

Callaway Farms I

Evidence of a Planned Community

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by Joe Harl

The Archaic period (as its name implies) conjures up images of people living a hunting and gathering existence and struggling every day to survive. But recent archaeological investigations question this image (Harl 2006). Instead, these excavations suggest that far from being “Archaic,” these people made a number of significant changes in their society. Among these excavations are those performed at the Callaway Farms site (23CY227) located at the base of the Missouri River bluffs, along Highway 94 about 8 miles east of Jefferson City, Mo. (Figure 1). Situated on a sandy natural levee formed by a meander scar of the Missouri River, the northern portion of the site was threatened by the proposed replacement of a bridge and relocation of Highway 94 (Figure 2). This Missouri Department of Transportation (MoDOT) construction was crucial, as a curve in Highway 94 just before the narrow bridge made this a very treacherous stretch of roadway.

In 1995, MoDOT archaeologists tested the site (Harcourt and Meinkoth 1999). In order to determine where to place

their excavation units, a total of 32 auger tests were excavated to a depth of 90 cm (just under 3 ft). These revealed that the cultural materials were located on brown, sandy silt that had been buried by nearly 50 cm (1.5 ft) of slack water deposits, consisting of dark-gray clay left during flooding by the Missouri River. In fact, during their excavations, one of these flood episodes occurred. One of the auger tests also encountered a dark-brown soil representing a feature or midden. In order to verify the presence of features, 8 test units measuring 1 m (ca. 3.25 ft) square were excavated, resulting in the identification of 11 pit features. After the completion of the excavations, MoDOT archaeologists also monitored the installation of a water line, which resulted in the identification of 2 more features nearly 70 cm (2 ft) below the surface. In addition, a ground-penetrating-radar study was performed across the site area. The ground-penetrating radar can detect soil density changes that may represent features, however, this study failed to identify any features (Cardimona and Strohmeyer 1999). Despite the failure of the ground-penetrating radar, the MoDOT archaeologists insisted that there were features present on this site and recommended that data recovery investigations be performed. There was only a subtle difference between the features and the surrounding sandy silts, which could account for the failure of the ground-penetrating radar. The data recovery

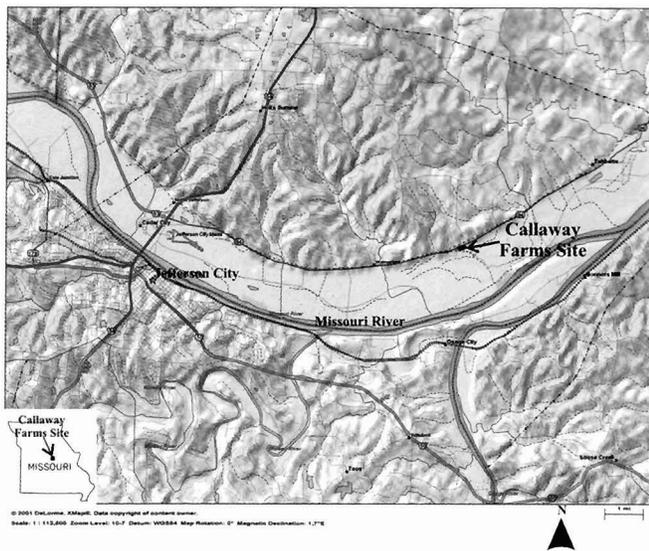


Figure 1. Location of the Callaway Farms site along the Missouri River Valley.

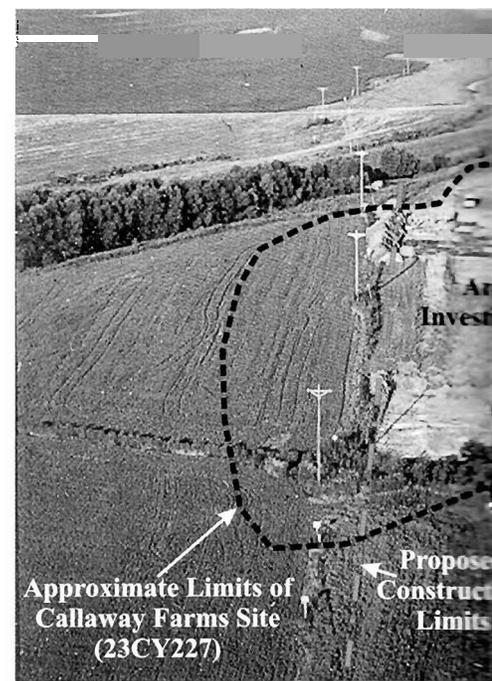


Figure 2. Northern half of Callaway Farms site facing west.

Callaway Farms Site

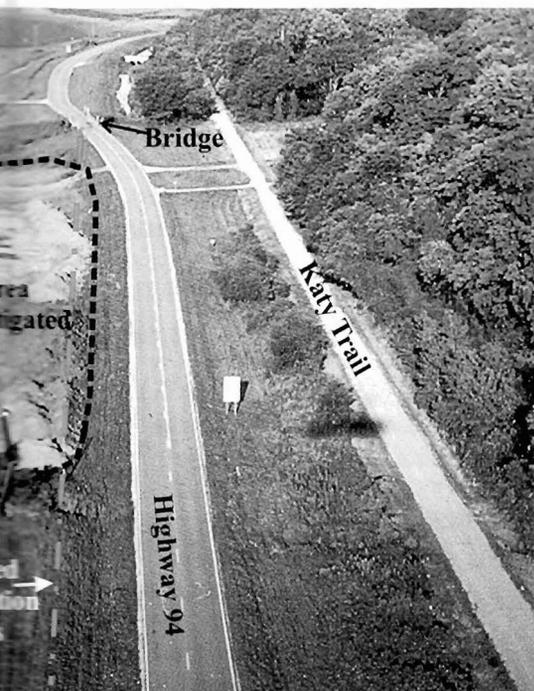
Occupied during the Terminal Late Archaic Period

investigations were performed in 1999 by the staff from the Archaeological Research Center of St. Louis, Inc. (Harl et al. 2001). Their investigations resulted in the recovery of 237 features within the sandy silt beneath the slack water deposits. The features were distributed in two zones that were separated by a low natural drainageway (Figure 3). A total of 14 radiocarbon dates was obtained across the site revealing that both zones had been used at the same time, around 800 B.C. (calibrated mean age).

Western Zone

Structures

Within the western zone was evidence of six buildings (Figure 4). Structures 1–5 had an oval shape measuring between 568 and 650 cm (18.5–21.25 ft) long, with a mean length of 593 cm (19.5 ft), and 480–515 cm (15.75–16.75 ft) wide, with a mean width of 499 cm (16.25 ft). The buildings had been set into basins that ranged in depth from 25 to 50 cm (0.75–1.5 ft). The basins were nearly vertical on most of their sides, but generally tended to be gently sloped on the southern side, suggesting that the doorway faced in that direction (Fig-



Threatened by the proposed relocation of Highway 94,

ure 5). The building's roofs were supported by 2 or 4 posts, which probably rose 2–3 m (6½ by 9¾ feet) above the floor. Crossbeams would have been attached to these central posts and then other poles latched to them forming the framework of the roof and walls (Figure 6). No evidence of post molds was identified either on the interior edges of the house basins nor just outside of them. The poles could have been held in place by the fill removed from the basins; this fill was later washed away after the site was abandoned, destroying the post molds. These sediments were also used to build up the area around the walls so that water would drain away from the buildings. The poles could have been straight or bent toward the edges of the depressions; historical indigenous groups used both techniques (Nabokov and Easton 1989:72, 180). If the poles had been straight there would have been less headroom near the edges of the buildings than if they had been bent. Bent poles, however, would have required a substantial post mold to hold them in place. The fill probably would not have been compact enough to hold bent poles in place, and the lack of post molds around the outer edges of the buildings indicates that the poles used in the framing were probably straight.

Although Gilmore (1977:23) identified the forked trunks of elm as the favored wood used in the construction of earth lodges by historical tribes of the Northern Plains along the Missouri River, the occupants of the Callaway Farms site were not as selective in their choice of wood. They used trees that were locally available consisting mostly of ash and oak, with lesser amounts of hickory, elm/hackberry, and persimmon (Schroeder in Harl et al. 2001:139–40). Between the pole framework, branches and vines may have been woven and clay daub placed over these, at least on the lower half of the buildings. Clay with wood and thatching impressions was recovered from inside all of the buildings. Grass thatching was then tied to the framework, covering the roof and possibly the daubed walls. The fill of Structure 5 contained a number of *Panacaea* grass seeds possibly coming from the thatching. This building appears to have partially burned, as suggested by the presence of charred wood within the fill, which would



Figure 3. Overall aerial view of the western and eastern zones, Callaway Farms site, facing north.

account for the better preservation of the grasses within it than other buildings.

A number of pit features were found along the interior edges of all of the buildings, especially along their northern sides (Figure 5). These features included shallow basins and medium-deep (30–60 cm) pits. Some of the medium-deep pits served as storage facilities. Based on the floral analysis (Schroeder in Harl et al. 2001:142), panic grass seeds were found within these pits, possibly suggesting that this grass was used to cushion or insulate stored items placed within the storage facilities. Historical tribes are known to have performed a similar practice (Wilson 1987:48). The concentration of storage pits near the outer edge of the house depressions provided more usable floor space in the middle of the building and the roof was probably lower at the edges rendering space there less usable. Building 2 (Feature 36) had sloping ramps leading into all of the storage pits from the

interior side. The ramps may have been necessary because of the low height of the roof at that portion of the building, but the ramps would have also made retrieving items from inside of the deep storage pits easier. This appears to have been an adaptation that was used only by the inhabitants of Building 2, with storage pits in the other buildings lacking these ramps. Many of the storage pits were superimposed, suggesting that they were not constructed at one time. These buildings may have been organized in a similar manner as Hidatsa earth lodges with only a few storage pits open at a time (Wilson 1987, Figure 31). After the features became infested with pests or the walls began to collapse, the pits were probably filled with rubbish and earth, and a new storage facility constructed nearby. Over time, inhabitants excavating storage pits would have cut into older ones, resulting in the numerous superimposed pits found within the buildings.

Other medium-deep pits were used for earth ovens as suggested by the presence of burned limestone and animal bones. The ovens were typically placed inside of the structures or immediately outside of them, with at least one earth oven associated with every building.

Structure 5 had two bell-shaped features (Features 141 and 145) located next to each other along the northern wall. This feature style became more popular after the Archaic period. The two features identified within Structure 5 did have some burned pieces of bone (N=125 and 172), but little limestone (N=5 and 36), suggesting that the bell-shaped pits more likely served as storage facilities and the materials in them represented discarded rubbish.



Figure 4. Structure and features located within the western zone, facing north.

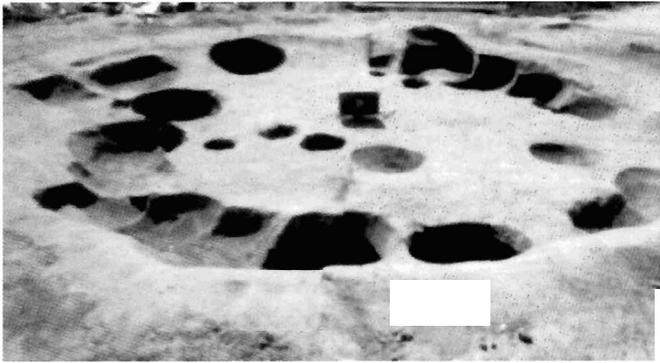


Figure 5. Structure 5, facing south.

Basin-shaped features within the buildings may have been used for storing items as well. Some of these had burned limestone cobbles and charred nutshells (e.g., Features 112 and 116 in Structure 4 and Feature 148 in Structure 5) and may have been used to process hickory nuts within the buildings. Another possibility is that heated limestone cobbles or nutshells were burned inside these buildings for heat. No obvious fire hearths were found in any of the buildings. These shallow pits were generally placed near the center of the buildings.

Structure 6

Structure 6 was larger than the other buildings found within the western zone, measuring 620 x 612 cm (20.3 x 20 ft). Its basin was rectangular shaped and deeper at 86 cm (2.75 ft). The building also had a rectangular depression on its western side, which probably served as the entranceway, giving the building a keyhole shape overall. A series of post molds were found around the northern half of the building both inside and outside of the basin. The inner posts may have supported a bench placed along the northern wall. The exterior posts may have supported the roof or a covered veranda extending off the building. It is also possible that these held sculpted or decorated poles. Additional poles could have existed outside the building on its southern edge that had been lost.

Outside Features

Outside the buildings, a smaller number of pit features were identified (77 pits versus 128 inside the buildings). The exterior features were used for many of the same activities as the interior pits. For example, shallow basin features may have been used for storage or in processing nuts. There were nearly double the number (25 to 14) of basins as compared to medium-deep features. The medium-deep pits were used for storage, but eight features (1, 3, 7, 11, 34, 98, 119, and 204) contained burned lenses and charred materials suggesting that they were fire hearths or earth ovens.

A large, nearly rectangular-shaped basin feature (#33) was found near the eastern edge of the site. This feature measured 236 cm east–west by 172 cm north–south (7.75 x 5.5 ft) and was 22 cm (8 inches) deep. The function of this pit was unclear. It may have been used for a large storage pit, but could represent a small structure used for this function.

A total of 30 post molds was found outside the structures. These could have been used as stretching or drying racks. Others could represent small temporary structures. For example, four post molds, Features 62, 258, 259, and 260, formed a semi-circular area that was marked by a very dark grayish-brown-colored stain that was about 1 or 2 cm (0.25–0.75 inch) thick, possibly representing the remains of a small structure. Other isolated post molds may have held decorated or sculptured wooden poles.

Eastern Zone

Another group of features were identified about 120 m (394 ft) east of the western zone on the opposite side of a

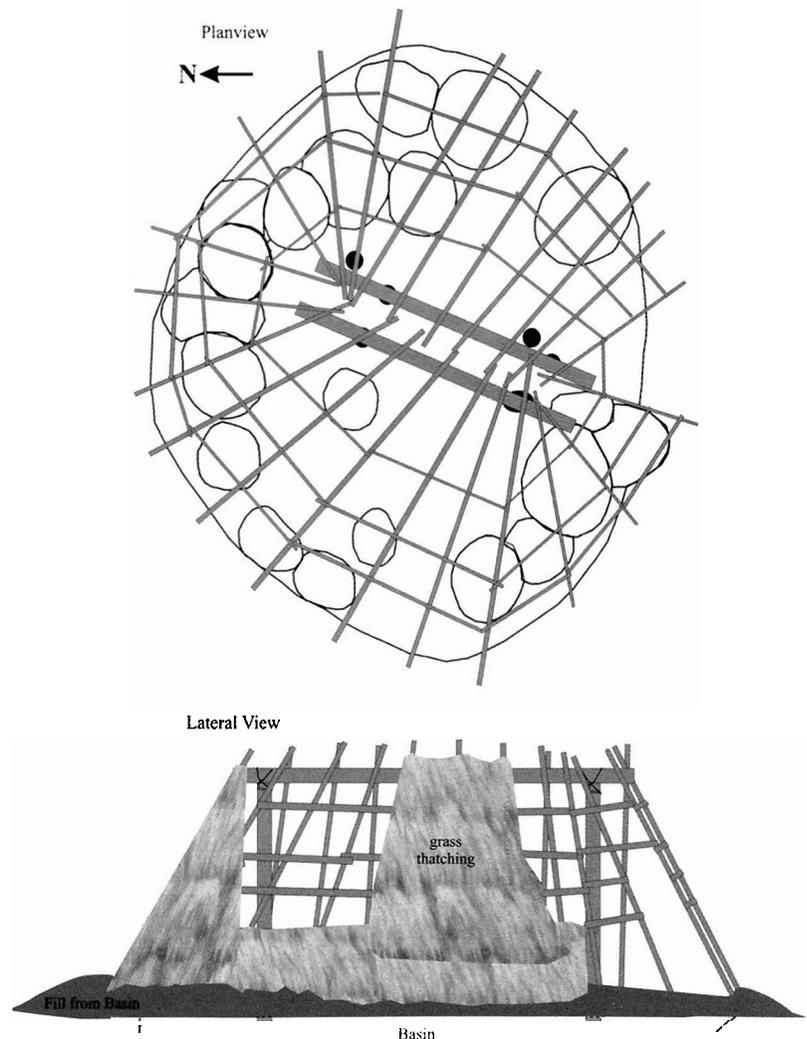


Figure 6. Possible reconstruction of Structure 5.

small natural drainageway. Another sandy silt terrace occurred at this location, but it was covered by shallower slack water deposits (dark-gray clay) of only 30 cm (1 ft). Fewer pit features (N=46) were identified on the eastern end of the site than within the western zone. The eastern zone also contained the remains of only one structure, Structure 7 (Figure 7).

Structure 7

Structure 7 (Feature 25) was situated at the southeastern edge of the MoDOT right-of-way. This building was roughly rectangular shaped, measuring 395 cm northwest to southeast by 276 cm southwest to northeast (13 x 9 ft) and was set into a shallow basin about 10 cm (ca. 4 inches) deep. The possible remains of post molds were found only within the southeastern side of the basin (Features 227, 228, 229, 230). These posts were only 4–11 cm (1.5–4.25 inches) deep. Placed near the northwest corner of the depression was Feature 26 which measured 50 cm (1.5 ft) in diameter and 23 cm (9 inches) deep, possibly representing another post mold or a small storage pit. Other post molds probably existed but were so shallow that they did not survive. The shallow nature of the posts suggests that Structure 7 was not built as substantially as those on the western side of the site. The shallow posts were placed around the inner edge of the basin to form the framework for the walls. Two pieces of oak were recovered from the house floor, which could have been from the framing. It is unclear if the roof was pitched with a central crossbeam or rounded with the poles bent over and tied together. Feature 226, near the center of the basin, probably held a post used to support the roof's center. The framework was probably covered with grass thatching; a single seed of panic grass (*Panicum*) was found, which could

have been used in the thatching, but it may also represent natural seed dispersal. No daub was found to suggest it was used on the walls. The building's shallow basin was nearly straight to the base, except on the southern end, where it sloped more gradually, suggesting the entrance was from that side. The entrance would have faced away from the rest of the pit features found in the eastern zone, possibly indicating that additional features were to the southeast, outside of the MoDOT right-of-way.

Exterior Pit Features

Similar to the features identified outside of the buildings within the western zone, most of the pits in this area were basin shaped (N=29) (Figure 7). Features 15 and 210 were unusual as they had a large post mold placed within them. These pits may have contained offerings buried at the base of large posts, a common practice at later Mississippian sites.

Additional post molds were found in the eastern cluster, including Feature 222 and 217 near its north end and a row of posts formed by Features 16, 17, 18, 19, 20, 246, and 247. These may have been used to hold stretching/drying racks.

Medium-deep pits, Features 23 and 219, may have been used for storage. Features 216 and 233 contained a burned fill suggesting that they were used as fire hearths. Feature 211 contained numerous pieces of burned limestone and charred materials indicating it served as an earth oven. Another bell-shaped pit, Feature 214, was found in the eastern zone, but unlike the two found in Structure 5, this bell-shaped pit had various burned lenses, possibly suggesting it served as an earth oven.

Feature 223, a shallow basin, originally served as a fire hearth, as indicated by the quantity of charred nutshells and burned bone recovered from its fill. Later, flintknappers used

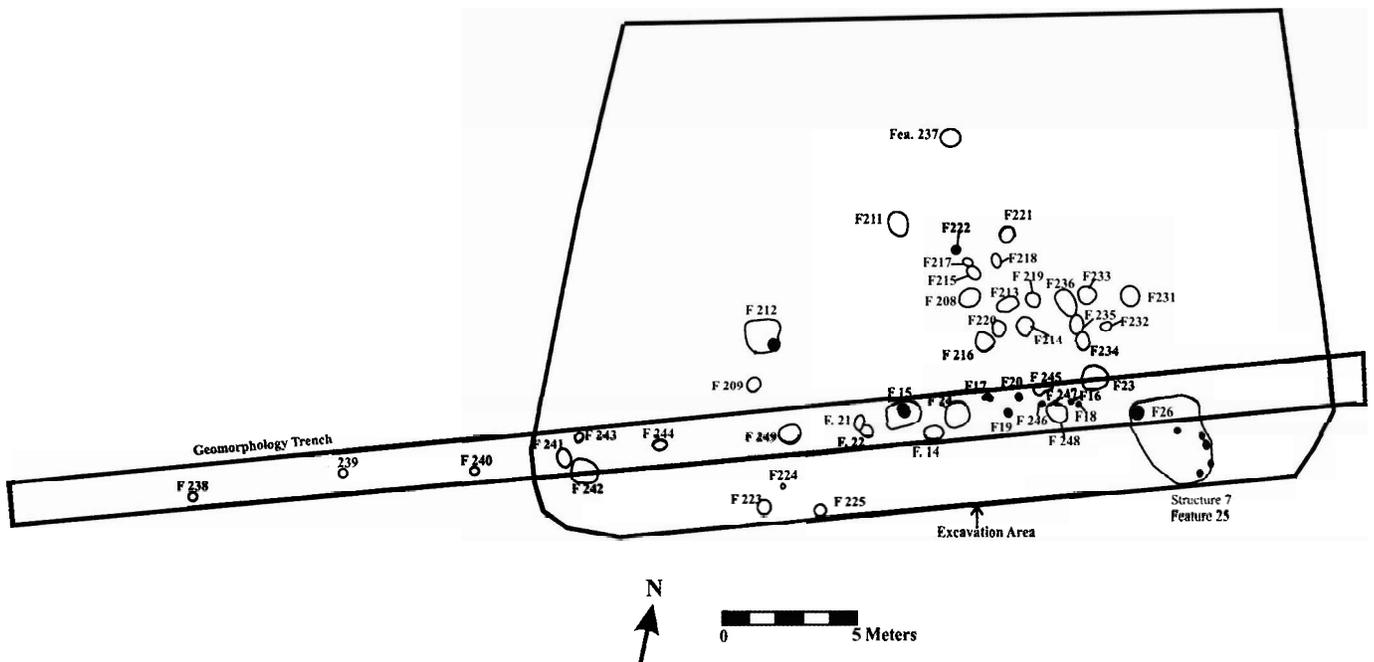


Figure 7. Features within the eastern zone.

the pit as a place to finish and repair lithic tools resulting in a pile of flaking debris.

Community Layout

Overall, the layout of features suggests that this was a planned community. The exact shape of the community could not be positively determined because it continued toward the south, outside of the MODOT right-of-way. The exposed houses suggest that these may have been placed in a zig-zag line nearly perpendicular across the natural sandy levee. It seems more likely, however, that the buildings represented the northern portion of a semi-circular or circular community plan. The houses were separated by a space of only 2–4 m (6.5–13 ft), but this gap was probably much closer once earth was mounded around the outer edges of the buildings. The doorways on most of the buildings faced south, receiving the most sunlight and facing away from the colder north winds.

Structures 1, 2, 4, and 5 appear to have served as residential dwellings, as suggested by the diversity of activities performed within or initiated from these buildings. Based on the available floor space within these buildings, between 21.4 and 24.8 sq m, a single family of 4 or 6 people could have occupied them (Casselberry 1974, Cook 1972, Hassan 1981). The residences had storage pits placed along the edges of their walls, but only a few of these were probably used at any given time, so there would have been more floor space available. There were shallow basin features near the center of the building which contained heated limestone cobbles and charred nutshells. These pits could have been used to process nuts or used to heat the homes.

Although food-processing activities appear to have been conducted within each dwelling, as evidenced by the presence of at least one earth oven, shallow processing pits, and mano/metates, Structure 3 appeared to have been exclusively used for food processing. It contained earth ovens and storage pits in the center of its floor, a large storage pit attached to its side, and there were twice as many food-processing tools (including 15 metates) as were present in the other buildings. This could suggest that the building was used for communal cooking activities. If so, it would have been located just inside the ring of residential buildings.

Structure 6 differed from the other buildings identified in that it was more rectangular shaped than oval. It had a greater floor space of nearly 30 sq m (98 sq ft) and its basin was deeper at 86 cm (2.75 ft), versus depths of 25–50 cm (0.75–1.5 ft) for the others. Structure 6 had no evidence of a southern doorway, instead there was a depressed entranceway on its western edge, so that the structure had a “keyhole” shape. The entranceway faced toward the other five buildings, and this building had fewer pit features (N=17) than found in the other structures. These pits were generally smaller and had fewer artifacts in them, with work-related materials poorly represented. There was a series of post molds about a meter from the northern wall, suggesting that a bench may have

been placed along that wall. There also appear to have been exterior posts along at least the northern half of the building although these could have completely encircled it. The exterior posts may have supported the roof, a veranda, or sculpted posts. Posts depicting various spirits and ancestors often occur at villages of historical indigenous groups in the eastern U.S.; this practice could have extended back into the Late Archaic period. Structure 6 may have been used by a community leader; an unfinished gorget was found in one of its features, but it seems more likely that this was a community building used for social and ceremonial events.

The features outside of the buildings appear to have been used as fire hearths, earth ovens, storage, and possibly for processing hickory nuts. Tool manufacturing and maintenance, wood or bone working, and hide working were also performed outside these buildings, although similar activities were performed within the buildings.

The eastern zone was situated on a slight rise at the southeastern edge of the MODOT right-of-way. The rise continued toward the southeast, and it is likely that additional features exist in that area outside of the project limits. The features uncovered were primarily associated with food-processing activities. These include earth ovens (e.g., Features 211 and 214) and large hearths (e.g., Features 216 and 233). Other activities were probably also conducted in this area such as hide processing, wood or bone working, and the completion of tools or their maintenance. Only Structure 7 was identified on this portion of the site; it was placed just southeast of the pit features. This building was smaller than those identified on the western side of the site, with available floor space of only 9.8 sq m (32 sq ft), and was of more flimsy construction. It may have been a residence, but the lack of artifacts and less substantial construction could indicate that it had another function. Just beneath the floor, the ground was crisscrossed with rodent burrows (also accounting for the difficulty in identifying post molds). Similar to those found in historical granaries and barns, the numerous bioturbations suggest that this building was used to store foods.

Between the eastern and western feature clusters was a low depression with clayey soils. No features were identified in this depression, but it appears to have been used as a place to discard rubbish, with numerous artifacts observed and piece plotted at both its eastern and western edges.

Overall, the occupants of this community appear to have been using the resources within the nearby uplands and the surrounding bottoms. Nuts of various types were an important part of their diet; these were probably gathered from the surrounding uplands. Hazelnuts were especially popular, which were most likely processed through the aid of shallow basin features filled with water. Hickories may have been processed in a similar fashion both inside and outside of the houses. Black walnuts tended to be more common outside the buildings. Schroeder (in Harl et al. 2001:135) suggested that these could not be processed in a pit and had to be cracked open. She speculated that the walnuts could have been given to children as a treat or these may have

been consumed during social gatherings. Seeds from bot-
tomland species were also gathered (e.g., amaranth, goose-
foot, marshelder, and sunflower). This group also relied on
cultigens developed from native seed plants, with maygrass
and marshelder being the most important. These plants were
probably grown within the fertile soils of the surrounding
river bottoms. Unlike the other cultigens, maygrass was not
native to Missouri but came from the southeastern U.S. Its
presence at the Callaway Farms site suggests that it had been
cultivated just prior to the end of the Late Archaic period.

Remains recovered from the Callaway Farms site fur-
ther indicate that it was occupied year round. A winter
occupation is reflected by the number of activities that were
performed within the structures and by the large quantity
of nuts and oily and starchy seeds, most of these harvested
in the fall. The cultivated maygrass, however, was harvested
in May or as late as June, pushing the occupation from fall
until nearly summer. The bones of one deer recovered also
suggest a summer or possible fall use. The large size of the
buildings and the amount of effort that would have been
required to excavate the basins suggest that the buildings
were occupied for longer than a seasonal basis. Evidence of
repeated maintenance was indicated by some of the roof
supports having been replaced with an adjacent, newer post
once or twice, further supporting a long-term occupation as
do the numerous storage pits placed around the edges of the
basins, many of these superimposed earlier pits. There is no
evidence for the houses having been abandoned for periods
of time, which would have resulted in sediment washing
into the buildings and gradually building up the floors. It
appears likely that the Callaway Farms site was occupied on
a continuous, year-round basis.

Researchers have documented a number of conditions
that should occur for a group using a seasonal-round (resi-
dential mobility) versus one using a sedentary (logistic
mobility) settlement system (Ahler 1998; Ahler et al. 1997;
Binford 1980; Brown 1985; Brown and Vierra 1983; Walz
et al. 1998). Groups using a residential-mobility settlement
system have short-term or seasonal residential occupations
placed where resources were most abundant at that time.
These places generally have few or mostly shallow features.
Houses are generally not substantial and are meant to last
for only the duration of the occupation. Only a limited arti-
fact assemblage occurs at these sites, reflecting the seasonal
activities conducted there.

Logistic-mobility settlement system involves sedentary,
year-round settlements having permanent structures.
There is an investment in constructing substantial sup-
port facilities (e.g., large storage pits) for long-term use.
These communities tend to have a more organized layout
and trash is removed to specific locations away from work
spaces and living areas. The trash can result in the forma-
tion of a substantial midden formation. Work parties made
foraging trips to acquire desired resources. Overall, the tool
assemblage is varied, reflecting the diversity of activities
conducted or initiated from these communities. Lewis
(1983:109) found that most projectile points recovered at

these sites tend to be broken, probably because of the points
being returned to the residential sites to be repaired or
removed from animal carcasses during food preparation.
Sedentary groups also always have formal burial grounds
placed nearby, but usually separate from the settlements
(Charles and Buikstra 1983:119).

The remains at the Callaway Farms site seem to suggest
a permanent, logistic-mobility system. The houses were
substantial, requiring a great deal of effort to construct
and maintain. It appears to be a planned community with
houses arranged in a semi-circular or circular pattern with
a community building placed at the northeastern edge and
possibly a joint cooking facility just inside the ring of resi-
dences. Separate work-related areas were placed away from
the buildings and on a slightly raised area just to the east.
Goods such as chert, faunal and floral foods, and wood were
probably acquired by work parties from nearby sources and
worked at the site.

Late Archaic Communities

The most common artifacts reported by collectors and
professional archaeologists in Missouri are associated with
the Late Archaic period (3000–600 B.C.), and yet there is a
great deal that is not known about this cultural period. Most
of the available information has come only from displaced
surface finds. Excavations uncovering subsurface remains
have been conducted primarily within the last 25 years,
mostly in association with cultural-resource-management
studies. It was from these undisturbed deposits that some in-
sights into the Late Archaic period are beginning to emerge.
Not the sudden result of migration, the Late Archaic culture
was an indigenous development building upon the previous
Middle Archaic (6000–3000 B.C.) societies. Unfortunately,
that time is probably less understood than the Late Archaic
period.

Carl Chapman (1975; Chapman and Chapman 1972),
reviewing the archaeological data available to him from sur-
face finds and limited excavations, made the first attempts
at describing these periods. He believed that the Middle
Archaic period represented a time when people adapted to
a changing climate. This period coincides with the Hyspi-
thermal Climatic Episode when temperatures were slightly
warmer than today. Chapman (1975:158) suggested that:

Sites of Foragers continued to be small during the Middle
Archaic period, and though there were changes in the tool
kits, indicating a greater diversity of activities, specialization
or exceptional emphasis on any one exploitive subsistence
activity, was not evident. Hunting and associated activities
continued to be very important. No one location, in relation
to the topography, was indicative of the settlement pattern,
which was not significantly different from that in the Early
Archaic Period.

He believed that within many portions of Missouri, es-
pecially in the Ozark highlands and the northern prairies,
that the “population density must have been thin and their

existence precarious" (Chapman 1975:172). With the improving environmental situation at the start of the Late Archaic period people made a number of changes in their societies.

The greatest change occurred in the Late Archaic period in the prairie regions as demonstrated by the larger size of base camps, the great amount of stone that had been brought to them, and the specialized tools that were manufactured. The prairie Foragers consistently settled on ridges or hilltops. There was limited use of dart points, indicating that little time was devoted to hunting. For the most part except in special hunting camps such as caves, there is little evidence of animal bones. Probably as a result of the de-emphasis on hunting, there was little or no bone-working industry. Much stress was placed on ceremony in connection with the burial of the dead as evidenced by specially constructed cemeteries, use of red ochre to cover the bones, and the inclusion in the graves of tools and ornaments made of exotic materials such as copper. According to Winters (1968) extensive trade networks may have developed during this period to replenish supplies of exotic materials. (Chapman 1975:227)

People also experimented with the domestication of plants. It was shortly after these changes that pottery became widely used in this region, during the Early Woodland period (600–150 B.C.).

O'Brien and Wood (1998) re-evaluated this period in Missouri based on more recent data. They also suggested that Middle Archaic groups altered their settlement and economic strategy in response to the Hypsithermal Climatic Episode, but the effects of this drier climate were not as drastic as suggested by Chapman. There was not a movement of populations out of some regions of Missouri, but instead people modified their settlement strategy, clustering around the forested bottomlands. As O'Brien and Wood (1998:158) wrote:

Middle Archaic settlement-subsistence systems...are difficult to interpret with available data, though the small size of the sites and redundancy in functional classes of the stone tools suggest that groups moved from place to place to occupy temporary camps in localities with nondepleted resources rather than establishing more permanent settlements out of which smaller groups traveled to perform specific tasks. Thus, Middle Archaic groups appear to have been foragers, though site contexts were different from those of the Early Archaic period, and specific exploitation patterns probably changed.

With the improving environmental conditions of the Late Archaic period, O'Brien and Wood (1998:159) suggested:

Site contexts continued to diversify in settings, despite a decline in proportion of upland sites. Also some Late Archaic sites apparently functioned as (a) residential sites, defined as locations with high artifact densities indicative of intensive and/or recurrent occupation and artifact assemblages that represent light domestic activity, and (b) specialized nonresidential procurement-processing locations, defined as sites with low artifact densities and assemblages that represent resource extraction and/or heavy processing

activities. These latter sites represent the first *domesticated* [own emphasis] appearance of the kind of site in the regional archaeological record. They occur in uplands and in two different bottomland contexts...and are consistent with the interpretation derived from faunal...remains, that a semi-sedentary settlement system had been adopted in which small task groups were more likely to conduct extractive tasks away from residential camps or villages.

The settlement-subsistence system did not change during the Early Woodland period, other than the first use of pottery vessels. O'Brien and Wood further suggested that during the Late Archaic and Early Woodland periods plants became a more important part of peoples' diets. Some became incidental domesticates as humans protected or dispersed native species, promoting their concentration around habitation sites and favoring certain morphological attributes, e.g., thinner seed coats and larger seeds (O'Brien and Wood 1998:215). It was only after the Early Woodland period that groups began to depend more on domesticated plants. After that time, humans and plants became mutually dependent, with plants grown far beyond their original ranges and benefiting from more active care (e.g., weeding, storing, and watering). The intensification of resources afforded through cultivation allowed groups to occupy settlements for longer periods of time and increase their population levels.

In Illinois, researchers suggested that the movement from a residential-mobility settlement scheme, using a seasonal round, to a logistic-mobility scheme involving permanent communities from which work parties set out to gather needed resources, may have occurred by the end of the Middle Archaic period (Brown 1985, Brown and Vierra 1983, Jeffries and Lynch 1983, Stafford 1991). Although the remains of houses, middens, and a diversity of artifacts reflecting a wide range of activities have been found at some Middle Archaic sites, more substantial homes and large storage facilities are generally missing. It is possible that during the Middle Archaic period there was a shift from a residential mobility system to one which used a combination of both settlement schemes (Ahler et al. 1997:381). Base camps may have been used on a seasonal basis (logistic mobility), but for the rest of the year people lived in smaller groups moving from one location to the next where resources were most abundant (residential mobility).

The reasons people shifted from a semi-mobile seasonal round to permanent settlements have long been debated. Traditionally, archaeologists assumed that hunters and gatherers only changed their society when a declining environment or overpopulation forced them to rely on a decreasing territory or resource base. In order to improve their economy, these groups purposely modified certain plant and animal species, increasing their productivity beyond what the natural environment could normally support. The development of horticulture, with more food available within a smaller space, allowed people to establish permanent communities to care for and protect these resources. With declining mobility, trade became necessary in order to obtain minerals and foods that were no longer available. As

groups established a more sedentary lifestyle, pottery vessels were favored over grass baskets.

These assumptions have been questioned because:

Agriculture is no longer necessary for the development of cultural complexity...Sedentary modes of life were once thought to be naturally beneficial. When the necessary conditions were present, sedentism was adopted out of preference. But investigations since the 1960s have reduced the viability of this idea. Sedentism is presently regarded as making a fundamental break with the long-established residential mobility of the past...Because a highly mobile strategy is now regarded as adaptive in its own right, much more is required of explanations of sedentism than establishing its logical preconditions. As a consequence, all theorizing now takes into account the advantages of residential stability. (Brown 1985:201-02)

Population and food pressure models have produced a biased view of past human behavior, depicting prehistoric people as passively reacting to changes in their environment as would any plant or animal species. Past humans appear, "...as predictable automata, driven by covering laws...controlled by ritual according to universal expectations; there is no sense in which they actively manipulate and negotiate ideologies" (Hodder 1986:25). Past models also fail to account for the opportunity costs—the initial start-up costs—incurred when adopting a new strategy. These costs can be material as well as social and psychological (Limp 1977, Schneider 1974). A group in a declining economy, such as predicted by the population and food pressure models, would find it difficult to take on these added costs. People more often make changes in order to take advantage of new economic opportunities. These do not have to be directly related to survival but can represent improvements in social or spiritual standing. The economy of the Late Archaic period may not have been declining, but actually expanding, through improved food technologies, e.g., utilizing pits to more effectively process nuts (McElrath 1986:83-84; Stafford 1991), increasing reliance on riverine resources, and experimenting with horticulture. These new innovations were not rapidly adopted, but were experimented with and gradually added to the existing subsistence system over several hundred years, certainly not the situation suggested by the population pressure or environmental decline models.

The Callaway Farms site is significant as one of the first sites in Missouri to clearly support the trend toward permanent settlements by the end of the Late Archaic period. The occupants gathered most of their foods, much as they had during the Middle Archaic period, from the Missouri River bottoms or the adjacent bluff tops. Nuts were an important food source, especially hickory and black walnuts. But the Callaway Farms site clearly shows that by the terminal Late Archaic period a number of starchy and oily seed plants were also utilized. Some of these plants such as maygrass and marshelder were domesticated. Although small quantities of maygrass have been found at other Late Archaic sites in the region, the large quantity of seeds recovered from the Callaway Farms site, far from its natural range, supports the

domestication of this plant. There is also a lack of trade in exotic goods suggesting that like most hunting and gathering groups this one was basically egalitarian with symbols of power or wealth being unimportant. This is not to suggest that there was no community leader; certainly the gorget would suggest such a status, but this position was probably achieved by the person's ability and not inherited. The residences at this site were of similar construction, reflecting the equal status of the families. Yet these families were not a homogenous group—the houses reflected individual differences. For example, the use of ramps with the storage pits in Structure 2 or choice of projectile points used by each family (to be further discussed in a future article). There were activities which served to bind these individual families into a group, such as communal cooking in Structure 3. Likewise, Structure 6 may have served as a community building used for social occasions. Social events within this building would have brought the various families of this settlement even closer together.

Other examples of permanent Late Archaic communities probably exist across Missouri. Hopefully, these sites will be documented before they are all destroyed so that we can gain a new appreciation of Missouri's Archaic inhabitants.

References Cited

- Ahler, Steven R.
1998 Early and Middle Archaic Settlement Systems in the Modoc Locality, Southwest Illinois. *Illinois Archaeology* 10(1-2):1-109.
- Ahler, Steven R., Dawn E. Harn, Margot Neverett, Marjorie B. Schroeder, Bonnie W. Styles, Robert E. Warren, Karli White, James L. Theller, and Robert A. Dunn
1997 Interdisciplinary Data Recovery and Analyses at Four Sites in the Ramsey Complex, Fort Leonard Wood, Pulaski County, Missouri. *Illinois State Museum, Research and Collections Center, Quaternary Studies Program, Technical Report* 97-1066-18. Springfield, Ill.
- Binford, Lewis R.
1980 Willow Smoke and Dogs' Tails: Hunter-gatherer Settlement System and Archaeological Site Formation. *American Antiquity* 15:4-28.
- Brown, James A.
1985 Long Term Trends to Sedentism and the Emergence of Complexity in the American Midwest. In *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, edited by T. Douglas Price and James A. Brown. Orlando: Academic Press Inc., Harcourt Brace Jovanovich Publishers. Pp. 201-34.
- Brown, James A., and Robert K. Vierra
1983 What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown. New York: Academic Press. Pp. 165-96.
- Cardimona, Steve, and Jeremy Strohmeier
1999 *Report on the Ground-Penetrating Radar (GPR) Survey Conducted for the Missouri Department of Transportation at Archeological Sites 23CY227 and 23CY563, Jefferson City, Missouri*. Report on file, Department of Geology and Geophysics, University of Missouri-Rolla.
- Casselberry, Samuel E.
1974 Further Refinement of Formulae for Determining Population from Floor Area. *World Archaeology* 6:117-22.

- Chapman, Carl H.
1975 *Archaeology of Missouri I*. Columbia: University of Missouri Press.
- Chapman, Carl H., and Eleanor F. Chapman
1972 *Indians and Archaeology of Missouri*. Columbia: University of Missouri Press.
- Charles, Douglas K., and Jane E. Buikstra
1983 Archaic Mortuary Sites in the Central Mississippi Drainage: Distribution, Structure, and Behavioral Implications. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown. New York: Academic Press. Pp. 117-45.
- Cook, Sherburne F.
1972 *Prehistoric Demography*. McCaleb Module in Anthropology 16. Reading, Mass.: Addison-Wesley.
- Gilmore, Melvin R.
1977 *Uses of Plants by the Indians of the Missouri River Region*. Reprint of the 1919 Edition. Lincoln: University of Nebraska Press.
- Harcourt, James, and Michael C. Meinkoth
1999 Phase I Cultural Resources Survey of the Proposed Improvements to Route 94, Callaway County, Missouri and Phase II Testing of Sites 23CY227, 23CY608, 23CY563, 23CY562, and 23CY234. Job # J5S0351B, Missouri Department of Transportation, Jefferson City.
- Harl, Joe
2006 Archaic Period of East-Central Missouri. In *The Archaic Peoples of the Midcontinent*. Lincoln: University of Nebraska Press. (in press)
- Harl, Joe, Mary Jo Cramer, Cynthia L. Balek, Marjorie B. Schroeder, and Elizabeth M. Scott
2001 Data Recovery Investigations at the Callaway Farms Site (23CY227): A Terminal Late Archaic Village within Callaway County, Missouri. *Archaeological Research Center of St. Louis, Research Report No. 96*.
- Hassan, Fekri A.
1981 *Demographic Archaeology*. New York: Academic Press.
- Hodder, Ian
1986 *Reading the Past: Current Approaches to Interpretation in Archaeology*. Cambridge: Cambridge University Press.
- Jefferies, Richard W., and B. Mark Lynch
1983 Dimensions of Middle Archaic Cultural Adaptation at the Black Earth Site, Saline County, Illinois. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James H. Brown. New York: Academic Press. Pp. 299-322.
- Lewis, R. Barry
1983 Archaic Adaptation to the Illinois Prairie: The Salt Creek Region. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James H. Brown. New York: Academic Press. Pp. 99-116.
- Limp, W. Fredrick
1977 The Economics of Agricultural Dispersal. Paper presented at the Society for American Archaeology meeting, New Orleans.
- McElrath, Dale L.
1986 The McLean Site. *American Bottom Archaeology, FAI-270 Site Reports*, Volume 14. Urbana: University of Illinois Press.
- Nabokov, Peter, and Robert Easton
1989 *Native American Architecture*. New York: Oxford University Press.
- O'Brien, Michael J., and W. Raymond Wood
1998 *The Prehistory of Missouri*. Columbia: University of Missouri Press.
- Schneider, Harold
1974 *Economic Man*. New York: Free Press.
- Stafford, C. Russell
1991 Archaic Period Logistical Foraging Strategies in West-Central Illinois. *Midcontinental Journal of Archaeology* 16(2):212-46.
- Walz, George R., Brian Adams, Paul P. Kreissa, Kevin P. McGowan, and Jacqueline M. McDowell
1998 The Strong Site and the Dennis Hollow Phase: A New Perspective on Middle Archaic Chronology, Technology, and Subsistence. *Illinois Archaeology* 10(1-2):155-95.
- Wilson, Gilbert L.
1987 *Buffalo Bird Woman's Garden: Agriculture of the Hidatsa Indians*. St. Paul: Minnesota Historical Society Press.

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Errata

Nuts. I really fouled up the trustee listing on p. 23 of the last *Quarterly* (April-June 2006). The group beginning with Lewis Binford that was labeled to be expiring 2006 should have been moved to the end and labeled "Term expires 2009." The other two groups still had the correct labels.

But wait. There's more. I also left off all the new trustees who were elected. The new trustees, whose terms expire in 2009, are:

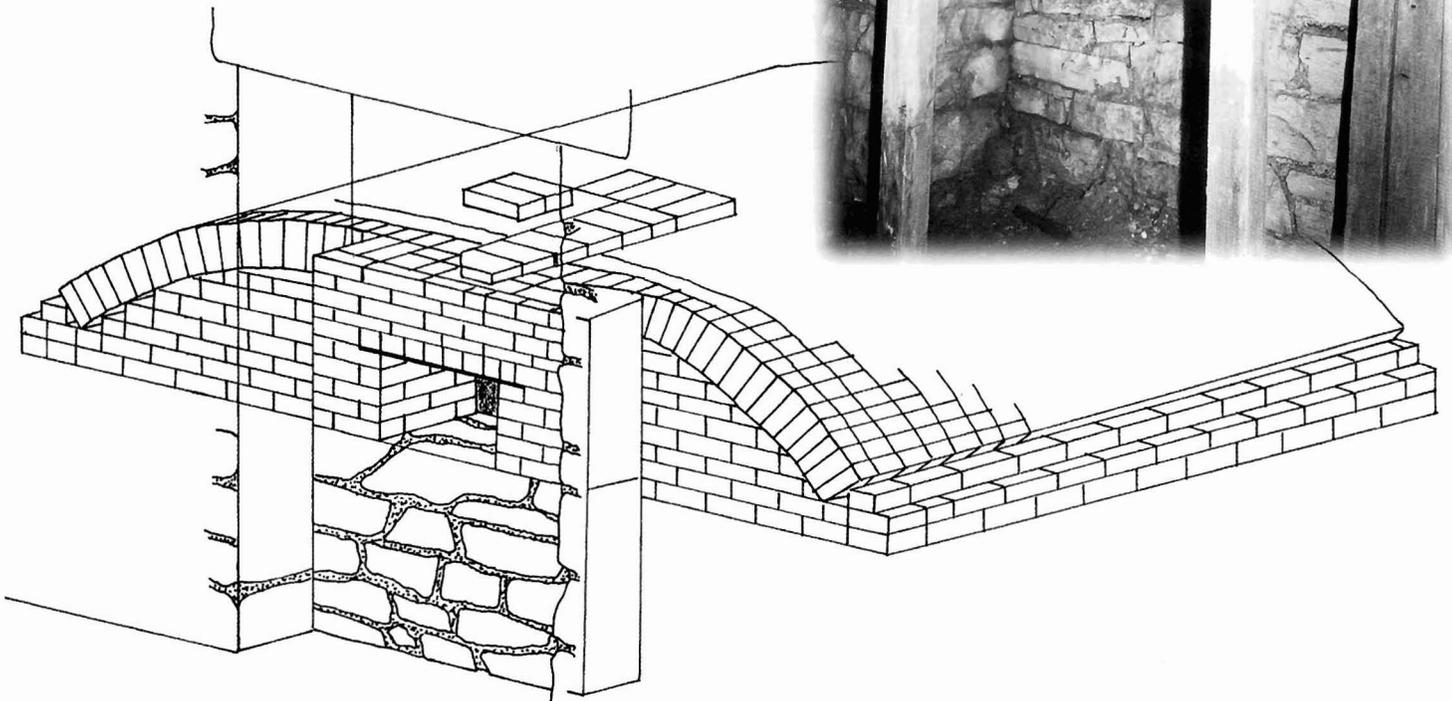
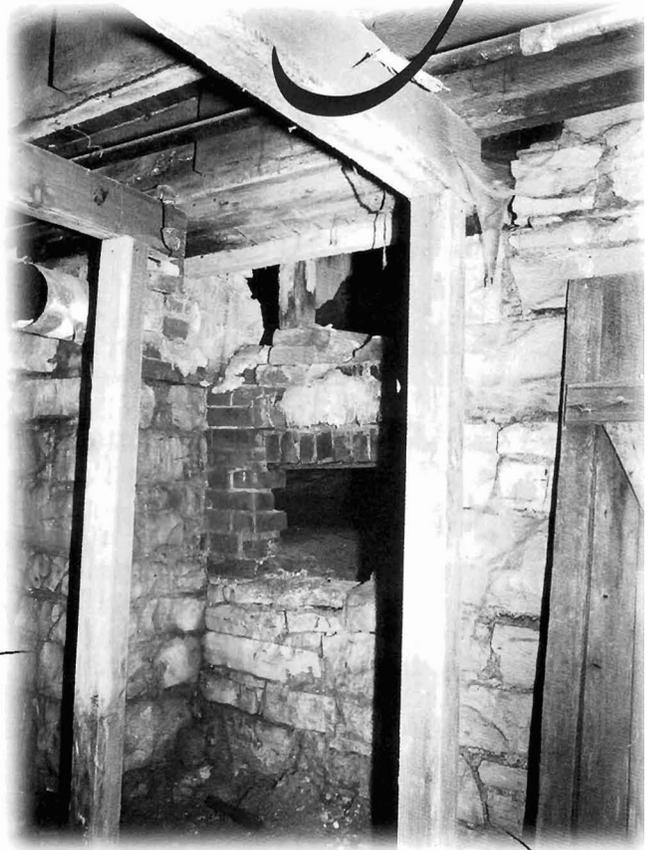
Kathleen Ehrhardt
Larry Grantham
Judy Horton
Eric Smith
Jay Thorn
Bert Wetherill
Sorry!

—Melody

Missouri Archaeological Society

Quarterly

**THE BRICK FEATURE
AT MAUS HOUSE
IN JEFFERSON CITY**



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