CONTENTS

Powell Bayou: Part I
Mary Evelyn Starr 1

Replication Experiments for the Manufacture of Sixteenth-Century Spanish Bells
Robert M. Heath 39

Site Preservation in Mississippi: Report of the MAA Committee
Frederick L. Bruier and Samuel O. Brookes 56

Review: Hispaniola: Caribbean Chiefdoms in the Age of Columbus
Malcolm C. Webb 67

Review: What Mean These Bones? Studies in Southeastern Bioarchaeology
Maria O. Smith 70
Figure 1. Geomorphology and Mississippian archaeology of the Yazoo Basin. After Phillips (1970).
Unfortunately, by 1989, when analysis of the recovered materials was undertaken, most of the field records had been lost and the site itself had been farther damaged by cultivation practices. A large ceramic sample is available from the 1969 excavations. The Cottonlandia Educational Foundation museum at Greenwood, Mississippi has collections of materials from the site, and visits to the site in 1989 prove that it still has much research potential.

Charred corncobs from the site have been analyzed and partly reported previously (Cutler and Blake 1970); metric data on these specimens will be presented in a second part of this study. Other samples of corncobs as well as a large body of other floral and faunal materials have not yet been analyzed. The ceramic assemblage is composed chiefly of jars, often with handles and incised necks or fingernail marked bodies; flaring-rim bowls; and plain and painted bottles. A variety of other forms is present as well. Lithic materials include debitage and tools such as triangular arrow points, pebble celts, and abraders.

**Site Location**

**Geomorphology**

The topography of the area where the Powell Bayou site is located is composed of floodplain features that are the present surface of deep sediments deposited in the Mississippi Embayment. Drainage in the Yazoo Basin, or the Delta, as it is commonly called, is mostly southerly by streams running parallel to the Mississippi River (Figure 1). Major tributaries of the Mississippi in the central Delta, such as the Tallahatchie, Yazoo, Sunflower, Bogue Phalia, and Deer Creek, flow in nearly parallel channels. Before nineteenth- and twentieth-century levee construction, these streams served as distributaries as well as tributaries of the Mississippi River; that is, in times of flood they accepted overflow through breaches or crevasses in the Mississippi's natural levees. Organic and mineral particles carried by and deposited with the subsidence of these annual floods provided the parent materials for the alluvial soils which make the area a major crop production area.

The mechanics of this deposition process are predictable and of high importance in determining the soil type that will develop. The largest particles carried in the bed of the river, such as gravel and very coarse sands, will seldom be introduced into the floodplain because of the lack of velocity of the distributed waters. Larger particles such as sand settle out of running water near the stream's overflowing banks. The smallest particles, of the clay size, settle out more slowly in slack water. A consistent pattern develops, with sandy, silty, and loamy soils being found near major streams and clayey soils occurring in the flats between streams.

The Sunflower River, the main tributary of the Powell Bayou site's general area, seems to flow in about the same location now as it did when the Powell Bayou site was inhabited, judging from the locations of other Mississippi period sites on its banks (see Figure 1). The Sunflower, about 10 miles west of the site, has steep banks with extensive well-developed sandy and loamy levees. Near a main stream such as this, flooding would have been more violent, causing topographic changes such as cutoffs, course changes, refilling of lakes, scouring banks, and laying down point bars. Because of this hydrologic activity, integral to soil formation and replenishment in an alluvial setting, the more extensive tracts of the silt loam soils favored by the Mississippian agriculturalists (Ward 1965) are located near major streams such as the Sunflower. Powell Bayou, at the east edge of the Sunflower River meander belt, is located on a smaller, isolated tract of silt loam soils in an area dominated by heavier clayey soils. Most sites roughly contemporary with the Powell Bayou site, those of the Hushpuckena and Oliver phases (Phillips 1970:941), are located along the Sunflower River or east of it along the Bogue Phalia and the Mississippi River, with access to large tracts of silty loam soils (see Figure 1).

To the east of the site, it is only three miles overland to the Quiver River—Cassidy Bayou system, tributary to the Coldwater and Tallahatchie rivers which drain the eastern edge of the Delta. With their slower tributary bayous and hydrologic activity largely controlled by runoff from the adjacent uplands, this area has less silt loam and wider expanses of the heavier soils until the remnants of the Pleistocene floodplain and the loess-derived colluvium and sandy creek outwash are reached some 20 miles to the east.

Both the Sunflower and Tallahatchie Rivers' drainages are much more active than the level, slow-draining backswamps that separate them. To the south and east of the Powell Bayou site, clayey backswamp soils predominate; such areas may have been avoided for habitation purposes by Mississippian peoples, presumably because they stayed flooded longer and were unsuitable for Mississippian agricultural techniques. This intervening level and low-lying area separating the Sunflower and Tallahatchie drainages is dominated by Alligator, Dowling, and Sharkey clays, popularly known as "gumbo" soils. This area, while perhaps not as heavily exploited as the meander belts, offered a specific variety of resources the Mississippian popula-
tion could have exploited. These uses may appear in the archaeological record as sites referred to as hunting camps, resource extraction stations, or isolated finds of arrow points or other tools or as finds of animal bones or charred wood, nutshell, and other organic materials in site middens. While this problem cannot be addressed in the current paper, it is worthwhile to point out the apparent lack of sites in this ecosystem and to single it out as an important avenue for future research. It is generally assumed (Smith 1978) that the cypress swamps and brakes frequently found adjacent to Mississippian sites were heavily exploited for their aquatic and wetland resources, but the seasonally flooded flats with extensive stands of gum, elm, and hardwoods may also have been a valuable source of specific resources such as nuts and meat.

Ecosystems

The surveyors sent to map the newly acquired Choctaw and Chickasaw Cessions in the early 1830s found an intricate network of rivers, bayous, lakes, and swamps covered with a mixture of open canopy forests composed of a wide variety of tree species, thickets, and canebrakes. Much or most of this land flooded at least several feet deep every spring; the survey records detail these and other environmental conditions that were encountered. The original survey of the township the Powell Bayou site is located in, T23NR3W, was recorded in 1834-5 by William Stone. His field notes and plat map (detail in Figure 2), preserved at the Sunflower County courthouse, detail vegetation and depth of flooding and have an evaluation of the quality of the land. Most of T23NR3W is described as third rate land or swamp. Only part of the section containing the Powell Bayou site and parts of three adjacent sections are described as second rate land or rich land with little if any overflow. Even in these four partial sections, Stone indicated that some of the land flooded six feet deep, probably gaining this information from high water marks on trees. However, a look at the Delta during the Mississippi period would undoubtedly be a look at a much different environmental context than that encountered by Wood’s survey party. Amidst the mature woods and assorted wetlands would be a mosaic of active croplands and possibly regrowth in abandoned or fallow fields associated with settlements along the most suitable streambanks.

Soils and Mississippian Agriculture

A high degree of correlation has repeatedly been found between Mississippian site locations and areas of silt loam soil (Ward 1965; Smith 1978). Although this was noted in the late nineteenth and early twentieth centuries by archaeologists of the formative stage of the science almost as a matter of course, the problem awaited formal recognition until Ward’s 1965 analysis, wherein 20 of 24 sites from throughout the Southeast were found to be located on or within one mile of silt loam or fine sandy loam soils. The Yazoo Basin was particularly well represented in this study, but the sites nearest the Powell Bayou site (Winterville in Washington County, Posey in Quitman County, and Alligator in Bolivar County; see Figure 1) were all described as being located on clay soils. Ward explained away this apparent contradiction by suggesting that in those cases the soils may have been coarser textured while the sites were occupied and that subsequent deposition has modified the site area soils.

These silt loam soils are thought to have been selected because of several related properties that recommended them to the early

Figure 2. Detail of surveyor William P. Stone’s 1834 survey of the township containing the Powell Bayou site.
agriculturalists. High natural fertility and friability, or ease of maintenance of tilth—that is, how well and easily the soil can be broken up to form a seedbed, assuming hoe or hand tool cultivation—are seen as prime requirements of Mississippian farmers. Sands and silts are much more friable than clays, so much more that, assuming this hand tool level of technology, planters would be forced to avoid the cultivation of heavier, clayey soils even if the location offered other environmental factors to recommend their use.

"Catchment analysis" is a term often applied to the archaeological study of sites in relation to soils and their productive characteristics, though the term properly designates the investigation of the availability of all natural resources within their regular areas of exploitation. The area exploited by the site inhabitants is often thought of and portrayed as a circle of some radius chosen arbitrarily or by ethnographic example with the site at its center (Smith 1978). Looking at this pragmatically, we know a circle is only an ideal measure chosen for comparative and expedient purposes; streams, paths, and other cultural and topographic features would distort the geometric form of the local area most heavily exploited by a site's inhabitants away from a true circle, especially if settlements are not so closely spaced as to have definite borders between them. In this vein, Morse (1981:75) excludes from consideration land across a bayou or lake. In the archaeological study of prehistoric soil use, it is assumed that the people studied were aware of the properties of the soils of the area and could identify their extent by conditions of topography and plant growth, and that they chose to locate their houses, which we easily identify, and their fields, whose archaeological definition is much more difficult, together or at least near each other. Morse goes so far as to suggest that by the beginning of the Mississippian period the peoples emerging as agriculturalists had "undoubtedly located all major areas of prime agricultural land" (1981:57). As soil types are correlated with forest types they support, such a catchment analysis can show relative availability of resources from all the ecological subsystems operating in the site environment.

Using the Sunflower County Soil Survey maps (USDA 1959:Sheet 12) a map of the distribution of soils around the Powell Bayou site was constructed (Figure 3).

Fieldwork at the Powell Bayou Site

1941: The Lower Mississippi Valley Survey

The Powell Bayou site was initially recorded by the Peabody Museum’s Lower Mississippi Valley Survey (LMS) in March of 1941 by Chester Chard and E. Mott Davis as 17-O-9. According to copies of the LMS site forms provided by the Mississippi Department of Archives and History, the site then consisted of a 4 m high rectangular flat-topped mound measuring 25 m east-west and 45 m north-south, having the west or bayou bank side of the summit slightly higher than the east side. Seventy meters to the north was a one meter high rise about 25 m in diameter, probably another substructural mound spread by plowing; there were also other rises with daub concentrations in the field around the mound. The large mound was situated directly on the east bank of the bayou and was described as well preserved except for some erosion, digging, and a path cut. Concentrations of sherds
were noted to the southeast of the large mound and on the smaller northern mound. Daub, some showing cane impressions, was also abundant. Although it is not mentioned in the LMS site form, Phillips, Ford, and Griffin (1951:32) said that the site was arranged around a 150' plaza east of the large mound.

Collecting conditions were good that March: 2275 sherds were picked up, only 14 of them falling into the earlier Baytown ceramic tradition (Table 1). Although Powell Bayou was apparently not one of the sites on which the definition of the Hushpuckena-Oliver phases was based, the ceramics shown on the LMS tabulation sheet fit well with the rather wide phase definition the ceramic seriation and phase-distribution maps indicated (Phillips 1970:941).

<table>
<thead>
<tr>
<th>Neeley's Ferry Plain</th>
<th>1831</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parkin Punctated</td>
<td>65</td>
</tr>
<tr>
<td>Barton Incised</td>
<td>227</td>
</tr>
<tr>
<td>Ranch Incised</td>
<td>4</td>
</tr>
<tr>
<td>Vernon Paul Applique</td>
<td>1</td>
</tr>
<tr>
<td>Tyronza Punctated</td>
<td>3</td>
</tr>
<tr>
<td>Bell Plain</td>
<td>48</td>
</tr>
<tr>
<td>Rhodes Incised</td>
<td>2</td>
</tr>
<tr>
<td>Hull Engraved</td>
<td>2</td>
</tr>
<tr>
<td>Old Town Red</td>
<td>21</td>
</tr>
<tr>
<td>Carson Red on Buff</td>
<td>4</td>
</tr>
<tr>
<td>Nodena Red and White</td>
<td>4</td>
</tr>
<tr>
<td>Hollywood White Slipped</td>
<td>2</td>
</tr>
<tr>
<td>Oliver Incised</td>
<td>2</td>
</tr>
<tr>
<td>Owens Punctated</td>
<td>1</td>
</tr>
<tr>
<td>Leland Incised</td>
<td>11</td>
</tr>
<tr>
<td>Blanchard Incised</td>
<td>2</td>
</tr>
<tr>
<td>Residual Unclassified Shell-tempered Incised and Punctated</td>
<td>31</td>
</tr>
<tr>
<td>Baytown Plain</td>
<td>9</td>
</tr>
<tr>
<td>Mulberry Creek Cordmarked</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1. Sherds collected at Powell Bayou in 1941, after the Lower Mississippi Survey ceramic tabulation sheet.

1969: The Mississippi Archaeological Survey

In 1969, the land the Powell Bayou site is located on was owned by Otha Shurden, who was levelling the mound as part of his farming operation. The smaller mounds had by then been mostly obliterated by plowing, and by that spring only about 5 to 7 feet of the large mound remained. The late 1960s were the heyday of agricultural land forming in the Delta, and salvaging information from the many archaeological sites being destroyed by this activity was one of the goals of the newly formed Mississippi Archaeological Survey (MAS), a subdivision of the Mississippi Department of Archives and History. The earth moving had exposed various features on an earlier mound stage summit that were brought to the attention of the MAS field archaeologists by L.B. Jones of Minter City and Robert Stancil of Drew. After the importance of the site was explained to him, Shurden gave permission for the MAS to conduct salvage excavations on the mound and did not cultivate that portion of the site that year (Connaway, personal communication).

Figure 4. Post holes observed on the Powell Bayou site, 1969.

The MAS archaeologists, Sam McGahey and John Connaway, began work in March, assisted at one point by 15 prisoners from nearby Parchman Penitentiary who shovel scraped the top of the mound so that features could be delineated (Marshall to Cook 1969). Slides taken by Connaway show the general mound fill to be dark brown, with loading or other lenses due to construction and use in
evidence, through which pits and postholes had been excavated. Organic stains and burned daub rubble were easily identified in this matrix. Many postholes and wall trenches were apparent on the exposed surface (Figures 4, 5). Some of these were associated with portions of house floors, the remains of another type of structure; others could not be specifically associated with structures. Also on the exposed mound stage summit were several large pits filled with fire-hardened daub mixed with charred organic remains (Figures 6, 7).

![Figure 5. Wall Trenches observed on the Powell Bayou site, 1969.](image)

The southern half of this enclosure was pockmarked with a number of intersecting amorphous pits measuring up to 7.5 by 5 feet (1.5-2.25 m) and filled with crumbled burned daub showing grass and cane impressions. The large structure itself did not appear to be daubed, and the interior pits were not excavated, but two or three similar ones in the southeastern quadrant of the summit were excavated by Connaway. Four charred corn cobs and several hundred acorns (about half a bushel) mixed with crumbled daub were recovered from the first of these pits (Figure 7).

![Figure 6. Pit observed on the Powell Bayou site, 1969.](image)

On the south half of the mound summit were two rectangular wall trench houses of more usual Mississippian house dimensions, about 18 by 30 feet (5.4 by 9 m). According to one account they were set end to end with the long axes east-west; according to another, they overlapped. These houses had clearly delineated prepared floors and were thatched roof, wattle and daub walled constructions, evidence of this coming from their burning and rebuilding on the same location.

A charred post collected from one of these structures was submitted to the University of Michigan for radiocarbon dating. A date of A.D. 1280±100 was returned on this sample, University of Michigan #2257.
might represent an unusually large house or temple, an effort was made to locate interior support posts that would provide evidence of this being a roofed structure. In investigating the interior of the large enclosure several postholes or postmolds of 12 to 14 inches (30-35 cm) diameter were noted. Reportedly, some contained well-preserved cypress wood (McGahey, personal communication). These were not cross-sectioned, so they could have been associated with this construction stage or been intrusive from later construction episodes, but no pattern in relationship to the walls was discernable. Likewise there was no evidence for a prepared floor and again no daub was found in association with the wall trenches or postmolds. East of this large structure, on the northeastern quadrant of the mound and at the same level, were occasional large posts like those on the interior, but again no pattern was discerned. A possible interpretation is that they were free-standing posts and the large structure was a palisaded or stockaded precinct set aside for some purpose of which we have no evidence.

Work around the two smaller structures on the southern half of the mound revealed a thin scatter of potsherds and bones and a denser debris accumulation down the south slope of the mound, interpreted as garbage dumps. Hence these rectangular wall-trench houses are interpreted as the residences of sacred or secular officials, or at least of the community members privileged to have the most elevated houses. More rubble-filled pits were noted throughout the southern half of the mound surface, but apparently no more of them were excavated and no records of their location or dimensions were found.

A 5 by 10 foot (1.5 by 3 m) excavation unit was dug in half-foot (15 cm) arbitrary levels on the south edge of the summit. It was found that about 4.5 feet (1.35 m) of mound deposits remained on a soil surface sterile of any deposits older than the Mississippi period. At least two Mississippian mound construction zones were still present, with at least one other having been removed by the land levelling.

Fortunately, the south, west, and east profiles of this excavation unit were preserved in an otherwise almost completely blank notebook (Figure 8). They seem to have been drawn by the same student’s hand and are in general agreement with each other, but several discrepancies have to be pointed out. This unit was excavated as a 5 by 10 foot unit, but only 8’4” of the south (10’) wall is shown in the profile drawing. The draftsman may have extended his drawing on another sheet now lost or may have only recorded as much of the profile as conveniently fit on one sheet.

Two stages of mound fill separated by two burned structures are represented. The lowest levels reached are labeled differently in all three drawings. In the east wall it is shown as a thin zone above the...
Figure 8. Profiles from the MSU Excavation Unit, 1969.

sterile soil, overlain by a sub-floor zone or the first stage of mound fill. In the south wall, a premound occupation zone is not defined, and the entire initial fill of about one foot is described as the first occupation zone. The west wall profile, the least detailed of the three, considers everything at this depth to be sterile soil. There was a structure atop this initial one foot high platform that had a prepared floor and post and wattle and daub walls that were left as a pile of rubble about a foot thick when this structure burned. The initial structure was replaced with another daub walled structure having posts set in wall trenches, without the addition of more earth. Additional posts in the interior of this second structure represent an intermediate construction episode, traces of which were largely eradicated in the construction of the second structure, as the first rubble pile seems to have been leveled and these debatable posts truncated or removed so that the second floor could be prepared. The profiles show the floors to be about 2 to 4 inches (5 to 10 cm) thick, so they were likely of the laminated puddled clay type, stamped compact and smoothed by use, sweeping and resurfacing. The daub collected is discussed in more detail below, but it is noteworthy enough to indicate here that the daub from these levels of the excavation had a very thin coating of a sandy plaster that fired a dark red in contrast to the mass of the daub that fired to the usual orange color.

This second building’s destruction brought the mound’s height up to about 3 feet (.9 m), a sizable elevation on this bayou bank. The addition of a 2 foot (.6 m) earthen mantle created the platform or second stage summit on which the MAS and MSU investigated features. The Powell Bayou mound was reported by the LMS to be 4 m high in 1941 and then not significantly disturbed. The portion of the mound that was removed by Shurden or previous farmers, at least 7 feet (2 m), consisted of the third and possibly other mantle addition stages. The two superimposed structures on the one to two foot high first mound stage are in about the same location as the two structures observed on the southern half of the second mound stage, indicating probable continuity of use of this elevated surface.

Southeast of the mound, in the area the LMS surveyors had identified as a dense artifact concentration, eight 5 foot square test units were excavated in half foot arbitrary levels through habitation and midden deposits. Sherds, bones, and a sample of the daub encountered were saved by the excavators. It is not known if the soil was screened in any of the excavation levels. The amount of material is not great (ceramics in Table 2), and the sizes of the artifacts indicate that the general recovery method was shovel skimming. The scanty amount of material may be appropriate for a minor mound site, given the interpretation that these centers only had a few resident households and were only occasionally resorted to by the outlying households of the dispersed community.

Features (posts and pits) were encountered, but it seems they were generally defined and excavated separately at the bottom of the cultural deposits, which ranged from 2 to 3 feet thick, inclusive of the plow zone. This may be indicative of plow disturbance or inadequate field techniques or it may indicate that the excavated areas were a rubble-filled or highly organic midden that obscured the outlines of
<table>
<thead>
<tr>
<th>Level</th>
<th>Mississippi Plain</th>
<th>Bell Plain</th>
<th>Barton Incised</th>
<th>Parkin Punctated</th>
<th>Pouncey Ridge-Pinched</th>
<th>Leland Incised</th>
<th>All Mississippi Painted Types</th>
<th>All Grog-Tempered Types</th>
<th>Total Shards</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>65S0W Level 1</td>
<td>65S0W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>40</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Level 4</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Level 5</td>
<td>18</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Level 6</td>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>70S0W Level 1</td>
<td>70S0W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>37</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Level 4</td>
<td>51</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Level 5</td>
<td>17</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Level 6</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>65S60W Level 1</td>
<td>65S60W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>37</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>19</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Level 4</td>
<td>34</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>10S0W Level 1</td>
<td>10S0W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>36</td>
<td>7</td>
<td>11</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>37</td>
<td>15</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Level 4</td>
<td>146</td>
<td>15</td>
<td>18</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>183</td>
<td></td>
</tr>
<tr>
<td>Level 5</td>
<td>70</td>
<td>24</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>Level 6</td>
<td>37</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>110S0W Level 1</td>
<td>110S0W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>217</td>
<td>23</td>
<td>16</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td>272</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>83</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Level 4</td>
<td>104</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>115S0W Level 1</td>
<td>115S0W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>34</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>27</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Total Excavations</td>
<td>1166</td>
<td>131</td>
<td>119</td>
<td>39</td>
<td>9</td>
<td>1</td>
<td>11</td>
<td>1</td>
<td>1485</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Ceramic counts from excavation and surface units with complete provenence information, 1969 excavation.
features so that they were generally only observable in the subsoil. The purposes of these units were to ascertain the depth of the cultural deposit and to obtain stratified ceramic samples. These purposes were accomplished and additional information on the nature of the occupation near the mound was recovered. Very few materials earlier than the Mississippi period were recovered. The remains of at least one house were passed through in the 105/110/115 S0W units, and the daub saved indicates that the usual Mississippian structural systems were in use.

Figure 9. Powell Bayou on 1935 USGS quadrangle map.

1989: Mississippi State University

In July of 1989, the author, while a student employee of the Cobb Institute of Archaeology at Mississippi State University, visited the Powell Bayou site to ascertain its present condition. The old meander occupied by Powell Bayou was only a slough with a few willows and some cane that was dry even in the exceptionally rainy spring of 1989. Hoard Lake, to the east of the occupation area, is a broad open cypress lake with seasonally flooded grassy banks. The general elevation as shown on the relevant U.S. Geological Survey 15' quadrangle is 140'. On the 1935 edition, the mound is distinct (Figure 9). The 1962 edition, the most recent available at the time the site was visited, shows the mound considerably spread and other area features also modified by plowing (Figure 10). A sketch map and seven small surface collections

Figure 10. Powell Bayou on 1962 USGS quadrangle map. Note spreading of mound elevation.
were made. In August a map was made using a tape and compass (Figure 11), although the site was covered with high cotton.

Mapping the site helped identify the concentrations of artifacts and perhaps the plaza ascribed to the site by the LMS. The exact location and extent of the mound remnant or of the soil relocated during leveling is uncertain, but a steep, 2-3 m slope along the bayou bank at the highest elevation on the site seems likely to be a remainder of the mound. If so, the Powell Bayou site could still have intact deposits that could be explored to shed light on the original use of the bayou bank the mound was built over. The scarcity of material on this highest part of the site is probably indicative of remaining mound fill. If some of the initial or second construction stages remain, the earliest occupation levels may be protected under the plowzone; indeed, as this is the field edge, this portion of the site may not have been cultivated.

The site area now has an irregular topography, due to erosion of the loamy soil after the landleveling of 1969. Which of the several rises in the field are of Mississippian origin and which are of recent origin

![Figure 11. The Powell Bayou site in 1989.](image)

<table>
<thead>
<tr>
<th>1969 Excavation and Surface</th>
<th>1989 Surface Collection Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow points, fragments</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Point preforms</td>
<td>2</td>
</tr>
<tr>
<td>Other biface fragments</td>
<td>2 2 1 1</td>
</tr>
<tr>
<td>Cores</td>
<td>2 1 1</td>
</tr>
<tr>
<td>Tested pebbles</td>
<td>1 1 1 3</td>
</tr>
<tr>
<td>Celts, fragments</td>
<td>1 2 1 1</td>
</tr>
<tr>
<td>Hammerstones</td>
<td>1 1</td>
</tr>
<tr>
<td>Sandstone abraders</td>
<td>2 4 1 1 3</td>
</tr>
<tr>
<td>Other ground stone</td>
<td>3 2</td>
</tr>
<tr>
<td>Decortication flakes</td>
<td>1 3 7 5 1 2 3</td>
</tr>
<tr>
<td>Internal flakes</td>
<td>3 3 4 2 1</td>
</tr>
<tr>
<td>Biface thinning flakes</td>
<td>3 6 4 1 1 1</td>
</tr>
<tr>
<td>Flake shatter</td>
<td>2 1 1 1</td>
</tr>
<tr>
<td>Fire-cracked rocks</td>
<td>9 4 1 1</td>
</tr>
<tr>
<td>Petrified wood</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3. Tabulation of lithic artifacts from Powell Bayou.
cannot be verified without subsurface exploration, but some are likely to be remnant features of the site as it was first described. The artifact concentration described by the LMS and tested by MSU is identifiable as the densest part of the site. The reported 2 to 3 feet of midden on the southern portion of the site indicates that there are potentially undisturbed materials in this area is well. However, the small sherd size and crumbled daub in the area of surface collection 6, from the part of the site with the densest artifact concentration, may indicate that any horizontal integrity has been destroyed. Larger, more recently exposed chunks of daub were noted on the northern hillock and in the gully south of it. This seems likely to be due to subsidence, a deep plowing technique common on the Delta's cotton land. Some of the minor elevations now present seem likely to be composed in part of daub rubble that has resisted erosion. Fire-hardened daub is present in an extremely degraded form throughout the site and a thin scatter extends 20 or more meters beyond where potsherds cease to occur.

The surface collections were purposely small, about 5 m along two or three adjacent rows, because the cotton was well advanced by July. They do indicate that controlled surface collections undertaken in the winter up until planting time could potentially help define the community plan. An additional result of the surface collection was the recovery of a wider variety of lithic materials than those encountered in the excavations (Table 3). Much animal bone was present on the surface, but was not extensively collected.

Artifact Analysis

Ceramics

Phillips (1970:941) based his descriptions of the Hushpuckena-Oliver phase's diagnostic ceramic content on Belmont's (1961) thesis, which presents the most detailed description of the Oliver site (see Figure 1) materials. Many of the criteria that Belmont used to segregate the two phases were not used in the earlier LMS work, but to summarize the Powell Bayou collection's fit with the definition of the Hushpuckena phase ceramic complex: there is very little Bell Plain; Barton Incised is the dominant decorated type, but there is a variety of curvilinear incised types, including a fair percentage of unclassified incised sherds; and there is a rather weak but varied showing of painted types. Belmont showed contrasts in the Middle and Late Mississippi period ceramic complexes by the analysis of a large number of burials. He isolated and described an earlier Hushpuckena phase and a later Oliver phase, with a possible intervening Stokes Bayou phase. These ceramic complexes are described on the level of vessel form as well as by the standard type-variety system.

The Powell Bayou ceramics from the 1969 excavations fit well with Belmont's descriptions of Hushpuckena phase ceramics. On the analytical level of vessel shape, Hushpuckena phase jar neck-shoulde r junc tions are curved rather than angular (Figure 12); jar handles are more commonly loop than strap (Figure 13); and other vessel forms (bottles; hemispherical, plate-like, and eared bowls) are likewise less complex than later Oliver phase forms (Figure 14). Mississippi Plain var. Neeley's Ferry is the standard paste. Few sherds meet the definition of the Bell Plain varieties with regard to paste, and forms that farther north appear on Bell pastes occur here on smoothed or sometimes polished Neeley's Ferry and Yazoo pastes. These however are often tempered with lesser quantities of coarsely crushed shell or with a medium grade of crushed shell. The most common decorated types encountered in the early subset of materials from the Oliver site were Barton Incised and Parkin Punctated, both having several varieties and modes more or less widespread in the Mississippi Valley. Painted types and Leland and Wallace Incised were less common.

Figure 12. Mississippi Plain jar rim neck profiles. Vessel diameters at rim: A, 45 cm; B, 45 cm; C, 35-40 cm; E, 25 cm.
Few sites producing Early Mississippian ceramics are known in the central Yazoo Basin. The Early Mississippian ceramic complex identified in nearby Tallahatchie County at the Buford site (see Figure 1) (Marshall 1988:49) has not been identified at the Powell Bayou site, although their Middle Mississippian ceramics are similar. However, Middle Mississippian ceramics are fairly similar over several hundred miles of the Mississippi Basin. It was during the transition from the Early to Middle Mississippi period in northeastern Arkansas that the ceramic forms present at the Powell Bayou site were developed. These include the round, riveted loop handle on jars; the simple bottle, plate, and flaring rim bowl forms; and the red-on-buff and red and white painting techniques.

Somewhat later Middle Mississippian developments (Morse and Morse 1983:237-253) found in areas where the Mississippian culture spread, including strap handles, polishing, engraving and trailing, and various rim modifications—indentation, thickening, nicking, and fillets—occur at lower frequencies at the Powell Bayou site (Figure 14).

Figure 13. Lugs and handles from jars. A, B, Mississippi Plain with lugs, 25 cm diameter at rim; C, Barton Incised with punctated lug; D, Barton Incised with wide applied handle, 20-25 cm diameter at rim; E, Barton Incised with riveted loop handle; F, G, Mississippi Plain riveted loop handles; H, I, J, Mississippi Plain applied wide loop handles.

Figure 14. Bowl and plate forms. A, Mississippi Plain with interior punctations; B, Mississippi Plain with nicked rim; C, Mississippi Plain with exterior rim nicks; D, Old Town Red interior slipped; E, F, Mississippi Plain. Vessel diameters at rim: A, 30 cm; B, 35-40 cm; C, 35 cm; D, 30 cm.

Most of the Barton Incised at Oliver is like that at Powell Bayou, with the alternating line-filled triangle being the most common motif. Some examples of crosshatching and vertical and slanting parallel line
forms are also represented. The lower margin of the incising at the constriction of the neck into the vessel body is often marked with a border line or a row of nodes or fingernail punctations or by a line with nodes or punctations below it (Figure 15).

![Figure 15. Barton Incised. A-C, Bounded by punctation; D, E, Bounded by node; C, F, G, H, Bounded by lines.](image)

Parkin Punctated and an associated type, Pouncey Ridge-Pinched, occur in a wide variety of forms at Powell Bayou: random nail marking, linear punctation or nail marking, and corrugation or ridge-pinching (Figure 16). Ridge-pinching is a minor technique with considerable areal and chronological extent. Brown (1978:24, 57; cf. Phillips 1970:155) describes a Late Mississippian variety, Pouncey, from the lower St. Francis basin of Arkansas and adjacent parts of Mississippi and a variety Potosi from the Early Winterville phase of the lower Yazoo Basin. White (1987:18) describes a Wayne variety and, after Schambach, assigns it to the Late Mississippian Caney Bayou phase of southeast Arkansas, where it is associated with Plaquemine Brushed; many varieties of Parkin Punctated; Barton, Winterville, and Wallace Incised; Keno Trailed; Friendship and Maddox Engraved; and the persistent highly variable unclassified incised and punctated types.

![Figure 16. Pouncey Ridge-Pinched and Parkin Punctated. A, C, D, Pouncey Ridge-Pinched; B, Parkin Punctated; A, Pinched mode of corrugation; C, D, Tooled mode of corrugation.](image)

From these widespread middle Mississippian jar neck and body treatments Belmont thought several later developments were derived: the application of the incised design to the body rather than the neck as in the Barton Incised varieties Kent and Arcola, and the use of broad lines and curvilinear designs. The unclassifiable predecessors of these later forms are evidenced by a few sherd from the Powell Bayou collection. Some of the LMS's large residue of "Unclassified shell
tempered incised and punctated” (see Table 1) would now be classified as Winterville Incised or as one of the southern Arkansas types, and more would probably correspond with Belmont’s “proto-Wallace” (Figure 17). Belmont suggested that these sherds represent early experiments with new designs and techniques, some of which came to fruition in the so-called “Quapaw phase” ceramic tradition. These intermediate forms are weakly represented at Powell Bayou, generally appearing as decorations on the necks of large and small jars, but the actual geometric patterns are more varied and indistinct than the ubiquitous line-filled triangle and cross-hatched modes. Often the lines are less expertly executed, and curvilinear patterns that farther south are made with a broad, blunt tool are attempted with the narrower, pointed tool that cuts the burred incisions of Barton Incised, as in the swastika of Figure 17h. Belmont (1961:112) saw the variety of upper Sunflower “Wallace affines” as part of the development of the Wallace Incised type, found mostly along the Arkansas River in the Late Mississippian and Protohistoric periods. The experimental or formative prototypes are not common until the “sudden burgeoning of population on the lower Arkansas endorsed the local version.”

Since we are dealing with small sherds rather than vessels, differentiation among the painted types is difficult and somewhat pointless. Four types (Old Town Red, Carson Red on Buff, Nodena Red and White, and Avenue Polychrome) seem to be represented; but the classification of the sherds may not accurately represent the original vessels. There were only 20 painted sherds in the excavation collection, and twelve of these are exterior red filmed and must be considered as Old Town Red. They are on a Bell paste with fine shell and small amounts of fine clay or other similar aplastic particles with buff exterior surfaces and gray cores. These sherds most closely match Phillips’ (1970) description of the Beavertam variety, but Phillips gives the areal extent of this variety as the lower St. Francis basin, especially along the Mississippi, and contiguous parts of Tennessee and Mississippi. The Powell Bayou site is well south of the mouth of the St. Francis. Three additional red filmed sherds are from necks of bottles or small jars; these, however, probably should not be considered Old Town Red, as the paste is Neeley’s Ferry, albeit one tempered with finer than usual shell particles. The color is a darker crimson rather than the orangish red characteristic of later Mississippian ceramics. Four sherds are partially red slipped and partially unpainted, with buff surfaces and grey cores, making them classifiable as Carson Red on Buff. Three are on a paste tempered with fine to medium crushed shell, with a heavy polished red slip as in the Carson variety. The fourth example is thin (4 mm) and chalky, and was tempered with new leached coarse shell. Phillips (1970) gives the range of Carson Red on Buff as the Little River lowlands and the lower St. Francis basin in the Late Mississippian period, although the type site for Carson is in Coahoma County, Mississippi, and that for the Beavertam variety of Old Town Red is in Tunica County, Mississippi, arguing for extension of the type descriptions to include more time and area. Two sherds exhibit a greyish white or leaden white slip in addition to red, and so are considered Nodena Red and White. Only one sherd retains a black stain, making it classifiable as Avenue Polychrome.

Another level of ceramic analysis that may make the chronological placement and duration of the Powell Bayou site clearer is examination of vessel forms rather than surface treatments. Due to the generally small sherd size, the shape and size of few vessels are reconstructable. Their commonly identifiable characteristics are shown in the
rim sherds of Figures 12-14. As these conform rather well to Belmont’s 1961 description of the Hushpuckena Phase ceramics cited above, discussion here is limited to an additional feature of Middle and Late Mississippian occupation: jar handles. There were six complete and two partial handles and four lugs in the Powell Bayou excavation collection. Five of the handles are of the wide loop form, two of the round loop form, and one of the strap form, as these are defined by Smith (1969:5). At least three were riveted to the jar shoulder. Most were on Mississippi Plain jars, but two come from Barton Incised jars. A riveted round loop handle from a cross-hatched neck was recovered by the MAS from Feature 1 on the Stage II mound top (Figure 13e). An applied strap handle was collected by MSU from the fourth 6” level from the village midden area south of the mound (Figure 13d). Stylistically, the wide loop handle is slightly later than the round loop, as stratigraphic evidence from the Chucalissa site indicates that the wide loop handle continued in use into a later period than the round loop handle (Smith 1969). None of the later more complex forms described by Smith for Chucalissa are present, and no handles from Powell Bayou are modified or decorated. Smith offers two dates on handles that fit into the Middle Mississippian chronology of the Delta but that also demonstrate the overlap of these handle forms: a date of 1070±200 on a Barton Incised jar with wide loop handles from Chucalissa and a date of 1210±150 for a house of the Lawhorn phase of northeastern Arkansas associated with Barton jars with loop and narrow strap handles.

Furthering the development of the regional ceramic sequence and the chronology derived from it was an aim of Marshall’s MSU excavations at Powell Bayou. Although the total number of sherds recovered was small, the presence of two occupied mound summits separated by fill that apparently contains redeposited midden material somewhat simplified interpretation of the mound stratigraphy.

A Late Mississippian component is indicated for the northern portion of the mound occupied by the large square wall trench structure and the rubble-filled pits from which the corn sample was obtained. Most of the sherds are Mississippi Plain and Barton Incised, but three of the Nodena and Avenue painted types, a Pouncey Ridge-Pinched sherd, and two possible Walls Engraved sherds were collected from the surface of this area. It should also be noted that the only specimens of possible Addis Plain also came from this area. Since there was at least one additional mound stage, this establishes that the site continued to be occupied into the Late Mississippian Oliver phase.

On the southern part of the mound were two rectangular wattle and daub walled houses. The radiocarbon date of A.D. 1280±100 was obtained from one of them. The 65S60W trench was excavated in this area through previous mound stages. Apparently 10 half-foot levels were excavated, but the collections have materials from only the first four levels down to the summit of the Stage I mound’s burnished structure. The initial platform seems to have been constructed of sterile soil on a land surface clear of any earlier occupation. The sherd counts from this trench are shown in Table 2.

Some specific items warrant mention. In Level 1, four of the six Barton Incised sherds bore the typical line-filled triangle decoration, with one example each of blank triangles and cross-hatching with a punctated lower margin (Figure 15c). A Parkin Punctated sherd has random nail markings and a Pouncey Ridge-Pinched sherd has tooling to finish the pinched ridges. These two body treatments were repeated in Level 2. Level 3 had only seven Mississippi Plain sherds, including a rim from a large jar and a large wide loop handle. In Level 4, a burned structure was encountered. Possibly some of the Level 4 materials are associated with the occupation of this Stage I structure. The materials from this level are somewhat different from those found in the later levels. Barton Incised is not present, but the tooling mode of Pouncey is (Figure 16c). A single engraved sherd (Figure 17j), a bottle neck with zoned crosshatching on a compact, tan silty paste with possible hematite inclusions, was recovered from excavation of a portion of the structure. It seems likely that, excluding Level 1, the ceramics listed in Table 2 date to the initial occupation of the mound up to the time of the raising of its elevation by the addition of fill derived from midden deposits.

Lithics

A characteristic of the Delta’s alluvial environment of consequence to the area’s prehistoric inhabitants is the absence of stones or minerals of economic value, other than clay. Chert and sandstone tools as well as mineral pigments were used at the Powell Bayou site. The nearest sources of these materials are about 15 miles to the west and the gravels and sandstones which occur in creekbeds and outcrops along the loess-capped Bluff Hills 30 or more miles to the east in Tallahtachie, Carroll, or Grenada counties. The Citronelle gravel formation of the Bluff is a major source of many of the stone tools found in the Delta (Stallings 1989), though it is highly variable and perhaps not distinguishable from some of the mixed gravels carried in the present Mississippi bedload. Possibly some resources for chipped or
ground stone tools or paints were obtained from major sources still more distant.

Very few (n=10) lithic artifacts were recovered in the 1969 excavations, although there is fairly abundant lithic material on the site's surface. The 1989 limited surface collections resulted in 111 lithic artifacts. Formal tools include arrow points and pebble celt. Hammerstones, debitage, and preforms representative of their manufacturing process are also present, as are sandstone abraders, ground hematite, fire-cracked rocks, and petrified wood (Table 3).

Two distal portions of probable earlier Woodland period stemmed projectile point/knives were recovered from the surface and the moundtop trench, level 3 (1.5-2 feet below surface) (Figure 18a, b). Triangular arrow points dominate the biface assemblage. Four specimens from the 1989 surface collection can be ascribed to the Madison type (Figure 19, a, b, c, d), while an incurvate blade specimen from the 1969 mound top surface more resembles the Hamilton type (Figure 18c). Both are common and widespread Mississippian types. Madison triangular points seem to have been made both on pebble preforms (Figure 18d, e; Figure 19g) and from flakes obtained from cores (Figure 19d).

Two other probable stone arrow points come from the 1989 surface collections (Figure 19e, f). One is a spike type point, the other a fragment of a sidenotched point with shallower notches than those generally ascribed to the Scallorn point. Arrow points were also made of the tips of antler tines.

One poll or butt of a small celt came from the 1969 excavations in the south village midden area. Three other polls were recovered from the surface in 1989, along with a complete specimen (Figure 19h, i, j). A piece of petrified wood from the surface collection may be a preform for a celt, as this material is occasionally used for cels in the Delta (Brain 1989:184). Related to this artifact class is an abrader of dense ferruginous sandstone with a deep trough worn by the manufacture or sharpening of celt. The pebble celt is generally interpreted as a woodworking tool (Morse and Morse 1983:224, Fig. 12.2e-f).

Figure 18. Woodland and Mississippian point fragments.

Figure 19. Lithics from 1989 surface collection. A-D, Madison triangular arrow points; E-F, Stemmed arrow points; G, Arrow point pebble preform; H, I, J, Pebble celt.
Conclusion

A second part of this report is scheduled for a subsequent issue of Mississippi Archaeology. It will include descriptions of the daub and floral and faunal materials recovered. Charred corn cobs from the site were examined by the staff of the Missouri Botanical Garden and partially reported in 1970 (Cutler and Blake 1970). Preliminary analysis of bone from the MSU excavations indicates that deer predominates, but that a wide variety of other species such as raccoon and turtle are also included. Examination of the surface of the site revealed much fish bone as well. Finally, the Powell Bayou site will be discussed in relationship to the settlement distribution pattern of other Hushpuckena phase sites in Sunflower, Bolivar, and Coahoma counties.

Because many of the records of the MSU excavations at the Powell Bayou site are now missing, it would be helpful if anyone who worked on the site can contribute any additional information. Anyone having such information may contact the author in care of the editor of Mississippi Archaeology.

Mary Evelyn Starr is a project archaeologist employed by the Center for Archaeological Research of the College of William and Mary in Williamsburg, Virginia. An earlier draft of this paper was written while she was an undergraduate student at Mississippi State University.

References

Belmont, John S.

Blake, Leonard W.

Brain, Jeffrey P.
1969 Winterville: A Case study of prehistoric culture contact in the Lower Mississippi Valley. Ph.D. dissertation, Department of Anthropology, Yale University. [Published 1989, Late prehistoric culture contact in the Lower Mississippi Valley, Mississippi Department of Archives and History Archaeological Report 23.]

Brown, Ian W.


Connaway, John M.

Cutler, Hugh C., and Leonard W. Blake

Marshall, Richard A.
1969-1970 Correspondence with James B. Griffin and others, on file at the Cobb Institute of Archaeology.


Morse, Dan F., and Phyllis A. Morse

Morse, Phyllis A.

Phillips, Phillip

Phillips, Phillip, James A. Ford, and James B. Griffin

Price, James E., and James B. Griffin

Smith, Bruce
Replication Experiments for the Manufacture of Sixteenth-Century Spanish Bells

Robert M. Heath

Replication of so-called “Clarksdale Bells”* has revealed some useful information about the manufacturing process required to fabricate the originals.

In January of 1988 Mr. Cavett Taff, exhibit designer at the Mississippi Department of Archives and History, called me about a traveling exhibit to be developed as part of the observance for the four hundred and fiftieth anniversary of the 1540 Hernando de Soto expedition. Soto, the first European explorer of much of what is now the southeastern United States, wandered between 1539 and 1542 over this vast region in an unsuccessful attempt to find gold and silver similar to what the Spanish had encountered in Mexico and Peru when they conquered the Aztecs and Incas.

Over the years, farmers in the southeastern region had on very rare occasions plowed up relics that had been left behind. Three or four possible sixteenth-century halberds had been recovered from cotton fields in Mississippi (see Brain 1980). Several more had come to light in Alabama and Georgia. An old rusted Spanish sword had been found in a field in north Alabama, and at the Oliver site near Clarksdale, Mississippi, the late Charles W. Clark had discovered small brass bells that were definitely sixteenth-century Spanish artifacts (C. Brown 1926; I. Brown 1971; Peabody 1904; Thomas 1894). The trouble with this type of artifact, however, is that they were not discovered “in situ” or in the place where a Spaniard had dropped them. What modern

* The nomenclature of these bells, “Clarksdale Bells,” has recently been called into question by Mr. Paul Clark, son of the finder, who maintains that they were found at the Oliver site and should be given an epoynymous name. Indeed the three that have been displayed for many years at the Winterville Mounds museum and that Heath inspected did come from the Oliver site, and when Ian Brown first defined a bell classification in 1971 he classified this kind of bell as the “Oliver” variety of a “Class C” type (Brown 1971:23-24, 50). The “Clarksdale” variety nomenclature was applied by Brain in 1975 when it became apparent on the basis of additional known examples from the region (Satartia, Parkin) that the Clarksdale area might represent a sort of “center of gravity” for finds of the type (cf. I. Brown 1979). We will enclose this term in quotation marks here.—Editor.
southern farmers were finding were actually Indian-owned artifacts traded to them by the Soto expedition. The brass bells and iron halberd points had probably either been plowed up from an Indian settlement site or disturbed Indian graves.

In 1987, by an extraordinary piece of luck, the excavation of a foundation contractor working in Tallahassee, Florida, prompted an archaeological investigation. Although it was thought that a Spanish mission had been located in the vicinity, early Spanish military artifacts were recovered instead, indicating that the Soto expedition spent its first winter there in 1539. This was an important find because the artifacts were in situ. Since this location is now firmly established, much more accurate route reconstructions can be attempted.

The north Mississippi camp supposedly located near Columbus or Starkville has not yet been found. Since 1936 people in north Mississippi have searched in vain for its location. If this camp is ever found, however, its location near the northern part of Soto's route would be a great help to archaeologists and historians. If the actual route could be accurately located across the modern states of the South, the chances of locating other camps and artifacts would be increased.

This brings us back to the display project Mr. Cavett Taff had in mind when he contacted me in January of 1988. Mr. Taff said he wanted a display of artifact reproductions depicting what they would look like as found in a plowed cotton field, in the hope that members of the public might recognize them and report as yet unknown artifact finds. Mr. Taff thought that a blacksmith would be able to reproduce small brass "jingle bells" similar to the Spanish bells found in Coahoma County, and he also wanted a reproduction halberd, rusted and corroded as if it had been exposed to the elements for four hundred and fifty years. Mr. Taff realized that the display would be a shot in the dark in the search for specific types of artifacts, but its effect could also be to multiply the searching eyes of archaeologists by thousands of times if only the public knew what to look for.

Mr. Taff commissioned Mr. Grady Holley, a local professional blacksmith, and me to reproduce hawk's bells and halberds for the display. At present we are making good progress in forging and fabricating the two items he requested. The making of the bells was not an archaeological experiment in the sense that the tools and material were identical to the originals, but as our work had to be experimental to an important degree, it was thought that there would be some value and interest in recording the construction procedures in the archaeological literature.

Some of the Spanish hawk's bells known from the region were made of brass, some of copper, and some seem to be made of bronze (Brown 1971; Mitchem and McEwan 1988). These materials may seem to the layman almost the same, but to a metal craftsman each metal has different working characteristics. Copper is a pure unalloyed metal that is easily annealed or softened. Brass is an alloy of copper that is usually thought of as having a percentage of zinc. There are different types of brass, which are varied by their constituent metal mixtures or other metallic additions to the zinc-copper composition. Bronze, which is an alloy of copper and tin, also comes in many varieties depending on the alloying mixes. It should be realized here that each metal has very different working characteristics and that the true metallic content of the existing hawk's bells, which would require destructive testing, has not been determined. It is very important to learn which metal or metals were used if a valid reconstruction of fabrication techniques is to be achieved.

Copper presents a deep dark gold color when polished and is easily worked in steel or steel and lead dies. It is very soft when annealed, and a sheet of modern roofing copper has a bright gold color that can be given a beautiful polish. The color can be varied by manipulating the alloy content when the initial melted solution is made up at the furnace. Brass can be softened by annealing, but some alloys in brass can volatilize out of the solid solution if too much heat is applied. For instance, zinc will come off as a thick blue-gray smoke if too much heat is applied to a thin sheet. A thin sheet of brass also has a tendency to tear in a steel die, because it is less malleable than copper or bronze. Bronze is between pure copper and brass in hardness. It is not usually thought of as being a metal that takes a high polish, but it is easily worked in a die, anneals easily, and is stronger than pure copper.

![Figure 1. Views of the "Clarksdale Bell" type.](image_url)

Now that we have reviewed the possible sheet metals from which the bells could have been made and some of the characteristics of each metal, we need to take a look at a finished bell. There are variations
in "Clarksdale Bells" in diameter and component size such as holes, loops, and slits that will not be addressed here. The forming methods for the different bell configurations should be the same, since the differences are only slight. A review of known examples can be found in I. Brown (1979) and Mitchem and McEwan (1988). Only the three original "Clarksdale Bells" found by Charles Clark and now in Mississippi, which I have had the opportunity to inspect in detail, will be discussed in this paper (see Figure 1).

The bells are about an inch in diameter. The hemispheres are not exact sections of a perfect sphere, but are rather squashed in shape; the bells are slightly greater in diameter from side to side than from top to bottom. One characteristic of the "Clarksdale" bell type in the three original specimens from Mississippi and those studied in Florida is the attachment loop, which should be flat and about 5 mm wide or within a reasonable range of 4 mm to 6 mm or 7 mm; the loop is not made of a narrow strip of material like some bells of later manufacture (see Brown). Another characteristic is that the loops are fitted through a punched slot in the top hemisphere and soldered in place on the inside. These bent back straps on the inside of the original bells can be clearly seen by looking through the bottom hemisphere bell openings.

![Figure 2. Attachment of the loop in the "Clarksdale Bell" type. A, Application of solder; B, Orientation of loop.](image)

Other characteristics are that the hemispheres were formed with percussion striking in a die of some sort and that all of the openings—two round holes in the bottom hemisphere, one slot in the bottom hemisphere that connects the two holes, and the slit in the top of the top hemisphere to receive the loop—were made by punching from the inside surface outward. It is interesting that the loop opening in the top hemisphere is punched in a plane which is arranged at a 90° angle with the plane of the slit connecting the two holes in the bottom hemisphere (see Figure 2). Finally, one of the original Mississippi...

"Clarksdale Bells" has a small fleur-de-lys touch mark stamped into the bottom hemisphere.

The three Mississippi bells probably initially had iron ringers inside, but when recovered it was found that in two cases small rounded pebbles, possibly placed inside by their last Indian owner, were used for ringers. The third Mississippi bell was damaged by an opening in the bottom hemisphere which allowed the ringer to fall out. A "Clarksdale" type bell now in the Mississippi State Historical Museum (registration number 90.2.1) was allegedly recovered from the Tupelo, Mississippi area and found to be nearly perfectly preserved; it still has a round iron ringer which produces a tone that should be very close to the original sound of the bell. A spectrographic analysis of the rock material in the pebbles might prove their geological origin. Such an analysis of the metal in the bells might detect enough trace minerals in the copper or copper alloy to provide a geological point of origin of the metallic ore from which the metal was derived.

![Figure 3. Crimping method used for attaching the two hemispheres.](image)

The attachment along the lip of the two hemispheres seems to be solder: a close inspection of the original bells with a magnifying glass shows a very narrow seam of light metal between the inner faces. "Clarksdale Bells" have also been reported that were crimped together instead of soldered, and this method was tried with success on one bell during fabrication. The attachment of the two hemispheres was accomplished by making the lip on the top hemisphere wider than the one on the bottom and then bending it with pliers in the sequence given in sectional view in Figure 3. The crimping attachment method, however, required too much labor in bending the lip over with the tools that were used (pliers). A steel die could have been made that would allow this procedure to be done with a couple of quick blows with a hammer. This point should be investigated further, because the hemisphere attachment is the critical factor in speed of production. In this
experiment to replicate the Mississippi bells, the two hemispheres were soldered together, and this turned out to be the most time-consuming part of the bell fabrication.

The material used in bell fabrication for the study was common roofing copper used in house and building construction. It is about the thickness of seven sheets of regular typing paper. One bell was attempted using brass shim stock, but the material cracked in the hemisphere die when it was pressed into shape. A craftsman more familiar with brass and its properties would probably have an easier time in fabrication with the zinc-based brass alloy.

![Figure 4. First attempt at replication of "Clarksdale Bell." A, Leather punch used as die for forming bell hemispheres; B, Results of first attempt.](image)

When Taff suggested a reproduction bell there was no information on how to go about it. A large, inch and a half diameter leather punch was used on the first attempt to form a hemisphere. A small 3" square of copper sheet was placed over the cavity in the punch and struck with a rounded end of a large ball peen hammer (Figure 4). Three rather lozenge-shaped bells were produced in this manner. The flanges on the hemisphere were bent out with a pair of pliers once the shapes were made.

This initial experiment confirmed that the top slit, two bottom holes, and bottom slit could easily be punched out with appropriately shaped punches (Figure 5). The lozenge-shaped hemispheres were placed on a block of oak wood 8" x 6" x 1" and punched through from the inside surface outward. The punch left the resulting holes in a distinctive shape in the copper. The edges were flared slightly outward in the direction the punch penetrated the copper sheeting. In the case of the upper slot where the loop is inserted, the punch would come through leaving a small attached slug of metal still clinging to one or the other side of the slot. This flap, the width of the punch, was removed with scissors by clipping it off at the base when it remained attached. Sometimes the punch would make a clean hole as it came through by completely detaching the thin slug of metal.

![Figure 5. Punching slits in the bell hemisphere. A, Positioning of the punch; B, Outward flare of punched slit edges; C, Slug attached to edge of punched slit.](image)

![Figure 6. Punching the round holes in the bottom hemisphere. A, Positioning of the punch; B, Outward flare of hole edges; C, View of punched holes from the bottom.](image)
The three eighths inch diameter holes in the bottom hemisphere were punched outward from the inside surface in like manner (Figure 6). This usually resulted in a clean round hole with a round slug completely punched out with none remaining. The edges of the holes were slightly curved outward in the direction of the tool movement, as was the case with the small rectangular slot on top for loop insertion.

The slot connecting the two holes was punched last. There was difficulty in getting the half inch long rectangular slug to detach from the connecting slot. Most of the time the strike was made with the punch on the wooden block to force the edges of the slot outward as on the original bells. Then the slug was snipped on both sides with a small pair of scissors. It was difficult to place the punch symmetrically between the two holes, and many times the slot would be off-center slightly. This was also true of the slot on the upper hemisphere. The exact top of the top hemisphere could not be easily located with the punch. This resulted in the loops’ being placed slightly off-center in almost every case.

These were the basic techniques worked out on the first attempt using the leather-cutting punch as a cupping die with a ball peen hammer. It worked, but the shape of the hemispheres was not satisfactory. Some way was needed to form hemisphere shapes that were slightly squashed to resemble the original bells, but not so flattened as those produced with the punch.

A steel die with two cavities was forged in a blacksmith shop (see Figure 7 for the steps that follow). A block of mild steel 2" x 1" x 5" was heated red hot in the forge and placed flat on the anvil. A rounded punch, previously prepared, was driven into the surface to form two cavities. This required a dozen or more heats to the die steel. A six pound sledge hammer was used to drive the initial blows, with follow-up blows on the punch with a forty ounce cross peen hammer. This caused the metal around the holes to bulge out slightly.

The top surface was ground flat and the piece was reheated. Then it was placed flat on the anvil and trued up or flattened out again using a blacksmith’s flattener. The die was now ready for grinding the two cavities to final shape. A drill press with a spherical grinding ball was used to do the grinding. Machine oil was squirited into the two cavities before grinding to keep the abrasive in the hole during the process.

The first strike hole in the die was intended to have rounded sides as shown in Figure 7E. This was intended to give the introductory shape to the sheet metal in a two-step striking process. The rounded edges of the cavity were needed to keep the steel die from digging into the outside edges of the bell hemispheres. If mechanical locking at the cavity edge occurred, it could cause the hemispheres to split as the metal was strained into the die with an upper die which will be described later. Splitting occurred on almost all attempts, even with the sides of the bottom die greatly rounded as shown in the figure.

![Figure 7](image7.png)

*Figure 7. Preparation of a die for the making of bell hemispheres. A, Use of a punch to form domed cavities; B, Bulge around edges of cavities caused by displacement of metal; C, Top view of die; D, Truing of surface of die; E, Curved edges of initial strike hole.*

![Figure 8](image8.png)

*Figure 8. Initial peening of metal in a two-step hemisphere die.*
Preliminary rounding with a ball peen hammer over the open cavity had to be performed before the copper would take the first die strike (Figure 8). The second strike hole in the die was left with straight sides.

![Diagram](image)

*Figure 9. Preparation of the top dies. A, Positioning of the first top die for casting; B, Top die number one; C, Top die number two.*

Two top dies were made from hollow steel machine bushings that had a three quarter inch flange on one end (Figure 9). This was placed over the initial cavity and then filled with lead, which flowed to fit the cavity below. A second top die was similarly made for the final die strike using a machine bushing and the second strike hole.

On the two-strike die set, the copper sheet would tear on almost every attempt unless an initial peening was performed to reduce the friction angle between the surfaces before a first strike was made. First a 3” square of copper metal was cut out of the sheet. It was not annealed, because annealing seemed at first to weaken the copper and cause more splitting until the proper way of using die sets was found (Figure 10).

The results from this system of making hemispheres were not very satisfactory. It was frustrating to see a hemisphere split on the final die strike after all the initial peening and first die strike had been done.

![Diagram](image)

*Figure 10. Hemisphere manufacture using two-strike die set. A, Initial peening; B, First strike: top and bottom dies number one; C, Second strike: top and bottom dies number two.*
heavily oiled. Surprisingly, the lead in the top dies held up perfectly even under mighty blows. No allowance was made in casting the lead dies for the space between die and strike hole that was to be occupied by the copper sheeting as it was forced into the cavity. Instead, the volume of the lead itself was actually cold forged back into the bushing hole through which it had been poured as the lead die surface conformed to the steel and copper when pressure was applied during a heavy die strike.

It was obvious that another die added to the beginning of the process was necessary to get a smooth and efficient operation when forming a hemisphere. Several large diameter dies were tried without success. The most satisfactory solution for the additional die came from an oil well sucker pump valve. This consisted of a large steel ball bearing of about one and a half inches in diameter and a washer whose inside diameter was slightly smaller. The arrangement was placed upside down and the base of the washer was filled with molten lead, creating a shallow depression. This die allowed three strikes to be made in very rapid succession to produce hemispheres with no flaws (Figure 11). It was also learned that the copper performed much better (no splitting) if the metal was annealed first to soften it. Oiling was no longer required either with this setup. The size of the square copper blanks was reduced from three inches square to two inches because control over the process was much better with the additional die used to make the first strike.

The new and final sequence of striking hemispheres was to start by cutting out several dozen two inch squares of copper sheeting. These were then heated to red heat with a small propane torch to anneal the copper. The squares were dropped into a pail of water to cool them; a red quench on copper will not reharden the metal the way it will steel. One annealed square of sheet copper was placed over the first die, made of the oil well valve. The first strike served to create the necessary initial rounding of the copper. The piece was then placed in the forged steel die and struck a second time using the first top die in the rounded strike hole. Finally, the piece was transferred to the straightedged strike hole and struck a third time using the second top die. All of the strikes can be made in rapid succession without fear of splitting the copper metal. The secret seems to be the first die that contours the copper metal so that it will subsequently take the second and third strikes easily.

Basically that is the process of making hemispheres. We attempted making top dies of steel, but they proved to be unsatisfactory because the steel in the top die would not cold forge in use when the copper was forced into the cavity. Since both top and bottom steel dies retained their initial shapes, to cast a steel die it would be necessary to allow for the precise desired volume of copper between the two dies. If this space was not sufficient, the copper sheeting would bind on the sides of the cavity and tear as the top die was hammered down. A steel die

Figure 11. Hemisphere manufacture using a three-strike die set.
could probably easily be made by filing the top die enough to allow for the copper volume between the steel surfaces, but in this experiment it was not necessary to make the top die out of steel because the lead held up very well even after over two hundred hemispheres were made. All that was necessary was to strike the top die to set it, give it a quarter turn as it set in the die, and strike again. The rotation of the top die kept the surface of the lead symmetrical and even, because it would always conform to the shape of the underlying steel die on the bottom.

When the hemispheres were formed in the small square sheets of copper the edges were rough trimmed with tin shears. The edges were then filed smoothly round as a final touch after the bell was soldered together.

The most difficult procedure in the bell making operation was soldering the two hemispheres together. The hole punching process was time-consuming, but not a difficult operation. Surprisingly, the most frustrating aspect of punching the holes was to get the small slot punch accurately located in the middle of the top hemisphere before the hole was made.

The loop was made by cutting an inch long strip of metal and bending the ends together. Very little preparation for soldering the loop in place was necessary. At first the sides of the loop to be soldered on the inside of the top hemisphere were filed to give a clean bright finish that would allow the solder to adhere readily to the copper. Then the inside of the hemisphere was also cleaned with sandpaper. The loop was pushed through the slot in the top hemisphere and held from the outside with a pair of pliers, gripping from the sides so as not to mash the loop (Figure 12). The ends sticking through were pried back with the end of a screwdriver and the cleaned surfaces were “tinned”: first about a drop of liquid flux was applied to the shiny surfaces of the copper at the joint between the hemisphere and the loop ends on both sides, then the acid core or resin core solder touched to the heated copper. This must be done with the hemisphere inverted and the loop down so the loop ends block the attachment hole and flux and solder do not run out. Once the joint was made the loop was quenched in a bucket of water to complete the attachment. After several bells were fabricated, the filing and cleaning of the loop surfaces was dispensed with. A good joint to the hemisphere could be made with just a drop of flux alone without any abrasives used.

The flanges on the hemispheres were soldered together last. Both flanges were filed flat by taking the hemispheres with the forefinger and thumb and scraping the flat of the flange along a file. This reduced slightly the thickness of the flanges to be joined, but it did not damage the hemispheres, and it left the surfaces to be soldered bright and clean. A few drops of solder were applied on a piece of flat metal such as an anvil top or metal plate and the flange surfaces slid through the film of liquid flux to coat the surfaces with flux. The hemispheres were then taken one by one with a pair of pliers and the flange joint tinned with solder. The joint should be kept horizontal to allow the solder to run around the prepared surfaces as the hemisphere is passed in and out of the flame. When the joint was tinned, it was quenched and set aside. The process was repeated for the second hemisphere. A pebble was placed in the bottom hemisphere and the two hemispheres aligned as shown in Figure 2. Two sets of pliers were used to hold the flanges together on either side of the bell, being careful not to apply a heavy pressure when holding the flanges. The bell was moved into the flame; and as the solder melted in the joint the two flanges slowly came together. When they made contact the bell was removed from the flame and quenched in water. All that remained was to file the edges of the flange smooth to obtain a finished appearance.

If the soldering has been correctly done, a high pitched ring will result when the bell is held by the loop and rung. If the soldering job was done poorly, a dull thud will result. If that happens the soldering must be repeated. It is also necessary to take care not to overheat the flux or resin in the solder core. If the flux flashes or flames it will leave a residue of soot that will not allow a good joint to be made. If that happens it is best to separate the two hemispheres, refile them or sand the soot residue away, and resolder the joint so that solder is added once the initial tinning of the joint is accomplished. The tinning process provides enough solder to make the joint complete and strong.

Figure 12. Attachment of the loop. A, Bending the ends of the loop into place inside the hemisphere; B, Position of the attached loop.
The production time from start to finish is four bells per hour. That rate reflects starting with a large sheet of roofing copper. Approximately one hundred bells were produced in this manner and sold at various shops in Jackson, Mississippi. One was delivered to Mr. Turner Kirkland, the owner of Dixie Gun Works in Union City, Tennessee, a nationally-known black powder gun supplier. With permission, he sent the bell to an agent in India to see if the bells could be produced at a low enough price to develop a large market here in the United States as a re-enactment item, and he was surprised when the agent in India wrote back and asked if the bells might be fabricated out of brass instead of copper. That response, suggesting that efficient fabrication using brass is feasible, indicates that there is much more to be learned about bell production than is presented here. It may well be that the ideal material to use is brass after all. The main problem that we seem to have solved here is the segmentation of the manufacturing process, for three dies were needed to accomplish the hemisphere formations efficiently. It may be that this can be accomplished with only one or two dies using brass, but our limited experimentation with brass suggests otherwise.

Robert M. Heath is Chief of Engineering with the Mississippi State Highway Department Right of Way Division and is a practicing blacksmith.

References

Brain, Jeffrey P.

Brown, Calvin
1926 Archeology of Mississippi. Mississippi Geological Survey, University, Mississippi.

Brown, Ian W.
1971 Trade Bells of Mid-America. Paper prepared for Anthropology 126 class, Harvard University.

Mitchem, Jeffery P., and Bonnie G. McEwan

Peabody, Charles
1904 Exploration of mounds from Coahoma County, Mississippi. Peabody Museum of Archaeology and Ethnology Papers 3(2).

Thomas, Cyrus
Site Preservation in Mississippi: Report of the MAA Committee

Frederick L. Briuer and Samuel O. Brookes

The MAA Site-Preservation Committee has made a set of recommendations that could potentially reduce the alarming rate and magnitude of site destruction occurring in Mississippi. After formal evaluation, the top four recommendations were discussed at the 1991 MAA business meeting. Resolutions were passed by the membership in support of all four recommendations. At least one information brochure is being prepared and a resolution was passed against members buying and selling artifacts. Support for a site stewardship program and increased networking efforts on the part of MAA are discussed in terms of the potential benefits as well as some of the obvious problems of implementing these recommendations. The Site-Preservation Committee strongly urges all MAA members to support and assist in implementing these efforts.

How The Site-Preservation Committee Came to Be

In the January Mississippi Archaeological Association Newsletter (1989), then President Carey Geiger wrote an earnest and straightforward editorial on site destruction. He listed four strategems to deal with the situation, the last being to activate the MAA Committee on Preservation of Sites. He also listed several sites that were in the process of being destroyed. The sense of urgency in his message was unmistakable.

At the March 1989 meeting of the MAA in Vicksburg Sam Brookes was elected president, and it fell upon him to organize the committee. After consulting the MAA constitution (MAA Newsletter 23:2[1988]), Brookes discovered that the committee, as defined by the constitution, did not seem to be the vehicle requested by Geiger. A decision was made by Brookes to pull together a group of professionals to serve as the core of the committee. Professionals were picked because of their in-depth knowledge of laws regarding cultural resource management and because it was hoped that their various institutions could help underwrite some of the expense involved in establishing a working committee.

Response from the professional community was all positive, and Fred Briuer accepted the position of chairperson. It was hoped that positive results would be obtained from initial meetings and that the committee would expand to include the nonprofessionals in the state, as well as many others with similar interests.

And so it seems to have worked. The list at the end of this article contains the names of five avocational archaeologists who are on the committee. There is much work to be done. We will have to rewrite a section of the constitution concerning the site-preservation committee and volunteers will be needed, but a start has been made. The urgency and frustration of Carey Geiger are still with us as we add the Oliver site to the list of sites we have lost. One of the first objectives of the Site-Preservation Committee, which consists of the MAA president, MAA elected officers, professional archaeologists, and one attorney, was to hold a meeting to prepare a mission statement. The result of this group effort, which took place on August 15, 1990, is the following statement of purpose:

The primary goal of the Mississippi Archaeological Association Site-Preservation Committee is to enhance and promote the stewardship of the cultural resources of Mississippi by supporting the efforts of the Mississippi Department of Archives and History and educating the MAA membership and general public on the importance of archaeological site preservation. To this end our committee will strive to advise and cooperate with landowners, government agencies, public officials, private organizations and private citizens to find responsible alternatives to the alarming destruction of the nonrenewable archaeological and historical resources of Mississippi.

Preparing a List of Potential Objectives

Through a series of letters, telephone discussions, and one other face to face meeting held in Jackson on January 25, 1991, an unconstrained list of site protection concepts was put together in think-tank fashion, with no concerted attempt to pass judgment on any of these ideas at that time. The committee simply listed ideas thought worthy of MAA consideration. None of these recommendations is really anything new; all have been attempted elsewhere at one time or another. After listing the ideas, they were then classified or grouped into related concepts. Thus the committee recommended fifteen concepts, presented below in no particular order along with a brief discussion of each.
1. **Portable Traveling Display.** It was thought that a highly portable and attractive archaeological exhibit would be an effective way to reach more of the general public and promote Mississippi archaeology and archaeological conservation themes. Such an exhibit could be loaned to responsible individuals or speakers for various public functions throughout the state.

2. **MAA Brochure.** A simple and inexpensive three part folding brochure would promote both MAA membership recruitment and site preservation. The MAA once had a brochure and had previously passed a resolution to undertake just such a project.

3. **Teacher Training Workshops.** This rather ambitious concept would bring teachers and archaeologists together in order to include archaeology as well as conservation of the archaeological record more effectively into educational curricula. The idea was inspired by similar programs in other states. A few states have adopted highly successful programs of mutual benefit to both teachers and students. Teachers with continuing education requirements for their professional advancement as well as students eager to learn more about archaeology in the classroom and in field situations would all benefit by more effectively incorporating archaeology into the state’s educational system.

4. **Mississippi Archaeological Registry.** It was suggested that the MAA should support a proposal for Mississippi that follows the example of Kentucky and other states by setting up a program encouraging landowners to register and protect archaeological sites on private property. The basic idea is to encourage and give recognition to private property owners willing to list worthy sites on a state registry. This is a low-cost but realistic mechanism to assure long term site protection for selected archaeological sites.

5. **Mississippi Archaeology Week.** It was suggested that the MAA should support the concept of Mississippi Archaeology Week as is done in many other states including Alaska, Arizona, Nebraska, Idaho, Colorado, Arkansas, Texas, and Louisiana, to name only a few states that have established such public educational efforts.

6. **Mississippi Site Stewardship.** The MAA, although small and limited in resources, could still greatly assist in setting up a volunteer citizen organization to monitor designated public cultural resources for damages resulting from vandals, nature, and other causes, operat-
public presentations expressed a willingness to participate if such a concept could be implemented.

13. Resolution Against Buying and Selling Artifacts. Considerable discussion was generated about archaeological looting activities (pot hunting) and how the buying and selling activities of MAA members actually contributes to this problem. It was suggested that the MAA should take a position on this issue and adopt a buying and selling policy similar to that of the Arkansas Archaeological Society.

14. Political Action Committee. The question was raised by the committee whether or not the MAA should be more involved in political activities such as lobbying and other political efforts such as those generated by the Society for American Archaeology Committee on Political Awareness (COPA). Would a statewide citizens' group advocating responsible site preservation have any value, credibility, or potential influence with local governments, state legislators, and U.S. congressmen?

15. MAA Alliance Building. The MAA, as the only statewide organization dedicated to Mississippi archaeology and organized for more than 25 years, should contact and work with other groups that have similar goals. It would be mutually beneficial for the MAA to work with and support other historic preservation organizations. Although small, the MAA is still organized statewide and should take the opportunity to seek beneficial alliances.

Method for Evaluating the Fifteen Suggestions

Those in attendance at the January meeting in Jackson were asked to rank each of the above concepts on a scale of 0 (low) to 3 (high). Committee members unable to attend this meeting were given the same opportunity to assign their preferences and rank the suggestions by mail, using the same scale of measurement. Twelve of twelve committee members responded. The results of that ranking are summarized below.

The fifteen suggestions are dichotomized in Table 1 into a group with high values and one with low values with a line separating the two. The fifteen suggestions are also divided into four groups or priorities depending on the values assigned by the twelve-person committee.

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Mean</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>2.40</td>
<td>1. Network and Alliance Building</td>
</tr>
<tr>
<td>28</td>
<td>2.33</td>
<td>2. Landowner/Stewardship Programs</td>
</tr>
<tr>
<td>27</td>
<td>2.25</td>
<td>3. MAA Resolution against selling and buying artifacts</td>
</tr>
<tr>
<td>26</td>
<td>2.16</td>
<td>4. MAA Brochure</td>
</tr>
<tr>
<td>26</td>
<td>2.16</td>
<td>5. MAA Speakers' Bureau</td>
</tr>
<tr>
<td>26</td>
<td>2.16</td>
<td>6. MAA Commendation Certificates</td>
</tr>
<tr>
<td>26</td>
<td>2.16</td>
<td>7. Membership Drive</td>
</tr>
<tr>
<td>25</td>
<td>2.08</td>
<td>8. Information Dissemination, Media, Schools, etc.</td>
</tr>
<tr>
<td>25</td>
<td>2.08</td>
<td>9. Media Lending Library</td>
</tr>
<tr>
<td>22</td>
<td>1.83</td>
<td>10. Clearinghouse Function</td>
</tr>
<tr>
<td>20</td>
<td>1.66</td>
<td>11. Teacher Training Workshops</td>
</tr>
<tr>
<td>20</td>
<td>1.66</td>
<td>12. Political Action Committee</td>
</tr>
<tr>
<td>18</td>
<td>1.50</td>
<td>13. Mississippi Archaeology Week</td>
</tr>
<tr>
<td>17</td>
<td>1.50</td>
<td>14. Mississippi Archaeological Registry</td>
</tr>
<tr>
<td>14</td>
<td>1.00</td>
<td>15. Portable Traveling Display</td>
</tr>
</tbody>
</table>

Table 1. Ranked List of Potential MAA Objectives.

Resolutions of the 1991 MAA General Membership Meeting

During a presentation at the business meeting of the 1991 annual meeting in Greenwood on March 16, committee chairman Fred Brier reported on the 1990/91 activities of the MAA Site-Preservation Committee. The top four suggestions ranked by the Committee were discussed along with an explanation of the method used by the Committee for evaluating these potential objectives for the MAA. Discussion was solicited from the floor before a motion was made and a resolution passed that the MAA will support the top two suggestions, i.e. 1) networking and alliance building with other organizations with goals similar to MAA and 2) a Site Stewardship Program for the state. A second motion was made and a resolution passed from the floor that "MAA members shall not sell, buy, or barter artifacts derived from archaeological sites for personal financial gain." Since a resolution from an earlier annual meeting already called for producing an MAA brochure, it was not felt necessary to reiterate this commitment with yet another resolution. Thus the top four suggestions of the Site-
Preservation Committee have been formally supported by MAA resolutions.

Where Does The MAA Go From Here?

The evaluation of potential site-preservation objectives and the particular resolutions passed at the 1991 annual meeting are not a final statement about the desirability or worthiness of any of the suggestions proposed. Supporting the top four suggestions is more of a practical consideration than anything else, in view of the limited resources as well as the function of a private organization like the MAA. The best way to consume an elephant is one modest bite at a time. It is probably impractical for the MAA to consider taking on more commitments this particular time; better to do a few things well than to take on too many. Many of the ideas suggested need not necessarily wither on the vine and should be supported at the opportune time and as appropriate resources become available.

It was the general sense of the Site-Preservation Committee that some of the suggestions, including the concept of Mississippi Archaeology Week, an archaeological registry, and teacher training workshops, are simply beyond the resources as well as the mission of the MAA. Making any of these things happen will require the full support, commitment, and formal backing of the Mississippi Department of Archives and History as well as others. Nevertheless, MAA support for such concepts is an important step in the overall process of bringing the issues to the attention of all the appropriate persons and organizations whose prerogative it will be to make such things happen. Initiating any of these suggestions will only be possible when all the necessary parties perceive not only the feasibility of the idea but also the particular benefits to be gained. The future efforts of an expanded MAA Site-Preservation Committee can be a contributing element in making even the most ambitious proposals a reality.

We propose that the Site-Preservation Committee be expanded to include volunteer MAA members willing to serve with two new working groups. It is recommended that one group focus on identifying and becoming more aware of networking opportunities with other organizations, such as the National Heritage Trust, the Archaeological Conservancy, and the nascent Mississippi Heritage Trust, as well as a variety of others, such as state and local historical societies, the Sierra Club, Ducks Unlimited, and the Mississippi Wildlife Federation, to name a few. The more MAA members who become involved with allied organizations, the easier it will be to find common goals and constituents.

The MAA Site-Preservation Committee should also strive to include among its members at least one representative from each of the major historic preservation organizations who can serve as a link between organizations. MAA members who are also members of allied organizations, especially when they are active in these organizations, will be in an excellent position to promote mutually beneficial goals and activities. In addition to becoming more active in site preservation activities, all MAA members should be encouraged to support worthy historic preservation organizations such as the Archaeological Conservancy and the Mississippi Heritage Trust. Unlike the MAA with its limited financial resources, other organizations, through the use of revolving funds and patrons, etc., will have resources to assure the preservation of individual sites that might otherwise have no chance of being protected.

We recommend that the MAA Site-Preservation Committee expand to include a second working group to explore the volunteer stewardship concept. A small core of individuals is needed immediately to work with the MAA Site-Preservation Committee to evaluate volunteer stewardship programs developed in other states. The research and planning effort needed for the concept is far more than can reasonably be expected of any one person. Information on site stewardship programs in other states is readily available. For example, see the Arizona Site Steward Program Handbook (Arizona SHPO 1990), the Texas Archaeological Stewardship Network Handbook (Office of the Texas State Archaeologist 1990) and the South Dakota Site Steward Program Handbook (South Dakota SHPO 1990).

The programs of Arizona, Texas, and other states need to be reviewed to see what elements might be considered appropriate for Mississippi. Examples of elements common to volunteer site stewardship programs elsewhere include a formal statement of purpose, a code of ethics, certification criteria for potential stewards, duties and responsibilities, documentation procedures for volunteer efforts, as well as training and communication considerations. Since each state has unique problems as well as resources, it would be ill-advised to simply recommend a particularly successful program as a model for all states. For example, what works well in Arkansas with a state supported Archaeological Survey and the resources associated with that infrastructure may be inappropriate for Mississippi with its unique set of problems and minimal resources. The same must be said for Arizona, where a large network of Federal and State agencies cooperate in their volunteer stewardship program involving huge Federal landholdings. The Arizona situation is the very antithesis of the situation here in Mississippi, where Federal land is minimal and
the prospect of cooperating Federal agencies will most assuredly be minimal also. If site stewardship is to work in Mississippi, the plan will probably have to be more like the Texas model with its heavy emphasis on volunteer resources.

Assuming that a small core of individuals, MAA members as well as other potential volunteers, can help make a volunteer stewardship program possible, there are a number of critical issues concerning site stewardship that need to be well thought out before presenting a plan or proposal to the Department of Archives and History for their support. What kind of organizational structure should be recommended? How would volunteer site stewards relate to and coordinate with the state archaeologist, the State Historic Preservation Officer, the Mississippi Department of Archives and History, and the archaeological profession? What sort of accountability mechanisms should be recommended? What communication tools will be required to make a volunteer organization effective? Where would the leadership for such a network come from? Last but not least, what is there in this for the volunteers; those who would be unselfishly donating their time and services in the interest of preserving the heritage of Mississippi?

Encouragingly, a few individuals have already expressed to the authors a genuine interest in helping make a volunteer site stewardship network possible for Mississippi. At least one potential site steward has expressed a valid concern about the need to balance responsibility realistically with appropriate forms of recognition for volunteer efforts that can be effective in preserving archaeological resources. If after reviewing and evaluating current information on state stewardship programs, a working group can come up with a well thought out plan appropriate for Mississippi, and if a number of volunteer stewards are forthcoming from the ranks of the MAA who would be willing to serve in their regions, there is every reason to think that volunteer site stewardship will be just as successful in Mississippi as it has proven elsewhere.

Persons interested in joining these two working groups as part of the expanded MAA Site-Preservation Committee are urged to contact one of the committee members listed below to find out how they can assist.

Dr. Frederick L. Briuer (committee chairman)
US Army Engineers Waterways Experiment Station
CEWES-ER-R
3909 Halls Ferry Road
Vicksburg, MS 39080-6199

Mr. Sam Brookes
U.S. Forest Service
100 West Capitol Street, Suite 1141
Jackson, MS 32926

Mr. Sam McGahey
Mississippi Department of Archives and History
P.O. Box 571
Jackson, MS 32920

Dr. Ed Jackson
University of Southern Mississippi
P.O. Box 5074 Southern Station
Hattiesburg, MS 39401

Dr. Janet Rafferty
Mississippi State University
P.O. Drawer AR
Mississippi State University, MS 39762

Dr. Susan Scott
Scott & Associates
1904 Evergreen Lane
Hattiesburg, MS 39401

Dr. Robert Thorne
University of Mississippi
Center For Archaeological Research
University, MS 38677

Mr. Rufus Ward
Pippen & Ward
212 Court Street
West Point, MS 38773

Mrs. Jean Hartfield
Route 4, Box 332
Carriere, MS 39426

Ms. Lucy Turner
311 Maple Street
Marks, MS 38646
Mr. Cary Geiger  
7228 Martin Bluff Road  
Gauthier, MS 39553

Mr. Grady White, Jr.  
Route 2, Box 176A  
Clarksdale, MS 38614

Frederick L. Briuer is a research archaeologist with the U.S. Army Engineers, Waterways Experiment Station, Vicksburg, Mississippi. Samuel O. Brookes is an archaeologist with the U.S. Forest Service, Jackson, Mississippi.

References

Arizona State Historic Preservation Office  

Mississippi Archaeological Association Newsletter  

Office of the Texas State Archaeologist  

South Dakota State Historic Preservation Office and U.S. Army Corps of Engineers  

Book Reviews


Malcolm C. Webb

In Hispaniola: Caribbean Chiefdoms in the Age of Columbus Samuel Wilson presents an interesting, well-written, and potentially quite useful book, but one which (rather oddly) does not really match its title—or, indeed, the author’s frequently stated goal. The author’s purpose is to achieve, through a narrative of the actual events of the conquest, a cultural reconstruction of the contact period Taino people of that island, which was the first land mass of significant size to be subjugated by the Spanish. In fact, however, the rather piecemeal interpretations of Taino culture developed by the author’s analyses of the Spanish accounts of their dealings with the aboriginal population add little that is new to Rouse’s landmark treatment in the Handbook of South American Indians, supplemented by more recent studies by such scholars as Sturtevant. The most notable exception to this generalization is the comparative perspective which the author brings to the conquest situation from an evidently wide-ranging and thoughtful reading of the historical and ethnographic literature relating to chiefdom level societies both in the New World and elsewhere (following the now standard and undoubtedly useful, though somewhat superficial, four stage classification of evolving cultural complexity best known from the writings of Elman Service). Perhaps the situation cannot be otherwise. It would appear that new primary data on the Taino per se simply are not there and are unlikely to emerge, unless, of course, additional manuscripts now lying unknown in archives in Spain or Latin America should turn up.

If the book does not add very much new material specific to the Taino, why do I recommend it? I feel that it has two very real virtues. The first, as indicated, is that it presents a very good picture of how chiefdoms actually operate in the sphere of the political economy—a picture brought into especially sharp focus because it was drawn from a situation of great (indeed, terminal) stress due to the conquest. This may be helpful to readers who have not previously read much on
chiefdoms or whose study has been confined essentially to one region, such as Polynesia or the southeastern United States. The second, very great, merit actually relates more to European than to the aboriginal culture. That is, the book very forcefully makes the point that the European initiation of voyages to the West Indies—and what they did when they got there—reflects long-term and almost inevitable trends in Western civilization. This point can perhaps most easily be illustrated by a brief overview of the book’s five chapters.

The volume begins, naturally enough, with an introduction containing the usual materials: a review of previous historical and anthropological research, an evaluation of sources and translations, comparative material relative to chiefdoms, an ethnological reconstruction of Taino culture and a review of the island’s prehistory. If this section has a certain conglomeration or hodgepodge quality, smelling a bit of an underlying dissertation, this is perhaps forgivable in a chapter which necessarily must deal with a lot of material briefly. The only aspect which really fails is the coverage of the regional archaeology. There the requirement of brevity reduces the discussion almost to a roll call of ceramic styles, which left even a reader who once (in the long, long ago) read fairly extensively in Caribbean archaeology less than enlightened; what a reader without this background would make of this section I simply cannot imagine. Additionally, no map was provided—in contrast to the rest of the volume, where maps are quite adequate. It would have been preferable either to have greatly expanded this treatment or—probably better—to have reduced it to one or two paragraphs and tucked it into the ethnological reconstruction. In light of the comments above, it is also of interest that only in the introduction, prior to the main narrative, does one receive a systematic treatment of the aboriginal culture.

The remaining four chapters carry Columbus and his associates from the motivation, financing, and organization of the 1492 voyage; across the Atlantic and through the Bahamas (a somewhat stumbling journey) to the first precarious settlements on northern Hispaniola; thence on to their rather desperate attempts to penetrate the fertile interior in search not only of gold but also, more critically, of a stable population of agricultural tributaries from whom they could extract support in subsistence goods; and, finally, during the opening years of the sixteenth century, to their ultimate destruction of the last remaining independent chiefdom. As noted, each step of the process appears to have been driven by an inexorable logic of events. By the mid fifteenth century, maritime technology, experience in long sea voyages (including some tentative forays out into the Atlantic), geographical knowledge (or perhaps happily defective knowledge, as in regard to estimates of the earth’s circumference), political and financial organization, and urgent commercial demand were all such as to actually compel Western Europeans outward. At the time of the great voyage, Columbus and his associates had been negotiating not only with the Spanish and Portuguese, but also with French and English interests, and the only real final hitch in the project seems to have been Columbus’s tendency to make his participation a bit pricey (an object lesson for contemporary grant and contract applicants). That the Caribbean settlement “took,” in contrast to the brief Newfoundland landfalls of several centuries earlier, appears to have been an inevitable consequence of the growth of European technological capacity, population, and wealth in the intervening 500 years. Once the Europeans were ashore, the utter destruction of the locals was assured both by the well-known introduction of epidemic diseases into previously isolated populations and also by a failure to solve problems of resupply from home base, which in turn motivated the intruders—a rapacious lot at best—to extraordinary exactions of food supplies from a rapidly shrinking population whose manioc-based subsistence base was such as to assure that such extortion was immediately followed by agricultural collapse and starvation.

By a curious coincidence, as I sat revising this review, I looked up to see on the evening news an account of the destruction which is now befalling the Yanomamo of the upper Amazon basin, consequent to the recent penetration of their homeland by gold prospectors. “The more things change, the more they remain the same.” Had Wilson consulted me, I would have suggested that a more apt title for his book might have been, Hispaniola: Caribbean Nemesis in the Age of Columbus. In short, we have here a fascinating and enlightening, but quite depressing, account of the inevitability of the demographic and cultural catastrophes which have marked the contact of the Old World with the New from the very beginning.

Malcolm C. Webb is a Professor of Anthropology at the University of New Orleans.

Maria O. Smith

This edited volume is a published symposium organized by Powell, Bridges, and Mires for the 42nd Southeastern Archaeological Conference (1985). It includes the nine papers presented at the original symposium plus papers by each of the two discussants, one an archaeologist (Bruce Smith) and the other a bioarchaeologist (Jane Buikstra). The objective of the volume is to demonstrate bioarchaeological inquiry and to underscore the indispensability of biological data to archaeological problem-solving. It is an understatement to say that this volume accomplishes these objectives, because this reviewer observes that each of the nine articles is definitively detailed, comprehensive, and focused. Each of the nine articles provides complete contextual information about the skeletal sample and outlines the major relevant archaeological issues, making it clear that the samples are part of archaeological inquiry and not biological data divorced of cultural context. The volume seems to reach out to archaeologists who (borrowing the metaphor frequently used in the book) have yet to invite specialists (such as the bioarchaeologist) “up to the big house” to join the inquiry. This volume should most certainly be read by everyone involved in archaeological research.

The articles are, in large part, reviews of the signature research of the contributors. They are George Milner (American Bottom, Illinois—stretching the definition of the Southeast), Jerome Ross (et al.) (Arkansas), Clark Larsen and Christopher Ruff (Georgia Coast), Leslie Eisenberg (Averbuch, Middle Tennessee), Mary Powell (Moundville, Alabama), Patricia Bridges (Middle Tennessee River Valley), Ann Marie Wagner Mires (Cowpen Slough, Louisiana), Patricia Miller-Shaivitz and Yasar Iscan (Fort Center, Florida), and Ted Rathbun and James Scarry (Bellevue Plantation, South Carolina).

The articles fall into four broad categories. The first is the range of Mississippian adaptations (Milner, Powell, Eisenberg, Rose, et al.). What is clear here is that there is much regional diversity in the biological consequences of maize agriculture (as well as the importance of maize per se). The second category is methodology developed to discern differences in physical activity, both across subsistence strategies and between genders (Larsen and Ruff, Bridges). The third is mortuary patterning (Mires) and the fourth is the case study as defined by Buikstra in the volume (Miller-Shaivitz and Iscan, Rathbun and Scarry). The case study category includes a study of the health status differences between a black slave/white master skeletal sample from Bellevue Plantation (Rathbun and Scarry). This is a welcome inclusion in southeastern bioarchaeological inquiry and hopefully indicative of growing interest in the issue.

The book would make excellent supplemental reading for courses in North American archaeology. The methodologies transcend the geographic focus of the volume and clearly illustrate the role of biocultural inquiry. The minimal cost of the book should enhance its attractiveness for classroom use as well as render its absence in a personal library an unforgivable omission.

Maria O. Smith is an Assistant Professor of Anthropology at Northern Illinois University.