Currents of Change

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This journal issue is dedicated in memory of FOAS member, Ed Boston.

Cover: Example of a stone mound at 15CK474 in Clark County, Kentucky. See David Schatz and Anne Bader article, this issue.

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Currents of Change is published biannually in the spring and fall by the Falls of the Ohio Archaeological Society (FOAS), a 501(c)(3) non-profit organization. The FOAS is dedicated to legally and ethically promoting the exchange of information on the prehistoric and historic heritage of the Falls region among professional archaeologists, students, avocational archaeologists, Native Americans, collectors, professionals in other disciplines (historians, teachers, etc.), and other members of the interested public.

The FOAS publishes articles and news briefs primarily, but not exclusively, about the archaeology of the Falls of the Ohio River region. The Falls Region is centered at Louisville, Kentucky and includes the area within a hundred mile radius, encompassing north-central Kentucky and southern Indiana (see map on back cover). The subject matter of articles and news briefs may address either prehistoric or historic period subjects related to archaeology and the early history of this region. Articles or newsworthy items focusing on areas elsewhere in the Ohio River Valley may also be included.

Contributions by professionals, avocational archaeologists, students, and the interested public are welcomed. Authors wishing to submit papers for publication should contact the Editors at the FOAS website, *www.falls-society.org*, for details about the acceptable file submission and photo formats. Papers in proper file format on disc or CD may be mailed to Anne T. Bader at 3502 Grantswood Court, Louisville, Kentucky 40213. All submissions should be accompanied by a brief biographical note (150 words or less) about the author(s).

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Back issues of **Currents of Change** may be obtained from the FOAS for a donation of $8.00 each.

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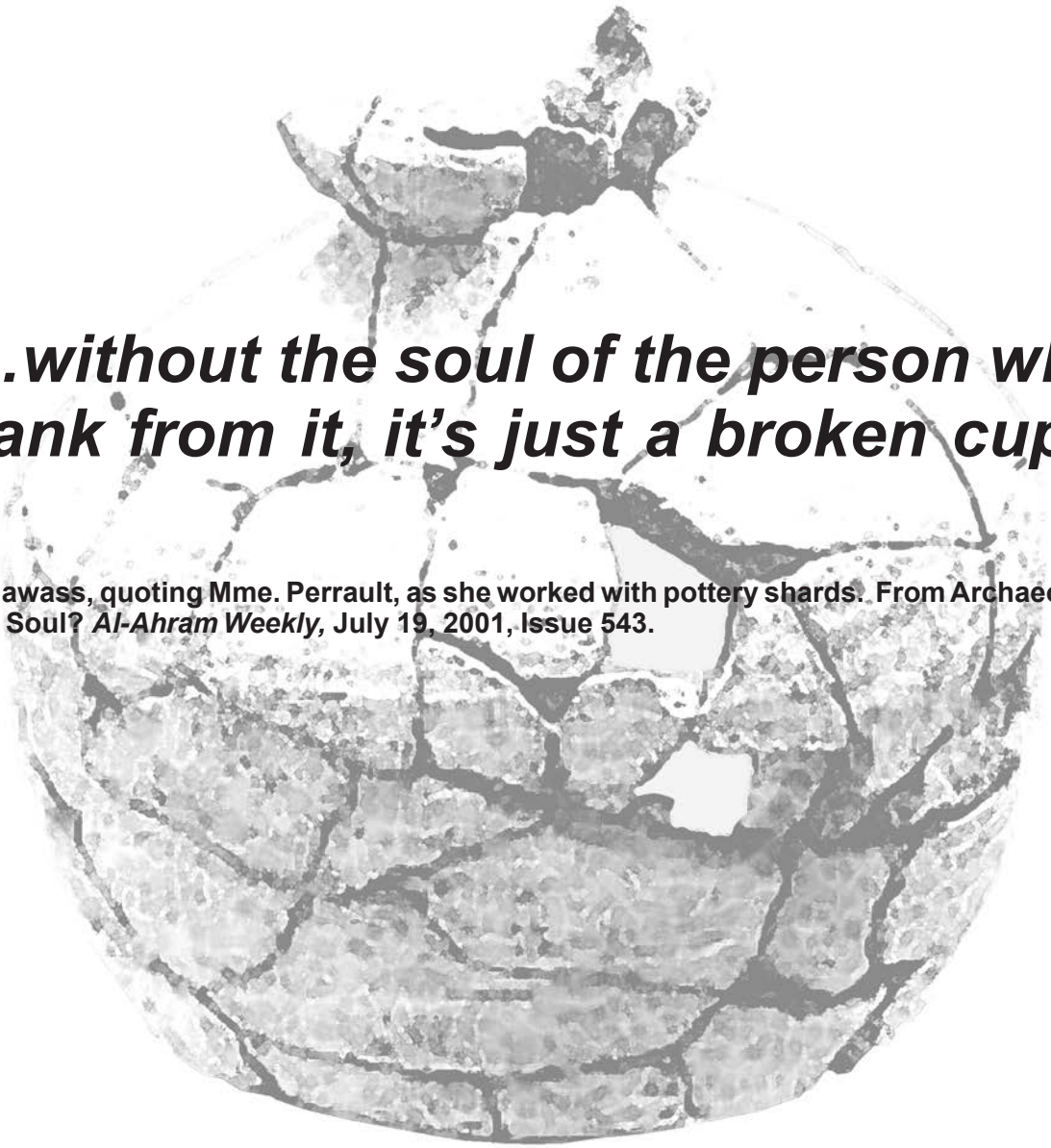

"…without the soul of the person who drank from it, it's just a broken cup."

Ziwi Hawass, quoting Mme. Perrault, as she worked with pottery shards. From Archaeology of the Soul? *Al-Ahram Weekly,* July 19, 2001, Issue 543.

About Our Contributors

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David Schatz has had more than 12 years of experience working on a number of archaeological sites throughout Kentucky and neighboring states. A graduate of the University of Kentucky, he spent three years as a senior archivist with the Kentucky Department of Libraries and Archives. Currently, Mr. Schatz is a member of the cultural resource management team at AMEC Earth & Environmental, Inc.

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ARCHAEOLOGICAL INVESTIGATIONS AT THE PACE LIMEKILN, BRANDENBURG, MEADE COUNTY, KENTUCKY

BY

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INTRODUCTION

The Pace Lime Kiln is located 2.0 kilometers (km) (or 1.2 miles) west of Brandenburg in Meade County, Kentucky (the county is located within the northern Pennyrile region along the Ohio River). The kiln is situated at the base of a bluff above a narrow bench, on property belonging to David Pace, the junior author's cousin. Currently, the Ohio River is ca. 24-27 meters (m) (or 80-90 feet (ft)) from the kiln. Historically, the Ohio River was probably much further north before the Cannelton Locks and Dam were built, because the dam raised the pool level on this section of the river. Presently, the site is only accessible by descending the steep slope from the ridge above or by approaching from the river below.

The Pace Lime Kiln is just one of several lime kilns that the authors have documented in Meade County. Most of these kilns have been found in clusters, but the Pace Lime Kiln appears to have been an isolated kiln. The authors visited and documented the kiln on March 7, 2003. During the investigations, the kiln was measured and photographed.

This paper provides a general discussion of the lime industry and describes the Pace Lime Kiln. First, a brief overview of the lime industry in Meade County is presented. Next, the manufacture of lime and its many uses are summarized. The main body of the article describes the archaeological remains associated with the Pace Lime Kiln. The conclusion compares the Pace Lime Kiln with similar lime kilns and provides some summary remarks.

MEADE COUNTY LIME PRODUCTION

Meade County was one of the major lime-producing areas of Kentucky according to archival records (Hockensmith 2004a). The earliest reference to a lime kiln in Meade County was an 1826 lawsuit between Solomon Brandenburg and William Stewart that mentioned a lime kiln (Meade County 1826). The *Second Report of the Geological Survey in Kentucky Made During the Years 1856 and 1857* (Owen 1857:91) referred to a geological section that was "...two miles above North Hampton, near lime kiln." The sequence of geological sections described by Owen (1857:89-91) suggest that North Hampton was somewhere on the Ohio River between Concordia and Brandenburg. The *1860 Population Census for Meade County* listed six individuals that were involved in the lime industry (Boucher 1978). The *1870 Population Census for Meade County* listed five men working in the lime industry, but only one of the 1860 workers was still listed (Miller and Newton 1991). During 1876 and 1877, one lime dealer was listed at Rock Haven (Polk and Danser 1876:652). The *Kentucky State Gazetteer and Business Directory, For 1879-80* listed several men involved in the lime industry at Richardson's Landing on the Ohio River (Polk and Danser 1879:654). In 1881 and 1882, two men from Richardson's Landing were still producing lime (Polk and Danser 1881:735). Likewise, the Gazetteers for 1883-1884 (Polk and Danser 1883:880) and 1887-1888 (Polk 1887:844) indicated that several men at Richardson's Landing were making lime. The *Kentucky State Gazetteer and Business Directory, For 1896* also listed lime producers at Richardson's Landing (Polk 1895:1128). Several years later, Young and

Company (1906:801) mentioned one lime maker at Battletown.

The February 2, 1939 issue of the *Meade County Messenger* carried an article entitled "Lime Kiln Found Under Public Road." The kiln was located near the community of Wolf Creek, which is located near the Ohio River in the western part of Meade County, Kentucky. The text of the article reads as follows:

> Luther Allen, Wolf Creek, recently found a lime kiln under the public road at a knob near Wolf Creek in which four hundred barrels of lime had been burned. It was thought that the kiln had been burned more than a hundred years ago, because the road has been in its present location beyond the memory of all persons living in that vicinity.
>
> Mr. Allen is removing the lime and will rebuild the road. Wolf Creek was named Limeopolis until about 80 years ago, and each year, many flatboat loads of lime were shipped to New Orleans and other points in the South.

Readers that desire more information about the individuals involved in lime production in Meade County should consult Hockensmith's (2004a) "An Overview of Kentucky's Historic Lime Industry." This study discusses these sources in greater detail and includes a more in-depth discussion of the individuals involved in the lime industry.

During the past 15 years, limited investigations and commentary have been made on Meade County's lime industry. Granger and Bader (1989) observed three lime kilns during an archaeological survey at Carver's Lake on Upper Paradise Bottom in Meade County, Kentucky. They stated that:

> ...in the Carver's Lake portion of Upper Paradise Bottoms some light quarry activity was taking place in the nineteenth century for lime production. Three ruined dry-laid stone circular lime kilns were found on the lower bluff slopes between Project Area A and Project Area B [Granger and Bader 1989:VIII-2].

Since these kilns were outside their project areas, Granger and Bader (1989) were not permitted to formally document them. Donald B. Ball and the senior author had an on-site meeting with Dr. Joseph E. Granger in the Carver's Lake project area in 1989. On our way to the project areas, we passed by these kilns and had a brief opportunity to view them. Ball (1991:169) later wrote that these kilns were about four miles (almost 6.5 km) downstream from Battletown and were ca. 20 ft (ca. 6 m) in height. The senior author remembers these kilns as substantial silo-shaped stone structures built in the side of a steep slope overlooking the Ohio River floodplain. The tops of the kilns were easily accessible from the upper slope while the bases were accessible from below. A small arched opening (for removing the lime) was present on the down hill side of each kiln. Also, we crossed extensive outcropping ledges of limestone on the slopes above the kilns, which were undoubtedly exploited for the limestone burned in the kilns.

Donald B. Ball (1991:168-169) also mentioned two other possible lime kilns in Meade County. First, a possible circular kiln resembling a "groundhog" kiln was noted at site 15Md176 in the former community of Garnettsville (Ball 1991:168). Second, a kiln was mentioned as being "...near the former community of Rock Haven (Meade County, Kentucky) near the confluence of Otter Creek and the Ohio River just a few miles north of the site 15Md176 example" (Ball 1991:169).

During 2003, Charles Hockensmith and Richard Brown initiated a research project (a personal non-funded effort) focusing on the archaeological and archival study of the lime industry in Meade County, Kentucky. The Pace Lime Kiln was documented during this first field season. Most of our efforts focused on the Cedar Branch Hollow drainage system in northwestern Meade County.

We started in this drainage since Richard's father, Garland Brown, had observed a couple lime kilns while visiting this area. Also, Richard's brother-in-law, Mark Straney, owned property in this drainage, which allowed us access. During three days of fieldwork, we identified 20 circular lime kilns in this drainage system. We expect to find as many as 40 lime kilns, once we completely survey the rugged Cedar Branch Hollow drainage area. We are also aware of several lime kilns in other parts of Meade County. It is hoped that the number of known lime kilns will further increase, as people become aware of our research and share information with us.

THE MANUFACTURE OF LIME

Much has been written about the manufacture of lime in the United States and elsewhere. A sample of available literature includes Azbe (1946), Buchard (1914), Burnell (1870), Department of Commerce and Labor (1911), Eckel (1928), Emley (1914), Gillmore (1874), Jones (1942), and Searle (1935). A generalized overview on how limestone is quarried, prepared, transported, and burned is presented below.

The initial step in the manufacture of lime was the quarrying of limestone. After the overburden was removed, holes were drilled, and the limestone was blasted into large pieces (Emley 1914:1559-1562; Emley and Porter 1927:14-16; Orton and Peppel 1906:263). Larger blocks of limestone were blasted into smaller fragments and were then sorted, loaded, and transported to the kiln (Emley and Porter 1927:16-19). Various methods were available for transporting the limestone to the kiln, including wheelbarrows, horses and carts, and tramcars (Emley 1914:1562-1563; Emley and Porter 1927:18; Orton and Peppel 1906:264-265). At the kiln, the limestone was dumped or "charged" into the top of the kiln. Different types of kilns, transportation systems, and dumping strategies were utilized, depending on local conditions and the amount of lime required. Eckel (1928:100) stated that "intermittent kilns are those in which each burning of a charge constitutes a separate operation. The kiln is charged, burned, cooled, and the charge drawn; then the kiln is again charged, and so on." On the other hand, in a continuous kiln, limestone and fuel are added as needed, while the lime is drawn from the bottom of the kiln (Eckel 1928:102). The continuous kiln permitted constant operation for an extended period.

An excellent description of an early vertical shaft, or "ground-hog," lime kiln is contained in W. S. Blatchley's (1904:225-226) report "The Lime Industry of Indiana":

> The kilns used at local points for burning lime for neighborhood use are or were intermittent kilns of stone. In them the fire was allowed to go out after each burning, to be started again after the kiln was recharged with stone. These cheaper, temporary or "ground-hog" kilns were rudely constructed of stone, and were located on the side of a hill, so that the top was easily accessible for charging the kiln with stone, and the bottom for supplying fuel and drawing out the lime. In charging, the largest pieces of limestone were first selected and formed into a rough, dome-like arch with large open joints springing from the bottom of the kiln to a height of five or six feet. Above this arch, the kiln was filled with fragments of limestone from the top, the larger pieces being used in the lower layers, these being topped off with those that were smaller. A fire of wood was then started under the dome, the heat being raised gradually to the required degree in order to prevent a sudden expansion and consequent rupture of the stone forming the dome. Should this happen, a downfall of the entire mass above would take place, thus putting out the fire and causing a total loss of the contents of the kiln. After a bright heat was once reached through the mass of stone, it was maintained for three or four days to the end of the burning. This was indicated by a large shrinkage in the volume of the contents, choking up of the spaces between the

> fragments and the ease with which an iron rod could be forced down from the top. The fire was then allowed to die out and the lime was gradually removed from the bottom. It was in this manner that all the lime used in Indiana for many years was burned, and in some localities, these temporary intermittent kilns are still in operation. The process of burning is simple and cheap, the only expense being for blasting the stone and preparing the fuel. Possibly but one or two kilns were necessary to supply a neighborhood for a year. These were burned in a week or two when required, the kiln remaining idle for the remainder of the time.

THE USES OF LIME

The varying chemical properties present in limestones were utilized to obtain several distinct types of lime. The Department of Commerce and Labor (1911:6) characterized the general properties of lime as follows:

> ...lime is merely limestone from which the carbon dioxide has been removed by heat... The wide variation in the chemical and physical properties of limestones necessitates a similarly great difference in the kinds of lime. Therefore, some system of classification becomes necessary. The National Lime Manufacturers Association has officially adopted a classification based on the content of magnesia ...[high-calcium lime, magnesian lime, dolomitic lime, and super-dolomitic lime]... There are, however, several properties which are common to all limes in a greater or less degree. Thus, it may be said that lime is a white or nearly white substance which will slake when water is added to it. When lime slakes, it enters into a chemical combination with water. This reaction generates heat, and is accompanied by an increase in volume.

Once the lime was ready for sale, it was either sold as lump lime or ground lime. The Department of Commerce and Labor (1911:7) noted that:

> Lump lime is shipped in bulk, or in wooden barrels holding from 100 pounds to 300 pounds. Ground lime is lump lime which has been ground and screened generally through 60 mesh. It is shipped in air-tight iron casks holding about 400 pounds.

Many different industries used the various types of limes. In the building trade, lime was used in mortar, plaster, Portland cement, natural cement, and was used as a major ingredient in sand-lime bricks (Department of Commerce and Labor 1911:10-14; Emley 1914). Many industries used lime as an ingredient or additive to cause chemical reactions in their products. Products and industries using lime include glass, ceramics, water, purification, soda ash, caustic soda, bleaching powder, calcium carbide, illuminating gas, ammonia, calcium cyanamide, calcium nitrate, fertilizer, insecticides, sugar, distillation of wood, paper, paints, glycerin, lubricants, candles, and leather tanning (Department of Commerce and Labor 1911:13-20; Emley 1914). Farmers spread lime on their fields to neutralize the acid in the soils.

THE PACE LIMEKILN

The Pace Lime Kiln is a rectangular stone structure located at the base of a steep bluff between two narrow benches (**Figure 1**). The kiln is ca. 24-27 m (80-90 ft) north of the Ohio River. A light gray limestone was used as the main construction material, but the use of a few pieces of reddish sandstone was also noted. The kiln is 6.4 m (21.1 ft) long and 6.0 m (19.8 ft) wide (**Figure 2**). It was built on a slope, so that it could be loaded from the top and the lime removed from an arch on the lower side (**Figure 3**). One bench is above the kiln and another bench is below the kiln. The upper bench is ca. 10 m (33 ft) wide and probably served as an access road and work area. The uphill side of this bench contains a pile of limestone ca. 8 m (26 ft) long, 5.0 m (16.5 ft) wide,

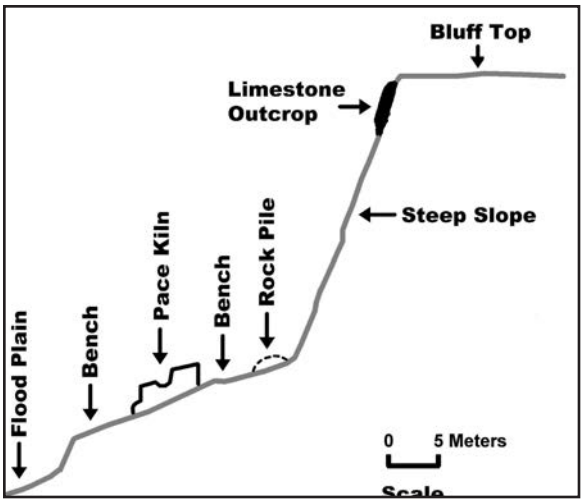


FIGURE 1. PROFILE SKETCH OF PACE LIME KILN AND ITS SETTING FACING EAST. SCALE IS APPROXIMATE.

and 20-50 centimeter (cm) (8-20 inches (in)) high. This pile of rock may be the remnant of the last stockpile of the stone burned in the kiln. From this upper bench, broken pieces of limestone and fuel (wood) could be loaded into the kiln. The lower bench was undoubtedly used as a work platform and road. The lime was removed from the kiln and transported by road to local markets or by boat to more distance markets. The area below the lower bench was covered by high water at the time of our visit and could not be inspected. The bank has recently collapsed, moving the Ohio River much closer to the kiln.

The kiln follows the slope of the bluff base (**Figure 4**). The upper side of the kiln terminates at the upper bench. Along the west wall, the kiln has a maximum height of ca. 2 m (ca. 7 ft). The east wall is not quite as well preserved, since its height is a maximum of 1.5 m (4.9 ft). Undoubtedly, the kiln walls were somewhat higher when the kiln was still in use, as suggested by the presence of rubble. A short wing wall is located off the east wall, ca. 2.7 m (ca. 8.9 ft) from the front (northeast) corner. This small wall is 2.0 m (6.6 ft) long (east-west), 70.0 cm (2.3 ft) wide (north-south), and 60.0 cm (2.0 ft) high. Its function is not currently known.

The kiln walls range in thickness between 80.0 cm (2.6 ft) and 1.0 m (3.3 ft) (**Figure 5**). While the exterior of the kiln is rectangular, the interior of the kiln is slightly curved on the arched end and at the opposite end. Evidence of the kiln being used consisted of some reddened limestone and fragments of stone with glaze. The interior walls have the following maximum heights: north 1.2 m (3.8 ft), south 1.7 m (5.6 ft), east 90.0 cm (2.8 ft), and west 80.0 cm (2.5 ft). The interior dimensions of the kiln are 4.2 m (13.8 ft) north-south and 3.8 m (12.4 ft) east-west. Limestone slabs have fallen into the interior of the kiln as the walls have collapsed. Additional slabs are north of the kiln (down hill side) and near the northwest corner.

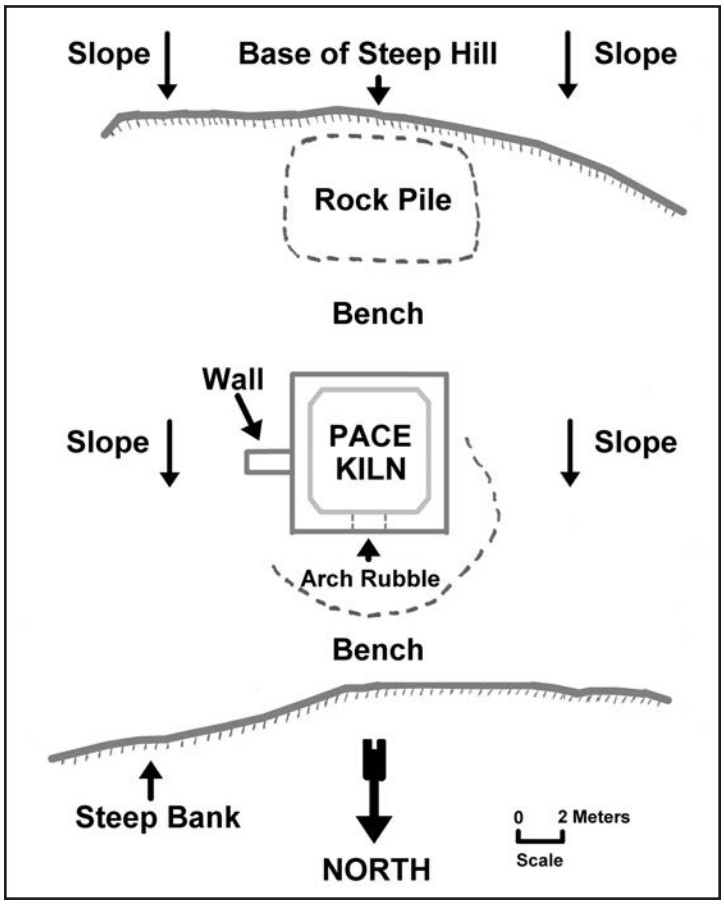


FIGURE 2. PLAN VIEW OF PACE LIME KILN AND ITS RELATED FEATURES.

FIGURE 3. OVERVIEW OF THE PACE LIME KILN. PHOTOGRAPH IS FACING SOUTH. NOTE THE BASE OF THE BLUFF IN THE BACKGROUND.

FIGURE 4. THE PACE LIME KILN LOOKING DOWN SLOPE (NORTH). THE REAR WALL IS VISIBLE IN THE CENTER OF THE PHOTOGRAPH AND THE FRONT OF THE KILN IS NEAR WHERE THE TWO MEN ARE STANDING. THE OHIO RIVER IS IN THE FOREGROUND.

FIGURE 5. DETAILED VIEW OF THE REAR WALL OF THE PACE LIME KILN. PHOTOGRAPH IS FACING SOUTH.

FIGURE 6. DETAILED VIEW OF THE ARCH AT THE PACE LIME KILN. PHOTOGRAPH IS FACING SOUTH.

An arch is present on the down hill side of the Pace Lime Kiln (**Figure 6**). It was constructed at the center of the front wall by slightly overhanging each course of stones beyond the previous course, toward the interior of the arch. At the top of the arch, a large lintel stone was placed. This stone measured 1.4 m (4.5 ft) long, 30.0 cm (12.0 in) wide, and 15.0 cm (6.0 in) thick. This produced an arch that was wide at the base and became increasingly narrow towards the top. The arch is 40.0 cm (1.3 ft) wide at the top and 98.0 cm (3.2 ft) at the bottom. The arch height is 92.0 cm (3.4 ft) and the opening extends 1.0 m (3.3 ft) back into the kiln. The center portion of the north wall extended further north (ca. 50 cm or 1.6 ft) where the arch was located. Several limestone slabs were measured to obtain a sense of building material sizes. The sample of slabs had the following approximate dimensions: 82 x 20 x 60 cm (33 x 8 x 24 in); 77 x 28 x 24 cm (31 x 11 x 10 in); 62 x 50 x 23 cm (25 x 20 x 9 in); 43 x 7-24 x 18 cm (17 x 3-10 x 7 in); and 80 x 40 x 18 cm (32 x 16 x 7 in).

There were probably additional structures associated with the Pace Lime Kiln. For example:

1) a structure that may have served as a temporary storage area for the lime,
2) a structure where barrels were either stored or made for shipping the lime,
3) a small hut, where those tending the kiln spent the nights when the kiln was burned, or
4) a roof over the arch to protect the lime from the elements.

The source of the limestone for burning the kiln is unknown. Near the top of the bluff (estimated to be ca. 30 m [100 ft] above the kiln), a small limestone outcrop was observed. The outcrop appears to be 2-3 m (7-10 ft) high. Due to time constraints and the dangerously steep slope, the outcrop was not examined for drill holes or other evidence of quarrying. No other outcrops were noted in the immediate vicinity. It is possible that other outcrops were closer to the kiln, but have been covered by soil eroding down the bluff. Even if the outcrop at the top of the hill was the only source of raw material, small boulder-sized pieces of limestone could have been easily rolled down the steep slope.

CONCLUSIONS

The Pace Lime Kiln's location near the Ohio River would have been a very desirable setting. The lime generated in the kiln could have been easily moved up and down the Ohio River to markets. From our limited knowledge of the lime industry in Meade County, the Pace Lime Kiln was just one of many lime kilns, either along the Ohio River, or on one of its tributary stream. It is unknown whether the kiln's rectangular shape is a chronological indicator or represents the personal preference of the builder. The other lime kilns observed in Meade County are circular in plan view. Since this is the only documented kiln near Brandenburg, it is conceivable that this could be the lime kiln mentioned in 1826 lawsuit between Solomon Brandenburg and William Stewart. However, comprehensive deed research and other archival research would be necessary to confirm this hypothesis.

Two other rectangular lime kilns have been recorded in other parts of Kentucky. Thus, these kilns will be briefly compared to the Pace Lime Kiln. The Shrull Lime Kiln is a large commercial kiln located west of Russellville in Logan County (Hockensmith n.d.). The Cowherd Lime Kiln is a family-operated kiln, located southwest of Bengal in Green County (Hockensmith 2004c). In terms of size, the Pace Lime Kiln (6.4 x 6.0 m or 21.0 x 19.7 ft) is smaller than the massive Shrull Lime Kiln (7.5 x 5.5 m or 24.6 x 18.0 ft), but larger than the Cowherd Lime Kiln (5.8 x 4.9 m or 19.0 x 16.1 ft). The collapsed walls of the Pace Lime Kiln (2.0 m or 6.6 ft high) are much lower than both the Shrull Lime Kiln (4.3 m or 14.1 ft high) and the Cowherd Lime Kiln (3.7 m or 12.1 ft high). The arch style of the Pace Kiln (roughly pyramidal) is very different from the Shrull and Cowherd kilns, which are both concave across the top. The arch height of the Pace Lime Kiln (92 cm or 3 ft) is lower than the Shrull Lime Kiln (2.3 m or 7.4 ft), but slightly higher than the Cowherd

Lime Kiln (82.0 cm or 2.7 ft). The maximum arch width of the Pace Kiln (98.0 cm or 3.2 ft) is narrower than both the Shrull Lime Kiln (2.2 m or 7.2 ft) and the Cowherd Lime Kiln (1.4 m or 4.7 ft). When examining the Pace Lime Kiln in relation to the Shrull Lime Kiln (obviously a large commercial kiln) and the Cowherd Lime Kiln (a family lime kiln), it is probable that the Pace Lime Kiln is a nineteenth century commercial lime kiln. Functionally, the Pace Lime Kiln was a vertical shaft type kiln, designed for intermittent use.

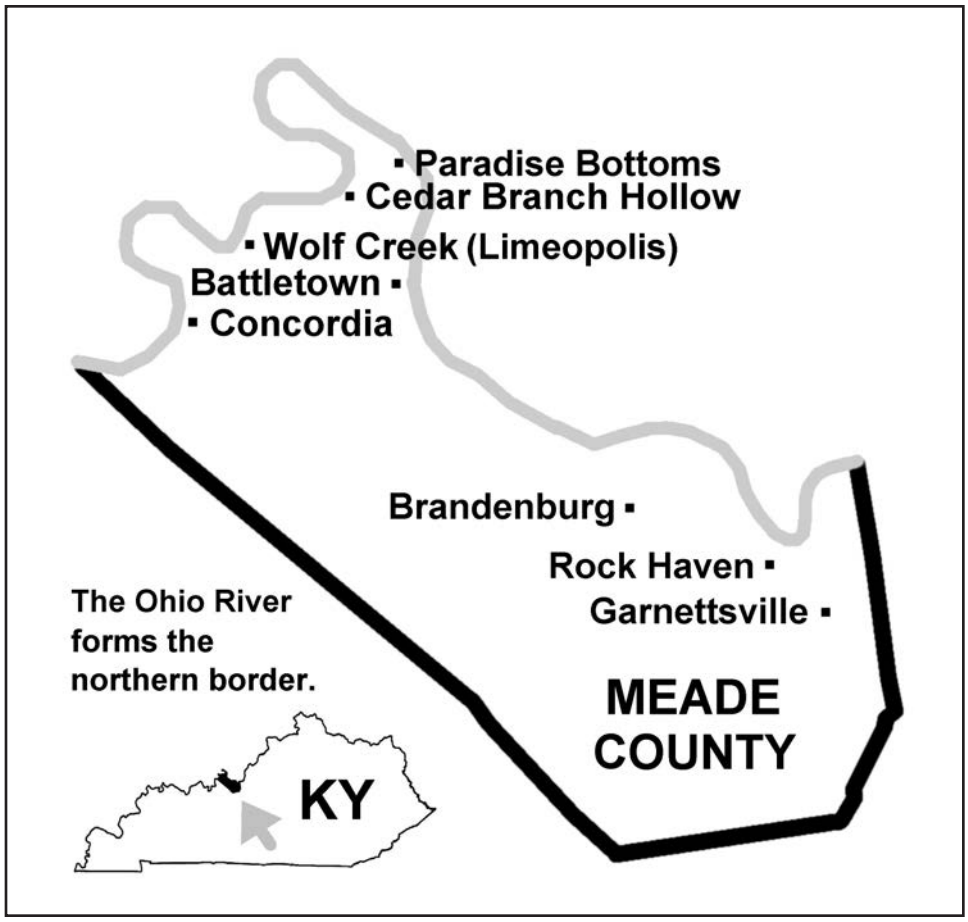
Circular lime kilns are very common (ca. 25 of these kilns are known to the authors) in Meade County. These kilns are smaller than the Pace Lime Kiln and are usually found in clusters. Their occurrence along the Ohio River and its tributaries suggest that they are part of the commercial lime industry in Meade County. It is possible that the Pace Lime Kiln represents an earlier type of kiln, but additional research will be needed to test this hypothesis. Circular lime kilns have also been documented in Livingston County, Kentucky (Hockensmith 1996, 1999, 2004b). Both the Upper and Lower Rudd Lime Kilns had a smaller size than the capacity the Pace Kiln.

Meade County is undoubtedly a key area for understanding Kentucky's lime industry. The importance is primarily due to two factors. First, there is more available archival material for Meade County than for most other areas of the Commonwealth. Second, Meade County has the greatest number of lime kilns currently known in Kentucky. For these two reasons, future research in Meade County has the potential to significantly contribute to our knowledge of historic lime manufacture. As additional surveys are conducted, we have the opportunity to record the range of lime kiln sizes and styles. Also, as more lime kilns are recorded, we can develop a clearer picture of the centers of lime production in the county and estimate the relative importance of these areas. Further, as more in-depth archival research is conducted, we can learn more about the individuals involved in the lime industry, the chronology of the industry, and many other details that cannot be obtained through archaeological investigations. It is essential that both archaeological and archival research be conducted together to gain a better understanding of the lime industry.

While we have undertaken the study of the lime industry in Meade County, we cannot accomplish this objective without the assistance of others. It must be a discipline-wide endeavor. As future Phase I archaeological surveys are conducted, archaeologists should be familiar with lime kilns and their settings. Lime kilns typically occur in areas that archaeologists consider to have low potential for sites. They often occur in rugged areas on steep slopes in settings that do not have rockshelter formations. Sometimes, such areas are "visually" inspected from a distance because of low site potential. Since lime kilns are built into the sides of steep slopes, they are often difficult to see from a distance. Further, they are frequently in isolated areas that have reverted to forest. This problem is greatly magnified in the summer months, when lush vegetation can make them extremely difficult to find. In summary, lime kilns can be very difficult to locate, if archaeologists are not familiar with these sites and are not carefully inspecting rocky slopes, especially near bluff bases. By working together as a profession to document these kilns, we can ensure that an important chapter in Kentucky's industrial heritage is documented for future generations.

ACKNOWLEDGMENTS

We owe a debt of gratitude to several individuals for their assistance. Mr. David Pace graciously allowed us to document the lime kiln on his property. Mr. Allen Hockman, who lives near the kiln, accompanied us to the site and assisted with the documentation. Allen's rope was an important piece of equipment as we climbed up and down the steep bluff. Mr. R. L. Lawson, whose father hauled lime from some local kilns, graciously shared the 1939 newspaper clipping from the *Meade County Messenger*. Mr. Garland Brown shared information on the location of kilns and treated us to some of his great cooking during our fieldwork. Finally, Ms. Anne Bader encouraged the preparation of this article.



MAP OF MEADE COUNTY, KENTUCKY SHOWING LOCATIONS MENTIONED IN THIS ARTICLE.

Photos in this article were taken by the authors.

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Notes on Alternate Uses of So-Called Salt Pans: Middle Tennessee Example

By

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Louisville, Kentucky

During the course of his explorations of prehistoric remains in Tennessee from 1868-1869, Joseph Jones, M.D., examined numerous mounds, villages, and cemeteries in and around Nashville. Excavations at one of these sites prompted some particularly interesting observations regarding the use of an item that for all intents and purposes would routinely be classified as a Mississippian-era salt pan (**Figure 1**). In his description of the excavation of "a small mound, about one hundred feet in diameter, and about ten feet high…on the eastern bank of the Cumberland River [in Davidson County], opposite the city of Nashville, across from the mouth of Lick Branch, at the foot of a large mound, which had been apparently used as a residence or site of a temple" (Jones 1970 [1876]:41-42), Jones remarked:

> In the centre [sic] of the mound, about three feet from its surface, I uncovered a large sacrificial vase or altar, forty-three inches in diameter, composed of a mixture of clay and river shells. The rim of this flat earthen vessel was three inches in height. It appeared to have been moulded [sic] in a large wicker basket, formed of split canes and the leaves of the cane, the impressions of which were plainly visible on the outer surface. The rim of this earthen vessel or sacrificial altar appeared to be almost mathematically circular. The surface of the "altar" was covered with a layer of ashes, about one inch in thickness. These presented the appearance and composition of incinerated animal matter. The antlers and jaw-bone of a deer were found resting on the surface of this object. The edges of the *altar* or fire vessel, which had been broken off apparently by accident, were carefully placed over the layer of ashes, and then covered with nearly three feet of earth; thus the ashes were preserved to a remarkable degree from the action of the rains.
>
> Stone coffins or rude sarcophagi were ranged around this central object, with the heads of the dead toward the centre and the feet toward the circumference of the mound, resembling the radii of a circle [Jones 1970 [1876]:42; italics in original].

In the Nashville area, such late prehistoric items are culturally associated with the Middle Cumberland Culture (cf. Ferguson, ed. 1972) and date to ca. A.D. 1050-1450.

The description of this "altar" in concert with information concerning the material from which it was fashioned, and the appearance of its exterior surface, are sufficient to readily identify the object as what is commonly known as a Kimmswick Fabric-Impressed salt pan (cf. Phillips 1970:95-96). However, the context of its discovery clearly argues against such a functional interpretation and suggests that it served in an as yet unknown "ceremonial" capacity, presumably associated with the observance of burial rites.

How do we know that the object described by Jones was not initially made for procuring salt and later adapted to another function? This question is easily enough addressed. Though the specific springs at which salt was prehistorically produced in or near Nashville have been poorly reported in the archaeological literature, Floyd (1965:102) observed in a survey of mineral resources in Tennessee:

> In the early 1800's several wells were drilled in Tennessee in an effort to locate brines for making salt. One of the early producers was in White County 3½ miles

> northeast of Sparta. Wells were also drilled in Anderson, Warren, Van Buren, Jackson, Fentress, DeKalb, Overton, and Clay Counties [sic]. … Little information is available on the quantities or strength of brines produced from these wells. The highest percentage recorded was brine with 10 percent salt content from a well drilled in 1867 on Ashburns Creek in Clay County; this well produced enough brine for a reported annual production of 10,000 bushels of salt (about 250 tons).

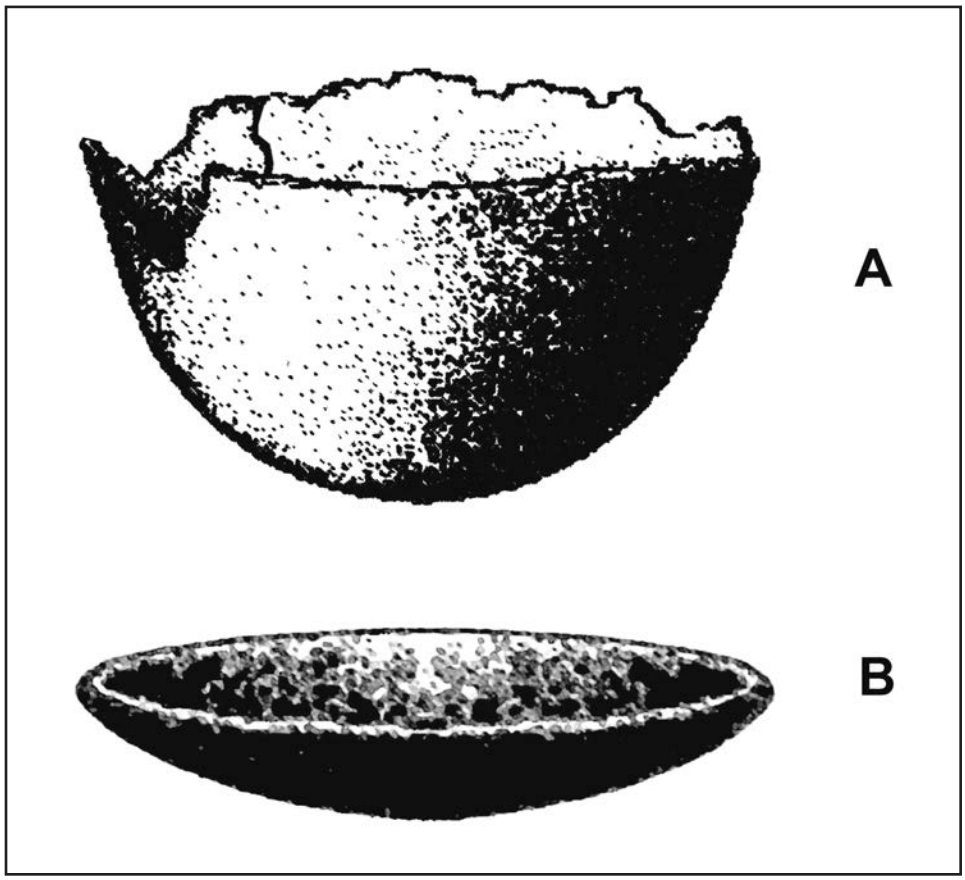

FIGURE 1. HEAVY-WALLED VESSELS, SUCH AS DEPICTED BY PICTURE A, ARE THOUGHT TO BE SALT-REDUCTION VESSELS. IN THEORY, BRINE WOULD BE HEATED IN THESE VESSELS, UNTIL A STRONG SALT CONCENTRATION WAS REACHED. THEN, THE BRINE WOULD BE POURED INTO SHALLOWER VESSELS, SUCH AS SHOWN IN PICTURE B. THE LARGER SURFACE AREAS OF THESE VESSELS WOULD ALLOW A MORE RAPID EVAPORATION TO FORM SALT CRYSTALS.

Although Thruston (1972 [1897]:157-158) mentions a “Sulphur Spring” (also known as “French Lick”) near Nashville which was prehistorically used to produce salt and Haywood (1973 [1823]:59) records a salt lick and the historic production of salt at Mansker’s Station in adjacent Sumner County, available information indicates that there were but a limited number of naturally-occurring sources of salt in, or relatively near, Davidson County, Tennessee. The sheer bulk of these cumbersome vessels would reasonably argue against their have been transported from some unknown salt spring within the area.

Late prehistoric salt production techniques which would have used within the Tennessee, Cumberland, and Ohio valleys are well known and have been variously discussed in great detail in sources such as Brown (1980), Keslin (1964), Muller (1984), and Sellers (1877). A description and good illustration of such a large vessel "about thirty-one inches in diameter, twelve inches high, and having a capacity of twelve to fifteen gallons" appears in Thruston (**Figure 2**). Though the appearance of such large ceramic pans (or fragments thereof) in contexts suggesting that they were used for purposes other than the evaporation of water from brine to obtain salt has been reported within the region (cf. Brown 1980, Kuttruff and Kuttruff 1992, 1996), their precise alternate function(s) remain both problematical and conjectural.

Thruston (1972 [1897]:159) was among the first to recognize that the large, heavy ceramic wares typically associated with salt production were utilized for other purposes. He appropriately observed that:

> The large kettles were not all used as "salt pans," as we find many sections and fragments of them in other aboriginal cemeteries in Nashville. The graves are frequently lined and covered with them, instead of slabs of stone. They may have been used as sugar boilers, or cooking kettles, or for other purposes…

While it is easy enough to recognize and "name" these thick, heavy-duty wares, the foregoing notes should prompt a degree of caution in too quickly attributing an erroneous or misleading function to them in the process of interpreting materials recovered from late prehistoric sites.

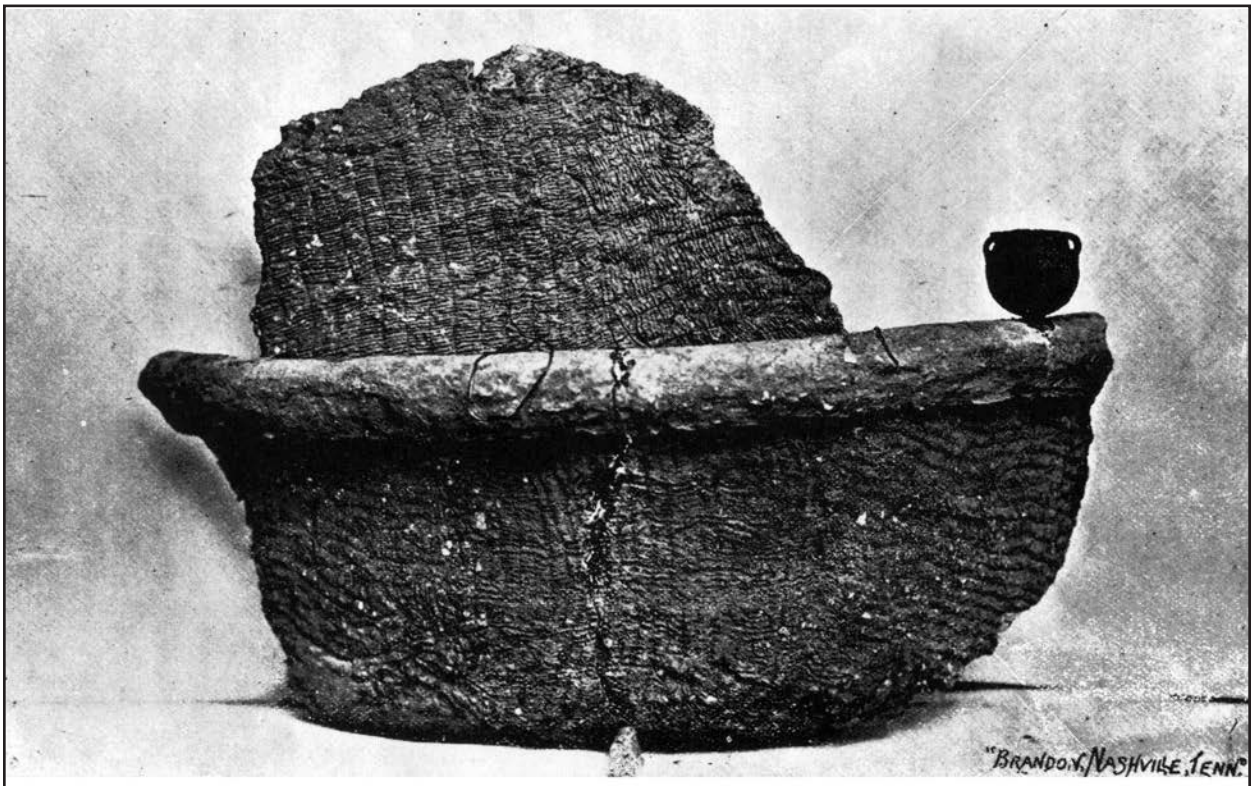

PLATE X. - Sections of a large vessel of pottery.

FIGURE 2. FROM THRUSTON (1972 [1897]:159, PLATE X).

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THE MEYER SITE: AN INADVERTENT DISCOVERY IN SPENCER COUNTY, INDIANA

BY

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FALLS OF THE OHIO ARCHAEOLOGICAL SOCIETY

In May 2004, while excavating trenches to emplace foundation footers for a planned expansion to a residence (**Figures 1-3**), landowners discovered an archaeological site dating to the late Middle Archaic and Late Archaic periods on their property. The site, which has been designated 12SP1082, represents a rich midden deposit with numerous artifacts and features, some of which contain human interments. In addition to the late Middle Archaic cultural deposits, a few Woodland artifacts have also been identified.

FIGURE 1. AT THE MEYER SITE, LOOKING WEST TOWARDS THE EXCAVATION AREA.

FIGURE 2. BAKERS CREEK FLOWS AROUND THE BASE OF THE HILL NEAR THE SITE.

In response to a call from the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (IDNR/DHPA), the Falls of the Ohio Archaeological Society (FOAS) responded to the need for volunteer labor to document and salvage the sensitive remains and allow the construction to proceed. Initially, it was thought that only a few truncated firepits and a single human burial had been disturbed. The supposedly minor field effort required represented an ideal opportunity for the FOAS to obtain on-the-job training in archaeological techniques, while simultaneously assisting the landowner resolve outstanding issues regarding sensitive archaeological remains on his construction site.

However, the early stages of the work revealed the site to be a very dense, stratified midden zone containing numerous features and burials from several cultural periods. Calls for additional help went out, and experienced archaeologists from ten universities, state agencies, archaeological firms, and independent volunteers in three states sent crews, logging nearly 900 manhours, as of the end of July. While alternate proposals for the future management and appropriate mitigation of the damages are still under consideration, work continues at the site. The following brief narrative focuses on the findings of the excavations to-date, and discusses the site's significance.

The site is located in southern Spencer County, approximately one mile northeast of the Ohio River in the vicinity of Rockport (**Figure 4**). The landform on which the site is situated is broad and relatively flat, with little significant relief. Located on a terrace remnant of the Ohio, a large spring flows from the hillside near the site into Bakers Creek some 7.6 meters (m) (or ca. 25 feet (ft)) below the site. Southwest of Bakers Creek, three additional, closely spaced and roughly parallel streams

provide additional drainage to the terrace. The low-lying areas between the terrace ridges through which the streams flow are wet and marshy, and wooded for a good portion of their length.

FIGURE 3. LOOKING NORTHEAST ACROSS THE SITE BEFORE THE EXCAVATION STARTED.

FIGURE 4. MEYER SITE LOCALE.

The previous and current landowners of the Meyer Site have long collected prehistoric artifacts from the ground surface. Among the diagnostic projectile points that have been found are Brewerton (**Figure 5**) and Matanzas (**Figure 6**) types. Later Archaic stemmed points were less common in the collection (see top right, **Figure 6**). Several side-notched and corner-notched varieties, including Godar, were also present, suggesting an even earlier, but relatively minor, Archaic occupation (**Figure 7**).

Preliminary work at the site began with clearing the footer trench walls to identify cultural features, such as storage and refuse pits, hearths, and postmolds. Due to the known presence of at least one burial, FOAS workers were on the alert for features that contained bone. Heavy rains had blurred the original clarity of these walls, leaving a hardened mud and silt coating over what had been fresh cuts in the ground. It took multiple trips to clear the nearly 150 m (ca. 500 ft) of footer trenches. Once that had been done, over 64 features and multiple burials had

been identified and recorded. Simultaneously with this effort, features were photographed, drawn, and excavated, and composite wall profiles were prepared to record the stratigraphy of the site (**Figure 8**).

Preliminary findings suggest the site is stratified, with at least two significant Archaic occupations. A possible Woodland component within the impacted area has likely been removed through excavation associated with the construction. The upper Archaic zone, consisting of a thick, black earthen midden, contains thermal features, shallow and deep basins or pits of various function, and human burials. Features from the earlier Archaic period descended into the lower midden of the Middle Archaic period. The outlines of these pits are generally difficult to discern due to the dark color of the midden into which they intruded. The Middle Archaic zone consists of a slightly lighter, more grayish-brown midden with features extending into the yellowish-brown clay subsoil, rendering them more clearly visible during excavation.

Interestingly, excavations in the midden zones of both occupations have produced relatively few artifacts and fire-cracked rock. In particular, flint debitage, the waste material from chipped stone tool manufacture, was relatively low in frequency. Debitage is normally the most common artifact type found on historic sites. The features, on the other hand, have yielded a wide variety of artifact types, including highly polished but fragmented bone pin ornaments, bone awls, modified canine teeth that were likely ornaments, cut antler, bone bead fragments, projectile points, drill, scrapers, ground stone tool fragments (i.e. axes) and turtle shells (**Figures 9**). An unusual fragmented bannerstone was also recovered from an unprovenienced context (**Figure 10**). Feature 1, for instance, contained a small cache of clustered artifacts including an entire turtle carapace and plastron that may be a rattle, two side-notched projectile points, and two rodent mandibles (**Figure 11**). Other finds include a significant amount of animal bone, including deer, turtle, drumfish, large birds, small mammals, and mussels. In addition, moderate amounts of charred nut fragments have also been recovered.

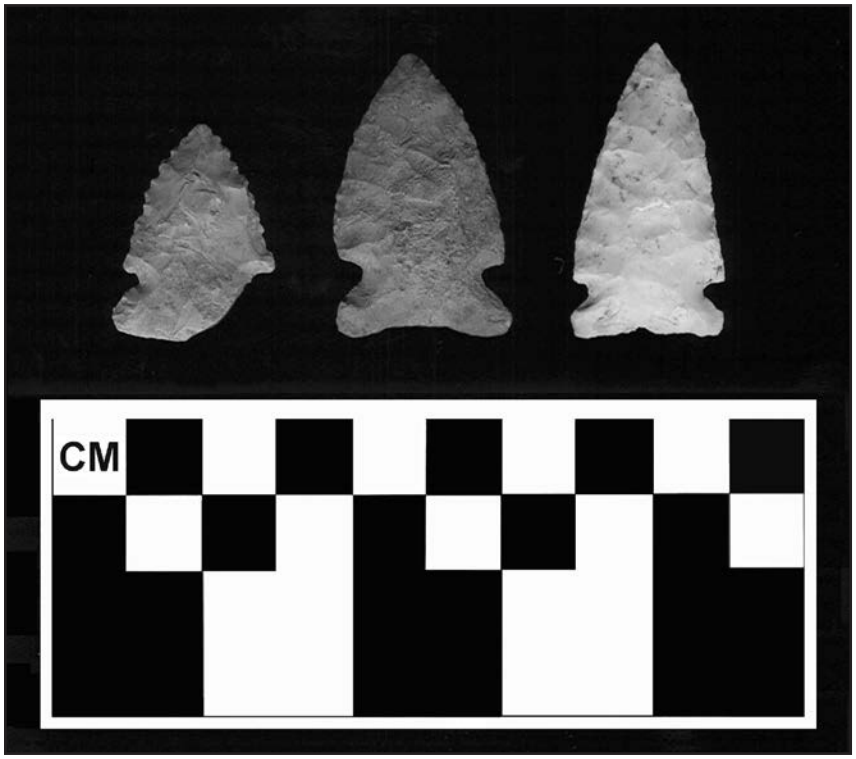


FIGURE 5. BREWERTON PROJECTILE POINTS.

FIGURE 6. MATANZAS AND STEMMED POINTS.

FIGURE 7. NOTCHED POINTS.

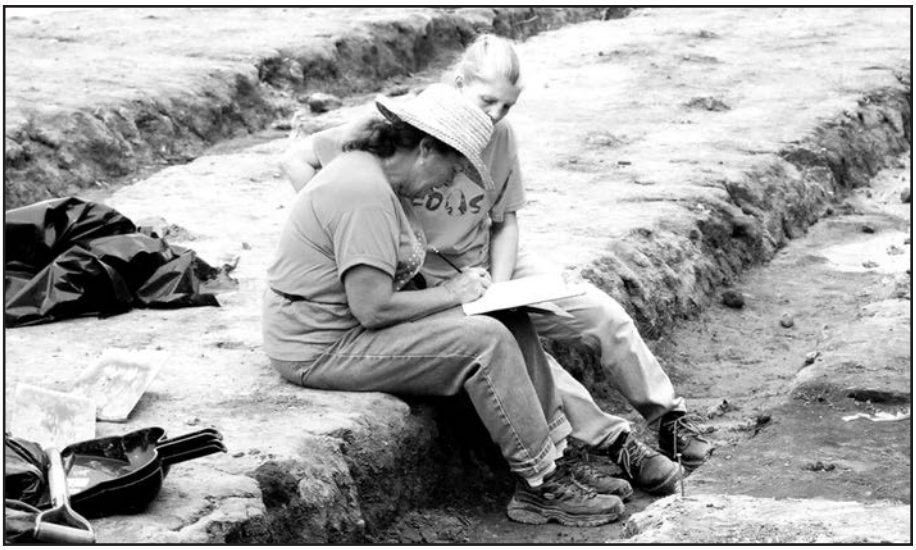


FIGURE 8. FOAS MEMBERS LESLIE RUMBLEY AND SUNDEA MURPHY LEARN TO PROFILE EXPOSED FEATURES.

FIGURE 9. BONE AND ANTLER ARTIFACTS.

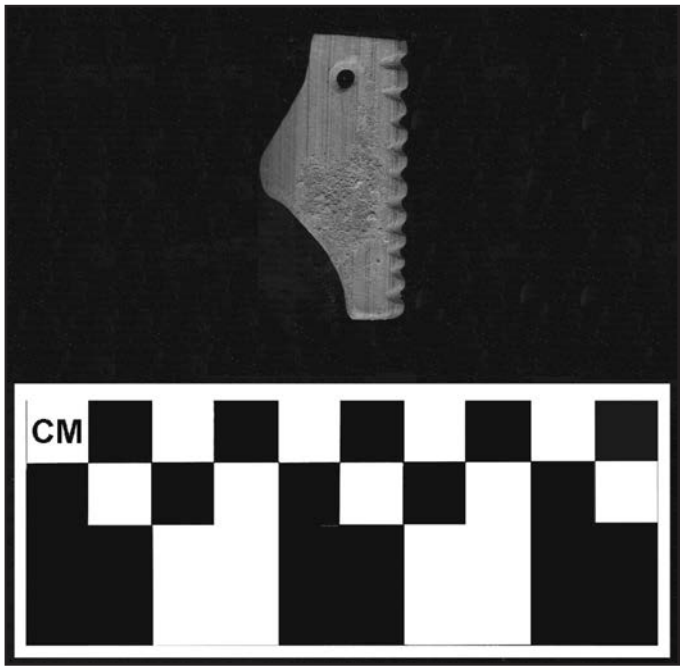


FIGURE 10. UNUSUAL FRAGMENTED BANNERSTONE OF GREEN BANDED SLATE. THE ARTIFACT EXHIBITS A POSSIBLE ATTEMPT AT REPAIR.

FIGURE 11. CACHE OF TURTLE CARAPACE, PROJECTILE POINTS, AND MAMMAL MANDIBLES FROM FEATURE 1.

The burials recovered to-date have all been in a flexed position. The burials appear to be associated with ritualistic ceremony involving fire. With few exceptions, small, dense circular stains of charcoal apparently associated with the burials suggest such possibilities as smudge pots, the burning of tobacco or incense, or offerings of some sort. In one instance, four such features are aligned around a burial in the cardinal directions. In other cases, the feature is located near the head. The Division of Historic Preservation and Archaeology is currently in consultation with Native American tribal groups regarding the appropriate treatment of these remains.

While the site contains a significant mortuary function, artifacts, floral and faunal remains, and features associated with habitation are also present, suggesting people lived and worked at or very nearby the site as well. However, as mentioned above, the low-density of artifacts within the midden is unusual for sites of these periods. The site certainly extends beyond the area impacted by the house expansion, and it is probable that nearby areas may contain more concentrated evidence of intensive occupation or specialized work areas. Undoubtedly, the fresh-flowing spring at the site and the abundant resources of the nearby wet lowlands attracted prehistoric occupation. Other sites of the late Middle Archaic demonstrate the same pattern of proximity to resources-rich sloughs. Among others, the site is comparable in many respects to the Black Earth Site in Illinois, the Bluegrass Site in northwestern Indiana, and the KYANG (Kentucky Air National Guard) Site in Louisville, Kentucky.

A significant amount of data has already been recovered due to the dedication and selflessness of many volunteers. Much more hard work has yet to be completed, however. For example, recent remote sensing at the site indicates the presence of numerous features yet to be excavated within the impacted areas.

This project has been a prime example of the many positive benefits of public archaeology, namely:

1) Amateurs and interested individuals have had the opportunity to learn archaeological techniques. The on-the-job training of these individuals has established a ready-made support group for professionals on similar unfunded or under-funded projects in the future.
2) The project has drawn the cooperative effort of professional archaeologists from within the state and across state lines to collectively focus their efforts on recovering information from a threatened significant archaeological resource.
3) This experience has brought together professionals and amateurs, uniting them in a common cause as stewards of the past, rather than adversaries competing for ownership of its secrets.
4) The public has been invited to actively participate and learn the value of professionally conducted archaeological fieldwork.
5) Finally, and not least, a private landowner has been assisted by caring individuals to offset the high costs of archaeological data recovery.

Sincere thanks goes to all of the FOAS members who have assisted at the site and given freely of their time. A special note of thanks is due to Sundea Murphy, Mark Milliner, Leslie Rumbley, and Christina De Ment (**Figures 12-15**), who have repeatedly given of their time. Also, appreciation is due to those who have not been able to visit the site, but have contributed to artifact processing in the lab. FOAS also wishes to recognize the significant contributions of the following, without whose help we would never have accomplished as much:

1) Dr. Jocelyn Turner of Indiana University, who mapped the site, processed data, and significantly assisted with excavations (**Figure 16**).
2) Ms. Cheryl Munson of Indiana University, who has worked at the site and provided invaluable advice, equipment, and supplies, as well as her own labor (**Figure 17**).
3) Indiana State Representative Matt Pierce, who contributed field time on a month of Sundays. Mr. Pierce also provided unique and invaluable insights and advice regarding the legal aspects of the situation (**Figure 18**).
4) Ms. Melody Pope of Glenn Black Archaeological Laboratory and her students for their field assistance.
5) Dr. Nelson Schaffer of the Indiana Geological Survey for conducting remote sensing at the site (**Figure 19**).
6) AMEC Earth & Environmental, Inc. in Louisville, Kentucky for providing staff (Mindi King, bioarchaeologist (**Figure 20**) and Anne Bader, principal investigator (**Figure 21**)), and equipment, and for the use of their laboratory for processing artifacts.
7) Dr. David Pollack (**Figure 22**) and Eric Schlarb (**Figure 23**) of the Kentucky Archaeological Survey, for volunteer labor, advice, and the processing of flotation samples recovered from the features.
8) Dr. Chris Schmidt of the University of Indianapolis who brought his field school down

to work at the site, and who has committed himself and his staff to providing specialized analyses of the remains following the completion of fieldwork (**Figure 24**).

9) Dr. John Schwegman and his students from Indiana State University in Terre Haute, who provided several days of fieldwork (**Figure 25**).

10) Dr. Richard Jefferies and Rick Burdin (**Figure 26**) of the University of Kentucky, recognized experts in this area of study, who assisted in the fieldwork and ongoing consultation. Mr. Burdin has also offered to write a chapter of the final report.

11) Archaeologists Carl Shields and Wayna Roach of the Kentucky Transportation Cabinet in Frankfort, Kentucky for providing fieldwork.

12) All of the many volunteers from across several states who have repeatedly assisted us on the weekends, including Mr. Bill Rheinhardt and family, Mr. Mike Fenwick and family, the De Ment family, Ms. Diane Eubank, and many others.

FOAS especially wants to thank Mr. James Mohow (**Figure 27**) of the Indiana Division of Historic Preservation and Archaeology in Indianapolis, who first visited the site and officially recorded it. Mr. Mohow offered the FOAS a truly unique and wonderful opportunity to learn, participate in, and contribute to professional archaeology. This was a learning experience our members have long wished to have and an opportunity they will cherish. We wish to express gratitude to Mr. Mohow, as well as the Division of Historic Preservation and Archaeology, for the trust demonstrated in the abilities and commitment of amateur-professional alliances and for recognizing the value these groups can add to the discipline. We also thank him for offering to conduct the analysis and prepare a chapter of the projectile point assemblage recovered from the site.

Lastly, we are very appreciative of the generous hospitality of Russ, Heather, Tyler and Cory Meyer whose privacy we have invaded. They have made us feel welcome and have greatly assisted in the field effort. We owe them our thanks for allowing us such a wonderful opportunity.

FIGURE 12. SUNDEA MURPHY.
21 FIELDWORK DAYS.

FIGURE 13. MARK MILLINER.
14 FIELDWORK DAYS.

FIGURE 14. LESLIE RUMBLEY.
7 FIELDWORK DAYS.

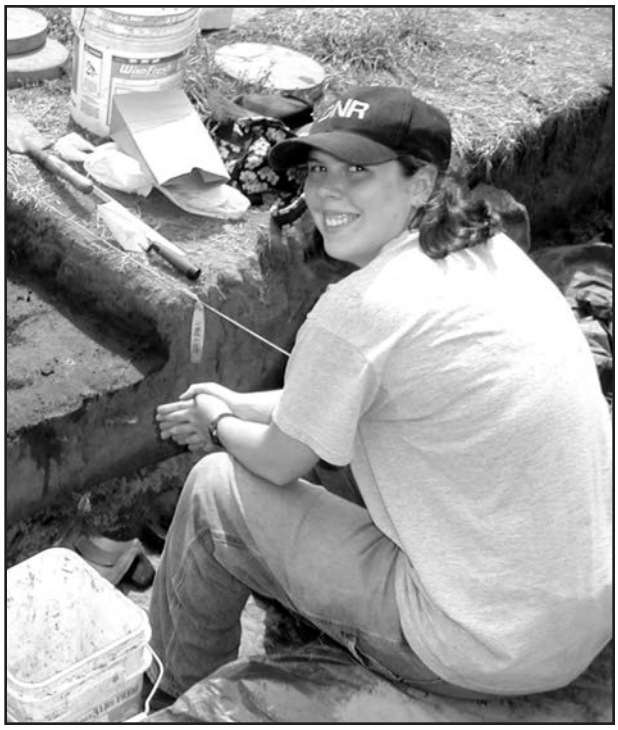


FIGURE 15. CHRISTINA DE MENT.
7 FIELDWORK DAYS.

FIGURE 16. DR. JOCELYN TURNER OF INDIANA UNIVERSITY MAPPPING THE SITE.

FIGURE 17. MS. CHERYL MUNSON OF INDIANA UNIVERSITY WORKING AT THE SITE.

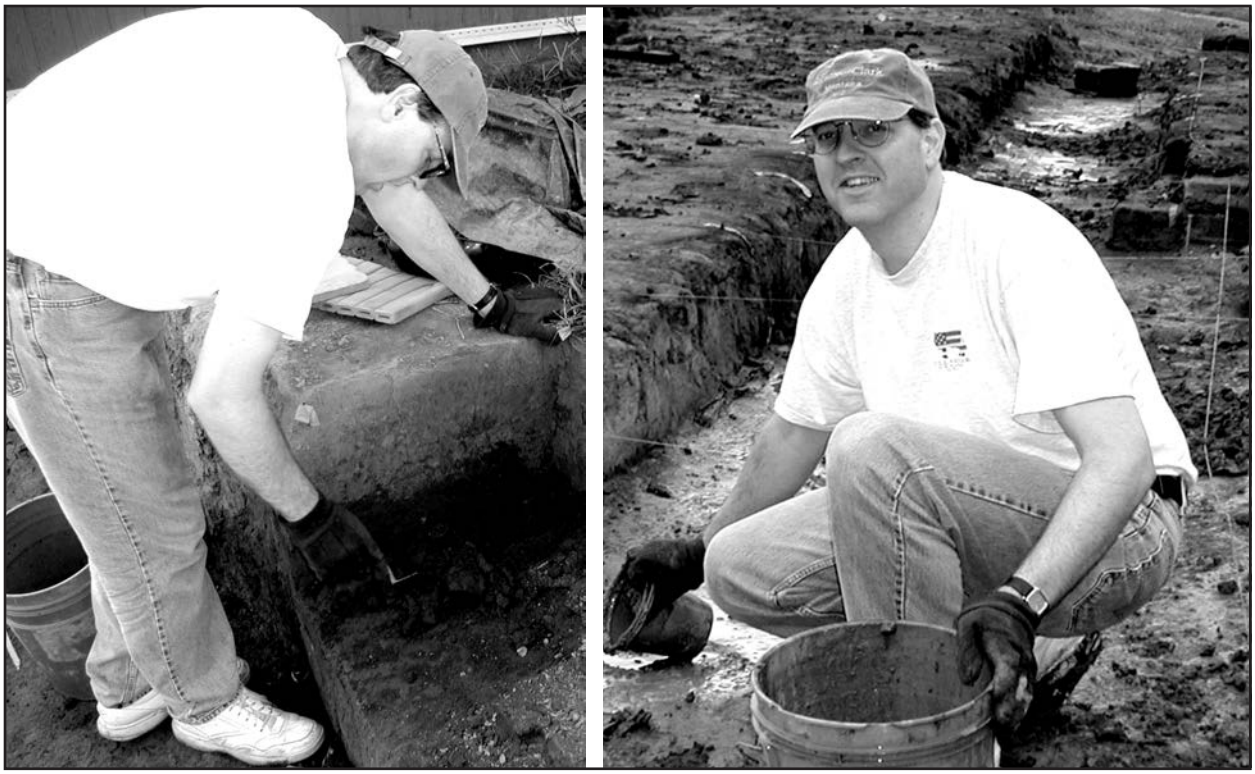


FIGURE 18. INDIANA STATE REPRESENTATIVE MATT PIERCE LEARNING EXCAVATION TECHNIQUES.

FIGURE 19. DR. NELSON SCHAFFER OF THE INDIANA GEOLOGICAL SURVEY CONDUCTING GROUND PENETRATING RADAR AT THE SITE.

FIGURE 20. MINDI KING, BIOARCHAEOLOGIST.

FIGURE 21. ANNE BADER, PRINCIPAL INVESTIGATOR.

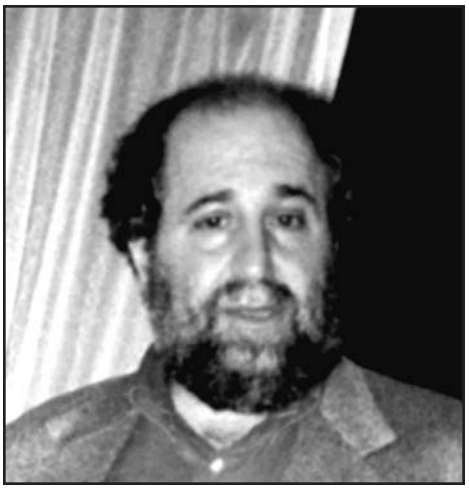


FIGURE 22. DR. DAVID POLLOCK.

FIGURE 23. ERIC SCHLARB OF THE KENTUCKY ARCHAEOLOGICAL SURVEY (KAS) EXCAVATING A FEATURE.

FIGURE 24. DR. CHRIS SCHMIDT AND HIS FIELD SCHOOL STUDENTS FROM THE UNIVERSITY OF INDIANAPOLIS.

FIGURE 25. DR. JOHN SCHWEGMAN'S STUDENTS, SHAWN RICHEY AND J. D. GRIMES, FROM INDIANA STATE UNIVERSITY.

FIGURE 26. RICK BURDIN AND DR. RICHARD JEFFERIES OF THE UNIVERSITY OF KENTUCKY.

FIGURE 27. JIM MOHOW OF THE INDIANA DIVISION OF HISTORIC PRESERVATION AND ARCHAEOLOGY.

September 2003

Hank McKelway

Plantation Archaeology: The Mabry Site, Tennessee

October 2003

Lorie Stahlgren

Archaeolgy at Riverside, Farnsley-Moremen Landing, Louisville, Kentucky

November 2003

Joe Granger

Jefferson County, Kentucky Urban and Historic Archaeology

December 2003

Christina De Ment

Student Archaeology Projects Around Borden, Indiana

January 2004

Ryan Peterson

Archaeology of the Northern Alaksan Coastline

February 2004

Charles Hockensmith

Archaeology of the Frankfort-Lexington Railroad

INDIANA ATLATL ASSOCIATION

BY

RICHARD B. LYONS
PRESIDENT, INDIANA ATLATL ASSOCIATION
JEFFERSONVILLE, INDIANA

Thousands of years ago, an unknown someone discovered the principles of a simple device, which transformed the way people hunted and survived. This simple device became known as the spear thrower or atlatl (**Figure 1**). It increased the distance, force, and accuracy by which a spear could be thrown. Early people could now take game, such as mammoth, mastodon, bison, horse, and reindeer from a much greater distance and much more safely. This device was not much more than a short piece of wood, but the effect on early man was as important as the discovery of fire or the wheel.

FIGURE 1. PALEOLITHIC SPEAR THROWER.

Today, some of us are trying to recreate, from the archaeological and historic record, the technology and skill these early people used to become proficient with the atlatl. Groups of like-minded people all over the world are getting together to share information, and to compete in contests of skill and fun using the atlatl.

The Indiana Atlatl Association was started in 2001 as a spin-off of the World Atlatl Association, which has been in existence since the late 1980s. Over the last few years, there has been an increased interest in the atlatl, within the state of Indiana. There was a need to have a focal point for the collection and dissemination of information for those individuals interested in learning about and using the atlatl. We are trying to fill that need.

In addition to publishing a biannual newsletter, we also organize demonstrations, set up displays, and conduct contests throughout the state. We have started an Indiana State Championship Atlatl Contest, in which people throughout the state can compete. At our demonstrations, we try to involve the general public by inviting them to have hands-on experience with the atlatl (**Figures 2-5**). We have introduced thousands of individuals to the history, technology, and use of the atlatl.

Interested in joining our organization and learning more about the atlatl? Contact:

INDIANA ATLATL ASSOCIATION

Richard B. Lyons
5024 King Road
Jeffersonville, Indiana 47130
(812) 246-9987

FIGURE 2. IAA'S DISPLAY TENT.

FIGURE 3. CHOOSE YOUR WEAPON.

FIGURE 4. RICH LYONS INSTRUCTING AN INTERESTED YOUNGSTER.

FIGURE 5. A CLOSER LOOK AT THE BEAUTIFULLY CRAFTED ATLATLS.

Notes on Historic Era Stone Box Graves in the Cumberland River Valley

By

Donald B. Ball
Louisville, Kentucky

Stone box graves are the defining cultural hallmark associated with the late prehistoric Cumberlandia chiefdom (Middle Cumberland Culture) in north-central Tennessee and are securely dated to the Mississippian era (**Figure 1**). Recent research has gone even further in defining the Mississippian time period during which stone box graves were customary. This research has resulted in the provisional designation of three Mississippian phases in the Nashville area (Smith 1992, Walling and Alexander 2000:51-65). In chronological order, these are the Spencer Phase (A.D. 850/900-1050), the Dowd Phase (A.D. 1050-1250), and the Thruston Phase (A.D. 1250-1450). Significantly, stone box graves do not appear to have been introduced prior to the Dowd Phase and, accordingly, are associated with Middle and Late Mississippian occupation in the central Cumberland Valley.

Whereas mound centers predominated during the Dowd Phase, these appear to have been supplanted by palisade-fortified villages in the subsequent Thruston Phase. For reasons not yet fully understood, but likely relating to ongoing regional warfare (implied by the transition to pallisaded villages), it is generally believed that the Cumberland Valley was abandoned by its Native American inhabitants after ca. A.D. 1450. This region, along with major portions of Kentucky and the central Mississippi River Valley, thereafter became what archaeologists have termed the "Vacant Quarter" (cf. Cobb and Butler 2002).

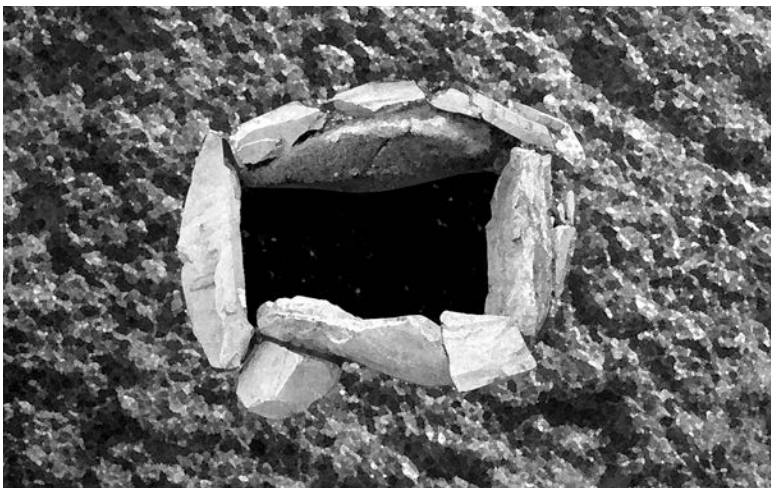
Due to the absence of the Native populations in the Vacant Quarter after A.D. 1450, the presence of historic era artifacts in stone box graves in and around Nashville has long been viewed with legitimate professional skepticism. However, it is noteworthy that in a letter dated February 8, 1837, to Dr. Samuel G. Morton, Gerard Troost (1837) - a no-nonsense, highly respected scholar, educated in Europe, and then serving as Tennessee state geologist - discussed several stone box cemeteries and described objects of glass and enamel he had found in some of the graves. John Wesley Powell (1894:xl) of the Smithsonian Institution subsequently remarked on seeing glass and iron artifacts in a stone box grave near Nashville. Various metal artifacts (e.g., square nails) and fragments of historic era ceramics have also been reported from stone box graves at the Tinsley Hill site in Lyon County, Kentucky (Schwartz 1961:85-89), but it was speculated that these might likely have been post-inhumation inclusions introduced by plowing (Schwartz 1961:87).

Following his excavation of a number of stone box graves "about fifty yards from the left bank of the [Cumberland] river, and about three miles above Clarksville," Daniel F. Wright (1875), a physician, forwarded a collection of materials to the Smithsonian Institution. Among these items, he described:

> The small package, No. 8, contains an invaluable relic in reference to our chronological difficulty. On examination, you will find it to be a leaden bullet, completely covered with a bony accretion. This was found in close contact with the scapula of one of the exhumed skeletons. The manner in which it was enveloped with bony matters convinces me that it was lodged in the shoulder long before the Indian's death, and carried there for years [Wright 1875:373].

This extended burial type had smaller, more irregularly shaped flat slabs lining the bottom and sides.

This extended burial type had larger, more rectangular-shaped flat slabs used in the construction.



This flexed burial type had a smaller ground surface opening, and the overall vault is more square-shaped. It is commonly called a cist (or cyst).

FIGURE 1. WITH UPPER SLABS REMOVED, THESE STONE BOX GRAVE TYPES ILLUSTRATE TYPICAL STONE ARRANGEMENTS.

In marked contrast, Dr. Joseph Jones (1970 [1876]:50) observed, "In all my research I found no implement of European manufacture within and around the mounds. … No implements of iron or any other metal were obtained." Jones (1970 [1876]:86-87) further commented, "Numerous relics have been discovered from time to time, in and around Old Town [site 40Wm2 in Williamson County, Tennessee], but, as far as I could learn, no metallic implements, coins, or utensils of European manufacture have ever been exhumed from the aboriginal mounds and graves." Based upon his explorations of stone box graves in and around Nashville in 1877, Frederic Ward Putnam (1973:174) of Harvard's Peabody Museum remarked, "The Stone Grave people of Tennessee, judging by the entire absence of articles of European make in the hundreds of graves that have been opened, never came in contact with the white man."

Maintaining that every historic item ever found in any stone box grave was a result of plow action, animal burrowing, etc. negates the real world observation that with rare exception, most such graves had long filled with dirt, as a result of soil erosion and compaction. However, rare exceptions do exist. As noted by Jones (1970 [1876]:43), in the course of excavating a stone box grave "in the summit of a mound on the banks of the Cumberland River, opposite Nashville, Tennessee" he encountered one grave "which was about two feet beneath the surface (that is, the lid of the coffin was covered with this thickness of earth), had been constructed with such care that little or no earth had fallen in, and the skeleton rested as it were in a perfect vault."

Though subject to debate *ad nauseum*, it is not unrealistic to suggest that all parties cited were absolutely correct in their observations. While there is certainly evidence to suggest that a limited number of historic items were found within some stone box graves, there is simultaneously no evidence to support the contention that such artifacts were ever found with any degree of frequency. Historically, the Shawnee are known to have both constructed stone-lined graves (cf. Voegelin 1944:326) and occupied the Cumberland Valley in the late seventeenth and early eighteenth centuries (cf. Clark 1977:10-11). It is not beyond the realm of possibility that they reoccupied long-abandoned Cumberlandia sites and deposited historic trade items in graves they subsequently constructed. Such a contention in no manner suggests that vast majority of the stone box graves investigated in and around Nashville were other than prehistoric in origin (cf. Dowd 1972, Ferguson, ed. 1972, Smith 1992).

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STREETS TO THE PAST: AN ARCHAEOLOGICAL SURVEY AT THE PORTLAND WHARF

BY

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INTRODUCTION

In the spring of 2002, the Kentucky Archaeological Survey conducted an archaeological survey of the Portland Wharf site located in Louisville, Kentucky. The survey was part of the planning and development of the Portland Wharf Park, a unique initiative to use cultural tourism, history, and archaeology to revitalize the Portland Neighborhood. The survey conducted at the Portland Wharf represented the first step towards making the park a reality. The purpose of the survey was to identify intact archaeological resources within the wharf area and to develop research questions for future excavations and park programming.

One of the most interesting of the resources located at the Portland Wharf were the original streets found buried beneath several feet of soil. The discovery of these streets provide a glimpse into the history of a very important feature of any city. Street construction often reflects the earliest developments in a frontier city's formation.

HISTORY OF THE WHARF IN PORTLAND

The Portland Wharf is a 60-acre (24-hectare (ha)) parcel of land located along the Ohio River at the base of the Portland Canal in western Louisville. The site is part of the Portland Neighborhood and is situated on a low-lying floodplain, nestled between the floodwall and the river. This area was once the heart of a bustling nineteenth century river town, complete with buildings, streets, and a wharf for landing riverboats.

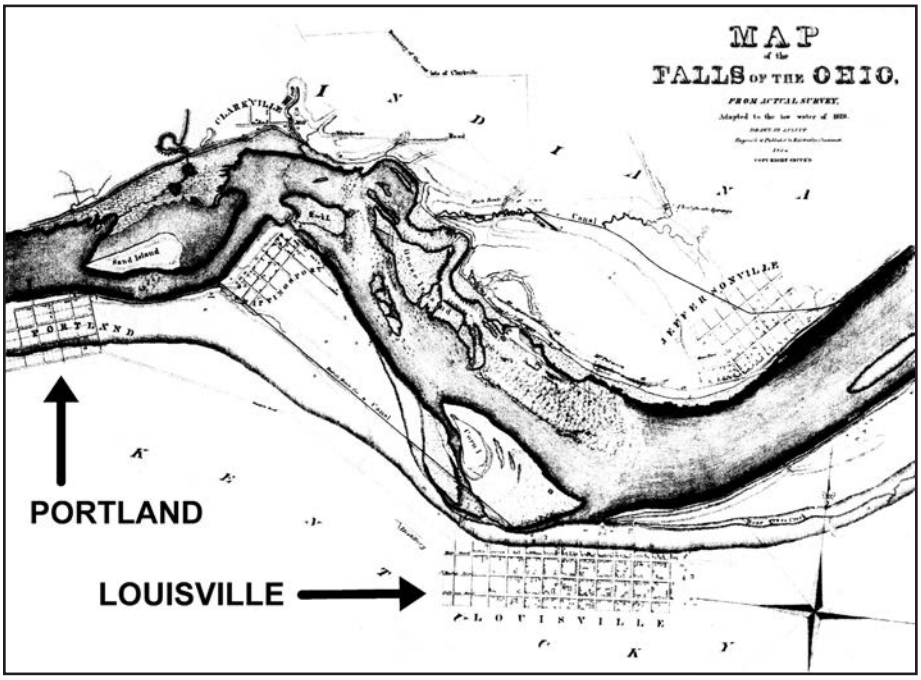

FIGURE 1. MAP OF THE FALLS OF THE OHIO, SHOWING PORTLAND AND LOUISVILLE CA. 1824. (From Flint 1824.)

The town of Portland was founded in 1811 at the base of the Falls of the Ohio River by William Lytle of Cincinnati, who purchased the land from Henry Clay (**Figure 1**). The town was located at the terminus point of the lucrative portage service around the Falls and was an early rival to Louisville. Both Louisville and Portland prospered greatly by increased river traffic and rose from small towns to bustling mercantile centers (Kleber 1992). Their economies flourished in the early part of the nineteenth century; first, from cargo on flatboats and keelboats coming downriver, and later, by steamboats traveling upriver from New Orleans.

During the mid nineteenth century, nearly one-third of the cost to ship cargo from New Orleans to Louisville was spent on the three-mile (nearly 5 kilometers) portage around the Falls. The portage business created a large demand for river-oriented industries, and many merchants became quite wealthy. Because the portage business was so important to Louisville and Portland, it became the source of much friction between the rival ports. The high cost of transport and the condition of the road between the two was often the subject of commentary and complaints. To eliminate the need for the portage, a canal to bypass the Falls had been proposed as early as the 1790s. However, it was not until 1825 when the Louisville and Portland Canal Company was chartered. Construction of the canal began the following year, and it was finally completed in 1830. Surprisingly, the canal did little to improve transportation around the Falls. By the time it was completed, it was too narrow and shallow for the new generation of steamboats that dominated shipping on the Ohio River. As a result, the overland portage system continued its dominance (Watrous 1977).

After the new canal failed to make a difference, Portland sought to build a railroad to Louisville. At the same time, business interests in Lexington wanted access to a port below the Falls without having to stop in Louisville. Businessmen and the Lexington and Ohio Railroad proposed to build a rail line directly to Portland's wharf. However, the project ran out of money in 1837, and a new plan was proposed that included a stop in Louisville. In a major compromise, Portland agreed to be annexed by Louisville in 1837, and, in turn, was promised the railroad terminus and a link to the inner Bluegrass regions around Lexington. The rail line between Portland and Louisville was built; however, the Louisville businessmen failed to extend the track to Lexington, thus angering the people in Portland. Moreover, within five months of its construction, the businesses in Louisville, by stating noise pollution, successfully obtained a court order stopping the trains to Portland (Freda 1996; Kleber 1992; Yater 1987). The tension came to a head in 1842, when Portlanders sought and gained independence from Louisville. Yet, this autonomy was short-lived and in 1852, Portland once again became part of Louisville, although resentment would remain (Karem 1988).

The 1850s were the peak years of river traffic and of Portland's prosperity. By the 1860s, railroads had begun to overtake riverboats as the preferred transportation system in the country. The Portland Wharf, which had brought so much prosperity to the region, was made obsolete after the Federal Government took control and enlarged the canal in the 1870s. By the turn of the century, Portland, like many other older urban areas, encountered an era of degrading structures and mass unemployment. In 1937, and again in 1945, terrible floods ravaged the "old" section of town, and by the late 1940s, plans for building a floodwall through the area were approved (Freda 1996; Kleber 2003).

The building of the floodwall in 1947 removed the last vestige of the oldest section of Portland and its wharf. The completion of Interstate 64, constructed atop the floodwall, served as the final action that successfully disconnected Portland from its original livelihood, the Ohio River (The Courier-Journal 1947; Karem 1988).

REVITALIZATION OF PORTLAND

The development of the Portland Wharf into an archaeological and historical park was inspired by local school children during a planning project conducted by the Portland Museum in 1994. The cultural heritage theme developed from the children's interest in the community's historical and archaeological resources and called attention to the need for community revitalization.

City officials recognized that cultural heritage tourism could be a way to accomplish the task of revitalization. So, after years of neglect, the city of Louisville recently turned its attention toward the Portland Neighborhood. In 2000, the city provided funding to develop a master plan for the Portland Wharf Park. Professional planners were hired to develop the park plan. The public and professionals were invited to participate in workshops to provide input for the new park design. After a year of work, the master plan for Portland Wharf Park was unveiled. Archaeology was a prominent feature of this plan, which would focus on public participation as a tool to connect the community with their past and to the park.

In order for archaeology to play a prominent role in the development of the park, an assessment of the site's historical resources was necessary. Some of the wharf area's archaeological potential was initially revealed by limited investigations conducted by the University of Louisville (U of L) in 1982 and 1983. Several backhoe trenches uncovered a large foundation and thousands of artifacts, many dating to the early to mid 1800s. During a surface survey of the area, U of L archaeologists also identified remnants of street curbing and pavement associated with the wharf (DiBlasi 1982 and 1985). While this work was instrumental in demonstrating archaeological potential, the extent and nature of resources throughout the entire 60 acres (24 ha) of the property was not known. A full understanding of the existing resources was essential for design and implementation of the park master plan.

ARCHEOLOGICAL SURVEY OF PORTLAND

The Kentucky Archaeological Survey (KAS) conducted a survey of the park area with the excavation of 65 backhoe trenches. Based on these excavations, it was determined that the area had been severely disturbed by the construction of the floodwall in 1947, by riverbank erosion, and by looting. Even so, five areas of very high archaeological potential were identified.

The first and most important locale of high potential encompassed an area larger than an entire city block. Trenches revealed a large cross section of residential and commercial lots and properties. House foundations, cellars, cisterns, privies, and trash middens dating from the mid-1800s to early 1900s were found throughout. Also, various parts of streets and sidewalk pavement were revealed (**Figure 2**). Based on the findings in this area, it seemed likely that it would become the focal point for public archaeology digs.

The second area determined to have high archaeological potential was located in the immediate vicinity of the old St. Charles Hotel. This lot was once owned by Paul Villier, an early settler in Portland, who built the hotel in 1856. It was a grand hotel that rivaled most in Louisville at the time. Later, at about the turn of the twentieth century, the structure served as housing for a number of African-American families. The U of L survey and additional excavations conducted by the KAS documented a large amount of artifacts and numerous architecturally-related features that were associated with this important Portland landmark.

Near the river's edge, a third area of high potential interest was exposed. A large section of intact stone paving associated with the wharf and Water Street was uncovered (**Figure 3**). Additionally, a set of wrought iron mooring rings was discovered anchored to the paving. These rings were likely used to secure boats that had landed at the wharf. Over the years, local residents reported several sets of rings, often larger, had been found. A large set of rings was documented by workers clearing mud from the wharf area in 1936 (**Figure 4**) and by the U of L surface survey in 1982.

FIGURE 2. BRICK PAVED SIDEWALK ALONG 34TH STREET.

FIGURE 3. STONE PAVED WHARF AND IRON MOORING RINGS ON WATER STREET AT THE END OF 34TH STREET.

FIGURE 4. IRON RINGS UNCOVERED BY WORKMEN WHO WERE REMOVING FLOOD-DEPOSITED MUD FROM WATER STREET, BETWEEN 33RD AND 34TH STREETS.
(From the *Courier-Journal* March 3, 1935.)

Another city block contained the intact archaeological remains of the Rugby Distillery, which operated from the 1880s to the 1920s. This site indicated Portland's early role in developing one of Kentucky's leading commercial enterprises. Large brick foundations, associated with bonded warehouses, foundations for distilling equipment, and brick walkways, were found throughout the entire city block. This site became the fourth area of high archaeological potential, as it would represent an excellent example of an industrial archaeology site.

The final area that showed high archaeological potential was a small area of residential lots located near the distillery. Extensive trash middens and privies were identified here. Two privies, found adjacent to each other, represent the transition from shallow, wood-lined privies to deep, brick vaults during the late 1800s. Close examination of these features would provide an understanding of changes in sanitation and would show how Portlanders adapted to Louisville laws after annexation.

Thousands of artifacts were sampled from these trench excavations at the Portland Wharf site. Most of the retained artifacts were diagnostics, particularly ceramics and glass. The ceramics typically dated to the 1800s, ranging from creamware to white granite. A wide assortment of ceramic decorative types were represented, such as transfer print, hand painted, sponge decorated, pattern molded, and mocha. Other interesting ceramic artifacts included buttons, smoking pipes, a German stoneware mineral water bottle, and marbles. Many of the glass bottles found were late 1800s to mid 1900s soft drink or soda bottles and medicine bottles (**Figure 5**). Examples of nineteenth century wine bottles were also found. Other unusual glass chunks were found in various places across the site, perhaps raw glass for use at glass factories (It is possible that raw glass was unloaded from steamboat at the wharf and then sent to glass works in Portland and Louisville. One glassworks is known to have operated in Portland during the late 1800s.). The remainder of the artifacts included plastics, faunal remains, and prehistoric artifacts. The prehistoric artifacts came from disturbed contexts, but their presence indicated that the Portland Wharf site was occupied during that time.

Overall, the survey demonstrated that excavations at the Portland Wharf site can produce important archaeological data. The archaeological deposits represented a economical and cultural cross section of an entire community, ranging from residential to industrial lot uses and from Euro-American merchants to the enslaved African-Americans. This data could help address a wide variety of questions of interest concerning eighteenth and nineteenth century issues, such as consumerism, ethnicity, sanitation, socioeconomic status, and many others. A more complete history of Portland's rich and proud past could be written.

In addition to the identification of historical resources, an important part of the master park plan included re-establishing the original street grid. During the KAS excavations, several examples of intact street paving and sidewalk were found that will eventually be uncovered and used in the new park. The discovery of old Portland street remnants provided an opportunity to examine the history and design elements of an important feature that was integral to the economy of the town.

FIGURE 5. GLASS SODA OR WATER BOTTLE MANUFACTURED BY THE AMERICAN BOTTLING WORKS.
(Drawing by Matthew Prybylski.)

THE STREETS OF PORTLAND

Since Portland was founded, roads have been as important to river traffic as the river itself. The portage around the Falls of the Ohio was an overland route that was dependent on sufficient roads to transport goods back to the river. Before the 1850s, the roads of Portland were merely packed and rutted dirt or crushed gravel. In October 1844, a motion was made by the Town of Trustees to repair the old portage turnpike, the Louisville and Portland Road (Town of Portland Trustee Minute Book 1842-1852). Three months later, ninety-six wagon loads of crushed stone were delivered for the improvements. Other attempts to improve the overland portage included the construction of a railroad and calls to improve the roads. The April 19,1855 edition of *The Louisville Daily Courier* described the condition of the Louisville and Portland Road and how it could be improved:

> The *quasi* road is thickly studded with vehicles of all description from early dawn to midnight. Horses are stalled, wheels are broken, shafts are snapped, springs give way and oaths are sworn from one end of the road to the other…This road is of the greatest importance to the city, by it a part of the access of strangers and travelers is had; the travel over it exceeds in amount that of any road near the city; it is in fact, the great artery which supplies our commercial heart; and yet there is not a more miserable apology for a road to be found leading to any country village in the State. Why then, should not this new council signalize the inauguration of its reign by building at once a substantial boulder road, and make suitable provisions for keeping it in repair! Macadamized and plank roads have both been tried, and both have signally failed. [See **Figure 6** for an example of an early macadamized roadway.]

FIGURE 6. MACADAM ROAD NEAR FOREST GROVE, OREGON IN 1910.
(Photo courtesy of the Oregon State Highway Department.)

In 1867, Louisville Mayor Philip Tomppert complained that the condition of the streets was due to the failure of street railway companies to maintain the roads, as required by their contracts. Significant damage to the Louisville and Portland Road and other Portland streets was reported at the time (Louisville Municipal Reports 1867). By the 1880s, many roads in the Portland and Louisville area had been improved. However, despite the need for investment in the Louisville and Portland Road (renamed Portland Avenue), no substantial improvements were made. The road, first constructed in 1850 (Town of Portand Trustee Minute Book 1842-1852), remained a plank road.

Early Types of Road Pavement

Since the 1850s, the City of Louisville (which by this time included Portland) had made a priority of paving city roads to promote better drainage, an important sanitary practice. Throughout the nineteenth century, the city utilized a variety of pavement types to slowly replace the miles of dirt roads, which would become stagnate mud pits during wet weather (Louisville Municipal Reports 1860-1900).

The most common paving type used during the early nineteenth century was called the plank road, which consisted of lining the street with wooden planks or logs to provide traction and stability (**Figure 7**). However, this type of paving was rough and associated with high maintenance costs. The most durable, but expensive, hard-paving type was block stone, as was used to pave the public wharf (**Figure 8**).

FIGURE 7. PLANK ROAD IN FOREST GROVE, OREGON IN 1910. CONSTRUCTION TECHNIQUE CAN BE SEEN IN THE LOWER RIGHT QUARTER OF THE PICTURE.
(Photo courtesy of the Oregon State Highway Department.)

FIGURE 8. BLOCK PAVING.

FIGURE 9. BRICK PAVING.

By the 1860s, more cost-effective types of paving were being used in Louisville, including bowlder, macadam (**Figure 10**), and Nicholson paving. Bowlder paving consisted of a 15.0-inch (in) (38.1-centimeter (cm)) base layer of large, unevenly-sized stone overlaid by a 5.0- to 6.0-in (12.7- to 15.2-cm) layer of gravel (Mullins 1994:4). Macadam paving, developed by John Louden MacAdam in early nineteenth century England, consisted of a raised packed-earth base and two layers of gravel (Mullins 1994:4). Macadamized roads were often sloped from the center to provide better drainage into stone gutters that ran along the sides of the road. Nicholson pavement consisted of a sand base with 5.0-in (12.7-cm) thick wooden blocks separated by fine gravel. This was then overlaid with a thin layer of a tar, sand, and gravel mixture.

In the 1870s, Louisville was one of several large cities to experiment with Nicholson wood pavement. In 1874, Louisville discontinued the construction of Nicholson paved roads, citing high maintenance costs. By 1877, all of the roads paved with Nicholson paving had to be reconstructed (Mullins 1994:22). Some of these streets were repaved with asphalt, which had been widely used in Europe, but had only gained acceptance in the United States during the late 1870s (Kleber 2001:858).

Brick also was used for paving streets, which provided a surface much more durable than macadam, but less expensive than stone blocks (**Figure 9**). Brick that could handle the weight and punishment of vehicular traffic were not developed until the 1870s by using clays that could be fired at low temperatures and by using the stiff mud process (Hockensmith 1996; Gurke 1987). However, problems with water absorption limited their popularity with road builders. Once brick makers learned that adding shale would vitrify the brick and eliminate the water absorption, bricks became a viable paving material. By the 1890s, brick was favored as a paving material for roads (Hockensmith 1996). A portion of Second Street was the first in Louisville to be paved with brick, which quickly became the pavement of choice for the city (Kleber 2001:858).

Street Paving in Portland

On April 1, 1848, the Town of Portland ordered that a section of Commercial Street be paved:

> Be it ordained by the President and Board of Trustees of the Town of Portland, that Commercial Street, from the south side of Water Street to the south side of Second or Market Street, be paved and graveled at the cost and expense of the owners of lots and parts of lots fronting on each side thereof, the work to be done in the following manner: Each side of the street to be protected by good curbing, at least 18 inches deep, and not less than 4 inches thick and 2 feet in length. The gutters to be paved nine inches deep, and five feet wide, and so paved as to present an even and smooth surface for the water - the balance of the street to be paved with stone six inches deep, with the base of the stone down, and points up; these to be covered six inches deep with gravel, net screened; the gutters to be covered before use with good sand, not less than three inches deep. The stone used in paving must be good, hard, limestone. --- A proposition having been received from Mr. Scott Newman for the paving of this street, it was accepted [Portland Trustees Minute Book 1842-1852].

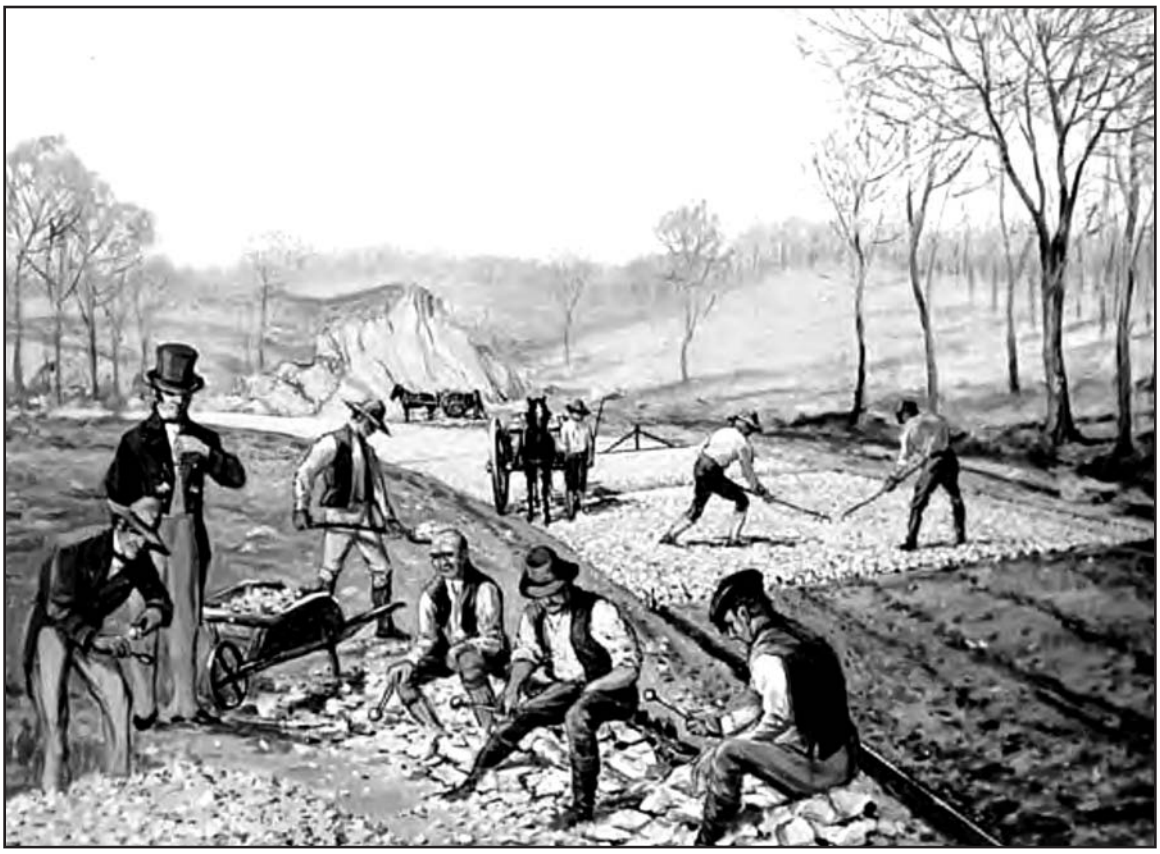

FIGURE 10. CARL RAKEMAN'S PAINTING DEPICTING THE FIRST MACADAM ROAD BUILT IN THE UNITED STATES. IT WAS LAID ON THE "BOONSBOROUGH TURNPIKE ROAD" BETWEEN HAGERSTOWN AND BOONSBORO, MARYLAND IN 1823.
(Information and picture courtesy of the Federal Highway Administration.)

Although the pavement type was not named in the description, the pavement specifications for Commercial Street was typical of bowlder pavement. Other actions by the Portland Trustees pertaining to streets included paying for the grading of Grove Street (renamed 35th Street) from High to the River in 1849, indicating that it was a dirt street at that time (Town of Portland Trustee Minute Book 1842-1852). On September 9, 1848, the street committee was directed to have the intersection of Grove and Water Streets paved 12.0 in (30.5 cm) deep. During this time, the Trustees also ordered that "the side-walk fronting on Water Street, between Grove and Commercial Streets, be graded and paved with good hard brick, on a bed of sand not less than four inches deep, and be covered with sand not less than one inch deep" (Town of Portland Trustee Minute Book 1842-1852).

It is not known when a concerted effort was made by Louisville to pave the streets in Portland, but the city began to invest in the infrastructure of Portland by the 1850s. The public wharf at Portland was paved with stone in 1853. One of the first sewers in Louisville was built under 35th Street to aid drainage in Portland proper. By the 1880s, many of Portland's streets had been paved.

A copy of the Hopkins map, stored at the Jefferson County Office of Historic Preservation and Archives, had been altered to include the street paving types in 1884 Louisville. Although Portland Avenue was still a wood plank road, this map indicated that most of the surrounding streets were macadamized and the alleys were unpaved. A few of those macadamized streets were afterwards upgraded to brick pavement in the 1890s.

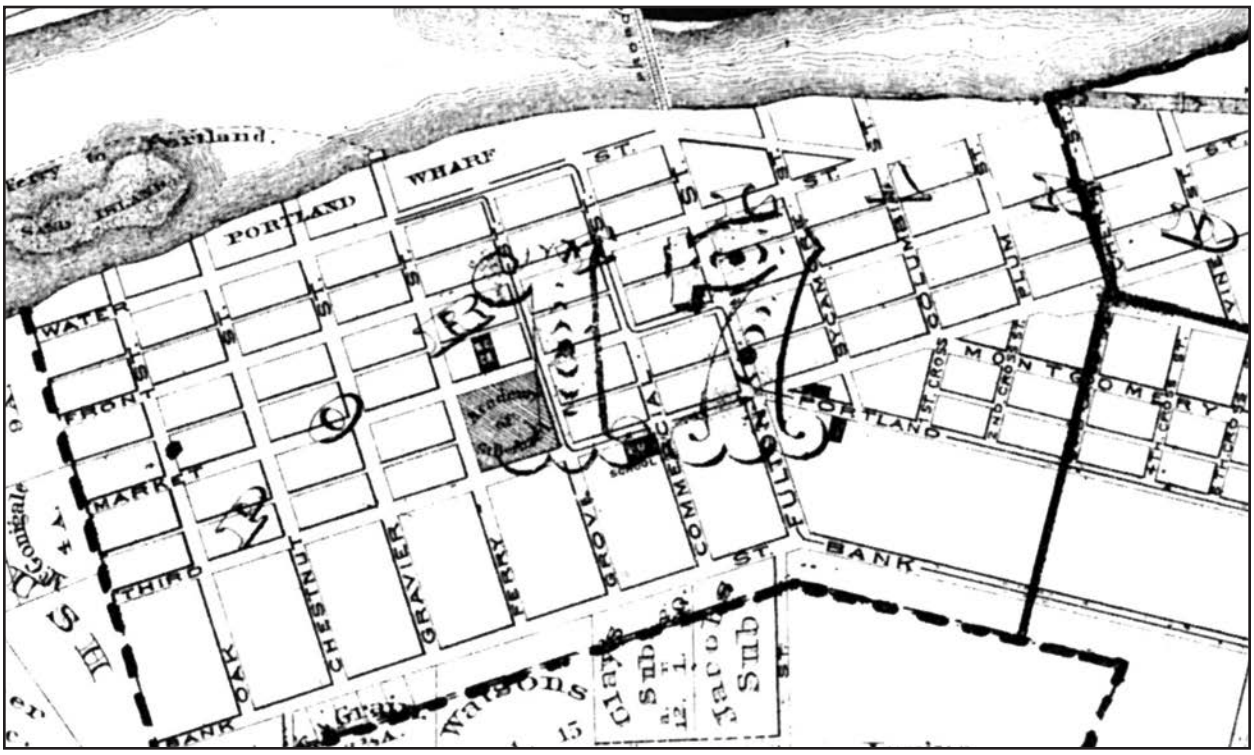

FIGURE 11. MAP OF PORTLAND SHOWING ORIGINAL STREET NAMES.
(Louisville Abstract and Loan Association 1876.)

Portland's Street Name Changes

With Portland as an autonomous town, it had its own system of streets that reflected the city's identity as a population tied to a river economy (**Figure 11**). The mere proposal of street name changes caused a great excitement amongst the populace. In 1848, the town's trustees motioned to create an accurate map of Portland. When the new map was completed, there were numerical names listed in place of the original street names. This outraged the citizens, who stated that the trustees had no right to change the street names. A struggle ensued to have the traditional names reinstated. Later that year, a compromise was reached, whereby the street names were reissued using both the new numbers designated by the map and the commonly known names (Town of Portland Trustee Minute Book 1842-1852).

After annexation with Louisville, Portland's gradual assimilation was evident when the city began to change the names of Portland's streets in 1875 (Louisville City Code Book 1884). Streets like Commercial, Front, Fulton, Ferry, Gravier, and Grove were changed to names that were relevant to Louisville (**Table 1**). Only the name of Water Street was left unchanged.

Old Name	New Name	Date
Commercial Street	34th Street	1875
Front Street	Missouri Street	1875
Fulton Street	33rd Street	1875
Ferry Street	36th Street	1875
Gravier	37th Street	1875
Grove Street	35th Street	1875
Jackson Street	Florida Street	1875
Market Street	Rudd Avenue	1875
Florida Street	Mississippi Street	1910
35th Street	Cedar Grove Terrace	1937

TABLE 1. PORTLAND STREET NAME CHANGES.

Archaeological Survey of Portland Streets

The archaeological survey conducted at the Portland Wharf confirmed that most of the streets were paved with the most widely-used paving style during the late nineteenth century (macadam). Sections of Missouri, 34th, 35th, 36th, and Water Streets were identified with limestone curbing and macadam paving. Other paving types were also identified. For example, much of Florida Street (the alley between Water and Missouri Streets) was paved in the bowlder style (**Figure 12**). A section of 33rd Street at Missouri Street was paved with block stone (**Figure 13**). Sections of sidewalks along 35th and Florida Streets were paved in brick. The remaining streets in Portland were unpaved during the late nineteenth century and may have never been paved.

CONCLUSION

The streets of the Portland Wharf mirror the history and demise of the once prominent river town that rivaled Louisville. The roads of Portland in the 1840s represent some of the earliest paving in the region, representing the growth, wealth, and importance of the budding town. The street improvement was one of many attempts by the town to make Portland a refined center of culture and commerce and to ascend into the ranks of the most important cities on the Ohio River. Sadly, the street conditions were also an example of its decline, showing little change after the nineteenth century and becoming a symbol of political assimilation.

Street names, changed by political motives, eradicated the memory of the wharf's importance to Portland. Assimilation, floods, construction of the floodwall, and time have all conspired to hide the history of the wharf area. The streets and other features, to be uncovered by archaeological excavation from the silt of destruction, will reveal the rich history of this once bustling river town. Through the innovative and unique Portland Wharf Park, Portland's past can be discovered, experienced, and enjoyed by all.

FIGURE 12. A SECTION OF BOWLDER PAVEMENT FROM FLORIDA STREET.

FIGURE 13. A SECTION OF BLOCK STONE PAVEMENT FROM 33RD STREET.

Photos not specifically cited within this article are printed through the courtesy of the Kentucky Archaeological Survey .

ACKNOWLEDGMENTS

Thank you Patricia A. Solomon, Archivist of the Oregon Department of Transportation and Kimberly A. Thomas, Team Leader of Publishing and Visual Communications, Federal Highway Administration for your help and obtaining permission for the use of selected figures appearing in this article.

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FURTHER OBSERVATIONS OF AN AVID SURFACE COLLECTOR

BY

LESLIE RUMBLEY
FALLS OF THE OHIO ARCHAEOLOGICAL SOCIETY
PALMYRA, INDIANA

> *The following contains excerpts from an article written by Ms. Rumbley, entitled, "My First Encounter with an Archaeologist," which was published in the* Central States Archaeological Journal*, Volume 45, Number 3, July 1998. Excerpts are reprinted here with permission.*

We read that there are many encounters with archaeologists that do not turn out as well as we hope, but I can't stress enough to my fellow surface hunters that there are well-intentioned archaeologists who want to help us understand more about what we collect. With them talking to you, it becomes easier to see the bigger picture; and, yes, they do share the same excitement as we do when they pick up an Early Archaic artifact or, if lucky, to have a few Paleo pieces that really get the "wows."

While some [collectors] are not documenting their finds as the professionals do in a systematic way to ensure that the artifacts will have a place in history, one rule of thumb that anyone can follow is to know the county and state they came from. With all the construction going on, it is very important to help preserve what otherwise would be covered up or lost forever. As stated by the DNR [Department of Natural Resources], the real value of an artifact is in the information it provides on where, how, and when people lived in the past. By doing this, we do more for the archaeologist than just putting it in a case and tucking it in the back of our closets. As cited by Jim Mohow:

> The past does not, and must not, belong just to the archaeologist, or just to the artifact collectors, or just to the landowners, or to any one special group. If the past is to have meaning---if it is to have value and purpose---it must belong to all Individuals that want to learn about it. The past must not be just buried and forgotten, disrespected, or destroyed. The past should be reduced neither to cold facts on dusty shelves, nor to a handful of trinkets at a flea market [Mohow 1997].

I can only hope that what I have written will encourage others to open up and uncover the valuable information that has been held back. After all, it might be the key to a new discovery.

A meeting with Jim Mohow in 1998 had inspired me to write the above paragraphs in an article for the *Central States Archaeological Journal* and to continue my avocational archaeological education. Since that time, Mohow (Senior Archaeologist with the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology) and other archaeologists have been committed to developing a new "era of corporation" between professionals and collectors. To this goal, I encourage all collectors to join their local archaeology societies and share their treasures with archaeologists and other avocational collectors (check out some of my collection in **Figures 1-3**). Above all, keep learning, preserving, and documenting the artifacts found. By preserving the past, you are helping to write a new page of history!

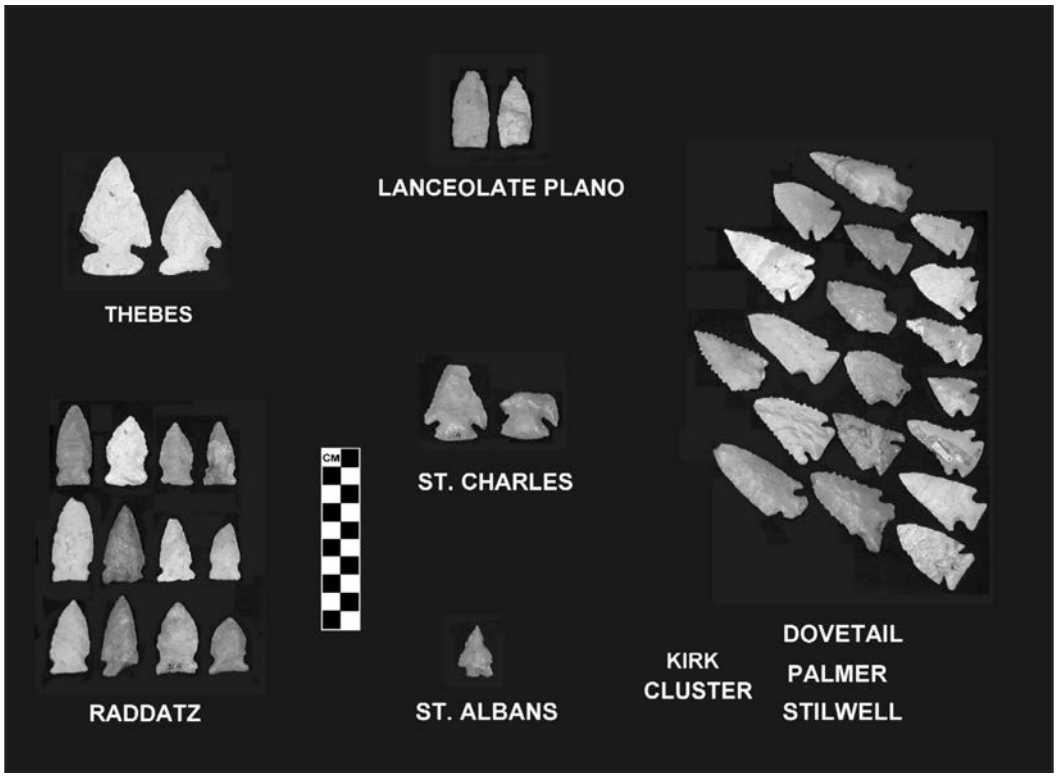

FIGURE 1. EARLY ARCHAIC

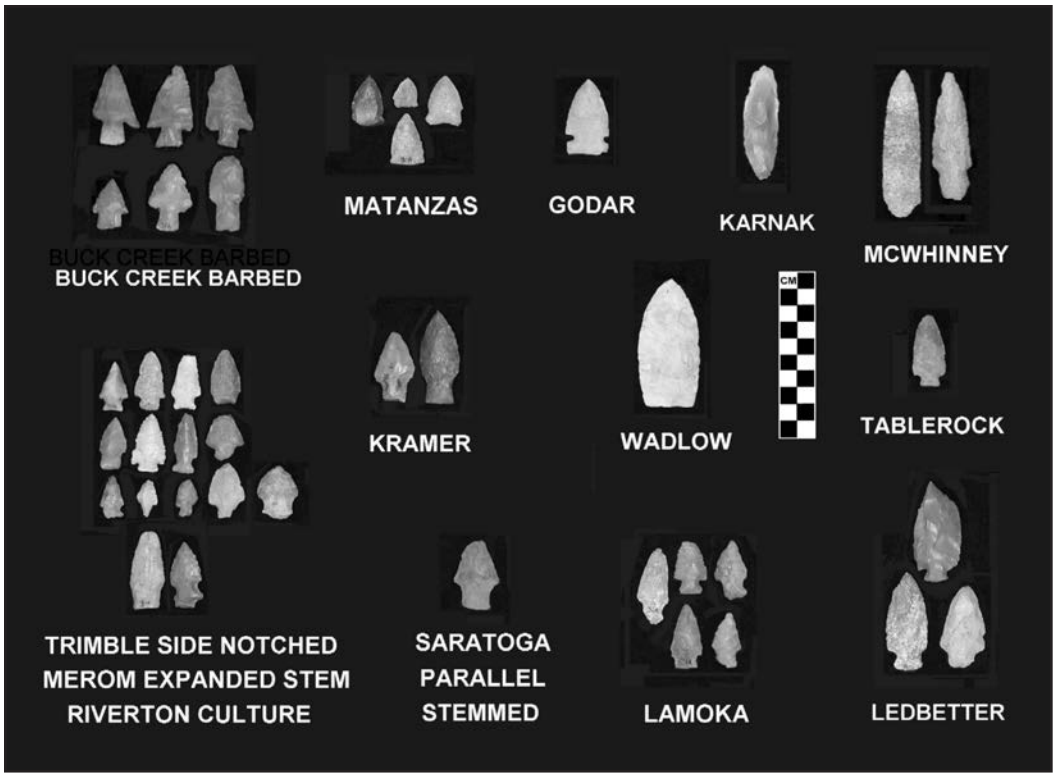

FIGURE 2. LATE ARCHAIC

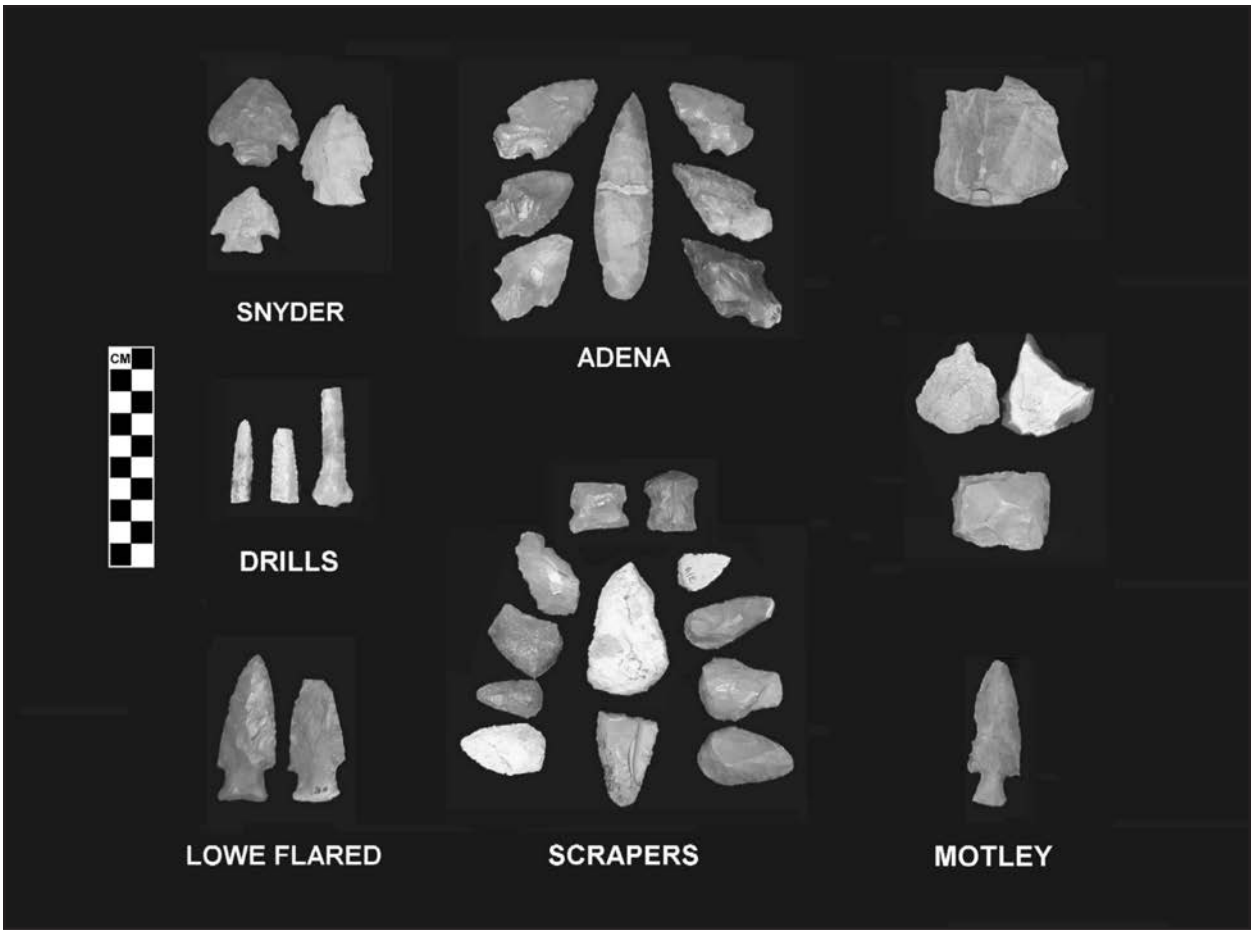

FIGURE 3. MIDDLE TO LATE WOODLAND

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Here is Leslie helping to wash and catalog artifacts after a FOAS meeting.

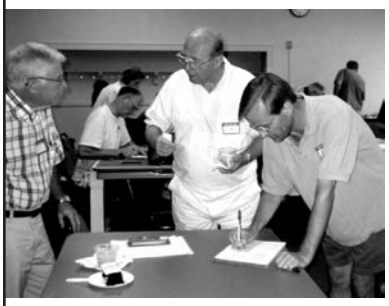
HAPPY 1st ANNIVERSARY, FOAS!

We celebrated by....

...eating cake...

...making a toast...

...drinking punch...



...picking up our membership cards...

...?...

...looking at artifacts...

...and eating more cake!

AN OLD MILLSTONE DISCOVERED AT MILL CREEK IN CLARKSVILLE, INDIANA

BY

JANE SARLES
CLARKSVILLE HISTORICAL SOCIETY
CLARKSVILLE, INDIANA

On December 5th of 2003, Mac Construction Company employees unearthed a large, old millstone, while digging along Clarksville's Mill Creek for the Greenway Project (**Figure 1**). A search through historical records to trace the possible origin of the millstone showed that Mill Creek had once figured prominently in early Clarksville history. The very first recorded minutes of the town on August 7, 1784, included the statement:

> …leave is granted to George R. Clark to erect the Mill he is now building on a branch above the lots already laid off in Clarksville, and if completed and of public utility, the right of the soil to so much land as shall be deemed sufficient for the works shall be confirmed to him.

The "branch" referred to in the town minutes became known as Mill Creek. One biography of Clark described Clark's construction on the creek as a "small stone mill" (James 1928) (**Figure 2**).

FIGURE 1. MAC CONSTRUCTION CREW EXAMINING THEIR FIND.
(Photo courtesy of Richard Dickman, Director of the Greenway Project.)

The next mention of a mill on the creek was in a deed, dated 1826, which spoke of a grist and saw mill on Lot #15, owned by the Bullitt family (Clark County 1826:374). Since the millstone was found

in the creek at this site, it is clear that it dates to at least that year. Whether this Bullitt Mill was originally the George Rogers Clark Mill has not yet been substantiated. Deed records have not been found that tell us who bought the Clark Mill or what year he sold it. The only other available information was an undocumented note in the archives of the Clarksville Historical Society, which stated that Clark's mill fell down in 1847. Despite the lack of solid information, it seems unlikely that such a small creek would have had two mills operating on its banks (**Figure 3**).

FIGURE 2. AN EXAMPLE OF A TYPICAL FRONTIER MILL.

FIGURE 3. INSET SHOWING A MILL LOCATED IN CLARKSVILLE.
(From Flint 1824.)

The found millstone was made of sandstone and the shaft opening was of a style known as a “Spanish Cross” (**Figure 4**). The sandstone composition would indicate that it was used to grind grain for animal feed or to saw lumber, since, during the grinding process, sandstone would disintegrate and be ground into the grain. Millstones used for milling grains for human consumption were made from much harder rock, such as limestone or granite. This fact would further suggest that the millstone was used for the “grist and saw mill” mentioned in the Bullitt deed. Obtaining the age of the millstone cutting would be helpful in determining its origin, but it is particularly difficult, if not impossible. Millstone cutting patterns did not markedly differ over many decades.

The finding of one stone indicates that there should be another, since the grinding was done between one stone turning against another (**Figure 5**). Permission was sought, but denied by the Army Corps of Engineers, to further examine the dirt piled at the construction site, in order to find the second stone.

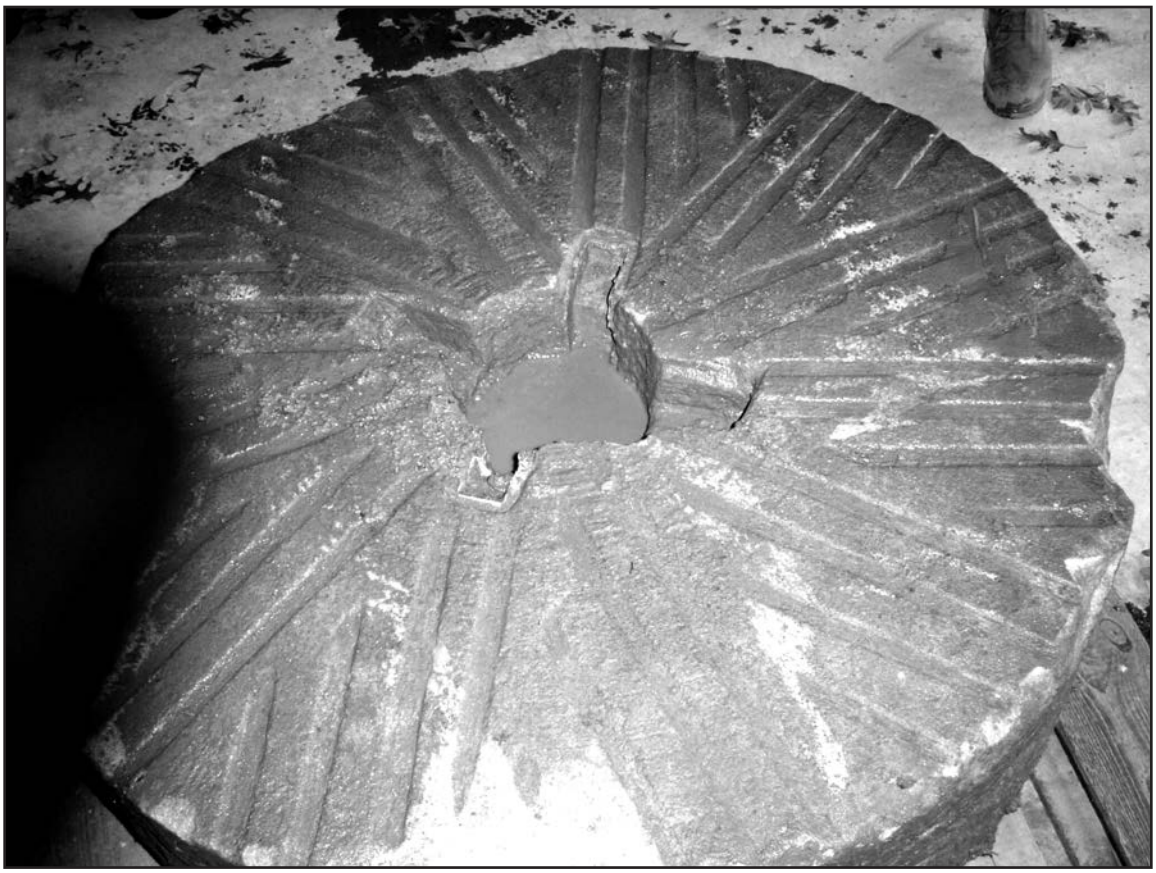


FIGURE 4. TOP VIEW OF THE MILLSTONE SHOWING THE SPANISH CROSS PATTERN OF THE SHAFT OPENING.
(Photo courtesy of Richard Dickman, Director of the Greenway Project.)

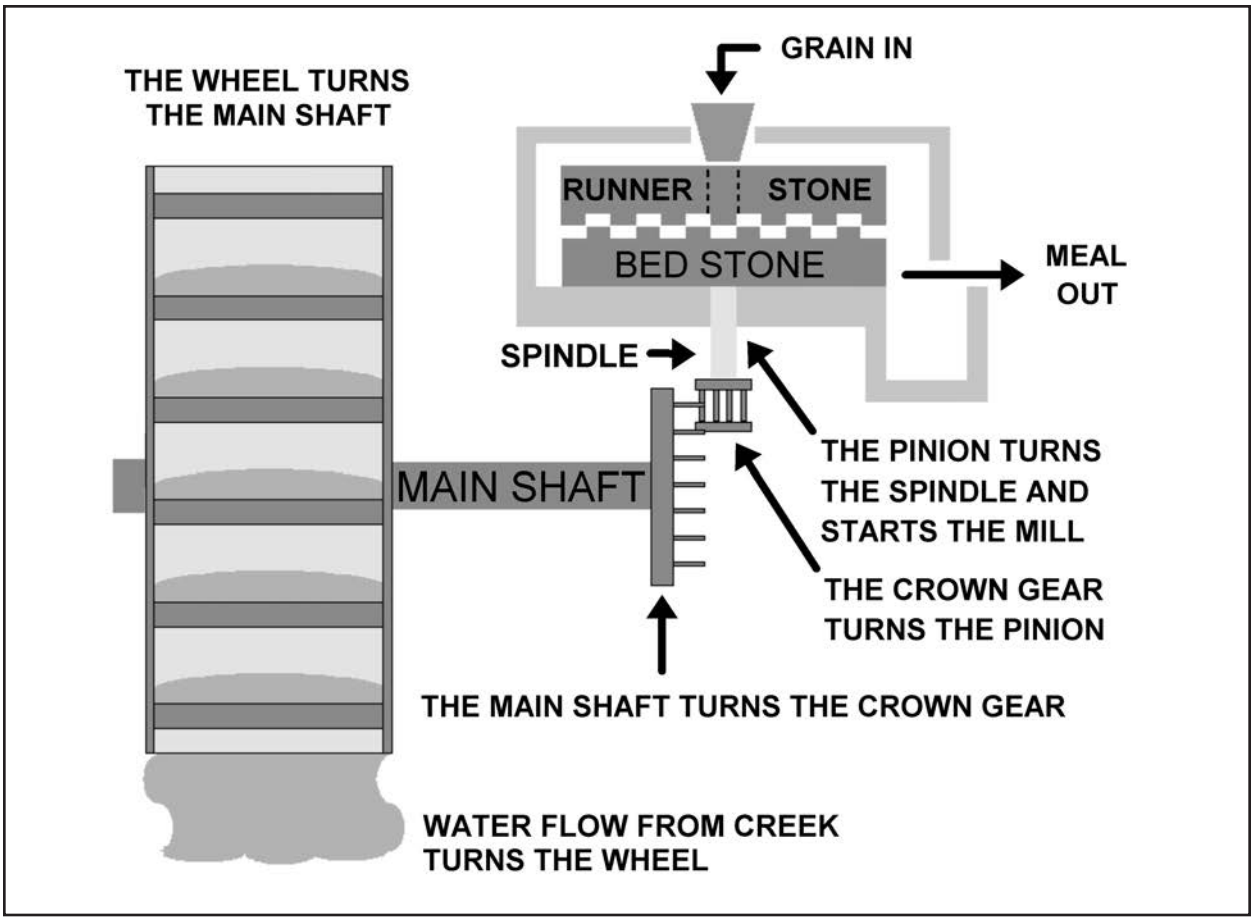


FIGURE 5. SIMPLIFIED DIAGRAM SHOWING GRIST MILL OPERATION.

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FIELD TRIP TO ANGEL MOUNDS

BY

SUNDEA MURPHY
FALLS OF THE OHIO ARCHAEOLOGICAL SOCIETY

In July 2003, the Falls of the Ohio Archaeological Society (FOAS) members took a field trip to Angel Mounds State Historic Site (**Figure 1**), one of the best-preserved archaeological parks in the country and the largest Mississippian site in Indiana. We had the honor of being given a special "grand tour" by the site manager, Mike Linderman.

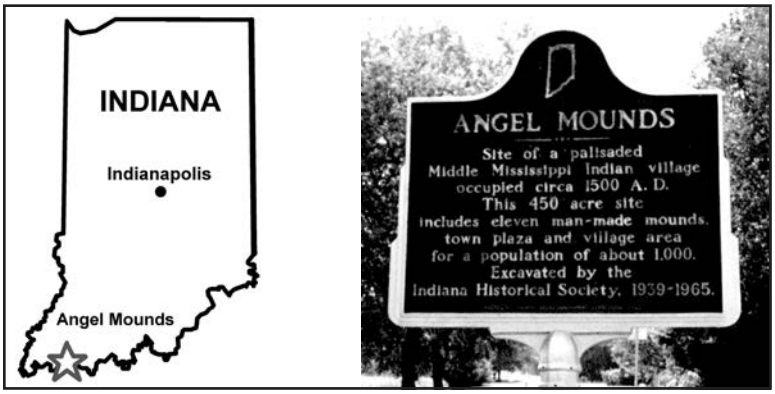

FIGURE 1. ANGEL MOUNDS STATE HISTORIC SITE.

EARLY ANGEL MOUNDS SITE HISTORY

Eli Lilly (of Lilly Pharmaceuticals; philanthropist and avocational archaeologist) first recognized the area's archaeological potential and with his funding and assistance, the Indiana Historical Society (IHS) established the park in 1938. The original 480 acres (or 194 hectares (ha)) had been purchased of the Angel family; thus, the site was named Angel Mounds. The Society gave the property to the State of Indiana in 1946, and the site has since been protected and managed by the Indiana Department of Natural Resources (DNR). Further land donations and purchases have expanded the site to 603 acres (244 ha), and it is designated as both a protected nature preserve and a National Historic Landmark. In 1965, the IHS gave exclusive excavation rights of the property to Indiana University, so students could develop their archaeological skills and add important details to the historical record of Mississippian activity in the Ohio River Valley.

Excavations in the area had begun in the 1930s by the WPA, under the direction of Lilly's good friend and colleague, Glenn A. Black. Black continued his research and directed the fieldwork of Indiana University students at Angel Mounds throughout his life. The archaeological research facility at Indiana University, Glenn A. Black Laboratory, was named in honor of the man deemed the "protector of the mounds." The true legacy that Lilly and Black have left to future generations of archaeologists, historians, anthropologists, and the public has barely been perceived and will not be fully recognized for years to come.

THE LATE MISSISSIPPIAN CITY

When FOAS members entered the exciting landscape of the site, containing 11 mounds and a huge plaza (**Figure 2**), we could not help but to speculate what the area looked like at the peak

of the Mississippian city's existence. Imagine the activities of any large city today---the hustle and bustle of trade for produce and common goods, women busy at work taking care of home and family needs, and religious activities at the center of worship. On the peripheries of the urban area, you would expect to see farmers tilling the fields or harvesting crops. All of these same activities would have been occurring then, right there on the banks of the Ohio, from about A.D. 1100 to 1450.

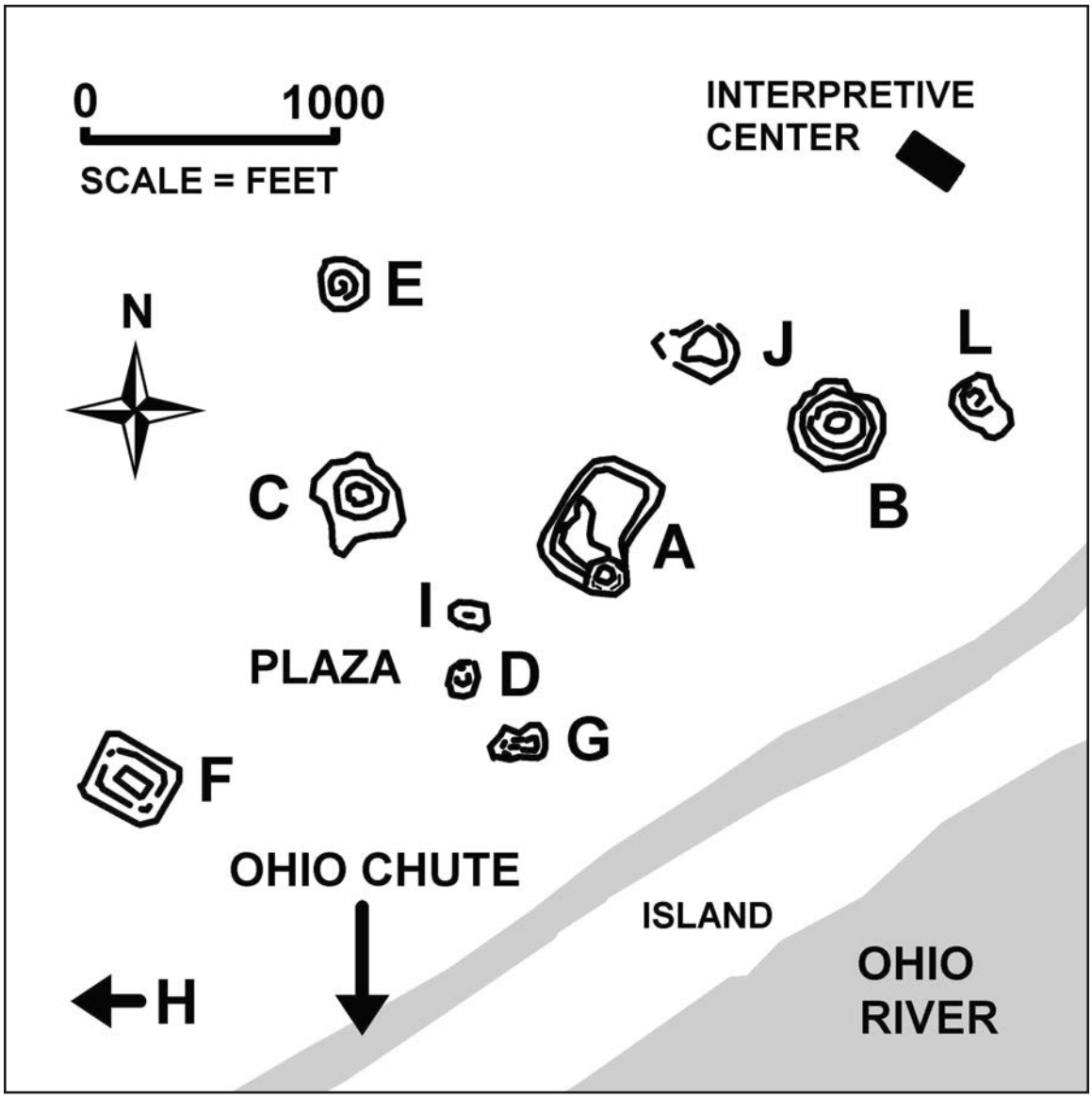

FIGURE 2. ANGEL MOUNDS STATE HISTORIC SITE MAP.

At the height of the ancient city's influence, it has been suggested that there may have been as many as several thousand people living there. However, there was plentiful game and fish to support a much larger population. Also, the yearly spring rains brought new nutrients to the soil, in the form of flood silt, deposited in the broad, flat river plains. This enriched soil kept the corn, squash, and beans (the "three sisters") yielding abundant harvests. With these favorable

environmental circumstances, the lifestyle of the people would certainly have included time for leisure activities at the local plaza. The plaza would have been the focal point of the community, used for sports, games, entertainment, and religious events, just as our modern convention centers are used today.

Recent magnometer research is beginning to show just how populated the mound area was (The magnometer detects small changes of magnetic field in the earth, due to soil disturbance or the presence of items underground, such as cultural materials.). In one week's time this summer, Staffan Peterson, a research fellow at Indiana University 's Glenn A. Black Laboratory of Archaeology, has used the magnometer results to reveal at least 30 house foundations, packed close together, on the east side of Mound A (Wilson 2004). Peterson, with the help of volunteer Kevin Enright, will strive to develop a more detailed settlement plan of the Angel Mounds site than has ever before been achieved.

Peterson's work may eventually shed some light on the enigmatic decline of the Mississippian city. For reasons undetermined, residents started leaving around A.D. 1400, so that the city was almost entirely abandoned by A.D. 1450 (Friends of Angel Mounds 2004). It is even more intriguing to realize that the greatest Mississippian city, Cahokia, near East St. Louis, Illinois, suffered nearly the same fate around A.D. 1250. Could determining the reason for abandonment of one of these cities lead us to the answer for the abandonment of the other?

THE SITE TOUR

Mike Linderman gave FOAS members a tour of this incredible ancient city. First, he led us to a reconstruction of the daubed stockade wall that once skirted three-quarters of the city's 100-acre (40-ha) perimeter. This massive wall, with a secondary, outer wall barrier, was at least 12 feet (ft) (almost 4 meters (m)) high and has been estimated to have been over 6,300 ft (1920 m) long (**Figure 3**).

FIGURE 3. RECONSTRUCTED STOCKADE WALL.

There were at least 51 bastions spaced along the wall, providing areas for sentries (**Figure 4**).

FIGURE 4. RECONSTRUCTED STOCKADE WALL.

Next, Linderman provided us with details concerning the summer and winter homes, as we stood underneath the recreated versions and examined the roof construction technique (**Figures 5** and **6**).

FIGURE 5. RECONSTRUCTED SHELTER.

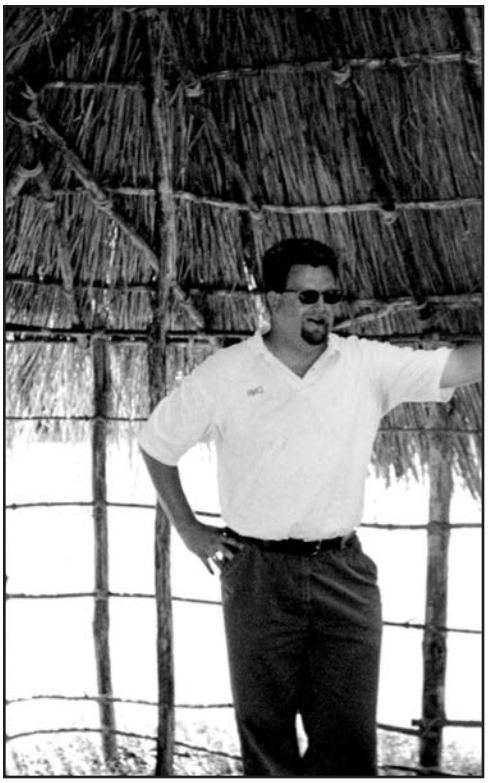

FIGURE 6. MIKE LINDERMAN, POINTING OUT MISSISSIPPIAN CONSTRUCTION TECHNIQUES.

Then, we followed the trails that led to each of the mounds at the site. The largest (and voted favorite) mound, Mound A, is a rectangular-shaped platform mound that is 44 ft (13 m) high and 650 ft (198 m) long (Stafford 1998) (**Figure 7**). On the eastern side of the mound was a reconstructed roundhouse, one of two that has been found (**Figure 8**). As we walked around to the southern side of Mound A, we noticed an odd addition---a conical-shaped mound rose up above the upper platform at the southern corner---it gave the mound a lop-sided appearance (**Figure 9**). Mound F is also a platform mound. Remnants of a walled structure (approximately 90 x 45 ft or 27 x 14 m) were found here, so the mound has been dubbed "Temple Mound" (Black 1967). The temple was reconstructed, based on excavation evidence, to give an idea of what the ancient peoples might have seen atop this earthen structure (**Figure 10**). The last mound we visited was north of Mound A, affectionately nicknamed the "Boy Scout Mound" (**Figures 11** and **12**). Linderman told us that in earlier days, Black allowed local Boy Scout troops to camp atop this mound. Local residents told FOAS members that this particular area is rumored to be haunted by ancient spirits. I am sure this ghost story had nothing to do with the Scout's decision in choosing this mound on which to pitch their tents!

FIGURE 7. MOUND A, LOOKING NORTHWEST.

FIGURE 8. RECONSTRUCTED ROUNDHOUSE. THE FUNCTION OF THE ROUNDHOUSE HAS BEEN DEBATED. SOME THINK IT WAS A CEREMONIAL BUILDING; OTHERS THINK IT WAS A SWEATHOUSE.

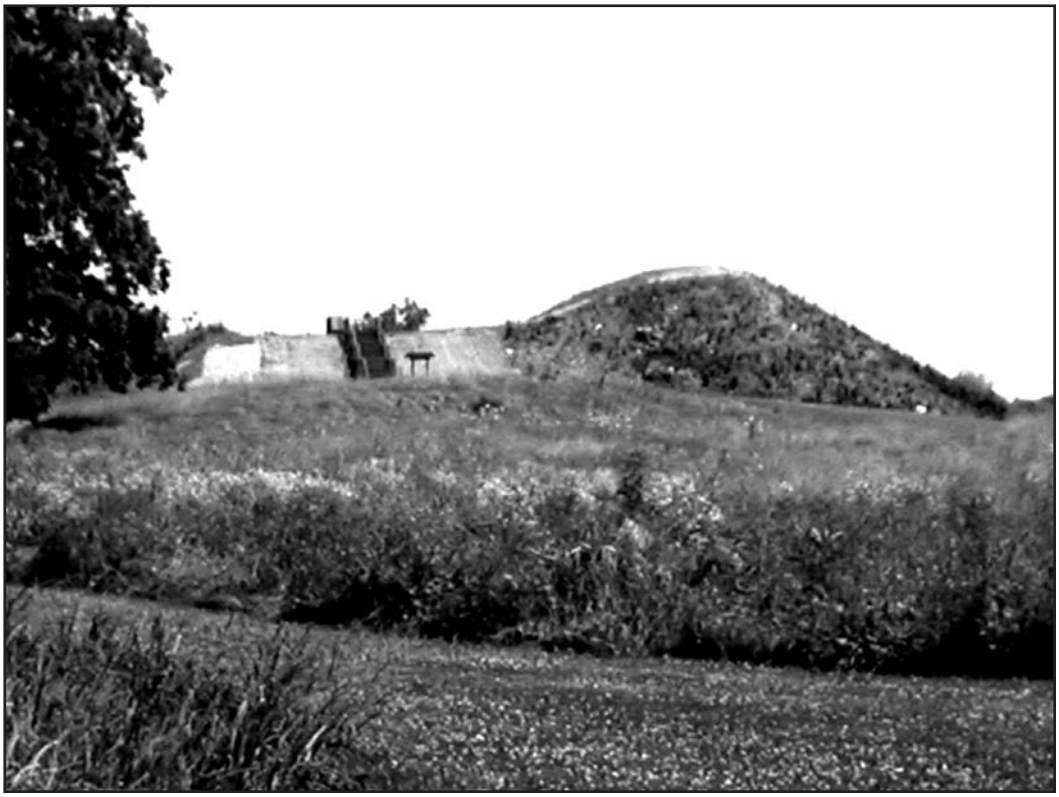

FIGURE 9. MOUND A, LOOKING NORTHEAST.

FIGURE 10. THE TEMPLE MOUND.

FIGURE 11. THE BOY SCOUT MOUND.

FIGURE 12. FOAS MEMBERS JIM ALLGOOD AND DENNIS GREENWELL LISTENING TO THE STORIES ABOUT BOY SCOUT MOUND.

After our tour, Linderman led FOAS members to the visually stimulating Native American Museum and Educational Center. Masterful artwork, cleverly combined with well-made dioramas, gave us the sense of actually standing in the midst of the ancient village venue, observing the people perform various daily tasks (**Figures 13-15**). We were told that these exhibits change between winter and summer, to reflect activities relating to the change of seasons. Artifacts found at the site have been expertly displayed with details concerning their excavation and interpretation.

FIGURE 13. THE CHIEFTAN.

FIGURE 14. DAUBING THE WALL.

FIGURE 15. FINISHING THE ROOF.

THE FINALE

We had seen many wondrous things, but there was still one last activity that needed to accomplished, in order to complete our total Angel Mounds experience. FOAS members traveled to the infamous (to us) Knob Hill Tavern (**Figures 16** and **17**). The original establishment was the favorite local hangout of Lilly and Black. As we ate lunch there, we imagined what the two of them discussed and dreamed. What theories about the Angel Mounds site did these two great men propose, entertain, and maybe even argue, quite possibly in the very spot we were sitting?

FIGURE 16. KNOB HILL TAVERN.

ACKNOWLEDGMENT

Thanks, Mike Linderman, for the superb tour of the grounds and, most of all, for the work you do to keep Angel Mounds State Historic Site one of the premiere archaeological parks in the land.

FIGURE 17. FOAS FIELD TRIP GROUP. FROM LEFT: WALTER MANKA, MARY MANKA, CHARLES MEIMAN, SUNDEA MURPHY, ANNE BADER, AND MARK MILLINER. DENNIS GREENWELL, BARBARA MILLINER, AND JIM ALLGOOD NOT SHOWN.

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STONE MOUND RESEARCH IN KENTUCKY

BY

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The presence of stone mounds have attracted the attention of the curious for decades, and the "mystery" surrounding them continues to make news (Crawford 1992). Stone mounds have been documented across Kentucky within a variety of physiographic provinces (**Figure 1**). They appear to be more frequent, however, in the regions with rugged or hilly terrain, such as the Western Coal Field and the Eastern Coal Field. In these locations, they occur largely on ridgetops.

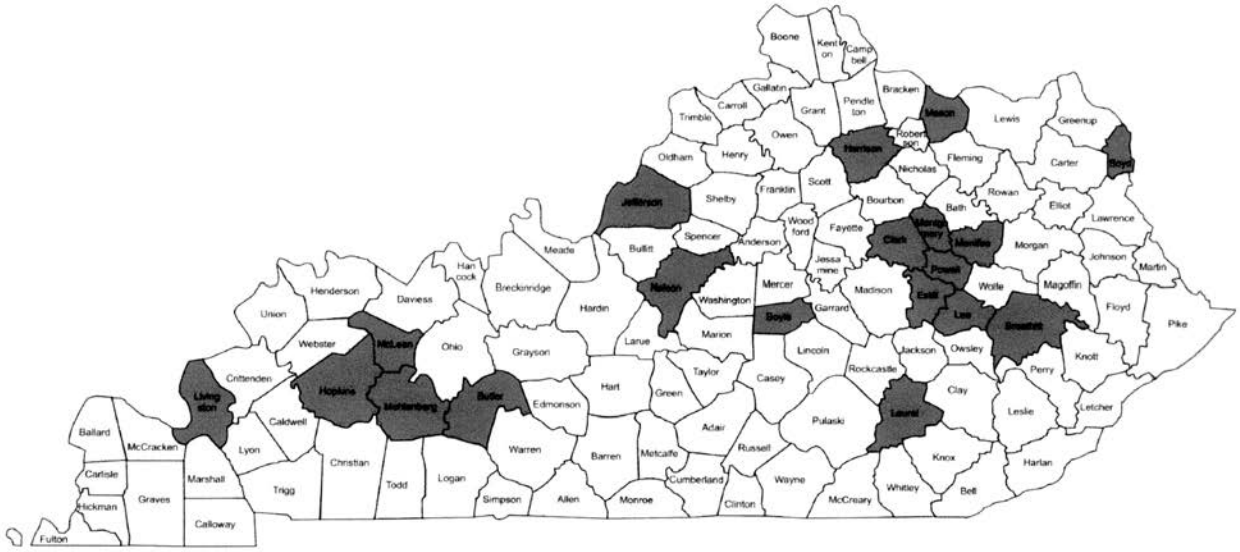

FIGURE 1. DOCUMENTED OCCURRENCES OF STONE MOUNDS IN KENTUCKY.

The appropriate interpretation and management of stone mounds is a problem for archaeologists and cultural resources managers. Although historic accounts and archaeological investigations have demonstrated that the construction of stone burial mounds was an important aspect of early Native American mortuary activity, it is also a well-known fact that not all stone piles scattered across the landscape of Kentucky are prehistoric burial sites, or even associated with prehistoric activity. Stone mounds, commonly located on blufftops, have also been interpreted as "signal" mounds or have been found in association with stone "forts." Stone piles are known to occur as the result of historic agricultural field clearings, or to have served as early boundary markers. They can also represent remnants of stone constructions, such as stone boundary fences, chimneys, or structural foundations. Piles of stone may simply be historic stockpiles of unused construction material that may have been intended for use in the construction of walls, house foundations, or other construction projects (Many of these historic stone piles are more than 50 years old and should be considered part of the historic landscape.). Some stone piles result from natural causes, such as areas where soils are rocky and fragmented tabular bedrock outcrops near the surface. Erosion of exposed rock could result in the accumulation of rock slabs,

particularly along ridge slopes. These natural occurrences are not cultural and are of no concern to archaeologists.

The critical problem archaeologists face when dealing with historic stone piles and prehistoric stone mounds is that in appearance they are largely indistinguishable. With the exception of historic foundations, historically-derived stone piles are seldom associated with any artifacts that might provide clues of their origins. The same is true of some stone burial mounds that were placed on top of human interments. Unfortunately, in many, if not most cases, the only means with which to determine if a stone pile is a by-product of historic activity or a Native American mortuary site, is to remove the stone and excavate the underlying soil to look for associated artifacts or human remains.

In the absence of definitive evidence, references to prehistoric stone mound mortuary sites in late nineteenth/early twentieth century literature offer some insights into the origin of these features. While professional archaeological investigation is sparse in this literature, there is some precedence to support the function of stone mounds as Native American mortuary sites within certain areas of Kentucky (Turnbow and Jobe 1981).

Archival Documentation of Native American Stone Mound Construction in Kentucky

Archived documentary records are of demonstrable value in historic archaeological research. They can also provide valuable insights into the study of prehistory. Historic primary sources indicate that there were once numerous stone mounds in Kentucky.

An 1896 memorial history of the City of Louisville reports the presence of stone-covered graves near the intersection of Main and Twelfth Streets and references similar stone burial mounds in Clark County. The author described the Jefferson County stone mounds as being:

> …on the eastern slope of a ravine that there entered the (Ohio) river, the pioneers found a number of piles of rough stones, which upon examination turned out to be coverings of graves with human skeletons in them. They were like the piles of stone which covered skeletons on Lublegrud Creek in Clark County, Kentucky, which were known to have been made by the Shawnees [Johnston 1896:34].

An 1884 report on the geology of Clark and Montgomery counties, Kentucky reports more on a series of mounds and stone graves at Devil's Backbone near Stoner's Creek:

> On this ridge [Devil's Backbone] were some thirty or forty graves covered with rocks taken from the cliff below. These graves have all but been destroyed, yet from the description of those who took some part in opening them, there must have been something like two hundred bodies which were buried in them. Bones, flints, pipes, and other objects were taken from these graves [Linney 1884:41].

From the evidence of other mounds and archaeological sites in the immediate area of Stoner Creek, Linney concludes that the prehistoric peoples who built these features preferred to bury their dead in cairns, rather than in earthen mounds (Linney 1884:41).

A 1910 publication by Bennett Young perhaps represents the only other reported occurrence of stone mounds in the Falls of the Ohio region:

> In various parts of Kentucky burials were made under piles of stone or cairns. These have been found quite frequently in Nelson and adjoining counties. At least one has been observed in Union, and many in Greenup. It was evident that in this

> class of burials there was a slight excavation, half a foot to a foot deep, and over the body, after it was deposited on the ground, were laid piles of stone varying from 2 to 4 feet in height and running from 6 to 12 feet in diameter. These stones were laid with some appearance of care, and while they were not put in courses, it was apparent that the structure had been carried upward by regular deposits of stone, and when completed, a sort of arch was formed over the top of the ground. As these stones were penetrable by rains and melted snows, there was little to indicate the nature and character of the skeletons placed beneath. A fragmentary bone here and there, and the always distinguishable dust which is created by the dissolution of the body, were the only evidences that remained on those who were thus laid away in the long past. [Young 1910:28-29].

Early Professional Documentation of Stone Mounds

Webb and Funkhouser, in their statewide surveys of 1928 and 1932, compiled a very cursory county-by-county inventory of noteworthy archaeological sites. Among these are numerous references to stone mounds.

They described two mounds in Boyle County as follows:

> Two large mounds on the property of Silas Mason on the Shalertown-Danville Pike about three and one-half miles from Danville and three miles from the Burgin Pike, between the pike and Herrington Lake. They are now covered largely with the second growth locust trees and with many large rocks on the surface, some of which have probably been carried there recently from the neighboring fields. These mounds have never been excavated but many fine artifacts have been found in the surrounding fields which are now under cultivation [Funkhouser and Webb 1932:43].

A third mound in Boyle County is reported:

> A small mound one and three-fourths miles north of Perryville and one-half mile from the county line on a tributary of Doctor's Fork of Chaplin Creek. This mound is much eroded and shows many rocks protruding from the surface [Funkhouser and Webb 1932:43].

In Breathitt County, Funkhouser and Webb noted:

> An observation mound on a cliff above Big Branch of Quicksand Creek about two miles from the mouth of this branch. The mound was carefully examined by one of the authors and found to consist entirely of stones, many of which had been carried for some distance to the top of the ridge. No artifacts were found on or about this enormous stone pile but in the valley below there is undoubted evidence of a village site of considerable proportions. The mound commanded a wide view over the surrounding country [Funkhouser and Webb 1932:49].

In Hopkins County:

> A large mound on the farm of Lucien J. Wilkey on Drakes Creek, one mile east of Nortonville. The mound is still about 3 high and since it affords a dry place above high water it is used as the location for a hay stack. On the surface of the mound are large sandstone rocks which have apparently been brought from a distance to the site [Funkhouser and Webb 1932:192].

In Laurel County, the following site was recorded:

> A rock pile and burials on the farm of G.W. Cloyd, three miles northeast of East Bernstadt. The large number of artifacts picked up in the vicinity of this site may indicate that this was a village site and cemetery [Funkhouser and Webb 193:215].

In Livingston County, there was:

> A peculiar site known locally as "Stone Pile Hill," and according to tradition entirely prehistoric, on a ridge two and one-half miles north of Grand Rivers. On this ridge are ten large piles of rocks each about 12 feet in diameter and about 30 feet apart, arranged in rows. The rows extend east and west. There are four of these piles in the north row, four in the middle row and two in the south row. They are in no sense the work of Nature and natives of the region insist that they were erected by aborigines [Funkhouser and Webb 1932:240-241].

In McLean County:

> A mound, supposed to have been a signal mound, on the farm of Elijah Howard, fourteen miles northwest of Calhoun. The mound is 12 feet in diameter and 3 feet high and seems to be built almost entirely of sandstone rocks, symmetrically arranged and giving the appearance of having been roughly squared. The mound stands on a bluff, known as the Calthorph Bluff, overlooking Green River [Funkhouser and Webb 1932:257].

In Montgomery County:

> …off the Mt. Sterling-Camargo Pike, about seven miles from Mt. Sterling designates the "center of Indian Grave" as the corner of the farm. The spot was formerly marked by a pile of slate, shale and loose rocks about 30 feet in diameter and 2 feet high but most of these rocks have now been removed and there was little to indicate the site when visited by the authors in 1928. Superficial digging showed no evidence of artifacts nor bones but a complete excavation was not made [Funkhouser and Webb 1932:302].

Modern Professional Archaeological Investigation into Stone Mounds

Compared to investigations into the many large Native American earthen mounds scattered across Kentucky, there has been relatively little research directed toward stone mounds, despite the fact that stone mounds and burial cairns appear to be relatively common in the region. A number of reasons have been proposed for this lack of research (Aument 1985:65). Stone mounds are generally small, with few associated artifacts. Most research into prehistoric mounds was driven by large Depression Era Works Progress Administration (WPA) projects that were geared to employing large workforces (Pollack and Powell 1988). The small stone mounds simply did not require enough manpower to warrant the expenditure. Stone mounds also lack the stratigraphic record that earthen mounds possess, and, since they are easy targets for over-zealous artifact collectors, many have been disturbed or destroyed. Most of the work conducted at stone mound sites in Kentucky has been conducted as part of cultural resources management (CRM) investigations and have occurred within the past 30 years. A few of these investigations are discussed below.

Drawing from a number of archaeological studies in Kentucky, Kluth (n.d.) produced an overview of stone mound research in the state. In his review, which was conducted in the early 1990s, Kluth

(n.d.) notes that nearly 200 stone mound sites had been recorded in the state. These include single stone mounds and locations with multiple mounds. Kentucky stone mounds average 5.5 meter (m) (or 18.0 feet (ft)) in diameter (range 1.0-15.0 m or 0.3-49.2 ft) and are generally circular or oval in planview. The average mound height is 0.7 m (2.4 ft) (range 0.3-2.0 m or 1.0-6.6 ft). Stone mounds, Kluth noted, are generally found on knolls or ridgetops and are often associated with bedrock outcrops.

Very few stone mounds in Kentucky have been systematically investigated (Aument 1985; Clay 1984; Ison et al. 1982; Turnbow and Jobe 1981). Artifacts derived from these mounds are generally sparse and consist mainly of a small number of prehistoric chert flakes, projectile points, burned rock, and burned clay (sites 15CK246, 15ES15, 15BB306, and 15BB21). Occasionally, features (representing hearths and burials) have been found beneath the mounds (sites 15BD306, 15BB38, and 15BB21). Frequently, stone mounds in Kentucky yield no artifacts, and it is impossible to determine if they are historic or prehistoric in origin. A few, however, have produced absolute radiometric dates (uncalibrated) of 360 +/- 165 BC and 520 +/- 125 BC (site 15BD306) and 945 +/- 65 BC (site 15BB38). Three serrated triangular points found beneath site 15BB21 suggest a Fort Ancient age for this stone mound. Human remains are rare, but range from whole interments (site 15BB38) to small scattered fragments (sites 15BB21, 15CK246), and cremations (site 15BB306). While some mounds obviously served a mortuary function, Kluth postulates that some may have served other functions, such as for trail markers (Kluth n.d.).

Due to the lack of archaeological data, Kluth (n.d.) notes that it is difficult to develop any criteria for distinguishing between prehistoric stone mounds and historic period field-clearing piles. This sentiment is echoed by Sussenbach (1990:182-185) in his report of stone piles in Robinson forest, Aument's (1985) report of investigations at stone mounds in Boyd County, and others. However, the placement of stone piles on the landform may provide some insights. Stone piles have been noted on slopes that would have been unsuitable for agriculture, and therefore are unlikely to have been field clearings.

Based on data from surrounding states, Kluth suggests that smaller stone mounds are less likely to contain prehistoric artifacts or human remains, than are the larger mounds (Kluth n.d.). Aument (1985) made a similar observation. In a recent review of stone mound data from northeastern Alabama and the surrounding area, Little and Smith (2000:51-54) observed a similar trend. They note the data indicates most of the mounds in their study area were constructed during the Woodland period. Radiocarbon dates from Kentucky stone mounds suggest a similar age, though the small number of dates make such a chronological assignment very tenuous.

Aument (1985) reported the results of investigations of three stone mounds in Boyd County, Kentucky. The mounds were located within the proposed right-of-way of the Kentucky Highway Department's planned construction of US 23. Excavations of the three mounds demonstrated that two (sites 15BN306 and 15BN311) were prehistoric sites that yielded features and artifacts dating to the Early and Middle Woodland periods. The third "stone mound" proved to have been the remnants of a historic Euro-American house structure.

The two prehistoric mounds were excavated to reveal diagnostic artifacts and information on their construction sequence. Site 15BD306, the Viney Branch Site, was a 4.0 x 2.5 x 0.5 m (13.1 x 8.2 x 1.6 ft) oval-shaped mound of stone composed of large cobbles and boulders of limestone, with interspersed small fragments of stone used to fill the gaps between the larger rocks. Excavation of the stone mound revealed three prehistoric features. Feature 1 was a concentration of cremated human remains. Feature 2 was a large surface hearth 60 centimeter

(cm) (or 23.6 inches (in)) to one side of the mound center. No human remains were found associated with the feature's soil matrix. Feature 3 lay on top of Feature 2 and consisted of a 20.0 cm (7.9 in) layer of soil with intermixed burned clay nodules and cremated human bone fragments. Carbon dates from wood charcoal recovered from Feature 2 yielded a date of 360 +/- 165 BC. However, carbon dating of cremated bone recovered from Feature 3 yielded a date range of AD 520 +/- 125, indicating the site was Middle Woodland in age. Two projectile points were recovered from the site, both associated with the cremated human remains. A fragmentary Early Archaic corner-notched point was associated with Feature 1 and the basal portion of an Early Archaic Big Sandy point was recovered from Feature 3 (Aument 1985).

Based on the excavation, Aument proposed a probable construction sequence for site 15BD306:

1) The ridge saddle was cleared of vegetation and a small hearth was built;
2) Clay from the surrounding area was scraped up and mounded over the hearth;
3) The cremated remains of two individuals were deposited on opposite sites of the hearth;
4) The two projectile points (heirlooms?) were placed alongside the cremations; and
5) Stone was piled over the cremations to protect them.

Site 15BD311a (the Brisbin Site) was a reported stone mound that appeared to be heavily disturbed at the time of the 1985 investigation (Aument 1985). It was first reported as a large "beautifully-shaped" 3 m (ca. 10 ft) high stone mound by Brisbin (Brisbin 1974, cited in Aument 1985:71). The site was later test-excavated by Schock and Foster (1976), who reported that no rock was present at the site. Apparently, the rock had been removed. Schock and Foster found one human burial pit feature and a cache of Woodland artifacts. These artifacts included a slate pendant, a copper awl, a number of Lowe Cluster expanding-stemmed points, and numerous blades. Other artifacts included turtle shell fragments, cordmarked sandstone-tempered ceramic potsherds, and one ceramic pipe sherd (Aument 1985:74; Schock 1974). Scattered stone around the pit suggested it might have been stone-lined.

The site was further investigated in 1984. A large amount of limestone rubble was mapped and a cache of utilitarian tools was found to the south of the previously identified feature. The cache included a chipped stone celt, modified cobbles, bifaces, hammerstones, bladelets and drills, along with 21 flakes (Aument 1985:77).

Because of the disturbance at the site, it was difficult to assess the exact construction sequence for site 15BD311a. Nevertheless, Aument proposed a probable sequence (Aument 1985:76):

1) The knoll on which the mound was constructed was first cleared of vegetation;
2) A burial pit was dug and at least partially lined with stone;
3) A cache of artifacts was placed in the northern end of the pit, while the cremated remains of an individual was placed in the southern end of the pit;
4) The extended remains of an individual may also have been included, based on the size of the pit, but due to disturbance from looting, none were present;
5) A second cache of artifacts was also included; and
6) The burial pit was covered in rock and, possibly, a larger stone pile placed across the site.

Aument interpreted the relationship of the materials to indicate the site represented a single episode of mortuary activity (Aument 1985:76).

In 1982, the University of Kentucky undertook Phase II evaluation of three stone mound sites in Estill and Lee counties, Kentucky (Ison et al. 1982). Sites 15ES8 and 15ES15 in Estill County

contained one stone mound each. A total of 12 such mounds were documented at site 15LE38 in Lee County. The investigations involved a methodology, whereby the entire mound was cleared of vegetation and leaf litter and documented both photographically, and in profile drawings, prior to excavation. The strike and dip of all major tabular rocks were recorded. The mound was then bisected, and one-half subjected to systematic dismantling and excavation. All artifacts were piece-plotted and retained by provenience. An excavation unit was dug into the floor of the mound after removal of all the above-surface rock. The mound and the excavation unit were both drawn in profile (Ison et al. 1982:22).

The investigation of site 15ES15, although contributing to the overall database for stone mounds, yielded inconclusive results. Only three chert debitage and one piece of blocky chert were recovered. No bone was observed. Nevertheless, based on archaeological investigations elsewhere, the mound was interpreted as a burial mound. The acidity of the soil was offered as the rationale for the lack of preservation of bone (Ison et al. 1982:32).

The excavation at sites 15ES8 and 15LE38 resulted in the determination that these were the products of historic field clearing. The evidence for this at site 15ES8 stemmed from the recovery of a fence post with adze marks and a historic staple. While no artifacts were found at site 15LE38, the linear arrangement of the 12 mounds along an old logging road was interpreted to be the product of historic clearing (Ison et al. 1982:32).

An investigation was conducted in 1980 by Robert Brooks (Brooks 1980) at site 15MS47 in Mason County. This site was a small prehistoric stone burial mound identified during the construction of a power line access road. It was found to be seriously damaged and disturbed. Human and dog bones were found at the site mixed with modern debris. Because the site was so damaged, no further investigations were recommended (Brooks 1980).

In 1970, the Department of Anthropology at the University of Kentucky recorded a group of stone cairns in Clark County during a small scale survey conducted by Dorwin and Dobyns. The stone pile complex was designated site 15CK17. Later, Allen, Cowan, and Everedge performed a volunteer investigation of a badly damaged stone mound, site 15CK18, in 1971. Unfortunately, the site was found to be 90 percent destroyed by vandals (Jobe et al. 1980:29). Another survey, performed in 1972 by Smith, Clark, and Dexter (no report prepared), located another vandalized stone mound site (15CK20). The investigation of this site yielded ashes and human bone and skull fragments, along with chert debitage and other artifacts. All artifacts were recovered from a disturbed context (Jobe et al. 1980:29).

Turnbow and Jobe (1981) discovered eight stone mounds during their archaeological investigation of 472.3 hectares (1,167 acres) of high potential impact associated with the construction of the J. K. Smith Power Station in Clark County. These stone mounds were identified as sites 15CK130, 15CK212, 15CK224, 15CK246, and 15CK275 (1981:492-498). Additionally, three stone mound sites (15CK11, 15CK325, and 15CK326) were also recorded outside the actual project area. All of the mounds recorded during this investigation were interpreted to be prehistoric in origin.

Site 15CK246 was shown to be a prehistoric burial. This site is an earthen and stone mound that is oval in shape and measures 9.5 m (31.2 ft) in length, 7.0 m (23.0 ft) wide, and 0.4 m (1.3 ft) high. A few rocks were exposed at the surface at the time of its examination in 1981 (Turnbow and Jobe 1981:344-345). A previous landowner reported that the stone pile had been there as long as he could remember, and that the area had never been plowed during his lifetime. Because of the location of the mound within the right-of-way of a proposed pipeline, a 1.0- x 2.0-m (3.3- x 6.6-ft)

excavation unit was placed in the center of the mound, in order to determine its significance. A total of three chert flakes were recovered from Zone 1 (0.0-40.0 cm below surface). The second zone produced a circular stain with no artifacts or other cultural inclusions. Some charcoal flecks were observed in the layer. In addition, a badly crushed fragment of human bone was recovered during the screening of this level (Turnbow and Jobe 1981). Another previously identified stone mound (site 15CK266), destroyed by the time of the 1981 survey, was once located about 100 m southeast of site 15CK246.

Turnbow and Jobe (1981:485-496) argue for a prehistoric origin of the Clark County stone mounds for the following reasons:

1) Previous archaeological investigations in West Virginia (Wilkins 1977), Indiana (Kellar 1960), and Kentucky (Clay 1984; Moody 1981) support the notion that these were burial sites, although temporal/cultural affiliation has been variably assigned to Middle-Late Woodland, Fort Ancient, or Shawnee. The 1981 University of Kentucky studies demonstrated the presence of human bone at site 15CK246.
2) The rock from which the mounds were constructed originated downslope of the mound sites. It is argued that erosion could not have transported these stones, nor is it likely that historic farmers would undertake such a task.
3) The geographic location of the stone mounds was on prominent ridgetops overlooking the valley below. This pattern correlates with the locations of other reported stone mound sites.
4) The construction of these mounds included small gravel and soil, as well as, larger rocks of dolomite and limestone. Piles of rock derived from land clearing would most likely include only large rock.
5) It seems unlikely that historic farmers would place land-clearing piles on the ridgetops, because they would lose cultivatable ground. Landowners who were interviewed said they threw unwanted rock into nearby gullies or onto non-tillable slopes. Furthermore, the landowners of the area claimed to have experienced little problems with rock in their fields.

Between November 6 and December 5, 2001, AMEC Earth & Environmental staff archaeologists conducted a Phase I archaeological survey of a proposed natural gas pipeline right-of-way in Clark County, Kentucky for East Kentucky Power Cooperative (Schatz, Bader, and French 2002). Three of the sites discovered during this survey were stone mound sites, including sites 15CK474, 15CK475, and 15CK476. Two of these (15CK474 and 15CK475) were isolated stone mounds, while the other (15CK476) was a group of 47 stone mounds. No artifacts were recovered from these sites. Preliminary research on similar sites in Clark County (and elsewhere in the state) indicated they may date from the Woodland to the Late Prehistoric Period, or possibly to the proto-historic period immediately prior to Euro-American colonization in Kentucky. Because these sites have a potential for significant intact cultural deposits, they were considered potentially eligible for inclusion on the National Register of Historic Places.

Site 15CK474

Site 15CK474, a single stone mound, was located on the southern edge of a ridge crest in an area of dissected upland above Upper Howard Creek (**Figure 2**). This site consisted of a stone mound approximately 7-8 m (23-26 ft) in diameter and 1.5 m (ca. 5 ft) high. This mound was constructed of slabs of limestone mixed with gravel. This building material was probably carried uphill from

outcrops below the site or from the bed of Upper Howard Creek. It may have once been covered with earth, but, if so, soil has since eroded away. The mound was somewhat disturbed by a tree growing out of the southeastern side, and the eastern portion was partially collapsed, possibly due to cattle grazing activity. There were no looter pits visible, so the overall integrity of the side appeared good. No cultural material was found to be associated with 15CK474 during this investigation.

FIGURE 2. SITE 15CK474 SHOWING STONE MOUND.

Site 15CK475

Site 15CK475, a single stone mound, was located on the middle of a lower ridge spur in an area of dissected upland above Upper Howard Creek (**Figure 3**). This site consisted of a stone pile approximately 3 m (ca. 10 ft) in diameter and 30 cm (12 in) high.

This mound consisted of slabs of limestone brought downhill from outcrops upslope, as well as, smaller gravel that may have been carried upslope from Upper Howard Creek. It may have been also covered with earth as reported on some stone mounds, but, if it did, the earth has since eroded away. The mound appeared relatively undisturbed, except for a tree growing out of its center. There were no looter pits visible. The excavation of a single shovel probe outside the mound revealed a single stratum of soil approximately 22 cm (9 in) deep of yellowish-brown clay. Excavation was discontinued when slabs of limestone were encountered. These stone slabs may have been a buried or eroded part of the mound. No cultural material was recovered in associated with site 15CK475.

FIGURE 3. SITE 15CK475 SHOWING LOW STONE MOUND.

Site 15CK476

Site 15CK476, a stone mound cluster, was located on a ridge in an area of dissected upland above Upper Howard Creek (**Figures 4** and **5**). This site consisted of 47 stone piles varying in size from approximately 3 to 10 m (10 to 33 ft) in diameter and 20 cm to 1.5 m (8 in to 5 ft) high. While several large mounds were documented, groups of smaller, less carefully constructed piles were also noted.

These mounds generally consisted of slabs of limestone, likely carried from outcrops downslope, as well as, smaller gravel that may have been carried from Upper Howard Creek. No earth covering was apparent on any of the mounds. Most of the mounds appeared to be undisturbed, or relatively undisturbed, except for trees growing out of them. A few appeared to have collapsed. Several of the mounds were partially collapsed, but exhibited evidence of careful intentional construction that suggested a planned methodology to the construction. Such a construction would be absent at discarded stone piles that resulted from agricultural field clearings. There were several mounds with probable looter pits visible, but the majority appeared to be intact. There appeared to be three separate clusters within the complex, which corresponded to three rises along the ridgeline.

Twenty shovel probes were excavated in the vicinity of this site. These shovel probes revealed topsoils that varied in color from dark brown loamy clay to yellowish-brown clay. Only five of the 20 shovel probes had a subsoil stratum, and this was generally a yellowish-brown clay. All of the probes excavated in this area contained a large amount of rock in the soil, and most were generally no deeper than 20.0 cm (7.9 in) below surface. Excavation was discontinued in most, due to encountering bedrock. No artifacts were recovered from any of the shovel probes, and no artifacts were recovered from surface inspections of the mounds.

FIGURE 4. SITE 15CK476, SHOWING MOUND 40.

Some of these mounds may be of historic origin, but the majority were consistent with descriptions of other mound complexes, specifically the stone cairns on Devils Backbone (Linney 1884), in northern Clark County.

On April 1 and 23, 2002, AMEC Earth & Environmental staff archaeologists returned to Clark County and conducted a Phase I archaeological survey of a proposed alternate natural gas pipeline corridor (Schatz, Peterson, and Bader 2002). The survey resulted in the discovery of site 15CK480, which consisted of a single circular stone mound approximately 3 m (ca. 10 ft) in diameter. The mound is similar to several other mound sites in the vicinity (i.e. 15CK474, 15CK475, and 15CK476). The present survey also included the revisit of site 15CK11, a previously-recorded single earthen and stone mound.

Site 15CK480

Site 15CK480, a single stone mound, was located on a ridgetop in an area of dissected upland south of Upper Howard Creek (**Figure 6**). The ridgetop was narrow in this area, less than 20 m (66 ft) wide, and consisted of slopes of 20 percent or greater to the north and south. The site consists of a circular stone pile approximately 3 m (ca. 10 ft) in diameter and 40 cm (ca. 16 in) high. The mound consists of slabs of blocky/angular limestone. The mound appeared essentially undisturbed except for the presence of several small cedar trees.

The soils exposed by the excavation of shovel probes generally consisted of one or two strata. Stratum 1 was a 11-20 cm (ca. 4-8 in) deep brown loam. This stratum appeared to be a heavily deflated topsoil and subsoil. Stratum 2, which appeared at 15 cm (ca. 6 in) below surface and

FIGURE 5. SITE 15CK476, SHOWING MOUND 22.

FIGURE 6. SITE 15CK480 SHOWING STONE MOUND.

extended to 27 cm (ca. 11 in) below surface, was a brown, rocky loam. This stratum was a subsoil transitional layer to the underlying bedrock. With the exception of shovel probe 33, located to the east of the mound, all shovel probes were terminated after encountering rock. No cultural material was recovered from any of the probes.

Site 15CK11

Site 15CK11, a single stone mound, was located on a ridgetop, also in an area of dissected upland south of Upper Howard Creek (**Figure 7**). The ridgetop is broad in this area. The site consists of a circular stone pile approximately 10 m (ca. 33 ft) in diameter and 40 cm (ca. 16 in) high. This mound consisted of slabs of blocky/angular limestone. The mound appeared essentially undisturbed, except for the presence of several small cedar trees growing out of its center.

FIGURE 7. EARTH-COVERED STONE MOUND AT SITE 15CK11.

The soils exposed by shovel probe excavation generally consisted of two to three strata. Stratum 1 was generally a 7-20 cm (ca. 3-8 in) deep, dark yellowish-brown to dark yellowish-brown loam topsoil. This stratum appeared to be a plowzone associated with modern farming. Stratum 2, which appeared from 7-30 cm (ca. 3-12 in), was a yellowish-brown clay subsoil. Stratum 3 underlied Stratum 2 in over half of the shovel probes excavated. It consisted of yellowish-brown to brownish-yellow rocky clay secondary subsoils. This stratum was very rocky and probably represents the interface between the subsoil and bedrock. Only two artifacts were recovered; a clinched wire nail and a utilized flint flake. Both of these artifacts came from the top 10 cm (ca. 4 in) of the shovel probes in which they were recovered. The wire nail, more accurately described as a spike, recovered from shovel probe 47, measured 14.0 cm (5.5 in) in length. The utilized flake, recovered from shovel probe 49, represents the only prehistoric artifact found at the site and provides no possible means to distinguish cultural affiliation.

The "mystery" of the stone mounds continues. A 1992 newspaper article reported a series of 23 stone mounds and a long stone wall near Frenchburg in Menifee County, Kentucky. Like the other sites, this site is located in a highly dissected topography on a ridgetop. The article noted that such mound sites are common in the southern Appalachian on ridgetops and bluff edges. Speculating that stone mound sites are commonly believed to have been memorials to notable individuals, such as warriors, the author notes they may have been used for a variety of ceremonial purposes, boundary markers, or even as astronomical devices to determine calendrical events.

The mounds were oval or linear, measure about 2 m (ca. 6.5 ft) or more in diameter, and no more than about 1 m (ca. 3 ft) in height. In the case of the Menifee County site, the rocks were sandstone. Sections of an associated 55.0 m (180.4 ft) stone wall resembled what is commonly called a "serpent" mound (Crawford 1992). A few stone serpent mounds are known from the eastern United States, including one near Ashland, Kentucky.

Summary of Stone Mound Investigations and Potential Research Issues

In summary, archaeological investigations into stone mounds has been somewhat problematical, because many stone piles were created as the result of natural processes and historic activities, as well as early Native American mortuary practices. Nevertheless, there has been ample evidence to indicate that many stone mounds may have been prehistoric in origin.

Archaeological evidence and archival accounts suggested that stone mounds were first constructed as mortuary sites during the Woodland Period, and stone piles or cairns were used into the Late Prehistoric and Contact Periods. Known Native American groups, like the Shawnee, may have used stone cairns to mark the graves of their dead in the region when Euro-Americans first settled the area.

Though the investigations at many stone mounds have not conclusively demonstrated these sites are prehistoric stone mortuary mounds, their general form and landscape setting provide circumstantial evidence supporting this interpretation. They were commonly located on the top of prominent ridges, typical settings for Woodland Period burial mounds in the region. They were constructed of both large and small limestone and sandstone rocks. Local residents traditionally refer to them as "Indian Mounds." The larger of the mounds fit the general description of stone mortuary mounds in Kentucky. Smaller piles may be cairns marking Native American graves.

The areas immediately surrounding the mounds do not appear to contain artifacts or evidence of cultural occupation. If indeed these are mortuary features, they appear to be in locations set aside as segregated ritual areas.

Despite the potential significance of stone mounds, relatively little scientific research has been conducted at these mortuary sites. Previous investigations have led to the formulation of potential research issues associated with these sites. Considering today's heightened sensitivities associated with disturbance and/or excavation of grave sites, primary among these must be the identification of attributes or non-invasive techniques that could distinguish prehistoric stone mortuary mounds from historic stone piles and from those resulting from natural environmental processes. Among the techniques currently being studied is the use of soil testing to identify the presence of a human burial (Simpson and Peterson, Personal communication 2004). Other topics worthy of investigation have been offered by previous researchers:

1) The association of stone mounds with artifacts that would indicate function.
2) The linkage of stone mounds with Native American mortuary activities to specific chronological periods and cultural traditions.

3) The examination of construction techniques and the determination of whether or not these techniques, if present, may have changed through time or be linked to particular cultural traditions.
4) The significance, if any, of observed differences in size, location, and construction of mortuary mounds that may, perhaps, be associated with status of the deceased.
5) The relationship of stone mounds with nearby sites and an examination of how they were incorporated into overall Native American settlement patterns.
6) The investigation of stone mounds in relation to stone walls, serpentine mounds, and so-called hill fortifications which have been reported through time across the state.

Clearly, there remains much to be investigated in this area of research.

Photos in this article were taken by David Schatz.

ACKNOWLEDGMENT

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ARCHAEOLOGY DISPLAY PROJECT AT THE U.S. ARMY CORPS OF ENGINEERS VISITOR CENTER, TAYLORSVILLE LAKE, SPENCER COUNTY, KENTUCKY

BY

FALLS OF THE OHIO ARCHAEOLOGICAL SOCIETY

Keith Richardson, Park Manager, asked the Falls of the Ohio Archaeological Society (FOAS) to participate, in an advisory role, in the assembling of an archaeological display for the lobby area of the U.S. Army Corps of Engineers (USACE) Visitor Center at Taylorsville Lake. The project involved making a unique visual display of local artifacts that were donated to the center by James B. Butch, Lucinda Snider, and John Wells.

Boy Scouts of America Troop 346 (St. Gabriel, Fern Creek, Kentucky), under the direction of Eagle Scout candidate, Daniel Mitchell, was responsible for assembling and creating the display. Lisa Freeman, Park Ranger, oversaw the project and assisted in the overall design. FOAS members Anne Bader, Mary Manka, Charles Meiman, Sundea Murphy, and Mark Milliner assisted the scouts by helping them to measure, catalog, identify, sort, and record the artifacts.

After the data was collected, the scouts had the appropriate display case created to accommodate the artifacts and placed interpretive posters in the area to provide visitors with the historical perspective and significance of the artifacts.

The display gives the visitor a sense of the tremendous amount of cultural resources contained within the Taylorsville Lake area. (From 1969-1983, the University of Kentucky and the University of Louisville had identified over 160 sites. Since that time, the USACE has investigated additional sites in the area.)

FIGURE 1. ARMY CORPS OF ENGINEERS VISITOR CENTER AT TAYLORSVILLE LAKE IN SPENCER COUNTY, KENTUCKY.

FIGURE 2. VIEW OF TAYLORSVILLE LAKE FROM THE VISITOR CENTER.

FIGURE 3. KEITH RICHARDSON.

FIGURE 4. LISA FREEMAN.

FIGURE 5. SCOUTS HANK KNIGHT, DANNY MITCHELL, AND JOHN WATTS.

FIGURE 6. MARY MANKA.

FIGURE 7. ANNE BADER, SUNDEA MURPHY, MARK MILLINER, AND CHARLES MEIMAN.

FIGURE 8. SEVERAL DATA COLLECTION SESSIONS WERE NECESSARY.

FIGURE 9. COMPLETED DISPLAY.

ARCHAEOLOGY DAY 2003

FOAS sponsored Archaeology Day at the Falls of the Ohio Interpretive Center in Jeffersonville, Indiana. Archaeologists Steve Mocas and Ed Smith identified artifacts brought in by the public. Archaeologists Anne Bader and Perry Harrell fielded technical questions and manned the FOAS information tables. Leslie Rumbley and Walter Manka manned the artifact display area. Sundea Murphy, Tim Darst, Mary Manka, Paul Olliges, and Mark Milliner provided general support. Bett Etenohan, DNR Naturalist at the Interpretive Center and also a FOAS member, identified non-archaeological specimens (fossils) in the collections brought in by the public. Our special guest speaker was Don Janzen, whom delivered a public lecture about the production of bone tools.

Steve and Perry identifying artifacts.

Interpretive Center artifact display.

Ed, Steve, and Perry answering questions.

Bett identifying fossils.

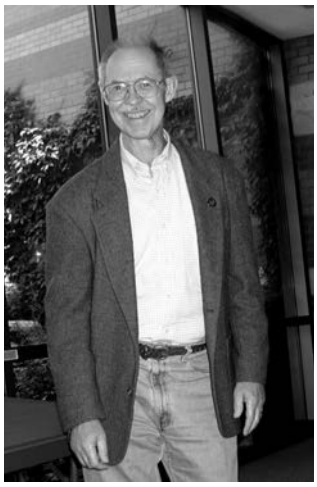
ARCHAEOLOGY DAY 2003 (continued)

Leslie showing Steve her collection.

Anne, FOAS President.

Tim, FOAS Treasurer.

Ed and Steve identifying artifacts.



Speaker Don Janzen.

Walter at the display area.

Mary, FOAS Secretary.

STONE FORTS: DID PRINCE MADOC BUILD THEM?

BY

CATHERINE DIX SIPE
UNDERWOOD, INDIANA

According to legend, Welsh Prince Madoc discovered the New World. This is about the only idea that proponents of the theory agree upon.

However, every theory must be proven. Conjecture, no matter how romantic, is not enough. It is in the proof that the Prince Madoc proponents fall short. Along with being lost in the annals of time, Prince Madoc's story is often a confusing tangle of competing theories. In this jumble, two theories have risen to the top for consideration.

The first theory tells of Prince Madoc ap Meurig, brother of King Arthur II, who traveled in 700 ships to American shores (Matthews 2002). The motive for the mass exodus was the devastation of England, caused by a comet crashing near there around A.D. 562, as hypothesized by professors Victor Clube of Oxford University Astrophysics and Michael Baillie, dendrochronologist of Queens University (Wilson and Blackett 2002a). Starving, and with everything they owned destroyed, this mass of people immigrated to a new land.

The other Prince Madoc (or Madog) ab Owain Gwynedd sailed to America around A.D. 1170. One of seventeen sons of Welsh King Owain Gwynedd, Madoc, Prince of Snowdon, traveled to the New World with his brother, Rhys, to escape the warfare that erupted after their father died. It seemed that Prince Madoc was not one of the legitimate children of the king, so he could not claim enough land to support himself and his followers (Ashe 1962). Supporting this claim is a body of evidence, from old harbor records of the voyage of the ship Gwennan Gorn to the discovery in the 1950's of the port of Afon Ganol in Penrhyn Bay from which the ship set sail. In both versions of the legend, however, fertile lands in a country of plenty provided enough motive for leaving home (Deacon 1966).

The question of whether either of the Welsh princes named Madoc sailed to America and up various tributaries to the Ohio River Valley has intrigued people since before the time of Elizabeth I of England. As do many Madoc proponents today, the Elizabethans had their own agenda for claiming Prince Madoc had made his way to American shores. Quite simply, since Wales was a part of England, if Prince Madoc discovered America before any other European country, especially Spain, the English claim to American lands would be strengthened.

As Europeans moved westward, exploring river valleys from Mobile Bay northwards to the Ohio River Valley, they began to see huge structures made of rock and dirt. To the Europeans, these structures, in varying states of destruction, resembled nothing so much as fortresses, reminiscent of the ones they left behind (Wilson and Blackett 2002b). Unfortunately, these settlers did not have high regard for the Indians who had preceded them on the land. They saw nothing to indicate that Indians in the present state of civilization could build structures of such size and complexity. In the settlers' experience, only Europeans could produce such edifices. Did prejudice towards anyone non-white affect the settlers' view of what the Indians could accomplish? Reading accounts of the time, one may be sure it did. Due to ignorance of the past and lack of geographical reference, the settlers considered the Indians too unorganized, stupid, lazy, and simple to construct the massive structures they found. If the forts were European, Prince Madoc or his followers must have constructed them (Squier and Davis 1848).

The myth surrounding the massive monuments of stone had begun...

Typical of the conclusions drawn from these early settlers were the conversations the first governor of Tennessee, John Sevier, had in 1793, with a 90 year-old Cherokee Chief. When asked by Governor Sevier who had constructed the giant "fortress" at Old Stone Fort, the Chief was said to have replied that "whites" or "Welsh" built it (Squier and Davis 1848). Now, even though the elder Indians were the tribal historians, the chance that they would remember what happened nearly seven hundred years before could surely not be considered too great. That is a long time for any concrete knowledge to remain without a written language. To some, the unchallenged conclusions about Prince Madoc, built on hearsay, became a truth that would go forward into the future.

In the Governor's opinion, piling up stones and dirt to make an enclosure for a specific purpose was considered beyond the Indians. The theory goes on, perpetuated to this day by "historians" who refuse to acknowledge modern scientific evidence. Governor Sevier had little information and less technology. Current researchers have considerably more. Still the myths, espoused by those who should know better, continue. For example, at De Soto Falls, a series of caves dug out halfway up the mountainside was considered beyond the skill of the Indians, because according to historians of the time, the Indians did not have the science of excavation. More structures and artifacts were found up the rivers and tributaries. Since the Indians were deemed intellectually incapable of producing something of size or value, such finds were generally said to be of European origin (Squier and Davis 1848). Even now, though some areas have been researched, catalogued, and dated as being Middle Woodland Indian (ca. 100 B.C.- A.D. 500) to Late Woodland Indian (ca. A.D. 600 - A.D. 1200), the stone enclosures are still considered by some to be Welsh forts.

The "fort" on Devils Backbone inside Charlestown State Park, in Charlestown, Indiana, is a case in point (**Figures 1** and **2**). From evidence found, Indiana University archeologist Cheryl Munson has determined that the site is Middle Woodland Indian. This was a determination shared by archeologists Perry Harrell and Chris Baltz after the Falls of the Ohio presentation by Dr. Munson, about her work at the Indian burials in Posey County. The Charlestown site shares several areas of commonality with the other stone structures found in Indiana, Illinois, Ohio, Alabama, Tennessee, and Georgia. First, the site has limited accessibility. Sitting on a peninsula, the site rests high above Fourteen Mile Creek and the Ohio River. It is not only that it is bounded on three sides by water that severely limits accessibility, but also that no easy incline leads to the site. Rather, daunting cliffs define the side boundaries. There is no easy way to get to the site from the park that does not involve travel on water. Perhaps this is a good thing.

However, when one does manage to get to the site, the traveler can walk down a rock path made by the forest service. Due to the incline of much of the path, this can prove challenging, especially if it has rained. As one heads towards the river, the walls of dirt and stone are clearly visible. The second feature, a debris field about 6 meters (20 feet) across on the 14 Mile Creek side, tumbles further down the hill and bits of the stone wall are easily seen in the exposed roots of trees. From the top of the site, the third common feature can be observed. On the Fourteen Mile Creek side, three flint quarry pits are obvious. There is a flint chipping station at the crest of one. Dr. Perry Harrell of Indiana University has also observed a non-local, but high-quality, Wyandotte chert. One can find similar examples of flint knapping in all other "Madoc" earthen hilltop enclosures.

A fourth common feature can be seen at the top of the site. In fact, the absence of rocks is easily observed. Also easily seen are the round pits that comprise the fifth feature. They are all that is left of the homes for the inhabitants. The sixth commonality can be seen by walking across the flat top of the site, on the Ohio River side, to a part of the wall where rocks have partially filled in the holes that used to hold large wooden poles. This circular indentation in the walls is seen in many of the Woodland Indian sites in Indiana, Illinois, Ohio, Georgia, Tennessee, and Alabama.

Background: Map of Devils Backbone (Cox 1874).

However, one feature common to some other sites that is not obvious at the Devils Backbone site is the small mounds that indicate possible burials. Perhaps it is because part of the stone used in the site was quarried for various bridge or municipal projects through the years and any burial mounds have been obliterated. Perhaps it is due to the Rose Island Amusement Park that was located on the peninsula in the early 1900's. Either one points to an influx of people, many of whom undoubtedly searched the site for artifacts. Such unobstructed movement about the site could not have been conducive to preservation.

FIGURE 1. DEVILS BACKBONE, CHARLESTOWN, INDIANA.

Still, the Devils Backbone site is in much better condition than the Paris Crossing, Indiana site. It has been thoroughly compromised through the years. While some of the common features remain, many have been lost. Like the other sites, the location is isolated on a high promontory bordered by water. On one side is the Muscatatuck River; on the other is Graham Creek. Few examples of the walls can be seen, although they are visible in spots. The site does have the circular holes that indicate building locations and the raised mounds that indicate possible burials.

Madoc enthusiasts list both sites as being definitely built by him or his followers. Other forts attributed to Madoc in Indiana (Merom), Illinois (Giant City (**Figure 3**), Millstone Bluff, The Pounds (**Figure 4**), and Stonefort), Tennessee (Old Stone Fort), Alabama (Desoto Falls), and Georgia (Fort Mountain (**Figure 5**)) have also been excavated and share the Middle or Late Woodland Indian dates. There has been no evidence at any of these imposing structures that indicates the Welsh or other Europeans were there (Deacon 1966).

FIGURE 2. DEVILS BACKBONE, CHARLESTOWN, INDIANA.

Despite the claims of Prince Madoc aficionados, unless something spectacularly European is found at one of the fort sites, they must be objectively acknowledged as Woodland Indian sites. It is the Indians, not the Welsh, who should lay claim to their construction. The Indians should receive the credit for building these structures. Due to current proof, these forts should no longer be claimed as Welsh. Continuing to do so, while it might increase tourism at some of the sites, does a disservice to the search for the truth about Prince Madoc. It muddies the waters.

FIGURE 3. GIANT CITY, CARBONDALE, ILLINOIS.

FIGURE 4. THE POUNDS, SHAWNEE NATIONAL FOREST.

However, if Prince Madoc did come to American shores, there are other areas of proof that need to be accorded the same amount of zeal that the forts have been. One area is the numerous stones that have been found with what seems to be Runes, Coelbren, Ogham, or some form of Welsh writing on them. One of the most famous is the Brandenburg Stone, housed in the public library at Charlestown and on public display. Supposedly written in Coelbren, it talks about "dividing land wisely." Another curious and controversial stone is the Grave Creek Stone, found in Moundsville, West Virginia, on the Ohio River and translated by some as "Madoc, the ruler he is." The Spirit Pond Stone found on the East Coast only adds to the mystery surrounding these stones purporting to exhibit an ancient language.

Petroglyphs also offer tantalizing glimpses of what might, with adequate proof, become facts to validate theories. There are petroglyphs in states all along the Tennessee River, Duck River, and Ohio River, up back estuaries and streams. One of the most promising is the petroglyphs found near Morgantown, West Virginia, believed to be written in Ogham, Latin, and Greek. Language-in-use can be approximately dated; dialects can teach us much.

FIGURE 5. FORT MOUNTAIN, CHATSWORTH, GEORGIA.

A skeleton found at the Cook Rock Shelter near Morgantown, West Virginia is also providing scientists with concrete materials with which to work. The skeleton has been carbon-dated to around A.D. 710 and the DNA analysis has been run. It might be guessed that the results were controversial. Brigham Young University, one of the places to perform the needed tests found that the skull was definitely European and in the group with the Welsh (Pyle 2003). However, Doug Owlsley, forensic anthropologist of the Smithsonian Institution, fears there may have been contamination in the samples and from his examination, he feels the skull is Native American (Douglas Owlsley, personal communication 2003).

It is here in these stones, petroglyphs, and early skeletons that the answer to the riddle of Prince Madoc will be found. Real proof will not come with shoddy research. The end cannot justify the means, no matter how strongly belief is held.

In the end, objects that were once found but have gone missing, tall tales, myths, conclusions based on old, second hand information, and wishing will not win the day. Discovery of real objects will. Scientific method must be used both by professionals and amateurs. Cataloguing and preserving of the finds must be accomplished. Truth must be served. Based on evidence observed at sites throughout Indiana, Illinois, Ohio (**Figure 6**), Tennessee, Georgia, Alabama, and West Virginia, the impressive stone edifices found at the sites were the product of Woodland Indians at various times in the development of their culture. Unless new physical evidence is found and verified, it can be logically concluded that even if Prince Madoc sailed to American shores, that he did not construct the forts. If they are being used as the primary proof of his existence here, then the entire theory must be reevaluated. Until then, he must join the other pre-Columbian discoverers of America: Scottish Monks, Basques, Portuguese, Egyptians, Phoenicians, Nubians, Samoans, Chinese, and Vikings. For some of these, there is a modicum of proof. For others, there is only the myth (Ashe 1962).

FIGURE 6. FORT ANCIENT, OHIO.

Photos in this article were taken by the author.

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What is your age group?

- ☐ 6-12
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- ☐ 19-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 56-65
- ☐ Over 65

How would you describe yourself?

- ☐ Professional Archaeologist
- ☐ Amateur/Collector
- ☐ Student (Elementary to Middle School)
- ☐ Student (High School)
- ☐ Student (College)
- ☐ Other Professional
- ☐ Interested Public

Do you have prior archaeological experience?

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- ☐ Occasional Volunteer
- ☐ Some Professional Training

Would you be interested in serving as an officer for FOAS?

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Any additional information or comments?

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