

Geophysical Surveys and Excavations at the Collier Lodge Site

(12PR36):

2006 through 2009 Seasons

Submitted to the

Indiana Department of Natural Resources,

Division of Historic Preservation and Archaeology



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Abstract

Archaeological investigations at the Collier Lodge site (12PR36) in Porter County, Indiana were conducted annually during a three-week summer field season from 2006 through 2009. The investigations were a cooperative project between the University of Notre Dame and the Kankakee Valley Historical Society. Each year's field work was designed to explore some aspect of the site's complex archaeology. The 2006 investigations (permit 2006041) were conducted between May 30 and June 15, 2006; the 2007 (permit 2007048) between July 23 and August 9, 2007; the 2008 (permit 2008037) between July 7 and 24, 2008; and the 2009 (permit 2009035) between July 7 and 22, 2009, with a single additional day of excavation on August 22, 2009 during the Aukiki River Festival.

During the four field seasons, 26 units with a total surface area of 50 m² were opened, sampling about five percent of the 960 m² core area of the site midden as defined by soil resistivity surveys and shovel probes. The excavation units contained 36 features. These ranged from amorphous stains that might be faint prehistoric features of unknown function (or refilled rodent burrows or root runs), to Upper Mississippian roasting pits, one earth oven, and historic features including large post molds, a brick hearth from a fireplace, an early nineteenth century fur-processing feature, various refuse deposits from the late nineteenth century, and a large, deep stratified feature that is thought to be the in-filled cellar of an early nineteenth century structure.

The investigations have shown that the Collier Lodge site was used off and on since at least 9,000 B.C. and that the site is eligible for the National Register of Historic Places. The data collected during the four seasons was used to support a successful Register Nomination for the site in 2009. The most intense occupations date to the Upper Mississippian period (circa A.D. 1100-1500) and the nineteenth century. These two periods have produced most of the feature contexts at Collier Lodge.

As a public archaeology project, the work at Collier Lodge has given more than a hundred volunteers and students a chance to participate in field work and to learn about the methods used in a scientific archaeological investigation. The project has also hosted several hundred visitors who observed work at the site and learned about local history and historic preservation in Indiana.

Acknowledgements

Archaeological fieldwork is teamwork. It would not have been possible to conduct such a successful project over several seasons without the assistance of many committed and dedicated people. It is not possible for me to list by name the hundreds who have given their time and interest to the project but that does not mean that I am grateful for the help of each and every one of them, and for the interest shown by the many people who simply dropped by to see what we were up to.

The Kankakee Valley Historical Society has been absolutely essential to the project. KVHS members have done the majority of the field work and artifact processing. All of this is ably organized by John Hodson, the society's president. Judy Judge helps organize the archaeological project, excavates, and provides absolutely invaluable assistance and countless hours of labor processing and cataloging artifacts. Melissa Unruh helped with excavation, cataloging, and by editing this report.

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Archaeological Background

Prior Field Work at the Collier Lodge Site

The Collier Lodge site (12PR36), also known as Baum's Bridge, is located on the southern border of Porter County, Indiana on the northern edge of the former Kankakee Marsh. This location was first described as an archaeological site by McAllister (McAllister 1932) as Porter County site number 36. At the time of McAllister's visit to the site, it was only one of two sites in Porter County known to have produced prehistoric pottery. From McAllister's description of sherds from the site, it is clear that the pottery he found in 1931 included grit-tempered Woodland period pottery (1000 B.C. to A.D. 1100) and a few examples of shell-tempered sherds, an artifact type characteristic of the Upper Mississippian period (ca. A.D. 1100 to historic contact) in northwestern Indiana (Faulkner 1972, Schurr 2003).

The Collier Lodge site has been the location of an on-going archaeological project by the University of Notre Dame and the Kankakee Valley Historical Society. Results of all prior field investigations from 2003 through 2005 were reported in a single volume (Schurr 2006). Investigations from 2006 through 2009 were designed to follow up on uncompleted units from previous seasons and to investigate various aspects of the site's archaeology. The results of investigations from 2006 through 2008 were summarized when the site was nominated to the National Register of Historic Places (Schurr and Rotman 2009) and in an article in the on-line journal *Indiana Archaeology* (Schurr and Rotman 2010). This report describes the work done at the site during the 2006 through 2009 field seasons.

Prehistoric artifacts from the site represent most time periods over the last nine to ten thousand years and historic artifacts span the full range of historic occupations in northwestern Indiana, beginning as early as the late seventeenth century and extending up to the recent past. Table 1 shows the different prehistoric periods that have been documented at the site. Although artifacts characteristic of a few time periods have not been found at the site, the site was clearly a popular place to camp throughout most of the last 10,000 years.

The site was also in use throughout the historic period, which begins in A.D. 1680 with LaSalle's journey down the Kankakee during his exploration of the St. Joseph-Kankakee portage route (Baker 1899). Although there is no documentary or other evidence to show that LaSalle's party camped at Collier Lodge, they must have travelled by it.

Table 1. Regional Prehistoric Phases Present at the Site.

Date	Cultural Period	Phase Name
Before A.D. 1678	Protohistoric (trade goods)	Unknown
A.D. 1650		Huber*
A.D. 1500 A.D. 1400	Upper Mississippian	Fifield (early Huber)
A.D. 1200		Early Fisher*
A.D. 1100		undefined Albee variety
A.D. 700	Late Woodland	Walkerton
A.D. 400		Laporte
A.D. 200	Middle Woodland	Goodall*
A.D. 1		Stillwell*
200 B.C.		North Liberty
400 B.C.	Early Woodland	Unnamed
800 B.C.		Peterson
Ca. 2000 B.C.	Late Archaic	Unnamed
Ca. 4000 B.C	Middle Archaic	Unnamed
Ca. 8000 B.C	Early Archaic	Unnamed

* Phase not identified at site.

Artifacts that could date to the seventeenth century have been found at the site, showing someone, perhaps local Native Americans or French fur traders, used the site at least briefly during the era of French exploration. It was certainly well known to Native Americans of the early nineteenth century as its original historic name was Pottawatomie Ford (Meyer 1936).

Later historic periods are especially well represented. Meyer (1936) defined four historic periods for the Kankakee Valley of northwestern Indiana. The periods were the “Pottawatomie’s Kankakee” (prior to A.D. 1840), the “Pioneer’s Kankakee” (1840-1880), the “Rancher and Recreationist’s Kankakee” (1880-1910) and the “Reclamationist’s and Resorter’s Kankakee” (1910-1936). All of these periods are represented in the archaeological record of the Collier Lodge site, as is the entire twentieth century.

Based on a study of deeds and other records, Rotman (Rotman 2009) has reconstructed what we presently know about who owned or occupied the site during the nineteenth and twentieth centuries. Table 2 indicates the different owners and also shows where dates are uncertain and where there are gaps in the records.

The first Americans to settle at the site were Jeremiah Sherwood and his family, who established the first ferry across the Kankakee around 1834 (Goodspeed and Blanchard 1882). In 1836, Eaton began to operate the ferry and built a log cabin “on the right bank of the river” (Anonymous 1936). He later attempted to establish a toll bridge in 1849 but it soon burned down and he reverted back to the ferry. Sawyer bought the property in 1857 and also attempted to maintain a bridge, but it was quickly swept away by drift. In 1863, the site was purchased by Baum, who built the first successful bridge across the Kankakee at this location, and the site has since been best known as Baum’s Bridge. In 1865, the bridge was taken over by the county. The first hunting club was established in the vicinity in 1878. In 1898, the Collier Lodge was built at the site, and that building, although very deteriorated, is still standing. After Jim Collier’s death in 1952, the site passed through the hands of several owners until it was purchased by John Hodson in 2001. Since then, the Kankakee Valley Historical Society has attempted to stabilize the Lodge with the goal of the eventually restoring it.

Today the site consists of a grassy lawn containing the Collier Lodge building. Several small, decrepit outbuildings that stood on the site in 2001 were removed in 2005. The site is located on a sandy ridge adjacent to a short segment of the original Kankakee River. A short portion of the channel was isolated as a sort of bayou or slough when the marsh was drained and this segment was bypassed by a drainage ditch to the south. Today, the banks of the old channel segment look much like they must have when the lodge was in use except that the southern bank has been raised by fill.

Table 2. Owners and Occupants of the Collier Lodge Site.

Date	Owner or Occupant
1834?	J. [Jeremiah?] Sherwood
1836?	George Eaton
-----	<i>Gap in Deed History</i>
1846	Wilson Malone
1850	Julia Eaton
-----	<i>Gap in Deed History</i>
1857?	? Sawyer
1860?	Enos Baum
1868	John Gibson
1869	Phillip B. Lockman
-----	<i>Gap in Deed History</i>
????	Joseph Hackman (sells permanently located sawmill to Pugh, but the sale might have consisted of equipment and not land?)
????	Charles W. Betterton
1873	James M. Pugh
????	Charles W. Betterton
1889	William P. Betterton
[1894?]	R. L. (Rol) Gordon is associated with the parcel at this time, but as guide?
1898	Winfield Pierce
1900	Mary Downs
-----	<i>Gap in Deed History</i>
????	Benjamin Mason
1904	Flora Collier
1952	Jim Collier's death

Archaeological Field Work at the Site

Each season at the site had a specific set of goals that were specified in excavation permits approved by the Division of Historic Preservation and Archaeology, Indiana Department of Natural Resources. In general, the excavations during the first few seasons at the site (from 2003 through 2005) were exploratory and were designed to learn what types of deposits were present (Schurr 2006). The investigations from 2006 through 2009 continued to test some portions of the site that had not been explored earlier, but increasingly focused on specific problems, especially those involving the ground truthing of geophysical surveys and the exploration of large and complex historic features. Table 3 shows the units that have been excavated, the years when they were investigated, and the levels excavated for each year (when unit excavation spanned more than one season). Units excavated prior to 2006 have been described in an earlier report (Schurr 2006). This report describes all the other units. Excavations were conducted under permit numbers 2006041, 2007048, 2008037 and 2009035.

Excavation Procedures

Investigations in each field season always began with the re-establishment of a metric site grid defined in 2003 by reference to several local benchmarks. Horizontal and vertical control of the excavations were maintained by reference to the grid coordinate system.

All excavation was done by hand, using either shovels or trowels. The maximum size of any single excavation unit was 2 meters square. The units were excavated in either arbitrary levels with a maximum thickness of 10 cm, or in archaeological levels defined by changes in soil color, texture, or artifactual content. Archaeological levels with a thickness greater than 10 cm were subdivided into arbitrary 10 cm levels to maintain additional stratigraphic control. Soil colors were described using the Munsell system (Munsell Color 1990). All excavated soil was screened through 1/4 inch (0.6 cm) hardware cloth, except for soils that appeared to contain high concentrations of microbotanical or microfaunal remains. Soils from these contexts were processed using flotation recovery techniques. Additional soil samples were also water screened to test whether very small artifacts (such as seed beads or gunshot) were present. Soil samples were collected from some archaeological strata. Each archaeological level and feature was documented using the appropriate form and by scaled maps with a resolution of 0.5 cm. Artifacts with significant spatial relations to each other or to other features were piece-plotted. All artifacts and samples collected were recorded in a field specimen log to maintain associations between specimens and their archaeological contexts. Digital images were captured to document the excavations. The completed field records and the photographs are curated at the Archaeology Laboratory, University of Notre Dame. All artifacts collected during the excavation were processed, catalogued, and curated at the

Table 3. Units Excavated Between 2006 and 2009

Unit	Year	Levels
E 66-68 N 75-76	2006	01-11
E 79-80 N 83-85	2006	01-04
E 81-82 N 78-80	2006	01-07
E 81-82 N 82-84	2006	06-09
E 91-92 N 74-75	2006	01-02
E 91-93 N 74-76	2006	03-07
E 92-94 N 74-76	2006	01-04
E 96-97 N 76-78	2006	01-09
E 79-80 N 83-85	2007	05-15
E 79-80 N 87-89	2007	01-06
E 81-82 N 78-80	2007	08-11
E 81-82 N 82-84 (N balk)	2007	08-10
E 81-83 N 93-95	2007	05-10
E 81-83 N 95-96	2007	01-10
E 91-93 N 74-76	2007	08-14
E 76-78 N 85-86	2008	01-03
E 78-79 N 87-88	2008	01-06
E 79-80 N 85-87	2008	01-08
E 79-80 N 89-91	2008	01-08
E 81-83 N 83-85	2008	01-05
E 81-83 N 84-85	2008	06-08
E 81-83 N 86-87	2008	01-08
E 81-83 N 88-89	2008	01-07
E 86-88 N 82-83	2008	01-09
E 94-96 N 87-89	2008	04-05
E 76-77 N 84-85	2009	01-05
E 77-78 N 83-84	2009	08-10
E 77-78 N 83-85	2009	03-07
E 77-78 N 84-85	2009	01-02
E 77-79 N 83-84	2009	01-07
E 79-80 N 85-86	2009	07-17
E 79-80 N 89-91	2009	08-10
E 80-81 N 86-87	2009	01-06
E 80-81 N 88-89	2009	01-10
E 84-85 N 83-84	2009	01-02
E 84-86 N 82-83	2009	01-18

Archaeology Laboratory along with their associated documentation where they will be used for research and teaching.

At the conclusion of the excavation, all units were backfilled and the site contours were stabilized to prevent erosion. The floors and walls of any incomplete units were covered with black 6 mil polyethylene before backfilling so that the unit could be reestablished in future. Methods used in the field investigation met or exceeded the standards described in Department of Natural Resources 312 IAC 22.

The field methods evolved slightly over time to enhance the investigations. Water screening of selected deposits and samples was instituted in 2004 and was used more frequently in subsequent seasons. The field forms were modified in 2008 to make them more suitable for recording complex historic levels and features (essentially doubling the amount of information that could be captured). A Brick Record Log was introduced in 2009 to more efficiently record the proveniences and characteristics of the many brick fragments found. And finally, all the artifact records have been combined into a single Microsoft Access database.

Results of the Investigations

Shovel Probe Survey Extension

In 2003 and 2004, shovel probes were placed across much of the site at 5 m intervals (Schurr 2006). Additional probes were placed to the east of the core area in 2006 (Figure 1). The contents of all shovel probes were screened through 1/4 inch (.6 cm) mesh screens and all soil profiles were recorded.

Artifact distributions and soils found in the probes suggested that the prehistoric occupations are concentrated in a midden area spanning a roughly circular area at least 35 m in diameter, correlated very well with the results of the resistivity surveys, although the shovel probes identified artifacts in disturbed contexts that extended about 15 m to the east of the core midden area. Removal period (A.D. 1795–1840) artifacts from the shovel probes were concentrated in a small area on the eastern edge of the site. Late nineteenth and twentieth century artifacts are ubiquitous. Bone preservation at the site was exceptionally good. Taxa preliminarily identified in the faunal assemblage include both large and small mammals, reptiles, birds, and fish, with many fragments appearing to have come from prehistoric contexts. Charcoal pieces and fragments collected during screening showed that the deposits also contain botanical evidence about past activities at the site and indicated that flotation recovery techniques would be profitable. While large pieces of wood charcoal were also collected, many coal fragments are present, and they might make radiocarbon dating difficult.

Geophysical Surveys

Geophysical surveys were conducted at the site over several years. The surveys used four different instruments that included two gradiometers (a Geoscan FM36 and a Bartington Grad601), a soil resistivity system (Geoscan RM15) with a twin probe array using two different probe spacings (.5 and 1 m), and a ground penetrating radar unit (Mala Ramac system with a 500 MHz antenna). All surveys were indexed to the site grid established in 2003.

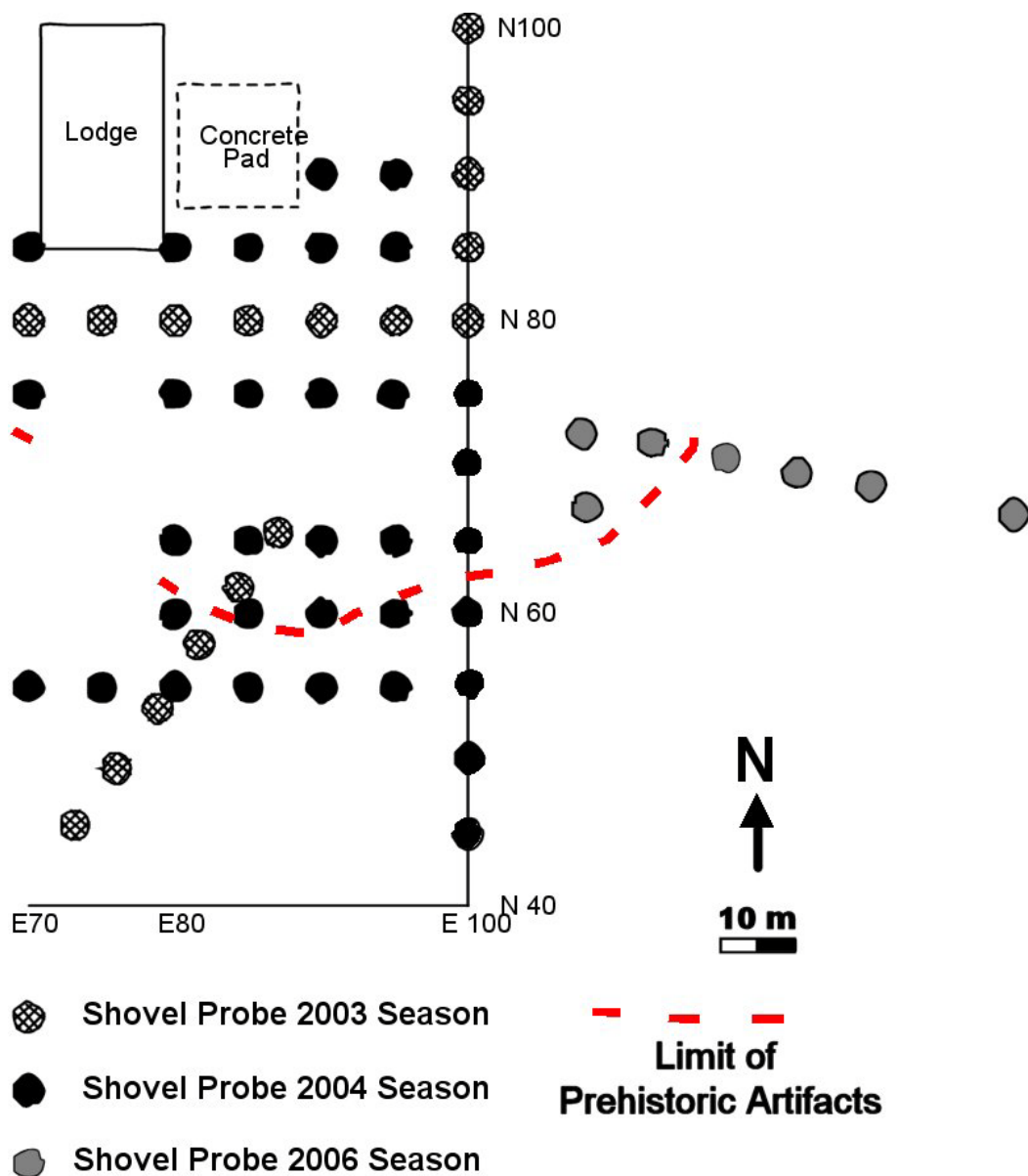


Figure 1. Shovel Probe Locations.

Soil Resistivity

The soil resistivity surveys used a twin probe array with .5 and 1 m probe spacings along sample and transect intervals of 1 m. The maps produced by the two resistivity surveys (with the .5 m and the 1 m probe spacings) are very similar, although the wider probe spacing produced a survey with fewer noise spikes (Figures 2 and 3). The resistivity maps show the former location of a metal shed as a clearly defined square anomaly with slightly lower resistance (the prominent dark square anomaly in the center of the image). Otherwise, the areas with the thickest midden correlate with the lowest soil resistivities (darker gray tones). Later excavations along the E 90 grid line have shown that soil profiles in the units correlate very well with the soil resistivity surveys, with deeper midden profiles correlating with lower soil resistivity. This is caused by the higher moisture retention capabilities of the midden soils, as their darker color reflects higher humus content. As moisture is necessary for electrical conduction in soils, that in turn translates to lower soil resistance.

Magnetic Surveys

Magnetic surveys with both instruments (the Geoscan FM36 and Bartington Grad601) were conducted with sample intervals of .25 m (in the east-west direction) and transect intervals of .5 m (in the north-south direction). The results of the magnetic survey (Figure 4) clearly revealed the foundation of a building that once stood at the site to the north and east of the lodge (centered on grid location E 93 N 98). This was probably the footprint of a small cottage that is depicted in a photograph of the front of the Collier store taken in the 1930s (Figure 5). In addition to the cottage footprint, many strong bipolar magnetic anomalies (indicated by paired red and blue signals) characteristic of iron are present, an expected result for a densely occupied historic site. There are two prominent red anomalies with blue borders on their northern edges in the lower left (at grid coordinates E 42 N 58 and E43 N 65). These are probably septic tanks (or perhaps a septic tank and drywell) that serviced the lodge in the twentieth century. The prominent anomalies along the southern edge of the survey are scattered historic trash, except for the very clearly defined circular anomaly at the very southern end of the survey. This may be the signal of an outhouse that stood in this location as late as 2003.

Prehistoric features such as fire-cracked rock (FCR) concentrations or hearths produce relatively weak magnetic signals. They often appear as small positive magnetic anomalies with maximum signals that may range from 8 to 15 nT. In order to reveal these types of anomalies, magnetic data are usually presented across a narrower range of intensities (for example, the full scale of the display might extend from ± 25 nT instead of the ± 135 nT used in Figure 4). That procedure cannot be used very successfully at intensively occupied historic sites such as Collier Lodge because narrowing the display range amplifies the historic anomalies so that they overwhelm the image. This is clearly shown in Figure 6, which displays the data with a range of ± 15 nT. The bipolar

anomalies are so strong that they completely cover most of the area and the remainder of the survey grid consists mainly of positive anomalies.

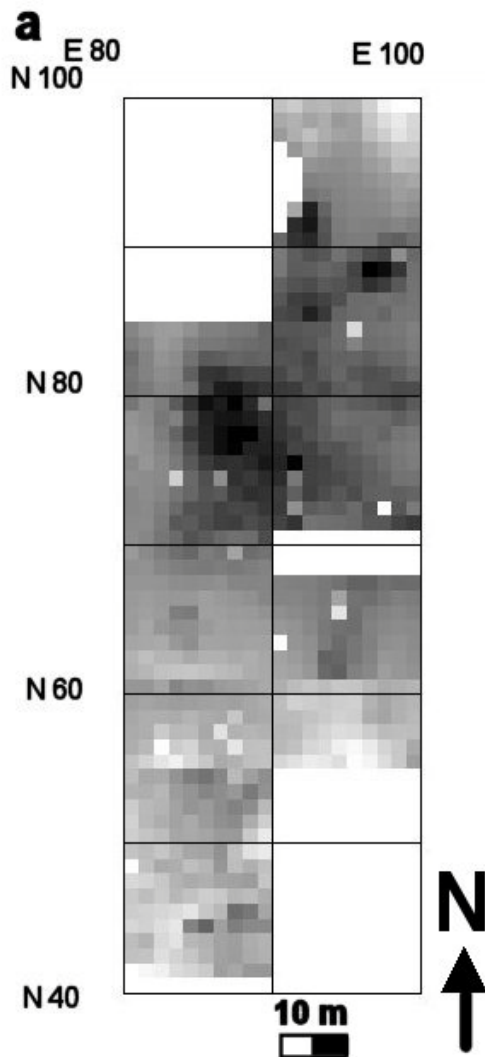


Figure 2. Soil Resistivity Survey (0.5 m probe spacing).

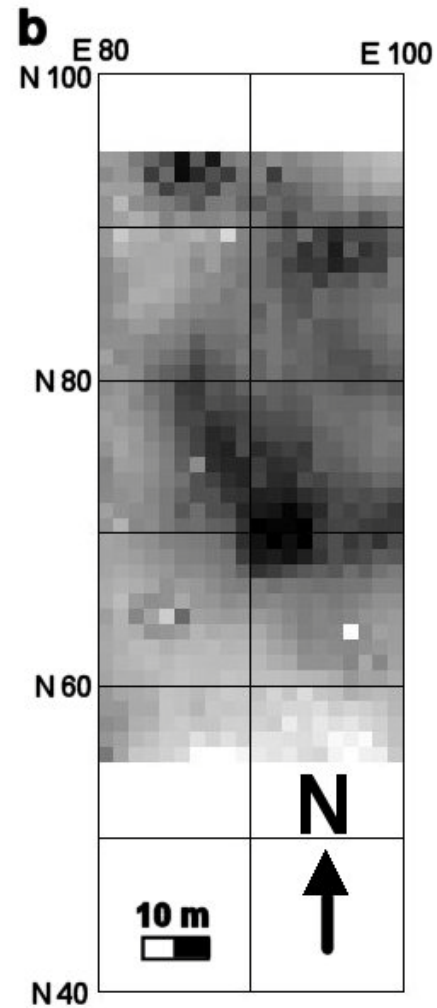


Figure 3. Soil Resistivity Survey (1 m probe spacing).

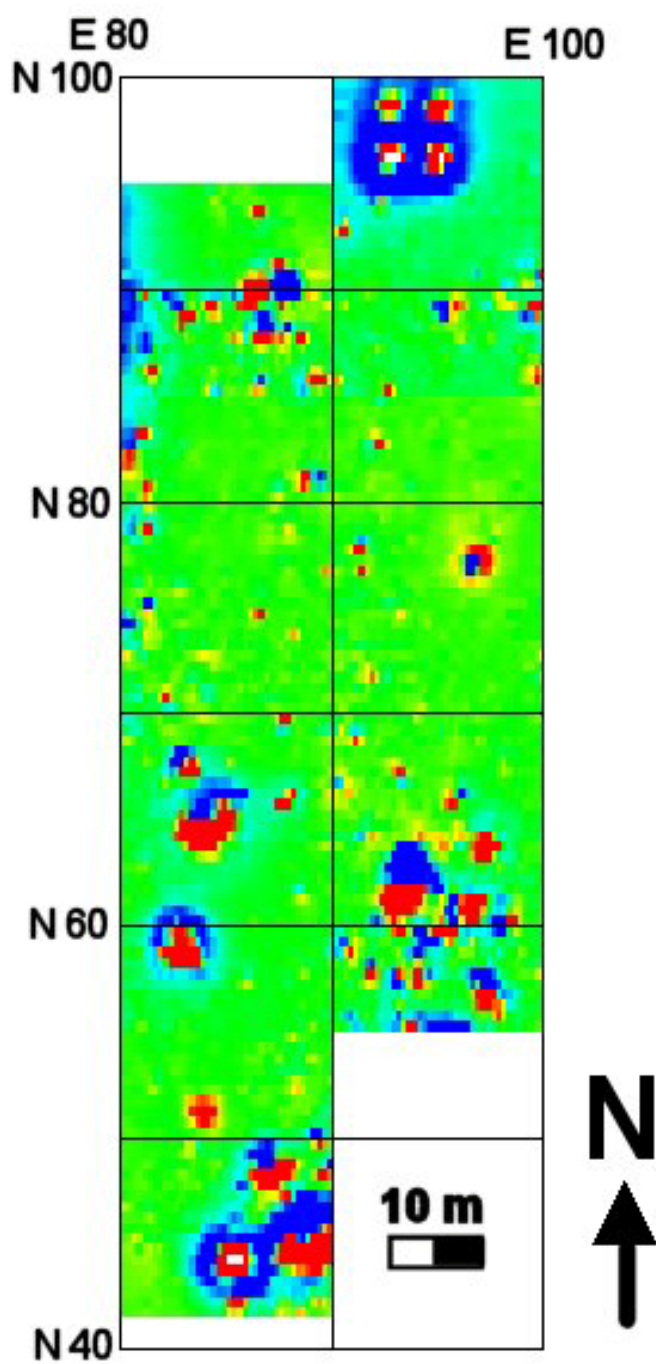


Figure 4. Magnetic Survey (± 135 nT).



Figure 5. Photograph Showing Frame Cottage East of North End of Lodge.

Ground Penetrating Radar (GPR)

The GPR surveys were conducted with a Mala Ramac system equipped with a 500 MHz antenna that provided relatively shallow penetration but good resolution. During the 2006 season, the data were processed with Easy3D, a program provided by Mala. The program offers the advantages of being easy to use, allowing flexible transect lengths, user control over time slices, and offering several filtering options. However, filtering and display options were limited, and it proved difficult to correctly index the surveys to a baseline on the eastern edge of the site. Novice operators found it especially difficult to understand how to record the surveys on the instrument so that they could be indexed. The GPR survey conducted in 2006 with the 500 MHz antenna seemed to provide the most useful data from these early experiments. That survey covered accessible portions of the site between N 75 and N 96. GPR data are presented as time slices. Each map is a map of the radar signal at a specific return time, with greater times correlating with greater depths. Figure 7 shows a time slice of 15 nanoseconds (ns). That time would correspond to depths of between 10 and 20 cm below

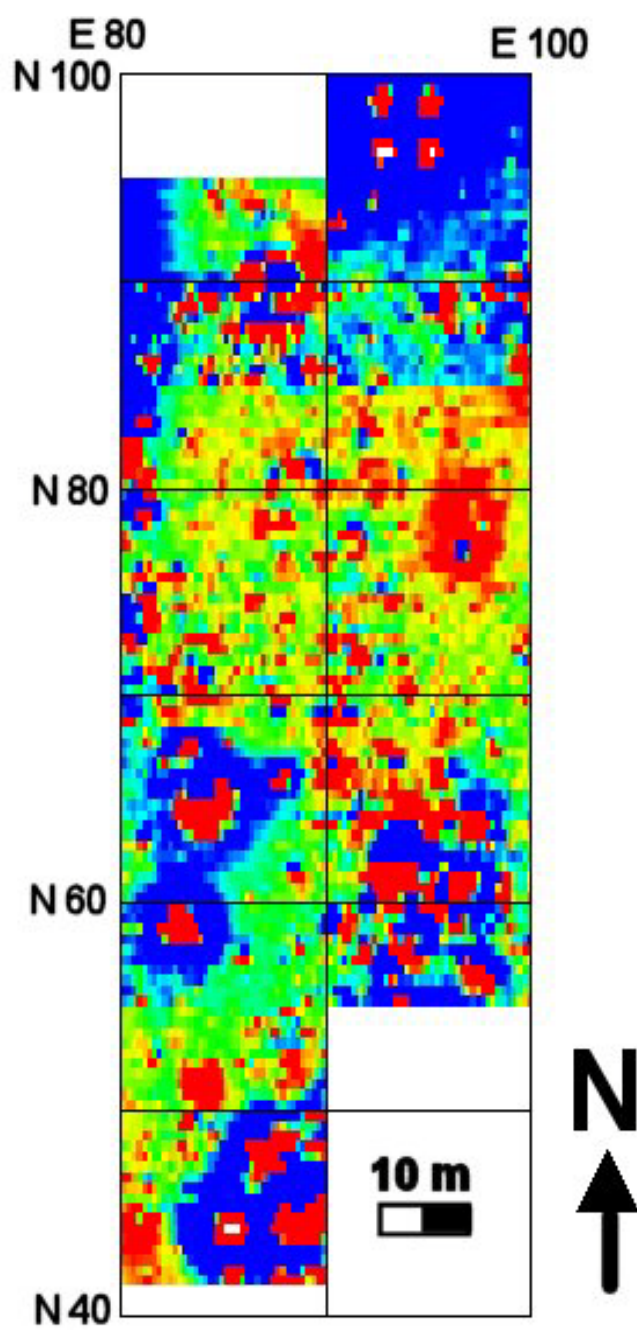


Figure 6. Magnetic Survey (± 25 nT).

surface (B.S.), so it is a map of shallow features. Unit locations are shown in black outline. Mis-match between transects in the northern and southern parts of the survey grid show some of the difficulties involved in using EasyView. The horizontal gray line near the top of the map is a missing transect that illustrates indexing problems.

The 15 ns map from 2006 (Figure 7) indicates there are a few reflectors within or near the base of the topsoil. These show up as red areas, with most being point sources suggestive of metal objects and not archaeological features. The most intense anomaly is centered on E 88 N 79 (a much smaller anomaly appears in the same spot in a later survey, see below). There appears to be a faint linear series or diagonal row of anomalies in the northeastern portion of the survey area, extending from about E 99 N 86 northeastward to E 100 N 88. Feature 1 (a brick hearth from a fireplace) is visible at E 81 N 80. The linear anomaly southwest of Feature 1 trending to the southwest is probably a metal pipe. Its north end terminates at the south edge of Unit E 79-81 N 79-81 where a bent metal pipe that followed approximately the same directional trend was found at approximately 10 cm B.S. in 2004.

After 2006, a different software program called GPR-Slice was obtained to process the data. Unfortunately, the GPR-Slice software, while being extremely sophisticated, requires that the data be collected in rectangular grids for optimal results. As the 2006 surveys did not use a rectangular grid, it was not possible to import that data into GPR-Slice. In the future, it would be worthwhile to repeat the surveys using a grid approach and consistent transects.

In 2008, a small portion of the site was surveyed with the 500 MHz antenna to guide the 2008 excavations. The 2008 survey used the 500 MHz antenna to cover an area of 11 m by 13 m (Figure 8). The depth of the slice (30 cm B.S.) was determined by selecting the first slice with a rectangular anomaly at E 79-80 N 87-89 (upper left). That anomaly was the plastic covered floor of the unit from 2007 in this location. A time-slice map of the data at about 30 cm B.S. (Figure 9) clearly showed a drainage pipe (dark red anomaly in the lower left corner of survey), dense concentrations of historic artifacts (red areas in the upper left), and several other anomalies, including the strong anomaly at E 88 N 79. The 2008 survey shows that the larger GPR anomaly identified at this location in 2006 is actually composed of several different reflectors. The prominent anomaly to the north of E 88 N 79 in Figure 7 (the prominent red area to right of center) was found to be an area of prehistoric midden sealed under historic deposits (see below).

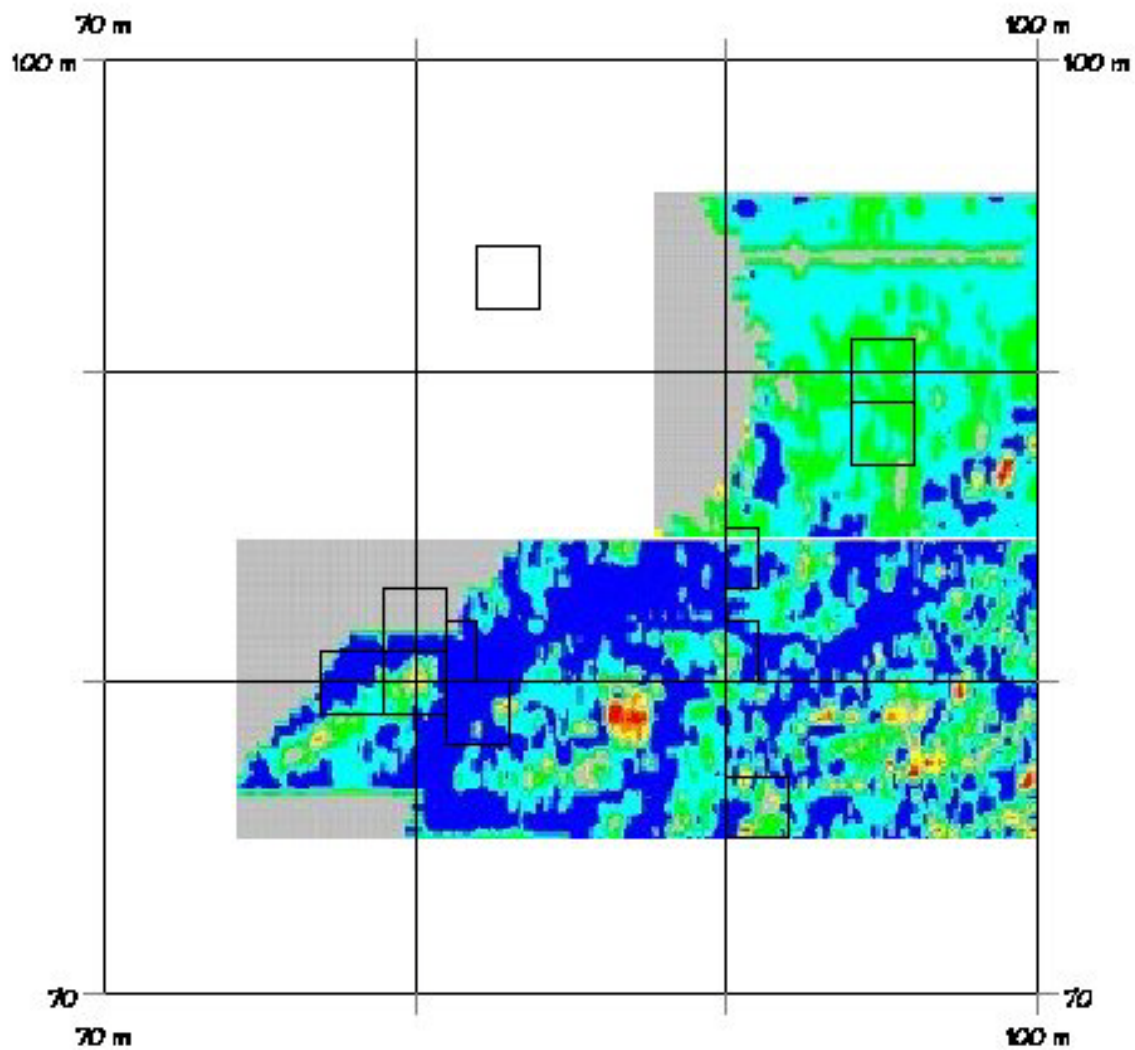


Figure 7. GPR Survey, 2006 (black boxes are units opened through 2005).

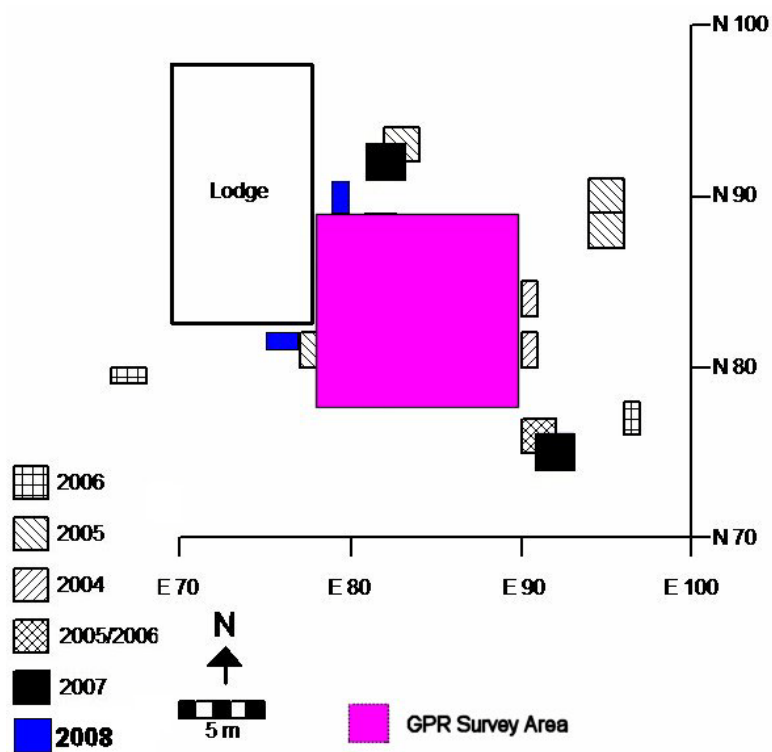


Figure 8. Location of the 2008 GPR Survey.

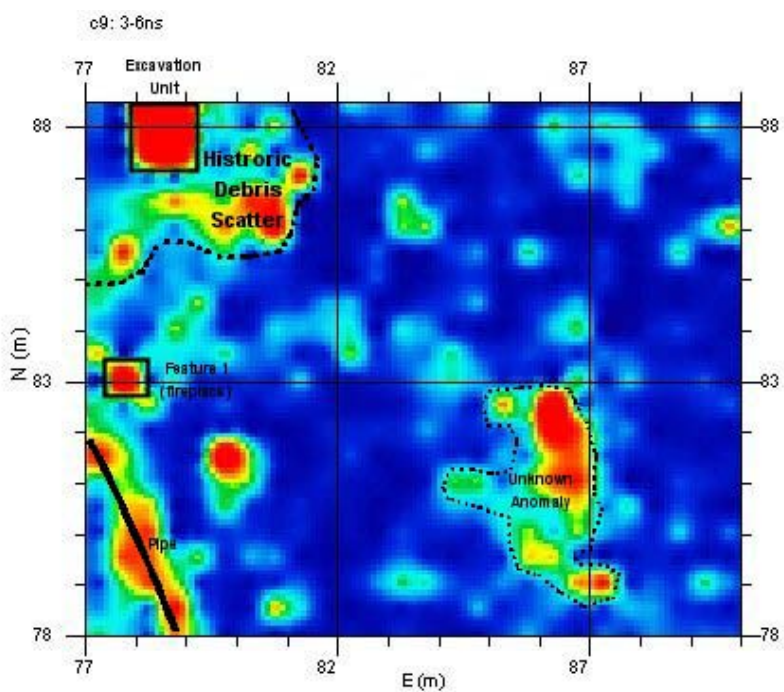


Figure 9. GPR Survey, 2008 (15 ns slice, ca. 30 cm B.S.).

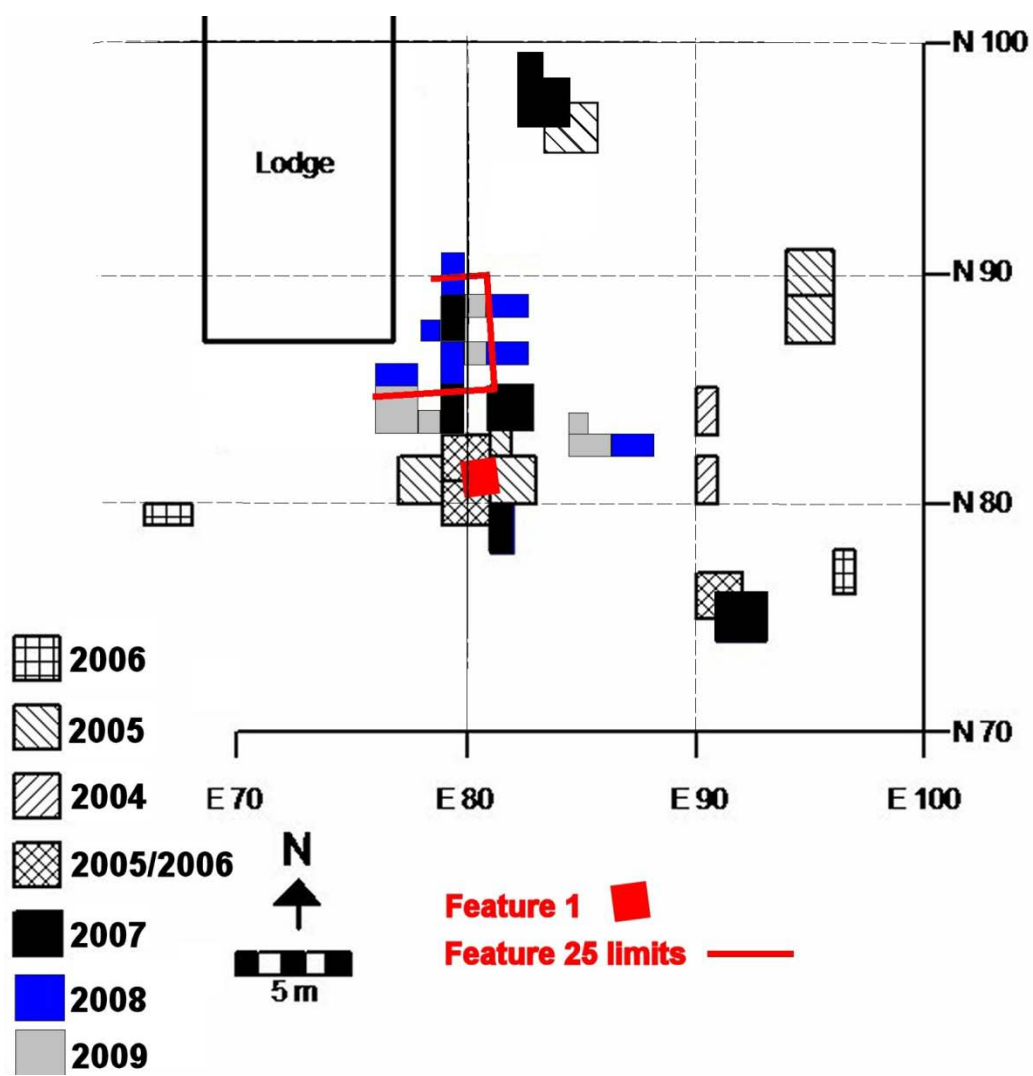


Figure 10. Unit Locations.

Excavations

Figure 10 shows the placement of units across the site from all excavation seasons. Their locations clearly show that some areas of the site were returned to over several years to work out features or answer questions that could not be resolved in a single season.

Test of a Combined Magnetic and Ground Penetrating Radar Anomaly (Unit E 96-97 N 76-78)

Unit E 96-97 N 76-78 was placed in a previously untested portion of the site to explore a geophysical anomaly that appeared in the magnetic survey as a positive anomaly and as an unusually pronounced radar return at about 10-20 cm B.S. in the 2006 ground penetrating radar survey conducted with the 500 MHz antenna. The GPR anomaly was therefore correlated with a positive magnetic anomaly. A one by two meter unit was placed over the location of the anomalies. Nine levels were excavated and no features were identified. The overall stratigraphy of the unit was similar to that of units along the E 75 line excavated in 2004 (Schurr 2006) except that the transition from topsoil to subsoil was much more abrupt. A 40 to 45 cm thick layer of dark topsoil lay over a B horizon extended to a depth of about 70 cm B.S.

The unit produced historic period artifacts in the topsoil layer (Levels 1 through 3) with diminishing amounts through Level 6 (about 60 cm B.S.) There was a low density of prehistoric artifacts in Levels 7 and 8. The geophysical anomalies appear to have been produced by an unusually dense concentration of metal artifacts in this unit. The first three levels contained over a kilogram of mixed metal with most of the material (539 g) coming from Level 3 at 20 to 30 cm B.S. These would certainly account for the magnetic anomaly and were apparently deposited densely enough to produce a strong radar reflection. Although the results were somewhat disappointing, this unit (the eastern most excavated to date) did serve to confirm that features are rare or even absent east of the E 90 grid line.

Upper Mississippian Roasting Pit (Feature 10) (Unit E 81-83 N 93-95)

This unit was first opened in 2005 to excavate portions of Feature 10, an Upper Mississippian roasting pit that was first identified in 2004 (Schurr 2006). This part of the site was formerly occupied by a garage with a concrete floor. The concrete was removed in 2005 and grass had yet to fully re-establish itself in the area of the former pad so sod stripping was not necessary. The first three levels consisted of loose sand which was removed and the floor was then trowelled to define the limits of Feature 10 (Figure 11). The southwest quadrant of the feature had been excavated in 2003 and 2004. An additional dark stain with fragments of bone and charcoal was also seen in the Level 3 floor to the northwest of Feature 10 and this was defined as Feature 18.

By the end of the 2007 season, Features 10 and 18 were completely excavated. While both were somewhat amorphous when first defined, they quickly resolved to well-defined circular pits, shown very well on the Level 7 floor map (Figure 12). Feature 10 is thought to have been a pit used to roast water lotus tubers, based on its similarity with pits at the Griesmer site that have been interpreted as having been used for that purpose (Faulkner 1972). Feature 18 appears to have had the same function. It was also a circular, straight sided pit with evidence of in situ burning, especially near its base (Figure 13). Feature 10 had a diameter of approximately 145 cm to 60 cm B.S. when the walls began to taper inward to produce a bottom diameter of about 120 cm at 96 cm B.S. Feature 18 was slightly smaller with a diameter of 90 cm and a maximum depth of 92 cm.



Figure 11. Unit E 81-83 N 93-95 Level 3 Floor.



Figure 12. Unit E 81-83 N 93-95 Level 7 Floor.



Figure 13. Feature 18.

Riverbank Test Unit (E 66-68 N 75-76)

Unit E 66-68 N 75-76 was excavated during the 2008 season to test the deposits near the riverbank in a portion of the site that had not been examined by geophysical surveys. The unit was excavated mainly using arbitrary levels with different soil zones mapped as they appeared. The ground surface had a significant downward slope from east to west so that the surface at the eastern end of the unit was about 25 cm higher in elevation than that at the western end. The use of arbitrary levels and zones made it possible to maintain a level excavation floor in this test unit. By Level 4 (40 cm B.S. measured from the highest corner at the surface), the soil across the unit was a relatively consistent light-colored sand that looked similar to the subsoil in other portions of the site. Level 5 had the same appearance so it seemed possible that the subsoil had been reached in this unit, although a few small prehistoric artifacts were found in Level 5. In order to determine whether the unit was nearing sterile soil, a soil probe was used to take cores from below the Level 5 floor. A core from the eastern end of the unit quickly demonstrated that there were additional archaeological deposits below Level 5 (the Level 5 floor was at about 60 cm B.S.). A stratum of dark soil, similar in color and texture to the topsoil (O horizon) was found 6 cm below the floor (extending to 66 cm B.S.). This stratum was 45 cm thick (extending to about 111 cm B.S.), indicating substantial soil development or topsoil deposition had occurred here at some time. The dark topsoil lay over a lighter B horizon that extended to 76 cm below the floor (the maximum depth that could be probed, 116 cm B.S. below the Level 5 floor).

The dark topsoil stratum was reached in Level 6 as expected. Five additional levels were excavated in the unit (through Level 11) but these were confined to the eastern half of the unit to make a deeper test possible in the limited time available. The excavations showed that the buried topsoil horizon contained a mix of prehistoric and historic artifacts, so that it must have represented the ground surface during the historic period. Small patches of lighter sand appeared in the floor of Level 11 at 70 cm B.S. at the east end of the unit. Soil cores from the Level 11 floor (at about 120 cm B.S.) showed that the O horizon continued for another 25 cm below the floor, and that it was followed by a B horizon continuing to about 47 cm below the floor, followed by sandier soil until the maximum probe depth was reached at about 90 cm below the Level 11 floor (down to a total depth of about 210 cm B.S.).

The results of the riverbank test unit were entirely unexpected. Figure 14 shows the soil profile at the eastern end of the unit. There is a substantial buried soil horizon in this portion of the site that is much thicker than the topsoil in the portions of the site that have been investigated to the east. Historic artifacts within the buried horizon included a crushed steel Budweiser beer can that had been opened with a church key opener. The combination of the steel can and the opening method indicate a date sometime between World War II and the early 1960s (Maxwell 1993). The can suggests that the buried horizon was at the surface within the last half century. It is not clear how the stratum

came to be buried. The layer of relatively sterile light sandy soil between the surface topsoil and the buried O horizon contained some large shells, so it is possible that the sandy soil was dredged from the river bed to the west of the unit. It could also have been redeposited from eastern portions of the site, for example, if the higher portions of the site eroded or were graded. This would be consistent with the historic artifacts present in the sandy soil. It is possible the microstratigraphic analysis of the soil horizons could provide more information about how they were formed. Future excavations or coring to the east and west to determine how the buried O horizon relates to the surface of the site to the east and to the riverbank could also help determine how this horizon was formed and buried.

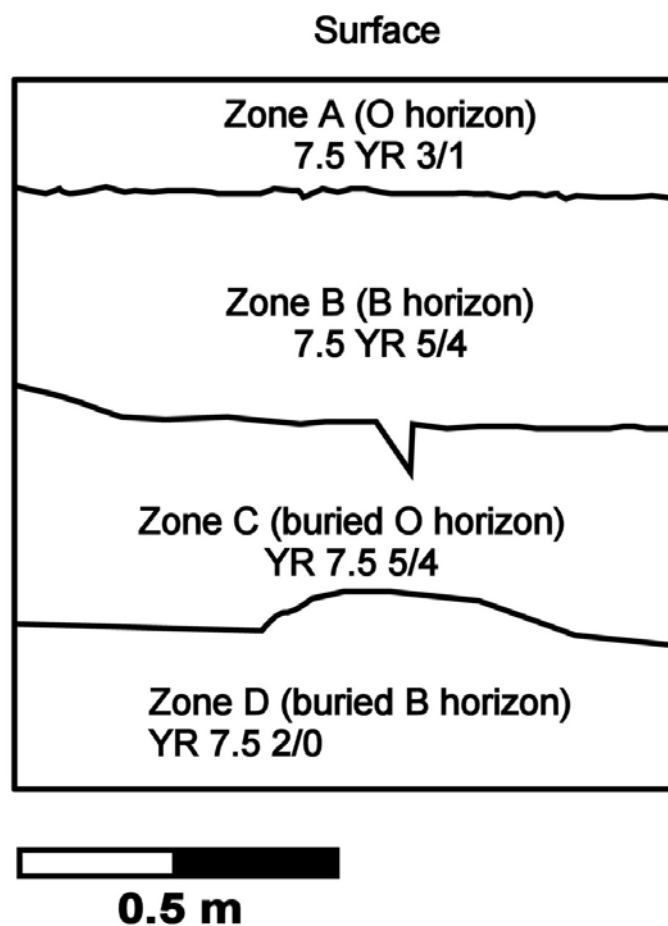


Figure 14. Unit E 66-68 N 75-76 East Wall Map.

Fur Processing Feature (Features 17 and 20) and Deep Test (Unit E 91-93 N 74-76)

In 2006, Unit E 91-93 N 74-76 was opened to conduct an additional deep test adjacent to Unit E 90-92 N 75-77. The complete excavation of Unit E 90-92 N 75-77 has been described in an earlier report (Schurr 2006), but in summary, this unit produced cultural material to a depth of about 118 cm B.S. The lowest levels of the unit produced two fragments of a large bust-type birdstone. The north wall of this unit provided good information about the general stratigraphy in this portion of the site but the other walls were either damaged by inexperienced excavators or by a ground hog that burrowed into the unit near the floor in 2005. The 2006 unit had two purposes: to provide a better and clearer record of the stratigraphy in this portion of the site and to search for additional evidence of Late Archaic occupations that would have been coeval with the birdstone, and perhaps even additional fragments of this unusual artifact. Excavation of the unit required two seasons. Levels 1 through 6 were excavated in 2006 and Levels 7 through 14 were completed in 2007.

Excavation began by stripping off the sod, leveling the floor, and then removing each level in turn by shovel shaving. A high concentration of bone was noted in the screen in Level 5. The floor was trowelled and two different bone concentrations were identified and assigned feature numbers (Features 17 and 20, Figure 15). It is possible that the bone concentration was actually continuous and that the bone fragments in the screen came from the area between the features. It is also likely that the feature extended all the way to the west side of the unit, based on bone fragments seen in the unit's southern wall. The features were excavated by hand, mapped, with piece plotting of larger bone fragments and artifacts. Both features were primarily composed of bone fragments, but Feature 17 also contained a sherd from a hand-painted pearlware bowl. Hand-painted pearlware was in popular use between about A.D. 1805-1850 (Schurr 2006), indicating that the features probably dated to the Pioneer-era occupation of the site. It was obvious in the field that the bones and bone fragments from the features were somewhat unusual, especially as they represented a large number of fur bearing animals including raccoon, muskrat, beaver, and mink. It is very likely that this feature extends to the south of the excavation units.

If the attribution of the bone concentration features to the Pioneer-era occupation is correct, it is very likely that these are evidence that Sherwood or Eaton, the first known Euroamerican occupants of the site, were supplementing the income they received from running a ferry by furring. The common conception of the first pioneers of northern Indiana is that of the yeoman farmer – a homesteader whose main goal was to clear the trees from the land and convert the landscape from a wild one to one of orderly cultivation. The activities of first Euroamerican occupants of this site show that some early settlers of the Kankakee practiced a much more mixed economy that combined agriculture with other activities that made use of the many resources of the natural environment.

After removal of the features, excavation of the unit continued by levels, documenting features as they were encountered. Feature 24 was defined as a small semi-circular charcoal stain against the east wall of the unit in the Level 5 floor (Figure 16). It lay under Feature 20 and extended into the east wall. It contained many small roots and may have been a rodent or root run that penetrated through Feature 20 and was probably non-cultural.

Level 9 produced a piece of what appeared to be burned galena, a lead ore that was used as pigment prehistorically or smelted to create lead during the historic period. The soil in the Level 9 floor was unusually reddened, especially in the southwest corner where the galena was found. The soil became a bit more mottled with sand through the level, suggesting that culturally sterile levels were being approached. The base of Level 10 was very sandy and contained one amorphous stain (Feature 27) that consisted of a darker sandy core with charcoal flecks surrounded by a mottled halo. It was probably a rodent burrow or other natural feature. It disappeared quickly and did not persist into the next level.

Excavation continued through Level 14 to an average depth of 150 cm B.S. The south wall of the unit provided the best record of the unit's stratigraphy. As shown in Figure 17, about 20 cm of very dark topsoil formed the top stratum. Some portions of this stratum near the surface had been disturbed during backfilling in the previous season. The disturbed areas had been refilled with mixed backfill. Dark soil with abundant charcoal flecks lay immediately below the topsoil. This was the stratum that contained Features 17 and 20 and appears to be an historic period midden. Two reddened strata, perhaps indicative of burning, lay below the historic midden. The upper reddened stratum was heavily marbled with dark soil. It did not extend across the entire unit. It was superimposed on the lower reddened stratum which also contained some dark mottling, but not nearly as much as the upper reddened stratum. The eastern side of the unit contained a marbled zone of gradual transition from the reddened soils to the culturally sterile subsoil. A band of dark brownish soil with FCR and charcoal flecks was positioned just above the subsoil in the eastern end of the unit. The western unit wall shows this same soil zone (Figure 18). It may have been some kind of large deep prehistoric pit feature, but it unfortunately was not visible in plan view and its contents were not segregated during excavation. The stratum contained many root intrusions that may have blurred its boundaries. A large rodent hole or root run is visible in the western wall at the junction of the subsoil and the base of the midden. This is the same depth as the ground hog hole that disturbed Unit E 90-92 N 75-77 to the east in 2005 and may even be part of the same groundhog's tunnel system. The west wall contains two small lenses of reddish sandy soil that may indicate burning episodes.

The depositional processes that produced such deep units with cultural material appearing as deep as 150 cm B.S. are not entirely clear. There does not appear to be any evidence of discrete alluvial events or other types of deposition throughout the profile. Perhaps a combination of deep prehistoric pits that are difficult to see in the easily leached sandy soils and bioturbation are responsible for the deep deposits. In the future,

it would be helpful to have the assistance of a soil scientist to learn more about how the archaeological deposits in this portion of the site were formed.



Figure 15. Feature 17 with Pearlware Sherd.

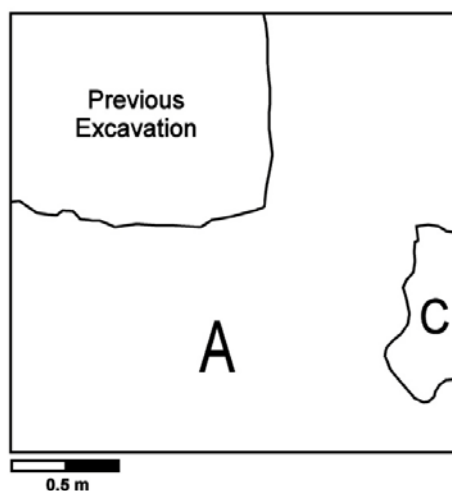


Figure 16. Unit E 91-93 N 74-76 Level 5 Floor. Zone A is strong brown (7.5 YR 5/6) loamy sand mottled with very dark gray (7.5 YR 3.1) and dark brown (7.5 YR 3/2) patches. Zone C is a patch of very dark gray (7.5 YR 3.1) sandy soil mottled with some strong brown (7.5 YR 3/1) patches.

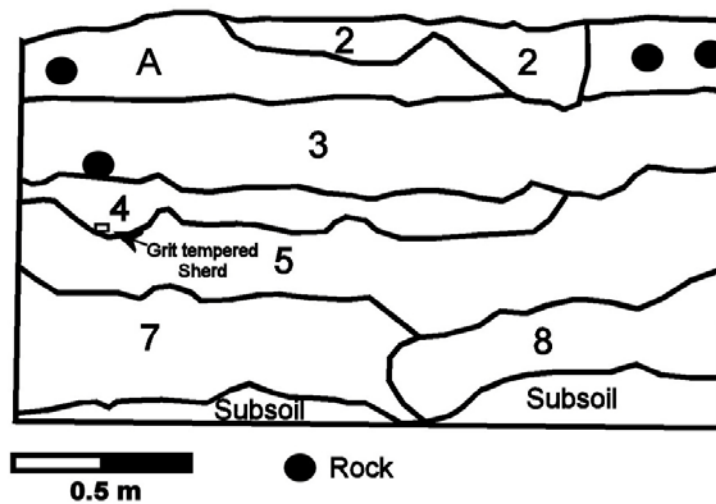


Figure 17. Unit E 91-93 N 74-76 South Wall Map.

- A. Topsoil, black (7.5 YR 2/1).
- 2. Dark grayish brown (10 YR 4/2) soil disturbed by backfilling in 2007.
- 3. Very dark brown (7.5 YR 2/2) with abundant charcoal flecks.
- 4. Dark brown (7.5 YR 3/2) marbled with reddish (5 YR 4/4) soil containing prehistoric artifacts (midden zone).
- 5. Reddish soil (5 YR 4/4) with some darker mottling (5 YR 3/2).
- 7. Mainly brown (7.5 YR 4/4) marbled transition zone from Stratum 5 to Subsoil.
- 8. Dark grayish brown (10 YR 4/2) with some FCR and charcoal flecks, many small root intrusions.
- Subsoil. Yellowish brown (10 YR 5/6) sand, relatively light in color, culturally sterile.

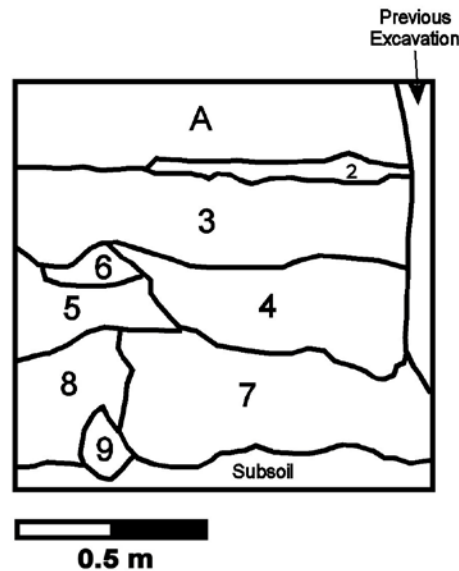


Figure 18. Unit E 91-93 N 74-76 West Wall Map.

- A. Topsoil, black (7.5 YR 2/1).
- 2. Light grayish brown (10 YR 6/2) sandy lens with some marbling of darker Zone A.
- 3. Very dark brown (7.5 YR 2/2) with abundant charcoal flecks.
- 4. Dark brown (7.5 YR 3/2) marbled with reddish (5 YR 4/4) soil containing prehistoric artifacts (midden zone).
- 5. Reddish soil (5 YR 4/4) with some darker mottling (5 YR 3/2).
- 6. Very reddish orange soil (2.5 YR 4/6) with some dark mottling from roots.
- 7. Mainly brown (7.5 YR 4/4) marbled transition zone from Stratum 5 to Subsoil.
- 8. Dark grayish brown (10 YR 4/2) with some FCR and charcoal flecks, many small root intrusions.
- 9. Dark yellowish brown (10 YR 4/3) soil, probably an infilled root run or rodent hole (diameter similar to that of a groundhog hole).
- Subsoil. Yellowish brown (10 YR 5/6) sand, relatively light in color, culturally sterile.

Searching for Post Molds South of the Brick Hearth (Feature 1) (Unit E 81-82 N 78-80)

Unit E 81-82 N 78-80 was opened in 2006 to search for additional large post molds associated with those documented in 2004 and 2005. A row of four sticks that were roughly upright were found extending from just below the sod to the base of Level 3. Two of the sticks had been propped up with rocks (Figure 19). One of these rock clusters was described as Feature 15 when it was first defined in Level 2. The sticks had not been placed very deeply into the soil and apparently only their bottom portions were preserved, with the portions protruding above the surface having rotted away. The sticks were not placed deeply enough within the soil to have supported anything very substantial. A likely explanation for them is that they were beanpoles or stakes for some

other type of plant, and that a garden was once located in this part of the site.

By the floor of Level 5, Feature 13 (the presumed postmold that was effectively cross-sectioned in the north wall of the unit) was not yet visible in plan against the dark soil that covered most of the unit. Feature 19, defined as a square of darker soil at 46 cm B.S. in Level 5, was present in the southwest corner (Figure 20). It was thought to be another large postmold. By Level 6 it was redefined as a semicircular feature against the south wall. Both features were visible in plan in the Level 6 floor (Figure 21).

Feature 13 was a circular pit consistent with a postmold or post pit that was isolated against sterile subsoil. However, Feature 19 was surrounded by soil zones containing flecks of charcoal and fragments of bone and shell, mapped as separate zones from Feature 19 in Levels 6 and 7. The various zones surrounding Feature 19 were excavated and screened separately and the feature lost definition and disappeared by the base of Level 8 (Figure 22). Feature 19 and the zones surrounding it were clearly visible in profile in the unit walls and it became obvious during Level 8 that southern end of the unit contained an Upper Mississippian roasting pit redefined as Feature 26. The feature had a well-defined circular shape approximately 100 cm in diameter by the floor of Level 9 when it could be clearly seen against subsoil. The feature was cross-sectioned along its east/west axis and both halves were taken out separately in three levels (Levels 9-11). The base of the feature was at 112 cm B.S. The base of the feature was defined by stratum of reddened sand with a charcoal lens at the interface between the bottom of the feature and the subsoil. The feature was visible in the south wall (Figure 23), where various lenses represent individual fill deposits that were marked as zones surrounding Feature 19 before Feature 26 was defined. Feature 19 appears to have been a darker fill episode within Feature 26. The east wall of the unit also shows Feature 26 in profile (Figure 24). Part of the topsoil stratum appears to intrude downward into the eastern edge of Feature 26, suggesting that a small pit (perhaps a postmold) may have intruded into the upper part of the feature during the historic period.



Figure 19. Unit E 81-82 N 78-80 Level 2 Floor.

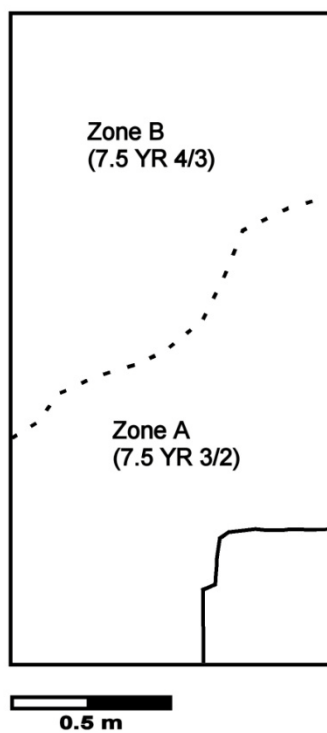


Figure 20. Unit E 81-82 N 78-80 Level 5 Floor.

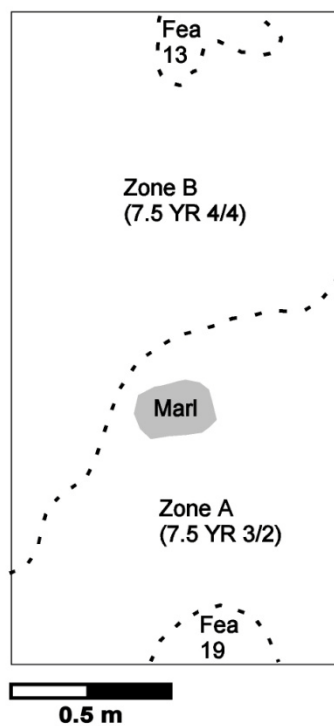


Figure 21. Unit E 81-82 N 78-80 Level 6 Floor.

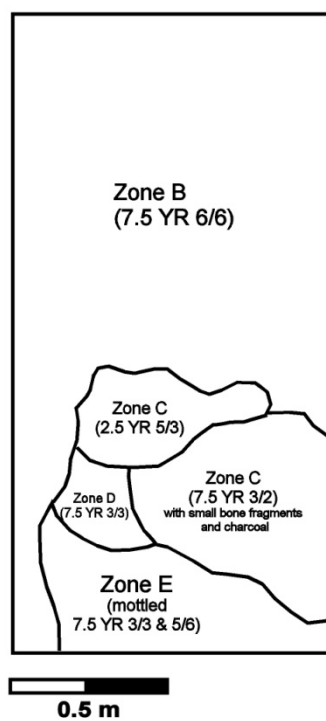


Figure 22. Unit E 81-82 N 78-80 Level 8 Floor.



Figure 23. Unit E 81-82 N 78-80 South Wall.



Figure 24. Unit E 81-82 N 78-80 East Wall.

Searching for Post Molds North of the Brick Hearth (Feature 1) (Units E 81-82 N 82-84 and E 81-83 N 83-85)

Unit E 81-82 N 82-84 was opened in 2005 to search for post molds to the north of those found in 2004 and 2005. Five levels were excavated in 2005 but the unit was not completed that year. During 2005, the eastern edge of a deposit of late nineteenth century historic debris associated with Feature 1 (the brick hearth foundation) and a large post pit (Schurr 2006:36-37) were defined. The unit was re-opened in 2006 by removing backfill and re-establishing the 2005 floor. Excavation continued in levels by removing cultural zones containing primarily historic debris. By the floor of Level 6, two different soil zones were outlined against the lighter subsoil: a darker amorphous stain to the south and a better defined mixture of dark and reddened soil to the north (Figure 25) which was defined as Feature 16. Feature 16 was originally mapped as Zone I in the Level 5 Floor. At that time, it was thought that it might be another postmold. Level 7 was excavated to leave the north half of Feature 16 pedestaled so it could be seen in profile (Figure 26). It had a relatively flat bottom with a mottled transition to subsoil. It appeared to be some sort of amorphous lens of dark reddish soil when seen in profile in the north and east unit walls (see below). The pedestal at the northern end of the unit was not excavated by the end of the 2006 field season.

By Level 8 (Figure 27), Feature 16 had disappeared from the floor of the unit (except for where it was pedestaled against the north wall). A dark, roughly circular stain with uneven boundaries mapped as Zone P in the Level 7 floor resolved to a circular feature with charcoal and reddened soil, and was clearly another Upper Mississippian roasting pit (Feature 23). The feature was visible as such in the west profile wall for the unit where a portion of the feature extended into the wall (Figure 28, Zones 1 through 5). It was about 95 cm in diameter when first defined and contained a large piece of wood charcoal in Level 9 (Figure 29). Its maximum depth was about 95 cm B.S. At this point, the season ended and the unit was lined with plastic and backfilled.

The unit was opened once again for the final time at the start of the 2007 season. Excavation began by removing the back fill from Unit E 81-82 N 82-84, reestablishing the 2006 floor and walls, and completing the excavation of the small pedestal of soil left against the north end of the unit in 2006. The pedestal was excavated very carefully to investigate Feature 16 and the reddish Zone Q that bordered it on the west. In the portion of the pedestal corresponding to Level 7, Zone Q produced some historic material, suggesting it was a historic period disturbance. Feature 16 contained numerous rodent runs, also consistent with disturbed soil. The rodent runs made it difficult to determine the relationships of the various soil zones. The remainder of the unit was excavated to the base of Level 10 when subsoil first covered the entire unit floor.

Based on the north and east profile walls (Figures 30 and 31), Feature 16 was an irregular lens of dark, sandy soil capped by a slightly lighter colored lens (Zone I) and bordered by soil zones that seemed to indicate some disturbance had occurred near it.

The boundaries of the different soil zones were not sharply defined. The feature may have been some kind of prehistoric pit that was later disturbed during the historic period. Its function is unknown. The feature contained very little cultural material: only one small cut nail fragment and two chert flakes.

Unit E 81-83 N 83-85 was opened in 2007 to continue the search for postmolds to the north of Feature 1 and to try to better understand Feature 16 (the southwest quarter of this unit was already excavated as the north half of E 81-82 N 82-84). Excavation began with the normal sod stripping and shovel scraping. Several soil zones were mapped in the floor of Level 3. Two of these were against each of the eastern corners of the unit and contained very dark soil. A small sandy patch was present in the northwest corner with another one was located between the two dark zones. Excavation then concentrated on isolating each of the zones with trowelling at every level to better define them. This unit was unfortunately plagued by slumps along its west edge, with soil collapsing into the open Unit E 81-82 N 82-84 that comprised the southwest corner of the unit. The soil labeled Zone C in the Level 3 floor was very poorly consolidated, which could indicate that it had been disturbed in the past. That would be consistent with the idea that Feature 16 was some type of intrusive pit because the collapses occurred right over the feature. However, the soil was also unusually dry in 2007 so that it may also have been that the sandy soil was so dry that it had poor cohesion.

Excavation of this unit was abandoned at the base of Level 5 at a depth of 27 cm B.S. because of the caving soils. By the floor of Level 5 (Figure 32), the dark zone had disappeared from the southeast corner of the unit, but the one in the northern corner (Zone D1) was still present. It had produced bone fragments in previous levels. Both sandy patches also persisted in the floor. The walls in the northwestern corner of the unit (Figure 33) show that the sandy area in the northwest corner was probably the eastern edge of some kind of feature with lensed fill that sloped to the west, suggesting that more of the feature continued in that direction.

A soil probe placed into the dark stain against the north wall (Zone D1) showed 21 cm of light brown midden below the Level 5 floor, grading to slightly lighter midden soil down to 40 cm. Red soil mottled with black charcoal was found between 40 – 48 cm, which lay over light sand to a depth of 70 cm below the Level 5 floor (a total depth of 97 cm B.S.). Based on the reddened soil at the bottom of the core, a likely interpretation for the dark zone is that it represents the upper fill of another Upper Mississippian roasting pit. This was confirmed later (see below). After the probing, the unit walls and floor were covered with plastic and the unit was backfilled by filling in the excavated area to the west and then completely refilling the rest of the unit to prevent any additional slumping.



Figure 25. Unit E 81-82 N 82-84 Level 6 Floor.



Figure 26. Unit E 81-82 N 82-84 Pedestal Profile.

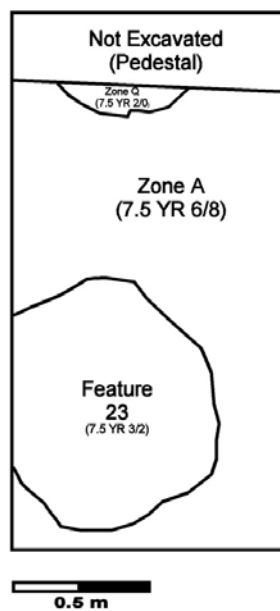


Figure 27. Unit E 81-82 N 82 – 84 Level 8 Floor.



Figure 28. Exposing a Large Piece of Wood Charcoal in Feature 23.

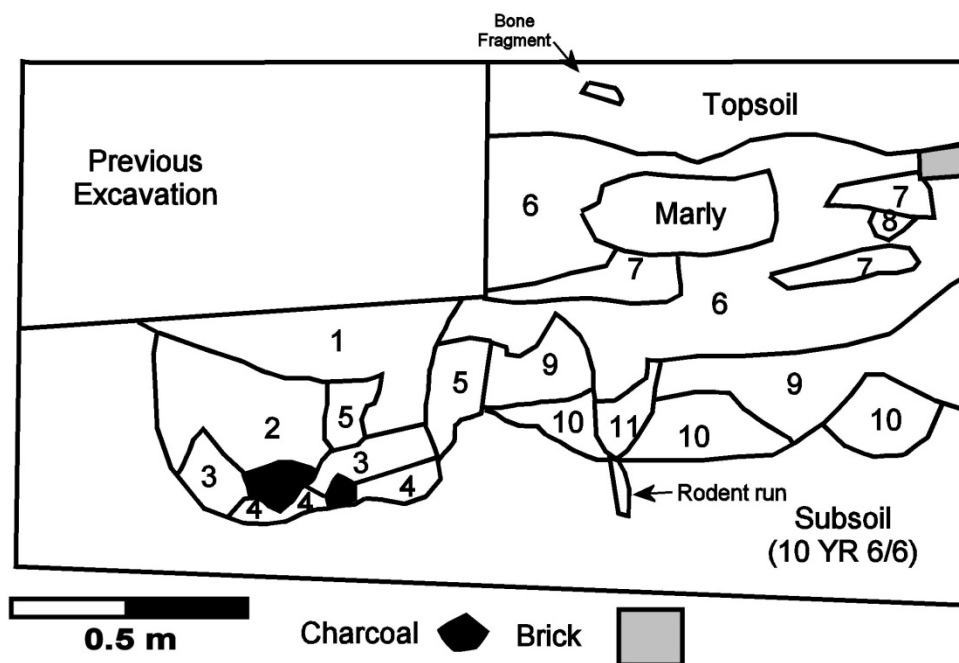


Figure 29. Unit E 81-82 N 82-84 West Wall Map (Feature 23 is shown by Zones 1-5).

Topsoil. 5 YR 3/1

1. (7.5 YR 3/2) with very small flecks of brick and mortar.

Feature 23:

2. (7.5 YR 4/3) marbled soil, appears very mixed.

3. (10 YR 6/6) light sand, similar to subsoil, with (2.5 YR 4/8) marbling similar to Zone 4.

4. (2.5 YR 4/8) sand.

5. (7.5 YR 4/4) sand.

Historically Disturbed Zones:

6. Marbled (10 YR 3/1) with coal fragments.

7. Zone 6 mixed with light (10 YR 6/6) sand.

8. Zone 7 mixed with charcoal flecks.

9. Sandy (10 YR 4/3) with dark mottling, probably the original B horizon.

10. Transitional zone of gradation between Zone 9 and sandy (10 YR 6/6) subsoil, lower portion of the B horizon.

11. Similar in appearance to Zone 9 but with more intense dark mottling, probably a rodent or root run.

Subsoil. (10 YR 6/6) light sand, culturally sterile.

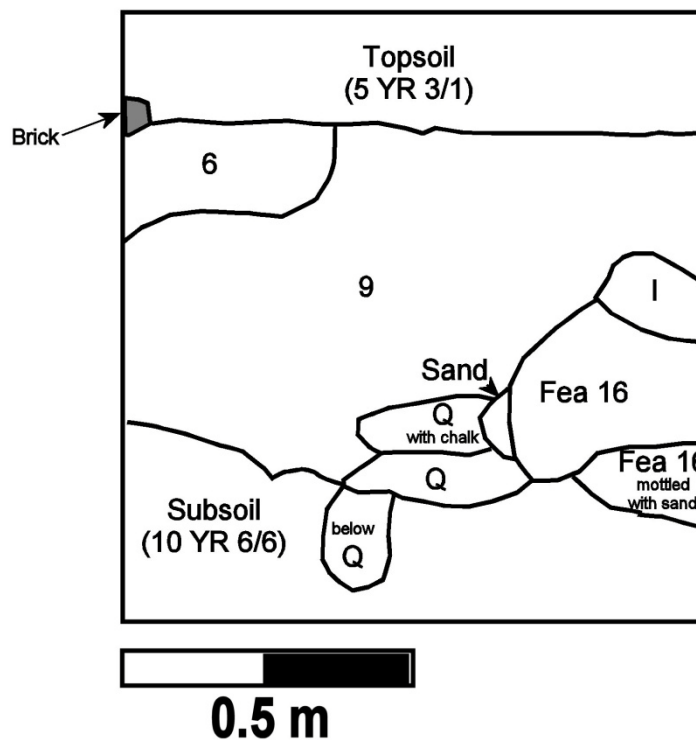


Figure 28. Unit E 81-82 N 82-84 North Wall Map.

Topsoil, very dark gray (5 YR 3/1).

6. Marbled very dark gray (10 YR 3/1) soil with coal fragments and abundant mortar flecks.
 9. Sandy brown to dark brown (10 YR 4/3) with dark mottling, probably the original B horizon.

Feature 16: black (7.5 YR 2/0), sandy soil. "Fea 16 mottled with sand" appears to be the same soil as Feature 16 mixed with sandy brownish yellow (10 YR 6/6) subsoil.

Q. Similar color to Zone 9 but slightly darker (very dark brown, 7.5 YR 2.5/3) and not as dark as Feature 16. Mottled with lighter brownish yellow (10 YR 6/6) sand. "Q with Chalk" appears similar to Q but contains fragments of what appear to be chalk.

Below Q: Q mottled with sand, probably a rodent run or burrow.

I. Homogeneous dark brown (7.5 YR 3/2) sandy loam.

Subsoil. Brownish yellow (10 YR 6/6) light sand, culturally sterile.

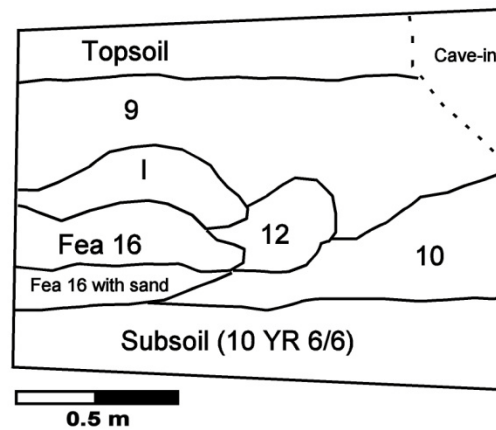


Figure 29. Unit E 81-82 N 82-84 East Wall Map.

Topsoil, very dark gray (5 YR 3/1)

Cave-in. Collapsed portion of the profile from poorly consolidated deposits.

9. Sandy brown to dark brown (10 YR 4/3) with dark mottling, probably the original B horizon.

10. Soil transitional between Zone 9 and subsoil, grading between the two zones.

12. Zone I or Feature 16 mottled with yellowish brown (10 YR 6/6) sand.

Feature 16: very dark brown (7.5 YR 2/2), relatively dark soil, sandy. "Fea 16 with sand" appears to be the same soil as Feature 16 mixed with sandy subsoil.

I. Homogeneous dark brown (7.5 YR 3/2) sandy loam.

Subsoil. Brownish yellow (10 YR 6/6) light sand, culturally sterile.

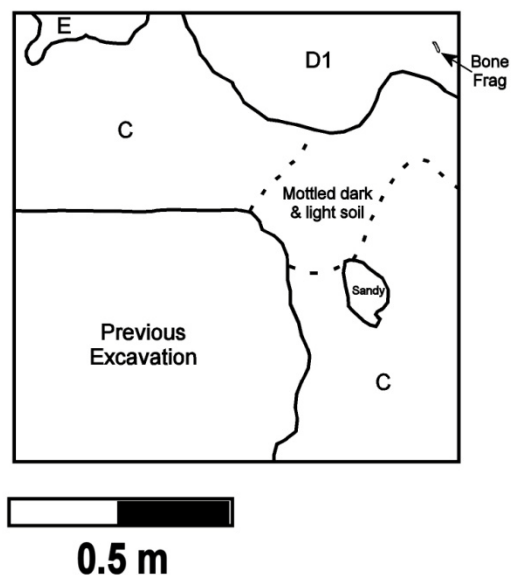


Figure 30. Unit E 81-83 N 83-85 Level 5 Floor.

- C. Very dark grayish brown (10 YR 3/2) soil with a poorly defined patch mottled with some light sand and darker soil. This appears to be the general midden layer. Contains a prominent area of yellowish brown (10 YR 6/6) sand on the edge of the poorly defined mixed soils.
- D1. Very dark gray (7.5 YR 3/0) sandy soil mottled with very dark grayish brown (10 YR 3/2) soil that appears similar to Zone C. Contains isolated mammal bone fragments.
- E. Reddish yellow (7.5 YR 7/6) very light, heavily mottled sandy soil that appears to have been redeposited from elsewhere.



Figure 31. Unit E 81-83 N 83-85 West Wall.

The Rock-Lined Roasting Pit (Feature 21) and the Discovery of Feature 25 (presumed cellar) (Unit E 79-80 N 83-85)

This unit was opened in 2006 to determine the diameter of Feature 21, a rock-lined roasting pit that was first identified in 2005 (Schurr, 2006:29-32). It required two years to complete and was the most complex unit encountered up to that time, although that complexity was not truly recognized until after the unit was completed and the walls were exposed. Four levels were completed in 2006 when the northern extent of the feature was defined. The feature fill in Level 4 consisted of very dark soil that contained several large bone fragments. By the base of Level 4 (Figure 34), the feature consisted of a central circular area of very dark soil with abundant charcoal fragments surrounded by a halo of dark reddish brown soil which stood out against a matrix of lighter sandy soil. The northern half of Level 4 was not excavated in 2006. The floor and walls of the unit were covered with 6 mil black poly and backfilled at the end of the 2006 season.

The 2007 excavations began by removing the back dirt and the black poly and re-troweling the floor. Excavation then continued in features and zones. Feature 21 was

well defined in the floor of Level 5 (Figure 35) and a new feature (Feature 25) was defined at the northern end of the unit. Feature 25 was a well-defined band of medium brown sandy soil that was bordered by a broad band of light, marbled soil to the south (Zone A). Feature 25 was about 15 cm wide and its southern edge was roughly parallel to the north wall of the unit, as was the southern edge of Zone A. The same zones persisted through Level 7.

An area of reddened sand below Feature 21 was initially thought to be a remnant of the overlaying feature. Although this may have indeed been the case, as excavation proceeded, it became clear that there was another feature under Feature 21. The new feature was clearly visible in profile in the west wall. It proved to be yet another Upper Mississippian roasting pit (Feature 28) with a diameter greater than 100 cm and maximum depth of about 100 cm. Feature 21 had been super-imposed upon Feature 28.

By the base of Level 10, most of the unit contained subsoil, so further excavations were confined to the northern half of the unit. Feature 25 persisted through Level 14 (at 139 cm B.S.). It was visible in the west and east walls (Figures 36-39) as a straight-sided feature with a vertical wall, except at the bottom where it seemed to bell out slightly at its base. However, the feature did not have a well defined base and faded into the subsoil. In the north wall of the unit, it was clearly visible as a sequence of stratified deposits approximately 135 cm deep (Figures 40 and 41). Its portion in the northeast corner of the unit had been disturbed by shovel probe E 80 N 85 excavated in 2004.

Feature 25 contained evidence of what appeared to be at least eight different fill episodes (Figures 40 and 41). The top layer consisted of dark topsoil overlaying a slightly lighter reddish soil, which in turn lay over darker soil (similar in appearance to the topsoil, but flecked with mortar and coal or charcoal). These in turn lay over a discontinuous stratum of brick fragments embedded in a matrix of soil flecked with mortar, coal and charcoal. Some of the brick fragments appeared to dip downward to the north. The flecks of coal or charcoal were concentrated along the bottom of the stratum. The brick fragment stratum lay over a relatively thin (10 cm) layer of medium brown sandy soil, which in turn lay over a layer of much lighter sand of similar thickness. Both of these strata contained isolated large brick fragments. The sandy stratum had a very uneven bottom, probably due to rodent burrows. It lay over a poorly defined lens of darker, mottled soil in the eastern portion of the profile and directly over a stratum of medium brown sandy soil on the west. The medium brown soil stratum is the next to last one in the unit. It was relatively homogeneous. The final stratum was a banded and marbled mixture of very light sand and dark soil about 20 cm thick that marked the bottom of the feature.

The west and east walls of the unit south of Feature 25 were different in appearance. In the east wall, Feature 25 was bordered by what appeared to be a large pit with a sloped side and filled with light sand with darker bands that dipped toward the north. The edge of the pit was a well-defined band of reddish-brown soil with at least one very straight edge cut. The lighter sand of the presumptive large pit was overlain by

a slightly darker zone mottled soil that could represent a shallow intrusive pit into the larger one (with a flat bottom and relative straight sides) or could be another fill episode of the presumptive large pit with slightly different soil, deposited on a level surface. These soil contexts were overlain by a band of dark soil that could be contiguous with the soil fill of Feature 21 (the roasting pit) and then by a sandy layer with mortar flecks and topsoil that form the final deposits post-dating Feature 25.

The banded light sandy soil of the presumptive large pit is also present in the west wall of the unit, but only as a thick lens. The lens was below the historic topsoil layer (the last layer deposited). Unlike the case in the east wall, the lighter banded sand lies over a very complexly mottled zone of darker soil which also has the shape of a large pit with rounded walls (very similar in appearance to the light banded soil in the east wall). The mottling of the darker zone is largely the product of biological activity (rodents, roots, insects, etc.). Its outer margin is not well defined, and in many respects, the degree of bioturbation (disturbance by biological processes) appears very similar to that visible in the profile of the Upper Mississippian roasting pit in the same unit (Feature 28), suggesting a similar age for both soil zones. One possible interpretation is that the mottled darker soil zone was some kind of prehistoric pit that was later disturbed (by the presumptive large pit). On the other hand, a brick fragment that appears to be embedded in the darker, complexly mottled zone could indicate that this zone is historic and that the bioturbation evidence is being misread. In both walls of the unit, these various soil zones are crosscut by the deeply stratified Feature 25, showing that it post-dates the presumptive large pit and is the latest feature in the unit (except for the shovel probe from 2004).

The exact sequence of events that produced the deposits in this unit was not completely understood in 2007 because most of the features and zones are so large that they were not completely exposed in the unit. For example, a soil very similar to the lighter banded soil of the presumptive large pit was found in the northwest corner of Unit E 81-83 N 83-85 (see above). If these two soils are part of the same pit, it would be a very large pit indeed, having a diameter of greater than 2 m.

In summary, at the end of the 2007 season, it was concluded that Upper Mississippian people constructed and used a roasting pit here and, at some later time, someone else used a rock lined roasting pit on the same spot. The time gap between the two features may be relatively short, as a partially filled Upper Mississippian roasting pit would make a very convenient basin for a rock lined roasting pit. Upper Mississippians may have also excavated a pit to the north of the roasting pit that was then filled with mottled soil. At some later date, a very large pit was dug in the northern half of the unit which was backfilled primarily with sandy soil. It is also possible that the mottled soil is part of the same large, later pit. A straight-sided pit was dug during the historic period, which was then filled in several episodes or in one episode with several different types of soil. And finally, the area was no longer disturbed so that a layer of topsoil could develop.

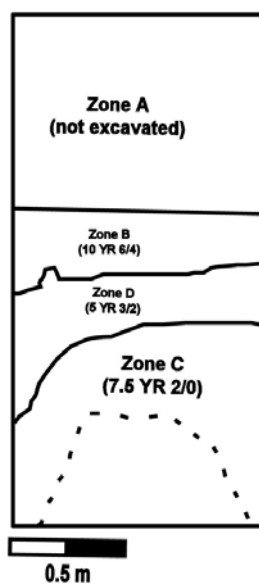


Figure 32. Unit E 79-80 N 83-85 Level 4 Floor. (Dotted line within Zone C shows where Feature 21 was defined in 2007).

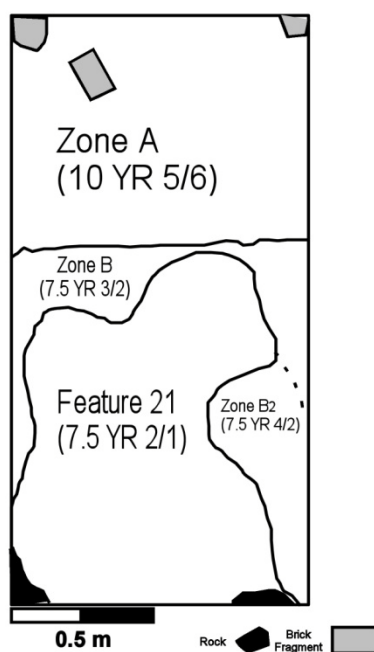


Figure 33. Unit E 79-80 N 83-85 Level 5 Floor.



Figure 34. Unit E 79-80 N 83-85 West Wall.

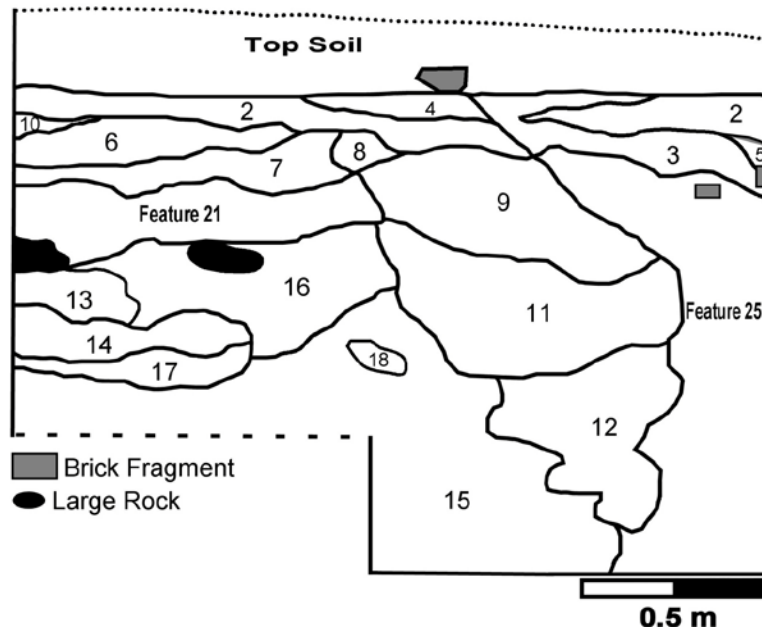


Figure 35. Unit E 79-80 N 83-85 West Wall Map.

Topsoil. Very dark gray (10 YR 3/1) sandy loam.

2. Dark gray (5 YR 4/1) soil with small fragments of mortar.
3. Dark gray (5 YR 4/1) soil, distinguished from 2 by more brick fragments.
4. Dark brown to brown (10 YR 4/3) mottled soil.
5. Yellowish red (5 YR 5/6) lens of burnt soil or degraded brick.
6. Black (10 YR 2/1) mixture of charcoal and FCR fragments with ash.
7. Reddish gray (5 YR 5/2) burnt soil.
8. Mixture of very pale brown (10 YR 7/4) and very dark grayish brown (10 YR 3/2) soil, probably a rodent hole.
9. Yellow sandy soil (10 YR 7/6) with numerous darker root and animal burrow traces.
10. Very dark grayish brown (10 YR 3/2) soil mixed with daub fragments or flecks of clay.
11. Dark grayish brown soil (10 YR 4/2) with mottling similar to Feature 25.
12. Mottled mixture of light yellowish brown (10 YR 6/4) and very dark gray (10 YR 3/1) soils.

Feature 28:

13. Lens of reddish brown (5 YR 5/3) soil similar to 16 but more sandy.
14. Very dark gray (2.5 YR 3/1) ashy soil.
16. Dark reddish brown (5 YR 2.5/2) fire-reddened sand.
17. Mottled mixture of soil similar to 16 but with dense charcoal.
15. Brownish yellow (10 YR 6/6) very sand, culturally sterile soil, subsoil.
18. Very dark grayish brown (10 YR 3/2) soil, probably a rodent hole.



Figure 36. Unit E 79 -80 N 83-85 East Wall.

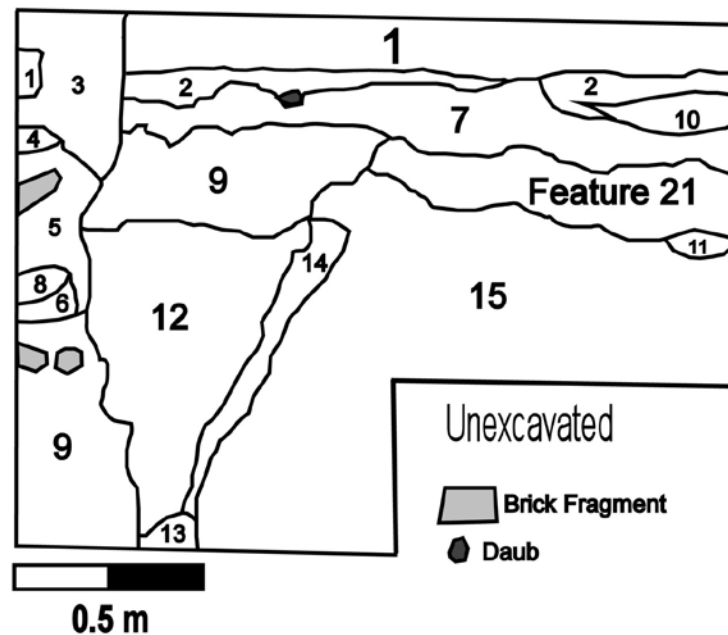


Figure 37. Unit E 79-80 N83-85 East Wall Map.

1. Very dark gray (10 YR 3/1) topsoil.
2. Mixed and marbled very dark grayish brown (10 YR 3/2) and dark yellowish brown (10 YR 4/4).

Shovel Probe E 80 N 85 from 2003:

3. Marbled grayish brown (10 YR 5/2) and very dark grayish brown (10 YR 3/2).
 4. Yellowish red (5 YR 4/6), burned soil or degraded brick.
 5. Brown (10 YR 5/3) slightly marbled soil, similar to 7.
 8. Yellowish brown (10 YR 5/4), light sandy soil with some darker marbling.
 6. Yellowish red (5 YR 4/6) soil with abundant large charcoal flecks.
 7. Brown (10 YR 5/3) slightly marbled soil
 9. Mottled mixture of brown (10 YR 5/3) and dark grayish brown (10 YR 4/2) soils.
- Feature 25: Brown to dark brown (10 YR 4/3) homogenous sandy soil with sparse brick and mortar fragments.
10. Very dark grayish brown (10 YR 3/2) soil mixed with daub fragments or flecks of clay.
- Feature 21: large fragments of FCR and charcoal in a very dark soil matrix, overall color a mix of black (10 YR 2/1) and very dark grayish brown (10 YR 3/2).
11. Relatively homogeneous grayish brown (10 YR 5/2) soil, probably a rodent run.
 12. Dark yellowish brown (10 YR 4/6) sandy soil with slightly darker bands of (10 YR 5/3) soil similar to 7, sloping downward to the north.
 13. Yellowish brown (5 YR 4/6) soil with charcoal flecks.
 14. Brown (10 YR 5/3) soil.
 15. Light yellowish brown (10 YR 6/4) culturally sterile sand (subsoil).



Figure 38. Unit E 79-80 N 83-85 North Wall.

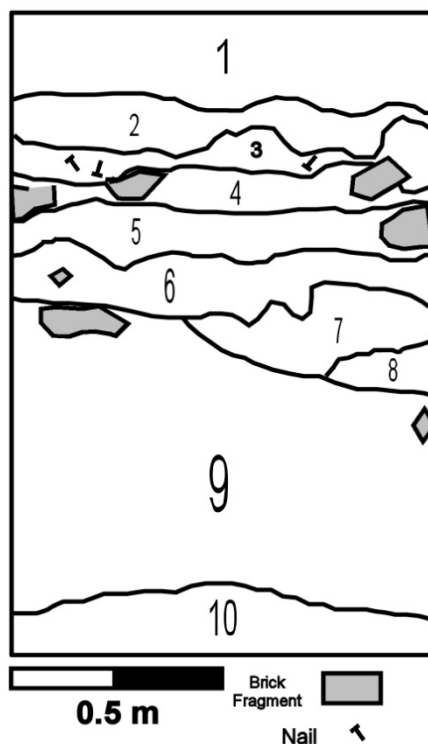


Figure 39. Unit E 79-80 N 83-85 Feature 25 Stratigraphy Map.

1. Very dark gray (10 YR 3/1) topsoil.
2. Mixed and marbled very dark grayish brown (10 YR 3/2) and dark yellowish brown (10 YR 4/4) soils.
3. Dark brown to brown (10 YR 4/3) soil with several cut iron nails in profile.
4. Very dark grayish brown (10 YR 4/2) marbled soil mixed with coal and charcoal fragments, and mortar or ash, especially on its lower margin. Contains large brick fragments
5. Very dark grayish brown (10 YR 4/2) soil, very similar to Stratum 3 but more homogeneous.
6. Primarily yellowish brown (10 YR 5/4) sandy soil with some darker patches similar to Zone 5. Superimposed on a large brick fragment on western edge.
7. Marbled mix of dark brown to brown (10 YR 4/3) and yellowish brown (10 YR 5/4) soils with poorly defined irregular borders.
8. Yellowish brown (10 YR 5/4), light sandy soil with some darker marbling.
9. Dark brown to brown (10 YR 4/3) homogenous sandy soil with sparse brick and mortar fragments.
10. Very mottled zone of brownish-yellow (10 YR 6/6) soil mixed with small charcoal fragments.

Exploration of Feature 25

Test for Northern Limit of the Deep Stratified Historic Pit (Feature 25) (Unit E 79-80 N 87-89)

In order to begin defining the limits of Feature 25 (the deep stratified historic pit), a one by two meter unit was opened two meters to the north of the unit where Feature 25 was first defined (Unit E 79-80 N 83-85). Five levels were excavated in the short time available until the end of the 2007 field season. Level 1 consisted of topsoil. Level 2 was also mainly topsoil, but with increasing concentrations of small fragments of decayed plaster or mortar. These were abundant by the base of the level. During the excavation of Level 3, an area of light yellowish soil that looked like decayed mortar or plaster appeared in the southwest corner of the unit and also in the southeast corner to a lesser extent. The appearance of the mortar concentration (defined as Feature 29) marked the bottom of Level 3 at 24 cm B.S. At this point, the unit contained the two relatively amorphous mortar/plaster zones at the southern end (Figure 42), with the most concentrated and well-defined plaster zone assigned to Feature 29. The rest of the unit was a mottled mixture of topsoil with poorly defined reddish zones, especially at the northern end.

By the end of Level 4, the mortar/plaster zones had disappeared. They were visible as thin lenses in the unit walls. During the excavation of Level 4, the screeners reported that they were finding brass straight pins. Samples of soil for water screening were taken from the mortar/plaster zone and the darker soil that comprised most of the level to better characterize the two zones and be certain which were producing the pins (although the darker soil of the general layer seemed the most likely candidate). Unfortunately, the water screeners were so excited to be trying something new that they ran off with the buckets before they could be properly tagged and water screened both of them together. This demonstrated a need for better tagging and inventory procedures for water screening samples in the future. The base of Level 4 contained a mixture of dark and reddish soil, but now the reddish soil was more prominent in the southern end.

Level 5 explained the reason for the reddish soil. Its base was defined when a continuous layer of what appeared to be decayed orange brick was reached. The elevation of the top of the decomposed brick (at grid elevation 100.116 m) was very similar to that of the upper brick layer shown in profile in the deeply stratified pit (Feature 25) two meters to the south. The floor of Level 5 was composed almost entirely of degraded brick fragments, except in the northeast corner where the brick layer may still continue but slope downward beneath the elevation of the floor (Figure 43). It is very likely that the brick layer is an extension of the upper brick stratum visible in profile in Feature 25 (Figures 40 and 41) as the tops of the strata are at very similar elevations and depths below surface. The brick stratum was later assigned to Feature 31.



Figure 40. Unit E 79-80 N 87-89 Level 3 Floor.



Figure 41. Unit E 79-80 N 87-89 Level 5 Floor.

Searching for the Western Edge of Feature 25

In order to search for the western edge of Feature 25, one unit (E 76-78 N 85-86) was partially excavated in 2008 and two units (E 77-78 N 83-85 and E 76-77 N 84-85) were excavated in 2009.

Unit E76-78 N 85-86 was placed at the southeast corner of the Lodge during the 2008 season to help determine the western extension of Feature 25. A galvanized iron water pipe and a concentration of brick fragments were in the floor of Level 2 (Figure 44). Numerous brick fragments were piece plotted through Level 3, suggesting that Feature 31 (the brick fill episode of Feature 25) extended at least this far to the east. The floor of Level 3 was relatively homogeneous dark topsoil and contained two large lead pipes that were part of the sewer system for the Lodge (Figure 45). The pipes passed through the western end of the unit so it was not clear if Feature 25 extended that far. The floor was mapped and then covered with black poly and backfilled after Level 3 was completed.

Unit E 77-78 N 83-85 began as two 1-x-1-m units (E 77-78 N 83-84 and E 77-78 N 84-85) that were combined after two levels were excavated in each unit as part of the search for the western edge of Feature 25 during the 2009 season. Beginning with Level 3, the unit was excavated as the 1-x-2-m unit E 77-78 N 83-85. The floor of Level 3 showed abundant construction debris (Figure 46), with brick fragments embedded in dark soil similar to the topsoil at the northern end of the unit, broken concrete blocks along its eastern edge, and a band of lighter sandy soil in the middle of the unit. The concrete and brick fragments in Level 4 were recorded on a Brick Record form (to record the coordinates, weight, measurable dimensions, and comments about each fragment) as the level was excavated. The construction debris diminished significantly by the base of Level 5 (Figure 47). The two lead pipes previously seen in Unit E 76-78 N 85-86 (immediately to the north) that were exposed during the 2008 season were found in Level 4 and are also depicted on the floor map. Level 4 continued the same basic soil patterns seen in Level 3: darker soils with construction debris at the northern end of the unit separated by a zone of light sand from a zone of dark soil at the southern end of the unit. The boundaries between the three soil zones were not sharply defined.

Brick fragments at the northern end of the unit persisted into Levels 5 through 7. By Level 7, it was clear that the brick fragments and the dark brown soil that they were embedded in were a westward extension of Feature 31 (the brick concentration within Feature 25). As shown in the Level 7 floor (Figure 48), the soil matrix of Feature 31 had a relatively straight southern edge at about grid coordinate N 84.55. It was bordered on the immediate south by a zone of yellowish brown sand. The darker soils in the southern half of the unit had resolved into a circular area of dark brown soil (Zone C) that contained a charcoal concentration and was bordered with reddened sand (Zone D). This soil pattern is characteristic of the Upper Mississippian roasting pits at the site, so Feature 40 was defined to organize the excavation of the remaining soils. The east wall of the unit (Figures 49 and 50) show the southern boundary of Feature 31 (the brick concentration) and the northern boundary of Feature 40 (the Upper Mississippian pit, Zone B). The later boundary was relatively indistinct. The southern boundary of

Feature 31 (at grid N 84.5) is slightly further south than the edge of Feature 25 as defined in Unit E 79-80 N 83-85 in 2007 (at grid N 84.75). This could indicate that the north-south axis of Feature 25 is inclined slightly to the west compared to the site grid. That would be consistent with the northern boundary of Feature 25 in E 79-80 N 89-91 (see below) which also seems to be angled slightly to the southwest.

The remainder of Feature 40 was excavated as part of a 1 x 1 m unit (E 77-78 N 83-84). The feature contents were troweled out and kept separate from the surrounding subsoil. The charcoal staining characteristic of the base of this type of feature persisted through Level 9 and disappeared within Level 10 (the last level excavated) at about 100 cm B.S.

Unit E 76-77 N 84-85 was opened in 2009 to continue the search for the west edge of Features 25 (the cellar) and 31 (the brick concentration). Isolated brick fragments were encountered in the floor of Level 2 as was the case in the adjacent unit to the east. The concentration of concrete blocks mapped in the adjacent unit also continued into this unit, as did the western side of the two lead pipes. By the base of Level 4, the pipes were fully exposed and a dense charcoal concentration was present at the southern end of the unit (Figure 51). The charcoal concentration contained pieces of FCR and was defined as Feature 41. By the base of Level 5 (Figure 52), abundant brick fragments in dark soil were present at the north end of the unit, showing that Feature 31 extended to at least gridline E 76. As this was the western-most unit excavated in the search for the western boundary of Feature 31, it seems as if the feature extends even further to the west. Feature 41, the charcoal-rich soil at the southern end of the unit, produced abundant FCR in Level 5, consistent with a rock-lined roasting pit (similar to Feature 21 to the east). At the end of the season, the Level 5 floor was covered in plastic and backfilled.

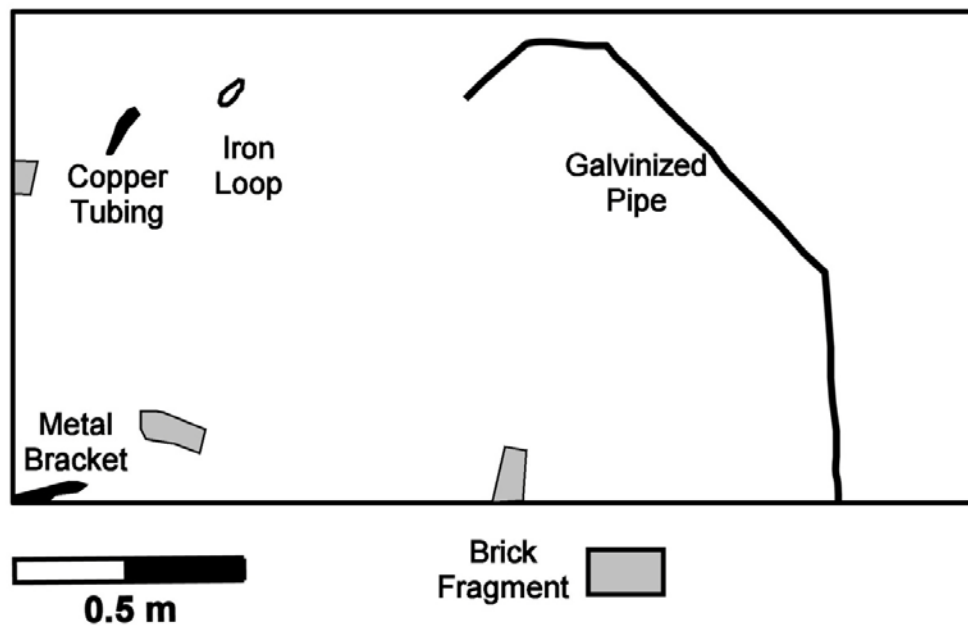


Figure 42. Unit E 76-78 N 85-86 Level 2 Floor (unit floor soil is topsoil, mixed very dark gray [10 YR 3/1] and very dark gray brown [10 YR 3/2]).



Figure 43. Unit E 76-78 N 85-86 Level 3 Floor.



Figure 44. Unit E 77-78 N 83-85 Level 3 Floor.

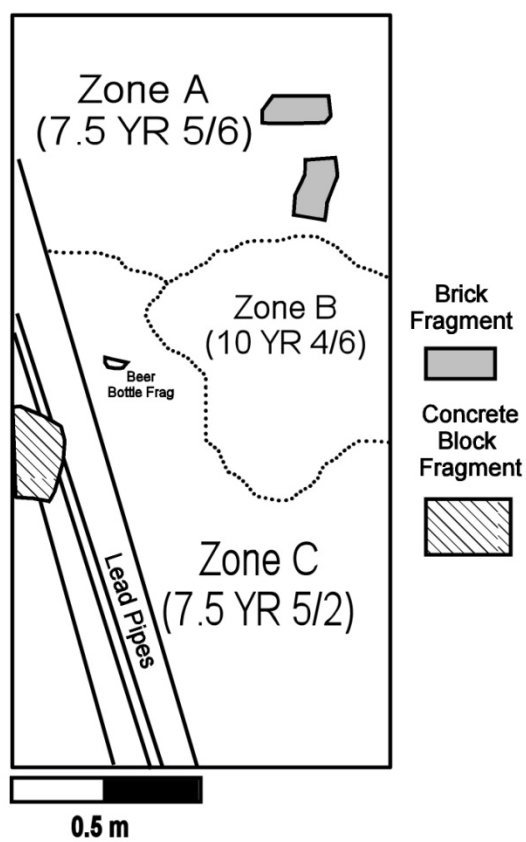


Figure 45. Unit E 77-78 N 83-85 Level 5 Floor.



Figure 46. Unit E 77-78 N 83-85 Level 7 Floor.



Figure 47. Unit E 77-78 N 83-85 East Wall.

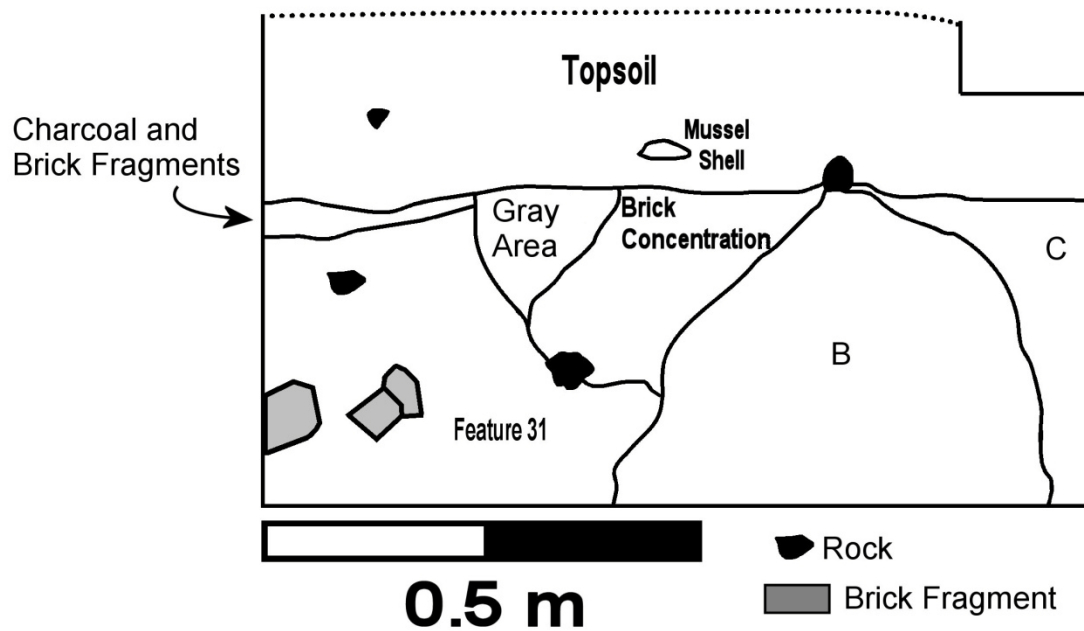


Figure 48. Unit E 77-78 N 83-85 East Wall Map.

Topsoil. Very dark brown (7.5 YR 25/2) sandy loam with rock fragments and an isolated piece of mussel shell.

Charcoal and Brick Fragments. Lens composed of charcoal, coal, and small brick fragments.

Gray Area. Pinkish gray (5 YR 3/2) mass of decomposed brick and mortar.

Brick Concentration. Dense concentration of red (10 R 4/8) brick fragments in a matrix of decomposed brick.

B. Brownish yellow (10 YR 6/6) sandy soil (similar to B horizon, grading to subsoil at bottom of profile).

C. Dark brown (7.5 YR 3/2) sandy soil.

Feature 31. Large brick fragments in a matrix of dark brown (7.5 YR 3/4) sandy soil with occasional fragments of FCR.



Figure 49. Unit E 76-77 N 84-85 Level 4 Floor.



Figure 50. Unit E 76-77 N 84-85 Level 5 Floor.

Testing Whether Feature 31 (brick concentration) Extends to the Eastern Edge of the Lodge (E 78-79 N 87-88)

During the 2008 season, this 1-x-1-m unit was opened to see if Feature 25 extended up to the east edge of the Lodge. The first level contained many pieces of asphalt roof shingling that probably came from the roof of the garage that once stood to the east of the Lodge. The base of Level 2 was defined when abundant mortar fragments appeared in soil that otherwise consisted of homogeneous dark sandy soil. The base of Level 3 was defined when a mortar concentration appeared in the southeast corner of the unit at about 22 cm B.S. This concentration had previously been designated Feature 29 in the adjacent unit to the east. The remainder of the Level 3 Floor showed reddish mottling characteristic of degraded brick fragments, along with some large fragments of charcoal.

Feature 29 was removed by troweling. Excavation and inspection of the south unit wall after it had been removed showed it was a thick lens of discarded mortar only a few centimeters thick. Excavation of relatively homogeneous historic fill continued through Levels 5 and 6. Abundant brick fragments of Feature 31 were present across much of the floor of Level 6 at a depth of 51 cm B.S. and a site datum elevation of about 100.02 m. This is the same elevation where the Feature 31 brick fragments appeared in units on the E 79-80 gridline. Brick fragments against the west wall of the unit suggest Feature 31 (and perhaps Feature 25) extends under the Lodge.

Stratigraphic Exploration of the Southern Edge of Feature 25 (Unit E 79-80 N 85-87)

Unit E 79-80 N 85-87 was a key unit for understanding the structure of Feature 25. Excavation of the unit began in 2008 and was guided by the north profile wall of the unit to the south (E 79-80 N 83-85) where Feature 25 was first defined. Excavation began by removing the backfill from the unit to the south and re-establishing the north wall of the unit (which is the south wall of this unit). As far as possible, the archaeological levels in the south wall were then followed northward to remove each archaeological level. By the floor of Level 2, fragments of mortar, charcoal, and brick were abundant across the unit. The inclusions seemed more abundant and appeared at a slightly higher elevation across the center long axis of the unit, so that the floor was somewhat uneven. Levels 1 and 2 correlate with the topsoil stratum mapped in the south wall. The soil in Level 3 was lighter and mottled, consistent with guide profile. The floor of Level 4 had an undulating surface as the mottled stratum was removed across the unit and the previously defined Feature 29 (a patch of degraded mortar) as exposed in the northwest corner (Feature 29 was originally defined in Unit E 79-80 N 87-89). The unit floor was mapped (Figure 53) to show three zones: Zone A on the western side, Zone B on the eastern, and Zone C as a small patch of clay-rich soil with debitage within Zone B. The field notes indicate that Zones A and B graded into each other, with Zone B being

distinguished from Zone A because it was slightly more orange. The difference between these two zones shows up well in the image of the guide profile (Figure 40, above), where Zone B can be seen as a patch of more orange soil adjacent to the east wall (above a large brick fragment resting on a charcoal lens). The Zone A and B divisions carried on through Level 5 but disappeared by Level 6, which was the thin layer of mottled soil above the upper stratum of bricks and the charcoal lens in the guide profile.

Feature 31 (the brick concentration) was encountered in Level 6 and persisted through Level 7, where the floor maps show it was located primarily against the western side of the unit and sloped downward to the south. Once encountered, Feature 31 was pedestaled so the full extent of the feature could eventually be exposed at one time. The charcoal lens in the guide profile was found not to be continuous. It was present only in the southeast corner of the unit where it was mapped as Feature 34 (charcoal concentration) in the Level 7 floor (Figure 54).

Level 8 was the last level excavated in 2008. It consisted of the relatively thin stratum of brownish sandy soil that lay under Feature 34 and the upper stratum of brick fragments in the guide profile (Figure 40, above). At the end of the season, the unit floor consisted of a mottled medium brown sandy soil with the pedestaled Feature 31 in the northwestern part (Figure 55). Two blackened rocks and abundant charcoal flecks were present in the northeast corner. The floor was covered with black poly and the unit was backfilled.

The unit was reopened in 2009 by removing the backfill from Units E 79-80 N 83-85 and N 85-87. The guide profile was re-established and excavation continued in a 1-x-1-m unit (E 79-80 N 85-86) in order to have a chance of reaching the bottom of Feature 25 during the 2009 season. The excavation began by removing Feature 31 to 10 cm below the starting elevation (correlating with Level 7 from the preceding year). Level 8 under Feature 31 was then removed by troweling to level the floor to the same Level 8 floor that was established in 2008. Artifacts post-dating 1850 (ironstone pottery) found in Level 8 under Feature 31 suggest that Feature 31 was created during the later half of the nineteenth century. Due to the small size of the unit and the several different color zones that were visible in the guide profile, two different soil zones were mapped in the Level 8 floor (Figure 40, above). Zone A was lighter and sandier than Zone B. It correlates with the prominent light sandy patch visible in the guide profile at the upper center of the profile. Zone B was darker than Zone A and contained larger charcoal fragments, correlating with the darker soils visible on either side of the sandy patch in the guide profile. Different soils with different proportions of sand continued through Level 9 and 10, suggesting a relatively complex depositional sequence of mixed soil deposits.

The bricks of Feature 31 persisted throughout Levels 9 and 10, showing that Feature 31 was not actually a discrete layer of bricks as had originally been thought. Feature 31 actually consisted of scattered brick fragments and clusters of fragments that extended through several levels. This became especially apparent by the Level 11 Floor, where Feature 31 was represented by two separate clusters of brick fragments (Figure

56). Two soil zones were present in the floor, the darker, more homogeneous Zone A with more abundant charcoal flecks in the north half of the unit, and a sandier, less cultural Zone C in the south half. Zone C had almost disappeared by the floor of Level 12. In the guide profile, Zone C correlates with the sandy lens against the east wall of the unit at about the same elevation as the lower brick fragment concentration.

The remainder of the guide profile below Level 12 appears to be relatively homogeneous fill until near the very bottom of the unit where lenses of darker and lighter soil are visible at the base of the profile. However, the subsequent Levels 13 through 17 showed that the guide profile was not a very good guide to what was going on in the rest of the unit in those levels. Most of the soil in Level 13 was relatively homogeneous, consistent with the guide profile, except for a band of darker, firmer, brown soil (Zone F) that extended into the unit from the east wall (Figure 57). This band of soil was bordered on the north by lighter, sandy soil marbled with light and dark bands (mapped as Zone E). Although most of the unit floor was mapped as Zone A, the portions of the unit north of Zone F were excavated and screened separately from those south of Zone F. This proved to be a good choice because Zone F extended across the floor by the end of Level 14 and began producing fragments of decayed wood. As Level 15 was excavated, Zone F was found to be a decayed timber and was defined as Feature 39. Soil from either side of the feature was removed to expose it (Figure 58). The feature was then bisected and removed in two halves in Level 16. The floor of Level 16 consisted entirely of sand at a depth of 130 cm B.S. (site grid elevation 99.21 m). Level 17 was then excavated until very firm sand was encountered at 135 cm B.S. (grid elevation 99.16 m).

Soil probes were placed into the floor of Level 17 in the NW and NE corners of the unit. Both showed very similar deposits beneath the floor, consisting of 0 to 6 cm of dark soil, over 6 to 11 cm of very mottled soil, followed by firm, very pure sand below that. The probes suggest that the remaining deposits in the unit consist of about 10 cm of soil that are transitional between the base of Feature 25 and the subsoil. It can therefore be estimated that the base of Feature 25 lies somewhere between 132 and 141 cm B.S., depending on how one wants to define the base of the feature (e.g., whether it is the firmly packed sand at the base of Level 17, the darker soil extending 3 to 6 cm below that, or the bottom of the marbled transition zone). The excavations in Unit E 79-80 N 85-86 were not completely carried to sterile subsoil because time ran out and it was judged to more important to map the profile walls than to excavate one or two more levels.

The profile walls present a complex depositional sequence (Figures 59-61). In both walls, the cross-section of Feature 39 (the wooden timber) can be seen near the bottom of the profile. Feature 39 was probably a timber that was placed to shore up the walls of the cellar. The interior portion of the cellar was filled in with one or perhaps two major episodes below Feature 31 (the brick concentration), creating a relatively simple stratigraphy within Feature 25 north of Feature 39.

Connecting the profiles in Unit E 79-80 N 85-86 and those from the adjacent Unit E 79-80 N 83-85 to the south (from the 2007 season) is difficult for several reasons. On the west wall, the south edge of Feature 25 appears to have intruded into an equally deep prehistoric pit feature, making it difficult to distinguish the outlines of Feature 25. On the east wall, a shovel probe from the 2004 season intrudes into the northeast unit corner, obscuring the original stratigraphy. In addition, the profiles of the two units have not been observed simultaneously because the units were opened in different years. It would be helpful to re-open both units and establish continuous profile walls that would span both units.

The southern boundary of the large historic pit at the center of Feature 25 appears to have been clearly demarcated by Feature 39. The simpler deposits to the north of Feature 39 are separated from the more complex ones to the south by a relatively clear line (this is especially visible in the east wall of Unit E 79-80 N 85-86, Figure 59). The central feature was presumably a cellar with timber-shored walls and a simple sand floor (although there could have been some kind of flooring present that was removed). The southern boundary of Feature 25, as first defined in 2007, is further to the south than the real southern edge of the cellar if the southern edge is really delimited by Feature 39 (the log timber).

A sort of “halo” of soil with a vertical wall was located to the south of Feature 39. This in turn is bordered on the south by an outer halo of inward sloping deposits surrounding the straight walls of the cellar feature (this is also seen in units to the east of the E 79-80 units), creating a second, exterior halo of lighter soils. The origins of the two “halos” are not clear. Both portions appear to date to the historic period. The darker inner halo with vertical walls was the portion originally defined as Feature 25 because it contained abundant historic artifacts. The downward-sloping exterior halo was also an historic period deposit as shovel cuts are visible along its southern edge in the east profile of Unit E 79-80 N 83-85 (Figure 59). The downward sloping bands in this depositional unit suggest it was filled rather quickly. It could have been produced by excavating a pit for a cellar, creating a timber structure in the pit, and then backfilling the exterior of the excavation to bury the outside of the cellar walls. Another possibility is that the exterior halo pit was excavated to remove most of the timber shoring without having it collapse inward. In any event, some kind of very large pit with sloping sides was excavated, the presumed shoring timbers above Feature 39 were removed, and the slope-sided pit was backfilled with broken bricks (Feature 31), mixed soils, and then a soil with abundant charcoal (represented in part by Feature 34). The charcoal-rich deposit was then covered with lenses of mixed sandy soils, and finally by topsoil with abundant mortar flecks (marking the base of Level 2 across Feature 25).



Figure 51. Unit E 79-80 N 85-87 Level 4 Floor.



Figure 52. Unit E 79-80 N 85-87 Level 7 Floor.



Figure 53. Unit E 79-80 N 85-87 Level 8 Floor.



Figure 54. Unit E 79-80 N 85-86 Level 11 Floor.



Figure 55. Unit E 79-80 N 85-86 Level 13 Floor.



Figure 56. Unit E 79-80 N 85-86 Level 15 Floor.



Figure 57. Unit E 79-80 N 85-86 East Wall.



Figure 58. Unit E 79-80 N 85-86 West Wall.

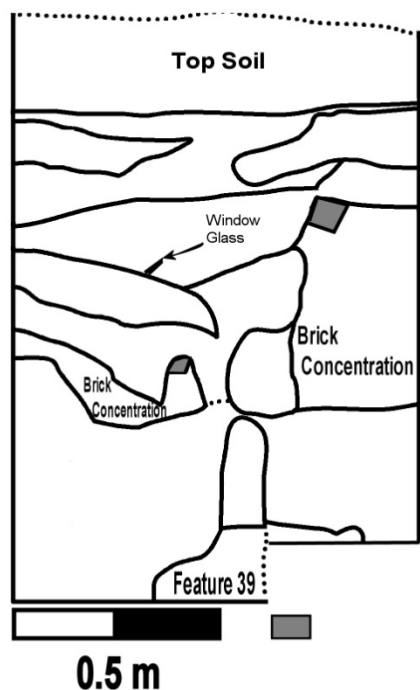


Figure 59. Unit E 79-80 N 85-86 West Wall Map.

Topsoil. Very dark gray (10 YR 3/1) sandy loam.

2. Mixed and marbled very dark grayish brown (10 YR 3/2) and dark yellowish brown (10 YR 4/4) soils.
 3. Dark brown to brown (10 YR 4/3) soil with several cut iron nails in profile.
 4. Very dark grayish brown (10 YR 4/2) marbled soil mixed with coal and charcoal fragments, and mortar or ash, especially on its lower margin. Contained a large fragment of window glass.
 5. Very dark grayish brown (10 YR 4/2) soil, very similar to Stratum 3 but more homogeneous.
 6. Primarily yellowish brown (10 YR 5/4) sandy soil with some darker patches similar to Zone 5. Superimposed on a large brick fragment on western edge.
 7. Pinkish gray (5 YR 3/2) degraded mortar
- Brick concentration. Large brick fragments in a matrix of degraded brick, red (10 R 4/8).
8. Yellowish brown (10 YR 5/4), light sandy soil with some darker marbling
 9. Dark reddish brown soil (5 YR 3/2) mainly consisting of decomposed wood associated with Feature 39.
 10. Similar to 8 but sandier.

Feature 25, Northern Edge (Unit E 79-80 N 89-91)

Unit E 79-80 N 89-91 was opened in 2008 and continued in 2009 in order to determine the northern limit of Feature 25. Typically, the first two levels consisted of topsoil with abundant recent historical debris. As was the case for all the units excavated along the E 79-80 line, the base of Level 2 was defined by the appearance of abundant mortar flecks. By the bottom of Level 4, a clearly defined line running east to west demarcated the darker soil with a brick fragment (thought to be Feature 25 fill) from very light sand and mixed sandy soil that appeared about 40 cm from the northern end of the unit (Figure 62). At this point, it was not clear if this soil difference marked the northern edge of Feature 25, or was somehow related to the foundation of the garage that formerly stood in this area.

Subsequent levels maintained the same soil types, but their borders did not follow a neat east-west line. For example, at the base of Level 6 (Figure 63), dark soil with abundant artifacts, labeled Feature 25, is present in the southern half of the unit. It is bordered on the north by dark soil mottled with light sand (Zone A), which is in turn bordered by very homogeneous, very light sand on the north (Zone B). The sandier two zones were largely sterile of cultural material and it appears that the uneven line between the darker, cultural rich soil and the mottled sandy soil marks the northern boundary of Feature 25. The abundant brick fragments of Feature 31 do not appear to extend into this unit, although isolated bricks were found and were piece plotted or mapped as they were encountered.

Level 8 was excavated in two seasons. The Feature 25 portion of the level was removed in 2008 and the rest of the level was removed in 2009. The 2009 season started by removing the fill and re-establishing the level 8 floor in the southern portion of the unit. This portion of the unit produced much cultural material including several large brick fragments. Excavators decided to continue digging in the northern portion of the unit (Zones A and B), which was previously labeled “sterile” in 2008. It was leveled with the “Feature 25” portion of the unit. This portion yielded very little beyond some charcoal in the mottled sandy zone closest to feature 25. Both sandy zones stayed consistent with those recorded in 2008.

Two more levels were excavated in 2009 in arbitrary 10 cm levels. All of the zones drifted to the south as depicted in the image of the west wall profile (Figure 64), consistent with the assumption that this is the northern edge of Feature 25. Zone A produced very little in terms of cultural material, with the exception of one uniface scraper in Level 9 and some prehistoric pottery sherds in Level 10. Zone B was considered culturally sterile.

The southern half of the unit was split into two zones in Level 9: a dark organic soil zone associated with a high concentration of artifacts including a seed bead, straight

pins, and buttons (Zone C); and a slightly lighter mottled soil containing both large animal bone fragments and many small mammal bones (Zone D). Zone C also produced a small charcoal concentration along the west wall. By the bottom of Level 10, these zones became difficult to distinguish as Zone C was reduced to several spots along the west and south edges of the unit. Also at the base of Level 10, a distinct dark, straight line was visible at the margin of Zones A and D in the Level 10 floor (Figure 65). This line is probably the north edge of Feature 25 and appears relatively similar in appearance to Feature 39 (the wooden timber on the south edge of the feature) just before it was fully exposed.

This unit experienced several cave-ins that were collected and screened separately. There was also an incident in Level 9 Zone D when a small amount of soil became mixed with soil from E 80-81 N 88-89 Level 8 Zone D, this was recorded and screened separately as well.



Figure 60. Unit E 79-80 N 89-91 Level 4 Floor.



Figure 61. Unit E 79-80 N 89-91 Level 6 Floor.



Figure 62. Unit E 79-80 N 89-91 West Wall.



Figure 63. Unit E 79-80 N 89-91 Level 10 Floor.

Eastern Edge of Feature 25 (E 81-83 N 86-87 and E 81-83 N 88-89)

Unit E 81-83 N 86-87

Unit 81-83 N 86-87 contained some of the most complex deposits investigated at the site. For most units in this part of the site, the base of Level 2 (at about 20 cm B.S.) consisted of topsoil with abundant flecks of mortar. In this unit, the floor of Level 2 (Figure 66) contained several well-defined soil zones. Although topsoil was still present over most of the unit, a band of sandier soil mottled with topsoil and charcoal flecks (Zone B) ran through the unit along its shorter axis. Three concentric semi-circular zones of soil (Zones C-D) were located along the north wall of the unit to the east of the sandy band, suggesting that some sort of feature might be present in this area.

By the floor of Level 3 (Figure 67), two different features had been defined in the unit. Feature 30 was a dense concentration of late nineteenth/early twentieth century domestic artifacts that occupied the portion of the unit that was west of the eastern edge of Zone B in the Level 2 floor. The artifacts were embedded in a soil matrix that looked

similar to Zone B. The semicircular zones against the north wall were assigned to Feature 33. The feature contained several different lenses of lighter and darker soils, each with different amounts of what appeared to be mortar or degraded plaster.

Excavation continued through the next two levels, piece plotting artifacts as they were removed from Feature 30 (the historic artifact concentration) and making additional maps as needed. Feature 33 (the semicircular feature against the north wall) was excavated by segregating the different soil zones within the feature. The remaining soil zones in the unit were then removed sequentially, working toward the east. By the base of Level 5 (at about 33 cm B.S.), the artifacts had largely disappeared from Feature 30 and Feature 33 was much diminished in size (the north unit wall showed that it was a basin-shaped feature with a rounded bottom). The soil under the artifacts of Feature 30 could still be distinguished from other soils in the unit (Figure 68) as containing more mortar fragments and charcoal. Its eastern edge was bordered by partially burnt brick fragments. Soil similar to the typical B horizon at the site was present at the eastern end of the unit (Zone I). This soil was separated from Feature 30 by a darker, sandy soil that was heavily mottled with lighter sand. By the bottom of Level 7 (at about 55 cm B.S.), the last level excavated, the subsoil-like Zone I had expanded to the west, leaving several other poorly defined and mixed soil zones present in the floor.

The south wall of the unit (Figure 69) shows that Zone I is indeed probably the original B horizon and that Feature 30 and Zone K (the soil on Feature 30's eastern border), were part of a pit excavated into the subsoil with walls that sloped downward to the west (toward the presumed center of Feature 25). Feature 30 could have been formed by the primary deposition of late nineteenth and early twentieth century historic artifacts as part of the filling of the larger pit; or the feature could have been a small, shallow late nineteenth century trash pit dug at a later date (the reasons for this are discussed below). The deposits of Feature 30 and Zone J on its eastern border appear to be analogous to the downward sloping pit deposits seen to the south Feature 25 in Unit E 79-80 N 83-85, and thus are part of the larger "halo pit" that surrounds Feature 25. Feature 30 was apparently deposited very late in the infilling of the larger halo pit or perhaps even after it was filled.

The north unit wall (Figure 70) shows that Feature 31 was a small, round bottomed pit lined with charred bark covered with two layers of gray soil with a high clay content. The bark-lined pit was finally filled with a lens of soil with a high concentration of mortar fragments (the zone originally defined as Feature 31). The function of Feature 31 is unknown at this time. One possibility is that it was a smudge pit. Bark-lined pits were used during the late prehistoric and early historic period for several purposes. These included creating smudge pits to keep mosquitoes away for curing deer hides by smoking. However, Native American smudge pits used after A.D. 1000 used corncobs as the smoking agent and contain charred cobs and fragments (Munson 1969). No cob fragments were found in Feature 33 so does not seem to be a prehistoric smudge pit.

If the bark lining was chemically oxidized instead of burnt, it is possible that the pit was used to mix plaster or mortar in a bark-lined pit to keep it clean. This possibility

is suggested by the lack of fire-reddened soil below the feature. If it functioned as a plaster mixing pit, that would suggest a nineteenth century date for the feature. Future excavation of the entire feature (which extended into the unexcavated unit to the north) and perhaps chemical analysis of the soils and the bark lining might help determine the function of Feature 33. For example, chemical analyses might be used to determine if the gray soils adjacent to the bark lining are wood ash or plaster, and electron spin resonance could be used to determine if the wood was charred (Hayes and Schurr 2002). Literature searches for similar features might also be informative but difficult to conduct.

The appearance of the west edge of Feature 33 (the bark-lined pit) suggests that a small, separate pit was dug especially to hold the trash of Feature 30. The bark lining of Feature 33 does not extend into Feature 30, suggesting that Feature 30 post-dates Feature 33 and could have been excavated into both it and Feature 25, specifically as trash pit.



Figure 64. Unit E 81-83 N 86-87 Level 2 Floor.



Figure 65. Unit E 81-83 N 86-87 Level 3 Floor.



Figure 66. Unit E 81-83 N 86-87 Level 5 Floor.



Figure 67. Unit E 81-83 N 86-87 South Wall.



Figure 68. Unit E 81-83 N 86-87 North Wall.

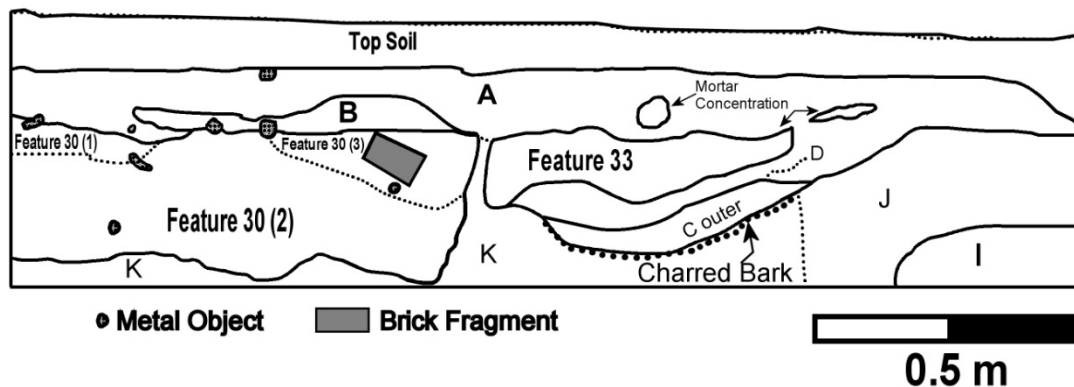


Figure 69. Unit E 81-83 N 86-87 North Wall Map.

Topsoil. Very dark grayish brown (10 YR 3/2) sandy loam.

A. Very dark grayish brown (10 YR 3/2) homogeneous soil with charcoal flecks.

B. Brownish yellow (10 YR 6/6) mottled throughout with very dark grayish brown (10 YR 3/2) topsoil.

Mortar concentration. White degraded mortar (10 YR 8/2).

Feature 30(1). Primarily mortar.

Feature 30(2). Less mortar in a matrix of very dark grayish brown (10 YR 3/2) soil flecked with charcoal.

Feature 30(3). Similar to 30(2) but with a slightly higher concentration of mortar fragments.

Feature 33. Very pale brown (10 YR 8/3) clay-like soil mottled with light gray (10 YR 7/1) and brownish yellow (10 YR 6/6) spots.

C outer. Light gray (10 YR 7/1) sandy mortar with charcoal flecks laying atop a layer of charred or oxidized bark.

D. Light gray (10 YR 7/1) halo of ashy or clay-rich sand surrounding Feature 33.

I. Dark yellowish brown (10 YR 3/4) sandy soil mottled with very dark grayish brown (10 YR 3/3).

J. Very dark grayish brown (10 YR 3/2) soil mottled with dark yellowish brown (10 YR 3/4).

K. Very dark grayish brown (10 YR 3/2), very sandy soil.

Unit E 80-81 N 86-87

In 2009, Unit E 80-81 N 86-87 was excavated by following the levels exposed in profile in the west wall of the unit (in Unit E 81-83 N 86-87). It continued to exhibit the same complexity of deposits that were found to the east and only six levels could be completed during the field season. After removal of the topsoil (Levels 1 and 2), several zones were visible in the Level 2 floor (Figure 72), including a mortar concentration that appeared to be the eastern extension of mortar from Feature 30 (a trash pit) defined in 2008. Feature 30 attained its greatest extent by the base of Level 3 (Figure 73). The other soil zones in the floor of this level show how complex the deposits were in this small unit. A relatively high concentration of historic artifacts were found in Level 4 at an elevation very similar to the elevation of the dense historic debris concentration found to the east (E 81-83 N 86-87) in 2008. Several large historic artifacts were found just to the east of the area formerly covered by Feature 30, so they could be coeval with it.

After excavation of Level 6 (to a depth of about 47 cm B.S.), it was necessary to close the unit because of the end of the field season. The west unit wall (Figure 74) shows the stratigraphy within the unit. The fill in this unit consisted of mixed soil deposits that lay on top of a discontinuous layer or lenses that contained high concentrations of charcoal (near the bottom of the wall). The charcoal layer or lenses were concave, suggesting the charcoal had been deposited into a shallow pit about 45 cm deep. As the charcoal appears at about the same elevation as the charcoal stratum and as Feature 34 (charcoal concentration) in Unit E 79-80 N 85-87 to the southeast, it appears that the charcoal lenses in the two units represent a single depositional episode when charcoal was dumped in a relatively large pit with a gently sloping bottom. However, as the charcoal layer is not continuous, it is also possible that the charcoal was deposited in several different episodes or loads. The complexity of the deposits in this small unit seriously limited the volume that could be excavated during the field season so the 2009 excavation of this unit did not provide much useful new information about Feature 25, except to confirm that this part of the feature was capped with complex late nineteenth/early twentieth century trash deposits.



Figure 70. Unit E 80-81 N 86-87 Level 2 Floor.



Figure 71. Unit E 80-81 N 86-87 Level 3 Floor.



Figure 72. Unit E 80-81 N 86-87 West Wall.

Unit E 81-83 N 88-89 and E 80-81 N 88-89

Unit E 81-83 N 88-89 was a companion unit to E 81-83 N 86-87. It was placed parallel and one meter to the north of the later. By the base of Level 4 (Figure 75), the unit contained deposits characteristic of those surrounding Feature 25, with a band of darker, artifact rich soil along the western wall, bordered by a zone of mottled sand, which in turn was bordered on the east by soils that appeared similar to the undisturbed B horizon. In subsequent levels (through Level 10, the deepest level excavated in the unit), the darker zone against the west wall maintained roughly the same position and produced early nineteenth century artifacts (including two large cents and a pocket knife). The other zones moved to the west and the zone that appeared to be undisturbed soil expanded. These patterns are characteristic of the exterior, slope-sided exterior halo pit that surrounded Feature 25 and the straight-sided outer edge of the feature. The relationships between the different soil zones were especially clear in the south wall of the unit (described below).

Unit E 80-81 N 88-89 was opened in 2009 to extend the profile wall created by Unit E 81-83 N 88-89 to the west so that it would connect with the profiling trench across the north-south axis of Feature 25 (the units with E 79-80 as their east coordinates). After removing the sod, the east and west sides of the unit were mapped to help guide the excavation of the unit. Both walls were relatively uniform except for a lens of slightly

lighter loamy sand just under the topsoil in the west wall. The profile maps ultimately provided little insight into the unit deposits. Excavation showed that the unit contained two soil zones that were slightly different in color but not texture. It was not realized that two different zones were present in the unit when the walls of the unit were viewed separately. They are visible as separate zones when both could be seen in a single level floor. The eastern portion of the unit contained the same soil mapped as Zone C in Unit E 81-83 N 88-89 (adjacent to the east). The western portion contained a slightly darker and less mottled soil. The two zones were first mapped in the floor of Level 3 and continued to persist through Level 6, where two new soil zones appeared to replace the single zone against the west wall (Figure 76). The border of Zone C and the other zones in the unit remained relatively constant, suggesting that the zones on the western edge of the unit were part of the straight-sided Feature 25. The relative positions of the soil zones persisted through Level 9 (the last level excavated). The map of the Level 9 floor suggests the zones were less clearly organized into eastern and western bands at this level, but the photograph of the unit floor clearly shows the straight-sided border of Feature 25 (Figure 79) at a depth of approximately 92 cm B.S. The eastern edge of Feature 25 is also clearly visible in the southern wall of Unit E 80-82 N 88-89 at about E 80.6 (Figures 78 and 79).

The south wall of Unit E 81-83 N 88-89 (Figures 78 and 79) shows the typical deposits bordering Feature 25, with the vertical wall of the east edge of Feature 25 clearly visible at the western end of the profile. The downward sloping deposits of the very large external halo pit surrounding Feature 25 are also present to the east of the feature. The image of the south wall of E 81-83 N 88-89 from 2008 (Figure 78) shows that Zone A of the unit, which was between the excavated pit deposits and undisturbed soils (in both position and appearance), may have formed by downward slippage of the upper edges of the large exterior halo pit toward the center of Feature 25.



Figure 73. Unit E 81-83 N 88-89 Level 4 Floor.



Figure 74. Unit E 81-83 N 88-89 Level 6 Floor.



Figure 75. Unit E 81-83 N 88-89 Level 9 Floor.



Figure 78. Unit E 81-83 N 88-89 South Wall Image.

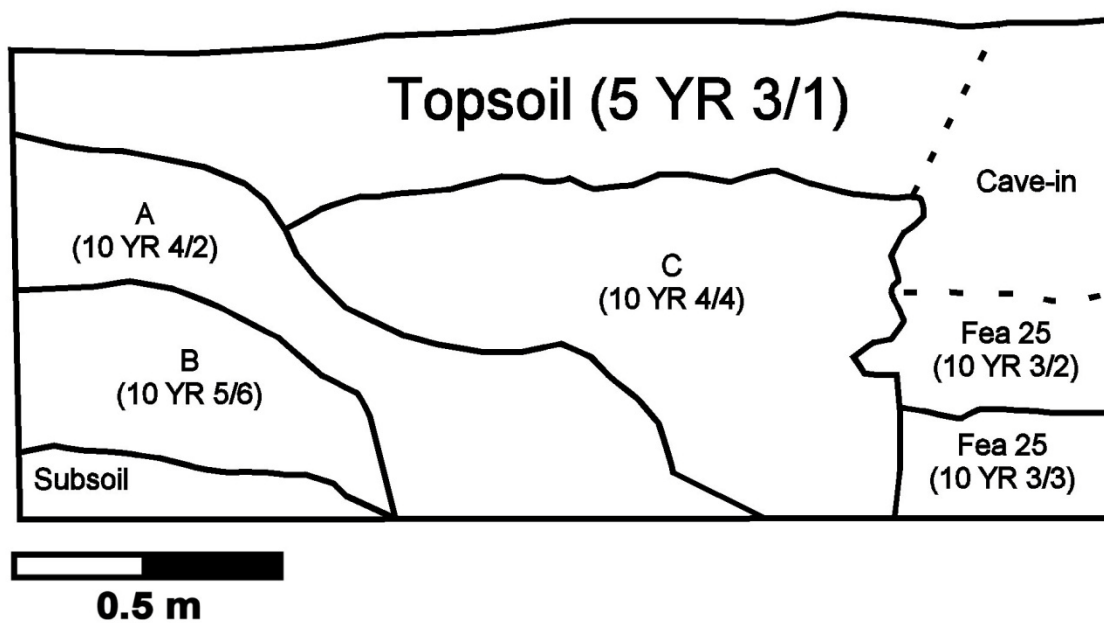


Figure 79. Unit E 80-82 N 88-89 South Wall Map.

Unit E 81-83 N 84-85

After contemplating the maps from the 2007, it was realized that the “historic disturbance” mapped as Zone E in the northeast corner of Unit E81-83 N 83-85 in 2007 might be associated with Feature 25. A 1 x 2 m unit was opened in the north half of the original unit to avoid the problems with wall cave-ins that were encountered in 2007. Level 6 was excavated mainly to re-establish the unit floor. Zone E persisted through Levels 7 and 8 (the last level excavated in 2008) and was the only part of the unit to produce historic artifacts at these levels, with historic pottery in Level 7 and a brass shot mold in Level 8. Although the rest of the unit floor was mapped as a single zone in Level 7, the floor of Level 8 clearly shows the outline of the Upper Mississippian roasting pit discovered when the floor of Level 5 was cored in 2007 (Figure 80). The Upper Mississippian pit was designated Feature 36. Based on the appearance of the north wall, the feature was probably definable by Level 6 or 7, but was not recognized because the floor was very soft and easily trampled, obscuring the feature outlines (the soil was very dry during the 2007 season). Feature 36 was probably the source of the faunal materials and prehistoric artifacts found in Levels 6 through 8 and assigned to Zone C. The west wall of the unit (Figure 81) shows the vertical profile of Zone E and bands of disturbed soil sloping downward toward it from the south. Thus, the deposits in the west wall support the idea that Zone E is associated with the southeast corner of Feature 25, with the vertical walls of the outer pit of the feature comprising Zone E and the soils to the south characteristic of the large slope-sided exterior halo pit surrounding Feature 25.



Figure 80. Unit E 81-83 N 84-85 Level 8 Floor.



Figure 81. Unit E 81-83 N 84-85 West Wall.

Testing a GPR Anomaly (Units E 86-88 N 82-83 and E 84-86 N 82-83)

Unit E 86-88 N 82-83 was excavated in 2008 to test the large GPR anomaly detected in this part of the site (as described in the preceding section on geophysical surveys). The unit was placed to cross the anomaly's eastern border defined at about 30 cm B.S. After removing the topsoil in the first two levels, a pronounced zone of orange mottled soil with a gray halo was visible in the floor of Level 2 (Figure 82).

Excavation of Level 3 showed that the orange patch was probably a small lens of degraded brick surrounded by mortar. A concentration of coarse earthenware sherds was assigned to Feature 32 in the floor of Level 3. Further excavation suggested that they were from one large sherd that had disintegrated after it was deposited. During the next three levels (until the base of Level 5), a complex sequence of zones were defined as thin lenses of different soils containing differing amounts of charcoal, sand, topsoil, and mortar. The zones were mapped in each level floor as they were encountered. A small cluster of FCR in the northwest corner of the Level 5 floor was designated Feature 35. The FCR concentration was completely contained in Level 6 and was not visible as a distinct feature in the unit walls.

The stratigraphy in the unit was unclear until the bottom of Level 6 was reached (at about 42 cm B.S.) when it became evident that the upper levels of the unit contained mainly lenses of mixed historic material. The lenses lay over a stratum of prehistoric midden that probably dated to the Upper Mississippian occupation of the site based on the shell tempered pottery that it contained. Faunal remains were especially abundant in the midden. The midden surface was apparently buried by thick, discontinuous lenses of degraded brick and mortar (or perhaps lightly fired marly clay) about 20 cm thick which was covered by 10 to 15 cm of topsoil. The historic deposits were thickest at the western end of the unit and were much better defined in the southern wall than in the northern one, as shown by comparing the two walls (Figures 83-86). The thickness of the midden was about 20 cm. The overall stratigraphy of the unit is especially clear in the west wall (Figure 87). Based on the excavation, it appears that the GPR anomaly may have been produced by the interface of the historic levels with the top of the prehistoric midden, as this was the soil change with the strongest contrast visible in the unit.



Figure 82. Unit E 86-88 N 82-83 Level 2 Floor.



Figure 83. Unit E 86-88 N 82-83 North Wall.

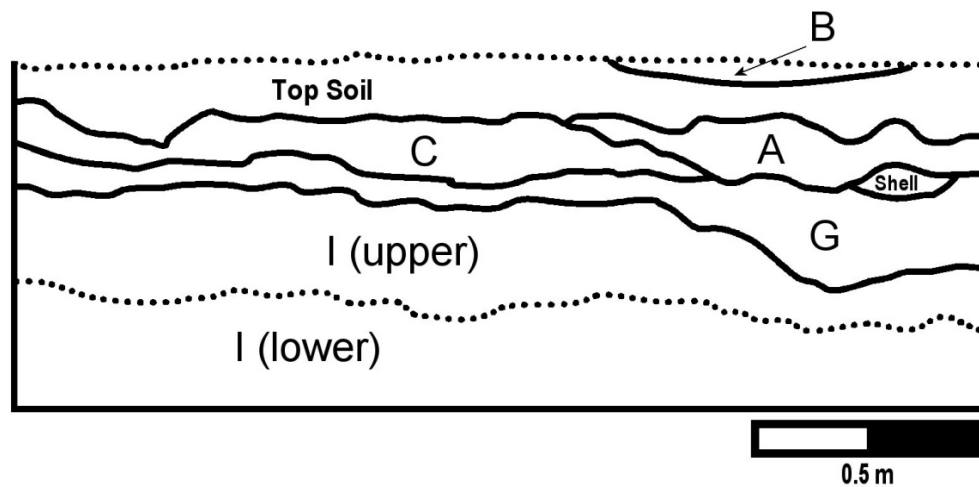


Figure 84. Unit E 86-88 N 82-83 North Wall Map.

Topsoil, dark brown (7.5 YR 3/2) sandy loam.

A. Dark brown (7.5 YR 3/2) very similar to topsoil but with more charcoal flecks.

B. Dark reddish brown (5 YR 3/4) soil, sandier than A and with more grass roots.

C. Black (5 Y 2.5/1) soil mottled with light yellowish brown (10 YR 6/6) sandy soil.

G. Mixture of dark reddish brown (2.5 YR 3/4) and reddish black (2.5 YR 2/5), very sandy.

I(upper). Black (5 YR 2.5/1) soil with charcoal and prehistoric artifacts. Gradually graded into I(lower). Prehistoric midden.

I(lower). Grading from I(upper) to yellowish red (5 YR 4/6) soil with dark gray (5 YR 4/1) patches. Very sandy. Grading to subsoil.



Figure 85. Unit E 86-88 N 82-83 South Wall.

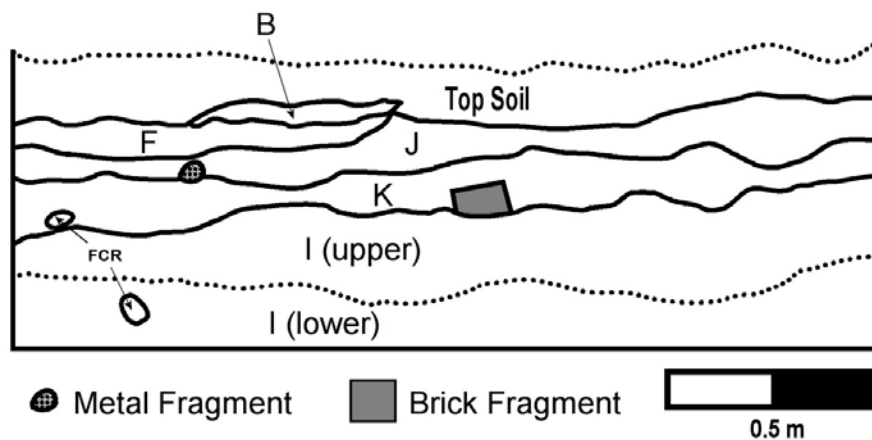


Figure 86. Unit E 86-88 N 82-83 South Wall Map.

Topsoil, dark brown (7.5 YR 3/2) sandy loam.

B. Dark reddish brown (5 YR 3/4) soil, sandier than A and with more grass roots.

F. Mottled dark gray (5 YR 4/1) and white (5 Y 8/1) marly or mortar-rich soil.

J. Reddish brown (5 YR 4/4) and dark grayish brown (2.5 Y 4/2) sandy soil with bone fragments.

K. Light yellowish brown (2.5 Y 6/4) very sandy soil mottled with very dark gray (2.5 Y 3/1).

I(upper). Black (5 YR 2.5/1) soil with charcoal and prehistoric artifacts. Gradually graded into I(lower). Prehistoric midden.

I(lower). Grading from I(upper) to yellowish red (5 YR 4/6) soil with dark gray (5 YR 4/1) patches. Very sandy. Grading to subsoil.



Figure 87. Unit E 86-88 N 82-83 West Wall.

In 2009, Unit E 84-86 N 82-83 was opened immediately to the east of Unit E 86-88 N 82-83 to further explore the region of the GPR anomaly and to determine the distribution of the historic deposits overlaying the prehistoric midden. Excavation began by removing backfill from the unit immediately to the east (excavated in 2008) to re-establish the profile wall on the eastern end of the unit. After the first two levels were removed, several soil zones were present in the Level 2 floor, but topsoil was still present across most of the unit and the soil zones were not well defined. However, very firm soil with light orange mottling was present in the southern end of the unit, which correlated with Zone C (the degraded brick and mortar stratum) in the east wall. By the base of Level 3 (Figure 88), a dense concentration of charcoal and FCR had appeared at the western end of the unit. Based on its similarity to the appearance of fill from rock-filled pit features at the site (such as Feature 21), this concentration was designated Feature 37. It was thought that Feature 37 might be another rock-filled roasting pit. Most of the unit contained the Zone C degraded brick stratum, except for two well-defined patches of different colored soils against the north wall. Both zones (B and D) were markedly softer than Zone C. Zone B was light and sandy whereas Zone D was darker with ashy mottling.

As subsequent levels were excavated, Zones B and D disappeared, but their same general location was replaced by a patch of yellowish brown sandy soil (Zone F). This

zone persisted through several levels and could be seen to have clearly defined vertical edges in the north wall, so the zone was eventually designated Feature 38. Feature 37 expanded across the unit towards the east and it eventually became clear that Feature 37 was not a rock-filled pit feature, but was instead a stratum of FCR with abundant charcoal. Feature 37 reached its maximum horizontal extent by the base of Level 7 (Figure 89). Feature 38 was still present at this depth (about 32 cm B.S.) in the western end of the unit where the midden stratum first appeared (labeled Zone O on the Level 7 floor map of E 84-86 N 82-83, but identified as Zone I in E 86-88 N 82-83 in 2008).

By the bottom of Level 9, at about 28 cm B.S. at the western end of the unit and at 41 cm B.S. at the eastern end, midden covered the entire floor of the unit except for Feature 38. At this level, the feature consisted of a bone concentration in sandy soil. The soils in the unit remained largely unchanged to the base of Level 12 when the midden began to change to the less dense non-midden soils below it. Feature 38 was also a bit diminished in size (Figure 90). Feature 38 disappeared in Level 13 and was fully exposed in the north wall as a straight-sided pit with a relatively flat bottom. Based on the straight appearance of the sides, it appeared to have been excavated with a metal shovel, placing it in the historic period. Banded sand within the feature suggests it was quickly refilled, perhaps to bury the animal bone fragments found near the bottom, although these might have been incorporated into Feature 38 when it cut through Feature 37 (the later contained a high density of bone fragments). Resolution of these possibilities might be achieved by future comparison of the faunal remains from the two features.

Six levels (through Level 18) were excavated to a maximum depth of about 108 cm B.S. without detecting any additional features. However, it was noticed that the soils in the northwest corner of the unit were slightly darker than the rest of the floor in Levels 14 and 15 and a poorly defined charcoal stain was seen in Level 16.

The north wall of the unit (Figures 91-92) shows the relative stratigraphy of the features and also reveals that the darker patch of soil and the charcoal stain in the northwest corner were part of an Upper Mississippian roasting pit (designated Feature 42 after the field season). Feature 42 is the eastern-most such pit discovered to date, suggesting that such pits are largely confined the area west of the grid E 84 coordinate.

The square sides, flat bottom, and mixed fill of Feature 38 are clearly visible in the wall. Based on the thin layer of topsoil above the feature, it was created relatively recently and it the latest feature in the unit. It post dates the degraded brick stratum because its fill contains chunks of that stratum.

The south wall (Figures 93-94) clearly shows how the degraded brick and mortar strata were deposited on a sloping surface defined by Feature 37, leveling the ground surface in this portion of the site. The origins and purpose of Feature 37 are unclear. Based on its composition (high proportions of charcoal and FCR with faunal remains), it could be the contents of a rock-filled roasting pit that were removed and scattered across

the surface that existed at that time. That would also be consistent with its superposition over Feature 42 (Upper Mississippian roasting pit). This same type of stratigraphy is seen in the superposition of Feature 21 (rock filled roasting pit) over Feature 36 (Upper Mississippian roasting pit) in Unit E 81-83 N 84-85. It is likely that Feature 35 in Unit E 86-88 N 82-83 immediately to the east was the eastern most extent of this feature on the grid N 83 line because Feature 35 contained primarily FCR, charcoal, and bone and is stratigraphically correlated with Feature 37. Features 35 and 37 thus represent the same depositional event.



Figure 88. Unit E 84-86 N 82-83 Level 3 Floor.



Figure 89. Unit E 84-86 N 82-83 Level 7 Floor.



Figure 90. Unit E 84-86 N 82-83 Level 7 Floor.



Figure 91. Unit E 84-86 N 82-83 South Wall.

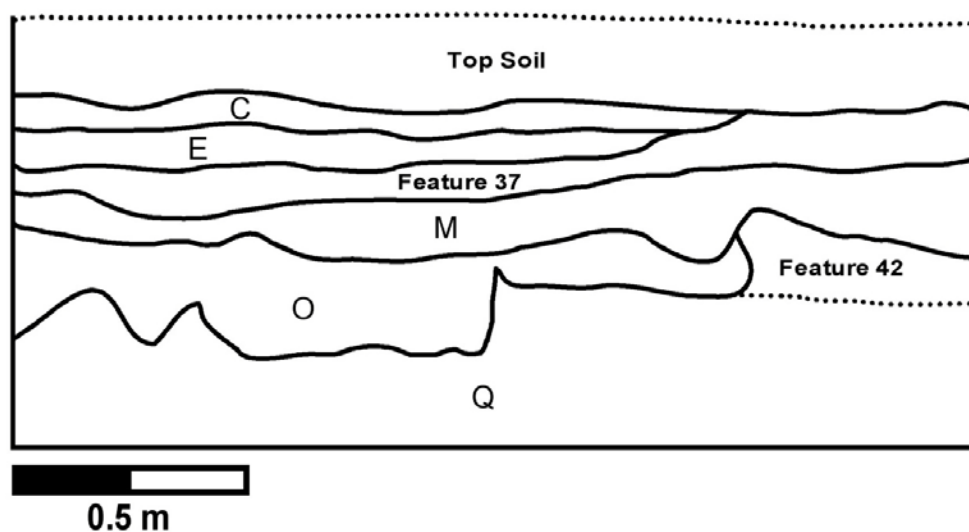


Figure 92. E 84-86 N 82-83 South Wall Map.

Topsoil, sandy loam grading from dark reddish brown (5 YR 2.5/2) at the west end to dark reddish gray (5 YR 4/2) at the east end.

C. Gray (5 YR 6/1) marly soil mottled with pink (5 YR 7/3) fragments of degraded brick.

E. Gray (5 YR 6/1) marly soil with dispersed charcoal flecks.

Feature 37. Black soil (5 YR 2.5/1) containing concentrations of FCR and charcoal.

M. Dark gray (5 YR 4/1), relatively homogeneous soil.

Feature 42. Black (10 YR 2/1) soil with charcoal flecks. Less firm than O.

O. Black (5 YR 2.5/1) midden with charcoal flecks and prehistoric artifacts, grades to Q.

Q. Reddish yellow (7.5 YR 6/6) very sandy, culturally sterile soil.

Searching for the Northern Extent of Feature 38 (Unit E 84-85 N 84-85)

As Feature 38 extended to the north of Unit E 84-86 N 82-83 and a bit of time was still available in the 2009 field season after the unit was completed, a 1 x 1 m unit was opened to see how far Feature 38 extends to the north. The topsoil was removed in two levels to expose Feature 38 in the floor of Level 2 (Figure 95). Feature 37 (the charcoal and FCR stratum) was still present in the northern end of the unit just below the topsoil. Feature 38 was composed of two different zones in the floor. Zone 38A was the very sandy soil visible in the profile wall. Its outline suggests that this part of Feature 38 was relatively square pit in plan view. Zone 38B was present on the northern edge of Zone 38A and was a darker brown soil flecked with sand that could be some midden redeposited in Feature 38 when the feature was filled. The full extent of Feature 38 was not determined because of lack of time, but at this point, it appears to be a relatively square or rectangular pit about 1 m across.



Figure 95. Unit E 84-85 N 83-84 Level 2 Floor.

Testing for Removal Period Potawatomi Features (Unit E 94-96 N 87-89)

Unit E 94-96 N 87-89 was originally opened in 2005 to search for Removal period Potawatomi features in this portion of the site because shovel probes placed in this part of the site in 2003 found a few small Removal-era pottery sherds that pre-dated 1840 in this area. A unit immediately to the north (E 94-96 N 89-91) was excavated in 2005. The 2005 excavation produced a collection of nineteenth century artifacts but no evidence for features (Moye 2007). Three levels in Unit E 94-96 N 87-89 had also been excavated in 2005 prior to covering the floor with plastic and backfilling the unit. In 2008, the backfill and plastic were removed from the unit, and the 2005 floor was re-established and re-trowelled. Two more levels were excavated (through Level 5). Although some charcoal patches were seen in the floor of Level 4, these were poorly defined and were very thin, disappearing quickly with shovel skimming. As the floor of Level 5 appeared to consist of subsoil and the level produced very few artifacts, the unit was considered complete. No features were found.

Summary of Features

Forty two features have been defined at Collier Lodge. The 14 features defined during the 2004 and 2005 seasons and described previously (Schurr 2006) are summarized in Table 4. The 28 features defined from 2006 to 2009 are summarized in Table 5. Details about each feature were provided in the narrative descriptions of the unit excavations (above). Six features (2, 5, 7, 14, 24, and 27) are probably non-cultural. They consisted of soil stains that might have been caused by roots or rodents. These were treated as features in case they turned out to be cultural, but subsequent excavation indicated that they are not cultural products.

Prehistoric Features

The most common type of feature was an Upper Mississippian roasting pit, typically a circular pit with a flat or slightly rounded bottom approximately 1 m in diameter and a little over a meter deep. Similar pits have been reported from the Upper Mississippian Griesmer site in northern Indiana (Faulkner 1972:45). Faulkner believes this type of pit was used to roast water lotus tubers and for refuse disposal after their use as roasting pits. Nine Upper Mississippian roasting pits have been identified (Features 3, 10, 18, 23, 26, 28, 36, 40 and 42). Two other features (19 and 22) were fill episodes within Upper Mississippian pits, showing the pits were used as refuse pits after their roasted contents were removed. The roasting pits are concentrated within the units along the E 80 grid line and have been found up to 5 m to the east of the E 80 grid line. The southern and western limits of their distribution have not been determined. The relatively close spacing of such pits was also seen at Griesmer where pits were also separated by less than a meter.

Table 4. Features defined in 2004 and 2005

Feature	Year Defined	Unit	Level of Definition	Appearance	Function	Comments
1	2004	E 79-81 N 79-83	1	brick concentration	fireplace base	hand struck brick box filled with marl
2	2004	E 90 -91 N 85-83	5 floor	amorphous dark stain	unknown	disturbed by roots and rodents, non-cultural?
3	2004	E 79 -81 N 79-81	3	dark soil with patches of marl and muck/charcoal	Upper Mississippian roasting pit	upper levels distrurbed by Feature 1 construction
4	2004	E 90-92 N 75-77	5 floor	concentration of decayed brick or burnt soil	hearth?	u-shaped, open to west
5	2004	E 90-92 N 75-77	6 floor	dark circular stain	unknown	thin lens, probably non-cultural
6	2004	E 90-91 N 80-82	7 floor	dark circular stain	could have been a large postmold	

7	2004	E 90-92 N 75-77	10 floor	darker soil with sandy patches	unknown	shallow, basin shaped, root/rodent disturbed
8	2005	E 82-84 N 92-94	1	dark charcoal stain with FCR	unknown	
9	2005	E 81-83 N 80-82	2	light marly soil	may be re-deposited material from Feature 1	goes into E unit wall
10	2005	E 82 -84 N 92-94	2 floor	charcoal patch with halo	Upper Mississippian roasting pit	
11	2005	E 90-92 N 75-77	11 floor	slightly darker soil with ground stone fragments	unknown	
12	2005	E 81 -83 N 80-82	6 floor	dark stain with square outline	post pit	below Zone F
13	2005	E 81 -83 N 80-82	6 floor	dark stain with square outline	post pit	below Zone G
14	2005	E 80-92 N 75-77	13 floor	slightly darker stain	unknown	non-cultural?

Table 5. Features defined from 2006 through 2009

Feature	Year Defined	Unit	Level of Definition	Appearance	Function	Comments
15	2006	E 81-82 N 78-80	2 Floor	rock concentration	plant stake support	
16	2006	E 81-82 N 82-84	6 Floor	dark stain	unknown-intrusive pit?	formerly Zone I
17	2006	E 91-93 N 74-76	4 near floor	bone concentration	fur-processing refuse	may be part of Feature 20
18	2006	E 81-83 N 92-94	4 Floor	dark soil stain with charcoal and bone	Upper Mississippian roasting pit	
19	2006	E 81-82 N 78-80	5	dark soil in SE corner	fill episode in Feature 26	Part of Feature 26-Upper Mississippian roasting pit
20	2006	E 91-93 N 74-76	5	bone and artifact concentration	fur-processing refuse	may be part of Feature 17
21	2006	E 79-81 N 81 -83	??	circular area of FCR and charcoal	rock filled roasting pit	over Feature 28
22	2006	E 81 -83 N 92 -94	5	bone concentration in Feature 18	fill episode in Feature 18	
23	2006	E 81-83 N 92-94	8 Floor	circular soil stain	Upper Mississippian roasting pit	Zone P in Lev 7 floor
24	2007	E 91-93 N 74-76	7 Floor	circular charcoal stain	rodent or root run?	not cultural, below Feature 20
25	2007	E 79-80 N 83-85	6 Floor	stratified historic pit	historic cellar?	

26	2007	E 81 -82 N 78 -80	9	circular area of charcoal and reddened soil	Upper Mississippian roasting pit	only recognized when base was seen, Feature 19 is a fill episode
27	2007	E 91-93 N 74-76	10 Floor	amorphous dark stain	rodent burrow?	non-cultural
28	2007	E 79-80 N 83-85	7 Floor	circular stain with charcoal and reddened soil	Upper Mississippian roasting pit	under Feature 21
29	2007	E 79 -80 N 87-89	3 Floor	mortar concentration	discarded mortar	above Feature 31
30	2008	E 79-80 N 87-89	3	historic artifact concentration	late nineteenth century domestic rubbish pit	
31	2008	E 79 -80 N 87-89		brick concentration	discarded brick fragments	within Feature 25
32	2008	E 86-88 N 82 -83	3	Coarse earthenware sherd concentration	large sherd that degraded into several smaller sherds	
33	2008	E 81-83 N 87-88	3	plaster/mortar concentration	plaster mixing or smudge pit	
34	2008	E 79-80 N 85 -87	7 Floor	charcoal lens under brick fragments	charcoal lens	under Feature 31
35	2008	E 86-88 N 82 -83	6	FCR concentration	midden with FCR, charcoal, and bone	same as Feature 37
36	2008	E 81-83 N 84-85	8 Floor	circular stain with charcoal	Upper Mississippian roasting pit	

37	2009	E 84-86 N 82-83	3 Floor	FCR concentration with charcoal	midden with FCR, charcoal, and bone	same as Feature 35
38	2009	E 84-86 N 82-83	N wall	straight sided pit	historic pit	unknown function
39	2009	E 79-80 N 85 -86	15	wooden timber	shoring for walls of Feature 25	
40	2009	E 77-78 N 83-84	8	dark stain with charcoal fragements and reddened border	Upper Mississippian roasting pit	
41	2009	E 76-77 N 84-85	5	rock concentration with charcoal	rock filled roasting pit	
42	2009	E 84-86 N 82-83	N wall	dark soil with charcoal stain at base	Upper Mississippian roasting pit	

Rock-filled roasting pits or earth-ovens have also been found at the late Upper Mississippian Oak Forest site (Brown 1990a). Two features of this type (21 and 41) have been documented at Collier Lodge, and a rock filled midden stratum with abundant charcoal and animal bone could represent the disturbed contents of another such pit (Features 35 and 37, two portions of a single rock feature that were assigned different numbers during excavation because they were defined in different units during different excavation seasons). Although these features are similar to those reported from prehistoric sites, and they are found in the same area of the site as the other type of Upper Mississippian roasting pits, it is possible that the rock filled pits could date to a later period. Feature 21 (a rock-filled pit) was super-imposed over Feature 28, a typical Upper Mississippian roasting pit, showing that it was later in time. The Upper Mississippian pits are thought to date between about A.D. 1400 to 1550 or so (Schurr 2006:63), so Feature 21 would post-date A.D. 1550 based on its stratigraphic position. Feature 28 cannot be dated more precisely based on the artifacts it contained because it only produced two small shell tempered sherds and one grit tempered sherd. All three sherds were somewhat eroded and undecorated. No other temporally diagnostic artifacts were found in the feature. Feature 21 is very similar to Feature 144 at the Oak Forest site in Illinois (Brown 1990b). The Oak Forest pit produced a glass bead and brass scrap dating to the early historic period. The glass bead was of a type most typical of the early seventeenth century (Brown 1990b). Feature 21 at Collier Lodge may also have produced an early historic artifact. This was a brass hawk bell of somewhat uncertain provenience. It was found in Zone C, the soil surrounding Feature 21, just after Feature 21 was removed. Hawk bells are thought to have been in use over a relatively long period, from 1680 to 1820 (Quimby 1966), and thus the bell is more likely to be associated with Feature 21 than the Upper Mississippian Feature 28 (which was probably in use prior to A.D. 1550). The bell was found in Level 7, which also produced four cut nails, four cut nail fragments, and piece of iron wire, revealing some mixing of contexts during deposition or excavation. Zone C appeared to be undisturbed subsoil but its border with the historic period Zone B (the external “halo” around Feature 25) was indistinct and could have contributed to mixing of materials from two different zones.

A radiocarbon date was obtained on charcoal from Feature 21 (Beta-240983, 290 ± 40 B.P., $\delta^{13}C = -27.3\text{‰}$; conventional radiocarbon age of 260 ± 40 B.P.). When calibrated, there is a 68 percent probability that the date lies between A.D. 1640 to 1660, with smaller probabilities that the charcoal could date as early as the late 1500s or as late as 1750. There is even a small probability that it could date around A.D. 1950 because of the nature of the radiocarbon calibration curve over the last 450 years or so. Thus, Feature 21 probably post-dates the Upper Mississippian occupation and it may have been created during the early historic period, most probably during the Fur Trade era.

Four features (4, 6, 8, and 16) could be prehistoric based on their stratigraphic positions within the relatively thick prehistoric midden zone. Their functions are unknown. Feature 4 could have been the remnants of a hearth, although no living floor was observed at its elevation. Feature 6 was a circular stain that could be the base of a large postmold or a small pit. It could also be the remnants of an animal burrow.

Features 8 and 11, both patches of dark soil with FCR, could also be small pit features or natural disturbances such as burrows that in-filled with midden from higher strata. Feature 16 could have been an intrusive pit from the late prehistoric or even the historic period.

Historic Features

Feature 1 (discovered in 2004) was the base of a brick fireplace (Schurr 2006). Several other features were probably associated with Feature 1 and its chimney. They include Feature 9 (probably re-deposited marl and brick from the disturbed portion of Feature 1) and the many bricks of Feature 31, which are undoubtedly the remnants of the demolished chimney that once stood on Feature 1. Feature 31 formed an upper stratum within Feature 25, which is now thought to have been a shallow cellar from an early historic structure, most likely the dwelling associated with Feature 1. Other features associated with Feature 25 include a timber that probably shored up the bottom of the south cellar wall (Feature 39) and a charcoal lens (Feature 34) that was deposited when Feature 25 was filled in, but before the bricks of Feature 31 were dumped in Feature 25. Features 29 (a lens of discarded mortar) and 30 (a pit of domestic rubbish from the late nineteenth century or early twentieth century) were two additional deposits that post-date Features 25 and 31. Two large post pits (Features 12 and 13) could also have belonged to the structure associated with Features 1 and 25.

Features 17 and 20 were bone concentrations that are thought to represent refuse from the processing of furs at the site because they contained a high proportion of bones from fur-bearing animals, including raccoon, muskrat, beaver, and mink. Although mapped as two separate features, it is possible that they were part of a larger continuous feature that was not recognized when first encountered during excavation. Associated artifacts (hand painted pearlware, a sponge printed sherd, clay pipe fragments, redware) suggest the features date to the first Euroamerican occupation of the site in the 1830s and 1840s. A wire nail, a wire nail fragment, and a shotshell from Feature 20 suggest that some mixing of the contents could have occurred over time. Feature 32, a concentration of coarse earthenware sherds, may date to later in the nineteenth century. It represents the apparently random discard of broken pottery, an activity that seems to have been very common at the site.

Feature 15 was an unusual feature. It consisted of a concentration of rocks that were used to prop up a small stake, probably from a garden. As the buried portion of the stake was preserved, this was probably a twentieth century feature. Feature 38 was another feature that may date to the twentieth century based on its stratigraphic position right below the topsoil. It was a straight-sided pit of unknown function, largely because the entire feature was not exposed and explored due to a lack of time at the end of the 2009 season. The excavated portion of the feature did not contain any artifacts beyond FCR and bone.

Feature Conclusions

In conclusion, the Upper Mississippian period (A.D. 1100-1500), the nineteenth century (especially the period before the Civil War and the very end of the century), and the twentieth century are the time periods best represented by features. Earlier prehistoric periods may also be represented by features but that cannot be confirmed because those features have not produced diagnostic artifacts or the feature functions are unknown. Probable twentieth century features reflect gardening and refuse disposal activities.

The Artifact Assemblage

Laboratory Procedures

While still in the field, all screened samples were processed in a field lab established in a mobile home at the site. After each context was completed, all the bags or items for the FS number assigned to the context were deposited at the FS station. The FS samples were transferred to the lab field lab periodically throughout the day and each sample was logged into the lab tracking notebook. Field specimen numbers for all contexts are shown in Appendix 1.

Each volunteer working in the field lab was given written lab procedures. Every screened sample was re-screened through a ½ inch (1.27 cm) screen to segregate large fragments of very common artifacts like brick fragments and FCR from small ones. All artifacts retained on the ½ inch screen were washed. The portion that passed through the screen was carefully examined and any interesting artifacts (e.g. anything that was not a brick fragment, small piece of FCR, natural pebble, etc.) was removed for further processing. The remainder of the sample between ¼ and ½ inch (.64 – 1.27 cm) in size was termed “residue” and was placed in a bag with a tag labeled with the FS number for later examination. All residue samples were weighed and examined for artifacts before discard.

Faunal fragments were then removed from all non-residue samples for washing in the regular lab. This was so that they could be washed over a screen in case they were very fragile. The remaining durable artifacts were cleaned with a soft brush and water. Each FS sample was placed in a separate tray to which the FS tag was clipped with a clothes pin. The cleaned samples were allowed to dry in a room of the field lab equipped with air conditioning and a dehumidifier. Depending on the sample’s size and the ambient humidity, this usually required one or two days. Dry samples were placed in plastic bags along with their FS tags and taken to the Archaeology Laboratory at Notre Dame for further processing. Unusual or fragile specimens were wrapped in foil or otherwise handled separately from the typical FS sample.

The cleaned samples were rough sorted into at least seven categories of major material types:

1. Ceramic (pottery, noting historic or prehistoric)
2. Glass
3. Metal
4. Fauna (bone and shell)
5. Brick
6. Stone
7. Other (with a space to note what the item is).

Each material type was placed in a separate bag with its own tag, labeled with the FS number and the initials of the sorter. Experienced sorters were able to use more specific categories (for example, separating prehistoric and historic ceramics, or sorting chert from other types of stone). The one weak area in this process was making sure that the FS number was recorded on the material type tag. Error rates were generally less than .5 percent (one or two unlabelled tags in two or three hundred FS numbers).

Each material type was then cataloged using the appropriate categories. The objects in each FS number were identified, the identifications were recorded on tags, along with the counts and weights of each type of artifact. After being checked by the author, each card was assigned a catalog number, the artifacts were placed in labeled bags, and the information on each catalog tag was entered into the artifact database.

Prior to 2006, inexperienced or inattentive sorters often mis-sorted small artifacts. When mis-sorts were encountered during cataloging, they were identified with a special colored tag labeled with the FS number and the correct rough sort category. If a sorted lot of the same category had not yet been cataloged, the mis-sorts were placed into their correct lot. In most cases, the mis-sorts were only discovered after other artifacts from the same category and FS had been cataloged. In that case, the artifacts were combined into existing categories if a catalog number for the appropriate category and FS had already been assigned. Otherwise, they were given their own catalog number. Correcting mis-sorts proved to be a very time consuming procedure prior to 2006 but the situation improved dramatically in subsequent years as sorters gained experience working the artifacts from the site. Less than a dozen mis-sorts were identified each year when cataloging the 2009 collection. It has also been recognized that, for important or complex artifact types, it was better to have a very experienced person do the cataloging. The 2006 through 2009 assemblage was catalogued by the author and a few very experienced volunteers. Every catalogued item was verified by the author.

Prehistoric Artifacts

Prehistoric Ceramics

The prehistoric ceramic sherds were sorted and described by temper, body position on the vessel, surface and interior treatments, and applied decoration. The inventory of prehistoric ceramics is given in Appendix 2.

Grit Tempered Pottery

Undecorated Rim Sherds

The assemblage contains 28 sherds, most of which are very small (less than 1 to 2 cm wide). The rims were examined to determine general rim profile (constricted, outflaring, or straight), the lip shape (flat or rounded), and whether any surface treatments were present (cordmarking, punctation, lip impressions, etc.). Most of the rim sherds were so small or eroded that their attributes could not be determined. Only eight rim sherds without decoration were suitable for analysis. These are listed in Table 6. The most common rim profile is constricted ($n = 6$), with one example each of straight and outflaring rims. Most ($n = 6$) came from cordmarked vessels and two showed cordmarking that extended over the lip. Most also had flattened lips ($n=6$). None of the attributes appear to be associated with each other, except for cordmarking over the lip, which was found only on cordmarked vessels. A few sherds show fabric impressions where the fabric warp and woof threads are visible (Figure 96e and f).

Table 6: Undecorated Grit Tempered Rims

Catalog Number	Rim Profile	Lip Shape	Ext. Surface	Decoration
2006.01.1258	constricted	Flat	CM	CM over lip
2009.02.504	outflaring	Flat	CM	None
2009.02.589	constricted	rounded	smooth	None
2007.02.714	straight	Flat	CM	CM over lip
2006.01.1367	constricted	Flat	smooth	None
2006.01.1014	constricted	rounded	CM	None
2008.02.398	constricted	Flat	CM	None
2008.02.514	constricted	Flat	CM	None

Horizontal Cordmarking

Two sherds (2008.02.514 and 531) with horizontal cordmarking were from a single vessel. Both were very thick (9 to 10 mm) with pronounced horizontal cordmarking (Figure 96a). They were from a globular vessel, or one with a constricted neck. The lip of the vessel rim was rounded, but was thinned in such a way as to create a weak, rounded bevel on the interior. If this rim shape is a pre-cursor to the beveled rim sometimes found on Goodall tradition sherds, then this vessel might have been manufactured very near the start of the Middle Woodland period (just before 150 B.C.). Such a date would be consistent with the thickness of the vessel walls.

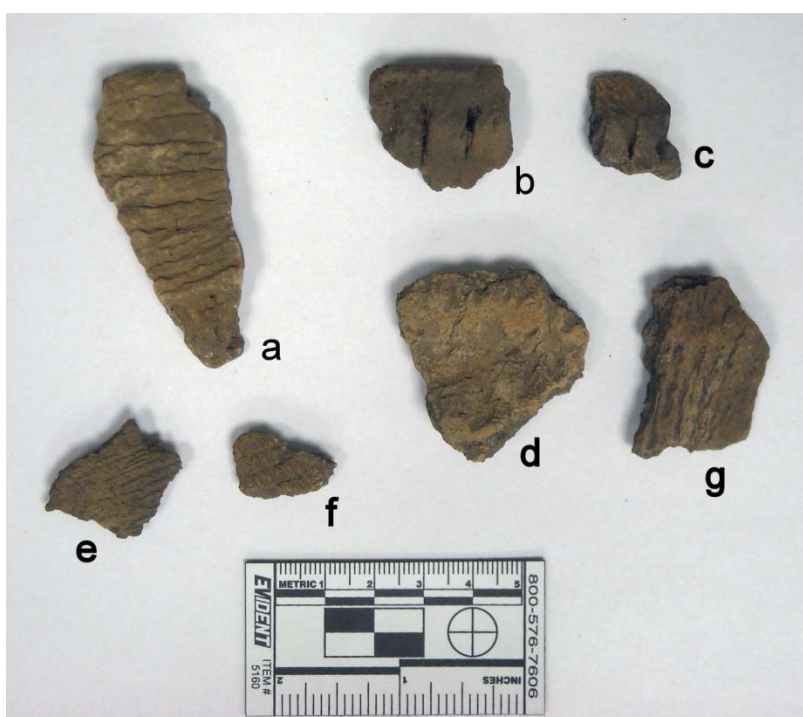


Figure 96. Grit Tempered Sherds with Horizontal Cordmarking, Fabric Impression, or Collars.

Collars

Collars (Figure 96b-d and g) were a very common during the Late Woodland period. Collared Late Woodland vessels from the Kankakee Valley are sometimes referred to as “Kankakee Collared” as if that was a type name, but it is not, because collared vessels from the Kankakee valley show a range of attributes that indicate several different types of collared vessels were made at various times in the region (Schurr 2003). Of the 16 sherds from collared vessels, only seven were suitable for analysis. Figure 96 shows representative collared sherds.

Rim sherd 2006.01.1117 (Figure 96b) is from a cordmarked globular vessel with a wedge-shaped collar. There are large wedge-shaped, vertical impressions on the lower edge of the collar. Rim sherd 2008.02.946 (Figure 96g) was also a rim from a vessel with a wedge-shaped collar. The collar shows parallel vertical impressions or incisions spaced 7 mm apart. The vessel lip was flattened. There are parallel vertical impressions on the vessel interior just below the lip. These are spaced about 7.5 mm apart and are neither aligned or opposed with the impressions/incisions on the collar. The style is somewhat reminiscent of LaSalle Filleted (Brown 1961), a type that dates to the early historic period and has been associated with many different tribes (Mason 1986). If so, this sherd could date to the period when contact between Native Americans and Europeans first occurred and could be contemporary with other Fur Trade era artifacts from the site.

Several very small sherds (not pictured because of their small size) give hints about other collar forms. They are from the collar portion of the vessel (the rim lip is missing). Two are body sherds from similar vessels that had a wedge-shaped collar below the rim (the rim portion of the vessel is missing, Figure 96e and f). The vessels were cordmarked and the collars were not impressed or notched. The sherds come from different vessels because they are of different thicknesses. Another sherd (2006.01.1267) came from a vessel with a wedge-shaped collar, but the vessel was much smaller than the other two that produced collared body sherds without rims. One rim sherd (2006.01.1309) was probably from a collared vessel, but the collar fell off through delamination. The lip shows an unusual decoration of exterior notches applied with a tool that was angled to imply impressions from the left that were spaced 6 to 7.5 mm apart (based on just three impressions).

Lip Impressions

Lip impressions were found on a small number of rims (Figures 97 and 98). One sherd was impressed or incized on the lip when the clay was very soft, so that the impression almost closed after the tool was removed. The lip was slightly smoothed after the impressions were made. The rim came from a vessel with straight rim profile and exterior cordmarking. Another small, very eroded rim shows a single, v-shaped notch on the lip.

Cord-wrapped dowel impressions were another decorative technique that was used. This technique could have been used from the early Middle Woodland through the Late Woodland, based on the four sherds that have cord-wrapped dowel impressions. Two refitted rim sherds (2006.01.1179 and .1180, Figures 97a and 98b) could date to the early Middle Woodland. They came from a vessel with a constricted rim profile and smoothed over cordmarked or very faintly cordmarked exterior. The vessel wall was relatively thick (8.8 to 9.2 mm). Cord-wrapped dowel impressions were placed on the interior lip using a tool that with a diameter of about 5 mm. The lip has a slight outward bulge they may have been produced by using the thumb to support the exterior of the rim when the dowel was applied to the interior. Short vertical incisions or fingernail

impressions were placed on the vessel exterior along with one large punctate that was produced with a tool 7.5 mm in diameter. The paste of the vessel was unusually orange.

Based on overall appearance, rim sherd 2008.02.323 (Figures 97e and 98e) could date to the Middle Woodland period. This moderately thick sherd (8.0-8.8 mm thick) came from a vessel with a straight to slightly constricted rim profile and a cordmarked exterior. The rim lip has cord-wrapped dowel impressions. Rim sherd 2008.02.480 (Figures 97f and 98f) either dates to the early Late Woodland period or came from a vessel of an earlier time period with unusually thin walls (4.4-4.7 mm). A cord-wrapped dowel 6.2-6.5 mm in diameter was used to make closely spaced diagonal impressions on the lip of this exterior cordmarked vessel with a constricted rim profile.

Fingernail Impressions

Fingernail impressions were recognized in the 2004 and 2005 assemblages as a decorative technique that was probably most common in the late Early Woodland or very early Middle Woodland (Schurr 2006). In the Goodall tradition, this decorative technique would be contemporary with styles like Morton and Fette Incised in the related Havana tradition (Griffin 1952) and would therefore date to around 250-150 B.C. (Munson 1986). Rim sherd 2008.02.490 (Figures 97g and 98g) came from a vessel with a rounded lip. The rim profile is uncertain because the interior portion of the sherd has eroded away. The exterior of the vessel shows vertical cordmarking below the rim along with vertical fingernail impressions. Sherd 2007.02.610 (not depicted) is a badly eroded body sherd with fingernail impressions on the exterior. The surface was either faintly cordmarked or smoothed over cordmarking, but surface erosion precludes a definite identification of the surface treatment. One fingernail impressed rim sherd (2007.02.668, Figures 97c and 98c) could date to the late Early Woodland based on thickness, or to the late Early Woodland/early Middle Woodland based on cordmarking on the interior and exterior walls. It is from a vessel with a straight to slightly constricted rim profile with a smoothed lip. Deep vertical fingernail impressions were placed on the exterior.

Incising

Incised decoration was very rare on grit tempered sherds. Only two possible examples were seen. One body sherd showed thin incised lines over a cordmarked surface. Incising over cordmarking is characteristic of the late Early Woodland period in the Kankakee Valley (Schurr 1997). A small section of an incised line was placed diagonally to one side of a longer incision. It is possible that this could represent a zoned decoration, which would place this sherd at the very start of the Middle Woodland period. One sherd (2007.02.571, Figures 97d and 98d) is a more obvious example of zoned incising. In this example, the textured portion of the decoration has been filled with fingernail impressions instead of the dentate stamping that is commonly used in the Havana tradition.

A second incised rim sherd (2006.01.1192, Figures 97a and 98a) came from a vessel with a slightly constricted mouth. The smoothed exterior has a fine incised diagonal line along with a deep impression made with a fingernail or a curved tool. Diagonal cord-wrapped dowel impressions were applied to the interior lip edge. The combination of a cord-wrapped dowel lip impressions and a possible fingernail impression places this sherd at the very start or the very end of the Middle Woodland period.

Punctations

Three sherds showed punctates as the only form of decoration. One (2008.02.5330) was so eroded that it could not be analyzed further beyond noting that it was punctated. The remaining four were all punctated over a cordmarked surface. Sherd 2007.02.606 was from a vessel with a constricted neck and a rounded lip with 4 mm diameter punctates on the exterior surface. Body sherd 2008.02.518 had similar 4 mm diameter exterior punctates and could be from the same vessel as the punctuated rimsherd based on general appearance.

Summary of the Grit Tempered Pottery

No new pottery types or decorative techniques were present in the 2006 to 2009 assemblage compared to the one previously described for the 2003 to 2005 investigations (Schurr 2006). The main differences in the two different assemblages are that the more recent collection contains a slightly higher percentage of shell tempered pottery which is probably a result of the discovery of more Upper Mississippian roasting pits and more excavations in the vicinity of the E 80 grid line where the Upper Mississippian occupation was the densest. The latest collections lack Marion Thick pottery characteristic of the Early Woodland period. Most of the Marion Thick sherds with the diagnostic attributes of coarse grit temper, very thick vessel walls, and fabric impressed interiors and exteriors were found to the east of the E 80 grid line and were especially common east of the E 90 grid line, suggesting that the Early Woodland occupations did not completely overlap with the Upper Mississippian ones. The site assemblage continues to lack Middle Woodland pottery from the Stillwell and Goodall phases at the peak of the Middle Woodland period (Mangold and Schurr 2006), indicating that the site was not in use at that time.

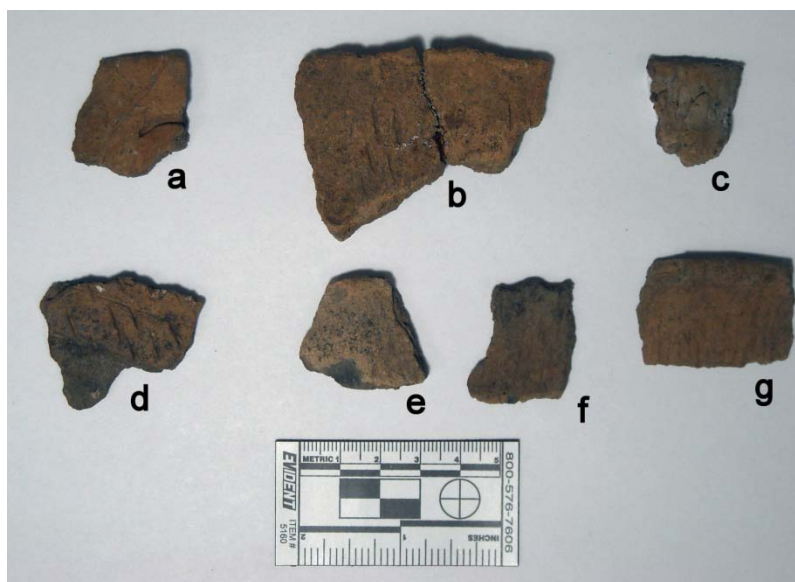


Figure 97. Decorated Grit Tempered Rim Sherds, Exterior.

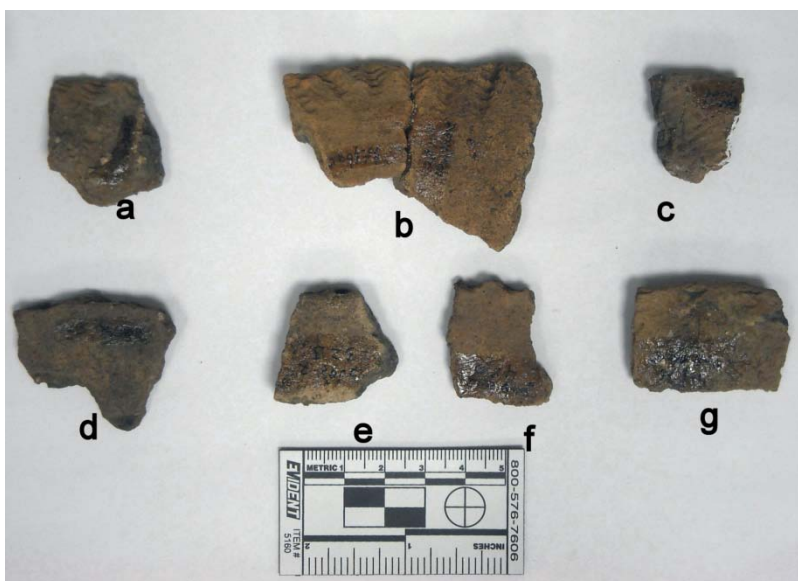


Figure 98. Decorated Grit Tempered Rim Sherds, Interior.

Shell Tempered Pottery

Pottery tempered with crushed shell is characteristic of the Upper Mississippian period that began after A.D. 1050-1100 or so and extended up the earliest time of historic contact in some regions. Common decorations that were used include incised lines, punctations, and various types of lip impressions. One sherd had a red slip applied to the vessel interior.

Incised Lines

Trailed incised decorations are a common feature of Upper Mississippian pottery from the region. Different line thicknesses were used to create the designs. Line thickness descriptions follow those of Faulkner (1972): Thin – less than 2.0 mm in width, Medium – 2.1 to 6.9 mm, Wide – 7.0 mm or greater.

Thin incised sherds are relatively rare in the assemblage. Only three sherds with thin incising were observed, and all were very small. The thin incised lines ranged from 0.6-0.7 mm wide. The incisions are relatively shallow, so they could be the ends of medium trailed lines. Medium incised lines were the most common (Figure 99a-d). Medium incising is found on both cordmarked and plain surfaced sherds. Several different tools were used, as shown by variations in line thickness (from 2.5-4.1 mm). Several sherds were decorated using a tool with a rounded tip. In two cases, the rounded-tip line may be accompanied by a punctate (another common Upper Mississippian decoration). Sherds decorated with medium lines and punctates had smooth surfaces (Figure 99d). Medium trailing over smooth surfaces was more common than over cordmarking (n = 15 versus 4).

The medium incised sherds (Figure 99a-d) probably all represent examples of the type Fifield Trailed (Faulkner 1972). The best example of this type is an everted rim sherd (2007.02.682, Figure 99a) with a triangular pattern of medium (3 mm) trailed lines. The rim has a lug-like protrusion. The lip on the lug portion of the rim was notched with the same tool used for the trailing. A single punctate was placed in the center of the lug using a hollow tool 5.5 mm in diameter.

Although Faulkner reserved wide trailing for lines 7 mm wide or larger, several sherds had trailed incised decoration that was somewhat narrower than 7 mm (ranging from 5.5 to 6.9 mm) but that were significantly wider than what is typical for medium incising (Figure 99e-f). These medium-thick trailed lines were made with a blunt tool, perhaps even a finger tip, and were placed over a cordmarked surface. On one sherd (2007.02.562, Figure 99e), the lines are bordered by a row of shallow punctates 8 to 10 mm in diameter. These sherds probably came from a single vessel that was a variant of the type Fifield Bold. Similar medium wide trailing was also observed on four smooth surfaced sherds, suggesting a second Fifield Bold vessel in the assemblage. Three additional sherds may have been decorated with medium-wide trailing but they are too small and eroded for this identification to be certain.

A single small rim sherd (2008.02.282, not depicted) shows what appears to be horizontal medium trailing between the neck. The vessel might have also had vertical medium-wide trailing below the neck. However, the sherd is too small to tell whether medium-wide trailing extended onto the body. Other unusual decorations include possible parallel lines 1.6-1.8 mm wide (2006.01.991, not depicted), and very deep incised lines 1.5-2.0 mm wide that were applied when the clay was very soft (2006.01.1262, Figure 100c).

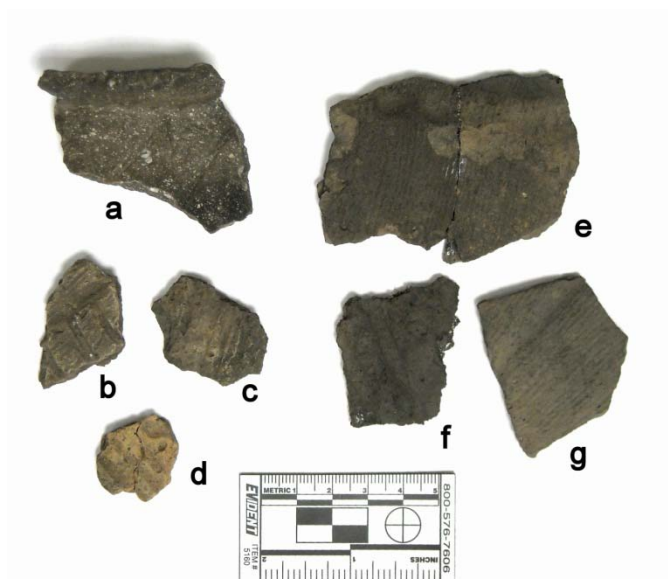


Figure 99. Incised Shell Tempered Sherds.

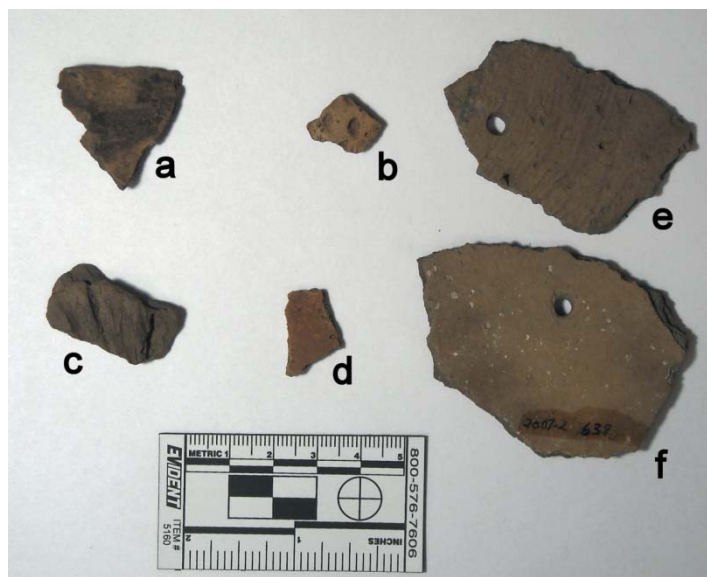


Figure 100. Decorated Shell Tempered Sherds and Sherds with Drilled Holes.

Drilled Holes

Drilled holes 5.1 mm in diameter, applied from the exterior (Figure 100e and f), were seen in five sherds, all of which could have come from a single cordmarked vessel. None of them could be refitted together. Drilled holes were also seen in sherds from the Griesmer site (Faulkner 1972). The holes were probably drilled to produce a colander.

Rim Decoration

Of the 30 shell tempered rim sherds collected, 15 were too small or too eroded to analyze. Four different treatments were observed on the sherds that had intact rims and lips that were large enough to study (Figure 101). These included undecorated, notched, dowel impressed, and punctated. Only two rim sherds were undecorated (not depicted). One (2008.02.468) came from a vessel with a constricted mouth, while the other vessel (2009.02.561) had a slightly out-flaring mouth.

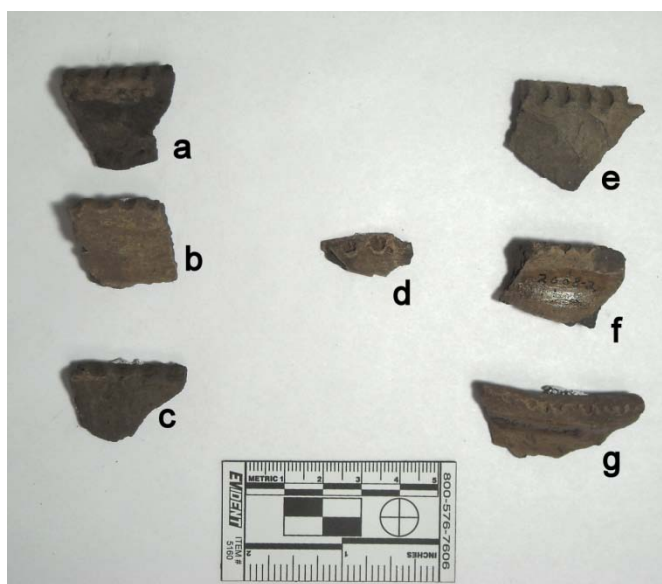


Figure 101. Decorated Shell Tempered Rims.

Some form of lip impression was the most common type of decoration. Two rim sherds (2006.01.1025 and 2008.02.312, Figure 101f and g) that were probably from two different vessels were decorated with small notches on the lips of outflaring rims. Plain dowel impressions were applied across the rim using tools ranging from 2.3 to 6.5 mm in diameter, which was the most common pattern, but found on only six sherds. One of the sherds (2007.02.654, Figure 101a), with a single 6.5 mm lip impression from a dowel, also has a possible handle attachment where a loop handle may have broken off. This is the example of a vessel with a handle. In one case (2008.02.384, Figure 101c), the dowel was applied to the rim at an angle. In another case (2006.01.1240, Figure 101e), a round

tool with a rounded tip was used to decorate the rim edge without extending across the entire rim to create round-ended impressions. Unique rim decorations included punctates formed with a round tool 3.7 mm in diameter with an uneven tip which may have been produced by a broken twig, and shallow round impressions on the interior just below the lip on a slightly everted rim sherd (2008.02.296, Figure 101a). The impressions were made with a rounded tool about 7 mm in diameter. They could have been made with a thumb or fingertip. The interior of the vessel appears to have been smoothed and the exterior may have been cordmarked.

Punctations

Punctations are relatively rare in the assemblage. One small sherd (2007.02.655, Figure 100a) has hemiconical punctates that were applied with a pointed tool 2.1-2.5 mm in diameter over a smooth surface. Most punctations were confined to the rim or associated with trailed lines (above).

Red-Slipped

One sherd (2006.01.1031, Figure 100d) was red-slipped on the interior surface (the exterior was smooth). The sherd is very small and it is not possible to tell what kind of vessel it came from.

Cultural Affiliations of the Shell Tempered Assemblage

As was the case for the shell tempered assemblage from 2003 through 2005, the 2006 through 2009 assemblage is consistent with an occupation date of sometime after A.D. 1400 and prior to 1600 (Schurr 2006). The assemblage is more similar to that from the Fifield site than it is to that from Griesmer (Faulkner 1972), so Collier Lodge may have been occupied between the times when those two sites were in use. The Collier Lodge assemblage lacks the fine trailed Huber vessels characteristic of the latest Upper Mississippian assemblages from the southern end of Lake Michigan (Brown 1990a), so the Upper Mississippian occupation at Collier Lodge pre-dates that of Griesmer and is completely prehistoric.

Prehistoric Lithic (Stone) Artifacts

Chipped Stone

Stone (lithic) artifacts were sorted by whether or not they were debitage or tool fragments, then further described as necessary. The lithic inventory for the excavations is given in Appendix 3. Lithic artifacts recovered from Collier Lodge were basically produced by two different methods: by chipping or by pecking and grinding. The vast majority of chipped stone artifacts were made from chert, a low quality grade of flint that

is widely available in North America. Ground stone tools were made from hard igneous cobbles and from softer stones such as slate or sandstone.

Knapping, the technical term for the production of chipped stone tools, is a reductive or subtractive technology that follows a distinctive trajectory, or set of steps. A chipped stone artifact begins as a solid piece of material. After a flake is removed from the piece, it becomes a core. Continuing reduction produces additional flakes and eventually the core is shaped to become a tool. The tool may be chipped on two sides (producing a biface) or on just one side (to produce a uniface). The tool will probably be further reduced as it is re-sharpened or re-shaped for other uses. Eventually the tool is broken or exhausted, and may become a fragment of a tool. Flakes can be used as tools and may be deliberately modified to create a specific shape working edge, or incidentally modified if the edge was marked by cutting or some other activity. Bipolar reduction is an alternative to the reductive trajectory. In this method, a piece of chert is placed on a hard surface and then smashed with a hammerstone or other hard object to produce a selection of flakes and other fragments. This is an effective method for producing flakes from poor quality chert nodules that are very hard (a frequent characteristic of glacially deposited chert cobbles, the only local source of chert in the Collier Lodge area). The chipped stone artifacts are presented under the categories of “Debitage” (knapping debris left over from tool production and reworking) and tools.

Debitage

Cores and Core Fragments

Most of the cores are relatively small and are made from glacial cobbles. Core fragments are more common than complete identifiable cores. Extensive reuse and recycling of chert is a typical characteristic of most northwestern Indiana lithic assemblages. This economy of use was necessary because high quality chert sources are not present in the area. In at least one case (2008.02.245) a small core or a core fragment was lightly retouched on its edges for use as tool. Most of the cores are irregular fragments, but one core fragment made of an unidentified gray chert with brown bands has parallel flake scars that are similar to those seen on cores prepared for the manufacture of lamellar blades. If so, then the core was produced during the Middle Woodland period. However, no blades of the same chert have been identified in the assemblage.

Flakes

Flakes were initially sorted into two categories. Primary flakes are flakes that show more than 50 percent cortex (the exterior surface of the chert nodule), revealing that they were removed during the early stages of core reduction. Secondary flakes show less than 50 percent cortex (and most showed none). The primary chert flakes are relatively small, suggesting a heavy reliance on glacial pebble cherts or bipolar reduction. A very heterogeneous array of cherts is present in the secondary chert flake collection.

Comparison of the primary and secondary flakes suggest the vast majority are made of locally available cherts. Identifiable exotic (imported) cherts make up a very small proportion of the collection. Additional studies of the flakes in the future could probably produce additional information about the sources of the chert used at the site. However, the small size of the flakes and the diversity of glacially-derived chert types might place severe limits on what could be learned.

Blocky Fragments

This is a remnant category for chert fragments that are not flake-shaped, but instead are thick and blocky. These could have been produced by bipolar reduction or by chert cores that shattered along fault or defect lines during knapping.

Tools

Modified Flakes

Modified flakes show some type of edge modification, either accidental or deliberate. Analysis of the modified flake assemblage using methods such as use wear analysis (Keeley 1980) could provide more information about the ways that flakes were used. A few modified flakes were identified in the assemblage, but most of the flakes from Collier Lodge are too small to have been used as tools.

Unifaces

A uniface is a tool with one side that has been worked. All of the unifaces found from 2006 to 2009 were scrapers.

Scrapers

Scrapers are unifaces, bifaces, or flakes with at least one steeply retouched edge. The specimens from Collier Lodge are all unifaces that were probably used for scraping hides, fibers, and other materials. Scrapers are often classified based on which edge of the flake or biface was retouched. The Collier Lodge collection from 2006 to 2009 contains only endscrapers. All are variations of the familiar ovoid “humpbacked” scraper characteristic of the Upper Mississippian period (Figure 102a-d). One scraper (2009.0.1435, Figure 102a) is a typical example of a humpbacked scraper with some retouch on the back face. The other three humpbacked scrapers all have at least one attribute that is somewhat atypical. One (2008.02.244, Figure 102b) was made on a very curved flake. It was retouched on the sides for use as a side scraper and lacks the extensive retouch of the rounded end that is more typical. Another example (2008.02.224, Figure 102c) is similar to a humpbacked scraper but has a more rectangular shape and very limited retouch on the rounded end and on one side. There is a small amount of retouch on the obverse side near the base as well. Similar specimens were found at both the Fifield and Griesmer sites (Faulkner 1972). The final example

(2009.02.1360, Figure 102d) shares many attributes with the rectangular scraper, but has more extensive retouch on both faces at the proximal end.

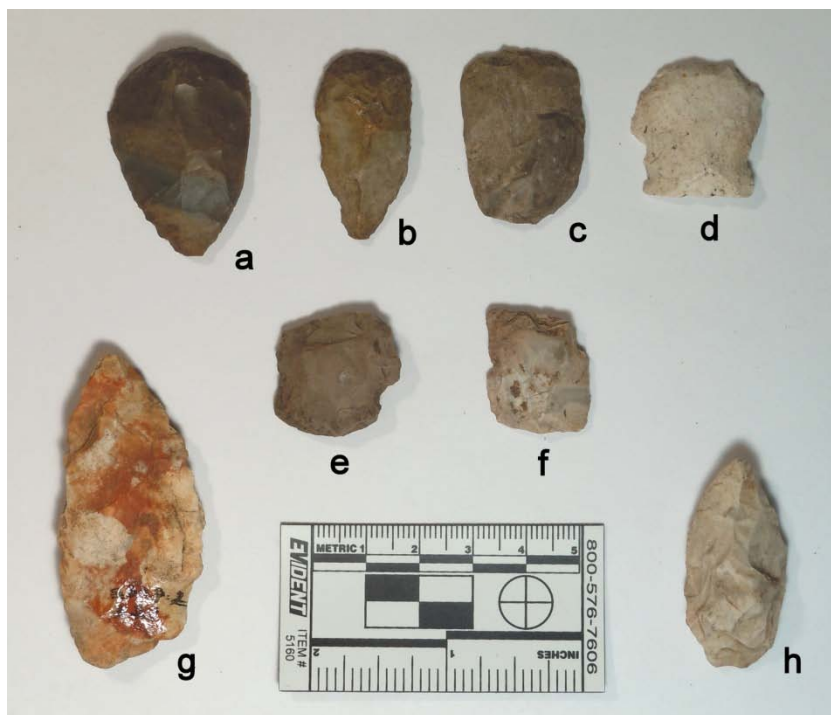


Figure 102. Scrapers, Pieces Esquillés and Crude Bifaces.

Bifaces

The most easily recognized chipped stone tools are bifacial. Crude bifaces (and fragments) are bifaces that bear large flake scars. In the Collier Lodge assemblage, most appear to be fragments of bifaces that broke during reduction, before they could be further refined. This was probably a common hazard when knapping poor quality local cherts. Sometimes fragments of bifaces were re-worked into other tools. For example, *pieces esquillés* are chert wedges that were used to split bone or wood. Two bifaces fragments (2006.01.1592 and 2008.02.219, Figure 102e and f) were used for these purposes, showing that tools made of bone or wood were being manufactured at the site.

Crude Bifaces

Two examples of crude bifaces were found. One artifact (2008.02.221, Figure 102g) is technically a biface because it is trimmed on both faces, but it is almost a unifacial knife because there is very limited retouch on one face. The tool was made of a very low quality chert and shows crushing step fractures at the rounded tip of the blade. It was probably used for chopping and was probably not hafted. A large, generally oval biface (2006.01.1492) is another example of a crude biface made of low quality material. The rounded end of the biface was crushed by battering some hard material.

The other crude biface (2006.01.1594, Figure 102h) was probably used as an ovate knife. During manufacture or sharpening, it could not be thinned further because of a high ridge on one side produced when thinning flakes terminated in step fractures.

Drills

Drills or perforators (Figure 103) are often found in prehistoric lithic assemblages. The Collier Lodge assemblage contains five drills of four different types.



Figure 103. Drills.

T-drills

A T-drill is a 'T-shaped' drill which might have been deliberately manufactured in that shape or formed by the repeated re-sharpening of a hafted biface until only a thin blade is left. One T-drill (2007.02.122, Figure 103a) has three arms that were modified for use. The central arm is the longest and thinnest and shows slight crushing damage at the tip. The other arms may have been used to drill larger holes, to produce holes in softer materials, or perhaps even as small knives in a sort of a Swiss Army knife approach to a multi-functional tool. The second T-drill (2007.02.111, Figure 103b) looks like it was made from the tip of a large biface that snapped from the blade in a transverse fracture. The biface could also have been a large triangular point with the base snapped off. The biface tip was then reworked into a drill.

Large triangular points may have been reworked into drills after they broke. One example (2007.02.47, Figure 103c) appears to have been made from a broken triangular point and probably dates to the Upper Mississippian use of the site.

Straight Drills

Straight drills are usually small tools that are often pointed on both ends. Two examples from Collier Lodge (2006.01.1541 and 2007.00.176, Figure 103d-e) both have triangular cross-sections and apparently broke during use when the tip snapped off.

Projectile Points and other Refined Bifaces

Projectile points are usually well-made bifaces that were probably used to tip arrows, spears or darts, although some may have been used as hafted knives.

Triangular Points

Triangular points (Figures 104 and 105) and other triangular bifaces (Figures 106 and 107) are characteristic of the Late Prehistoric period when the bow and arrow was introduced into the region. They may appear as early as A.D. 600 (during the Late Woodland period) and were the dominant projectile point by the Upper Mississippian period. Faulkner (1972) defined three main types of triangular points in his study of the Griesmer and Fifield chipped stone artifacts. Type I consisted of isosceles triangles (Figure 104 a-e) while the Type II points were equilateral triangles (Figure 104h-j and Figure 105a-d). Type III was distinguished by excurve sides and a straight basal edge (Figure 105e-f). All types were thought to have been used during the Upper Mississippian period, although the Type II form could also date to the Late Woodland. Types I and II were divided into sub-types based on the shape of the blade edges and base (incurvate, straight, or excurve).

Table 7 shows the types of triangular points found at the site, their measurable dimensions, and any additional observations. All three types defined by Faulkner were found at Collier Lodge, along with additional specimens that did not fit the sub-types he defined. For example, one Type I point (2009.02.236, Figure 104e) is atypical in that was a base fragment from a Type I point with straight sides and slightly convex base. Faulkner did not identify any Type I points with convex base edges so this point has been described as type Ih (Faulkner defined types Ia through Ig).



Figure 104. Triangular Point Types Id, Ih, and Ila.



Figure 105. Triangular Point Types IIb, II Atypical, III Atypical, and III.

Table 7. Triangular Points

Catalog Number	Type	Length (mm)	Width (mm)	Thickness (mm)	Comments	Figure
2006.01.1547	Id	-	13.9	4.3	Crushing damage on one edge	1041b
2006.01.1518	Id	-	11.2	2.3	Tip missing	104d
2006.01.1517	Id	25	13.1	4	Complete	104a
2009.02.236	“Ih”	-	17	3.7	Atypical convex base	104e
2008.02.237	IIa	18	14.8	4.9	Excurvate blade edges and straight base	104i
2008.02.223	IIa	25.5	20.9	3.5		104f
2007.02.182	IIa	-	21.1	5.4		104g
2007.02.138	IIa	16.7	-	3.5		104j
2009.02.1361	IIa	20.0	17.2	6.1		104h
2009.02.1526	IIb	-	14.6	4.5	Excurvate blade edges, concave base	105b
2006.01.1478	IIb	-	11.3	4.3		105a
2008.02.229	Id	-	14.7	6.3	Base only	104c
2007.02.177	II-atypical	16.1	13.8	4.2	All three sides incurvate	105e
2006.01.1440	II-atypical	-	22.8	4.1	Incurvate blade edges, straight base	105f
2007.02.33	III	26.4	14.5	4.0	Similar to Type III but with a concave base	105c
2009.02.226	III	32.5	16.3	6	Partially retouched on one face, one corner damaged.	105d

Large Triangular Bifaces

Large triangular bifaces (Figure 106a-c) are like unusually large triangular projectile points. All have the morphology of Type I points and were broken before discard. They were probably used as knives. Dimensions are given in Table 8.

Table 8. Dimensions of Large Triangular Bifaces

Catalog Number	Length (mm)	Width (mm)	Thickness (mm)	Comments	Figure
2008.02.89	28.5	13.6	4.8	Large Type Ia point with one blade edge broken off	106a
2006.01.1540	39.2	-	6.2	Asymmetrical blade edges, one slightly excurve, the other straight with extensive retouch	106b
2009.02.1388	38.7	-	6.0	Type Ia with corner of base broken off	106c

Asymmetrical Triangular Points

The 2003 to 2005 collection from Collier Lodge contained triangular points that were markedly asymmetrical (Figure 106d-f). Three similar points were identified in the 2006 to 2009 assemblage. Two of the three are large Type Ia points that were reworked by retouching the damaged edge after one corner of the base had broken off. The third example was also reworked but cannot be assigned to a specific type. Dimensions are given in Table 9.

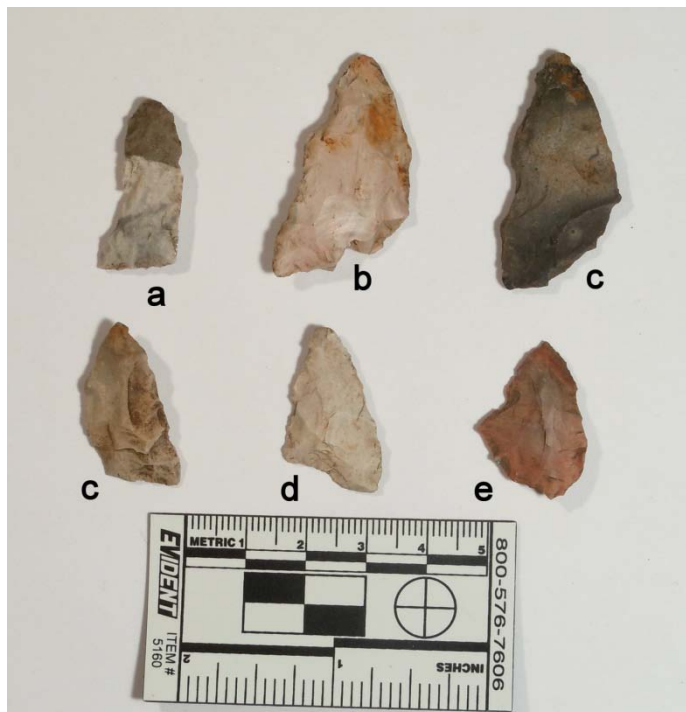
**Figure 106. Triangular Bifaces and Asymmetric Triangles.**

Table 9. Dimensions of Asymmetrical Triangular Points

Catalog Number	Length (mm)	Width (mm)	Thickness (mm)	Comments	Figure
2006.01.1422	26.5	-	5.5	Type Ia	106d
2008.02.215	27.1	-	4.3	Type Ia	106e
2008.02.210	-	-	6.1	Untyped	106f

Crude Triangles

These are unrefined triangular bifaces, including a roughly made, generally triangular biface on very fossiliferous chert (2008.02.228, Figure 107 left). The tip and one edge of the blade are broken off. A different approach to making a roughly triangular biface is shown in a large flake that was generally trimmed into a triangular shape (2006.01.1417, Figure 107 right). The second example is almost a uniface. These two items probably represent expedient approaches to triangular biface production when suitable material, time, or experience was unavailable.

**Figure 107. Crude Triangles.**

Notched Points

Notched points come in a variety of types. Corner notching first appears during the Early Archaic but persists up to the Late Prehistoric period in some parts of North America. Side notching is often seen as a hallmark of the Middle Archaic.

Corner Notched Points

One very large corner notched point (2006.01.1515, Figure 108a) was probably a knife based on its size. This artifact dates to the Early Archaic because it is corner notched, alternate beveling was used to re-sharpen the blade, and the base was ground. The blade has been re-sharpened to the point that it has a square cross-section. The point is unusual because it has a very concave base. One of the ears is broken off and one barb was also broken, but was later retouched. It is made of an unidentified white and reddish-tan chert. The point looks similar to the type Graham Cave Corner Notched (Logan 1952) but the base is more concave, similar to what Justice (1987:74) illustrates for Stillwell Corner Notched points. Based on its similarity to Graham Cave Side Notched points, it was probably manufactured between 8000-5500 B.C. (Justice 1987:66). This point is so atypical that it probably deserves a new type name such as *Hodson Corner Notched*. The distribution of Graham Cave Side Notched and Stillwell points are not considered to extend to northwestern Indiana, according to Justice, being found in low frequencies in the lower Ohio Valley and the Mississippi/Missouri confluence region. One could easily travel from Collier Lodge to the Mississippi/Missouri River confluence by river.



Figure 108. Corner and Side Notched Points.

Another point (2006.01.1516, Figure 108b) is similar in overall shape to Kirk Corner Notched, a widely distributed Early Archaic type. This example lacks the alternate bevel re-sharpening and basal grinding typical of Kirk, but does have serrated blade edges. It was made of fossiliferous chert and was heavily re-sharpened. Justice (1987) suggests a date range of 7500 B.C. up until perhaps as late as 5100 B.C. in some areas.

A small corner notched point (2007.02.51, Figure 108d) could also be a very small version of a Kirk point based on its shape, basal grinding, and weakly serrated blade edges. Its small size and ground base are attributes shared by the type Palmer Corner Notched (Justice 1987) but this specimen lacks the pronounced blade serrations characteristic of that type.

Side Notched Points

Only one side notched point (2006.01.1513, Figure 108c) was found from 2006 through 2009. It is similar the Early Archaic Thebes type (Justice 1987:54-57). The point was heavily re-sharpened to create a triangular, serrated blade. Thebes points were produced between 8000-6000 B.C. and are very common in Indiana .

Stemmed Points

Stemmed points first appear during the Early Archaic and persist up until at least the Middle Woodland period. Stem shapes vary from contracting, to straight, to expanding. Intermediate forms are sometimes difficult to assign to specific types. One example (2007.02.78, Figure 109g) of a point with a slightly expanding stem is missing the tip, which snapped off approximately mid-blade. The blade shows large parallel percussion flake scars with a retouched blade edge. The base is slightly concave. The point is similar to the type Benton Corner Notched dated between 3500-2000 B.C. (Justice 1987). This type is commonly found in the Mid-South, so it is somewhat north of its typical range at Collier Lodge. A small straight or very slightly expanding stemmed point (2007.02.39, Figure 109i) was reworked down to a perforator. The haft morphologically is also similar to points from the Benton cluster.

A small straight stemmed point (2009.02.1488, Figure 109h) has an asymmetrical triangular blade. One corner of the base was retouched after breakage and the tip was broken off with an impact fracture. The cross-section is convex on one side and diamond shaped with a well-defined central ridge on the other side. This specimen is similar to Lamoka cluster points but lacks the large, unmodified basal flake scar characteristic of the type. The base was instead trimmed with parallel pressure flaking on one face. Lamoka points are a Late Archaic type that is widely distributed across the region south of the Great Lakes. They were made between 3500-1800 B.C. (Justice 1987:127-130).

Contracting Stemmed Points

Adena Stemmed points have stems with a distinctive rounded base and are probably one of the most easily recognized point types. Two complete Adena points (2006.01.1534 and 2009.02.1531, Figure 109j and k) and one stem fragment (2007.02.170, not pictured) are present in the collection. This point type dates to the Early Woodland period between 800-200 B.C. and is widely distributed across the American midcontinent (Justice 1987:191-196).

Expanding Stemmed Points

Expanding stemmed points were used from the Middle Archaic to the early Late Woodland periods. A haft portion of an expanding stemmed point (2006.01.1524, Figure 109m) appears similar to points from the Motley cluster. Points of this type were used between 1300-600 B.C. and widely distributed across the deep south and the lower Midwest (Justice 1987:198-201). According to Justice, the northern distribution is not well documented. If the Motley point is a Terminal Archaic/ Early Woodland prototype for the Middle Woodland Snyders point, as Justice suggests, it would not be surprising to find examples in northwestern Indiana because Snyders points are well-known from the region.

Expanding stemmed points were the dominant point type during the later Middle Woodland. A Steuben Expanding Stem point (2008.02.240, Figure 109l) in the assemblage was probably manufactured between A.D. 100-500 (Justice 1987:208-211). Points of this type were in use during the terminal Middle Woodland Weaver phase in the central Illinois Valley and the late Middle Woodland LaPorte phase in northwestern Indiana (Mangold and Schurr 2006). The Lowe Flared base is a regional variant of the Steuben Expanding Stem type. Two refit fragments of the base and most of the blade of a Lowe Flared Base point (2006.01.1519, Figure 109h) were collected at Collier Lodge. The primary distribution of this point type is centered on the Ohio-Wabash confluence but examples have been found in late Weaver contexts in central Illinois. It is therefore not surprising to find one from northwestern Indiana given the traditional cultural connections between the Goodall tradition of northwestern Indiana and the Havana tradition of Illinois. The specimen has the classic attributes of a hexagonal cross-section and appears to have been made of Wyandotte chert which was heat fractured. This point could have been made in southern Indiana and imported to Collier Lodge.

Intermediate Forms

Points intermediate in form between corner notched and expanding stemmed are frequently found in northwestern Indiana. Faulkner (1972) described these points as “corner removed” points, indicating how they were manufactured from a pre-form. The Collier Lodge assemblage contains six specimens that are difficult to assign to specific types because of their ambiguous haft morphologies. One example (2007.02.52, Figure 109d) could be a heavily reworked version of a Steuben Expanding Stemmed point with

crushing damage on one blade edge. It is made of white fossiliferous chert. Extensive reworking of points that do not clearly fit into specific types may be one reason they are difficult to type. For example, a point (2008.02.239, Figure 109c) with a damaged base and an asymmetrical blade is difficult to type because the blade has been re-sharpened until the notch on one side was almost obliterated. The squared off notch and serrated blade edges suggest that this point could date to the Early Archaic period. Another possible example of a heavily worked Early Archaic point consists of an expanding stemmed or corner notched point with small barbs (2008.02.216, Figure 109a). Both blade edges have small serrations produced by pressure flaking. The asymmetrical blade shape suggests it was used as a knife. The base is unground and has a large flake scar on one face. This specimen is similar to the Early Archaic type of Pine Tree Corner Notched (Justice 1987). That type is coeval with Kirk but its distribution is poorly understood.

Two very similar points (2006.01.1527 and 2006.01.1526, Figure 109e and f) made of yellow and red chert have slight expanding stems and serrated blade edges. Both points have distinctive basal thinning created with parallel pressure flaking. They probably date to the Archaic period and may have been made by one person based on their similar appearance and their recovery from the same excavation level in one unit. Other points could not be easily assigned to name types because they are either morphologically ambiguous or damaged (Figure 109b and c).



Figure 109. Stemmed Points.

Other Refined Bifaces

Large bifaces are very rare at Collier Lodge, probably because chert was not abundant and many larger pieces were continually reworked or recycled into other tools. A tip fragment from a large biface (2006.01.1353, not depicted) shows that large tools were used at the site.

Ground Stone Tools

Very few ground stone tools or tool fragments were recovered from Collier Lodge from 2003-2005. The same was true for the excavations from 2006-2009. The ground stone artifacts include two possible sandstone abraders and two pieces of worked slate.

Sandstone Abraders

Sandstone abraders are pieces of sandstone that were used as natural files or sandpaper. The 2003-2005 assemblage contained two examples with obvious grooves from use. No obvious sandstone abraders were found from 2006-2009. Two cubical pieces of sandstone that could have been used as abraders were found.

Worked Slate

Two pieces made of worked slate were collected (Figure 110a and b). One (2006.01.1520, Figure 110a) is a tear-drop shaped pendant of dull grayish tan slate with a single suspension hole. The pendant was broken during excavation but parts of it were not recovered, so it may have been broken before being discarded. The other piece of worked slate (2009.02.1473, Figure 110b) is a fragment of green slate with a squared-off edge and a portion of a drilled hole. It is probably a fragment of a pendant or a gorget.

Catlinite Pendant

A small triangular pendant of red catlinite (Figure 110c) bears a thin incized line. Catlinite artifacts have been associated with the Upper Mississippian period (Faulkner 1972) so this pendant probably was used by the Fifield phase occupants. However, it could also date as late as the early historic period.

Smoking Pipe Bowl Fragment

A fragment of a ground stone pipe bowl was also found (Figure 110d). The fragment probably came from a bowl with a short stem. Pipes of this type are characteristic of the late prehistoric and early historic periods. It was made from an unidentified fine-grained stone.



Figure 110. Ground Stone.

Historic Artifacts

Gunflints

Gunflints were the only type of historic lithic artifact recovered between 2006 through 2009. Ten gunflints or gunflint fragments were collected. The majority ($n = 6$) are tan colored spall-type gunflints (three examples are shown in Figure 111a-c). They were manufactured in France and were used between A.D. 1650-1770 (Jaekle 1992:22-23). The spall type gunflint began to be replaced by gunflints manufactured using the blade process after about 1740. Blade type gunflints are reported to have been used up until the 1820s (Jaekle 1992) but they have been found at late Removal period sites such as the Pokagon Village that were inhabited into the 1830s, so they may have been used a bit later than 1820 in northern Indiana and southwestern Michigan. One flake of very light

translucent amber flint (2006.01.1045, Figure 111d) may have come from a late French blade gunflint, based on the color of gunflints found at late Removal Period sites. Two fragments of dark gray flint represent English blade-type gunflints (Figure 111e and f). Both show edge wear damage characteristic of use as a strike-a-light (used to make fire by striking the flint against steel). The two English manufactured gunflints may date to the early nineteenth century Euroamerican occupation of the site.

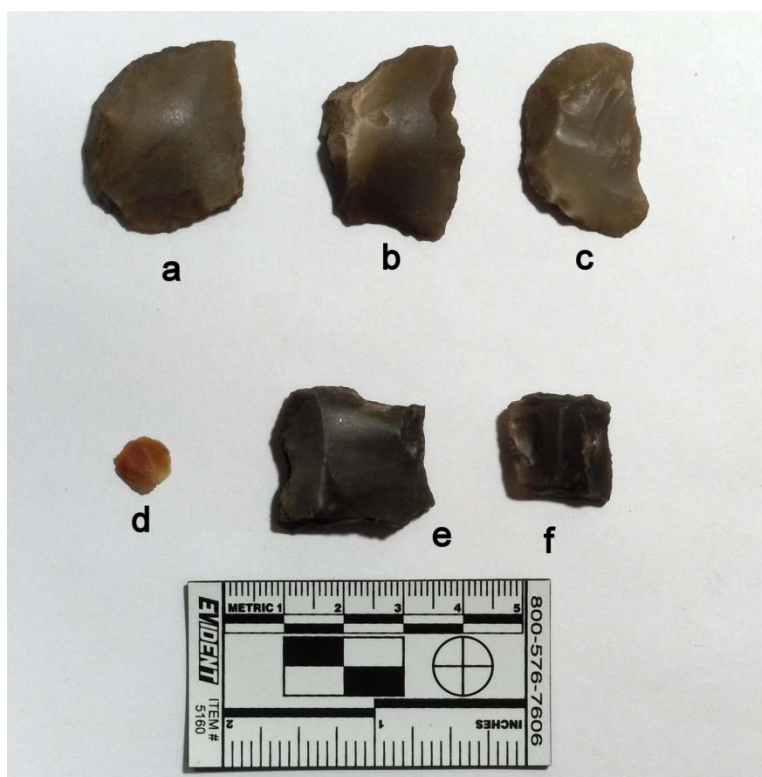


Figure 111. Gunflints.

Historic Ceramics

Ware Types

The historic ceramics were catalogued using the system previously used to organize historic ceramics from Marshall County, Indiana (Secunda and Schurr 2005) and the Collier Lodge assemblage collected between 2003-2005 (Schurr 2006).

Fine Earthenwares

Fine or refined earthenwares are well made types of pottery that are often decorated. They were used as table wares although some wares, such as porcelain, may have been used for purely decorative items or toys. Table 10 provides a list of the finewares present in the assemblage along with counts and weights for each ware. A full inventory of the fineware sherds is given in Appendix 4. The table also shows the years when each type of ware was in common if the ware was used during just part of the total time period when the site was used.

Table 10. Fine Earthenware Abundances

Ware	Number	Percent	Weight (g)	Percent	Dates of Production
Pearl	590	27.3	1448	35.1	1780-1830
White	1354	62.5	2068	50.1	1830-present
Ironstone	62	2.9	346	8.4	1840-present
Soft Paste Porcelain	4	.2	6	.1	
Porcelain	16	.7	36	.9	
Yellow	52	2.4	97	2.3	1825-present
White Clay Pipe	87	4	129	3.1	
Total	2165		4129		

Compared to the 2003-2005 assemblage, the 2006-2009 assemblage contains a much higher proportion of pearlware. Pearlware made up less than 5 percent of the earlier assemblage, but comprises more than 25 percent of the later assemblage. Ironstone is slightly more abundant in the later assemblage, but it still makes up a small portion of the total collection. Porcelain remains very rare. This reflects the utilitarian character of the Collier Lodge assemblage, where table wares used in daily activities are the main type of ceramic found.

Decorated Fine Earthenwares

The decorated fine earthenwares provide more specific information about the occupation chronology of the site than do just ware types alone. That is because decorative techniques evolved more rapidly than ware types and were more diverse. As shown in Table 11, many different decorative types, based on technique and palette, are present in the assemblage. All the decorations at the site date from the early nineteenth to the twentieth century, just as the wares did. Decorative methods in use during the early nineteenth century are especially abundant in the collection. These include handpainted (Figures 112-114) and transfer printed (Figures 117-119) pearlwares and white wares

produced in England. These styles were common imports prior to the Civil War. They were widely used during the later part of the Removal Period (between about A.D. 1820–1840) (Schurr 2006). Ceramics of these types extend into the period of early Euroamerican settlement, beginning into the late 1830s and extending up until the Civil War. Later transfer prints and handpainted designs use different palettes and motifs and were usually placed on ironstone. In general, most of the sherds from Collier Lodge are too small to permit the identification of specific decorative motifs. Those that can be defined include monochromatic floral handpainting (especially common during the 1820s, Figure 112), sprig floral hand painting designs in the late palette (Figure 113, dating between about 1835 to 1855), and hand painted annular (banded) decoration (1820 to 1850), Figure 115. As the earliest documented Euroamerican occupation of the site began in 1834, the presence of early handpainted floral monochrome designs in conjunction with blue edged ware (Figure 116) suggests that there was a Removal Period occupation of the site during the 1820s and the early 1830s. They were probably Potawatomi who gave the site its first known name of Pottawatomie Ford. The later styles of blue edged ware, sprig hand painted wares, and sponge wares (Figure 120) were all in common use during the Sawyer and Baum occupations of the site. Late nineteenth and early twentieth century ceramics include ironstone wares (sometimes with molded decorations or a pale blue wash, Figure 121), and gilt decoration with floral decals (Figure 122). All were manufactured after 1830. Other late nineteenth century wares include yellowwares with brown Rockingham glaze (Figure 112e and d) and white ironstone pottery decorated with molded designs.



Figure 112 . Monochrome Handpainted Pearlware and Rockingham Glazed Yellowware.



Figure 113. Handpainted "Sprig" Pearlware.



Figure 114. Handpainted Pearlware Pitcher Sherds.



Figure 115. Annular Decorated Pearlware.

Table 11. Fine Earthenware Decorations and Dates.

Ware	Decoration	Number	Weight (g)	Date
Ironstone				1840-present
	Backmark; Printed Black	1	22	n.d.
	Blue wash	4	6.8	
	Hand Painted Annular; Red	4	8.15	1840-1855
	Molded	12	175.4	
	Molded Pattern (lines), Blue Wash	1	6	
	Molded Rib	1	2	
Pearl				1780-1830
	Blue Edgware	49	64.65	1780-1850
	Hand Painted Black, Green and Red	1	9.3	1805-1855

Hand Painted Floral, Black and Green Sprig	1	1.1	1835-1855
Hand Painted Floral, Blue and Green Sprig, Carination	2	3.2	1835-1855
Hand Painted Floral, Blue, Black and Green Sprig	2	66.2	1835-1855
Hand Painted Floral, Blue, Black and Green Sprig, Bluebells	1	5.7	1835-1855
Hand Painted Floral, Blue, Black and Green, Impressed Backmark "H"	2	2	1830-1835
Hand Painted Floral, Bright Green & black	2	2	1830-1835
Hand Painted Floral, Bright Green, Blue, Red, Black	1	1	1830-1835
Hand Painted Floral, Bright Green, Red	1	2	1830-1835
Hand Painted Floral, Brown and Green Sprig	1	12.6	1830-1835
Hand Painted Floral, Brown, Green and Yellow	2	15.4	1830-1835
Hand Painted Floral, Green	1	1	1830-1835
Hand Painted Floral, Green and Red Sprig	2	21.9	1835-1855
Hand Painted Floral, Green and Yellow	1	1.8	1835-1855
Hand Painted Floral, Green Sprig, indent. Backmark	1	.6	1835-1855
Hand Painted Floral, Medium Blue, Monochrome	2	24	1825-1830
Hand Painted, Medium Blue Line	1	.5	1805-1855
Hand Painted, Medium Blue Rings and Indet. Blue Dec.	5	13	1805-1855
Hand Painted, Annular Brown	1	.1	1820-1850
Hand Painted, Annular Brown and Blue	10	65	1820-1850
Hand Painted, Annular Brown and Blue Green	15	64.7	1820-1850
Hand Painted, Annular Brown and Blue, Carination	1	9.4	1820-1850
Hand Painted, Annular Brown, Carination	1	1	1820-1850
Hand Painted, Blue	2	1.2	1805-

			1855
Hand Painted, Blue and Red Lines, Annular ?	1	1	1820- 1850?
Hand Painted, Blue line	4	4.3	1805- 1855
Hand Painted, Blue Monochrome	1	3.8	1825- 1830
Hand Painted, Brown	1	7.7	1805- 1855
Hand Painted, Brown and Green	1	2.1	1805- 1855
Hand Painted, Brown Lines	1	2.8	1805- 1855
Hand Painted, Green	5	8.9	1805- 1855
Hand Painted, Green and Pink	2	6.2	1805- 1855
Hand Painted, Green, Monochrome	1	1	1825- 1830
Hand Painted, Maroon, Impressed Backmark-Round segmented flower	1	14	1805- 1855
Hand Painted, Pinkish-Purple Line Int.	1	1	1805- 1855
Hand Painted, Red Line	2	11.5	1805- 1855
Handpainted, Blue Monochrome, Carination	1	21.1	1825- 1830
Blue Edgeware; Scalloped Rim w/ Curved Impressed Lines	7	11	1780- 1850
Sponge Print, Blue	9	17.4	1835- 1860
Sponge Print, Blue and Red	1	4.7	1835- 1860
Sponge Print, Blue and Red, Handpainted Line, Red	6	18.6	1835- 1860
Sponge Print, Blue and Red, Interior	4	11	1835- 1860
Sponge Print, Blue -broken off face?	1	2.1	1835- 1860
Sponge Print, Blue Int.	2	1	1835- 1860
Sponge print, Blue, Carination	1	1.7	1835- 1860
Sponge Print, Blue, hand painted line, Blue	1	1	1835- 1860

Sponge Print, Blue, Hand painted line, Med. Blue	1	1	1835-1860
Sponge Print, Blue, with Hand painted line, Blue	8	4.9	1835-1860
Sponge Print, Blue; Hand painted Line, Lt. Blue	5	4	1835-1860
Sponge Print, Cut, Blue	1	.5	1845-1875
Sponge Print, Cut, Brown and Green	1	1	1845-1875
Sponge Print, Cut, Brown, with Hand painted Line, Black	1	1	1845-1875
Sponge Print, Green	1	2	1835-1860
Sponge Print; Blue, with Hand Painted Line, Medium Blue	1	2	1835-1860
Transfer or Sponge Print, Blue	1	.5	1820-1860?
Transfer Print, Black	2	3.1	1820-1840
Transfer Print, Blue	44	117.4	1795-1830
Transfer Print, Blue (Willow pattern?)	2	32.2	1795-1830
Transfer Print, Blue, Backmark	5	58.1	1795-1830
Transfer Print, Blue, Carinated	2	4.2	1795-1830
Transfer Print, Flow Blue	4	19.4	After 1845
Transfer Print, Flow Blue, with Hand Painted Line	2	1.4	After 1845
Transfer Print, Light Blue	2	10	1795-1830
Transfer Print, Red	3	8	1829-1840
Unidentified Blue dec.	1	.4	n.d.
Unidentified Red dec.	1	.3	n.d.
Porcelain			
Brown glaze	2	5	n.d.
Molded Rib, from a decorative piece?	1	1.9	n.d.
Scalloped Edge; Molded Pattern	1	1	n.d.

	Screen print, Brown (recent)	1	1	1970s?
	Thin Pink Line	1	4	n.d.
Soft Paste Porcelain				
	Hand Painted, Red Line	1	.3	1805- 1855
Unidentified				
	Golden Acrylic Orange Oxide ext., Clear Glaze int.	1	1	20th century
White				1830- present
	Unidentified Blue dec.	9	4.6	n.d.
	Blue Edgeware	9	19.5	1795- 1845
	Transfer Print, Blue	3	8.4	1795- 1830
	Bright Lt. Green Glaze	1	1	20th century
	Bright Lt. Green Glaze; Incised Lines	1	.5	20th century
	Brown glaze	1	.8	n.d.
	Brown/Yellow Swirl	1	1	n.d.
	Unidentified dark red glaze	1	.2	n.d.
	Decal or Paint, Orange and Green Decoration	1	1	1880- present
	Decal, Brown	2	.6	1880- present
	Decal, Brown match gilded 1310	2	28.5	1880- present
	Decal, Brown/Blue	8	89.9	1880- present
	Decal, Brown/Blue, Gilded Line	3	16.4	1880- present
	Decal, faded	1	2	1880- present
	Decal, faded, molded scroll pattern- scalloped edge	1	2	1880- present
	Decal, Floral (faded); Scalloped Rim, Molded scroll pattern (int.)	6	23	1880- present
	Decal, Floral Pink & Green	2	15	1880- present

Decal, Gilded	1	141.5	1880-present
Decal, Gold, Lavender & Green Floral	1	4	1880-present
Decal, Mustard Yellow Floral/Leaf Pattern	1	1	1880-present
Hand Painted Floral, Black and Green	2	1.5	1830-1855
Hand Painted Floral, Black and Green Sprig	1	2.8	1835-1855
Hand painted Floral, Black and Maroon	2	.5	1830-1855
Hand Painted Floral, Black and Red	1	1.4	1830-1855
Hand Painted Floral, Black, Blue and Green	1	1	1830-1855
Hand Painted Floral, Black, Blue, Green and Red	14	18.6	1830-1855
Hand Painted Floral, Black, Green and Dark Red	1	1	1830-1855
Hand Painted Floral, Black, Green and Red	1	1.5	1830-1855
Hand Painted Floral, Black? Monochrome	1	5	1825-1830?
Hand Painted Floral, Blue and Green	2	1	1830-1855
Hand Painted Floral, Blue, Black, Green and Red Sprig	1	.6	1835-1855
Hand Painted Floral, Bright Green	4	3.5	1830-1855
Hand Painted Floral, Bright Green , Polychrome?	1	1	1830-1855
Hand Painted Floral, Bright Green, Maroon, Black	1	.5	1830-1855
Hand Painted Floral, Dark Red	2	3	1830-1855
Hand Painted Floral, Delicate Med. Blue & Green	1	1	1830-1855
Hand Painted Floral, Green	6	7	1830-1855
Hand Painted Floral, Green and Black	2	1	1830-1855
Hand Painted Floral, Green and Red	1	1.6	1830-1855
Hand Painted Floral, Green and Red	6	6.9	1835-

Sprig			1855
Hand Painted Floral, Maroon	4	3	1830-1855
Hand Painted Floral, Red	2	.9	1830-1855
Hand Painted Floral, Red Dots	1	1	1830-1855
Hand Painted Floral? with Red line	1	.5	1830-1855?
Hand Painted, Annular Brown and Blue	2	4.7	1820-1850
Hand Painted, Annular Dark Brown and Gray-Blue	1	.5	1820-1850
Hand Painted, Annular Dark Brown and Lt. Brown	2	3	1820-1850
Hand Painted, Annular Med. Blue and Dark Brown	1	1	1820-1850
Hand Painted, Annular Red, Int. & Ext.	1	1	1820-1850
Hand Painted, Annular, Dark and Light Brown	9	96	1820-1850
Hand Painted, Annular, Dark Brown, 3 rings	1	2	1820-1850
Hand Painted, Annular, Light and Medium Brown, Light Brown diagonal lines	1	.5	1820-1850
Hand Painted, Annular, Light Brown	4	6	1820-1850
Hand Painted, Black	2	1.6	1805-1855
Hand Painted, Black and Green	4	5.4	1805-1855
Hand Painted, Black and Light Green	1	.5	1805-1855
Hand Painted, Black and Red	5	3.5	1805-1855
Hand Painted, Black Line	1	1.7	1805-1855
Hand Painted, Black, Blue, and Green	1	1.3	1805-1855
Hand Painted, Black, Blue, and Red	1	.6	1805-1855
Hand Painted, Black, Green and Red	23	61.4	1805-1855
Hand Painted, Black, Green, and Red	7	11.3	1805-

			1855
Hand Painted, Black, Red, Yellow	1	.4	1805-1855
Hand Painted, Blue	4	2.6	1805-1855
Hand Painted, Blue and Green	1	7.5	1805-1855
Hand Painted, Blue and Purplish-Pink Line	1	1	1805-1855
Hand Painted, Blue and Red	2	3.2	1805-1855
Hand Painted, Blue, Red, and Yellow	1	.6	1805-1855
Hand Painted, Green	10	5.9	1805-1855
Hand Painted, Green and Red	4	7.4	1805-1855
Hand Painted, Green Lines, Annular?	2	.7	1820-1850?
Hand Painted, Green, Red and White	1	.5	1805-1855
Hand Painted, Maroon Dot	1	.5	1805-1855
Hand Painted, Medium Blue Line	1	.5	1805-1855
Hand Painted, Red	7	5.5	1805-1855
Hand Painted, Red Line	6	10.7	1805-1855
Hand Painted, Red Line, Int. & Ext.	2	1.5	1805-1855
Hand Painted, Red, Annular	1	1.5	1820-1850
Hand Painted, Red, Monochrome	2	1.3	1825-1830
Indeterminate Blue Dec.	5	4	n.d.
Indeterminate Blue Dec. (Sponge or Flow?)	1	.5	n.d.
Indeterminate Molded Pattern	1	2	n.d.
Indeterminate Red Dec.	1	.5	n.d.
Molded	7	23.5	n.d.
Molded Floral Pattern	2	8	n.d.
Molded Floral Pattern, Clover?	1	2	n.d.
Molded Horizontal Band, Blue	1	2	n.d.

decorated			
Molded Pattern Int.	1	8	n.d.
Molded Pattern Int. Scalloped Edge	1	3	n.d.
Sponge Print, Blue	8	6.5	1835- 1860
Sponge Print, Blue and Red	2	2	1835- 1860
Sponge Print, Blue and Red, Hand painted Line, Red	6	12.5	1835- 1860
Sponge Print, Blue Int. & Ext.	1	1	1835- 1860
Sponge Print, Blue, Hand painted line, Med. Blue	2	1.5	1835- 1860
Sponge Print, Blue, Hand painted line, Red	2	2.7	1835- 1860
Sponge Print, Cut floral, Green	1	.7	1845- 1875
Sponge Print, Cut floral, Green, with Hand painted Line, Black	1	.5	1845- 1875
Sponge Print, Cut, Dark Brown	1	1	1845- 1875
Sponge Print, Dark Blue	1	.5	1835- 1860
Sponge Print, Green	7	5.6	1835- 1860
Sponge print, Green, Carination	1	1.3	1835- 1860
Sponge Print, Green, with Hand Painted Line, Black	1	1	1835- 1860
Sponge Print, Green, with Hand Painted Red and Yellow	1	4	1835- 1860
Sponge Print, Red	9	4.4	1835- 1860
Transfer Print, Black	13	9.48	1820- 1840
Transfer Print, Blue	41	60.21	1795- 1820
Transfer Print, Brown	1	.1	1829- 1840
Transfer Print, Flow Blue	3	1.6	After 1845
Transfer Print, Purple	1	.5	1829- 1840
Transfer Print, Red	25	22.3	1829- 1840

	Unidentified Black dec.	3	3.1	n.d.
	Unidentified Blue and Red dec.	1	1	n.d.
	Unidentified Blue dec.	10	4.2	n.d.
	Unidentified Brown dec.	1	.2	n.d.
	Unidentified Green dec.	3	2.5	n.d.
	Unidentified Red dec.	1	.1	n.d.
Yellow				1825-present
	Beaded Ext. Below Rim	2	1	n.d.
	Dark Brown Glaze, Trace	1	6	1830-1900?
	Mochaware	5	7.2	1830-1860
	Mochaware, Incised or Molded Pattern	1	2	1830-1860
	Molded, Brown Glaze	1	3.8	1840-1900?
	Mottled Brown Glaze (Rockingham?)	2	1.5	1840-1900?
	None, Off-White Interior	1	.5	n.d.
	Rockingham Glaze or Mocha	1	1	1830-1900?
	Yellow glaze	6	3.5	n.d.
	Yellow/Brown	6	17.9	n.d.

One of the most frustrating aspects of the Collier Lodge ceramic assemblage is its highly fragmented nature. For example, the 703 sherds listed in Table 11 (decorated finewares) weigh 1,978 grams, for an average weight of about 2.8 g per sherd. To place this number in perspective, a relatively small (22 cm in diameter) transfer printed pearlware plate purchased from a local antique store weighs 416 g. Thus, the typical sherd from Collier Lodge represents about 0.7 percent of a small plate. For a further illustration, out of 1,362 catalog numbers assigned to fineware sherds collected from 2006-2009, only 77 catalog numbers (5.6 percent) produced 10 g or more of identifiable types. The highly fragmented nature of the assemblage indicates that much of the deposition is secondary, with sherds being damaged and reduced over time as the site was continually churned by all kinds of historic activities.

There are some exceptions to the general pattern. Several larger fragments of vessels were recovered (especially in 2009) that indicate primary deposition (or nearly so). These include examples of annular decorated bowls with relatively vertical sides (Figure 115), several sherds from a pitcher with a hand painted polychrome floral decoration (Figure 114), and sherds from two shallow pearlware bowls (Figure 113) with

sprig floral decoration. All the larger sherds came from Feature 25 or its surrounding halo. All are consistent with an early nineteenth century date for the lower stratum of the feature.

Blue Edgeware

Blue edgeware plate fragments were relatively abundant in the assemblage ($n = 65$, 95.2 g). Unfortunately, all are relatively small sherds. Several different vessels are present, based on the slight variations in rim patterns in the assemblage (Figure 116). Yellowware sherds (Figure 112c and d) were also very fragmented. Monochrome blue floral sherds that probably came from the same shallow bowl (2008.02.2146 and 200802.2522, the former is depicted in Figure 112b) were found in Level 2 (topsoil) of two different units that were separated by about 3 meters. This suggests that some artifacts were simply discarded on the ground surface of the site. That would account for why so many sherds are so small, as surface deposition exposes sherds to reduction by trampling and weathering.



Figure 116. Blueedge Ware.

Transfer Printed

Transfer printed ceramics were very popular in the early nineteenth century. Blue printed wares are the most abundant (Figures 117 and 118), followed by red (Figure 119a and b) and black (Figure 119c and d), and with single small sherds only of exotic colors such as brown (Figure 119e) and purple or mulberry (Figure 119f). Complete transfer patterns can often be dated very precisely if the pattern can be associated with a specific manufacturer. Unfortunately, that requires relatively complete vessels. Red transfer printed sherds (Figure 119a and b) are also very small, but represent at least one plate and

perhaps one footed cup. Little can be said about the patterns represented except that perhaps they were exotic scenes with a floral border. All of the black transfer printed sherds in the collection could have come from a single plate that probably depicted a garden or exotic landscape. One sherd from near the base of the vessel (2009.02.287, Figure 119c) contains feathery vegetation. Another sherd (2009.02.426, Figure 119d) shows a small portion of what appears to be a tower and possible palm trees.

At least 15 different patterns seem to be present in the blue transfer printed collection, suggesting that the pottery was purchased as individual vessels and not in sets, although some patterns were identified on different vessel types. Table 12 lists the various design elements that have been identified along with the vessel type they were found on. It might be possible to determine more specific information about some of the patterns, such as the pattern name and who produced, but most sherds are too small for pattern identification. For the present, the patterns are identified with letters to show which vessels share patterns in case future research makes it possible to identify specific patterns. This would be a difficult task because patterns are generally not indexed and can only be identified by leafing through books of with images of patterns (e.g. (Neale 2005).

Flow blue transfer prints were made after 1835. The flow blue decorations (Figure 118e and f) were made by adding chemicals that caused the ink to bleed or flow during the firing process. It is sometimes difficult to distinguish deliberate flow blue decoration from a poorly applied blue transfer print, especially when the sherds are very small (as for the possible flow blue sherds in the assemblage). The flow blue sherds from Collier Lodge include four uncertain examples and three sherds that appear to come from the same vessel (2006.01.647 [Figure 118f], 2009.02.079, and 2009.02.220) but that do not fit together.

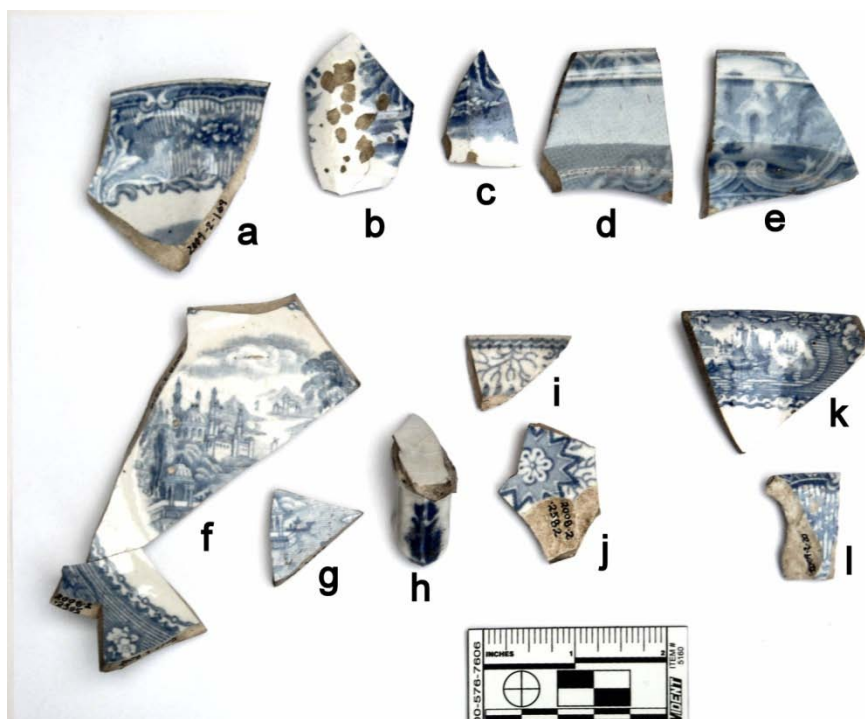


Figure 117. Blue Transfer Prints.

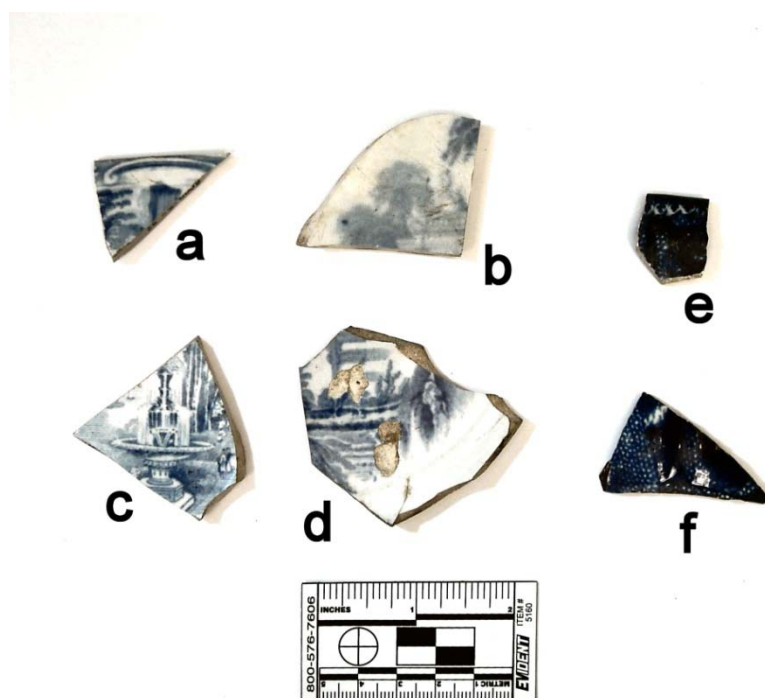


Figure 118. Blue and Flow Blue Transfer Prints.

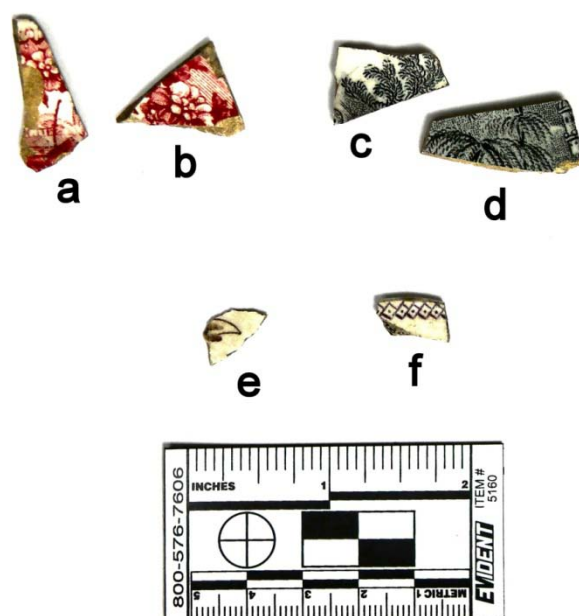


Figure 119. Unusual Transfer Print Colors.

Sponge Printed

Sponge print decoration (Figure 120) was first used around 1835. The early sponge print decorations were made by daubing colored pigment on the vessel with a natural sponge (Figure 120a-c, e). After 1845, cut sponges were used to make more organized designs (Figure 120d and f). The cut sponge decoration provided a low cost alternative to hand painting. Sponge print colors include blue in several different intensities (from very light to very dark, Figure 120a-f), green (Figure 120g-h), red (Figure 120e-f), and brown. Red and blue pigments were combined in two different patterns. One is a simple combination of red and blue applied across the interior of a shallow bowl so that the colors are inter-mixed (Figure 120e). The other combination was made using star-shaped cut sponges to make alternating red and blue imprints on a shallow bowl or small plate (Figure 120f). The sponge printing of this pattern is combined with a hand painted red line. At least two vessels with this pattern are present in the assemblage (a shallow bowl and a cup or perhaps even a teapot). Green sponge printing appears by itself (on a shallow bowl, Figure 120g) or in combination with hand painted red and yellow decoration with fine brown lines (on what was probably a footed cup, Figure 120h). Two small sherds have carefully cut sponge print decoration in brown and green. The sherds (not shown) are too small to determine the pattern or vessel type.

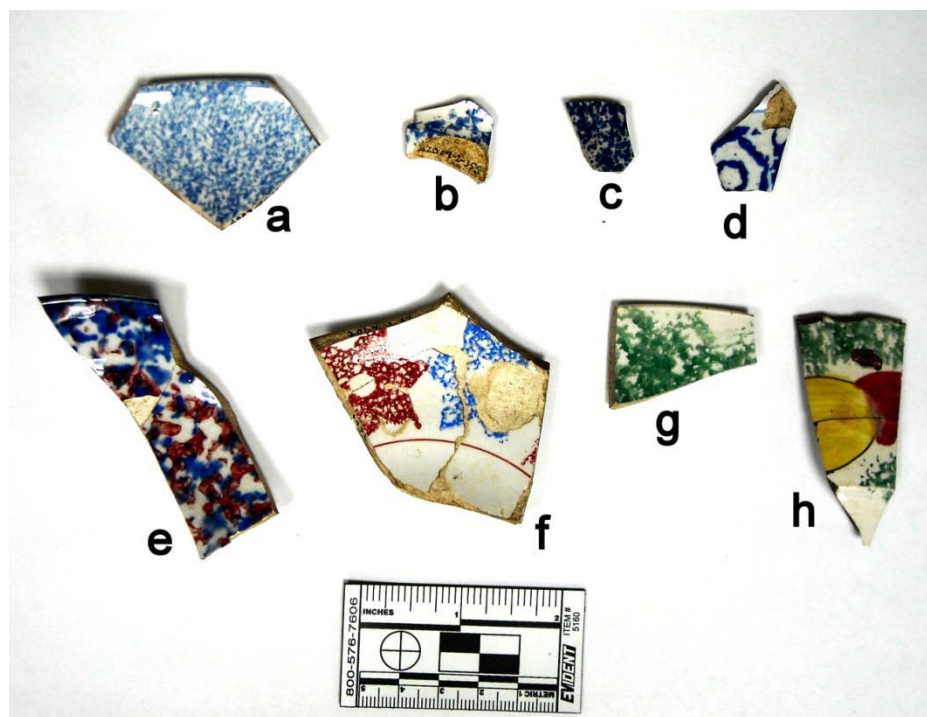


Figure 120. Sponge Prints.

Table 12. Blue Transfer Print Patterns

Pattern	Catalog No.	Comments
A Figure 117a	2007.02.886	plate or shallow bowl
	2009.02.046	
	2009.02.114	
	2009.02.119	
	2009.02.169	
	2009.02.173	
	2009.02.189	
	2009.02.199	
B Figure 117d and e	2009.02.375	
	2009.02.049	plate, architectural scene on border
	2009.02.066	
	2009.02.077	
	2009.02.170	
	2009.02.172	
	2009.02.209	
	2009.02.356	
C Figure 117h	2009.02.369	
	2008.02.2325	handle with a sharp elbow, dark blurry print that does not match other patterns
D Figure 117b and c	2009.02.125	teapot or cup with carinated sides
	2009.02.134	
	2009.02.163	
E Figure 117i and j	2007.02.832	cup or bowl
	2008.02.1935	possible teapot lid
	2008.02.2582	large floral star, bowl or cup?
F Figure 117k	2006.01.542	carinated cup with a nautical scene on the interior
	2006.01.632	
G Figure 117l	2009.02.020	Cup
	2009.02.131	
H	2008.02.2543	carinated cup
I	2009.02.2069	plate with same pattern as G?
	2009.02.2115	
	2009.02.2178	
J	2009.02.052	rim with vegetation design

Figure 118a		
K	2008.02.2505	plate with exotic scene and partial backmark
Figure 117f	2008.02.2510	
and g	2009.02.225	
L		
Figure 118c	2009.02.087	image of an enormous fountain
M		
Figure 118d	2009.02.069	somewhat blurry scene with vegetation
N		
Figure 118b	2009.02.168	light blue scene with architectural elements and vegetation

Ironstone

Ironstone pottery (or graniteware) is a very durable pottery made after 1840, but most common from the later nineteenth century on. The 2006 and 2007 collections were small and very fragmented. The 2008 and 2009 collections contained large sherds that could be refitted to determine the vessel type. The assemblage contains the base portions of four cups (Figure 121), and three cup rim sherds that do not refit with the bases. All three rim sherds have molded decorations in different patterns, so up to seven different cups could be present in the assemblage. Other identifiable ironstone vessel shapes include one bowl and one plate with a molded rim decoration. These types of vessels would date to the late nineteenth and early twentieth centuries. All four cup bases and the bowl came from Levels 5 to 7 within Feature 25 or the outer halo surrounding it, confirming that the upper portion of the feature was used as a trash pit near the end of the nineteenth century. All of the ironstone sherds were found above Feature 31, indicating that late nineteenth century kitchen debris were deposited within Feature 25 after the bricks of Feature 31.



Figure 121. Ironstone Cup Sherds.



Figure 122. Decal and Gilt Decorated Ironstone.

Decal Decorated

Decal decorated ceramics were made after 1880. Large sherds from two decal decorated shallow bowls or plates with gilt trim (Figure 122 shows the largest example) were found south of the Lodge in the disturbed soils over the two parallel lead pipes that were part of the Lodge's drain system. These types of ceramics were popular by the third decade of the twentieth century (Henry 1996), suggesting that the drain pipes were installed around that time or slightly earlier. Using various excavations opened for other purposes were used as trash pits when the excavations were filled in what seems to have been a typical waste disposal activity at Collier Lodge.

Coarse Earthenwares

The coarse earthenwares, or crockery, were also catalogued using the criteria presented earlier (Schurr 2006, Secunda and Schurr 2005). Sherds were categorized by paste color, interior and exterior surface, and portion of the vessel. An inventory of the coarse earthenware sherds is given in Appendix 5.

The earliest types of coarse earthenwares were redwares, with pastes made of red colored clay that can range in color from light orange to dark red depending on the type of clay used and the firing conditions (Figure 123). Redware vessels were often vasiform crocks with rolled or everted rims. The redware vessels used at Collier Lodge exhibited a number of different exterior surface treatments, including plain surfaces, brown slips, brown glazes, and glazes in various shades of yellow, orange, and red. The lighter colored glazes are often somewhat transparent, and mottled glazes of a single color with a transparent background or of several colors are also found. Plain exterior surfaces are very common. Interior surface treatments are also diverse although glazing was common. Interior colors include various shades of brown, often mottled or speckled, sometimes combined with a transparent glaze. Other colors include various shades of yellow, olive, dark red and maroon, along with a few examples of clear salt glaze. Most of the redware sherds from Collier Lodge seem to predate the Civil War and therefore reflect the Eaton and Sawyer era occupations. Representative examples of redware sherds from Collier Lodge are depicted in Figure 123.

Gray paste wares show a very narrow range of surface treatments. Exteriors are usually dark brown, often with salt or metallic glazes. A few sherds bear a transparent salt glaze (Figure 124). The limited range of variation reflects the relatively small size of the gray paste collection and indicates increasing standardization of manufacture after the Civil War when these wares were most common.

The tan paste wares are probably the latest in the coarse earthenware series. They are very well fired with a homogenous fine grained paste. Exterior colors include dark brown Albany slips or glazes, white Bristol glaze, a transparent or gray salt glaze, and a

sienna brown glaze applied over a ribbed surface. Interior glazes generally replicate those of the exterior. They date to the late nineteenth and early twentieth centuries.

The chronological trends in the coarse earthenwares replicate those of the fine earthenwares, at least from a numerical basis. As Table 13 shows, pre-Civil War redwares are most common numerically and by weight, followed by gray paste wares and then by wares with tan paste. Compared to the assemblage from 2003 to 2005, red paste wares are much more common, indicating that most of the contexts investigated from 2006-2009 contained a larger proportion of artifacts pre-dating the Civil War.

Table 13. Paste Colors of Coarse Earthenwares

Paste Color	Number	Percent	Weight (grams)	Percent
Red	668	88.9	1,856.2	77.2
Gray	46	6.1	257.5	10.7
Tan	37	4.9	291.1	12.1
Total	751		2,404.8	



Figure 123. Redware Sherds.



Figure 124. Gray and Tan Paste Coarse Earthenwares.

In addition to the coarse earthenwares specifically manufactured as crockery or other heavy duty uses, several other types of pottery were cataloged with the coarse earthenwares. These included fragments of red terra cotta sherds that were from relatively recent flower pots (reflective of gardening activities), a few ($n = 6$) very thick yellow ware sherds from a brown glazed vessel, and sherds from a large bowl-shaped vessel with a cream-colored paste, red or maroon slip-like glaze, and incised decorations (Figure 124, lower right). This last vessel appears to be art pottery and was also probably used as a flower pot. There has been speculation that it was manufactured in Mexico during the 1970s.

Porcelain

As noted above, porcelain is a relatively minor portion of nineteenth century ceramic assemblages in northwestern Indiana. Only 16 porcelain sherds (.7 percent of the assemblage) were collected. Most are undecorated body sherds that came from small containers or decorative pieces of unknown shapes. Items such as doll parts or electrical insulators that were collected from 2003 to 2005 do not appear in the 2006 to 2009 assemblage. The only decorated example that can be dated was a single sherd with a decal decoration (2008.02.2378) that came from a top soil context. Given the other ceramic evidence showing that early nineteenth century ceramics and contexts dominate the assemblage, it is clear that porcelain was very rare in the early nineteenth century at Collier Lodge.

White Clay Pipes

White clay pipes are often found on nineteenth century sites as they were inexpensive and widely used. The Collier Lodge assemblage from 2003 through 2005 was badly fragmented and contained bowl (n = 17) and stem (n = 13) fragments. The 2006 through 2009 assemblage is considerably larger with 44 bowl fragments, 42 stem fragments, and one complete stem. Harrington (1978) developed a well-known method for dating pipe stems based on the hole diameter, but Binford (1978) showed that the method did not work for pipes manufactured after 1780, so this method of dating pipes is not applicable to the Collier Lodge assemblage. Martinez (1989) says two bowl sizes were in use during the first half of the nineteenth century. Small bowls ranged from 3.9 to 4.55 cm³ in volume, while large bowls had volumes between 5.5 to 7.2 cm³. Bowls became even larger after the Civil War (with volumes from 7.0-9.0 cm³). Unfortunately, none of the bowls are complete so reliable volume estimates cannot be made. Martinez also described common designs in use during the first half of the nineteenth century at the Trombley House in Michigan. Decorations on pipes from that site included flutes (or ribs), leaf-decorated mold seams, and raised crosses below the rim.

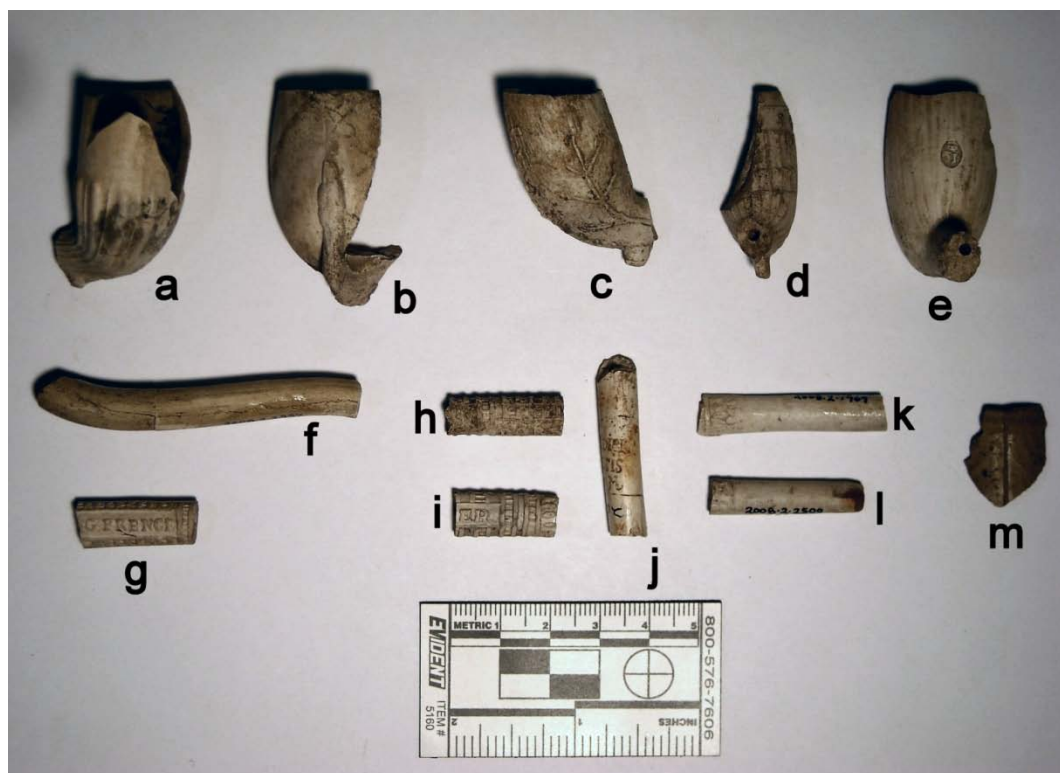


Figure 125. White Clay Pipes.

A few relatively complete or partially reconstructable bowls were found (Figure 125). They include a bowl (2009.02.2011, Figure 125a) with alternating thick and thin ribs that go about half way up the bowl. The bowl has a pronounced and very rough mold seam and a charred interior. One partial bowl (2008.02.2065 Figure 125b) is largely plain, except that it was supported by a bird's foot, with one talon aligned with the front mold seam. An almost complete bowl (2008.02.2296, Figure 125c) has floral decoration on both sides and a floral rib on the front mold seam. It also has a heel spur at the base of the bowl. Another sherd represents about a third of the original bowl which was broken into three pieces (2008.02.2651 through 2008.02.2653, Figure 125e). The bowl apparently had faint ribs that were removed by burnishing and an indecipherable makers mark on the back of the bowl. The front mold seam is leaf-decorated.

Most of the bowl fragments in the Collier Lodge assemblage are relatively small and bear only a portion of the decoration that might have been present on a complete bowl. Decorative elements found on bowl fragments include ribs, diagonally cross-hatched ribs (Figure 125d), vertical and horizontal ribs, a band of flowers or multi-pointed stars below the rim, a rouletted line below the rim, and stars in an arc. The most unusual bowl fragment was a small rim sherd of yellow or tan stoneware with faint ribs and clear salt glaze (Figure 125m).

Pipe stem fragments (Figure 125) are mainly short sections of what appear to have been straight stems, although one complete curved stem (Figure 125f) was collected. Decorated stems include two examples of stems with floral designs (Figure 125k and l), including one that has visible gnawing in the stem end (Figure 125l). Four stems have maker's marks. These include the well-known and much copied "Peter Dorni" mark (Figure 125h and i), another stem fragment marked "..G Prence," (Figure 125g) and a stem fragment with the impressed mark of "Gambier et Paris" (Figure 125j), a large French manufacturer active through most of the nineteenth century. As was the case for the 2003 to 2005 assemblage, all of these patterns probably date to the nineteenth century.

Glass

Glass was first sorted by whether it was flat (window glass) or from a container (curved or an identifiable portion such as a base or a bottle neck) or any other kind of glass item (such as a bead or a light bulb). For each glass sherd, the color was described and any evidence of burning was noted. For flat glass, any unusually thin or thick pieces were also identified, and for container glass, the portion of the container was recorded, along with any other relevant information such as lettering, mold seams, etc. The glass inventory is given in Appendices 6 for flat glass and 7 for container and other types of glass. Unlike the 2003-2005 assemblage, where a two different cataloging systems were used for years 2004 and 2005 (Schurr 2006), a single system of terms was used for the 2006 through 2009 assemblage (the same system that was used in 2005).

Most of the glass sherds in the assemblage appear to date to the later part of the nineteenth century based on color and manufacturing methods (Lorrain 1968, Miller 2000). That presents a contrast to the fine earthenware assemblage and suggests that glass underwent different patterns of use, breakage and discard than earthenwares did. The most likely explanation is that glass was relatively rare in the region compared to other artifact types during the early nineteenth century.

Flat (Window) Glass

Flat glass sherds possessed a variety of tints (Table 14). Tints range from very light green to colorless. Sherds with green tints are the most common variety of flat glass (79.7 percent of the flat glass assemblage). Glass dating to the early nineteenth century tends to have a light green tint because of impurities in the materials used to make it. Amethyst colored glass was produced for a brief period at the start of the twentieth century when manganese was used as an additive to produce a colorless glass. When exposed to sunlight (or other forms of radiation), the manganese discolors and produces an amethyst tint with that deepens with the extent of the exposure, a process called solarization. Because of this defect, the use of manganese was discontinued around 1917 when improved glass formulas became available. A suggested date range of common use for amethyst solarized glass is between 1880–1925 (Sutton and Arkush 2002). Amethyst colored sherds thus provide a horizon marker for the late nineteenth and early twentieth centuries. Colorless sherds probably date to the twentieth century when very pure raw materials were available, although some could be fragments of amethyst glass that were not irradiated because they were used for only a short period of time and buried soon after breakage.

Most of the flat glass probably came from building windows, although some fragments of automotive safety glass and a few possible mirror fragments are also present. Rare colors include amber and aqua. These would not be commonly found in windows and could be from flat sided bottles or even, in the case of amber, from lenses used on vehicles.

It is sometimes possible to date glass based on its thickness (Roenke 1978), and a thickness study might be able to identify flat glass sherds dating to the early historic use of the site. Excavations at Pokagon's Village (Schurr et al. 2006) have shown that window glass was in use in the region by the 1830s, and perhaps as early as the 1820s. It is likely that some of the flat glass from Collier Lodge dates to the Eaton era and could be identified based on color (typically a light greenish yellow tint) and thickness (typically less than 1.5 mm) (Herbe 2002).

Table 14. Flat Glass Tint Colors

Color	Number	Percent	Weight (g)	Percent
Amber	5	.3	6.6	.3
Amber, Very Light	5	.3	16.1	.7
Amethyst	12	.6	11	.5
Amethyst, Very Light	1	.1	.3	< .1
Aqua	35	1.9	20.6	1
Aqua, Light	85	4.6	90.7	4.2
Aqua, Very Light	46	2.5	27.1	1.3
Colorless	302	16.4	266.9	12.4
Green	39	2.1	174.8	8.1
Green, Light	945	51.2	1208.3	56
Green, Very Light	372	20.1	336.5	15.6
Total	1,847		2,158.9	

Container and Other Glass

The great majority of non-flat glass items were fragments from containers (Table 15). Other glass items include things used for clothing or adornment (buttons, beads, and jewelry), lighting (kerosene lamp chimney or light bulb fragments), marbles, a fragment of a thermometer, and unidentified fragments (often because they were partially melted). The most numerous type of rim is the continuous thread finish that first appeared in 1919 (Miller 2000), indicating much of the glass assemblage dates to the twentieth century. As was the case for the fine earthenware assemblage, most of the glass assemblage consists of relatively small sherds characteristic of secondary refuse deposits (the average glass artifact weighs only 1.7 g). However, in some cases, enough of a bottle or other artifact is present that it can be used to determine the date of manufacture or what the original item was used for.

In the early nineteenth century, bottles were hand blown, often into a three-piece mold, with the neck being produced by hand in a separate operation, sometimes by adding a small strip of extra glass to form a lip, or by rolling or folding the rim downward. Glass manufacture developed rapidly after 1850 with the development of the two piece mold and the snap case mold (after 1857) which eliminated the need for a pontil, and hence pontil marks. Bottles still required a two step operation but necks and lips were increasingly produced using lipping tools, creating a diverse array of more standardized bottles. New molding methods allowed a greater diversity of bottle forms, such as square bottles with molded patterns or labels. By the start of the twentieth

century, the automatic bottling machine appeared, further reducing the cost of bottle manufacture. Threaded canning jars with metal lids lined with milk glass soon became common. Mouths of bottles formed for crown caps (and the metal bottle caps themselves) were produced after 1892. Glass production continued to evolve and production volumes rose during the twentieth century until the last few decades when glass bottles and containers have increasingly been replaced by plastic.

Table 15. Types of Glass Artifacts

Item	Number	Percent	Weight (g)	Percent
Unidentified	27	1.4	26.6	.9
Ball	1	.1	.3	< .1
Bead	2	.1	.6	< .1
Beed, seed	1	.1	.05	< .1
Button	13	.7	5.4	.2
Button fragment	3	.2	.5	< .1
Container	1,706	91.1	2,907.6	93.7
Jewelry	2	.1	2.1	.1
Lamp Chimney	12	.6	16	.5
Lens	1	.1	9.3	.3
Lid Liner	2	.1	5.9	.2
Light Bulb	51	2.7	16.8	.5
Marble	5	.3	25.3	.8
Melted Blob	45	2.4	85.2	2.7
Thermometer	1	.1	2	.1
Tube	1	.1	.3	< .1
Total	1,873		3,103.95	

Early nineteenth century glass was usually had a green or yellowish-green tint from impurities. Dark olive glass sherds appear to have come from bottles and some could date to the first half of the nineteenth century. Most of the olive green sherds are lighter in color than what is typical for early olive glass and probably represent various types of green bottles from the twentieth century. After the Civil War, new colors were introduced and the glass was of greater purity and higher quality. As can be seen in Table 16, a great variety of colors were used. Light green container glass sherds could represent some early nineteenth century bottle fragments, based on color, but most appear to be relatively recent in date. By color, some of them grade into sherds described as light aqua, a color that appears in Mason jars after 1858 and in Putnam lightning stopper jars manufactured after 1882 (Schurr 2006)). Quantification of wall thickness and color

by comparison with color standards or by light transmission spectra might help further sort these sherds into better defined color categories in the future. A few sherds of Vaseline glass, a yellowish-green tinted glass colored with uranium salts, were produced in the twentieth century prior to World War II.

Table 16. Non-Flat Glass Colors

Color	Number	Percent	Weight (g)	Percent
Colorless	1,054	56.3	1,487.9	47.9
Amber	232	12.4	509.9	16.4
Green, Light	131	7	205	6.6
Colorless, Frosted	84	4.5	70.05	2.3
Green, Very Light	55	2.9	69.35	2.2
Green	54	2.9	92.4	3
Olive	46	2.5	208.95	6.7
Amethyst	43	2.3	45.3	1.5
Aqua	43	2.3	189.8	6.1
White	30	1.6	14.95	.5
Aqua, Light	19	1	21.1	.7
Lime Green	17	.9	25.2	.8
Aqua, Very Light	11	.6	10.8	.3
Olive, Very Light	8	.4	3.9	.1
Amber, Dark	7	.4	51.8	1.7
Olive, Light	5	.3	4.6	.1
Milk Glass	4	.2	9.6	.3
Yellow, Very Light	4	.2	7	.2
Amber, Light	3	.2	2.6	.1
Amber, Very Light	3	.2	3.3	.1
Black	2	.1	3	.1
Vaseline	2	.1	7.3	.2
Blue	2	.1	10.4	.3
Blue, Light	1	.1	.4	< .1

Bluish-Purple, Light	1	.1	3.2	.1
Colorless and White	1	.1	3.1	.1
Colorless with Green	1	.1	5.5	.2
Colorless with Orange and Yellow	1	.1	4.7	.2
Colorless with Orange and Yellow-Green	1	.1	4.4	.1
Colorless with white	1	.1	2	.1
Colorless, Green, Aqua	1	.1	4.7	.2
Green, Bright	1	.1	1.3	< .1
Green, Brownish	1	.1	.4	< .1
Lavender	1	.1	5.6	.2
Milk Glass with Purple	1	.1	7.2	.2
Pink	1	.1	.8	< .1
White & Orange	1	.1	6	.2
Total	1,873		3,103.5	

Amber glass is primarily represented by beer bottle fragments, most of which seem relatively recent according to the type of bottle bases that are present in the assemblage. Most were made with automatic bottling machines and have stippled bases which first came into use in 1939 (Miller 2000). One exception is a heavy molded base (2009.02.1752) with “Fort Wayne, Ind.” in molded letters above the base. The word “Registered” is visible on the bottom. Based on its similarity to the Miller beer bottle found earlier (Schurr 2006), this base probably dates to the late nineteenth century and was probably produced for a brewer. An amber neck from a different bottle (2006.01.859) held a cork stopper and was manufactured with a lipping tool. It dates to the late nineteenth century. A few very light amber or honey colored sherds may have come from a drinking glass, based on rim form. It is possible that these represent amber solarized glass produced just after 1917 when manganese was briefly replaced with selenium because of supply interruptions during World War I (Sutton and Arkush 2002). Once again, perhaps chemical tests could be done to test this possibility in the future. Two bottles made of amethyst glass, manufactured during the early twentieth century, were found in Feature 30 (Figure 126), giving a good date for that deposit.



Figure 126. Amethyst Glass Containers in Feature 30.



Figure 127. Two Views of a Bottle that held Mrs. Winslow's Soothing Syrup.

There were a few unusual glass items. A bottle base of oxidized bluish-green glass (Figure 127) is the sole example of an identifiable patent medicine bottle found to date. The bottle held “Mrs. Winslow’s Soothing Syrup,” manufactured by Curtis and Perkins, Proprietors. Mrs. Winslow’s syrup was a concoction that contained morphine sulfate and was marketed as an aid to soothing teething or colicky babies (Mohawk Valley Bottle Club). The base has a very well-defined snapped off pontil mark characteristic of bottles manufactured before 1870. A bottle neck made of a similar type of glass came from an eight-sided bottle (2009.02.1665). Unfortunately, the neck is missing the rim so it is not possible to date the bottle by manufacturing method, but the glass suggests a mid-nineteenth century date. A single white seed bead could date to the Potawatomi Ford era of the site. A heavily oxidized bead (2009.02.2036) might be made of purple glass, but the oxidized surface makes it difficult to determine the glass color. The general appearance of this bead is similar to late seventeenth to early eighteenth century type IIa7 beads (Mason 1968:192, Color Plate 1).

Four-hole glass white buttons (Figure 128a) are the most common type of glass button but the assemblage also contains one light blue glass button (Figure 128b) and one transparent light green button (Figure 128c). Other types of buttons include one that appears to be jet (Figure 128d) and another that is made of brown vulcanized rubber and labeled “Goodyear” (Figure 128e).

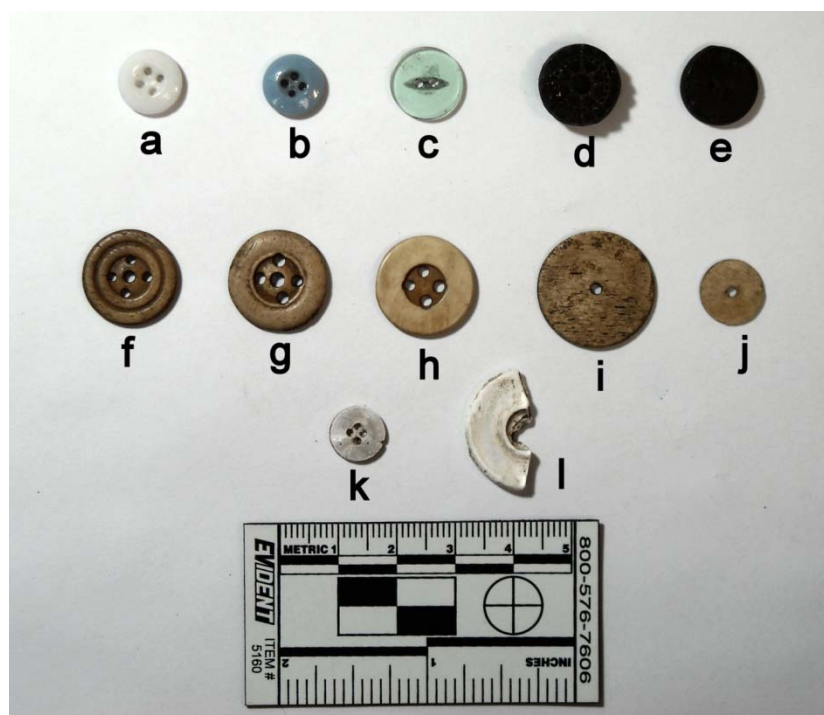


Figure 128. Buttons.

Additional studies of the glass assemblage could provide more information about dates of manufacture, types of vessels used at the site, and could be used to date features and levels. Studies of the distribution of broken and burned glass could also better define the site formation processes that operated at Collier Lodge.

Metal

The 2006 through 2009 excavations produced a large collection of metal artifacts, with some that probably date to the Fur Trade era of the seventeenth century, and others used up through time to the very recent past (Appendix 8). Table 17 lists the relative abundance of different types of metal artifacts by number and weight, sorted from most to least abundant (by weight). Iron artifacts are by far the most abundant, followed by tin, brass, and lead. Composites (aluminum/plastic or brass/iron) were relatively rare, as were silver items. The metal content of some artifacts could not be easily identified by visual inspection, although a magnet was used to determine that the unidentified metals are not iron. Analytical techniques such as XRF (X-ray fluorescence) or PIXE (particle induced X-ray emission) might be used to identify the metals used in the unidentified items (Pillay 2001).

Metal technology evolved very rapidly through the nineteenth and twentieth centuries, and except for some well defined types of artifacts such as Fur Trade era trade goods (Quimby 1966) and nails (Nagy 1989), there is no overarching classification system in general use in the region. In contrast to the metal assemblage from 2003 through 2005, which was cataloged with an evolving terminology (Schurr 2006), the 2006 through 2009 assemblage used a single consistent set of terms for metal artifacts, supplemented with new descriptive terms as new types of artifacts were found.

Metal artifacts were sorted by metal type and then identified. Most metal artifacts are made of iron and probably date to the late nineteenth and twentieth centuries. As can be seen from Appendix 8, these include a very diverse array of fasteners (cut and wire nails, staples, tacks, bolts, nuts, railroad spikes, paper clips, etc.). In addition to nails of almost all sizes, tacks were also collected. Most of these are cut, and some with brass heads were probably used for decorative furniture or trunks. Some very large square bolts and very large nails were probably used in structures. These may date to the era when a sawmill was operated at the site in a large shed-like structure visible in a picture of the site dating to around 1890 (John Hodson, personal communication, 2010). Most cut nails were broken, indicating that structures that once stood at the site were demolished. Other building-related items date much later in time, especially washers and fragments of plumbing fittings and pipes. An iron strap handle with part of a latch shows that a structure with a relatively simple door once stood on site. It could have been a cabin, a shed, or an outhouse. Wood screws of various types, along with hooks and eyes, were also found. Horseshoe nails indicate that horses were kept at the site. Iron staples show that fencing was built and maintained as well.

Table 17. Metal Abundances

Metal	Number	Percent	Weight (g)	Percent
Iron	6,249	85.8	27,448.6	92
Tin	263	3.6	697.3	2.3
Brass	350	4.8	636.7	2.1
Lead	106	1.5	378.0	1.3
Aluminum	193	2.7	249.2	.8
Unidentified	70	1	210.4	.7
Copper	13	.2	110.0	.4
Coin	20	.3	93.4	.3
Aluminum and Plastic	1	< .1	1.8	< .1
Brass and Iron	3	< .1	5.5	< .1
Graphite ¹	8	.1	7.0	< .1
Silver	3	< .1	.5	< .1
Total	7,279		29,838.4	

1. Although not a metal, graphite was cataloged with the metals because the graphite artifacts appear to have been used in electrical applications.

Sheet iron fragments were relatively abundant. Some of these have rolled rims or seams and most sheet iron fragments probably came from cans. The majority are so corroded that little information can be gleaned from them. The same can be said for what appear to be fragments of various types of iron straps. Crown bottle caps were another container item that was relatively common. These would have been manufactured after 1892 (Sutton and Arkush 2002:182). Some of these have plastic liners and are therefore relatively recent. As noted in the excavation section, an iron Budweiser can opened with a church key (2006.01.324) was probably manufactured after 1950 and before 1963 when Budweiser was first sold in aluminum cans (Maxwell 1993). Other kitchen-related items include several knife blades with square tangs and rounded tips, a two-tined fork that had a wooden handle, large serving spoons (including one labeled “German Silver”), a butter knife, a church-key type opener, and keys and metal bands from key wind tins. Two unusual kitchen-related items were a round lid with a d-ring handle 17 cm (6.65 in) in diameter. It was probably used as a lid for a cooking pot. A basket made of twisted wire 16.5 cm (6.5 in) long, 8.5 cm (3.5 in) wide, and about 2.5 cm (1 in) deep may have held a bar of soap. A possible leg of a cast iron stove and a portion of a stove lid probably belong to the same stove that produced pieces found in 2004 and 2005.

Other metal items include clothing fasteners such as buttons (Figure 129) and buckles. These are supplemented by brass eyelets, buttons, and clothing rivets. Items such as a drapery hook, bobby pins, straight pins, the brass portion of a wick holder from a kerosene lamp (Figure 130a), a brass thimble (Figure 130b), and mouse trap springs attest to the variety of domestic activities that occurred at the site in the nineteenth and

twentieth centuries. Tools include wrenches (open ended and hex), files (flat, triangular and round), and chisels.



Figure 129. Metal Buttons.



Figure 130. Brass Artifacts.

Many different kinds of wire were found. These include iron wires that could be fragments of fencing or bail handles, a few small fragments of barbed wire, and vinyl covered copper electrical wire dating to the last few decades.

Aluminum artifacts included scraps of aluminum foil, pop tops from beverage cans that were in use between 1965 to the late 1970s (Maxwell 1993); screws, rivets, and other fasteners; a turnbuckle; a broken comb; and fragments of automotive trim (including a 1970 or 1971 Cadillac badge). All of these items are relatively recent.

Coins are especially useful because they bear dates. Table 18 lists the 20 coins collected from 2006 through 2009. The coins span the entire historic use of the site. The smaller denomination coins collected prior to 1851 may have been used to pay tolls for the ferry or the bridge. The 1970s and 1980s are the best-represented periods at the site, probably reflecting the long-term effects of inflation that made small denomination coins less valuable and perhaps more abundant. The lack of coins dating to the early twentieth century suggests that there was something different about the way money was used at the site during that period.

Table 18. Coins Collected from 2006 through 2009

Catalog Number	Coin	Year
2008.02.1735	Unidentified (corroded)	
2008.02.1738	One cent piece	1838
2008.02.1739	One cent piece	1848
2009.02.924	One cent piece	1849
2009.02.1208	One cent piece	1851
2007.02.477	Five cent piece	1872?
2009.02.818	Five cent piece	1887
2006.01.338	Penny	1941
2008.02.1733	Penny	1945
2006.01.174	Penny	1947
2008.02.1734	Dime	1967
2008.02.1736	Penny (n = 2)	1970
2008.02.1736	Penny (n = 2)	1973
2008.02.1737	Dime	1979
2008.02.1736	Penny	1980
2007.02.746	Penny	1982
2007.02.427	Quarter	1984
2006.01.333	Sacajawea dollar	2000

As noted in the 2006 report (Schurr 2006), brass artifacts are especially interesting to archaeologists working in the Great Lakes area because brass is one of the first easily identified metals to appear on sites when Native Americans have initial contact with Europeans. Possible Fur Trade era brass artifacts include a brass tinkling cone (Figure 131a), a hawk bell (Figure 131b), and perhaps a brass disk with two small

perforation near the disk's edge on opposite sides of the item (Figure 131d). Quimby (1966:70-73) considered these types of artifacts to be most characteristic of the Middle Historic period from A.D. 1670-1760. A small lead triangle with a perforation at the tip (Figure 131c) may also date to the Fur Trade era based in its context within Feature 21 (which also produced the hawk bell).

Other brass artifacts, such as gun shells, plumbing fixture fragments, a carburetor jet from an internal combustion engine, gilded brass costume jewelry, and electrical contacts are clearly of much later date. Many spent gunshells and shotshell brases were collected that replicate items in the 2003 through 2005 assemblage. Most shotshells date to the late nineteenth and early twentieth centuries (the Hunting Lodge period). A .32 caliber brass ball shot mold (Figure 130d) shows that shot was made on-site. Metal fishhooks, lead sinkers, and other fishing tackle attest to the popularity of Baum's Bridge as a fishing spot.



Figure 131. Metal Fur Trade Era Artifacts.

The metal artifacts from Collier Lodge clearly have the potential for addressing many research questions. Easily datable artifacts such as coins, shotshells, crown bottle caps, and types of nails can be used to date contexts and reconstruct depositional processes. They can also be analyzed by functional category, such as building materials, clothing and personal adornment, food preparation and consumption, and leisure activities to determine what people were doing at the site during different time periods. Especially fragile iron artifacts are currently being treated by electrolytic cleaning and wax impregnation, and conservation activities will continue to be an important focus of

future work with the metal assemblage. Some artifacts are unfamiliar and not easily identified today. For example, the function of a hollow brass tube with a ribbed design (Figure 130c) is unknown. It could be part of a smoking pipe or a noisemaker (like a small party horn) but its exact function is presently unknown.

Brick and Mortar

Brick and mortar are typically found in abundance at Collier Lodge, as shown in Appendices 9 and 10. Prior to 2009, brick fragments were recorded by piece-plotting large ones or collecting smaller fragments on the screen. With the investigation of Feature 31 (the brick deposit in Feature 25) in 2009, a new recording system was adopted for large brick fragments. Each fragment was piece-plotted, weighed and its dimensions (length, width, and thickness) were measured (if enough of the brick was present to record each dimension). The fragment location and attributes were recorded on a new “Brick Record” form. Appendix 10 provides a compilation of all the 2009 brick records, along with information about some concrete block fragments and pieces of FCR that were recorded using the same system. Most brick fragments were discarded on-site, although a few were retained to provide representative samples.

All the brick fragments recovered from Feature 31 are similar in appearance to the bricks of Feature 1, which were light in color, relatively porous, and fired at a relatively low temperature. Some of the larger brick fragments show clear layers of lamination produced when the clay was molded by hand to produce a hand-struck brick. This is the earliest type of brick that was produced in the region and could easily have been produced on or near the site. Hand-struck brick was most common between 1830 and 1860 (Mansberger 1981 citing, Stelle 2001). This is consistent with the theory that the fireplace was part of the Eaton or Sawyer cabin. Almost all the bricks were in fragmentary condition. Only one brick was complete enough that its thickness, width, and length could be all be determined (Appendix 10). In general, the bricks were between 4 and 5.5 cm thick, about 9 to 10 cm wide, and about 20 cm long. At least two different sizes of brick molds can be seen in the distribution of brick thicknesses: a smaller mold about 4 to 4.5 cm thick, and a thicker mold 5 to 5.5 cm thick. There does not appear to be any obvious difference between the composition of the thinner and thicker bricks, so the different thicknesses probably represent at least two different wooden molds used to produce hand-struck bricks.

Many fragments of mortar were also found (also listed in Appendix 9). Most of the 9.4 kg of mortar fragments are very sandy and relatively soft, and probably also came from the hypothesized cabin chimney. Along with mortar, small amounts of daub (fired clay), plaster, and asphalt were found. Concrete fragments include fragments that were probably part of the floor of the garage that once stood to the east of the lodge. Others were from hollow-core concrete blocks that were mainly found near the lead pipes on the south of the Lodge.

Faunal and Floral Remains

Faunal Remains

By the end of 2005, the faunal assemblage consisted of over 10,000 fragments of bone and shell weighing over 7.5 kg (Appendices 11 and 12). The 2006 through 2009 investigations added an additional 17,800 fragments weighing almost 11 kg. A sample of the assemblage has been sent to Dr. Terrance J. Martin at the Illinois State Museum. He is presently identifying samples that mainly came from Upper Mississippian and early nineteenth century contexts.

Worked Bone and Shell

The only worked bone and shell items found from 2006 through 2009 were buttons. These include four-hole bone/horn buttons in several different patterns (Figure 128f-g), two one-hole bone buttons (a large and a small one, Figure 128i and j), two four-hole shell buttons (one shown in Figure 128k), and a one-hole shell button (Figure 128l). No prehistoric bone or shell artifacts have been identified in the 2006 through 2009 assemblage.

Floral Remains

Because of the temperate climate of the upper Great Lakes region, floral remains are usually only preserved over long periods of time when they are carbonized. Numerous samples of carbonized plant remains were collected. These include 18 flotation samples that are being curated for future analysis by a professional paleoethnobotanist. The contexts that produced flotation samples are listed in Appendix 1. The flotation samples are from feature contexts and may provide information about the local environment and the types of plants that were used during the prehistoric period. They may also be suitable for radiocarbon dating. In addition to flotation samples, charcoal was also collected during screening. These tend to be wood charcoal larger than ¼ inch in size. During screening, any charcoal fragments that were collected were placed into a foil pouch. The charcoal samples were then allowed to dry in the lab in opened packets and weighed. The inventory of charcoal samples is given in Appendix 13. Over 10.5 kg charcoal samples were collected from 396 contexts. The charcoal samples collected by screening may date to any period in which the site was used, and can provide information about wood use at Collier Lodge. The charcoal samples also have the potential to provide radiocarbon dates. Unfortunately, coal was also abundant at the site, and therefore radiocarbon samples might give unreliable results if coal has contaminated the wood charcoal, which is especially likely for samples of mixed coal and charcoal. Eleven samples containing both coal and charcoal are listed in Appendix 13. This is a marked improvement over the 2003 through 2005 assemblages because the screeners have become much more adept at identifying and segregating charcoal from coal,

although chemical cross-contamination could have still occurred over time when the materials were comingled in the soil. In addition to the mixed samples, both unburned coal and coal slag (or “clinkers”) were also collected.

A few uncarbonized wood samples were collected. The largest sample came from Feature 35, the wooden beam that was found at the southern edge of Feature 25 (see above). Two wooden sides of table knives were also found. These were preserved by very careful drying in the lab.

Rocks and Minerals

The Collier Lodge site is located within the Kankakee Valley Outwash and Lacustrine Plain (Schneider 1966). The valley was formed by glacial outwash at the start of the Holocene. The geological formation processes of the valley determined the kinds of lithic resources available in the vicinity of the site. The local bedrock lies buried below a deep mantle of unconsolidated material deposited by flowing water. Sediments near the surface in the Kankakee Valley are relatively fine grained, showing they were deposited in a relatively low energy environment. Thus, large boulders are scarce and most rocks are relatively small and have been crushed or rounded by glacial and fluvial reworking. Although relatively small in size, they are extremely variable in type, representing cobbles derived from many different kinds of parent materials. There were no bountiful sources of high quality chert located nearby that could be used by the site’s prehistoric inhabitants. The local source of chert consists of chert nodules that were transported into the region by glacial activity. Glacial chert cobbles are usually heavily patinated and often contain fracture lines that create unpredictable breaks during knapping. Glacial cobbles are also extremely hard, as they are the survivors of a very destructive process. These characteristics make them extremely difficult to work with. The use of hard glacial cobbles is reflected in the large number of very small flakes and small core fragments found at the site, many of which were probably produced by bipolar reduction (see above).

The assemblage from Collier Lodge contains many rocks (inventoried in Appendix 13), some of which were probably used by people at the site, and others that just happen to occur in the area and do not have any cultural significance. Some of these, such as fossils and rock crystals, were collected during excavation because they were unusual and caught the screener’s eye. Fire cracked rock (FCR) was the most abundant lithic artifact present at the site. Over 8,500 individual pieces were catalogued with a total weight of over 68 kg. This is a smaller amount than what was found in earlier seasons because historic contexts were more heavily investigated after 2006 and much of the rock in the 2003 through 2005 assemblage came from Feature 21, a rock-filled roasting pit.

In addition to FCR and chert debitage, other rocky materials found include pieces of waterworn chalk, small flakes of slate (although these could have come from the manufacture of slate tools by the prehistoric inhabitants of the site), and crystals (which

also could have been collected by anyone who lived at the site and had an interest in colorful or distinctive rocks). Fragments of mica could have been used by prehistoric people, as mica artifacts with ceremonial or symbolic uses were produced during the Middle Woodland period. However, the fragments are very small and could have been deposited at the site by natural processes. The same might be true for pieces of red ocher that were also collected. Pieces of what appear to be iron ore and iron slag suggest that some iron-working was occurring at the site. At this point there is no record of a blacksmith having lived or worked there, so if this activity did occur on-site, it would probably have been non-commercial. Limestone was also relatively common. Most of this was limestone construction gravel or perhaps limestone naturally occurring in the soil. Several un-worked sandstone fragments are probably natural soil constituents.

Conclusions

In total, 26 units with a total surface area of 50 m² were opened between 2006 and 2009, sampling about five percent of the 960 m² core area of the site midden as defined by the resistivity surveys. The excavation units contained 36 features. These ranged from amorphous stains that might be faint prehistoric features of unknown function (or refilled rodent burrows or root runs), to Upper Mississippian roasting pits, one earth oven, and historic features including large post molds, a brick hearth from a fireplace, an early nineteenth century fur-processing feature, various refuse deposits from the late nineteenth century, and a large, deep stratified feature that is thought to be the in-filled cellar of an early nineteenth century structure.

Nine units were used to define the limits of Feature 25 (the presumed cellar) after its discovery in 2006. From 2007 through 2009, units were placed to form a north-south trench across the feature, to define its eastern edge, and to search for its western edge. Excavations in these units all proceeded in the same fashion. The sod was stripped off and the floor was leveled to 10 cm below the highest point to define the first level. The unit was then shovel skimmed until abundant flecks of plaster were visible in the floor, defining the base of Level 2. Shovel skimming and troweling were then employed to remove subsequent levels and features as they were encountered. From 2007 through 2008, these units were excavated until brick deposits were present in the floor. The brick concentration within Feature 25 was designated Feature 31. Explorations of deposits below Feature 31 were conducted in 2009 in one 1 x 1 m unit.

At this point, the depositional sequence of Feature 25 is still somewhat unclear, but this scenario seems most likely based on the evidence that is now available. Feature 25 may have been a cellar that was constructed by excavating a straight-walled pit just slightly larger than the dimensions of the cellar. A timber crib was then built in the pit and the pit outside the cellar was then quickly backfilled. At some later date, most of the supporting walls of the cellar were removed down to about 45 cm from the floor (at least at its southern edge). Soil outside the cellar walls may have been excavated at this time to keep the walls from collapsing inward when the shoring timbers were removed. The

resulting pit, about 0.5 m larger than the original cellar, and with sloping sides, was filled with debris when the chimney of Feature 1 was demolished. Upper portions of the cellar pit may have been filled in relatively gradually over time, with the latest episodes including trash from the era when the Lodge was first in use. Interpretation of the depositional sequence based on profile maps is complicated because the southern edge of Feature 25 may have intruded into a prehistoric feature. It is therefore difficult to know whether one is looking at a historic excavation placed outside of Feature 25 to safely and easily remove the timbers of the cellar wall, or the outlines of a large prehistoric pit that was intruded into by the southern edge of Feature 25. However, deposits consistent with excavations to enlarge the cellar pit are also present in units on the eastern edge of the cellar, so it seems likely that the Feature 25 was deliberately demolished by excavating a large pit and then backfilling it with a great variety of historic debris.

Based on the most abundant types of features, the Collier Lodge site has the greatest potential to inform us about human activities on the north edge of the Kankakee Marsh during the prehistoric Upper Mississippian period and the late nineteenth and early twentieth centuries. An early seventeenth century radiocarbon date for Feature 21 (a rock-filled roasting pit) may also indicate that very early Fur Trade era features are present too. The artifact assemblage from the site shows that people have used the site for about 9,000 years. For most of that time, it was probably used as a convenient place to rest before or after crossing the Marsh. Use of the site became more intense during the Upper Mississippian period and the site was in continuous use throughout the most of the nineteenth and all of the twentieth centuries.

Although much work has been done at the site, some questions remain to be answered. As shown above, some aspects of the ways in which Feature 25 was constructed and demolished remain unclear. The full distribution of the Upper Mississippian component is unclear as well because it probably extends beyond the areas that have been tested with excavation so far. Future work at the site will probably explore both these issues. Future research on the abundant artifact assemblage will provide new insights into human use of the site far into the future as the curated assemblage will be used for teaching and research.

The public aspect of the project has raised the visibility of historic preservation in northwestern Indiana and has educated hundreds of people about archaeology and preservation. In the future, it is hoped that the momentum generated by the archaeological project will help the Kankakee Valley Historical Society to acquire the resources needed to preserve and restore the Collier Lodge building.

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