeologists have lengthy, specialized training and use scientific methods. Their work is different from that of untrained excavators and treasure hunters.
4. Archaeological sites are fragile and irreplaceable. They should be protected from vandalism, unscientific digging, and destruction by natural forces.”

These four concepts are integrated into all of our educational activities. In addition to these, we add as educational goals four points:

5. Archaeology has a long tradition in southwest Indiana, where archaeological resources reflect the entire spectrum of human history from the Native American cultures of the prehistoric era to the farms and towns of the Pioneer period and Civil War era of American settlement.
6. Archaeologists work in teams with the help of various specialists, including local citizens. Many people have interests in and opinions about archaeology.
7. Archaeology is more than digging. Archaeology is a social science that answers research questions by investigating data in the field, in books, in laboratories, and in discussion with colleagues.
8. Archaeological resources are abundant in southwest Indiana, but have suffered from erosion, looting, and construction projects that were not preceded by archaeological excavations.

Our goals are to teach each of these fundamental concepts in the science of archaeology and the value of preservation (including Indiana laws on the protection of sites and resources). We believe our educational programming fosters pride in archaeological resources, a goal not only of our project but also of the discipline of archaeology (SAA Principles of Ethics 2006). To accomplish these goals most effectively, we utilized various methods described below. Understanding, diversity, and community collaboration were the foundations of our methods.

Methods for Public Archaeology

This 2007 Indiana Archaeology Month program benefited from years of personal experience in the region, but also from other archaeological education projects. Summaries of the Hovey Lake education program (first developed by Jocelyn Turner and Cheryl Ann Munson) have been presented to professional colleagues at the annual meeting of the Society for American Archaeology (Munson and Turner 2000) and the joint annual meeting of the Midwest Archaeological Conference and the Southeast Archaeological Conference (Turner and Munson 2004).

The project Co-Coordinator utilized past experiences to understand the social contexts of our project and then developed and employed community resources to further our educational goals and also to create community connections to local natural resources. Christensen and other archaeologists experienced in long-term education recommend all archaeologists do preliminary research on living populations surrounding the research area (Christensen 2000:363; Pyburn and Wilk 2000). Munson has accomplished this research through observation and conversation in her

more than 30 years of research in southwest Indiana (Munson 1979, 1980, 1994, 1995, 1997, 1998, 2001, 2003; Pollack and Munson 1998, 2003). Munson's knowledge of regional archaeology and commitment to local interests was supplemented by McGill's ethnographic research on connections between citizens and their local prehistoric past (McGill 2007).

What sets this project apart from other public education projects is that the majority of participants actually visited an archaeological research site where they were a part of constructing and interpreting history. Indeed, Davis (2005:25) notes, "Americans want to be active participants in the making of history rather than the passive receptacles of a past constructed by others." Also, archaeology educator Gerder Lerner (1997:206) believes, "A meaningful connection to the past demands, above all, active engagement." Archaeological sites are abundant in southwestern Indiana. Many individuals even have sites in their own backyards or on their farms. Making archaeological research available as an active space for education was a critical component of this program.

As preparatory measures for the program, we considered numerous archaeological sites as possible education locations. In a description of "digging with kids," Smardz (2000:242) recommends archaeologists "choose a site that is suitable for public archaeology programming." Hovey Lake is a particularly suitable site for reasons described above in the "overview" section, including its accessibility, its connection to the HLFWA office, and local community support and interest. Hovey Lake's history as a late prehistoric/protohistoric site also makes it appropriate for conveying "comprehensible" stories that relate to living populations (Smardz 2000:242). Hovey Lake villagers farmed, utilized river resources, and hunted wild game just like citizens of southwest Indiana today. Contemporary relevance and tangible, understandable stories help spark local interest, concern, and commitment to preservation.

A survey of previous archaeology education projects (Davis 2005; Little 2002; Smardz and Smith 2000) reveals that all public archaeologists suggest educational projects should also be flexible, diverse, and reciprocal. An important aspect of our methods is the diversity of our products. Some people learn best by writing notes or hearing spoken word. Others relate best to pictures, physical movement, or problem-solving activities. Utilizing a variety of approaches is the best way to ensure everyone learns about, and is excited by, archaeology (Gardner 1993; Geraci 2000:92). Thus, we developed distinct, varied educational activities and products to accomplish our educational goals.

Archaeological Goals and Methods

Archaeological Goals for 2007 Site Investigations

Conducting investigations on an intermittent basis at a large (11.8 ha) Mississippian village over the course of decades, as has been done at Hovey Lake, has required strategic planning to answer research questions that could be addressed by small-scale excavations. Prior to the 2007 site investigations, only 1,637.5 square feet (152.3 square meters), less than 0.1%, of the site area had been excavated, but we had succeeded in excavating samples from eight houses in different parts of the site and determining that the residential area surrounded a central plaza. Our research goals for 2007 were narrowly focused on what we could accomplish during the Archaeology

Month investigation. As in other years, the results of previous site investigations guided both the questions being asked and the selection of the locations where we would work to find answers.

Recent archaeological work at the Hovey Lake site has focused on the identification of residential structures and answering the question of whether the village was fortified. Ground Penetrating Radar (GPR) surveys conducted with the cooperation of the Indiana Geological Survey helped identify structures and the palisade wall's location. At the end of the 2005 test units, we knew that there was an "early" fortification wall comprised of a main palisade wall and projecting bastions. In at least one case, a bastion was torn down and rebuilt in approximately the same spot.

But, the picture of the palisade is much more complicated than rebuilding of the bastion. Multiple houses were found that were built over the ruins of the palisade, as well as "beyond" or outside the palisade enclosure. While it is clear that the houses in the late village were not protected by the earlier palisade, we must ask whether the later villagers were concerned about "homeland security." Did they no longer need a fortification for their village? If so, does the absence of a later palisade wall correspond with a period of peace in the lower Ohio Valley and southwestern Indiana, perhaps a negotiated agreement or a geographic realignment of populations and domains of previous competition? Or, did the later houses in the expanded village require security? Did the villagers construct a new palisade wall beyond their earlier one, before they expanded their residential area? Building a later fortification wall would indicate protracted concern by the villages about social conflict that would have spanned decades, perhaps centuries. We hoped to touch upon these questions during our 2007 excavations.

Archaeological Methods

Our methods for 2007 followed those used successfully in previous years. In conjunction with the Indiana Geological Survey, we conducted another survey using Ground Penetrating Radar (Noggin, Sensors & Software, Inc.) with a different antenna (200 mhz) and configuration than that used previously. Excavation was then focused in two areas—one where a bastion was already known to exist (Block 15 from 2005 excavations), and a second long excavation trench (nearly 100 ft) to search for a second fortification wall trench. Opening Block 15 and quickly removing the backfill from the previous excavation was done to be able to present excavation and stratigraphy in our education programs. The second long trench provided ample room for visitors to watch archaeologists excavating, mapping, and record keeping, and to talk with them while they worked in an impressive excavation sequence. The trench also improved our chances of locating any palisade wall features present at the south margin of the residential area at Hovey Lake.

Excavation was conducted in arbitrary levels with vertical control and horizontal control referenced to multiple "permanent" (concrete and metal spike) datums and to the site's arbitrary elevation. Excavation units were small, 2.5 ft square, to provide horizontal control. Provenience of excavated soil referenced excavation block, unit, level, zone (having distinct soil characteristics or inclusions), and feature (or posthole/postmold). Each distinct provenience was assigned a field specimen number (FS#), and excavated soil was placed in a series of buckets that were tagged with the FS#. At the base of each level record forms were completed and maps prepared if zones or features were identified.

Excavated soils were screened (through ¼-inch mesh) with the exception of wall trench fill comprised of culturally sterile soil. Screening employed four screens set up near the excavations, so that adults and children could join experienced personnel in hands-on processing excavated soils from selected excavation units. Flotation samples were collected from selected features. Upon completion of the excavation project, all excavations were backfilled and the formerly grassy areas were reseeded. Personnel and equipment from HLFWA assisted with backfilling, as with numerous other parts of the program.

In the laboratory, excavation records and maps were organized and artifact collections washed, sorted, and size graded. Illustrations were made of selected plan maps and excavation profiles. Sorted artifacts were cataloged, and inventories prepared. Indiana University student volunteers helped with all aspects of the laboratory work, which extended the reach of our education project for adults.

Our flexible methods allowed us to carry out public education to the fullest potential we know, while doing as much excavation as funding levels would allow.

Project Results

Education

Results of the education project can best be described as educational products for children, for adults, and for people of all ages.

Education Products for Children

The majority of time in this project was dedicated to organizing and operating educational activities for students, primarily field trips for 4th grade students and on-site educational experiences for college students. In interviews conducted last summer, McGill determined that Posey County citizens uniformly believed children should learn about local history and prehistory. In order to effectively teach about archaeology and prehistory, the project co-coordinators interacted with teachers and students, employed our knowledge of state curriculum standards, and created different kinds of educational products.

With the expert consultation of 4th grade teachers (primary among them Ms. Teresa Branson), we have developed a list of state standards our educational project meets. We studied these standards for education in order to develop effective, school-ready educational products for children and because, according to Davis, an archaeology education scholar, “it seems obvious that we can’t afford not to” (2000:59). Archaeology is not a regular part of any elementary education standards in the United States. Teachers are already overwhelmed by over-stuffed curriculum. Few teachers have knowledge of archaeology or anthropology and they do not have tools to incorporate these topics into their classrooms. Our goal was to provide interesting, relevant, user-friendly materials that satisfy teachers’ needs and concerns. As described below, both our 4th grade fieldtrip and Archaeology Learning Kits help teach standards in math, science, history, and other topics. We recognize that providing these resources also means continuing to assess standards and keep an open dialogue with teachers, since history and social science

education are always changing (Davis 2000:59). We hope our educational efforts have changed and will continue to change young students' understanding and appreciation of history and preservation in southwestern Indiana and throughout the country.

Teachers play one of the greatest roles in the education of students. Teachers are “gatekeepers” in that they determine what their students will learn (Davis 2000:63). Though we have studied standards and successfully created activities to teach students about mapping, math, deductive reasoning, and more, we cannot assume to know what students learn in classrooms. For this reason, we advocate for all archaeologists to work in a fully collaborative manner with teachers when developing lesson plans and activities (Davis 2000:64). For several years, we have worked with schools and teachers in order to create effective archaeology education products. Many of the teachers, principals, and superintendents have previously spent a day on-site with our excavation team in order to teach themselves how to teach archaeology!

4th Grade Program

A principal component of this educational project was teaching children and adults about archaeology by inviting them to an archaeological site while excavations were in progress. In one month, over 300 4th grade students from 10 schools took a field-trip to the Hovey Lake site. The students were accompanied by 50 adults. Upon arrival, students were greeted by project staff and received an introduction to the history of Hovey Lake archaeology and what has been learned to date about the village site. Students were then taken through two learning stations. In one, an “archaeological field laboratory,” students (and accompanying teachers and parents) worked through an artifact activity in groups. This activity allows students to “think like an archaeologist” by analyzing and identifying artifacts, examining context and association amongst artifacts, and developing a story of what happened at a fictional site. Students enjoyed touching real artifacts and writing stories about their sites. In the second learning station, “current excavations,” students took their knowledge of archaeology and applied it to real research questions at the Hovey Lake site. Students were instructed in the research plan for the current year's work and given a tour of the excavations in progress. They observed results as they related to the current research questions, saw people drawing excavation maps, and joined the field research archaeologists by participating in screening soil. By reinforcing critical educational lessons, students learned about research questions, the production and analysis of data, the importance of context, how archaeologists excavate and work in labs, and more. Of course, the most fun for most students was screening excavated soil and helping collect data for a real research project.

Many of the same educational goals could be accomplished with a fictional site, but children, like the rest of the public, learn best by seeing, touching, smelling, and otherwise experiencing new environments. To children, archaeology could be equated with digging holes in the ground or searching for dinosaurs. We dispel these myths. Our program teaches students that archaeology is more than digging—it is a science with deductive reasoning, interpretation, etc. After visiting Hovey Lake, students understand how important math, mapping, and reporting skills are to their education. This, in turn, helps educators teach these standards in their classrooms.

Other lessons learned on site include how archaeologists determine the age of past cultures, sites, and artifacts; the Indiana culture-history time-line; where the Hovey Lake site fits

in the time-line; and the vast amount of time when the early Native American cultures can be known from studies of archaeological sites, but not from written historical accounts. By describing ancient cultures, the students learned about diverse cultures of the past. Stereotypical beliefs about Native American cultures (all lived in teepees; wore war paint; rode horses) are contrasted with our knowledge of ancient Native American lifeways in Indiana.

Perhaps the most important field-trip lesson that is covered in both the field laboratory and current excavation learning stations is “preservation of archaeological sites.” Students see our approved excavation plan (under Indiana Code 14-21-1) and learn about state laws protecting archaeological resources. But the Hovey Lake site also has many blatant examples of damage (dating ca. 1938-1978) to the archaeological deposits that are showcases for the loss of important archaeological information due to construction impacts. Some students as well as adults are incensed by this. Others are simply puzzled regarding why this happened. Opportunities for education abound when discussing damage that can be readily seen.

Archaeology Learning Kits

The Archaeology Learning Kit was designed to help 4th grade teachers to introduce archaeology goals, methods, and ethics to their students. The Kit contains reproduction-artifacts from an invented prehistoric site, as well as a teacher’s guide, worksheets, and games. The Kits make the archaeological process fun, interactive, and tangible. The students identify, catalogue, and analyze the artifacts in order to answer questions about how people lived in the past. Students learn to develop research questions and they attempt to answer these with the data available in the kits. Additionally, the students examine maps of where the artifacts were excavated, which introduces students to the concept of context and teaches them map reading skills. Beyond the artifact activity, the Archaeology Learning Kits also contain a video of excavations at Hovey Lake. This video explains the archaeological process and features local teachers and students.

Unfortunately, not every teacher and student in Posey and Vanderburgh County was able to come to our 4th grade program during Indiana Archaeology Month. Altogether, we estimate 200 students participated in our education program only through the dissemination of Archaeology Learning Kits.

In 2007, some classes were able to work with the Archaeology Learning Kits before coming on the field-trip to the site, and these students were much better prepared and learned more while on site. Other classes were busy with normal curricular programs and did not get to use the Kits in advance. Some classes used the Kits after the site visit, to reinforce what was learned on site. In all, the Archaeology Learning Kits combined with Field-Trips are synergistic methods of teaching.

Hands-On Education for College Students

Anthropology and archaeology are often taught in undergraduate classrooms. A critical component of learning the scientific processes involved in archaeology is participating in field schools, where students are trained to become professional archaeologists. Not all students have the opportunity to attend a field school, however, and others are not interested in becoming archaeologists so they choose not to attend a lengthy field training program. Our educational program provided opportunities for over 60 undergraduate students in anthropology and

archaeology classes from the University of Southern Indiana, University of Evansville, Indiana University, and other schools to participate in aspects of field work at the Hovey Lake site during Indiana Archaeology Month. Whether for a few hours or a few days, students were exposed to the techniques and skills required to understand archaeology and to construct histories. The college students visited the excavations, screened excavated soil to recover artifacts, and learned first-hand about documentation, mapping, recording context in logs and on bags, etc. (Figure 2). Universities are important co-sponsors of our educational project and, we feel, the training experience for college students benefits their education in anthropology greatly by teaching them about cultural diversity, the scientific method, and the importance of public education.



Figure 2. Students from the University of Southern Indiana screening excavated soil to recover artifacts. Students organized buckets according to tagged information, labeled plastic bags to hold the artifacts, and recorded their work in the project’s Field Specimen log.

All Ages Educational Products

As mentioned above, we feel that diverse products are important for accomplishing diverse educational goals. Utilizing a variety of approaches is the best way to ensure everyone learns about, and is excited by, archaeology education (Geraci 2000:92). In order for people to learn about scientific archaeology and preservation, we feel it is necessary that they see archaeology “in action.” When children or adults think of archaeology, they generally think of “digging” and artifacts (Holtorf 2005). Very few excavations are open to the public in the way that our project

was and even fewer are designed for public education. Excavations at the Hovey Lake site were, of course, guided by research principles and archaeological methods, but the way the research was accomplished also provided educational services to interested visitors.

In order to teach that archaeology is more than digging, our educational project also involved alternative settings for education. Public lectures by professional archaeologists attracted citizens who may already have knowledge of the science or artifacts of a region. Bookmarks and brochures provided opportunities to teach about research design, preservation, history, and Indiana laws in an informal, brief manner. Exhibits allowed us to teach the public about current research in their own backyards, while focusing on topics of relevance to people living in southern Indiana. Finally, our website is an accessible resource in continuous development that offers a variety of educational data.

Excavation Open-House

The Excavation Open-House is the primary educational activity of our program. Over one weekend in September, we organized an Open-House to allow visitors to view an on-going archaeological excavation, ask questions, participate in educational activities, and more. Altogether, we estimate nearly 500 people visited the Hovey Lake site during the Open-House. Visitors were greeted by members of our co-sponsor organizations such as the Posey County Historical Society. After being greeted, visitors viewed informative exhibits in the Fish and Wildlife center and talked with student-volunteers as they washed recently excavated artifacts. This lab component of archaeology showed that archaeology is more than excavation. Careful washing and cataloguing indicate the fragile and irreplaceable nature of artifacts to the public.

Outside the HLFWA office, IU graduate students and prehistoric technology experts also set-up corn-grinding, pottery construction, farming exhibits, and more (Figure 3). After trying these experimental educational activities, a shuttle van operated by another co-sponsor, University of Southern Indiana, transported visitors from the HLFWA office to the excavation site. Here, visitors were escorted to excavation blocks where archaeologists were working. During the Open-House, Munson and her assistants frequently stopped work to explain the process of excavation and its connection to research questions (Figure 4). Children and adults alike were able to observe and participate in screening (supervised in-part by archaeology faculty from co-sponsor University of Evansville), see examples of GPR maps and GIS data, and more. Finally, at the Open-House we distributed bookmarks and brochures advertising other Indiana Archaeology Month activities and DHPA materials, such as the Indiana Archaeology Law Question and Answer Sheet.



Figure 3. Children and parents at the Excavation Open-House try their hand using reproductions of prehistoric bone and stone tools to shell corn and grind it into meal.

The most important part of Open-House visits is the opportunity for interested individuals to ask questions and share their own ideas and perspectives. This kind of interaction offers a unique opportunity for visitors and archaeologists to learn from each other. Extensive time and funds were required to organize and execute the Open-House weekend. Project staff coordinated with numerous volunteers, created and executed experimental archaeology activities, built educa-



Figure 4. Visitors at the Excavation Open-House examine artifacts and stratigraphy at a burned semi-subterranean house. Resting on the house floor was a complete small bowl, a heat-shattered stone hoe blade, fragmentary ceramic jars, and other artifacts that were abandoned in their use-state when the house caught fire. The bowl was found less than 1 foot away from a trench dug years ago for a waterline to the building in the background, which cut through part of the burned house deposits.

tional sign-boards, produced and distributed literature and advertisements, coordinated fieldwork and excavated soil samples for screening, and more. In the end, the Open-House was successful in helping to achieve our archaeology education goals.

Public Lectures

Public lectures are a great opportunity for the dissemination of scientific knowledge by leading researchers. In southwest Indiana, it is apparent that citizens are aware of local archaeological resources, though they have few formal means to learn about sites and artifacts or talk with archaeologists. A surprising number of citizens are avid amateur archaeologists with extensive knowledge about local collections and history. Others have seen archaeology on television but never met an American archaeologist. Public lectures are a great way to connect scientists with the local communities, especially when talks are about resources in their own backyards.

The program co-coordinators invited Dr. Michael Strezewski of University of Southern Indiana to present a public lecture on September 27, 2007. The location of the lecture was the Alexandrian Public Library in downtown Mt. Vernon, Indiana. Dr. Strezewski presented an excellent talk titled "Warfare in the Prehistoric Midwest." Past public lectures have been more highly attended. We will learn from the lower attendance and team with the library to do a better job of advertising the public lectures in the future.

Brochures

Since the first education program at the Hovey Lake site, we have distributed informative brochures, as part of archaeology education initiatives. The brochures consist of four double-sided panels on both sides of a legal size sheet of paper (Figure 5). This year, approximately 1,000 brochures were distributed before and during Indiana Archaeology Month to advertise project activities and teach about local research, the science of archaeology, and pertinent Indiana archaeology laws. The distribution area for brochures was broad, and included libraries, museums, schools, universities, elected officials, university administration, and research institutions outside Indiana. In the brochures we defined commonly used terms like artifacts, features, and sites. The archaeological research process was also described to readers through discussions of local research and proposed future research. Various cultures and artifact-types from Indiana prehistory are displayed in a timeline. A preservation ethic is fostered by explaining to the public the irreplaceable, informative aspects of sites and artifacts and what the public can do to become archaeological stewards. Finally, and perhaps most importantly, the front cover of the brochure listed our many co-sponsors, and another panel thanked our financial sponsors.

Bookmarks

Hundreds of bookmarks were produced and disseminated for this educational project. Bookmarks were given to school children during field-trips, visitors of the Open-House, and to others wherever information about our excavation was advertised. Once again, on the bookmarks we included a timeline of Indiana prehistory. This side of the bookmark also contained contact data and website locations so interested persons can know where to go for additional

information. The front of the bookmarks contained information related to archaeology of southwestern Indiana such as stone tool types and their functions, and ceramic designs and uses for Caborn-Welborn peoples.



Figure 5. Brochures describing the Indiana Archaeology Month program in southwestern Indiana. When we learned that people had saved brochures from the previous year, we decided to print the brochures for each new archaeology program in a new color.

Temporary Exhibits

In 1999, Dr. Marjorie Jones constructed a large temporary exhibit case with four panels to display information about archaeology in southwest Indiana. Since 1999, this annual exhibit has been seen by thousands of individuals from several states during Indiana Archaeology Month. The four panels teach visitors about the scientific method, stratigraphy, public education, and current research at the Hovey Lake site. One panel is reserved for a rotating temporary exhibit that changes every year. This year, IU graduate students Alicia Ebbitt and Dru McGill created an exhibit titled “A Day in the Lives of Hovey Lake Villagers” (Figures 6 and 7). People who saw the exhibit in the Alexandrian Public Library, a longstanding co-sponsor of our program, learned about what Hovey Lake people ate, where they slept, what they did for fun, and more. We estimate more than 1,000 children and adults viewed the temporary exhibit during the 2007 Indiana Archaeology Month.



Figure 6. Indiana Archaeology Month exhibit at the Alexandrian Public Library. The front panel at the left is permanent and shows an archaeological excavation unit, features (wall trenches and pits), and several types of artifacts. The right front panel changes every year, as do many of the illustrations and text on the narrow left and right side panels. The small panel at the front holds artifacts that people can touch—the most popular part of our exhibit with both children and adults.

Website

The World Wide Web affords numerous opportunities to engage, interest, and educate individuals about archaeology and, more specifically, Indiana prehistory. Project co-Coordinator Munson has an extensive web presence that receives thousands of “hits” per year. On her website (<http://www.indiana.edu/~archaeo>), visitors can find information about important Indiana archaeology sites such as Hovey Lake, Prather, Bone Bank and others. Because of the variation in interest and ages of visitors, our website utilizes an assortment of media types to provide educational materials. For this year’s Indiana Archaeology Month educational program, we expanded our website to include information about educational activities available to the public. We also posted photographs and descriptions of excavations.



Figure 7. Close up of the 2007 exhibit “A Day in the Lives of Hovey Lake Villagers,” designed and installed by Dru McGill and Alicia Ebbitt.

Archaeology Results

As discussed above, recent archaeological work at the Hovey Lake site has focused on answering the question of whether the village was fortified (including questions of when, where, and why fortifications may have existed). Evidence discovered in 2005 demonstrated the existence of an “early” fortification wall. But, multiple houses were found that were built over the ruins of the palisade, as well as “beyond” or outside the palisade enclosure. In 2007, we wanted to further investigate the known palisade bastion while also looking for additional construction episodes of “outer” palisades. While searching for this evidence, we discovered another significant find: a burned house with extensive contents.

Palisades

After removing the backfill in the 2005 excavation units of the “early” bastion in Block 15, we successfully defined the horizontal limits of unexcavated features at the base, which comprised four wall trenches. Interestingly, very few artifacts were discovered in the palisade wall trenches, a sign that perhaps the palisade area of the site was little used by the Caborn-Welborn people prior to construction of the wall trenches. The large palisade wall and bastions could have even been the first major constructions created by Hovey Lake villagers. Through careful excavation, we were also able to determine the sequence of reconstruction in Block 15 bastion. It is significant to note that the earliest visible bastion was larger and more massive than later constructions. These results imply a great concern with “homeland security” for Caborn-Welborn villagers at the origin of their occupations near Hovey Lake.

In the 100-foot-long trench, we discovered near the south margin of the terrace additional evidence to support a theory that Hovey Lake villagers were persistently concerned with “homeland security:” a shallow trench feature with two postmolds that may be an outer palisade wall. Although this feature was unusually shallow (Figure 8), less than three linear feet of this construction was investigated, so it is hard to compare it with other wall trench features. Investigations at the Southwind site, however, uncovered Angel phase palisade features that had diverse manifestations, with wall features having variable trench depth and occasional sections where there were gaps in the palisade wall or single set posts were used instead of wall trenches (Munson 1994).

This trench is much smaller than the Block 15 palisade wall trench and bastion; however, with further exploration to trace its limits, this construction could result in a better understanding of how the need for security changed over time at the Hovey Lake site. For instance, if this trench is confirmed to be part of a palisade enclosure and dates confirm that it protected the expanded village, then we could assume the Hovey Lake villagers were affected by serious protracted social conflict during Indiana’s late-prehistoric and protohistoric periods.

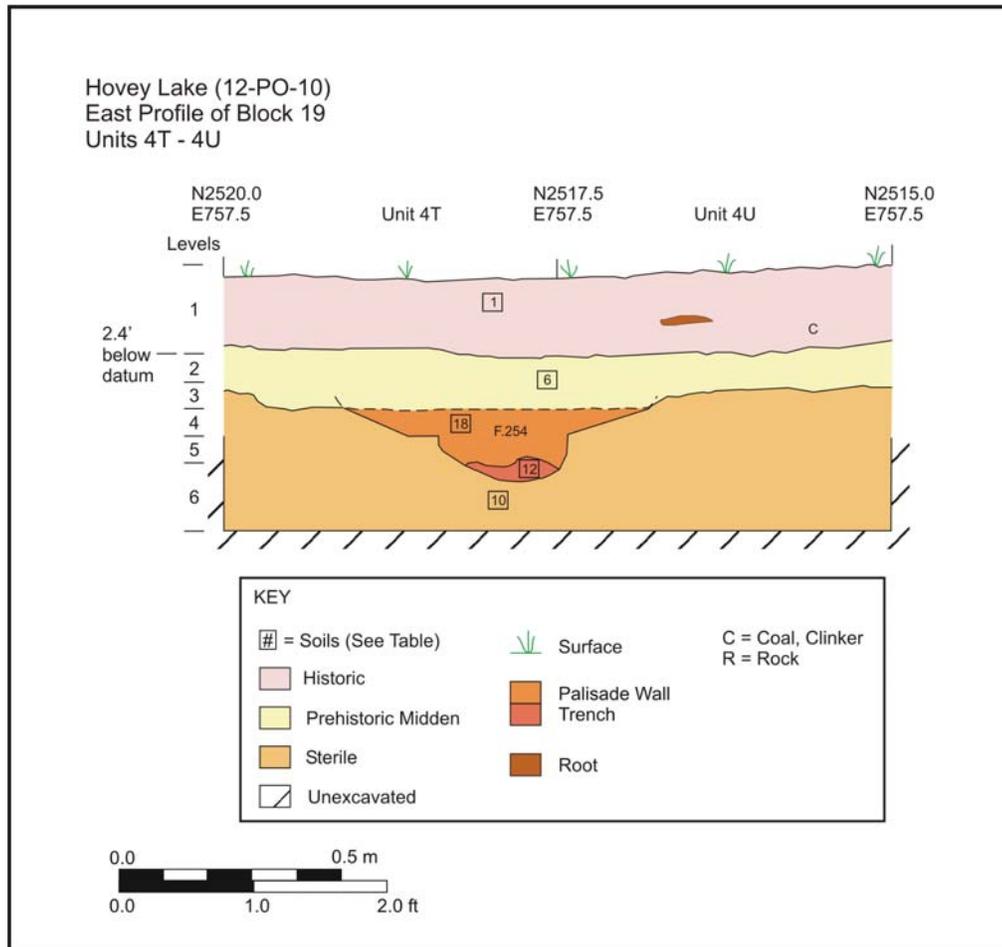


Figure 8. Block 19, east profile, Units 4T and 4U, showing F.254, possible outer palisade wall trench.

Burned House

In the 2007 excavations, while looking for a second outer palisade wall trench, we unexpectedly discovered a burned house. Time constraints did not allow for full exploration of the structure, however cursory exploration did result in very interesting findings. The structure was defined by a possible pit feature that turned into the basin for a house. A high density of daub and charcoal indicated the intense burning of this structure. Burned houses are common at Hovey Lake, but the fire in this particular house produced so much heat the earthen floor of the house had been fired and buckled. On the burned floor we found a burned vertical wall post, a mass of burned clay wall daub, several fragmented ceramic vessels and one complete vessel (Figure 9), numerous pieces of a stone hoe blade, a mass of mussel shell, and several grinding slabs. The discovery of the complete vessel, a bowl that looks like a modern cereal bowl, was a “first” for Hovey Lake, and for many of the site investigators. The bowl has a flat base, flaring straight sides, and a notched lip. Comparable bowls have been found at the Angel site (Black 1967;

Hilgeman 2000). The degree of preservation in this burned house led newspaper and television reporters to compare our discoveries to the Roman community of Pompeii, not exactly a perfect analogy but one that conveyed to the public what we could learn from this well-preserved, burned house.



Figure 9. Mississippi Plain bowl or “deep-rimmed plate” from floor of southern-most burned house (283.70.1, Block 17, Unit 4E, Level 4). This vessel is similar to one found area during the 1978 test excavations of another burned house located 500 ft away on the western margin of the residential zone.

Botanical remains from five flotation samples excavated from the burned earthen floor of the house were analyzed by Dr. Jocelyn C. Turner for the Transportation Enhancement grant. Not surprisingly, given the samples’ context, carbonized wood and cane fragments were most common. Among food remains, maize—including kernels, cupules, glumes, embryos, and cob fragments—was most abundant, followed by nutshell (thick hickory, acorn, black walnut, and hazelnut, in order of abundance), and beans (Munson et al. 2008). The ratio of kernels to cupules suggests that processing of both shelled corn and unshelled corn took place in the house.

With the funding support from the Transportation Enhancement grant, phytoliths and starch grains were analyzed by Linda Scott Cummings and Chad Yost (2008) from deposits adhering to the inner surface of the pottery bowl and one of the grinding stones found in the house. A scan of the pollen/starch sample from the interior surface of the bowl yielded a single *Zea mays*-type starch on the interior of the bowl. The grinding stone sample had a low abundance of festucoid class phytoliths from the Pooideae subfamily of cereal grain grasses, but a high abundance of bilobate phytoliths possibly associated with foxtail millet (*Setaria*). The bowl exhibited a much higher abundance of phytoliths associated with cereal grain grasses but no specific morphotypes associated with grass seed utilization. The festucoid phytoliths point to May grass, (*Phalaris caroliniana*), an Eastern Agricultural Complex plant found in Caborn-Welborn contexts in very low numbers at Hovey Lake and other sites (Rossen 1996), including the Bone Bank site (Bush 2003). Abundant freshwater sponge spicules and wetland grass tribe Oryzaceae bilobates from the bowl sample may be derived from water associated with cooking and

food preparation, or from hydroxylated clays released from the bowl surface. Phytolith analysis clearly augments the range of utilized food species.

In future years, it will be important to revisit this well-preserved burned house. Not only are additional artifacts likely to be found within the house, but identifying and dating burned houses helps us better understand social conflict (related to the palisade walls) at the Hovey Lake village.

Significance of Archaeology Education and Research Results

The most significant accomplishment of the education project was bringing instructive activities and products to thousands of people in southwest Indiana during Indiana Archaeology Month. Our unique program, which combined archaeological research with diverse educational programs, taught children and adults about archaeology, preservation, and Indiana prehistory. The success of our program has two foundations. One is the research or discovery context in which the program resides. The research questions and answers derived as the field work progresses are shared with the public. Some of the discoveries were easy to incorporate in the education program. For example, the discovery of the pottery bowl, which all visitors could see in situ on the floor of a burned house, led to the idea of making pottery clay available at the Excavation Open House, so people could try their hand at shaping a similar bowl. The second foundation for our success is the large number of project co-sponsors and volunteer workers from the southwestern Indiana region. Archaeology is a changing discipline and community involvement is becoming a necessary aspect of many research programs in the United States. Long-term public education programs accomplished through community collaboration (like this one) will be significant to the discipline of archaeology, to local communities, and to the state.

Archaeology is a popular science in an ever-changing world. Currently, we enjoy success in attracting people to archaeology television shows and archaeology month events, but what are people really learning from these media? In a study of archaeology and popular culture, Holtorf (2005) discusses the plethora of misunderstandings in the public about archaeology. Often, people do understand that archaeology is related to scientific excavation (a.k.a. “digging”), but few people understand the research questions or ethical concerns of modern archaeology. To maintain significance within the public, we need to keep the public’s attention and reign in support for our causes of conservation and management of important cultural resources. These are important goals for both archaeologists and the state.

Archaeological sites in southwestern Indiana, including many Caborn-Welborn sites with burials and grave goods, have borne substantial damage from uncontrolled digging, or looting. The Caborn-Welborn sites of Bone Bank, Murphy, Hovey Lake, Slack Farm, and Ries-Hasting have all suffered to various degrees from these depredations. Looting has been a much publicized problem in Posey County and surrounding areas as a result of prosecution of looters at Slack Farm and the GE Mound (Munson et al. 1988; Munson et al. 1995). Indiana laws go a long way toward preventing destruction and supporting archaeology, however laws are not a sufficient deterrent to looting, unless people know about the laws and share the preservation ethic that archaeologists espouse. We believe that a decline in reports of looting in southwest Indiana is partly the result of archaeology public education efforts there in recent years.

Education and community collaboration can only help improve the relationship between the public, archaeologists, and the state. Our educational project informed individuals about the importance of archaeological sites and artifacts, and the destructive nature of looting. We augmented state preservation efforts with direct educational programs connecting people with archaeological resources.

Davis (2000:65) writes that archaeology “reaches across many disciplines, is infinitely fascinating, intellectually engaging, and intrinsically meaningful.” Archaeology’s fascinating nature is beneficial to our efforts to preserve sites, but also in educational efforts for the public. Through archaeology, children and adults can learn about history, the scientific method, math, mapping, geology, geography, and more. Our educational goals were met by utilizing effective methods, which connected archaeological field-work, state curriculum standards, and educational products and activities. An ongoing archaeological investigation that the public can visit, even if small in scale, enlarges their appreciation of archaeology far beyond what they might gain through public lectures, TV programs, exhibits, or written materials.

Finally, archaeological excavations conducted through this project were significant because they began a process of elucidating questions about “homeland security” at Caborn-Welborn late prehistoric/protohistoric sites. Block 15 showed that the bastion wall constructions were most massive in the early construction, with the wall features generally comparable to those found at the Angel site (Black 1967). The later bastion had shallower wall trenches that would have supported slightly lower walls. The discovery of another possible outer palisade wall enclosing the expanded village area gives focus to future research at a specific location within the large Hovey Lake site.

In all, the new information benefits archaeology by augmenting our understanding of the sequence of defensive investments made in southwestern Indiana prior to European contact. Since the Hovey Lake site is the only known Caborn-Welborn community with defensive constructions, it will be important to determine the temporal sequence and duration of palisade building at this site. The other large Caborn-Welborn villages are poorly preserved or difficult to investigate. Slack Farm was extensively damaged by looting (Munson et al 1988; Pollack 2004), Bone Bank has been essentially destroyed by erosion (Munson 2003), and Murphy (Munson 1997, 1998, 2001) has extensive earlier occupations and a deep Mississippian midden which may well preclude geophysical survey data as a tool for finding palisades. The discovery of the outer wall feature at the Hovey Lake site provides evidence, although limited by the extent of the 2007 excavations, to suggest that this Caborn-Welborn community continued to be fortified for a still unknown period of time. If further exploration of the outer wall proves this to be the case, we can reasonably conclude that there was no period of negotiated agreement among former rivals in the Ohio Valley, and that the Wabash-Ohio confluence region never achieved a “Pax Wabasho-Ohioensis.” Instead, social conflict was a longstanding concern of the Caborn-Welborn people, and an integral part of Caborn-Welborn life.

Nonetheless, the later feature suggests a shorter wall with widely spaced posts that would have required more interweaving of wattle and cladding with daub than the earlier wall. Using the principle that the ratio of tall free-standing posts should be approximately 4:1 in respect to the height of post above ground: depth of post below ground, the wall posts in the new shallow palisade trench would have stood only about 5.9 ft (1.8 m) high, while the posts in the bastion front on the early palisade would have stood about 17.6 ft (5.4 m) tall. The variation in height and post spacing suggests different energy expenditures for defensive constructions, which in

turn may reflect different defensive strategies. Alternatively, construction tactics may reflect availability of building materials that could be easily transported to the village. Walls having wider post-spacing would have required fewer posts but certainly greater amounts of wattle (cane was a common wattle material). Possibly the harvest and preparation of wattle materials and its application to the wall required less time than the felling trees for closely spaced posts, debarking these posts, cutting them to length, and erecting them in the wall trench. Experimental work (Hammerstedt 2005) is needed to assess construction times for the variables we have observed in palisade walls. Another consideration is that wall posts may have been premium goods in the area surrounding a long-lived village like Hovey Lake. Variation in post size and spacing may reflect nothing more than the availability of construction materials.

The unexpected discovery of the intensively burned house suggests a wealth of information lies not far below the surface of a former parking area at Hovey Lake. The phytoliths on artifacts present on the house floor are a source of information about the range of utilized plants that are not represented—or not well represented—by carbonized plant remains. Complete excavation of this house is a tantalizing prospect, since our few excavation units in the trench indicates that information about the spatial organization of household activities is well preserved in this particular house. Further excavation of this house will require careful recovery of multiple artifacts and soil samples, plus analysis of both macrobotanical remains and plant phytoliths, and identification of faunal remains from different areas of the house floor. The results of previous analysis of faunal samples from Hovey Lake by Dr. Rexford Garniewicz (2000, 2001) has called attention to the need to collect and analyze multiple flotation samples to assess the importance of fish species for household subsistence.

In conclusion, the 2007 excavations benefited archaeology and the state by providing hundreds of hours of experience to undergraduate and graduate student volunteers. These volunteers (from supporting institutions such as University of Southern Indiana, University of Evansville, Indiana State University, and Indiana University-Bloomington) learned about both archaeological and public education methods. This training will be significant to the future of archaeology in Indiana because these students may be the future professional and avocational archaeologists, and we hope they will pursue this science in ways that promote education and preservation as well as research. Our project excavations benefited the state and its citizens by acting as a magnet to attract people to educational events. Through on-site excavation and in publications, our educational goals were met, producing informed citizens with real connections to local history and prehistory. We hope these connections last and in some way help ameliorate America's collective "amnesia" about the grand prehistory located within our country.

Acknowledgments: This project would not have been possible if not for the volunteer services more than 100 individuals and from our co-sponsors: Alexandrian Public Library, Angel Mounds State Historic Site, Gray Family Trust, Historic New Harmony, Hovey Lake Fish and Wildlife Area, Ivy Tech Community College, Ohio River Scenic Route, Posey County Historical Society, University of Evansville, and University of Southern Indiana. Additional support came from the Gray Farms Trust and McKim's IGA (tent for education program). Volunteers from Indiana University plus professional archaeologists from various parts of the Midwest helped with the field investigations, and student volunteers from IU washed and sorted the excavated collections to prepare them for cataloging. The archaeological collections will be curated at the University of Southern Indiana. Thank you to everyone who made this Indiana Archaeology Month project a success. The project received federal financial assistance, in the form of a U.S. Department of the Interior, National Park Service Historic Preservation Fund grant,

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PUBLIC ARCHAEOLOGY: INDIANA'S ARCHAEOLOGICAL OUTREACH AND EDUCATION

Amy L. Johnson
Division of Historic Preservation and Archaeology
Indianapolis, IN

A universally agreed-upon definition of “public archaeology” may be difficult to find (e.g., Society for American Archaeology 2008), but it usually involves two key concepts: outreach and education. There are many reasons to share information about the value of archaeology and our archaeological heritage, and the benefits of public archaeology are many. The types of projects, publications, and even methods, are just as numerous, and current archaeological public outreach and educational initiatives take a variety of forms in the state of Indiana. In this article, a sample of the various levels and types of public archaeology, the organizations that are participating, and the impacts of the activities, are briefly described.

The Division of Historic Preservation and Archaeology

Indiana's lead archaeological agency is the Division of Historic Preservation and Archaeology (DHPA), part of the Indiana Department of Natural Resources. Along with the other numerous duties of the office, the Division is authorized by state statute to conduct a program of education in archaeology, and the archaeologists on staff are committed to providing a quality program which includes educational materials and opportunities of various kinds for the public. In Indiana's *Cultural Resources Management Plan 2005-2011*, goals are outlined which the preservation and archaeological communities are working towards in terms of cultural resources. The first goal is to “increase public understanding and support for historic preservation and archaeology.” To address that broad goal, the following objectives were formulated: “raise public awareness and understanding of cultural resources; foster preservation and archaeology education experiences for school-age children and the general public; and create a favorable environment for preservation activity” (Indiana Department of Natural Resources 2005:26, 27). What follows are examples of how the DHPA is working towards addressing these goals.

Every September, the DHPA coordinates the state's most comprehensive yearly archaeology outreach event, Indiana Archaeology Month. Archaeology Month grew out of the recognized need for a statewide event to celebrate the contributions of archaeology to the understanding of the Hoosier state's prehistory and history, and to share knowledge about current archaeology projects and sites in Indiana. In the past, various groups, persons, or organizations held events at times which provided the interested public with a variety of opportunities to participate in archaeology and to learn more. As the main repository of archaeological records, the lead state archaeological agency, the State Historic Preservation Office [SHPO], and a liaison with the Native American Council (now the Native American Indian Affairs Commission), the



Figure 2. Sheridan's Boxley Cabin Public Archaeology Day (left), held in September 2007, was a successful cooperative Indiana Archaeology Month event co-sponsored by the Sheridan Community Schools, the Sheridan Historical Society and the Town of Sheridan, Indiana. Courtesy Sheridan Historical Society. The Indiana Department of Transportation has been active in Archaeology Month events such as this one (below) at Mounds State Park in 2008. Courtesy Mounds State Park.



Having recently completed the thirteenth annual celebration in 2008, feedback shows that Indiana Archaeology Month support continues to increase. As the word gets out, more events are hosted each September. Steady growth in the attendance numbers is encouraging, and there is enough diversity to allow for an ever-growing range of engaging activities for all ages. Opportunities which are normally available include: fieldwork, lectures, seminars, artifact identification and site recording, hands-on activities for children, information tables and displays, and much more. Each year there is also a wide variety of educational and commemorative materials available for the interested public. The goal is to reach as many people as possible and

share information about archaeology, sites in our state, and the laws which protect them. During Archaeology Month, and throughout the year, spreading the word about the state law (Indiana Code [IC] 14-21-1) which protects sites is a priority. Additionally, minimizing the myths and misconceptions commonly associated with the discipline is a goal. Feedback from the members of the public who participate in Archaeology Month has told us that these goals are being achieved. These individuals tell us that these opportunities are important to them, and that their understanding of archaeology and the reasons archaeology is being conducted in Indiana, as well as the relevance and value of archaeological investigations, is increased as a result of attending and participating in the events.

In addition to the statewide outreach initiative mentioned above, the DHPA has other avenues of public archaeology in which it participates. The archaeology staff members give presentations to children and adults on many different archaeological subjects (Figure 3). They have also given presentations (e.g., Johnson 2006) at professional archaeological conferences such as the Midwest Historical Archaeology Conference in order to share information with colleagues regarding DHPA projects and research. The staff also provides various types of training to law enforcement officials, sister DNR divisions, and many others in order to offer assistance in the understanding of various archaeological issues at the state and national levels. For example, after changes were made to the archaeological statute (Indiana Code 14-21-1) in July 2008, a detailed PowerPoint presentation was compiled by the State Archaeologist and distributed to the Indiana Conservation Officers. This type of information, and its dissemination, provides an effective way to assist our partners in archaeological site protection.



Figure 3. Cathy Draeger, DHPA Archaeologist, is shown on the left discussing prehistory with students at Indian Creek Middle School (courtesy Tom Haywood). State Archaeologist Dr. Rick Jones (standing) is shown on the right sharing information regarding archaeological sites and statutes with those present at the DNR's Law Enforcement Division's Indiana Conservation Officer Trainee Academy in 2006.

Since 2002, the Indiana Department of Natural Resources has sponsored discussions regarding mounds and earthworks, involving archaeologists from universities in our state, the archaeological staff of the Division of Historic Preservation and Archaeology, archaeologists from the Indiana State Museum, representatives from the Division of State Parks and Reservoirs, and others (Johnson 2008). This group has been investigating how prehistoric earthworks can best be preserved and managed, as well as beginning to develop fresh ideas regarding archaeological heritage tourism opportunities. The Indiana State Historic Preservation Office (the DHPA) is among the organizations who applied in 2008 for a significant Preserve America grant. If awarded, the grant will enable the DHPA to work with partners from various universities, state agencies, and other organizations, to complete an inventory of Indiana's prehistoric mounds and earthworks. This exciting multi-year initiative would create a comprehensive inventory of our state's earthworks and mounds, develop a report regarding the findings and recommendations, as well as a webpage where information about these resources will be available for the public. Efforts and projects such as this one will no doubt help us understand, as well as promote, preserve, and protect, these uncommon and special sites built and used many centuries ago.

Another way in which the division supports archaeological outreach is through numerous documents that have been produced for the interested public. For example, the recently revised *Early Peoples of Indiana* (Jones and Johnson 2008) was created originally in 1999 out of the need for a summary of Indiana's prehistoric cultures which would be available free of charge for the public, and which would also provide introductory information about archaeological methodology, ethics, and values. Thousands of these booklets have been distributed, and in fact, it has proven to be one of our most popular outreach items. *Indiana Archaeology* (Jones 1997; Jones et al. 1998; Redmond and Jones 2003) is the professional periodic archaeological journal which the DHPA produces. It provides a forum for professional archaeologists, avocationalists, historians, and others to contribute articles about Indiana archaeology, archaeological methods, archaeology in the Midwest, and much more. *Preserving Indiana*, the semi-annual DHPA newsletter, regularly includes articles on archaeological topics. Since September 2003, the DHPA has also produced a monthly archaeology e-newsletter, *Archaeology News*, which reaches hundreds of interested members of the public. Documents such as these have proven to be extremely popular, and we plan on continuing to provide the public with quality materials, as well as creating new documents on other program topics of interest.

The DHPA has also produced archaeological publications formed in very valuable partnerships with other agencies and preservation/history-related groups. For example, two issues of *The Indiana Historian* have been produced in collaboration with the Indiana Historical Bureau [IHB]. *Archaeology in Indiana -- the Early Years*, and *Archaeology in Indiana -- the Science Today* (Indiana Historical Bureau 1999a, 1999b; Figure 4) provide the reader with a basic introduction to archaeology, methods, goals, sites and laws. In 1997, the Indiana Humanities Council assisted with the funding of a Humanities Initiative Major Grant for Archaeology Week materials. Important partnerships with agencies who share common preservation or archaeological goals allow us to reach additional, and different, audiences.

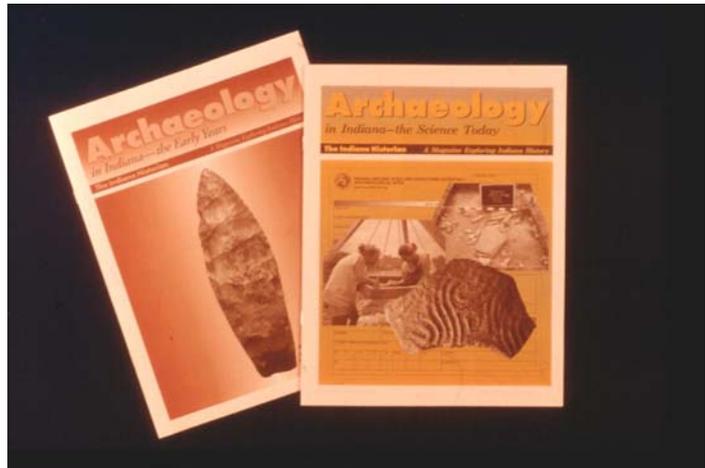
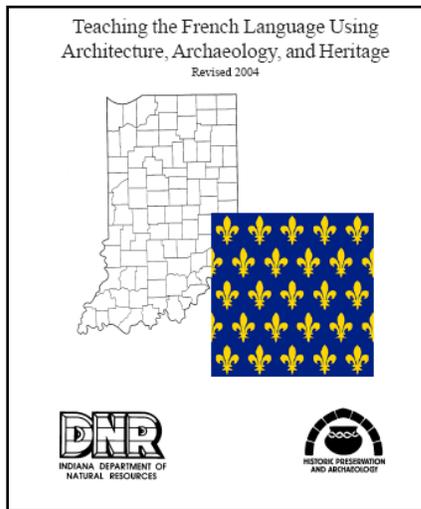


Figure 4. In 2002, the DHPA partnered with the French Foreign Language Teachers Association to prepare a packet of contextual materials, historical essays, and terms associated with the French in Indiana (left) for use by French language teachers. On the right are two archaeology related publications which were cooperative projects between the DHPA and the Indiana Historical Bureau.

Support for public archaeology is demonstrated through our grants program as well. Each year, a portion of the office’s Historic Preservation Fund (HPF) monies, administered by the U.S. Department of the Interior, National Park Service, is awarded to archaeology grant projects in Indiana. Several years ago, it was recognized that a portion of these grant funds should be separated to specifically encourage applications for archaeological National Register of Historic Places nominations and archaeological public education projects. Projects which promote public awareness and education regarding archaeology in Indiana through the creation or implementation of specific products or projects such as videos, mock digs, pamphlets, etc., are encouraged. As an early example, a public archaeology project was funded in 1997 at a small museum in Huntington County that allowed for several one-day interactive archaeology seminars for approximately 150 grade school children. Included was the development of specific lesson plans and materials, laboratory education, and a very popular educational mock excavation. The project resulted in wonderful community involvement and support, greater awareness of the richness of the area’s archaeological heritage, and it sparked the imaginations of many children (Ericsson 1998). Other archaeological grants, which weren’t strictly conducted as educational projects, have specifically produced documents for the public summarizing results of their survey work. For example, in 1991, the Glenn A. Black Laboratory of Archaeology, I.U., conducted a survey in several counties in the northwestern part of the state, and in addition to their standard archaeological report, they produced a separate document (Schurr 1991) which provided information on the project for a general, non-archaeological audience. This type of grant outreach helps assure that the research and results of these types of projects do not become inaccessible to the general public, and helps illustrate to the public the value of archaeology. Since that time, as can be seen in McGill and Munson, as well as McCullough (both this volume), the types of archaeological outreach projects which have been funded through HPF monies have continued to diversify and expand in interesting and valuable ways.

Partners in Outreach and Education

The next portion of this article addresses some of the archaeological educational/outreach activities which are organized or conducted by groups other than the DHPA. There are several ongoing projects and events which are addressing public archaeology needs, and what follows presents information regarding just a few happening at various locations around our state.

At Indiana University in Bloomington, the Center for Archaeology in the Public Interest addresses issues at the state level, but also is active in research and projects in other parts of the world. The Center's objectives include:

acting as a central repository of information and an active research base for professional archaeologists interested in the topics of ethics, public outreach, the impact of archaeology on local communities, and the interaction between archaeologists and the public. Center members participate in outreach and education activities within the discipline and in the public to disseminate and accomplish these goals [Center for Archaeology in the Public Interest 2009].

The Indiana State Museum (ISM) archaeologists have conducted numerous excavation projects through the years which have included volunteer opportunities. The Lanier Public Archaeology Program has successfully utilized the help, knowledge, and various skills of many interested avocationalists for years (Fletcher and Wepler 1998:47). ISM digs at Fort Knox II, New Harmony (Figure 5), and more, have demonstrated the commitment of other divisions of the Department of Natural Resources to also reach the wider archaeological audience.



Figure 5. Excavations in 2008 at historic New Harmony by the ISM and the University of Southern Indiana connected the past with the present for archaeologists, students learning the science, and the general public.



The Hoosier National Forest, which encompasses close to almost 200,000 acres of Indiana land, obviously has great potential for containing numerous sites, and exciting opportunities exist for reaching lots of visitors and users of the forest, as well as for utilizing volunteers. Archaeological investigations, and partnerships with universities, conducted in the forest have included rockshelter surveys and inventories (Waters and Cochran 1999), investigations at the Lick Creek African-American settlement (Krieger 2002; Wepler et al. 2001), investigations at the 1874 Rickenbaugh House (Krieger 1999), and more. These types of professional surveys have utilized volunteers, and “Passport in Time” (a USDA Forest Service program) opportunities are available (Angie Krieger, personal communication 2000).

For many field seasons, archaeology in Ransom Place, in downtown Indianapolis, has been helping the public learn about African-American culture in this historic Indianapolis neighborhood (Mullins 2009a). The project has consistently encouraged volunteer and neighborhood member participation in the excavations, which has led to a sense of “community archaeology,” and the archaeological project taking place in and around the campus of Indiana University-Purdue University has also been a model in terms of civic engagement (Little and Amdur-Clark 2008:6).

The Department of Anthropology, Indiana University has for many years conducted public archaeology work under the direction of Cheryl Ann Munson in Posey County, Indiana (McGill and Munson, this volume). Work with the fourth grade classes in the area has allowed the project to reach thousands of school age children with important messages about the past.

Indiana State University has also been part of outreach in our state. For example, Dr. Karla Hansen-Speer, of the Anthropology Program, gave an Archaeology Month 2008 lecture titled “People and Plants of Prehistoric Indiana.” Archaeologists from the university have also participated in other activities in past Archaeology Months.

Dr. Mark Schurr at the University of Notre Dame has made valuable connections with the Kankakee Valley Historical Society to conduct excavations and outreach at a historic hunting lodge site with both prehistoric and historic components (Schurr 2006). The landowners, as well as the Kankakee Valley Historical Society, were honored with the *Stewardship of Archaeological Resources* Award in October 2008, for the preservation of land containing the site and continued support of, and community involvement in, archaeological research and investigations at this important site on privately owned property in our state.

Archaeologists from Indiana University-Purdue University Fort Wayne (Arnold et al. 2007), and other universities, have worked for years with the Hamilton County Parks and Recreation Department to reach thousands of people regarding the importance of sites in the county. These public archaeology efforts were acknowledged when that Department was recognized with the 2003 Archaeology Award from the DHPA (Figure 6).



Figure 6. Allen Patterson (left), Director Hamilton County Parks and Recreation Department, accepts the 2003 Indiana Archaeology Award from State Archaeologist Dr. Rick Jones.

Outreach at certain state properties provides an almost daily opportunity for the public to become acquainted with archaeology or archaeological sites. For example, extraordinary Adena/Hopewell earthworks and mounds have been preserved for decades as part of Mounds State Park in Anderson. The park has interpretive materials regarding the site and archaeology, signs around the various earthworks providing information, and staff who are often able to lead tours designed to acquaint the visitor with an understanding of both the cultural and natural history of the park. Ball State University has conducted several summer field schools and research (Cochran 1988; Kolbe 1992; McCord 2008; Figure 7) at the park, and these have allowed interested visitors to actually witness and participate in excavation and gain more insight into the almost endless types of data which are often uncovered through archaeology. Ball State archaeologists also received a grant to synthesize this information and prepare an archaeological manuscript specifically for the public (Cochran and McCord 2001).

The Department of Natural Resources' Division of State Parks and Reservoirs (IN-DNR, SP& R) has also been working with archaeologists to incorporate archaeology into public programming at various properties. For example, the Spring Mill Archaeology and Heritage Initiative for several years has involved park personnel and archaeologists in presenting popular public archaeology programs (Pope et al. 2007). At Lincoln State Park, the IN-DNR, SP&R staff, in partnership with archaeologists from the University of Southern Indiana, is planning in 2009 to begin a multi-year program of public archaeology and research regarding Abraham Lincoln's life in our state (Staffan Peterson, personal communication 2009).

During 2008--the 70th anniversary of the purchase of Angel Mounds State Historic Site in Evansville--many different types of exciting and innovative archaeology outreach events were held at the property. "70 Years of Discovery" activities highlighted the contributions of Eli Lilly and Glenn A. Black to archaeology and the Angel site (Figure 7), currently Indiana's only archaeological National Historic Landmark. Places such as these can be seen as examples of

highly important archaeological sites preserved in a recreational setting. While paying a visit, the public can be exposed to an actual archaeological site, its history, and value.

Beyond the education which can be a result of the general public's interaction with archaeology projects and archaeology outreach efforts, other initiatives are taking several forms in reaching educators and their students regarding archaeology in our state. The Angel Mounds State Historic Site, in cooperation with others such as the Glenn A. Black Laboratory of Archaeology (Indiana University), has also hosted outreach activities such as Archaeology C.S.I. School Day for middle school science classes from the local area. Educators have at these locations permanently preserved sites which they can expose their classes to, and as a result, the students will hopefully come to a more full understanding of state, as well as local history and prehistory. Another example is the Indiana State Museum's Project Archaeology program



Figure 7. Archaeological investigations over the years at Mounds State Park (left; McCord 2006) have provided greater insights into the prehistory and history of this important property. Glenn A. Black Laboratory of Archaeology (Indiana University) staff and students (right) have conducted many field seasons of important research at Angel Mounds State Historic Site.

(Figure 8) which offers educators enrichment opportunities that relate to archaeology, and those experiences can therefore be shared with students (Project Archaeology 2004). The ISM also offers archaeology lesson plans directly related to Indiana archaeology sites to help students appreciate and understand the science. M.A.T.R.I.X. (Making Archaeology Teaching Relevant in the XXI Century) involves staff from several universities in our state and provides innovative online support for teaching archaeology to undergraduates. McGill and Munson (this volume) provide a summary of educational programs that have been taking place in southwestern Indiana for many years.



Figure 8. Dr. Rex Garniewicz (second from left), Indiana State Museum, working with educators in 2003 at the Strawtown site (courtesy of Indiana State Museum: Indiana Project Archaeology Program).

Possibilities for the Future

With all that has been accomplished, all of the partnerships which have been formed, and the many people who have been reached, there is still much which can be pursued in terms of archaeological outreach in our state. Therefore, the remainder of this paper will focus on trends for the future, opportunities to be drawn upon, and ways in which more people can become involved.

Collaborations between cultural resource management (CRM) firms or programs and non-cultural resources management groups have been successful, but can certainly be expanded in Indiana. For example, during past Archaeology Weeks and Months, several CRM firms have worked with the DHPA to host events such as artifact identification sessions and fieldwork. Cultural resource management archaeologists obviously have contact with the public because of the nature of their work. Not only do increased partnerships between CRM groups and non-CRM groups make sense, they provide a logical association between those who are doing archaeology on a daily basis, just in different environments.

There are approximately ten avocational archaeological groups which are currently active in Indiana. These groups have in their memberships an obviously widely diverse group of individuals with various skills and knowledge, but they all share a common interest in archaeology and archaeological sites (Figure 9). Most of these groups work with professionals who help them during their projects and events. Many members have actively attended stewardship and certification programs which promote the proper preservation of the state's cultural resources. Making a direct contribution to the science in Indiana is important to many of the members, and some groups are quite active in site preservation and protection efforts in the

state. Our office continues to encourage avocational groups to keep current regarding responsible surface artifact collecting and the laws which protect sites.



Figure 9. Archaeology is for the young, and young at heart. Members of the Falls of the Ohio Archaeological Society (left; courtesy Falls of the Ohio Archaeological Society) are shown cleaning artifacts, and Kankakee Valley Historical Society members (right) are making a contribution to a project by screening for artifacts.

There can, however, always be additional opportunities to foster increased communication between professional archaeologists and those in avocational groups as well as others including local historical societies. For example, we encourage more avocationalists and their groups to apply for an approved plan, as required by state law, to conduct archaeological excavations, working in partnership with professionals. We also encourage them to take advantage of the available opportunities to be involved in grant projects for archaeological investigations and public education. These individuals are often on the “front line” of archaeology in terms of having knowledge about sites which no one else might have and knowing details about threats to sites. The wealth of knowledge that they have could be more recognized and drawn upon as a public outreach opportunity. These organizations may be among our most obvious constituents for attempting to foster greater awareness of the variety of archaeological issues and value of increased participation.

Indiana has several heritage corridors, and cultural tourism will hopefully continue to play an ever-growing role in our state. Archaeologists and other preservationists in Indiana could become more increasingly involved in opportunities related to corridors (and public education about sites located in corridor routes) and become more aware of the importance that tourism can often play in the preservation of archaeological resources. Some archaeologists have already been successful in applying for archaeological grants which address heritage corridor project areas. In past Archaeology Weeks and Months, activities were hosted which allowed the public to explore the history of the Wabash and Erie Canal transportation and heritage corridor through walking tours, lectures, etc. The DHPA website (<http://www.in.gov/dnr/historic/files/travelsarchaeo.pdf>) offers travel itineraries of various kinds, including one regarding archaeological destinations in the state. Efforts at the state and national level (e.g. Advisory

Council on Historic Preservation 2007) are expanding regarding the general topic of archaeology and heritage tourism. Cultural or heritage tourism offers many ways to promote preservation, history, and excitement, and the possibilities seem almost endless when it comes to strengthening the connection between archaeology and tourism (e.g. Society for American Archaeology 2007).

Working more closely with Native American groups and communities is also positive in terms of cooperative efforts to protect special sites. Collaborative efforts such as archaeological investigations and training at Prophetstown State Park (Jones 1998) have proved fruitful. Additional communication between parties regarding how Native Americans feel about sites, archaeology, proposed projects, etc. could certainly be a learning experience for all. Recently the author taught a class titled “Ancient Indiana Earthworks and Culture Periods” as part of the National Center for Great Lakes Native American Culture’s spring cultural arts workshop in Portland, Indiana. Interacting with an audience which included Native Americans in this way, regarding archaeological sites, was found to be a rewarding, positive, and interesting experience. In October 2008, at the Cornelius O’Brien Historic Preservation and Indiana Mainstreet Conference, an interesting session was held titled “Differing Perspectives: Archaeologists and Native Americans Discuss Indiana’s Prehistoric Heritage.” This type of outreach opportunity continues to add to relationships between those in the archaeological community and Native Americans in our state.

Our office is also striving to be more proactive in reaching the agricultural, environmental, and construction communities. So often, the first time a company becomes familiar with the archaeology law in Indiana is after a site has been accidentally impacted. Many firms, in various types of businesses, are not aware that Indiana even has archaeological sites, let alone laws which protect them. In addition, some industries’ projects are not reviewed by our office under Section 106 of the National Historic Preservation Act or state statutes. Therefore, a greater effort will be made to reach these types of businesses so that they have a better understanding of these statutes and so archaeological sites may be saved and/or archaeologically addressed. Flyers, webpage information, brochures, “town hall” type meetings, presentations at annual and regional meetings of various business associations and others, can all be positive ways to communicate. Increased involvement of archaeologists with individuals in activities such as the Master Naturalist program is also a relatively previously untapped, yet very valuable, avenue of partnership in terms of connecting cultural education with environmental education (Berkson 2009).

The Department of Natural Resources is responsible for many acres of land in Indiana, and therefore, steward of many archaeological sites. We also encourage the private landholders in Indiana to be wise stewards as well. Over 58,000 archaeological sites have currently been recorded in our state, and only a portion of the state has been surveyed by professional archaeologists. Therefore, thousands of sites are on private property, and continued attempts to reach additional landowners are critical. Hopefully, more and more people will come to appreciate the often unique, and always irreplaceable, archaeological sites in Indiana, because in so many varied ways, the past belongs to us all. For those who wish to help actively preserve archaeological resources not on their own property, several exciting opportunities exist. For example, the Indiana Heritage Trust and The Archaeological Conservancy offer opportunities for donating directly towards the preservation of historic and prehistoric cultural resources (Johnson 2009). The Conservancy recently acquired for protection the important Goodall Mound site in northwestern Indiana (The Archaeological Conservancy 2007:4). Another exciting recent

development came with the 2008 modifications to Indiana Code 14-21-1. Indiana Code 14-21-1-34 allowed for the creation of an archaeology preservation trust fund, which the public may donate to if they choose. The Archeology Preservation Trust Fund has now been established and will be administered by the DHPA. Funds may be used to assist private homeowners in Indiana who have accidentally discovered an artifact, a burial object, or human remains and who need assistance to comply with an approved plan to excavate or secure the site from further disturbance.

It is anticipated that avenues for archaeological outreach will continue to increase through the years as professionals tap into the ever-growing variety of technology upgrades and types of connections that will be available. For example, social networking websites such as Facebook are already being used as a unique way for the interested public to connect with archaeological projects. A Facebook group was used as a way for people to track the progress of the 2009 IUPUI archaeological field school which was studying an area associated with Madam C.J. Walker in Indianapolis (Mullins 2009b). Weblogs have been used in our state by the Indiana State Museum to share information regarding their excavation projects as well.

For the Professional

There are many more ways to make outreach to the public more successful, from the perspective of the professional archaeologist. For example, the Society for American Archaeology has portions of their webpage devoted to tips for the professional (e.g. <http://www.saa.org/ForthePublic/ForArchaeologists/tabid/111/Default.aspx>). The information and summaries located there provide those in archaeology with examples from other successful programs and activities, as well as many other ideas to explore. The National Park Service also has a similar section on their webpage (<http://www.nps.gov/archeology/TOOLS/INDEX.HTM>) for professional archaeologists.

For the Public

For those in the public who wish to learn more about archaeology, or become involved in archaeology, there are several avenues to explore at the national and state levels. The following sites are excellent places to begin: <http://www.nps.gov/archeology/PUBLIC/INDEX.HTM>; <http://www.nps.gov/archeology/PUBLIC/benefits/index.htm>; www.sha.org/EHA/home.htm and <http://www.in.gov/dnr/historic>.

Conclusion

In an issue of *Common Ground* a decade ago, it was said that “for any of our efforts to be successful--no matter how innovative--we are going to have to understand public attitudes about archeology” (Haas 1998:13). This point is still relevant today in that it illustrates our fundamental challenge in education and outreach. Without understanding the opinions of the public regarding the value, purpose, and future of archaeology, it is certainly difficult to judge whether we are headed in the right direction in terms of modifying or increasing our programs. A

poll taken in 2000 (Ramos and Duganne 2000) provided valuable national insights into the public perceptions and attitudes about archaeology. For those in the Hoosier state who are participating in public archaeology, we are continually trying to connect the past with today and tomorrow. The programs which are occurring provide our public constituencies with various levels of information regarding cultural diversity and social identities in the archaeological record. Ultimately only time will tell us whether or not we have been successful in interpreting archaeology for the public. It is believed, however, that we can certainly be proud of the accomplishments achieved thus far, as well as the continuing goals which we will strive to achieve in the future.

Acknowledgments. This is an updated and expanded version of a paper which was presented at the Joint Midwest Archaeological and Plains Anthropological Conference, St. Paul, Minnesota, November 2000 (Johnson 2000). Photographs, unless otherwise credited, are courtesy of the DHPA. I thank all of those individuals and organizations who allowed the use of photos in this article. I am also grateful for all of my colleagues who have the same passion as I do for sharing the importance of the past with the public. The successes we have had thus far are the result of many people, and much more outreach is being conducted by universities, historical societies, individuals, and more, than could be mentioned in this brief article. However, all of the past and ongoing efforts are recognized and certainly appreciated. I also acknowledge all of those interested members of the public who have participated in archaeology events and hopefully enjoyed and benefited from the outreach efforts. It is my hope that those individuals will be future advocates for the preservation of sites.

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DEAR ONES REMEMBERED: THE RELOCATION OF THE WRIGHT-WHITESELL-GENTRY FAMILY CEMETERY IN MARION COUNTY, INDIANA

Nancy A. Ross-Stallings (AMEC Earth & Environmental, Inc., Louisville, KY), Christopher D. Koepfel (Indiana Department of Transportation, Cultural Resources Section, Indianapolis, IN), Stephen P. Nawrocki (University of Indianapolis Archeology and Forensics Laboratory, Indianapolis, IN), Ryan J. Peterson (AMEC Earth & Environmental, Inc., Indianapolis, IN), and Gaby Kienitz (Indiana State Museum and Historic Sites, Indianapolis, IN)

“We now recognize that it was in . . . two arenas, the domestic and the funerary, that Victorian society made some of its most emphatic and distinctive cultural statements. It has been less often noted that the two arenas were closely linked and were shaped by and promoted congruent ideologies” Kenneth L. Ames (1992:138).

Abstract

The Indiana Department of Transportation (INDOT) recently authorized, funded, and coordinated the excavation and relocation, in its entirety, of the Wright-Whitesell-Gentry Cemetery (12Ma944). This rural mid-late nineteenth century extended family cemetery had been located in Castleton, Indiana, just north of the Indianapolis metropolitan area. This project represents collaboration between INDOT archaeologists, the Division of Historic Preservation and Archaeology [DHPA], The Corradino Group, AMEC Earth & Environmental, and the University of Indianapolis Archeology and Forensics Laboratory, with contributions by the Indiana State Museum and the Purdue University Wood Research Laboratory. This article will discuss the results of the field investigations, analysis of gravestones, funerary items and textiles, osteological and taphonomic analysis, and mitochondrial DNA analysis. The excavation and relocation of the Wright-Whitesell-Gentry Cemetery involved close cooperation with family descendants, coordination with public agencies and historic preservation groups, and public outreach. Family members were included in the planning process and collaborated in the research. The excavation occurred within a few yards of the busiest highway intersection in Indiana, attracting heavy media attention. Archaeologists conducted the excavation of the cemetery under constant public surveillance and media scrutiny, leading to several innovative approaches to public archaeology.

Introduction

In 2007 the INDOT, using Federal Highway Administration (FHWA) funds, coordinated the removal of the Wright-Whitesell-Gentry Cemetery. This cemetery was originally located just feet from the Interstate 69 (I-69) / Interstate 465 (I-465) interchange on the northeast side of Indianapolis in Marion County (Figure 1). The cemetery relocation is part of a future widening project of I-69 in the Castleton area, a 6-to-12 lane expansion set to begin in 2012. The

additional lanes will improve mobility, increase safety, and spur economic development along this busy travel corridor.

Cemetery relocations for road projects are not undertaken lightly, but this cemetery's close proximity to one of the state's most heavily traveled interchanges made relocation unavoidable. Over time the cemetery had been surrounded by development, and more than 130,000 vehicles a day passed within just feet of the cemetery's graves, making the location unsafe and difficult to access (Figure 2). Decades of car exhaust had noticeably eroded the gravestones. The cemetery was excavated by professional archaeologists and biological anthropologists and was later relocated, with restored headstones replaced, in the Pioneer Section of Crown Hill Cemetery in Indianapolis. The exact layout of the original cemetery was recreated for the relocated graves.

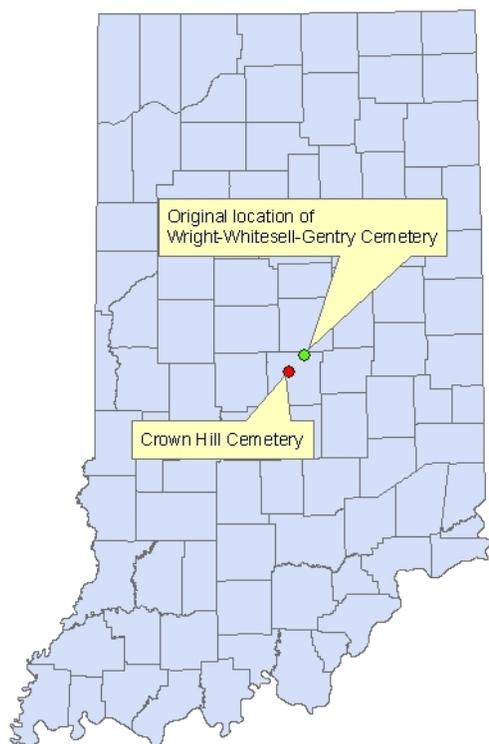


Figure 1. Original location of Wright-Whitesell-Gentry and reburial location at Crown Hill Cemetery within Marion County, Indiana.

Cemeteries are as much for the living as they are for the dead. Similarly, the Wright-Whitesell-Gentry Cemetery relocation project could not have been a success without the involvement of the public. The project team spent as much time coordinating and conversing with the Wright, Whitesell, and Gentry families as it did excavating and relocating their ancestors. The project team made a point to invite members of the public to be consulting parties and to share their viewpoints and concerns. For decades, thousands of commuters had passed by the cemetery each day, most not knowing the cemetery's history or the role its inhabitants played in the development of the region. During the excavation phase of the project they undoubtedly noticed archaeologists exhuming the graves, and by now they have certainly noticed the cemetery's absence. We offer this article to those commuters, as well as the larger community, as an account of the project, the history of the Wright-Whitesell-Gentry Cemetery, the pioneers buried there, and its new location.¹ This article tells two interrelated stories: one story about coordinating with the living to move a cemetery, and the other about those buried in the cemetery.

¹ Educational programs regarding the Wright-Whitesell-Gentry Cemetery project included a symposium at the 2008 Midwest Archaeological Conference, presentations at the 2008 Road School at Purdue University, public presentations during Indiana Archaeology Month across the state, and INDOT and DHPA newsletters and brochures.

Figure 2. Original cemetery location showing development and traffic.



The Wright-Whitesell-Gentry Cemetery

The Wright-Whitesell-Gentry Family Cemetery was located on what was originally a 600 acre farmstead situated near the community of Castleton. In the second quarter of the nineteenth century, Castleton was ten miles north of Indianapolis. In 1840, Daniel Yandes sold four hundred acres to Reverend James T. Wright for \$960. Three hundred and sixty acres were in Township 17, Range 4, Area 23 (Marion County Courthouse [MCC]: Deed Book [DB] K 579). This acreage contains the land on which the cemetery was located.

The cemetery was at the corner of a 640 acre section, and a township-range road trending east to west bordered it on the north. A second township road ran north to south on the west side of the cemetery. We suspect that the cemetery was oriented so that the westernmost row was the “front” of the cemetery. The carved facades of the headstones in the entire cemetery faced to the west and this front row contained the remains of Reverend and Mrs. Rohamad Wright and some of their family members, all having died in the second half of the 1850s. The rest of the cemetery contains individuals who were related to the Wrights through maternal lines, either by blood or by marriage.

The earliest known interment was dated 1841 and contained the remains of four year old Charles W. Wright, a grandson of the Reverend Wright. The most recent grave with a marked headstone was that of John Everette Gentry, great-grandson of the Reverend Wright, who died at the age of three on September 29, 1868. However, only 16 of the 33 grave features in the cemetery were marked with a preserved monument or a portion of a headstone or footstone that

bears any identifying information. Another three graves were marked with stones that had no inscriptions.

The cemetery is a typical example of a Midwestern rural family cemetery, strongly influenced by the beginnings of the Romantic and the Beautification of Death Movements. All of the surviving headstones and footstones are made of white marble and are consistent with the Beautification of Death Movement (Buikstra 2000:17-20; Farrell 1980:104, 145; Hannon 1992:249; Laderman 1996:76-78; Linden-Ward 1989:295; Little 1998:179-234). Some of the headstones have epitaphs and motifs consistent with the time period, but the age of the stones and the softness of the marble has rendered some inscriptions unreadable. Some of the headstones have their original cut limestone bases and others have had replacement concrete bases made at some time in the last few decades.

The cemetery is laid out in the common grid pattern, with rows of headstones and footstones. The head ends of the interments are to the west and the feet are to the east, consistent with Christian cemeteries of the time period. The grid layout was popularized in family cemeteries in Europe and the coastal colonial cemeteries in the New World, and it was later adopted by cemeteries associated with churches (Hannon 1992:245). Prior to the Civil War, rural family cemeteries in both the North and the South were traditionally laid out in this same pattern. This pattern persists into the twenty-first century in some regions of the United States (Allen 2002; Davidson 2001:263; Davidson 2006:18; Jeane 1992:110; Jordan 1982:30, 97; Lebo 1988:39; Little 1998:235).

The Wright Lineage

The Reverend James T. Wright (1787-1859) was a Methodist minister who had been born either in Ireland or Pennsylvania. In 1843, Reverend Wright founded a Methodist church and first held services in his home, a log cabin covered with clapboards, located north of Castleton. There were fifteen original members. The church flourished, eventually becoming the Castleton United Methodist Church. Wright bought vast amounts of land in the Castleton area throughout the following years. The Wrights had at least six children, including two sons and four daughters.

In 1850, James was 61 years old and had in his household his wife Rohamad (1788-1858), who was also 61, his daughter Eliza (born 1831), and his 8 year old grandson, Joseph Wright (born 1842) (MCC: Will Book C: 246). At this time James owned \$3,000 worth of real estate, which is more than twice the value owned by any of his surrounding neighbors (United States Census Bureau 1850).

In 1851 and 1852, Wright started selling off parts of his land holdings to different members of his family, including 152 acres to James Armentrout, who was the husband of his daughter Margaret (MCC: DB: CC 64; BB 123). James also sold land to Thomas Gentry, husband of his daughter Paulina, and to Wilson Whitesell, husband of his daughter Eliza. According to his will that was put into record on November 1, 1859, James T. Wright's heirs included daughters Eliza (Whitesell), Paulina (Gentry), Mary (Lemmon), and Margaret (Armentrout), son Jesse, granddaughter Elizabeth (Eliza R. Easterday, daughter of Paulina), and granddaughter Sarah. All of the heirs were to receive equal shares in James T. Wright's estate. According to her headstone, Eliza R. Easterday had actually died on November 30, 1858, at the age of 19, so her listing in the 1859 will is unusual.

John M. Wright (1813-1857) was a son of James T. Wright. John had four children with his wife Ruhamah H.: Charles W., James B., Joseph W., and Sarah Wright. In the 1840 census he had two sons under the age of five (Charles and James). His daughter Sarah is not mentioned anywhere except in James T. Wright's will. Charles, James, and Joseph were all buried in the cemetery, dying at age 4, 15, and 10 years, respectively. A headstone for Sarah was not located.

Paulina J. Gentry (1818-1863) was a daughter of James T. Wright and the wife of Thomas P. Gentry (1815-1854). Thomas was born in North Carolina (United States Federal Census 1850) and bought land from James T. Wright in the vicinity of the cemetery in 1851, but it is likely that the land on which the cemetery is found was sold to Paulina in 1858, four years after her husband died (MCC: DB: BB 29; HH 428). Paulina and Thomas had 8 children: Eliza(beth) R., James T., William B., Margaret R., John W., Mary E., Joseph H., and Paulina I. In 1863, Margaret, John, Mary, Joseph, and Paulina I. were under the age of 21 (Eliza and James had died by then). In her will, Paulina J. Gentry stated that those five children would be put under the guardianship of son William (MCC: Will Book C 489). William B. Gentry had at least one child, John E. Gentry, who died at the age of three and was buried in the cemetery in 1868.

Thomas and Paulina's son John had fought in the Civil War, serving in Company I of the 26th Indiana Volunteer Infantry. The 26th Regiment was organized in Indianapolis on August 31, 1861, and was mustered out on January 15, 1866. According to service papers recovered from the National Archives, John joined the regiment on March 30, 1864. He stated that he was eighteen at the time, but he did not actually turn eighteen until September 14 of that year. His enlistment papers describe him as five feet ten inches tall, with dark eyes and black hair. He served in the western theatre of the war and did military duty in Louisiana, Mississippi, and Alabama. At the time of his mustering out, John was serving in Vicksburg, Mississippi. He died from unknown causes on May 7, 1866, and was buried in the cemetery.

In early 1870, Reverend Wright's grandson, William B. Gentry, sold the farm to David Macy (MCC: DB: SS 228, 285). It is unknown if Macy was related to the Wright-Whitesell-Gentry families or if Macy's lineage used the cemetery. However, two of the graves (Burials D1 and D2), found in the northeast corner of the cemetery, are child interments buried much later than 1868. While they were placed in line with the rest of the interments in that row and are close to one another, they are offset a bit to the north from the marked Whitesell and Gentry interments. One of these interments contains casket hardware patented in January of 1901, while the second one has casket hardware consistent with the 1890s. Neither of these graves has a surviving stone marker. It is possible that these individuals are members of later families that acquired the cemetery from the Wright lineage.

There were several small stones that have initials engraved on them that had been counted as possible graves in most previous cemetery inventories. These are actually the footstones of other known graves. These footstones include "P.J.G.," which is the footstone of Paulina J. Gentry, "J.W.G.," which is the footstone for John W. Gentry, "T.P.G.," which belongs with Thomas P. Gentry, "M.E.W.," which belongs with Margaret E. Whitesell, "J.T.W.," which belongs to James T. Wright, "C.W.W.," which belongs with Charles W. Wright's grave, "R.W.," which belongs with Rohamad Wright (the wife of James T. Wright), and "R.H.W.," from the grave of Ruhamah H. Wright (wife of John M. Wright). There is one other partial headstone marking a newborn individual with an unknown connection to the Wright Family: "?LOE ?ATES," perhaps a part of the Wright family through a daughter or granddaughter that married a Gates or Oates.

Public Outreach

The Wright-Whitesell-Gentry Cemetery relocation required over a year of planning before the start of fieldwork. Before the first shovel skimmed the ground, we outlined a plan for coordinating with the media, began historical research, located old deeds and census records, and formulated an archaeological investigation plan. The project team also had to navigate, with DHPA's assistance, several laws regarding the excavation of human remains. While cemetery relocation is never ideal, INDOT and FHWA ensured that the cemetery was excavated and relocated with utmost dignity and respect for the deceased and their living families. The archaeological crews were instructed to maintain a respectful attitude when on the site, and photographs of the interred were allowed only for scientific documentation.

The Families

Before a cemetery may be excavated, state law (IC 23-14-57-1) requires that a good faith effort be made to identify living descendants of the interred individuals. INDOT and FHWA would do so in any case, as good neighbors and public stewards. Both the Society for American Archaeology Ethics Policy (SAA n.d.) and the recent Human Remains Policy published by the Advisory Council on Historic Preservation (ACHP 2007) stipulate that coordination with the public, as consulting parties and stakeholders, is essential when human remains are involved. The project team coordinated with televised, print, and internet media, asking potential family members to identify themselves. Concurrently, historical research also identified potential local descendants. INDOT was contacted by descendants from all over the United States, and as a result two long-separated sides of the Whitesell family were reunited. We asked families to identify several individuals to represent their groups and to serve as points-of-contact during the project.

Upon first hearing about the project, many family members were understandably concerned. We held multiple public meetings to include the family members as stakeholders in the planning process – we asked the families how they would like the project to be conducted, their thoughts about the archaeological methodology, and how they envisioned the relocated cemetery would be recreated. We discussed the details of the excavation and laboratory analysis. It was important to communicate to the families not only what we planned to do, but why we planned to do it. For example, we discussed how detailed analysis of the remains would hopefully give us clues about the health and lifestyles of their ancestors. We discussed how genetic testing on the interred individuals that had no gravestones – most of whom were small children - might give clues to their identities. The project team interviewed family members and shared genealogical information with the families in order to gain a more complete historical picture. The families generously allowed us to borrow historical data that they had researched and compiled themselves, and this information has been incorporated into the final report. We had family members visit the site to observe the excavation of their ancestors, and the archaeologists had the singular experience of exhuming an individual while the great-great-great grandson looked on and chatted about family history.

We invited the families to tour the reburial location within the Pioneer Section of Crown Hill Cemetery. The stark juxtaposition between the noise, traffic, and inaccessibility of the

Wright-Whitesell-Gentry Cemetery's original location and the beauty and tranquility of Crown Hill Cemetery appeared to alleviate any lingering doubts the family members had about relocating their ancestors. Through these efforts we gained the families' approval for the project prior to the implementation of fieldwork. This approval meant much when we worked with the State Historic Preservation Office and other groups, such as the Lawrence Township Historical Society.

The Media

The excavation occurred within a few yards of one of the busiest highway intersections in Indiana, attracting heavy public and, consequently, media attention. Archaeologists conducted the excavation of the cemetery under constant public surveillance and media scrutiny. We attracted dozens of curious visitors each day, many wanting to see the excavation of human remains in progress. While we felt it important to communicate with the visiting public, we also wanted to respectfully shield the human remains and allow the archaeologists and biological anthropologists to conduct their work uninterrupted. We accomplished this by erecting a temporary "information center" directly adjacent to the site. The "information center" was staffed by at least one knowledgeable team member who could answer visitors' questions, and it served as a convenient spot for the media to film screening and other archaeological activities without actually showing human remains. The excavation site was guarded 24 hours a day; an off-duty law enforcement officer was stationed at the site when work was not occurring. The excavation was shielded from public view by a large "event" tent to maintain respect for the deceased and their descendants, to prevent driver distraction, and to protect the graves from the elements (Figure 3). The tent also allowed archaeologists and biological anthropologists to work during inclement weather and protected the entire site from the media helicopters that often hovered above.



Figure 3. Excavation beneath the tent.

We expected serious media interest because of the public's interest in cemeteries, archaeology, and human remains, and because the excavations were conducted so close to heavy traffic. We also expected public misgiving and misunderstanding concerning the movement of the cemetery in general and the excavation and laboratory analysis in particular. Consequently, we could not wait passively for the media to interpret the story. We wanted to convey the message to the public that the project was being conducted ethically, scientifically and respectfully. An INDOT communications specialist scheduled press releases and live interviews with archaeologists to coincide with project milestones, such as when backhoes were first visible, when hand excavation began, and when human remains were being transported. We scheduled interviews so that the archaeologists could discuss the field and laboratory methodologies, and we organized a media visit to Crown Hill Cemetery to present the reburial location to the public. After two weeks of fieldwork, media access to the excavation area became an issue as various news programs requested permission to film or photograph the excavation. While we understood that the public was keenly interested in the project, we could not allow human remains to be photographed except for scientific purposes. As a compromise, an INDOT communications specialist photographed archaeologists working on burials under the tent without actually showing any human remains or grave features, and these photographs were shared with the media.

Archaeological Investigation

Introduction

The first step of fieldwork was to survey and map the specific location of all grave markers visible in the cemetery and associated features in and around the cemetery using a total data station. Each grave marker was photographed and measured, and discernable inscriptions were recorded. The next step involved the careful removal of the grave markers by experienced cemetery professionals. The removal was complicated by the fact that many of the stones were cracked, fragile, and had been set in large concrete footers during a decades-past restoration effort. The result of the earlier effort, though well-intended, involved the use of large quantities of concrete and various adhesives that do not comply with current standards to repair stones. Since concrete is harder than limestone, gravestones set in concrete often break or crack at the junction of the two materials when moved. Some of the headstones were so large that a mechanical wench was needed to delicately extract them. The removal of the stones was recorded, per Indiana Code 14-21-2, with the County Recorder's office. After removal, all grave markers were carefully transported to a storage facility at Crown Hill Cemetery, the location at which the remains were ultimately reinterred. Experienced cemetery restoration experts cleaned and restored the gravestones to prolong their life, clarify the inscriptions, and reverse the negative effects of earlier preservation efforts. The stones were stored until the reburial phase of the project, when they would be placed in their original positions and configuration.

Next, the overburden of soil was removed by mechanical stripping to identify all graveshafts and to facilitate hand excavation. Mechanical stripping involved the slow and

systematic removal of soil with a smooth bucket backhoe in conjunction with frequent hand probing to identify graveshaft locations. Once identified, all graveshaft locations were mapped. The hand excavation was conducted carefully and methodically by experienced archaeologists and biological anthropologists with utmost respect for the deceased. All soil matrix excavated was screened through 1/4 or 1/8 inch construction mesh depending on the level of preservation and age of the deceased at the time of death, to catch very small skeletal elements or fragments as well as small artifacts such as portions of clothing, coffin hardware, buttons, and other personal items.

During the archaeological work, 33 graves were excavated, including 14 completely unmarked graves (Figure 4). For disinterment and mapping purposes, all were given Row Numbers (A through D) and Burial Numbers (1 up to 11) by Row. Thus, each grave had a unique designation: A3 or C10, for example. Sixteen graves had preserved headstones and/or footstones that provided the decedent's name or other pertinent information. However, all of the interments with human remains were further checked with traditional bioanthropological techniques to verify age, sex, and putative relationships, even if the interments had been marked. There were two reasons for this approach. First, headstones are frequently placed some period of time after remains are interred, and there have been cases when a headstone was placed on the incorrect grave through human error. Secondly, in the case of historic cemeteries where deterioration and possibly vandalism has broken or displaced headstones, a restored headstone may wind up being reset in an incorrect location. This can happen through a misinterpretation of where the displaced headstone originated from or from human error in relocating it.

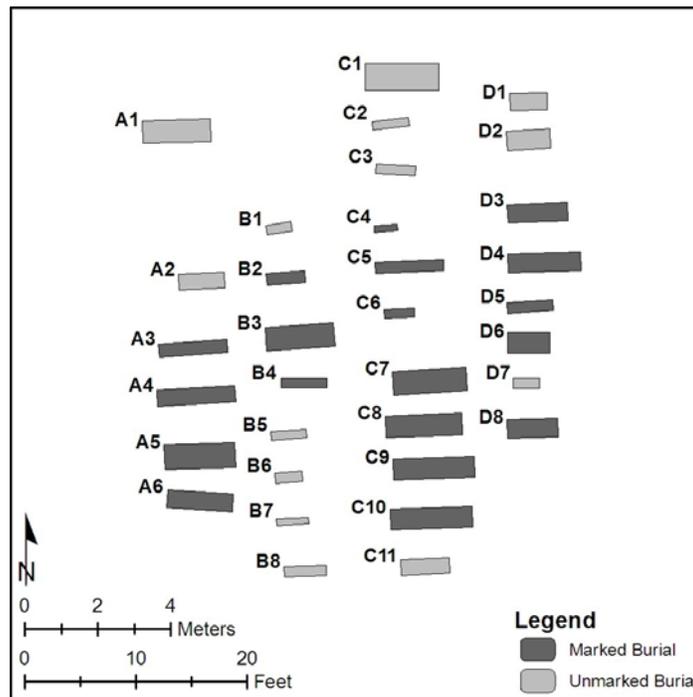


Figure 4. Plan view of the Wright-Whitesell-Gentry Cemetery.

Hand excavation of the actual remains was typically conducted with wooden implements to avoid damaging them. Once exposed, graves were meticulously mapped and photographed. All human remains and associated burial items were placed in individually-marked and sealed bins for transport to the University of Indianapolis Archeology & Forensics Laboratory.

Headstone Sources, Cabinet Makers/Undertakers, and the Growth of Transportation Systems in Marion County

The first limestone quarries in Indiana that have been recorded were in Stinesville, Monroe County in 1827 (Salem Limestone), in Delaware and Cass Counties in 1835 and 1840, and in Decatur and Franklin Counties about 1850 (Rooney 1970:1). Apparently, there were already large marble quarries active in Indiana by ca. 1862 in Monroe County (Blatchley 1897:412), but documentation of these early quarries is very spotty. As a result, it is difficult to determine if marble headstones were all imported to the Indianapolis area during the mid-nineteenth century, or if they eventually began to be made from domestic quarries.

After the introduction of rail service, marble cutters from the east coast metropolitan areas sold their stones through local agents all around the country. Examples of these large companies before 1850 included C.T. Duncomb of Norwalk, Connecticut and John Struthers & Son of Philadelphia, Pennsylvania. In the eighteenth century, marble from New England was used for headstones (Little 1998:181). By the early nineteenth century additional sources of marble came from quarries in New York, Maryland, Kentucky, Tennessee and Georgia, with local undertakers-cabinetmakers serving as agents for marble monuments (Little 1998:179-181). For the extremely wealthy in 1840's North Carolina and elsewhere, Italian marble monuments could be imported from overseas, through an agent called Sackett Belcher & Co., based in New York (Little 1998:183).

By 1856 in Indiana, marble gravestones were documented in Crawford County as being purchased from a stonecutter named W.R. Haraer by the son of Aaron Adams. The completed headstone was to be delivered in February 1857 at a cost of \$11.00 (Roper 2007). This cost was a far cry from the imported Italian marble headstone delivered to a North Carolina customer in February, 1845 for a total cost of \$93.17 (Little 1998:183).

The 1868 H.C. Chandler & Co. Indianapolis Business Directory (Fisher 2005) lists a total of six different "Marble Works," but it is not possible to determine if each of these concerns (listed in Table 1) would have been involved in making gravestones as a part of their business. In addition, there are four listings for "Stone Cutters" in the directory (also included in Table 1). These businesses may have participated in the burial trade, either by offering headstones of alternative materials or by carving marble as a part of their trade. Since business directories did not necessarily list all individuals or companies engaged in the practice of trades, it is possible that other individuals or businesses were making head and footstones in the area of Indianapolis and Castleton.

Itinerant and part-time marble and stone cutters could also have been practicing their trades in this area. These artisans could have carved headstones in concert with other "more practical" trades that were related or unrelated to marble or stone carving. In 1841, for example, when the first marked grave was placed in the Wright-Whitesell-Gentry Cemetery, this region of Indiana had only been settled for about 25 years. A smaller population base, intent on establishing themselves in a new area, may not have had the economic means for supporting

such highly specialized artisans. Easy and comparatively inexpensive movement of very large volumes of commercially available quarried stone would have to wait for the development of railroads, and this did not occur in the Indianapolis area until the first half of the 1850's (Blatchley 1897:411). In some cases, local conditions impeded the shipment by railroad of stone quarried in the region. For example, it was only after the Civil War that a limestone quarry in the Bedford area in Lawrence County began shipping architectural limestone in great quantities by rail, even though the railroad was completed to Bedford by 1852. The reason was because quarried limestone had to be hauled to the train station by ox teams. A spur was not built directly into a quarry in the Bedford area until 1878 (Blatchley 1897:411).

Table 1. Marble and Stone Cutters Listed in the 1868 Indianapolis Business Directory (Fisher 2005).

Trade	Name of Business/Artisan	Address
Marble Works	Carpenter, B.O.	36 E. Market
Marble Works	James, T.S. & Co.	136 S. Meridian
Marble Works	La Dow, Lewis & Maloy	120 S. Illinois
Marble Works	Seybold, James H.	64 E. Market
Marble Works	Weir, William	64 Virginia Ave.
Marble Works	Wilson, A.J.	27 N. Tennessee
Stone Cutters	Farmer, Frank	Corner, Mississippi and Louisiana
Stone Cutters	Goddard & Sons	Corner, Kentucky Ave. and Georgia
Stone Cutters	Scott & Nicholson	Corner, Kentucky Ave. and West
Stone Cutters	Smith, Iitterbach & Co.	Corner, Pennsylvania and Merrill

The decade between 1850 and 1860 was characterized as the beginning of the railroads in Indianapolis. During this decade, eight lines were built in the Indianapolis area (Branson 2006). The development of the railroad system during this decade had a profound impact on the available selection of mortuary trade items, leading to an evolution from locally made coffins with limited hardware to more elaborate manufactured coffins/caskets with a wide range of hardware types. Examples of this change, which is strongly evidenced in differences between the types of coffin hardware found in the earlier and later graves at the Wright-Whitesell-Gentry Cemetery, will be presented below. The listing of professional undertakers in the 1868 Indianapolis Business Directory (Table 2) also reflects the separation and growth of this industry out of the cabinet and furniture makers' sideline enterprise (Allen 2002:80; Farrell 1980:147-149; Habenstein and Lamers 1981:142-148).

An examination of the 1850 Federal Census for Marion County, Indiana, turned up the names of at least some individuals who were probably the undertakers listed in the Business Directory (Table 3). However, in the eight year span of time between the census and the publication of the Business Directory, their occupations had developed from more of generalists (carpenters/wood sawyers) to undertakers, showing a conscious choice in a career path that could become profitable, given the growing population in Marion County over the decade. Because of the common surnames "Long" and "Williams," it is not certain that one of the Long males and

the Charles Williams listed on Table 3 represent the same two individuals; i.e., “Charles Williams” and the Long partner of the Long & Birch business partnership listed on Table 2. However, since Birch is an unusual surname, there is a better chance that the James Birch listed on Table 3 is the same person as the Birch half of the undertaker partnership listed on Table 2. In the case of Matthew Long, the upholsterer, there is a chance that he may be the correct partner, since by 1868, burial containers were frequently lined or upholstered (Bay State Casket Co. Catalog ca. 1860:18; Farrell 1980:149; Habenstein and Lamers 1981:142). There is only one upholstery concern listed in the 1868 Business Directory, and it is named N.S. Baker & Co. Since furniture and seats in buggies or carriages from that time period could also be upholstered, it is unknown what lines of business the N.S. Baker & Co. was involved in.

Table 2. Undertakers listed in the 1868 Indianapolis Business Directory (Fisher 2005).

Name of Business/Individual	Address
Grinsteinor, G.	276 E. Market
Herrmann, F.J.	26 S. Delaware
Long & Birch	15 Circle
Weaver, W.W.	39 N. Illinois
Williams, Charles	10 Bates House Block, upstairs

Table 3. Individuals with Same or Similar Name, By Correlate Occupation in 1850 in Indianapolis/Marion County (United States Census Bureau 1850).

Name	Demographics	Occupation	Place of Birth	Indianapolis/Marion County Census, Line, Page
Grinsteinor, G.				Not Listed in Census
Hermann, F.J.				Not Listed in Census
Long, Fred	White Male 37	Wood Sawyer	Germany	Ward 4, Line 21, Page 15
Long, Matthew	White Male 55	Upholsterer	England	Ward 6, Line 26, Page 2
Long, Matthew	White Male 29	Carpenter	Rhode Island	North Center Township, Line 37, Page 53,
Birch, James	White Male 30	Wood Dealer	Kentucky	Ward 1, Line 33, Page 52
Weaver, W.W.				Not Listed in Census
Williams, Charles	White Male 35	Cabinet Maker	Wurtemberg, Germany	Ward 1, Line 31, Page 25

The Interments at the Wright-Whitesell-Gentry Cemetery

Upon excavation, it was determined that there were significant differences in the types of coffins/caskets and their accompanying hardware, depending on the time of interment. To some extent, the age of the decedent also influenced the types of burial containers and hardware located on the container. However, time of interment was the most important determinant, and this was heavily influenced by the increased availability of choices in burial containers and hardware available to the families as well as the popularity of trends in mortuary display as the Victorian Period progressed.

No jewelry was found interred with the decedents, and this appeared to be a choice exercised by the extended family using the cemetery. The socioeconomic status and religious beliefs of the family would not have been barriers to inclusion of ear bobs, necklaces, bracelets, hair ornaments, and rings with the women or girls, or watch chains, cravat pins, and rings with the men or boys. Two factors may have been at work here. First, there may have been a concern of robbery/vandalism occurring if it was known that jewelry was buried with decedents, particularly since this family cemetery was located at the corner of a section, with two intersecting roads present. Secondly, the family may have been inclined to pass down jewelry, including wedding rings, as mementoes for designated family members. The preservation of buttons, including metal portions of buttons, as well as hooks and eyes, grommets, and in some cases cloth fragments, indicates that the potential for preservation of jewelry was excellent. It was simply not present in the interments.

There was only one interment, that of John Everette Gentry (Burial D8), which had conclusive evidence of shoes being placed on the decedent at time of burial. He was also the last marked Wright-Whitesell-Gentry family member interred there, in fall of 1868. None of the remainder of the interments had conclusive evidence of shoes being placed on the bodies. In the nineteenth century, shoes were frequently repaired rather than discarded and could be passed down, but this extended family was not destitute. The surviving fabric fragments were indicative of middle class and upper middle class socioeconomic status, clearly indicating that these decedents would have owned footwear. Perhaps “common sense” ruled in the case of this extended family, since the feet of the decedent were probably not viewed. Another possibility is that they were perhaps dressed for burial in fabric “slippers,” which would not have been fastened with laces (leaving grommets), hooks, or buckles. For women, the completely flat, heelless shoes called “straights” were quite popular from ca. 1815 through 1860. They were frequently made of fabric with kid (goatskin) half-linings and soles, and no nails would be typically used in their construction (Bradfield 1997:84, 96, 189, 216). They would appear as a variation of modern ballet shoes, with different shaped toes (rounded, tapered, squared) as changing fashions dictated.

The terminology of burial containers needs to be clarified. A coffin is the traditional, hexagonal container, popular into the nineteenth century, and in some areas of the United States it was still in use into the early twentieth century. The coffin was widest at the location of the elbows, assuming the decedent was buried with the arms flexed and folded across the stomach area. The six planks used in its construction of its sides, including the head and footboards, were mitered or “dovetailed” at an angle and would not have been difficult for a carpenter of the period to construct. The drawers in furniture of the period also had “dovetailed” construction. A variant of the coffin was one in which the toe board was very narrow and the lower end of the

coffin was angled more sharply. This variant was called a “toe pincher.” As the second quarter of the nineteenth century advanced, various regions of the country began to adopt, as the “modern” burial container, the “casket.” In its most simple construction form, it was a rectangular box, shaped as caskets are today. By this time, the term “coffin” began to have “grim” connotations, which was at odds with the Beautification of Death Movement which was becoming popular. As a result, the words casket and burial case or container were more commonly used. Early caskets varied in design, with some having flat lids, other, more ornate ones having curved lids, or the featured designs had rounded corners. Some burial containers had split lids, just as they do today, for viewing the decedent, while others had glass viewing windows, inset into the lids of the caskets or coffins. In the mid-nineteenth century, burial containers began to be manufactured which had curved metal or wood sides, which formed more of a lozenge shape (Habenstein and Lamers 1981:157-179).

In examination of burial trends, this cemetery revealed that decedents in this extended family were being interred in the more “modern” rectangular caskets (as opposed to the hexagonal coffins) as early as 1857, but there was overlap, with some family members still being interred in hexagonal coffins as late as 1864. Two individuals, John W. Gentry (C10) and an unknown child (C11), were interred in unusual caskets called “tapered rectangles,” or “tapered boxes,” which were four sided but with the headboard somewhat longer than the footboards. The headboard is almost twice as wide as the foot board (20.5 inches [52 cm] versus 11.8 inches [30 cm]) and the sides are not curved, but are straight boards which form a trapezoidal shape.

The shape of these coffins has been found in Russian Eastern Orthodox affiliation. The church approved the shape of these coffins by at least the very early nineteenth century. They were found at the Fort Ross site in California which contained a small cemetery associated with the Russian American Fur Company and dating between 1812 and 1841 (55 percent of the coffins in this 131 interment cemetery were interred in these coffins) (Osborn 1997:276). The tapered box has also been found in the ca. 1599 to 1763 Spanish portion of the cemetery and among the French in New Orleans, showing that certain Catholic groups favored this shape (Davidson 2006:106).

So, what was this box containing the remains of the grandson of a Methodist minister, and also found in the adjacent unmarked grave of a child (Burial C11), doing in a family cemetery in Indiana? Davidson’s conclusions regarding this form of coffin show that not a single commercial manufacturer produced a form of this type between 1871 and 1920 as depicted by any of the extant catalogs (Davidson 2006:107). However, tapered box coffins have been reported at other cemetery excavations. Possibly some of these were the result of a local builder. One coffin of this type was found in the Phillips Memorial Cemetery excavations in Galveston County, Texas. It was crudely hammered together with large headed wire nails and was made of unfinished pine lumber (Davidson 2006:107). Admittedly, this type of coffin would be relatively easy to construct, since the side boards would not have to be steam bent or mitred at an angle, which is the case with the hexagonal and ellipsoid or lozenge-shaped coffins.

This type of coffin was certainly not a “budget” design in John Gentry’s case (Burial C10), since the amount and types of hardware and the creamy white paint on the coffin lid and sides show a significant financial investment. While apparently unpainted, the child’s coffin in unmarked Burial C11 had decorative tacks in the lid. Shoddy construction is also not the case with either of these tapered coffins. Gentry’s coffin was arguably the best-preserved in the cemetery, with the coffin outline easy to see in-situ. The adjacent interment containing a child’s

coffin with ornamental tacks also had a considerable amount of wood preserved, and the outline was easily seen and mapped. Neither of these tapered boxes gave indications of being “warped” rectangular caskets. It would be interesting to know whether other cemeteries from the same time period in this area of Indiana also have some of these unusually shaped burial containers.

Three of the burials, B7, C6, and D4, had unusual backfilling techniques associated with them. The fill in Burial B7 was pure, fine pale tan sand, which was distinct from the clay subsoil found mixed with the original topsoil in most of the graveshafts. The sand may have come from a nearby creek bed, or elsewhere. The C6 grave had a fill which consisted of a sand and gravel blend, again possibly from a stream bed. The fills for both of these small graves could have been easily hauled in by a farm wagon. In Burial D4, the fill appeared to be consistent with the graveshaft, but large pieces of charcoal were present in it. Of interest is the fact that both of the decedents in Burials C6 and D4 died in the month of February. The mid-nineteenth century was still in what was termed “The Little Ice Age,” with much harsher winters than Marion County currently experiences. Burial B7, the grave of an infant, was unmarked, and so the date and time of year of interment are unknown. However, the presence of the pure sand fill in this grave may hint that the decedent was interred in the cold months of the year. In fact, Burials B7 and C6 both had fill types much less prone to freezing solid in very cold weather and which could have been shoveled back into the graveshaft after the coffin was in place more easily than the soil removed from the dug graveshaft, which could easily have frozen solid soon after the grave was dug. In the case of interment D4, which contained charcoal in the fill dirt, it is proposed that a fire may have been built on the pile of grave fill to keep it from freezing. This fire may have also helped to warm any mourners who were present at the time the coffin was interred.

An additional graveshaft feature was also of interest. Interment D5 was the grave of an infant of four months of age at the time of death. The shaft of this grave measured 152 cm (5 ft) by 63 cm (2 ft), which would be a reasonable length for an adult or teenaged decedent but was unnecessarily large for an infant. It is suspected that a non-family member was hired to dig the grave, and the person was unaware that the graveshaft would contain an infant. The 72 cm (2 ft, 4 in) by 29 cm (11 in) coffin was placed in the shaft so that the head of the coffin was in line with the rest of the interments in Row D, and the shaft was then backfilled. As a result, there was an organic line approximately 90 cm (35 in) long and 50 cm (20 in) wide that surrounded the coffin within the graveshaft. The remainder of the shaft showed a typical disturbed soil consistent with excavation and backfill. Since the footstone for this grave had been reset in a “cemetery cleanup” event a few years ago, it is unknown where the footstone would have been originally set. It was found placed over the mid portion of the shaft feature, consistent with the shorter interment of an infant.

While space will not permit an exhaustive description of the coffin hardware found in the cemetery, a few examples are provided. Charles Wright, who was four years old at time of his death in 1841 (Burial B2), and Eliza R. Easterday (Burial C9), who was married and nineteen at time of her death in 1858, were cousins and grandchildren of the Reverend James Wright. Charles had a 90 cm tall marble obelisk headstone with a carved rose stem in bas relief and professionally lettered information on it, along with an epitaph. It was placed on a small, cut limestone base. He also was given a marble footstone with his initials on it. His hexagonal coffin was made of a soft wood, possibly pine, and was probably homemade or made by a local cabinet maker. It was assembled with cut nails. It may have been unlined. Some associated unidentified corroded metal fragments may have been decoration for the coffin but could not be definitively

considered as such. In contrast, Eliza, who was buried 17 years later, had a 205 cm tall marble headstone with a cut limestone base. The obelisk had a female hand with the index finger extended to heaven in bas relief, and the stone was professionally lettered, with an epitaph. Her marble footstone was carved with her initials. Her walnut hexagonal coffin, interred in its shipping crate from the manufacturer, was lined, and fastened with nails and wood screws. White metal coffin screws which closed the lid, each had its own decorated escutcheon. Her japanned black metal coffin handles had winged cherubs, which are the oldest coffin handles in a marked grave in the cemetery (Figure 5).



Figure 5. Drawing of one of Eliza Easterday's black japanned metal coffin handles. It measures 96.8 mm long and 71.0 mm tall. Illustration by Matthew Prybylski, AMEC.

Four years later (1863), Eliza's mother, Paulina Wright Gentry (Burial C8), passed away. Her lined walnut coffin, also buried in its shipping crate, had sand cast bronze handles in an oak leaf pattern, probably imported from England (Figure 6). Her coffin lid had been closed with white metal coffin screws. These examples demonstrate that no less love and care had been used in any of these interments when consideration is taken of the availability of mortuary goods to

the extended Wright family from 1841 to 1858 to 1863. Charles Wright's headstone and footstone were carved and then hauled by ox, mule, or horse-drawn conveyance. Railroad service to Indianapolis did not yet exist. His stone may have been the most expensive of the three graves for that reason. Eliza's is the tallest in the cemetery, yet railroads brought all of her mortuary goods into Indianapolis. Paulina had been widowed for over nine years at the time of her death. Her headstone was a simple carved marble tablet with an epitaph and was probably selected to match as closely as possible that of her husband Thomas (Burial C7). Despite the availability of larger and fancier headstones at possibly lower prices by the time of her death, it appears the family chose to match her stone with that of her husbands'. Thomas' coffin was lined but was fastened together with cut nails and wood screws only. No coffin screws were used, and there were no coffin handles, reflecting the general market unavailability of these items during that time period.

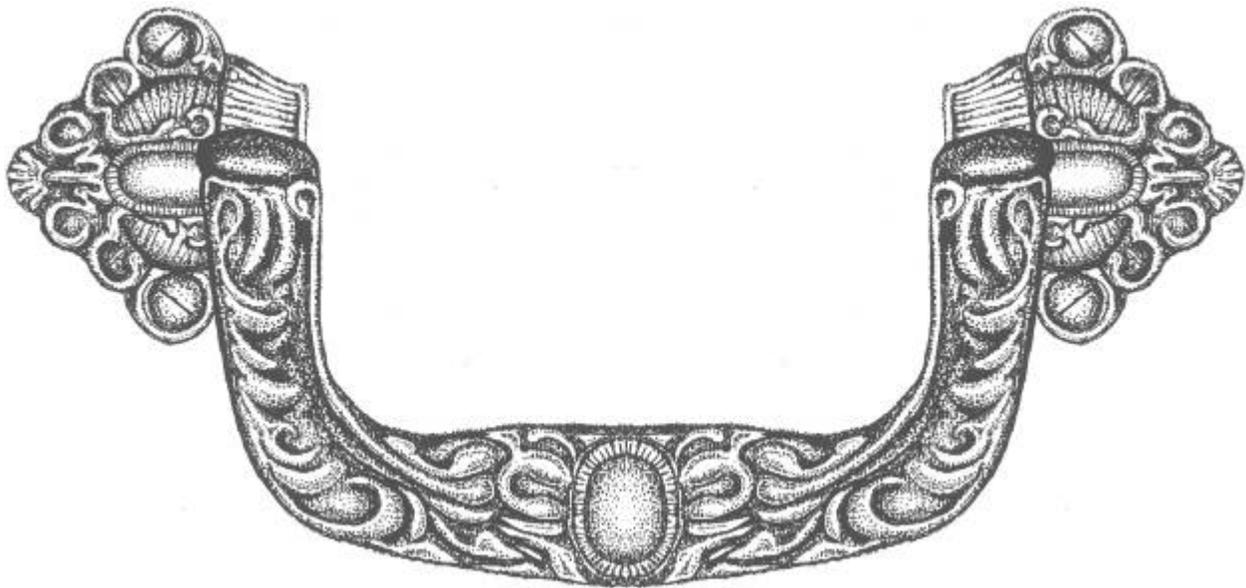


Figure 6. Drawing of one of Paulina Gentry's sandcast bronze coffin handles. It measures 167.3 mm long and 69.3 mm tall. Illustration by Matthew Prybylski, AMEC.

In February of 1855, James B. Wright, Paulina's fifteen year old nephew, died (Burial A3). James' walnut coffin had the oldest hinges in the cemetery, with three pairs of brass butt hinges of the type which would have been found on cabinets from the same time period. A single flat brass tack, of the same type used on upholstery of the period, was found on the lid. In contrast, his father, John M. Wright (Burial A4), who passed away in March of 1857, had the first rectangular casket in the cemetery, made of yellow poplar and trimmed with four pairs of ornate white metal hinges and 32 plain, flat-headed brass tacks forming decorative accents on the lid, which was secured with seven white metal coffin screws. The hinges were Model No. 1 in the Russell and Erwin Manufacturing Co. Hardware Catalog (1865:22) and were produced for the mortuary trade. In that scant year and a half period, mortuary display had turned a corner, with the railroad service firmly established and the availability of fancier coffin trimmings now proliferating.

Most of the coffin handles, hinges, and coffin screws found at the cemetery were identifiable as Russell and Erwin Manufacturing Co. (of New Britain, Connecticut) products, right down to their catalog numbers, and in rarer cases were found to be Sargent and Co. coffin trimmings (New Britain, Connecticut and New York, New York). This is excellent proof of the advertising and merchandising activities of the day, as well as the more universal expectations surrounding mourning as the Victorian Period advanced. More periodicals, such as newspapers, the *Harper's Weekly* and *Godey's Ladies' Book* were being produced, with poetry, mourning fashions, funeral customs, and other topics covered that were associated with the Beautification of Death Movement (Buikstra 2000) as the nineteenth century advanced. All of these periodicals influenced the concepts and social expectations of people across the growing United States, not just surrounding death and mourning practices, but all other aspects of American life.

Despite these influences, the apparently deliberate choice noted above to match Paulina Gentry's headstone with the more simple one used for her husband nearly a decade earlier illustrates that some family decisions superseded the possible choices being marketed. Another excellent example is the fact that three of the coffins in this cemetery had identical Russell and Erwin Model No. 1410-1444 silver-plated white metal handles (C10, D3, and D4; Figure 7). A fourth interment, D8, had nearly identical handles (Russell and Erwin Model No. 1160). The only difference was that in Burial D8, the swing bail handle itself was decorated with flower garlands, while in Burials C10, D3, and D4, the handles were plain. These handles are depicted in the 1865 Russell and Erwin Hardware Catalog (1865:335). Burial D3 was unmarked at the time of the 2007 excavation, but all three of the other interments were made in either 1866 or 1868.

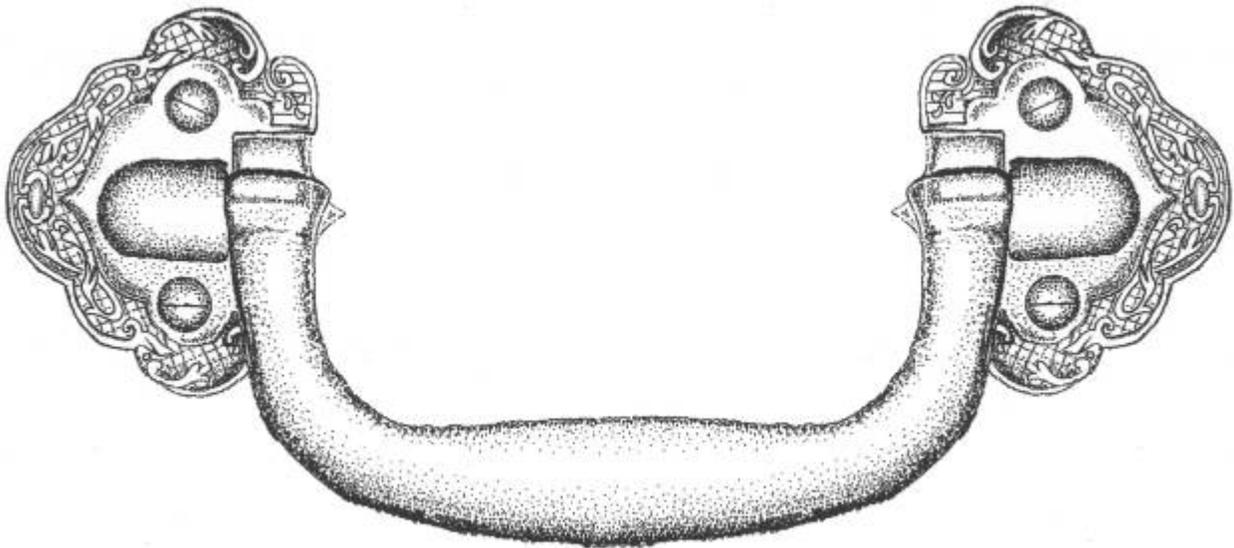


Figure 7. Drawing of one of the coffin handles used for Burials C10, D3, and D4. It measures 181 mm long and 77.5 mm tall. Illustration by Matthew Prybylski, AMEC.

Burials D3 and D8 were the only two in the cemetery which had caskets with glass viewing windows, and, in addition to their nearly identical coffin handles, had two identical types of elaborate white metal coffin decorative tacks. One design was a stemmed rose, while the

second was a circular rosette of flowers. Burial D3 (undated) had seventeen rose stem tacks and two rosette tacks, while the Burial D8 (1868) had ten recovered rose stem tacks and two rosette tacks. Burials D3 and D8 also had coffin screws with decorative escutcheons, but they were of different types. The caskets from Burials D3 and D8 are the most decorated ca. 1860s children's caskets in the cemetery. They show that a corner was turned during this decade regarding decorations on children's caskets in the extended Wright-Whitesell-Gentry family. Burials D5 and D6, both Whitesell children, had the same type of white metal coffin screws on their burial cases despite the seven year difference in times of interment (1864 vs. 1857, respectively). These were Russell and Erwin Model No. 11 (Russell and Erwin 1865:332).

The decorations on these burial containers, when compared to child and toddler interments from the 1850s in this cemetery, and the interment of Charles Wright in 1841 (Burial B2), show not necessarily less love and care of the deceased during the earlier time periods. The relationships are far more complex and have to do not only with the parents' socioeconomic status but also the commercial availability and range of coffin trimmings and styles of headstones in the Indianapolis area market.

It is important to consider that because of the advent of train service to the Indianapolis area in the previous decade and the fact that a wide selection of mass-produced coffin hardware has been demonstrated to have become available (owing to the range of styles seen in this cemetery and cemeteries of comparable age) that articles previously considered more expensive could now have been obtained more cheaply (Bell 1990:69). Thus, all of the 1860s interments need to be judged in a different context than the 1850s and earlier interments in this cemetery.

Textiles

Forty-three textile samples were recovered from twelve of the Wright-Whitesell-Gentry graves. Some fabric samples were less than one square inch while others were fairly substantial and represented multiple layers of fabric that were wadded together. Often roots were imbedded in the structure of the fabric, making it difficult to unfold the layers. All of the samples were stained brown as a result of the burial environment. These samples were highly degraded, very fragile, and presented a conservation challenge.

Burial environment affects how much and what type of fibers are preserved. A high-moisture aerobic environment is highly detrimental to natural fibers. Protein fibers (such as wool and silk) are more resistant to decay than cellulose-based fibers (such as cotton and linen), which will quickly decay. However, the pH of the burial environment also has an effect; an alkaline environment is detrimental to wool and silk, while an acidic environment is detrimental to cotton and linen. Even though the alkaline environment produced by a decomposing body and the acidic environment created by plant roots and the decomposing wood coffin may severely degrade fabrics, the water-logging of the graves may also result in better preservation of wood and some types of cloth, to the detriment of bone preservation.

Once the fabric samples were photographed in situ and carefully removed from the earth, they were all individually packaged in zip-seal poly bags and frozen. Degraded organic materials can initially appear intact, but when water evaporates the degraded cellular structure of fibers can collapse, leaving a pile of powder. Freezing can slow the evaporation of water and prevent mold growth. Frozen storage is a very common recommendation for the stabilization of waterlogged textiles both in the archaeological context and for modern disasters such as floods. However,

some studies have shown that there may be some fiber surface damage incurred by freezing and thawing fabric samples (Fischer 1998; Peacock 1999). The benefits of stabilization should be weighed against the possibility of surface damage.

Once thawed, the conservator attempted to identify several characteristics of the decomposed fabric, including thread count, weave type (plain or figured), seams (hand sewn or machine sewn), closures (buttons, hooks and eyes), and fiber type. These characteristics offer small clues as to date and place of manufacture and possible economic status of the wearer, and they can support or dispute conclusions made from the remainder of the material evidence.

Most of the burials with clothing produced three samples or less. Only three burials produced five samples or more, that of James T. Wright, Eliza R. Easterday, and John W. Gentry. However, multiple samples from the same burial did not usually result in a different fabric for each sample. In most cases, samples from the same burial contained fragments of the same fabric. The conservator identified 24 different kinds of fabric from the Wright-Whitesell-Gentry graves. Thirteen were composed entirely or partially of wool, six of silk, and one of cotton. Five fabric samples could not be identified. The small number of cotton samples was surprising, considering that, in this time period, cotton undergarments (including men's shirts) were about as voluminous as the outer garments. This may be a clear case of sample bias as a result of differential preservation of the fabric types.

The samples from Eliza R. Easterday (Burial C9) and John W. Gentry (Burial C10) are noteworthy. Eliza's grave (dating to 1858) contains fabric composed of a plain weave cultivated silk with approximately 80 x 50 ends/cm. Large enough portions of the clothing were preserved to reveal many seams, both straight and with gathers, all hand sewn. The home sewing machine became commercially available in 1851 and was aggressively marketed beginning in 1854 (Cooper 1976). To buy a sewing machine was a huge investment, similar to purchasing a car today. Singer sold many of their machines on a "rent-to-own" plan and many communities pooled their resources to get one. It seems that Eliza did not have access to a sewing machine. At the young age of nineteen, she would have taken great pains to appear as fashionable as circumstances allowed. Figure 8 shows an example of the kind of dress she may have been wearing. It is also interesting that all of the silk samples found for Eliza Easterday, as well as for Rohamad Wright (Burial A5) and Charles Wright (Burial B2), are plain weave fabric, with no figured (patterned) silks present. These items may have been printed, but this is difficult to determine from the decomposed samples.

John W. Gentry's grave (dating to 1866) contained many different types of fabric, including possible coffin lining fabric. His clothing includes a wool basket weave, with obvious machine-sewn seams, and in more than one of the samples there was an attached button with the interfacing still on the reverse. The fiber for the interfacing could not be determined, but from this time period it is often jute. Wool flannel was also tentatively identified from his grave. Mr. Gentry was wearing a waistcoat, evidenced by a waistcoat buckle. A plain weave fabric with a machine-sewn seam was also recovered, but it could not be conclusively identified. It might be a cotton waistcoat lining or it could be a shirt. Interestingly, one sample consists of a cravat, a remarkable silk faille with supplementary weft stripes. The cravat is "pre-tied," with a copper form. After the Civil War, the ready made clothing industry blossomed, and the machine-sewn seams and ready-made tie may point to John Gentry's purchase of less costly ready-made clothing rather than tailor-made clothing. As deduced from some of the buttons found in the burial, John Gentry was definitely not buried in his uniform but rather in an everyday suit.



Figure 8. Image of the type of dress Eliza Easterday may have been interred wearing. Image courtesy of Indiana State Museum and Historic Sites.

Analysis of the Human Remains

Osteological and Taphonomic Analysis

Thirty skeletons were removed during the excavation of the Wright-Whitesell-Gentry Cemetery, including 18 subadults and 12 adults. Unfortunately, extensive cortical delamination and epiphyseal destruction was the norm for all skeletons, and overall, skeletal preservation was only fair to poor when compared to other historic cemeteries excavated in central Indiana (Nawrocki et al. 1998). Three of the burials contained no recoverable human remains (Burials A2, C11, & D2, all subadults). It is likely that the disturbed matrix within the graveshafts served to trap ground water that only slowly percolated outward into the harder, compacted matrix surrounding the graveshafts. This waterlogged microenvironment would explain the poor bone preservation but resulted in excellent wood and cloth preservation.

Adults were represented by six males and six females. Most subadults ($n = 9$) died during the perinatal period, with a secondary spike ($n = 6$) at 3 to 4 years, the latter group suggesting that weaning stress played an important role in subadult mortality. Adult mortality was concentrated in the 20 to 40 year age range. Adults were robust but did not display unusual markers of occupational stress, looking more like merchants and preachers than manual laborers

and therefore fitting the known backgrounds of at least some of the decedents. Very few instances of chronic disease or premortem trauma were noted. Those conditions that were observed are primarily the mundane, non-specific pathological conditions expected for 19th century EuroAmerican populations, and all occurred at very low frequencies. Conditions observed include periostitis, osteoarthritis, vertebral spondylitis, cribra orbitalia, porotic hyperostosis, and healed fractures. Burial C1, a young adult male, displayed a suite of healed fractures, including a Type II/III un-united dense fracture of the 2nd cervical vertebra. This fracture may have produced asymmetrical neurological deficits resulting in wasting of one side of the body, as reflected in significantly smaller bone measurements on the left side. Dental analysis revealed low to moderate frequencies of enamel hypoplasias, caries, and antemortem tooth loss in the sample. Overall, dental health appeared to have been fairly good for 19th century populations.

Identification of the Decedents

Historic cemetery burials sometimes come with documentary or archaeological evidence regarding the identity of each decedent, such as marked headstones or genealogical data. This evidence is presumptive and is rarely sufficient to constitute a legal identification unless antemortem records (such as dental radiographs) are also available for comparison to the remains. Presumptive identities can, however, be strengthened through the careful development of biological profiles using the skeletons. Presumptive identification narrows down who the individual could be and helps to validate the association of each burial to its headstone.

A typical biological profile includes an assessment of age, sex, ancestry, body size, health status, and unique characteristics of the decedent. Fifteen of the 16 headstones at the Wright-Whitesell-Gentry Cemetery presented readable demographic data that could be compared to the biological profiles generated for the associated skeletons. Furthermore, historical documentation provided additional data on the lives of some of these individuals. Interviews with living family members suggested that the gravestones may have been moved from their original locations at some time in the past. However, the corresponding biological profiles suggest that the core of the cemetery remained intact through the centuries: all 15 of the presumptive historical identities fit the independently-developed biological profiles, at least broadly (Table 4).

Table 4. Comparison of Headstone and/or Documentary Data with Biological Profiles Obtained Through Laboratory Analysis of the Skeletal Remains; y = years, mo = months.

Burial	Name	Historical Data	Biological Profile
A3	James B. Wright	male, 15 y	sex unknown, 14-18 y
A4	John M. Wright	male, 43 y	male, 40-55 y
A5	Rohamad M. Wright	female, 69 y	female, 50+ y
A6	James T. Wright	male, 72 y	male, 50+ y
B2	Charles W. Wright	male, 4.8 y	sex unknown, 2.5-4.5 y

B3	Ruhamah H. Wright	female, adult	female, 35-49 y
B4	Joseph W. Wright	male, 10 y	sex unknown, 8-12 y
C7	Thomas P. Gentry	male, 38 y	male, 35-49 y
C8	Paulina J. Gentry	female, 45 y	female, 35-49 y
C9	Eliza R. Easterday	female, 19.8 y	female, 20-34 y
C10	John W. Gentry	male, 19.5 y	male, 17-20 y
D4	Eliza I. Whitesell	female, 36 y	female, 20-49 y
D5	Margaret E. Whitesell	female, 4 mo	sex unknown, 1-5 mo
D6	Jesse P. Whitesell	male, 4 y	sex unknown, 2.5-4.5 y
D8	John E. Gentry	male, 3.8 y	sex unknown, 3-5 y

Mitochondrial DNA Analysis

Traditional means of assessing biological relationships within cemeteries were once limited to physical burial proximity and the presumed heritability of discrete skeletal traits. Molecular evidence can now be used to ascertain relationships between individuals within a historic cemetery. Mitochondrial DNA (mtDNA) is passed from a mother to her children without being altered by recombination. Mitochondrial primers can be used to amplify specific segments of diagnostic DNA (haplogroups), which can distinguish between maternal family lineages. In addition, molecular analysis can help to determine the sex of the decedent by using the amelogenin gene, located within the nuclear (rather than mitochondrial) genome. The combination of multiple lines of evidence, including archaeological data, historical documentation, biological profiles, and DNA analysis, might allow us to assign probable names to some of the un-named interments in the Wright-Whitesell-Gentry Cemetery. In particular, this approach may be particularly helpful in the analysis of the subadult skeletons, because it is very difficult to establish sex and ancestry from the macroscopic analysis of the bones of prepubescent children.

FHWA and INDOT have funded a DNA analysis currently being conducted by Dr. Krista Latham and Anthony Koehl of the University of Indianapolis Archeology and Forensics Laboratory. This work will try to link unidentified infants and children to the adult females and to establish family plots within the unmarked portions of the cemetery.

Reburial

INDOT considered a number of possible reburial locations before deciding on Crown Hill Cemetery. One of the most historically significant sites in Indiana, Crown Hill is the burial site of many famous Hoosiers and represents a spectacular example of the nineteenth century Romantic Movement in cemetery design. Dedicated in 1864, Crown Hill is listed in the National Register of Historic Places. The cemetery includes a “Pioneer Section” that already contained

two relocated historic cemeteries and offered enough room to reconstruct the original configuration of all the graves without reducing spaces between graves or changing their orientations. Crown Hill Cemetery offers an enormous avenue for public education. Thousands of people, including many school children, visit Crown Hill annually for the history it offers. Finally, we chose the Pioneer Section of Crown Hill because of its serene and beautiful location, far from the highway and traffic. Crown Hill has actually planted native Indiana grasses and trees that represent what would be growing in cemeteries in the nineteenth century, and they are planning a butterfly garden. Crown Hill Cemetery will care for the relocated Wright-Whitesell-Gentry Cemetery in perpetuity (Figure 9).

The cleaned and restored historic gravestones were carefully placed in their original configurations at their new home. To make sure that the gravestones were not damaged by heavy machinery, the same archaeologists who excavated the Wright-Whitesell-Gentry Cemetery dug the new graves, over a two day period, the same way they were dug 150 years ago: by hand. In June of 2008, INDOT and FHWA officials joined descendants of the Whitesell and Wright families, Indiana State Historic Preservation Office officials, Crown Hill Cemetery representatives, Castleton United Methodist Church members, and local historical groups to rededicate the Wright-Whitesell-Gentry Cemetery at its new location. INDOT asked the current pastor of Castleton United Methodist Church, founded by the Rev. James Wright, to deliver the ordination at the rededication ceremony. Another member of the interred was also honored: during the rededication ceremony, a representative of an Indiana veteran's organization placed an American flag at Private Gentry's new grave. Family members were also invited to speak. Eloise Whitesell spoke about her family background and about visiting and leaving flowers at the original cemetery as a child. After thanking those who worked on the project, Eloise said, "My final thank you is for the person who found the spot for the final, final resting place." Mike Whitesell, who grew up on the west side of Indianapolis, drove from his Michigan home to attend the dedication. "It's a wonderful thing here, what the state of Indiana has done," he said.



Figure 9. The Wright-Whitesell-Gentry Cemetery relocated at the Pioneer Section of Crown Hill Cemetery.

Conclusion

The fields of historical archaeology and biological anthropology, through the analysis of artifacts, features, and human remains, have the ability to confront preconceived notions and stereotypes about the past in a way that written documents alone cannot. In many ways this project allows us to question our assumptions of what it means to be a Hoosier. The word Hoosier, even in the twentieth century, was associated with such negative terms as “rustic,” “illiterate,” “uncouth,” and “laborer” (Graf 2008). The poet James Whitcomb Riley satirically wrote that the term Hoosier “originated in the pugnacious habits of our early settlers” (Graf 2008). The stereotypical Indiana pioneer is often portrayed as rough, rustic, relatively isolated, and relatively poor, but that only tells part of the story. The Wright-Whitesell-Gentry Cemetery project tells another part of the story: a community of upper-middle class families, devoted to serving their society through ministry and military service, living an urbane lifestyle and actively participating in the larger national economy and culture. Pioneers are often thought of as rural and agricultural. The Wright, Whitesell, and Gentry families were pioneers of another sort, starting a small church in a clapboard cabin that grew to be a large and successful modern congregation, and pioneering a small town that would later become the thriving Indianapolis suburb of Castleton.

The former location of the Wright-Whitesell-Gentry Cemetery will no longer be classified as a cemetery, because all remains and artifacts have been removed. The former cemetery has been filled with soil and planted with grass. It is anticipated the site will remain unused until the highway expansion project begins in 2012. The Indiana Division of Historic Preservation and Archaeology recently awarded INDOT the 2008 Section 106 Achievement Award for its work on the project. Additionally, FHWA will be nominating this project for a 2009 Environmental Excellence Award.

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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 AD 1950 based on radiocarbon dating. For example, 1000 B.P. means 1000 years before AD 1950 or AD 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), demography, psychology, economics, sociological 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 for additional archaeological terms:

<http://saa.org/public/resources/glossary.html>

<http://www.nps.gov/archive/efmo/parks/glossary.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 that began to look like the one we now have in modern times. 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, Cumberland, 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.