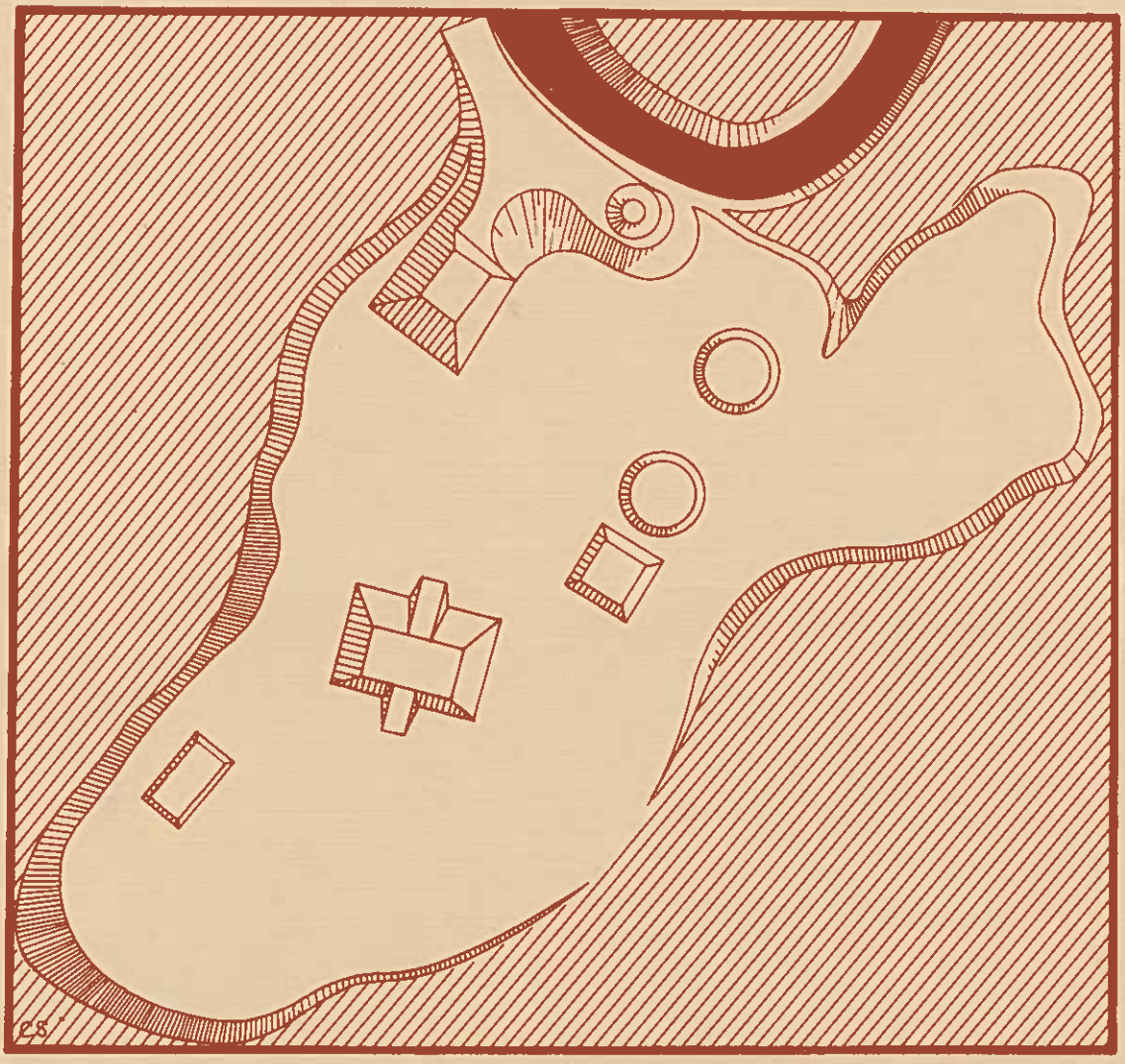
MISSISSIPPIAN TOWNS OF THE WESTERN KENTUCKY BORDER:

The Adams, Wickliffe, and Sassafras Ridge Sites



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Kentucky Heritage Council

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The Kentucky Heritage Council, Frankfort, Kentucky 40601

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First Edition

The cover illustration is a reconstruction of the earth architecture of the Adams Site. The style of the reconstruction is based on Morgan (1980). The cover was designed by Charles B. Stout.

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ACKNOWLEDGMENTS

This monograph is a revised and expanded version of a report that was submitted in 1984 to the Kentucky Heritage Council as Western Kentucky Project, Report 1. Funding for the research was provided by the University of Illinois and a matching state grant-in-aid from the Kentucky Heritage Council, the State Historic Preservation Office, Frankfort, Kentucky. The support of both institutions is gratefully acknowledged.

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All Sites: Human Skeletal Remains

Sandra L. Dunavan

Adams: Botanical Remains

Richard B. Edging

Adams: Coring; Botanical Remains

Wickliffe: Site Description and Setting;
Previous Archaeological Investigations;
Excavations and Stratigraphy

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Adams: Projectile Points

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Adams, Sassafras Ridge: Ceramics; Other Fired Clay Artifacts

Wickliffe: Botanical Remains

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Adams: Stone Tools and Debitage

Appendix: Chert Resource Exploitation

Charles B. Stout

All Sites: Topographic maps

Wickliffe: Site Description and Setting;
Previous Archaeological Investigations;
Excavations and Stratigraphy

Sassafras Ridge: Site Description and Setting;
Surface Collections and Spatial Patterning

R. Barry Lewis

Adams, Wickliffe: Ceramics; Other Fired Clay Artifacts

Other report sections not attributed to the above authors

INTRODUCTION

(R. Barry Lewis)

The region around the confluence of the Ohio and Mississippi rivers has been identified by several archaeologists (Morse 1977; Morse and Morse 1983; Phillips 1970:926) as one possible hearth for the origin and development of Mississippian culture. Although the "hearth" model of Mississippian development no longer appears to be a viable one (Smith 1984), the late prehistory of this region is clearly important to the scientific understanding of the development of the Mississippian cultural tradition. Investigations since the 1940s in southeastern Missouri (Lewis 1982; Williams 1954), southern Illinois (Cole et al. 1951; Muller 1978), southern Indiana (Black 1967; Green and Munson 1978), western Tennessee (Baldwin 1966), and northeastern Arkansas (Morse 1973, 1981; Morse and Morse 1983) have each contributed to the development of a strong data base for the investigation of a broad spectrum of Mississippian research problems. Those investigations have been hampered, however, by a lack of information from the western Kentucky counties along the Mississippi and lower Ohio rivers (Figure 1). At least seven major mound groups are known from Ballard, Carlisle, Hickman, and Fulton counties along the Mississippi Valley edge (Loughridge 1888), but until recently there were few excavated data, no absolute dates, and no site plans younger than late nineteenth century maps available for any of those locations.

This monograph describes the results of the first field season of a continuing research program. This phase was designed to begin the collection of basic archaeological data from the western Kentucky border mound groups. The objective was to prepare detailed topographical maps at three mound groups -- the Adams, Wickliffe, and Sassafras Ridge sites (Figure 1), to conduct test excavations, to collect samples for absolute dates, and to prepare National Register of Historic Places nomination forms for each site. The investigated mound groups were selected on the basis of their inferred significance as data sources, their accessibility, and the logistic feasibility of working at each location. The ultimate goals of our research are to understand and interpret the role of the Ohio-Mississippi confluence region in the development of Mississippian culture, to trace the late prehistoric culture history of this region from a solid framework of stratigraphy and absolute dates, and to identify and explain the cultural processes and other factors that led to the development, maintenance, and eventual extinction of planned aboriginal towns.

The monograph is organized in the following manner. First, essential background information about the environment and history of archaeological investigations in the study region is presented. Second, the results of the University of Illinois work at Adams (15Fu4), a 7 ha town site situated on an isolated terrace remnant in the lower Bayou de

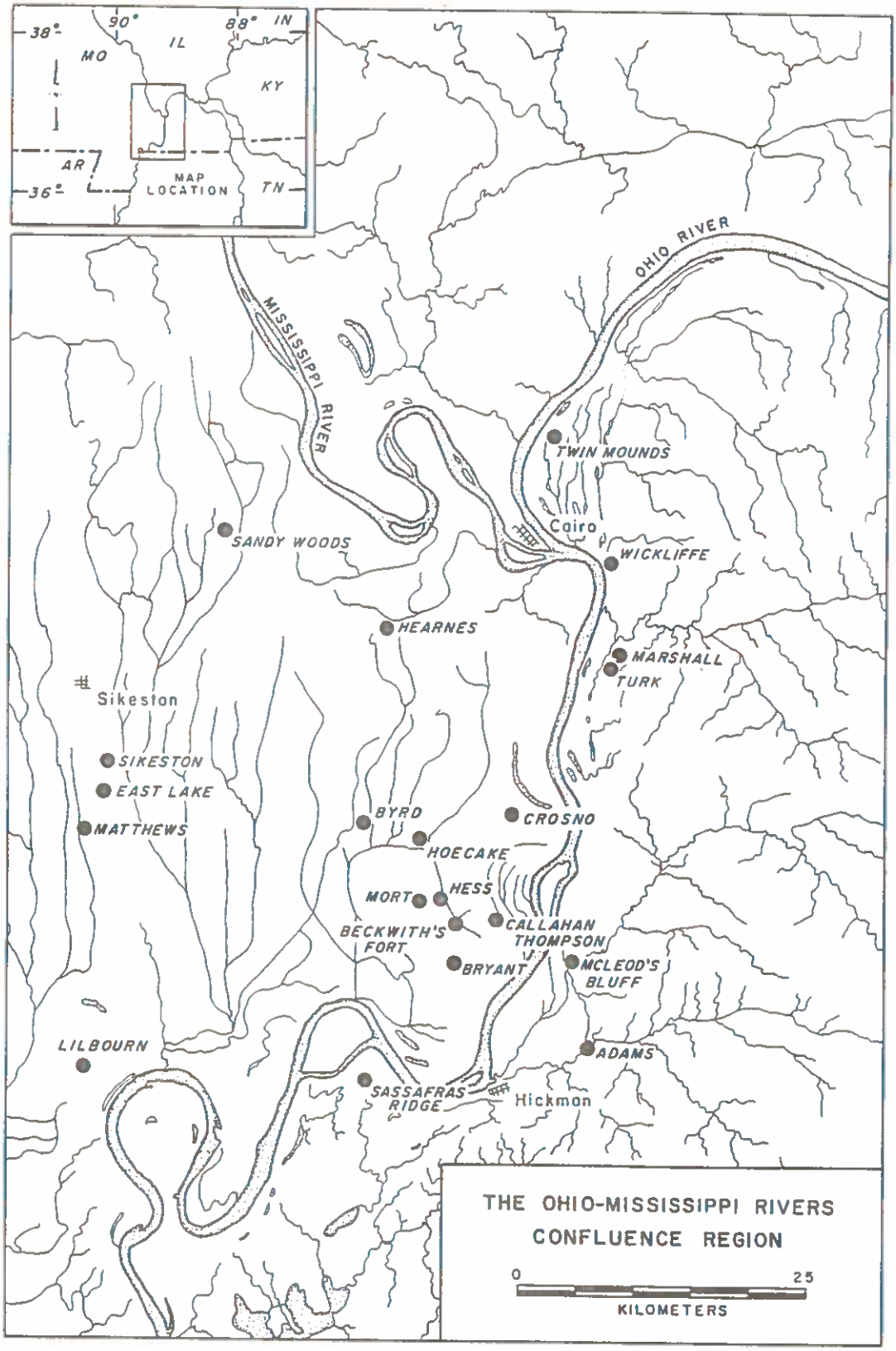


FIGURE 1. The Ohio-Mississippi Confluence Region Showing Sites Discussed in the Text.

Chien bottom of Fulton County are described. Third, the results of similar investigations at the Wickliffe site (15Ba4), a Mississippian town known to many archaeologists as the tourist attraction once called "Ancient Buried City" are presented. This site is located on the valley bluffs of the north side of the town of Wickliffe. Fourth, and the last site discussed, Sassafras Ridge (15Fu3), is another late prehistoric town that is situated in a long meander loop of the Mississippi River below Hickman in Fulton County. Finally, the sites are examined in regional perspective. They are compared with similar towns in adjacent regions and aspects of the origin and growth of those communities are discussed.

The Western Jackson Purchase Environment

This project's study area is the Mississippi River valley and bluffs of the westernmost Kentucky counties (Figure 1). It is part of the Jackson Purchase, a major geographical division bounded by the Tennessee state line to the south and the Mississippi, Ohio, and Tennessee rivers on the other sides. Detailed descriptions of environmental characteristics are given by Davis (1923), Lewis (1974), and Loughridge (1888) and need not be repeated here. Except where cited otherwise, the following information is paraphrased from Lewis (1974).

The Mississippi Valley in Kentucky is relatively narrow except at the southern end and around the Ohio River mouth. It broadens in those places to form what Davis (1923:66-69) describes as the "Big Bottoms," a complex jumble of wet backswamps and "sandy ridges," or "cane ridges," of lighter soil that mark the surfaces of extinct natural levees. The valley bluffs rise abruptly as much as 50 m above the Big Bottoms. They are mostly pre-Pleistocene gravels overlaid by a thick mantle of loess. Inland, the loess thins out and is replaced by loam over a gravelly subsoil.

The major biotic divisions are the Floodplain Forest, the Beech-Tulip Loess Hills, and the Oak-Hickory Upland Forest. The Floodplain Forest is comprised of several distinctive communities, the most extensive of which is the Sweetgum-Elm "Cane Ridge" type found on well-drained floodplain soils. The Cypress Deep Swamp, another common community, dominates the extensive backswamp heavy clays. A broad ecotone of seasonally inundated swamp combines characteristics of both communities.

The Beech-Tulip Loess Hills, or the Cane Hills of Loughridge (1888:157-160) and Davis (1923:69-72), encompass the valley bluffs and extend inland to a diffuse ecotone where they merge with the Oak-Hickory Upland Forest on the brown loams of the central Purchase (Davis 1923:71). The distinctive native undergrowth of this and the preceding division was dense stands of cane (Arundinaria gigantea), largely destroyed by the early twentieth century due to over-grazing (Schull

1921). Davis (1923:57), in noting the characteristics of the Loess Hills, commented, "Nowhere else in the upland was the timber so varied, the stand so dense or the trees so large." Its biotic distinctiveness is now largely erased.

Surface relief in the Beech-Tulip Loess Hills is typically abrupt by comparison with the gently rolling uplands of the Oak-Hickory Upland Forest. The undergrowth of the latter division is young oaks and hickories as well as shade tolerant understory trees. Cane undergrowth, a common feature of the rest of the study region prior to modern settlements, is absent in the Oak-Hickory Upland Forest.

Previous Archaeological Investigations

Several excellent historical summaries of Kentucky archaeology exist. Schwartz (1967) treats the entire state with emphasis on the contributions of William S. Webb. Clay (1981) and Nance (1976) summarize this information for the Jackson Purchase. The eastern Purchase (the Tennessee-Cumberland locality) is also reviewed by Clay (1963). The western Purchase has not been treated before as a distinct locality.

The earliest reference to archaeological sites in what would later become the Mississippi counties was by Rafinesque (1824:34). He mentions a site near Hickman with a mound 135 m long, 3 m high, and 9 m wide. Funkhouser and Webb (1932:131), in their statewide archaeological survey, mis-identify Rafinesque's site as the Adams site. The real location remains unknown.

More than 50 years after Rafinesque, Loughridge (1888:173-195) published an invaluable study of the geology and geography of the Jackson Purchase that included an excellent section on prehistoric sites. Loughridge not only described the major mound groups of the Mississippi counties, he also provided maps of most locations along with height and distance estimates. These maps are reasonably accurate and offer valuable historical documentation of those sites prior to the effects of a century of cultivation. Completed about the same time as Loughridge's study, the Bureau of American Ethnology's "mound survey" touched on western Kentucky and contributed a sketch map and narrative description of the McLeod Bluff site (15Hi1) in Hickman County (Figure 1; Thomas 1894:279-283). A couple of decades later, Moore (1916:493-508) visited the region and excavated at Sassafras Ridge and other locations, possibly including the Wickliffe site. His report on this work is brief and offers only a meager glimpse at the excavation results.

The University of Kentucky established its department of anthropology in the late 1920s with Professors Webb and Funkhouser as its appointed faculty (Schwartz 1967:31,33). They soon began a program

of survey and excavation that was to cover the state and span several decades of research. In assessing their work in the Mississippi counties, it is important to recall that neither was a trained archaeologist, nor an anthropologist. One was a physicist, the other a zoologist. They taught themselves archaeological field methods by experience and when they did their most important work in the Mississippi counties, they were beginners (Schwartz 1967:48). Thus, although they worked at the McLeod Bluff site in the early 1930s (Webb and Funkhouser 1933), the value of their research is lessened by superficial reporting and by the accessioning of the site collections into the University of Kentucky Museum of Anthropology without recorded vertical proveniences (Clay 1961:23).

Also in the 1930s, Fain and Blanche King became active in the study of Kentucky archaeology. Their story, which deserves a monograph of its own, is postponed to the Wickliffe site chapter since that place is central to everything that they did. It must suffice here to note that they developed a Mississippian town as a tourist attraction, improved the commercial possibilities of the property with extensive excavations, and published a book and several articles on the archaeology of this region.

The heyday of archaeology in the Mississippi counties was the 1930s, if one is to judge solely on the basis of number of publications. Afterwards, the region received only sporadic attention until the inception of the National Park Service-sponsored reservoir salvage work in the eastern Purchase during the 1960s. Berle Clay, one of the reservoir salvage project participants, has contributed several important studies of the culture history and prehistoric human adaptations in the region (Clay 1961, 1963, 1976, 1979).

The 1970s witnessed a dramatic increase in contract-type archaeological fieldwork. Most of those projects in the study region have been reconnaissance surveys (e.g., Carstens 1982; Gray and Watson 1981; Klinger et al. 1983; Klinger and Kandare 1984; McGraw 1984; McNerney and Nixon 1980; McNerney and White 1980; Schock 1978; Schock and Langford 1978; Weinland and Gatus 1979).

Across the Mississippi River in southeastern Missouri, research activity between 1950 and 1975 laid the basic framework for a regional sequence that is directly applicable to the Mississippi River counties in Kentucky. The sequence was initially described by Williams (1954) and has been subsequently added to and modified by many researchers.

The most recent development in Jackson Purchase research is Murray State University's archaeological program that encompasses the entire study region. There is every reason to believe that the new Wickliffe Mounds Research Center, which opened as a university facility in 1984, will mark the beginning of a new era of research in the Mississippi River counties.

The Late Prehistoric Regional Sequence

Each of the investigated sites was occupied during the final millenium or so of prehistory. This section briefly reviews the important characteristics of the phases that comprise the relevant portion of the regional sequence (Figure 2). Lewis (1983) describes the archaeological characteristics of each Mississippi period phase in greater detail. Information concerning earlier periods and phases is given by Phillips (1970), Williams (1974), and Williams (1954).

The Hoecake phase (A.D. 700-900) brackets the final interval of Baytown cultural manifestations in the study region. Ceramics, community plans, domestic architecture, and economic organization underwent changes that are archaeologically interpreted as developmental to Mississippian culture. The typical community appears to have been a sedentary horticultural village in which there was little status differentiation. Fortified towns were not yet part of the settlement system, although it is possible that the initial construction of some towns began during this phase. Small amounts of shell tempered pottery occur, as do small, triangular "Mississippian" projectile points. Frequencies of some common Baytown ceramic types, such as Mulberry Creek Cordmarked, tend to diminish through time, while those of Baytown Plain and Larto Red increase.

James Bayou (A.D. 900-1100) is the earliest Mississippi period phase. A settlement hierarchy emerged in which there were many small villages and hamlets and a few large, often fortified, towns with public spaces flanked by platform mounds. Wall trench houses become common, but do not immediately replace the old style of single-set post houses that was typical of Hoecake phase villages. Ceramic assemblages are dominated by Mississippi Plain, Baytown Plain, Mulberry Creek Cordmarked, and Kimmswick Fabric Impressed. Red-filming is a common ceramic mode relative to other phases. Mississippi paste decorated types do not occur.

The settlement system of the James Bayou phase persists with little apparent change through the Dorena phase (A.D. 1100-1300). The latter phase is archaeologically recognizable by low frequencies of Mulberry Creek Cordmarked and Kimmswick Fabric Impressed relative to older sites and low frequencies of the three Matthews Incised varieties (Phillips 1970:127-128) relative to more recent sites. Bell Plain is present. O'Byam Incised, var. O'Byam, and the plate form are rare on Dorena sites. O'Byam Incised, var. Adams, particularly when found on flanged rim bowls, appears to be a useful Dorena phase diagnostic, but it is seldom common in assemblages.

During the Medley phase (A.D. 1300-1500), Matthews Incised and O'Byam Incised, var. O'Byam, become the dominant decorated types. Bell Plain and the plate vessel form are also basic parts of the assemblage. Some of the fortified towns that had been occupied for centuries were

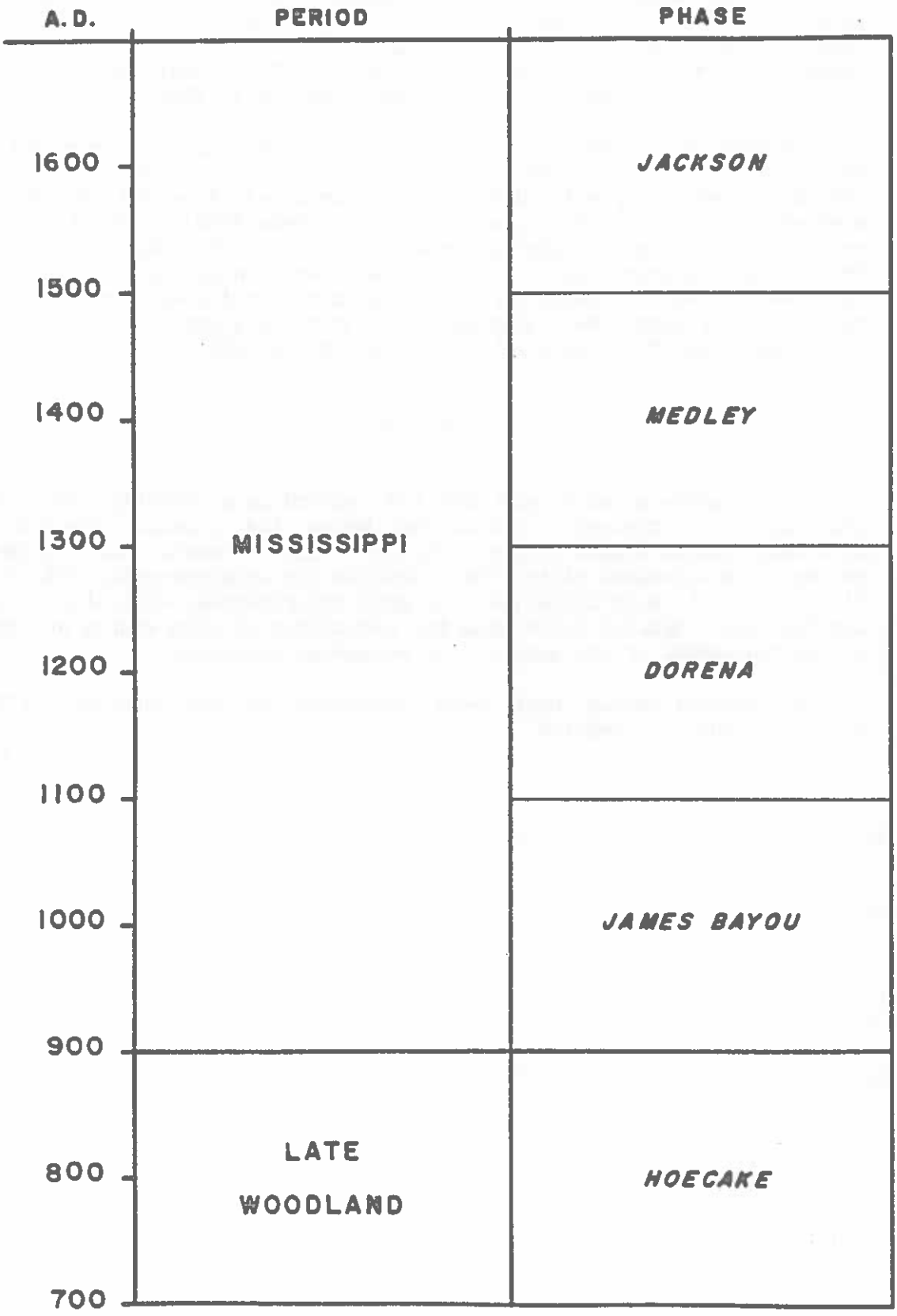


FIGURE 2. The Late Prehistoric Regional Sequence.

abandoned and other towns apparently emerged to prominence in the same general region. Williams (1980, 1982) and Morse and Morse (1983) argue that the northern Lower Valley was mostly abandoned by the end of this phase. Evidence that supports the inference of cultural continuity into the sixteenthth century A.D. is described by Lewis (1982, 1984).

Jackson (A.D. 1500-1700) is the final aboriginal archaeological phase in the region. The population appears to have been decimated by the direct and indirect effects of introduced diseases during the sixteenth century (cf. Milner 1980; Ramenofsky 1982). The distinctive ceramic technology essentially ceased and left no stylistic successors. The region's sparse ethnohistorical literature, which begins in the late seventeenth century, suggests that population density was low and had been so for a long time. Astragali dice provide a useful horizon marker for roughly the first half of this phase (Lewis 1986).

Methods

The plowzone of each test unit was removed as a stratigraphic zone and was not screened. Excavation below the plowzone proceeded in arbitrary levels within natural strata. Those levels were screened through 6 mm hardware cloth. Soil samples for waterscreening (15 l) and flotation (5 l) were collected from each sub-plowzone excavation level and feature. Details concerning the processing of each sample are given at the beginning of the appropriate monograph sections.

Radiocarbon dates have been corrected by the Stuiver (1982) high-precision calibration.

THE ADAMS SITE (15Fu4)

Site Description and Setting

(Charles B. Stout)

The Adams site is a multicomponent, planned prehistoric town composed of a centrally located group of seven mounds, a plaza, and two village areas (Figure 3). The site is situated on an isolated terrace remnant at the mouth of the Bayou de Chien Valley where it opens onto the Mississippi River floodplain. The three largest mounds (Mounds A, B, and C) and the site perimeter retain their native oak-hickory forest cover. The rest of the site has been in row crop cultivation for at least the past 50 years. Sometime during the first half of the twentieth century, portions of the site were tiled to facilitate drainage. The terrace is surrounded by Sweetgum-Elm-Cypress Seasonal Swamp and Cypress Deep Swamp (Lewis 1974:24-26). According to the Soil Conservation Service, the soil is Calloway silt loam (Newton and Sims 1961). This classification may be wrong since Calloway soil is typically poorly drained and strongly acid (Newton and Sims 1961), but the site is well drained and its soil is basic to slightly alkaline.

Loughridge (1888) was apparently the first investigator to publish a site description and map (Figure 4) of the Adams site. According to Funkhouser and Webb (1932:131), the early histories of Kentucky by Marshall (1824) and Rafinesque (1824) mention this site, but examination of both references failed to reveal passages that referred to this location.

The first professional archaeological investigation of the site was begun in 1983 by the Department of Anthropology, University of Illinois. Comparisons between the Loughridge map and the one produced by the University of Illinois yielded two major differences (Figure 5). First, the southeastern corner of the site extends much farther on the Loughridge map. The concave terrace edges that mark the modern perimeter suggest that stream channel erosion has removed the southeastern part of the site since the 1880s. Second, the village area east of the plaza does not appear in Loughridge's map. If that portion of the site had not been cleared at the time of his visit, he may have incorrectly assumed that the slough that passed along the east side of the site was fed directly from the north.

The Adams site covers an area of 7.25 ha. It has one large centrally located platform mound (Mound A). An earthen "Saddle" mound along the northern site edge joins a large rectangular mound (Mound B) and a conical mound (Mound C). Three smaller mounds (Mounds D, E, and F) flank the eastern edge of a rectangular plaza that measures about 100 m north-south by 50 m east-west. The remaining earth structure,

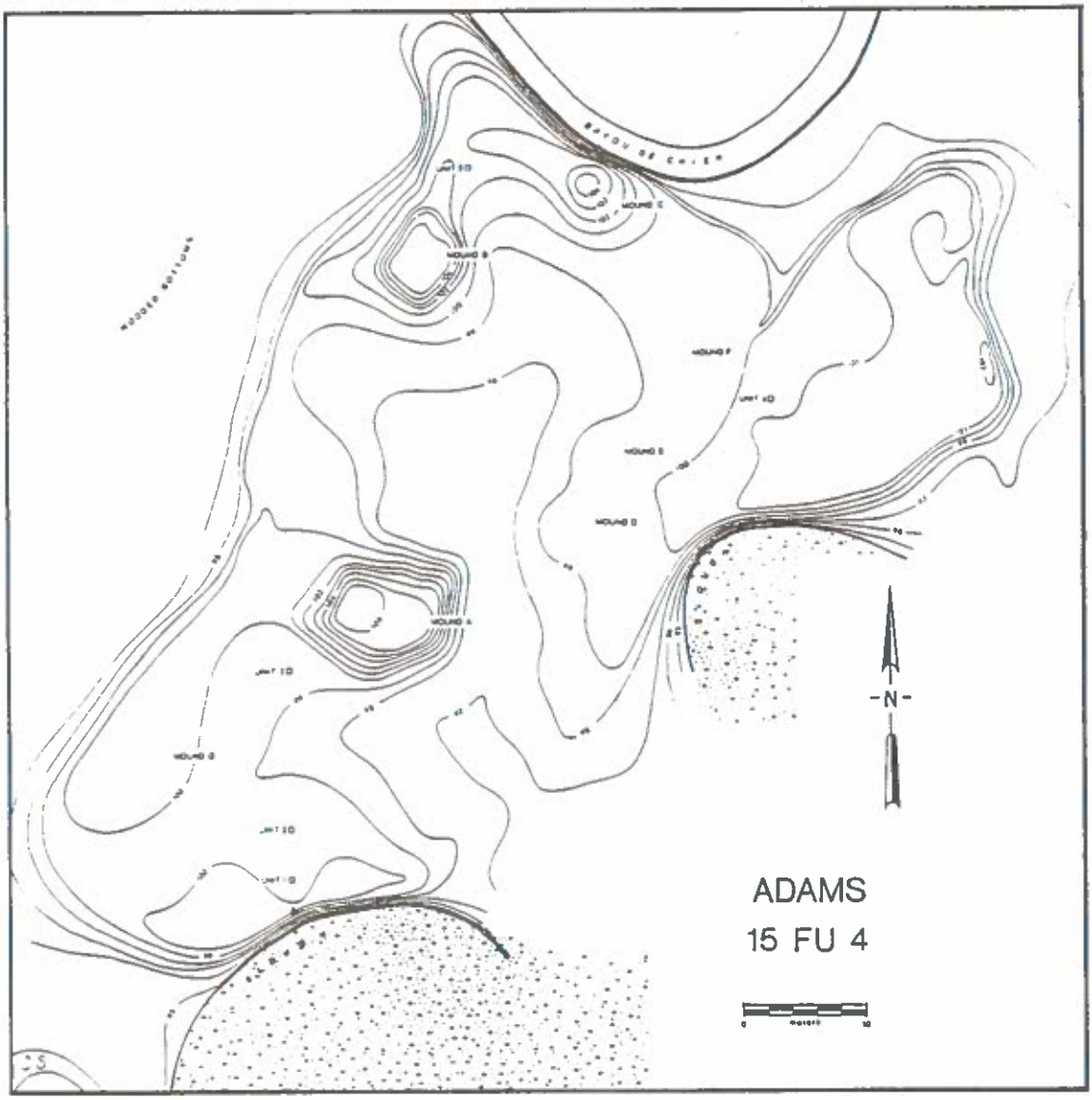


FIGURE 3. The Adams Site.

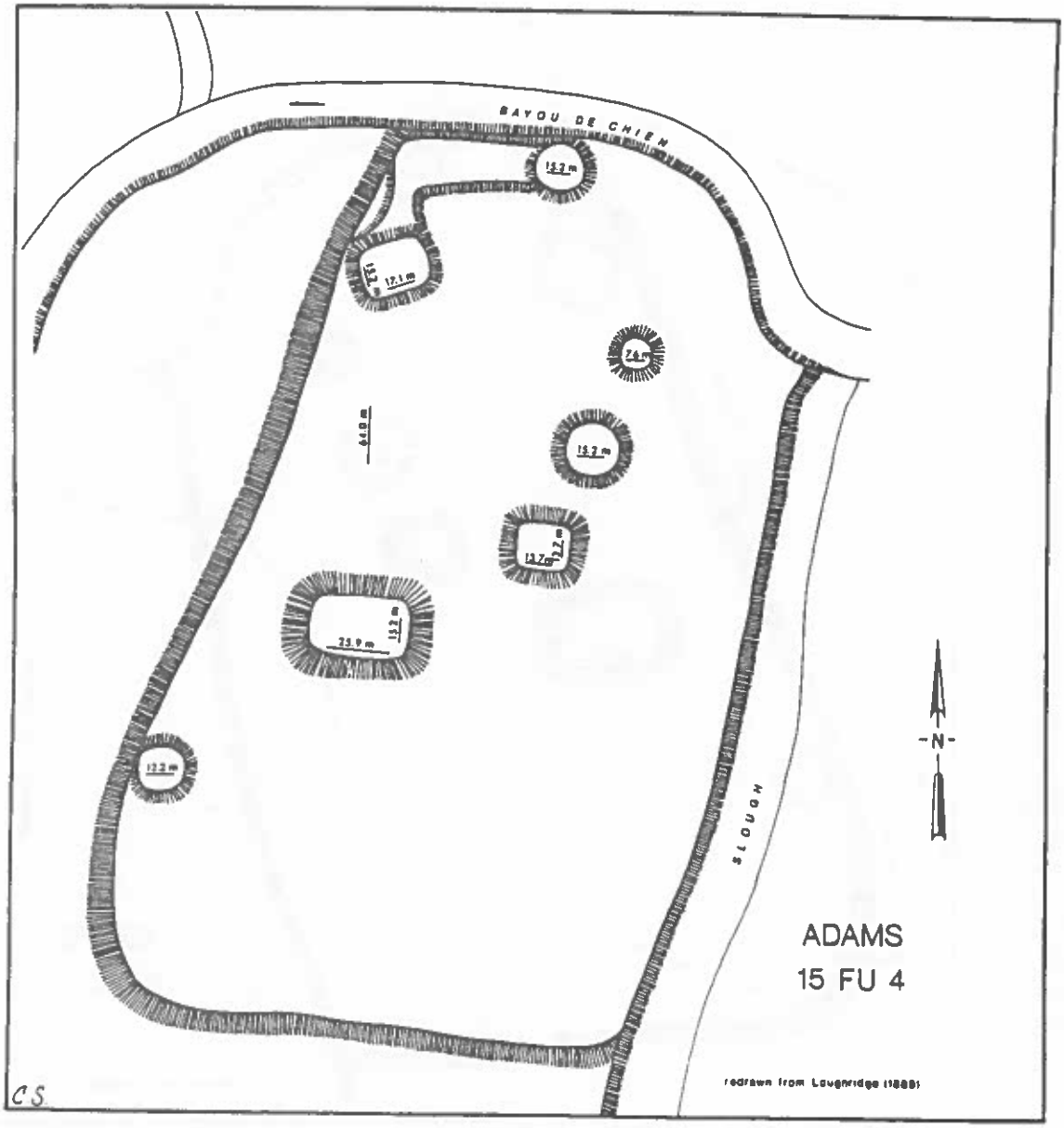


FIGURE 4. Loughridge's Map of the Adams Site.

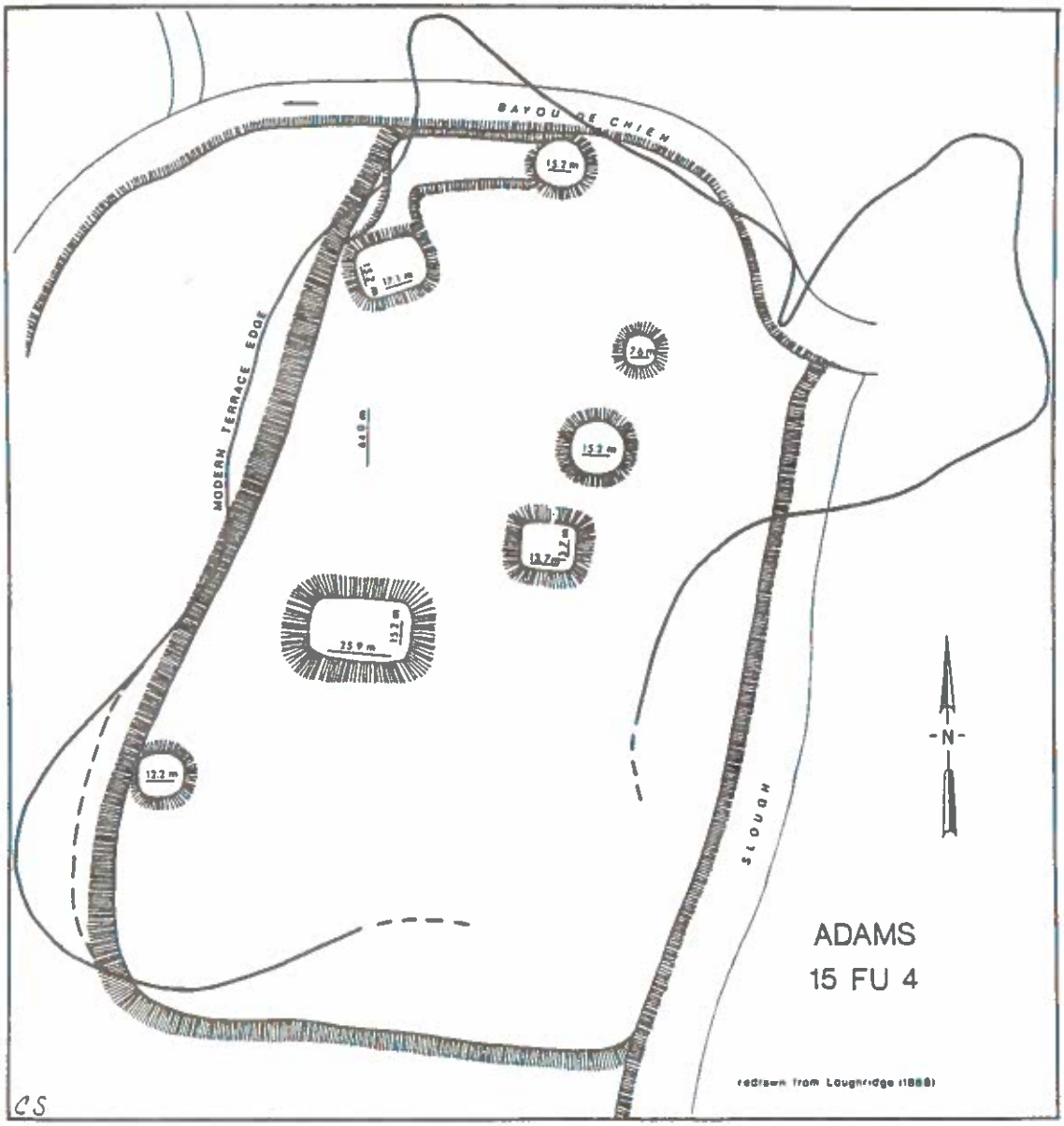


FIGURE 5. Comparison of Modern and Late 19th Century Site Outlines.

Mound G, is located west of Mound A. The cover of this monograph depicts a reconstruction of the original appearance of the site.

Mound A, the largest mound, is about 7 m high. It measures 70 m east-west by 62 m north-south at the mound base and 40 m by 23 m at the top along the same respective axes. The top is flat and the sides and edges are sharply defined. On the north side of the mound there is a 2 m wide elevated, sloping ridge that may have been a ramp.

Mound B is rectangular and stands about 5.5 m high. It measures 40 m northwest-southeast by 45 m southwest-northeast at its base and its top measures 20 m by 28 m along the same respective axes. The top is slightly concave.

Mound C is conical and is 4.5 m high. Its base measures 36 m northwest-southeast by 34 m southwest-northeast. The top is circular with a 12-14 m diameter. The north side drops sharply into the Bayou de Chien. Mound B and Mound C are joined by a raised semi-circular feature referred to by the University of Illinois investigators as the "Saddle." It is about 2.5 m tall. A gently sloping ridge, which may have served as an entrance ramp, extends northwest from the Saddle to the bank of the Bayou de Chien.

Mound D is small and was once rectangular, but plowing has rounded its edges. It is 1.5 m high and measures 35-40 m across its base. Mounds E and F are both conical, but have about the same dimensions as Mound D.

Mound G is elongated and has a maximum height of 2 m. Its base measures 50 m northeast-southwest by 30 m northwest-southeast. This mound stands on what appears to be a natural rise rather than a man-made feature.

The placement of Mounds A through F delineate a rectangular plaza. Mound A is situated at the southwestern end overlooking the plaza's long axis. The northwestern plaza corner is defined by the Saddle and its two superstructures (Mounds B and C). The north end of the plaza is truncated sharply by a bend of the Bayou de Chien. Habitation areas are located to the east and west of the mound group. They are designated as the "eastern village" and the "western village," respectively. Soil cores and test pits show an accumulated midden that measures 1-1.5 m thick and comprises the remains of a long occupation.

The Adams site was entered in the National Register of Historic Places on 15 March 1984.

Excavations and Stratigraphy

The 1983 investigations were limited to three major activities. First, a topographic map of the site was prepared; second, soil cores were extracted to delineate the gross characteristics of the archaeological deposits; third, five test units were excavated in order to collect basic stratigraphic data and samples for absolute dates. The spoil piles of recent potholes were also assigned letter designations and were surface collected as discrete units. The surface collected cultural materials are reported with the excavated remains. This section describes the coring and test excavation results and draws together general inferences about the site's depositional history.

Core Sampling (Richard B. Edging)

The samples were collected with a Modified Soiltest DR-2000 Hydraulic Porta-Sampler (Johnson and Alexander 1976). This machine extracts cylindrical soil cores measuring 8 cm wide and 1 m long.

Two transects were completed across both village segments and the plaza (Figure 6). One sample was also taken from the top of Mound A. The samples show that the midden matrix is a silty clay loam formed by pedogenic and cultural processes. The upper layers comprise a Mollisol with thick dark O1, O2, A1, and A2 horizons that are very loamy and have granular and crumb structures. The soil color ranges from a very dark brown (10YR2/2) to a dark gray brown (10YR3/1). It is inferred from the excellent preservation of organic remains that the pH is locally basic to slightly alkaline.

Below the midden is a developed illuvial B horizon. Weathering variations in this horizon are the result of differences in depth of the cultural layers, relief, vegetational cover, and water percolation. As one approaches the B horizon the soil peds become firmer, angular, and blocky. The soil color ranges from a yellowish brown (10YR5/4) to a light brownish gray (10YR6/2). Gleyed illuvial clay horizons exist at shallow depths in the depressed areas of the site indicating periods of inundation.

Core Sample Descriptions

Transect 1, comprising Cores 1-8, began in the northeastern portion of the site and extended in a southwestern direction across the site edge (Figure 6). This transect enabled the investigators to examine stratigraphy from both village areas and the depression that separates them. Transect 2, including Cores 10-13, was made in a southeast to northwest direction across the middle of the site (Figure 6). This transect provided a profile across the plaza.

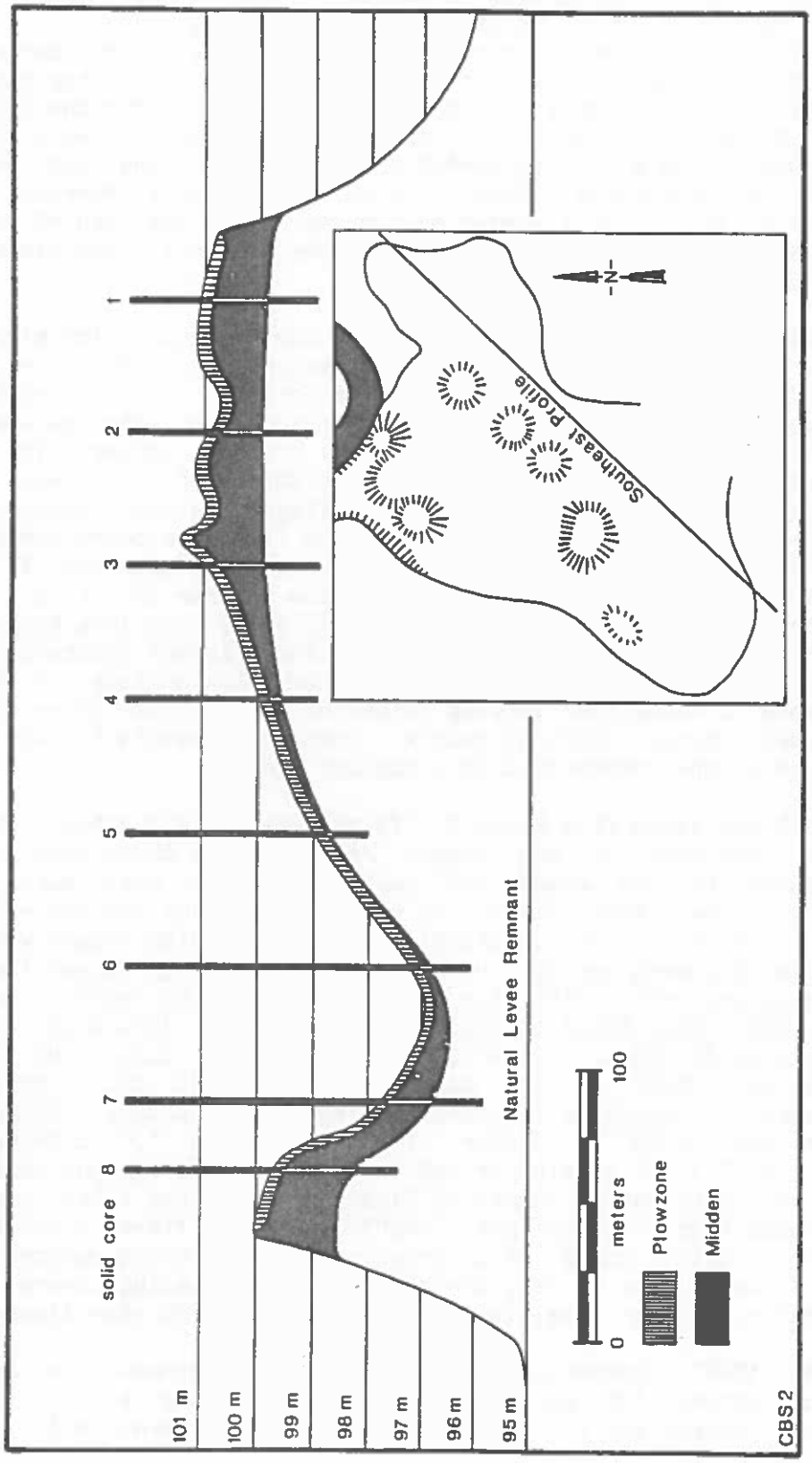


FIGURE 6. Cross Section of the Adams Site (from Stout 1984).

Cores 1-3 provided initial information on the midden depth in the eastern village. This extensive midden ranged from 1.0 - 1.3 m in depth. The plowzone depth varied from 23-26 cm below surface and comprised the organic horizons O1, O2, and a friable A1 horizon. Soil color was a very dark gray (10YR3/1). Below the plowzone the soil color of the silty clay loam midden, or A2 horizon, ranged from a dark gray brown (10YR3/2) to a dark yellowish brown (10YR4/4) and was crumb to granular in structure. Core 3 showed a gradual decrease in the thickness of the cultural midden as one approached the edge of the swale or depression that separates the two village segments. The midden depth of Core 3 was 95 cm below surface.

Cores 4-6 bracketed the swale between the villages. The midden was shallow in Cores 4 and 6 (45 cm below surface and 56 cm below surface, respectively) and was not identifiable in Core 5. The B horizons of these cores indicate a well-developed clay sequence. The swale may have served as a plaza extension or its natural drainage outlet. The midden thickness and site topography increased in Cores 7-8, which were located along the southern edge of the western village. In both samples there were clear boundaries between the plowzone (22-24 cm below surface) and the midden. The midden was a silty clay loam that extended to 82 cm below surface in Core 7 and to 106 cm below surface in Core 8. In each sample there were layers of brown (10YR4/2) silty clay loam mottled with a dark brown (10YR3/1) silty clay loam. These layers occurred at 48-59 cm below surface in Core 7 and from 68-76 cm below surface in Core 8. Below this stratum were varying layers of dark grayish brown (10YR4/2) and yellowish brown (10YR5/6) matrix. Comparable levels in Test Unit 1 (N12-14 W0-2) are interpreted as a Baytown midden.

Core 9 was taken from Mound A. It extended to 2.2 m below the mound surface. Analysis of the sample revealed that there were no recent disturbances to the mound and that the silty clay used in its construction was very similar to soil samples from the depressed area located to the east. The uppermost mound construction stages were also similar in thickness and soil composition. Each stage ranged from 10 to 36 cm thick and was a silty clay loam similar to the midden described above. The first meter of soil layers revealed a dark brown (10YR3/3) and dark grayish brown (10YR4/2,4/3) silty clay loam. No cultural material was found in the mound fill, but it did contain iron concretions and manganese inclusions. The soil structure changed from granular and crumb to blocky at approximately 1.0 m below ground surface. At 1.1-2.2 m below ground surface the stratigraphy became more complex with alternating layers of light and dark gray silty clay. Soil color ranged from very dark gray (10YR3/1) to a light grayish brown (10YR6/2). Often these stratigraphic layers were separated by thin layers of burned clay or clay lenses. These alternating layers suggest construction episodes possibly delineated by prepared clay floors.

Cores 10-13 transected the site in a southeast to northwest direction across the plaza just north of Mound A. The samples essentially mirror the pattern described above for Cores 4-6. Middens

are thin to absent and well-developed B horizons are relatively shallow. Charcoal flecks were recorded in Cores 10-12, but the soil profiles did not exhibit any other midden characteristics. The plowzone was only 10-20 cm thick and was followed by a thin dark brown (10YR3/3) silty clay loam. A gleyed B horizon was encountered at 30 cm below surface in Core 10 and 55 cm below surface in Core 12. In Core 13 there was again a noticeable increase in the thickness of both the plowzone and the A2 horizon. It appears that the slight change in elevation between the locations of Cores 12 and 13 account for the observed differences.

Discussion

The upper layers of the Mollic soil stratigraphy generally contained the humus, 01, 02, and the A1 horizons. The A2 horizon contained the majority of the cultural midden. These horizons were very dark brown (10YR2/2) to dark gray brown (10YR3/2) and had crumb or granular structures. The developed B horizon occurred at varying depths across the site and was lighter in color and angular to blocky in structure. The village segments contained the deepest, most complex stratigraphy and the deepest B horizons. The shallow B and gleyed B horizons noted in the plaza and the depression east of Mound A reflect not only lack of habitation, but perhaps also periodic flooding.

Mound A was constructed with silty clay loam that had undergone varying degrees of weathering. The mound fill appears to have been obtained from a local source, either from the depressed area in the center of the site or from a source just off the site platform. The soils of some mound construction stages are similar to the organic A horizon and to well-developed silty clay B horizons in the depressed area of the site.

The two village segments are separated by a depressed area with little or no cultural material or signs of prolonged habitation. This depression is interpreted as part of the plaza. Slope wash or erosion probably accounts for much of the cultural material accumulated in the plaza.

Test Excavations (R. Barry Lewis)

Unit 1 (Figures 7-8)

This unit was the southernmost of three test excavations in the western village (Figure 7). It was located at N12-14 W0-2 in the site grid. The plowzone was a 25 cm deep grayish brown (10YR5/2) loam. The next major stratum comprised a Mississippi period midden that was about 20-40 cm thick. The midden soil was dark brown (10YR3/3) and contained Mississippian and some Baytown cultural materials. Burial 1, a 4-5 year old child, was found at 39 cm below surface The base of the

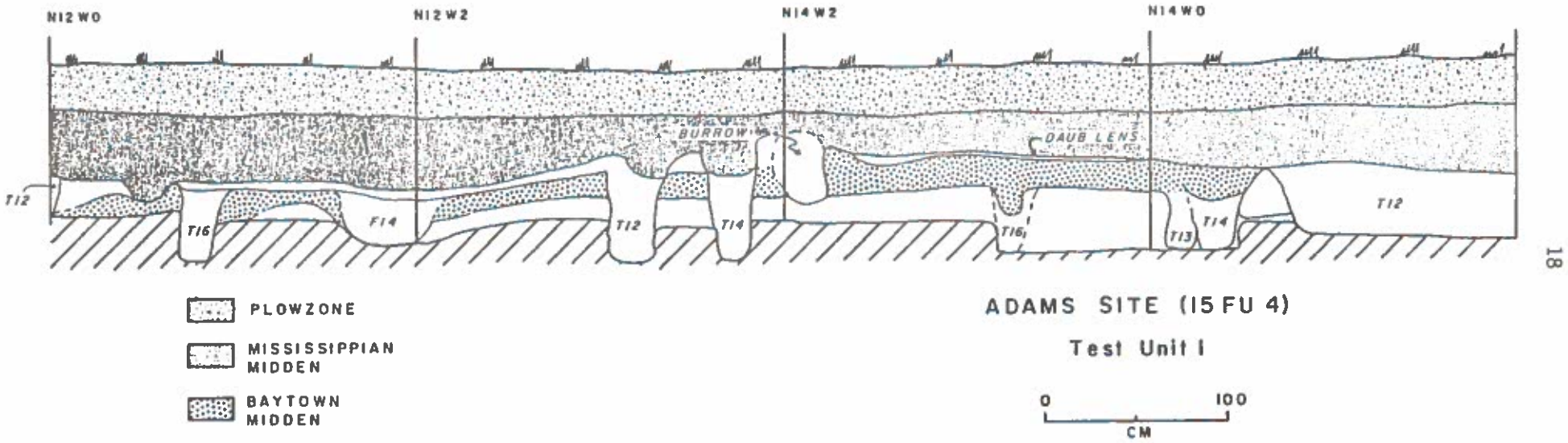


FIGURE 7. Vertical Profile of Unit 1.

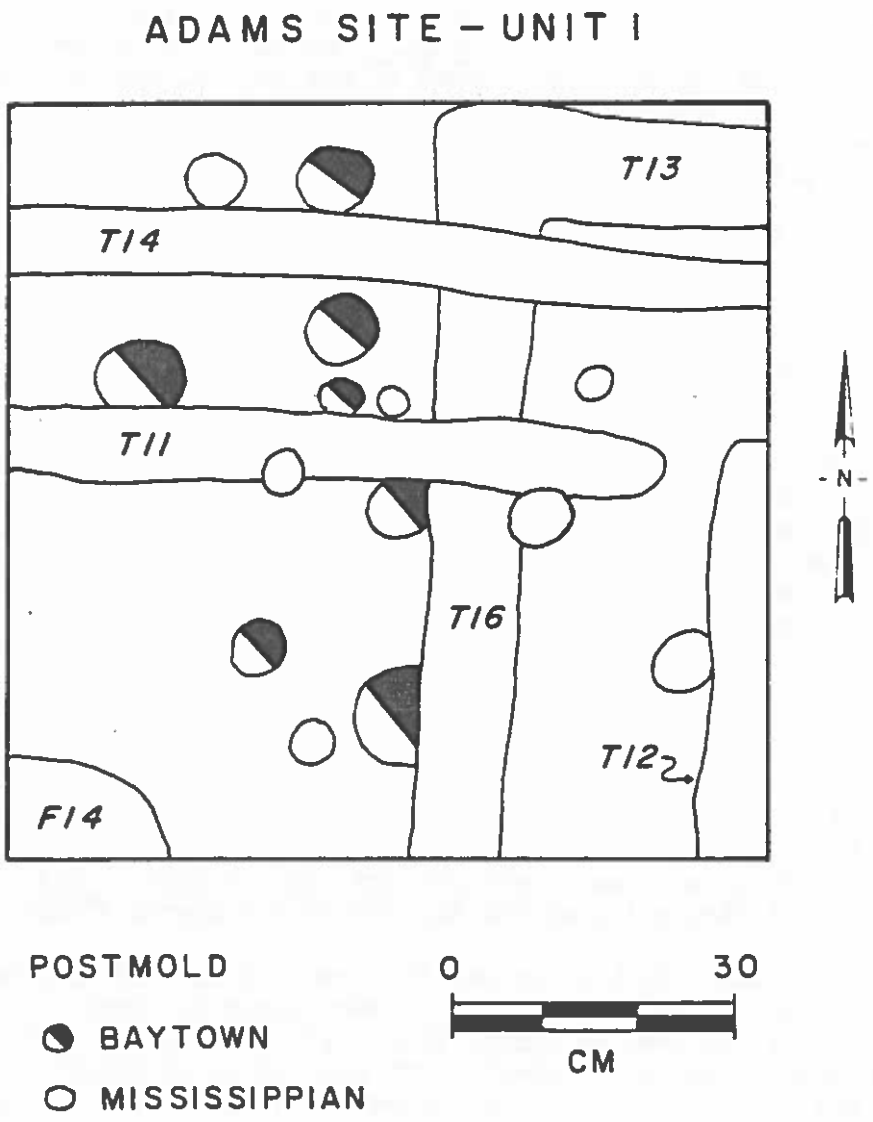


FIGURE 8. Horizontal Plan of Unit 1 Features.

Mississippian midden was stratigraphically defined at roughly 50-55 cm below surface by the top of a thin zone of burned clay. A carbonized wood sample collected from 50 cm below surface, or about 10 cm above the contact with a Baytown midden, was dated at A.D. 1290±70 (ISGS-1149). The burned clay contact surface between the Mississippian and Baytown period middens was about five centimeters thick and was concentrated in the northern half of the unit. It is interpreted as a burned house floor or entry way since the burned area lay roughly horizontal north of Wall Trench 11 (T11), was *in situ*, graded stratigraphically from most burned on the top to least burned at the bottom, and had the remains of a cane mat pressed into its upper surface. The majority of the cane fragments composing the mat were oriented at N 80° W. Most of the house basin exposed by the excavation at this level lies to the south and west of Unit 1. Wall trenches 11 and 12 delineate the northeastern house corner. Viewed stratigraphically, a thin (approximately 5 mm) light yellowish brown (10YR6/4) clay lens could be traced into the southern vertical profile from the southern edge of Wall Trench 11 at about a 20° dip from the horizontal (Figure 7). The clay lens is inferred to be either the house basin edge or wash from the clay-plastered walls of this structure.

A brown (10YR4/3) clay loam Baytown midden was encountered below the crisp stratigraphic break provided by the clay lens. It was crosscut by several deep Mississippian wall trenches and postmolds. Fifteen postmolds, four wall trenches, and one refuse-filled pit were recorded in the lowest levels of the unit. Seven of the postmolds contained only Baytown period sherds. A plot of features shows that the Baytown postmolds tend to form a recognizable line and may represent the disturbed remains of a structure wall. The remaining features are Mississippian in age (Figure 8).

Pit 14 was a basin-shaped Mississippian pit that was partially exposed by the excavation. Like Wall Trench 13/16, it was capped by the clay floor identified at 50-55 cm below surface, so it should mark the oldest Mississippian portion of the midden. Pit 14 contained undecorated Mississippian and Baytown period sherds (Table 1).

Wall Trench 13/16 comprised the trenches for the northwestern corner of a Mississippian structure. The ceramics from this trench are essentially the same as those from Pit 14. Wall Trench 11/12 was superimposed on Wall Trench 13/16 and was stratigraphically associated with the building episode identified at 50-55 cm below surface. Wall Trench 14 was the most recent of the Mississippian wall trenches. It cut through the clay floor associated with Wall Trench 11/12 and must relate to a subsequent building episode.

In summary, the initial occupation at the southern edge of the western village was a Baytown component that comprises possible structural remains and a midden that is as much as 30 cm thick. Subsequent to the Baytown occupation, the locality was used by Mississippian peoples through at least three distinct building episodes,

TABLE 1. Adams Site Feature Contents.

Artifact Class	Refuse-filled Pits								Hearths		
	7	9	10	11	12	14	17	21	16	18	17
Ceramics											
Mississippi Plain	31	19	3	19	6	12	6	11	100	14	5
Matthews Incised,											
var. Beckwith	-	1	-	-	-	-	-	-	-	-	-
var. Manly	-	-	-	-	-	-	-	-	-	1	-
Bell Plain	10	5	1	14	2	5	3	3	9	14	-
O'Byam Incised											
var. O'Byam	-	-	-	1	-	-	-	-	-	1	-
var. Adams	-	-	-	-	-	-	-	-	1	-	-
Mound Place Incised	-	-	-	-	-	-	-	-	1	-	-
Kimmswick Fab. Imp.	-	3	-	2	-	-	1	-	13	-	-
Wickliffe Thick	-	2	-	3	-	-	-	-	12	-	-
Untempered Plain	2	2	-	-	1	-	-	1	1	-	-
Baytown Plain	3	2	-	4	1	5	-	2	3	-	-
Mulberry Creek Cm.	9	4	-	-	3	13	-	6	-	-	-
Surface Eroded	1	2	-	2	-	3	2	2	16	1	-
Less than ½ in.	23	9	-	15	8	8	1	-	79	-	-
Other Unclassified	2	-	-	-	-	-	-	-	1	1	-
Other Fired Clay Artifacts											
Daub	6	13	-	156	2	-	-	2	128	147	16
Chipped Stone Tools											
Projectile Points	-	-	-	-	-	2	-	-	-	-	-
Adzes	-	-	-	1	-	-	-	-	-	-	
Utilized/Retouched Flakes	-	-	-	3	-	-	-	-	1	1	-
Modified Ang. Fragments and Cores	-	-	-	-	-	-	-	-	1	-	-
Modified Cobbled											
Abraders	-	-	-	-	-	1	-	-	-	-	
Other Stone Artifacts											
Unmodified Rocks	4	-	-	3	-	-	-	2	33	1	-
Ang. Fragments & Cores	-	-	-	2	1	4	-	-	4	1	1
Unutilized Flakes	1	-	-	1	3	8	-	2	14	-	3
Bone Tools and Artifacts											
Awls	1	-	-	-	-	-	-	-	-	-	-

all of which are clearly documented by wall trenches, a refuse-filled pit, and one burned house floor. The one radiocarbon age determination from this unit may be associated with either the building episode that left the clay floor, or the subsequent one that left Wall Trench 14.

Unit 2 (Figure 9)

This unit was situated at N33-35 W0-2, or 19 m north of Unit 1. Two zones were delineated. The first, a plowzone, was a very dark gray (10YR3/1) loam and measured 28 cm thick. The second, a dark gray brown (10YR3/2) to dark brown (10YR3/3) Mississippian midden, extended to 55-60 cm below surface. A carbonized wood concentration at 49 cm below surface was radiocarbon dated at A.D. 1320-1390±70 (ISGS-1141). The uppermost portions of Wall trenches 3, 5, and 8, and Postmold 7 (Pm7) were also identified at the 49 cm level. The 49-55 cm level revealed the gross plan of the remaining six wall trenches and four refuse-filled pits that had been dug into the underlying culturally sterile soil (Figure 9). An infant burial was found at the midden base in the northeastern corner of the unit. No Baytown midden was isolated in this unit, but Baytown ceramics account for 31% of the total number of sherds classifiable by archaeological period.

The unit was excavated an additional 10 cm to a depth of 65 cm below surface in order to define the features more clearly. The nine wall trenches dominated the horizontal plan of the base of the unit (Figure 9). None of the other test excavations revealed such abundant evidence of construction episodes.

Stratigraphically, Wall Trench 2 was the oldest trench. It was superimposed by Wall trenches 3 and 6. Wall Trench 3 was constructed after Wall Trench 6 and before Wall Trench 8. Wall trenches 8 and 10 were both dug after Wall trenches 4 and 5. Wall trenches 3 and 7 possibly represented a structure corner. Wall trenches 1 through 5 were all oriented slightly east of grid north and Wall trenches 6, 7, and 10 intersected them at approximately right angles. The general pattern was one that would be consistent with at least five separate construction episodes at the same general locus.

Two of the four refuse-filled pits (Features 7 and 10) had circular horizontal plans, but were diffuse in cross-section. The fill of Feature 7, reported in Table 1, was unavoidably mixed with part of the fill of Wall trenches 6 and 7 during excavation since the pit outline was so difficult to follow precisely. Feature 12 was roughly circular with a width of 30 cm and a flat base at 86 cm below surface. It contained a large amount of carbonized wood, but few other cultural materials (Table 1). The remaining pit, Feature 21, was originally recorded as a large postmold. Feature 21 was oval in horizontal plan and measured 44 cm along its longest axis. The fill was homogeneous and the bottom at 98 cm below surface was asymetrically rounded (Table 1).

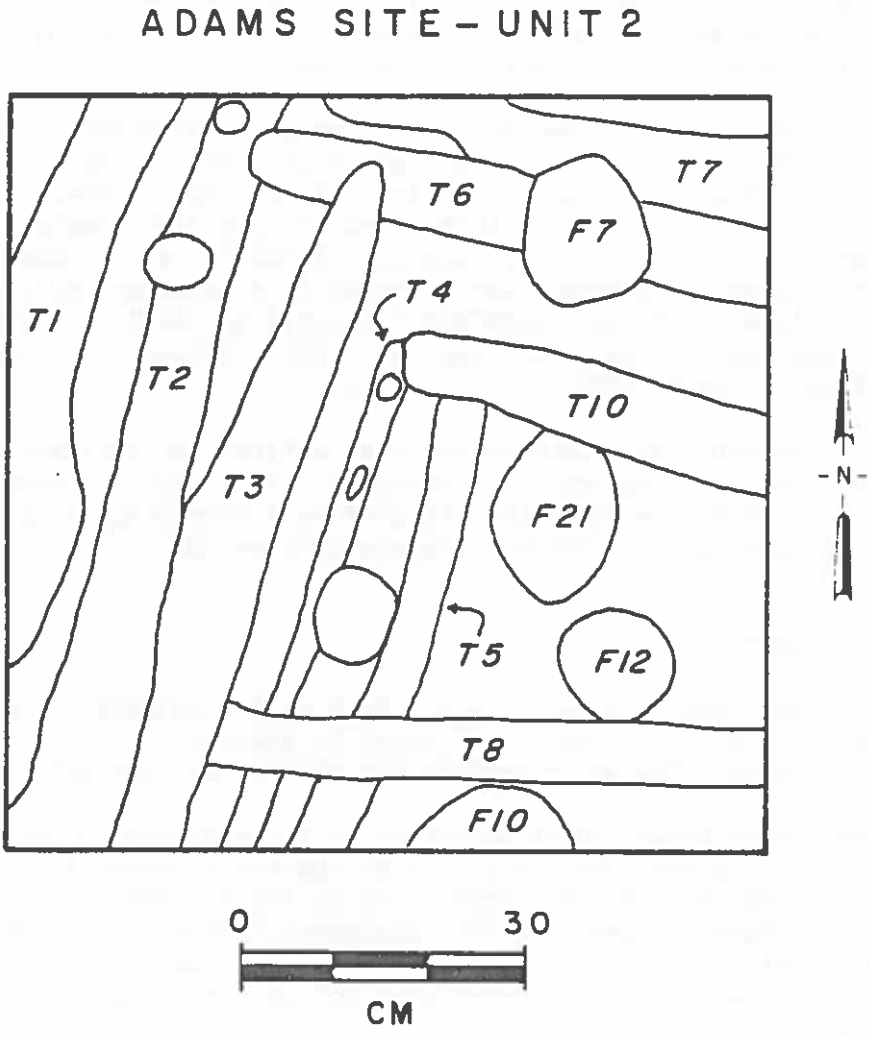


FIGURE 9. Horizontal Plan of Unit 2 Features.

Unit 3 (Figure 10)

The final test unit in the western village was placed at N99-101 WO-2, or 64 m north of Unit 2. This excavation was situated close to the base of Mound A. Excavation revealed a midden that was basically similar to Unit 2 in composition and depth, but without the complex array of wall trenches cut into its base.

Beneath the 24 cm thick plowzone, a very dark gray (10YR3/1) clay lens, interpreted as the remains of a house floor, covered much of the unit at 30-35 cm below surface. Lying on the house floor were several deer bones and large sherds, including a broken Wickliffe Thick funnel. A radiocarbon age determination made on carbonized wood from this level yielded a date of A.D. 1220±73 (ISGS-1150).

Cultural materials decreased in abundance below the house floor and the midden base was reached at about 55 cm below surface. A refuse-filled pit, Feature 9, part of a wall trench, and several postmolds were recorded at this level (Figure 10). Feature 9 dominated the center of the unit. It was a circular, basin-shaped pit that measured 75 cm in diameter and extended to a maximum depth of 95 cm. It was associated with the housefloor isolated at 30-35 cm below surface. Carbonized wood from the top of this feature was dated at A.D. 1220-1260±73 (ISGS-1172).

Wall Trench 9 was shallow and best defined in the southern vertical profile and in the wall of Feature 9. The fill of Feature 9 had been removed prior to the identification of Wall Trench 9, so the question of possible superpositioning must remain unanswered.

Unit 4 (Figure 11)

Only one test excavation was placed in the eastern village. It was located adjacent to Mound F and close to several filled-in holes left by recent vandals. The grid coordinates of the unit are N211-213 E198-200.

The midden dated almost entirely to the Mississippi period. Baytown ceramics accounted for only 2% of the total number of ceramics. The archaeological deposit was roughly 95 cm thick. The southwestern corner of the square showed recent disturbance from a relic hunter's hole. Unfortunately, this hole also destroyed a portion of the vertical profile that would have been helpful in the interpretation of the unit's stratigraphy.

Essentially two strata, besides the 24 cm thick plowzone, could be delineated. The most recent stratum was part of a house basin in the southern half of the unit. It was identified at 45 cm and extended to about 70 cm. Wall trenches from this house were recorded at 94 cm below surface (Figure 11). The structure had been placed in a shallow basin that was approximately 20-25 cm deep. The basin excavation had

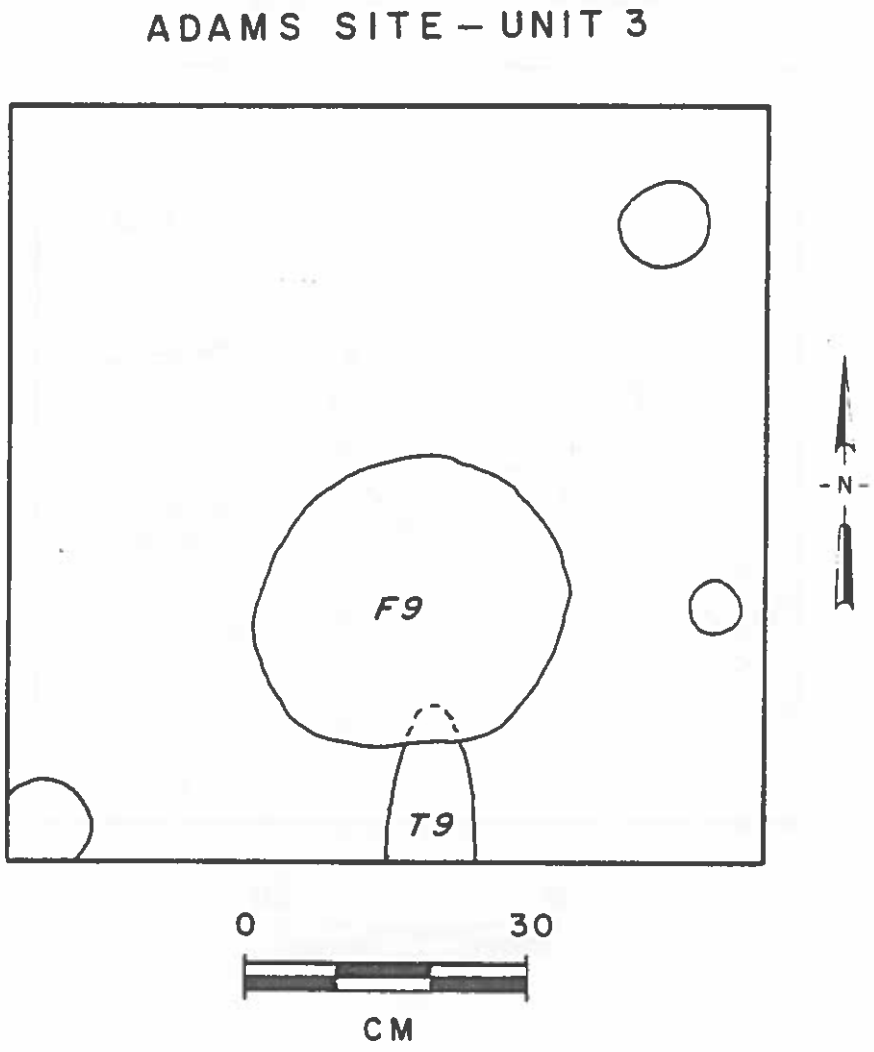


FIGURE 10. Horizontal Plan of Unit 3 Features.

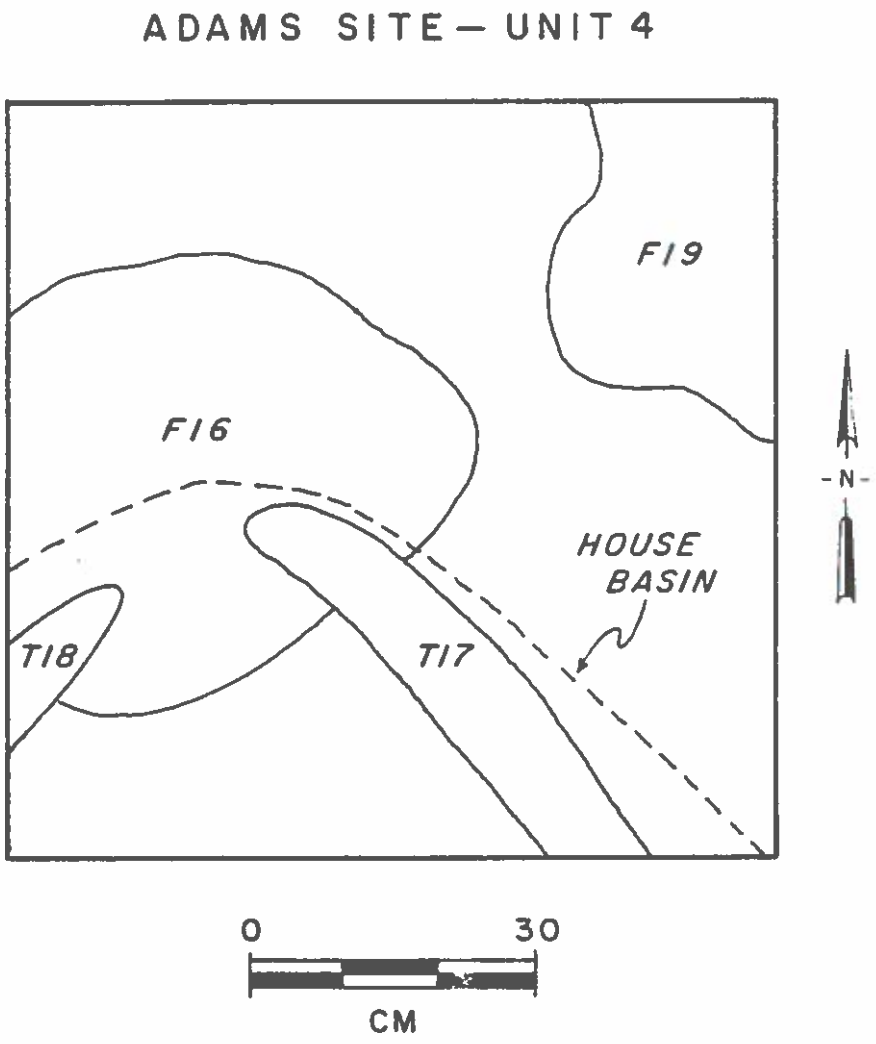


FIGURE 11. Horizontal Plan of Unit 4 Features.

apparently disturbed part of the fire bed that comprised the bottom half of the midden.

Beneath the house basin the midden consisted of ash and daub lenses that alternated with relatively thick patches of sterile clay. These lenses continued to the base of the unit. Toward the lower 15-20 cm of the midden, the ashy debris tended to concentrate in the western half of the unit. Upon excavation, this area revealed a large, shallow fire basin, Feature 16. Associated with this basin in the northeastern corner of the unit was an 8 cm thick sheet of light brown clay, daub, and ash, which was designated as Feature 19. Feature 16 was simply too large a feature to be adequately understood or described on the basis of a small test excavation. The ashy fill of this diffuse feature was particularly rich in carbonized plant remains, but its large size seems to argue against an identification as simply a domestic cooking hearth.

Wall trenches 17 and 18 were clearly superimposed on the edge of Feature 16 and formed the footings for the building initially defined at 45 cm below surface (Figure 11). Carbonized wood from the fill of Wall Trench 17 was dated at A.D. 1060-1160±73 (ISGS-1161).

Unit 5 (Figures 12-13)

This unit was situated at N309-311 E123-125 on the so-called "Saddle" between Mounds B and C (Figure 3). The plowzone was 27 cm deep and the total midden depth was about 80 cm. A large fired clay daub lens, interpreted as a collapsed wall, covered the northern half of the unit below the plowzone and a few centimeters of midden (Figure 12). The daub in this lens was broken up and it rested directly on top of a burned clay floor. Several carbonized logs, measuring 5-10 cm in diameter, were sandwiched between the top daub lens and the burned floor in the southeastern corner of the unit. Fragments of one log were dated at A.D. 1320-1390±70 (ISGS-1151).

The burned discoloration of the in situ daub floor was traceable for nearly 10 cm in the vertical profile. It graded into the Mississippi period midden except in the southeastern corner of the unit where a small portion of a possible burned floor was recorded at 80 cm below surface.

The uppermost floor also provided a stratigraphic cap for a large clay-lined hearth, Feature 18, and two refuse-filled pits, Features 17 and 22 (Figures 12-13). The hearth was at least 40 cm in diameter and roughly 35 cm deep. Its walls were lined with burned clay that measured approximately 3 cm thick. The clay walls sloped sharply to a flat bottom. The shape of the feature bottom and the characteristics of the hearth fill itself are difficult to reconstruct since the feature was mostly destroyed by a relic hunter's hole, originally designated as Feature 11. At least two other potholes were identified in profile in this unit (Figure 12).

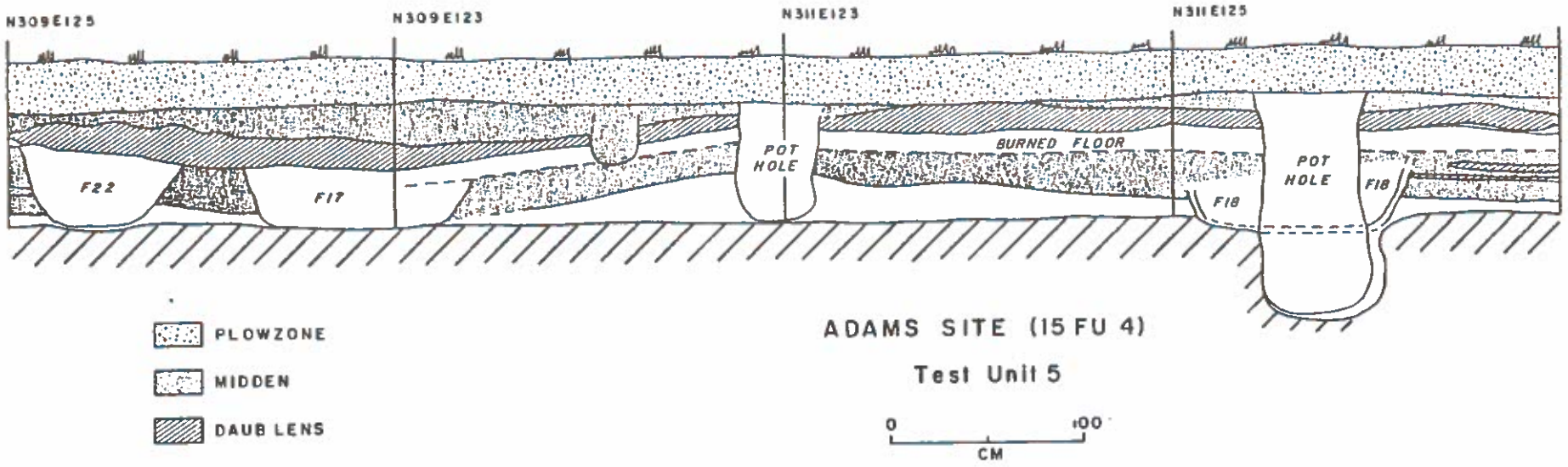


FIGURE 12. Vertical Profile of Unit 5.

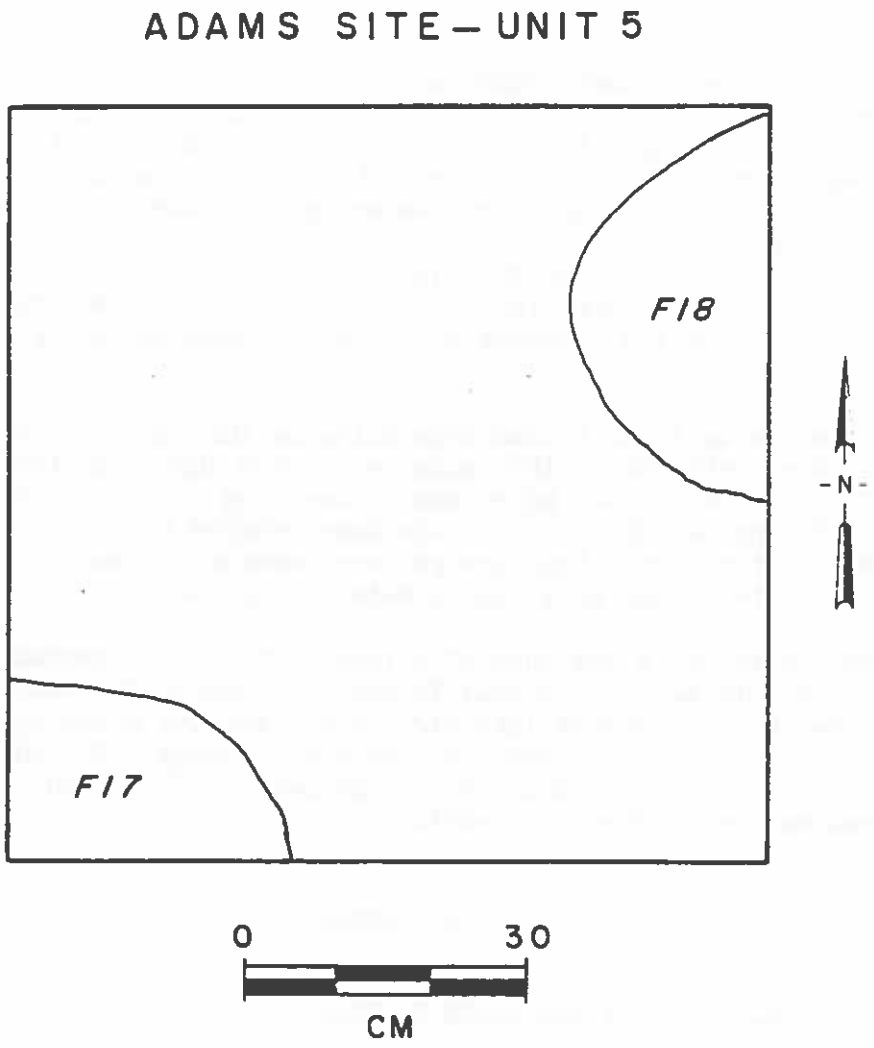


FIGURE 13. Horizontal Plan of Unit 5 Features.

The refuse-filled pits, Features 17 and 22, were both basin-shaped and contained homogeneous fills that were indistinguishable in color and texture from the midden. Like Feature 18, both pits were older than the burned building. Feature contents are not reported in Table 1 for Feature 22 since this pit was not identified until after the excavation of the unit.

Discussion

Each unit gives a much different picture of the site than its neighbors. Nevertheless, it is possible to identify several stratigraphic patterns. First, the Baytown component is apparently concentrated in the western village. Little is known about the size of this occupation, but it was intensive enough to leave a thick midden of debris. Second, another plaza may have been created to the southwest of Mound A after A.D. 1200. If this interpretation is correct, then one could more readily account for the lack of post-A.D. 1200 debris in the Unit 3 locality and the evidence of frequent construction episodes found in Unit 2.

Finally, Units 4 and 5 also show evidence that may reflect changes in site use patterns. The massive firebed that comprised the lower third of Unit 4 seems to have been something other than a simple domestic cooking hearth. It may have been related to the aboriginal use of Mound F. If so, then this use pattern eventually changed since the firebed is buried under more than a meter of midden.

In Unit 5 there is evidence of a long history of construction on the Saddle. This is surprising only in that the debris and features differ little from those of domiciliary structures, but the buildings rested on a ramplike mound that connects two other mounds. The locality is a space that is public by design and the presence of midden debris and house remains are difficult to explain.

Cultural Remains

Ceramics (R. Barry Lewis and Lynne M. Mackin)

Mississippi Plain (Figure 14,a-k; 15,a-b)

Coarse shell-tempered plainware accounts for the bulk of the excavated sample. The sherds typically contain clay grog as an additional inclusion, ranging in abundance from an occasional particle to the dominant aplastic. The paste characteristics are essentially those described by Lewis (1982) for Cairo Lowland, Missouri, material.

The common vessel forms are jars, bowls, saltpans, and bottles,

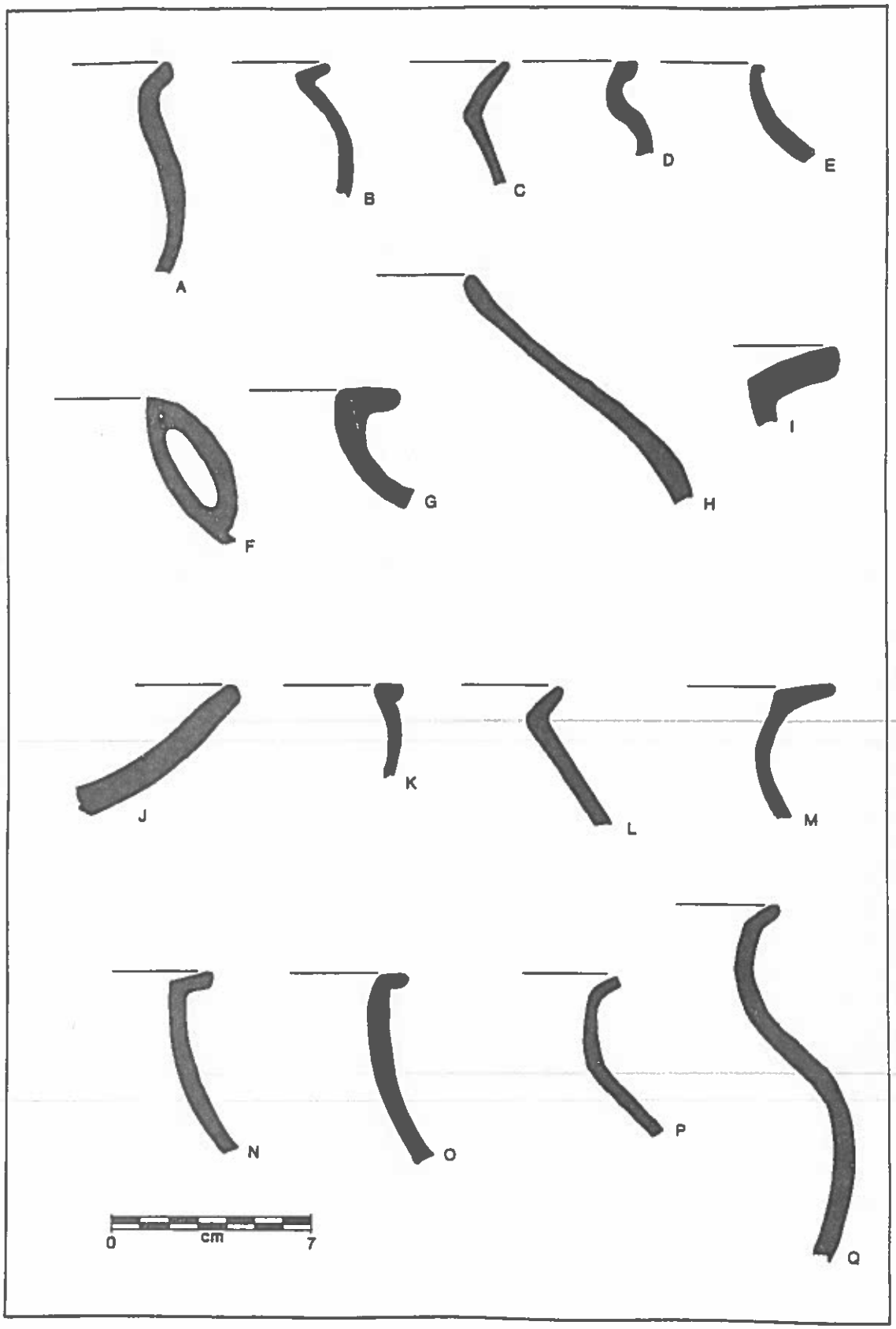
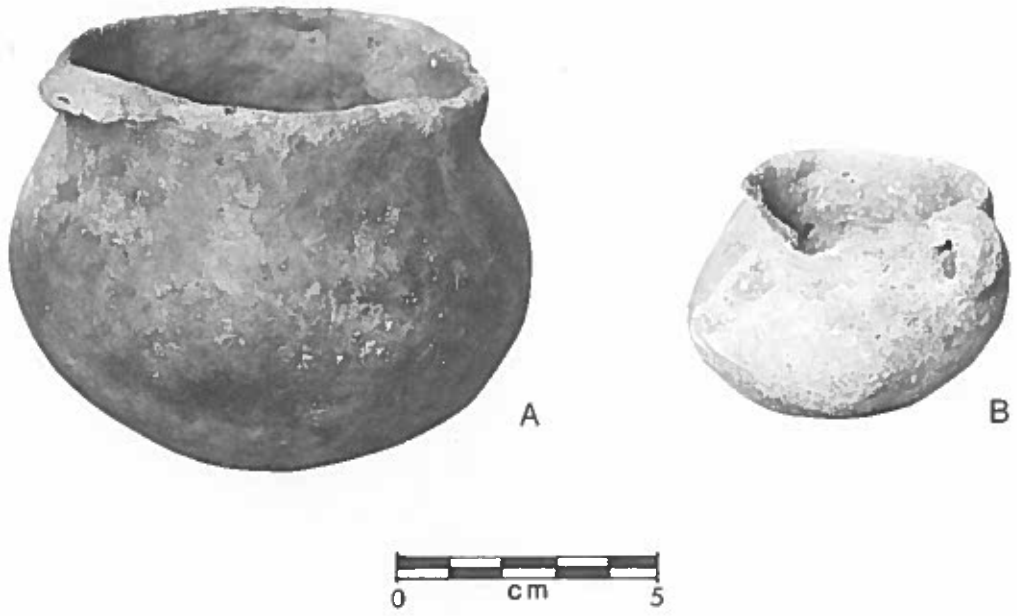


FIGURE 14. Rim Profiles: a-k, Mississippi Plain; l-o, Matthews Incised, var. Beckwith; p, Barton Incised, var. Kent; q, Barton Incised, var. Barton.



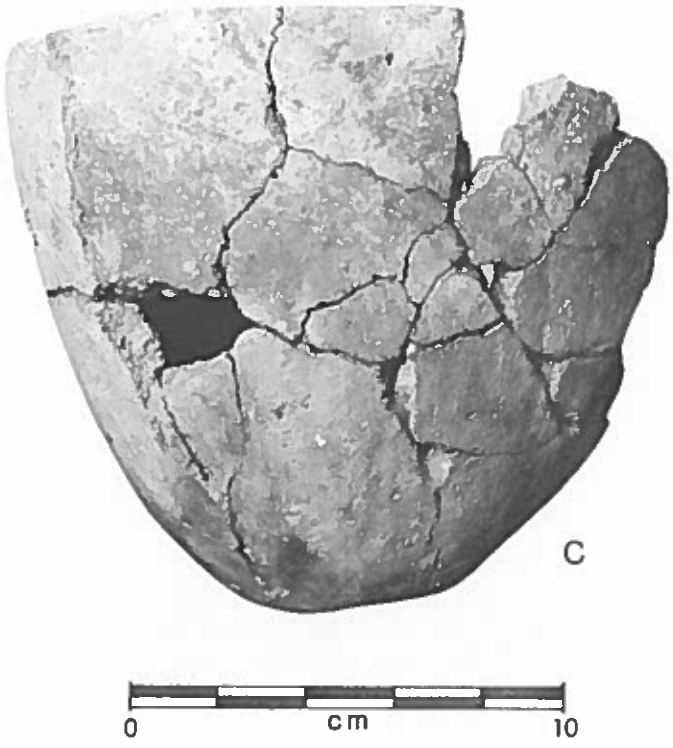


FIGURE 15: a-b, Mississippi Plain; c, Wickliffe Thick.

represented in that order of frequency. General characteristics of each form are described below. The number in parentheses following each form name is the estimated minimum number of vessels sharing that shape. Table 2 lists medians and ranges of the rim diameters of each form class.

Jars (66) - This is the most common form, representing 76% of the 87 Mississippi Plain vessels in the sample. The median rim diameter is slightly smaller than the 18-22 cm median reported by Lewis (1982:21,59) for comparable Cairo Lowland material, and about half of the Phillips et al. (1951:106) average for material from farther south in the Lower Valley.

Most rims (122 specimens) have an incurvate shape, but everted (70) and angled (35) rims are also common (Figure 14,a-i). Three rims are inslanted. The remainder are too small for an accurate assessment of their shape. Vessel lips are generally flat; rounded and inslanted lips also occur. One incurvate jar rim shows a continuous pattern of incisions perpendicular to the vessel lip.

Nearly 95% of the collection show no evidence of appendages. Eight specimens exhibit simple lugs; two have bifurcated lugs. There are seven rims with loop handles; four broken handles were also found separately. The latter include two double-horned loops, one plain and two incised single horn loops, a noded loop, and one elbow loop handle with a single incised line along its long axis. The most common loop form was undecorated and was attached to the vessel so that its uppermost portion protruded slightly above the lip. Three plain strap and two strap or loop handle fragments complete the collection.

Two whole vessels were found. One is a small jar with bifurcated lugs (Figure 15,a) that was found in association with Burial 1. The rim diameter is 8 cm, the height is 9 cm, and the vessel body is 11 cm wide. The second jar is a small, shoe-shaped vessel with opposing plain strap handles (Figure 15,b). It was found in a refuse-filled pit (Feature 17) in Unit 5. A small portion of the rim was destroyed during excavation. The rim diameter is 4 cm, the height is 5 cm, and the largest body width measurement is 7 cm.

Bowls (18) - As with the jars, these vessels are generally smaller than those reported by Lewis (1982) and Phillips et al. (1951). Bowl rim shapes are also more variable than those of jars (Figure 14,j-k). The most common shape is the excurvate outline of a simple hemispherical bowl (13 rims); the remainder are generally flared (4) or angled (3). Single specimens of inslanted, constricted, and everted rims were recorded. Most bowl lips are flat. One excurvate bowl rim has a continuous pattern of incisions perpendicular to the lip. Another rimsherd shows a simple lug appendage.

Saltpans (2) - These vessels were big, so much so that it is usually hard to find a rimsherd large enough to measure for a diameter estimate.

TABLE 2. Median and Range Sizes of Adams Site Vessels*.

Type Name	Number of Rim Sherds	Rim Diameter in Cm: 2-6	6-10	10-14	14-18	18-22	22-26	26-30	30-34	34-38	38-42	42-44
MISSISSIPPIAN CERAMICS												
Mississippi Plain												
jar	189	A			M						B	
bowl	21		A				M				B	
Matthews Incised,												
var. unspecified, jar	2			A		B						
var. Beckwith, jar	15			A	M			B				
var. Manly, jar	2			A		B						
Bell Plain												
jar	13	A	M		B							
bowl	89	A			M						B	
plate	13				A		M			B		
hooded bottle	8	M	B									
necked bottle	2	M	B									
O'Byam Incised,												
var. O'Byam,												
bowl	13				A	M			B			
plate	2					A			B			
Mound Place Incised,												
bowl	5		A	M			B					
Kimmswick Fabric Imp.												
saltpan	14									A	M	B
Wickliffe Thick,												
funnel	41	A			M		B					
BAYTOWN CERAMICS												
Baytown Plain,												
bowl	11		A		M							B
Mulberry Creek Cm.												
jar	7			A		M						
bowl	24		A				M					B

A= smallest, B= largest, B-A= range, M= median

* - Vessel forms and types which occur in only one size are excluded from the table, but are discussed in the text.

Sherds of ordinary size do not contain sufficient arc. The Adams specimens are at least 42-46 cm in diameter, which is comparable to Cairo Lowland material.

Bottle (1) - One necked bottle with a 2-6 cm mouth has an everted rim shape and an inslanted lip.

Matthews Incised, var. unspecified

This category includes at least two medium-sized jars (Table 2). Both show incised "continuous undulating motifs" typical of Matthews (Phillips 1970:128), but they do not contain enough of the overall decorative patterns to help classify them into the varieties they may actually represent. Rims are mostly incurvate and vessel lips are flat. None of the specimens have appendages.

Matthews Incised, var. Beckwith (Figure 14,l-o; 16,a-b)

This is the most common variety, comprising a minimum of 12 jars, which are comparable in size to Mississippi Plain jars. Rim shapes are about equally divided between incurvate, angled, and everted forms. Lips tend to be either flat or rounded. Decoration is confined to the distinctive guilloche motif (Phillips 1970:128) incised on rims and upper shoulders. There are no appendages.

Matthews Incised, var. Manly (Figure 16,c)

The most common form, represented by a minimum of two vessels, is a small (10-14 cm diameter) incurvate rim jar, often with a lobed body. The decoration is an undulating band of punctations that follows the upper edges of the lobes below the rim. The other form is a medium-sized, incurvate rim jar (18-22 cm diameter) with one or two incised lines placed below the punctation band and running parallel with it. Only one vessel of the latter is indicated by the rim count data, but several variations of this motif are present.

The small jar sherds often show exterior patches of carbonized organic matter. Assuming that such crusts are reliable indicators of cooking vessels, it is somewhat surprising to find that such little pots were used for cooking. Their volumes could not exceed one-third of a liter.

Barton Incised, var. Barton (Figure 14,q; 16,d)

One Mississippi paste jar rim and two body sherds show incised line-filled triangles or cross-hatching along the rims and rim-shoulder junctures (Figure 16,d). The rim comprises about one quarter of a

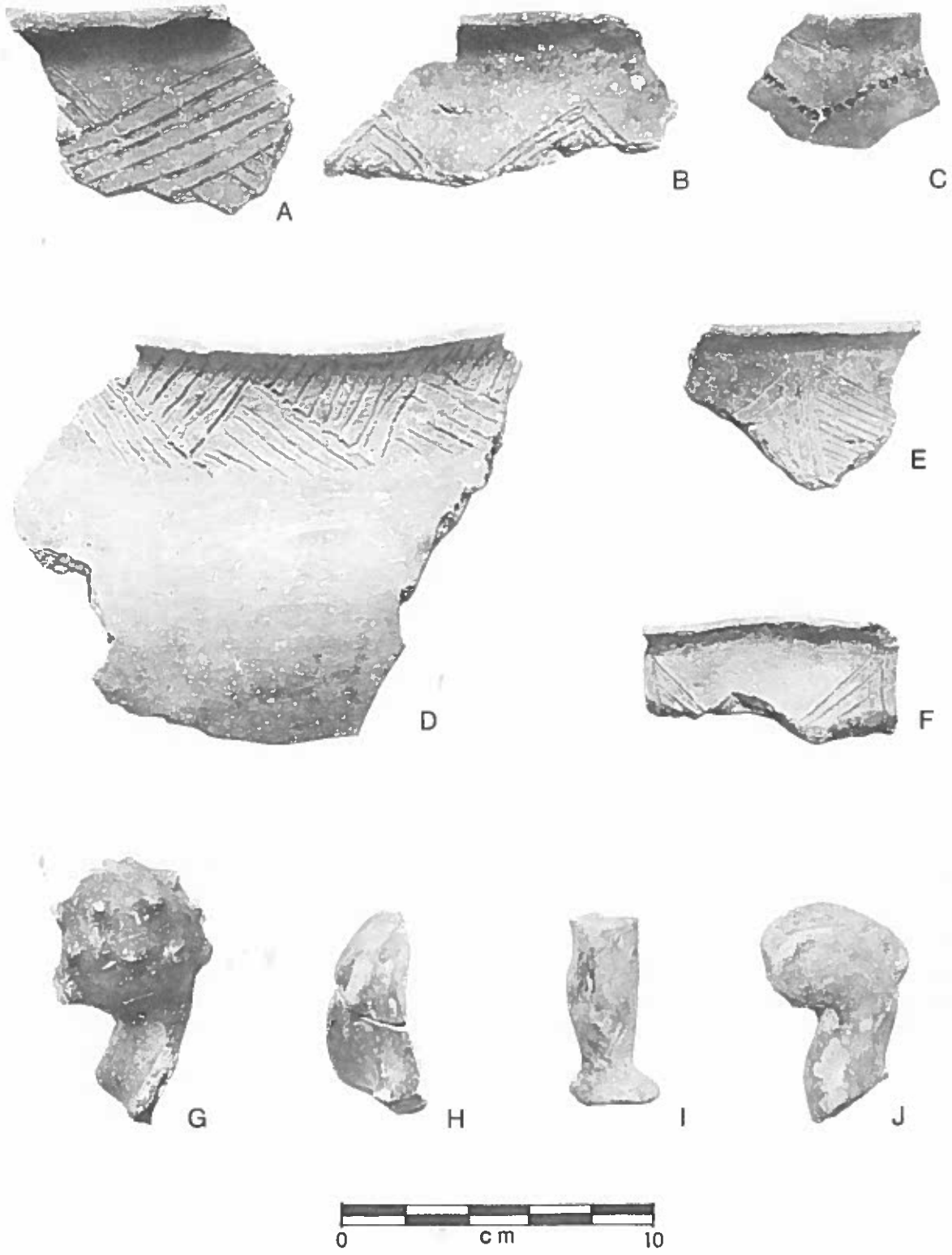


FIGURE 16. Ceramics: a-b, Matthews Incised, var. Beckwith; c, Matthews Incised, var. Manly; d, Barton Incised, var. Barton; e-f, Barton Incised, var. Kent; g, rim effigy adorno; h-j modeled sherds.

"standard Mississippi jar" with an estimated rim diameter of 18-22 cm, a height of 20 cm, and a maximum body diameter of 26-30 cm. It is decorated by closely spaced, incised lines that are nearly 2 mm wide. The lines form a band of alternating triangles around the rim. The decorative field is not, however, set off with an incised line or row of punctations, as is often the case with Barton Incised vessels (Phillips 1970:44).

The body sherds are less informative. One is a jar rim that has a band of triangles, alternately line-filled and unfilled. The incisions are much narrower than that described above, less than 1 mm in width. An incised line sets off the decorative field. The other specimen has line-filled elements, but the overall pattern is unidentifiable.

Barton Incised, var. Kent (Figure 14,p; 16,e-f)

Two rims and one body sherd comprise about 40% of a small (14-18 cm diameter) Mississippi paste jar. The rims are everted with flat lips. The incised design has been formed by bands of vertical incised lines that begin well below the lip on the constricted area of the rim and extend onto the body. The bands are spaced about 7 cm apart and form vertical fields filled with an incised herringbone pattern. Phillips et al. (1951:Figure 96,j) illustrate a similar vessel, but with appliqued handles from the Bell Place site in Mississippi County, Arkansas.

Bell Plain (Figure 16,g-j; 17,a-m)

This fine paste utility plainware is nearly as common as Mississippi Plain vessels. Bowls, jars, plates, and bottles comprise a minimum of 76 vessels.

Jars (10) - These are smaller than their Mississippi Plain counterparts (Table 2), but tend to share the same attributes. Rims are predominately incurvate (9 specimens) or everted (6). There is also one inslanted and one angled rim in the collection. None of the vessel lips are decorated. The only identified appendage is a noded loop handle.

Bowls (46) - This form was made with a wide range of rim shapes on a body that was usually smaller than Mississippi Plain bowls (Table 2). More than one-third (52 sherds) of the rims are from simple hemispherically shaped bowls, but flared (28) and constricted (13) rims are also common shapes. Minor variations include flanged (5 sherds), vertical (3), inslanted (3), and everted (3) rims, and single specimens of incurvate and angled rim bowls.

Most lips are round, but some are flat or inslanted. Lip decoration on Bell Plain vessels is limited almost exclusively to bowls. Incised notches perpendicular to the lip edge are found on the exterior or interior lips of 12 rims. Two specimens have diagonal lines incised

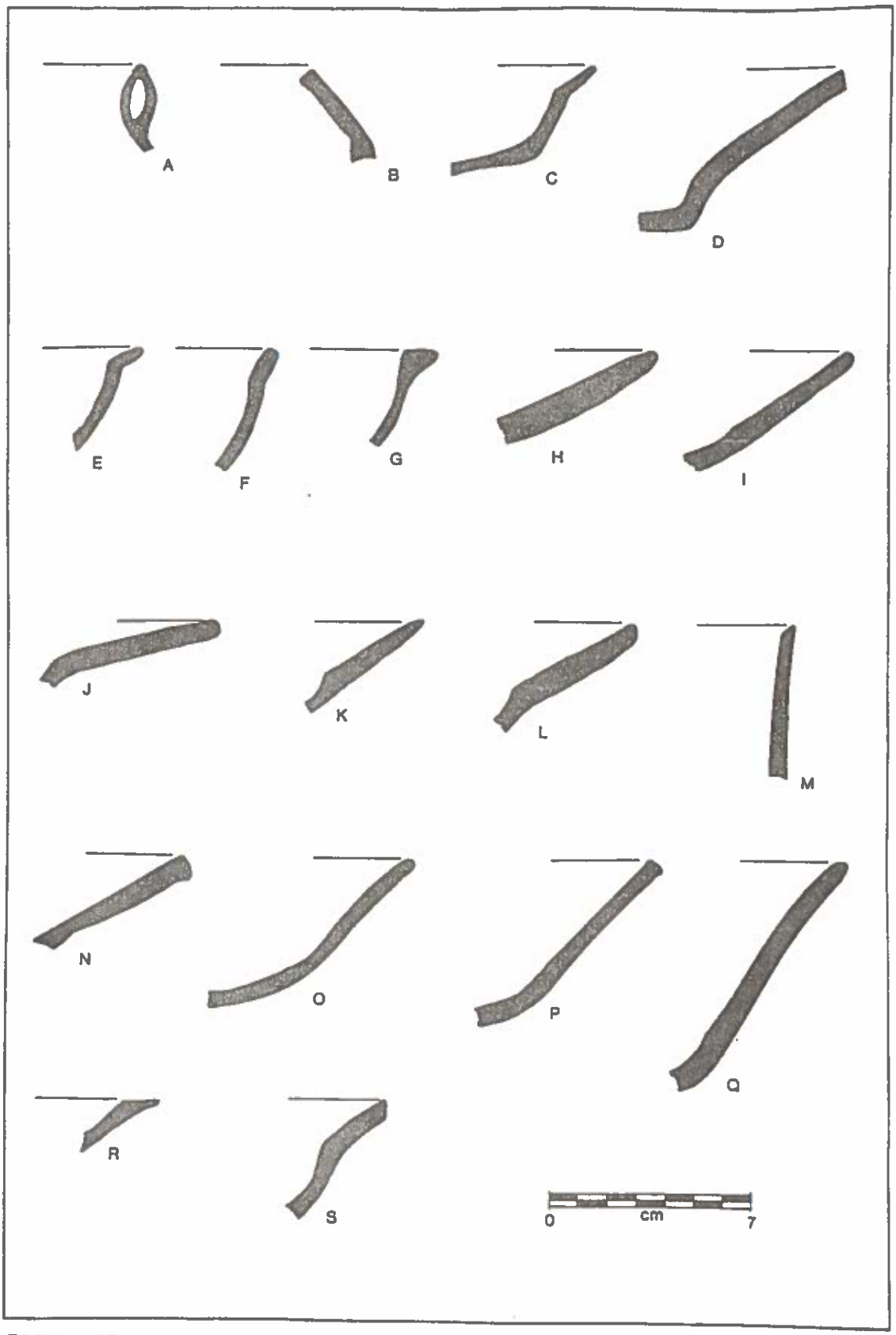


FIGURE 17. Rim Profiles: a-m, Bell Plain; n-q, s, O'Byam Incised, var. O'Byam; r, O'Byam Incised, var. Adams.

across the lip. Another specimen has similar incisions perpendicular to the lip edge. Modeling was another rare form of lip decoration. Modeled patterns include double peaked corners on a scalloped bowl form, a continuous undulating scalloped lip, and two variations of the "piecrust" rim, one of which was also thinned. Both modeled and incised decorative attributes tend to be restricted to excurvate or flared rim bowls.

Five bowl sherds have side tab appendages. Four of these are simple lugs, one of which is incised. There is one example each of a rim effigy adorno base, a modeled node placed below the rim, and a continous line of nodes that encircled a bowl lip edge.

Two rims may be the remains of fish effigy bowls. The first specimen, collected from the hearth (Feature 16) delineated at the base of Unit 4, shows a modeled projection interpreted as part of a dorsal or ventral fin. The other rim was found in midden context in Unit 2. It has modeled features that resemble the mouth and mandible of a fish. Both specimens have a polished black surface finish.

One bowl rim has an unusual effigy adorno. This appendage is a node-studded, ball-shaped rattle that measures about 45 mm in diameter (Figure 16,g). An oval-shaped break along the lower surface of the ball on the side that faces away from the vessel wall suggests that a stem, bill, or some other projection was originally sculpted there.

Plates (9) - The plates are usually bigger than bowls of the same paste (Table 2). Most of this size difference can be accounted for by the added rim flange that serves to distinguish plates as a special class of bowls (Figure 17,i-l). There is also greater variety in lip shape in plates than in bowls. Inslanted, rounded, pointed, and flat lips are almost equally common on plates. Lip decoration is restricted to continuous patterns of exterior or interior incised notches.

Bottles (11) - This category includes at least seven hooded and four necked bottles. Fragments of three stylized owl effigy hooded bottles were also found. One annular ring bottle base with perforations slightly larger than one square cm was collected from the spoil pile of Pothole D. The specimen would have comprised a bottle stand measuring 6-10 cm in diameter. Phillips (1970:Figure 103,o) illustrates a vessel with a similar base, but with more widely spaced perforations.

Colander or sieve (1) - One body sherd from midden context in Unit 1 is gridded with holes measuring 4-5 mm in diameter and spaced about 10 mm apart.

Modeled sherds - One fragment of a modeled human head shows part of the face, hands, and left ear (Figure 16,h). It may be part of a rim effigy adorno. Another modeled face shows an eye and possibly part of the left ear. A human leg of Bell paste may be a support from a dog effigy vessel (e.g., Perino 1966:111), or may actually represent part of an anthropomorphic figurine (Figure 16,i).

Zoomorphic effigies include two stylized bird heads (Figure 16,j) and a bat head, all of which are possible rim adornos. There are also two modeled ears in the collection.

Seven body sherds show isolated nodes or nodular projections that were appliqued to vessel exteriors. Another specimen, possibly from a bottle, has an added clay fillet modeled on the exterior surface.

Other appendages - Two podal supports from different vessels were collected from the midden in Unit 3. Both are worn down, presumably from use.

Additional remarks - One body sherd from the spoil pile of Pothole C shows a large exterior firing spall, the core of which is the negative impression of a maize kernel. It was surprising to find this cast, especially in a Bell Plain sherd. Bell Plain typically has a homogeneous and fine grained paste. A 6 by 8 mm inclusion of any sort, much less a maize kernel, is extremely unusual in that paste.

O'Byam Incised, var. O'Byam (Figure 17,n-q,s; 18,a-c)

Bell paste bowls and plates with incised triangular designs on their interiors are the fifth most common type in the collection. Several visitors to the site have remarked that O'Byam Incised sherds seem to be unusually abundant at Adams. The test excavation data tends to bear out those initial impressions.

Bowls (9) - The median size is slightly larger than other Bell paste bowls (Table 2). Rim shapes are flared (9 sherds), excurvate (6), and everted (5). Lips are usually out-slanted and decorated. Exterior notches account for over 50% of the lip modifications. Interior notches and incised lines, which were cut perpendicularly across the lip, are the other observed patterns.

Plates (2) - Both specimens are comparable in size to other Bell plates (Table 2). Rim shapes are either flanged (4 sherds) or flared (1); lips tend to be flat and undecorated. Only one plate sherd has a decorated lip. It consists of a continuous pattern of exterior notches. One plate rim shows a variation on the common decorative motif. The flange of this plate is incised with a continuous band of incised triangles filled with horizontal lines (Figure 18,c). Its paste, surface finish, and form are otherwise typical of O'Byam.

O'Byam Incised, var. Adams (Figure 17,r; 19)

Nine sherds, comprising a minimum of one bowl and one plate show decoration that is similar to, but sufficiently distinct from O'Byam Incised, var. O'Byam, to warrant separation as a new variety. The motif is two or more parallel lines incised in roughly triangular patterns on

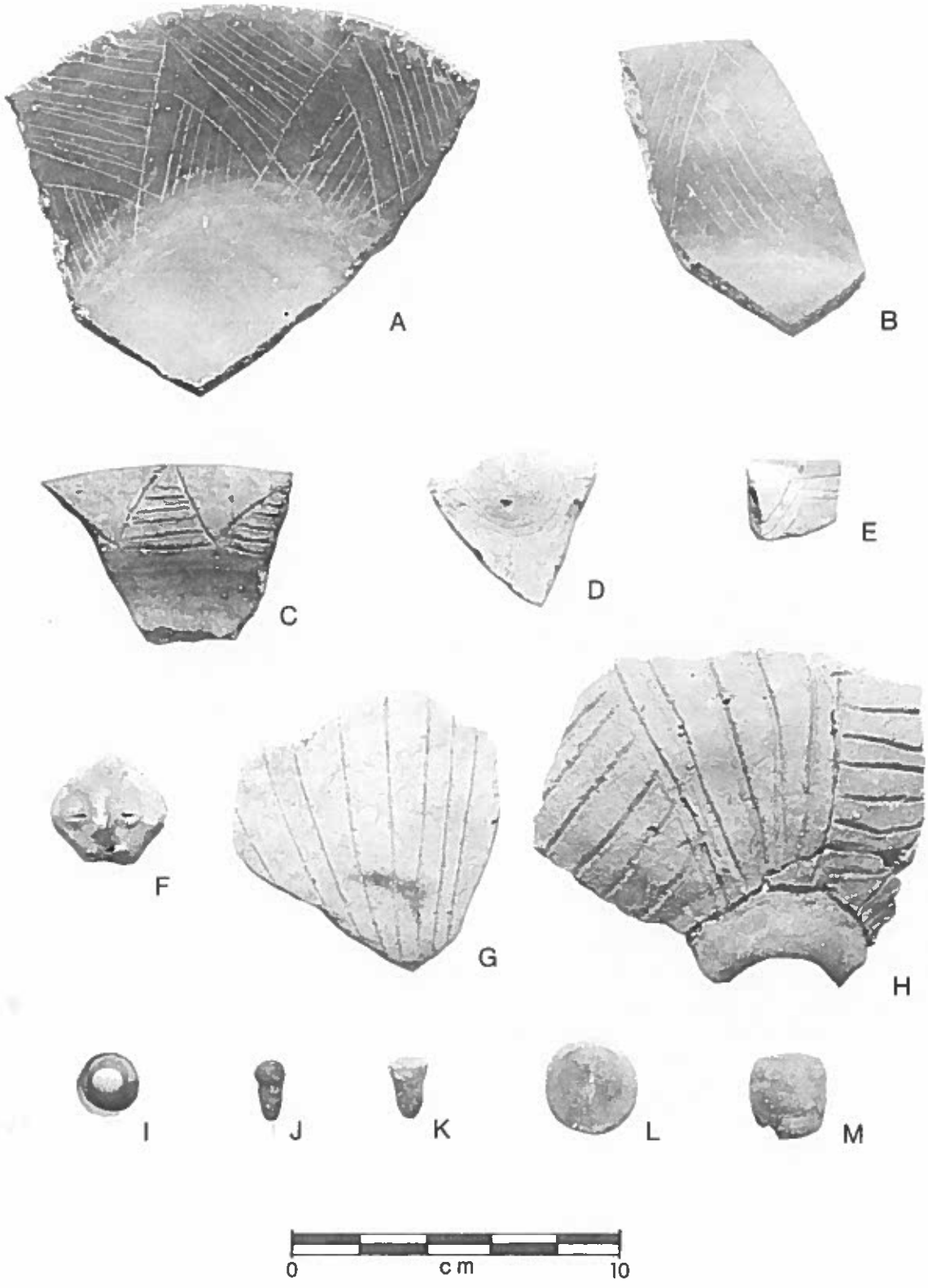


FIGURE 18. Ceramics: a-c, O'Byam Incised, var. O'Byam; d-e, Mound Place Incised; f, Old Town Red; g-h, Wickliffe Thick; i, earspool; j-k, ear pins; l, disk; m, clay cylinder.

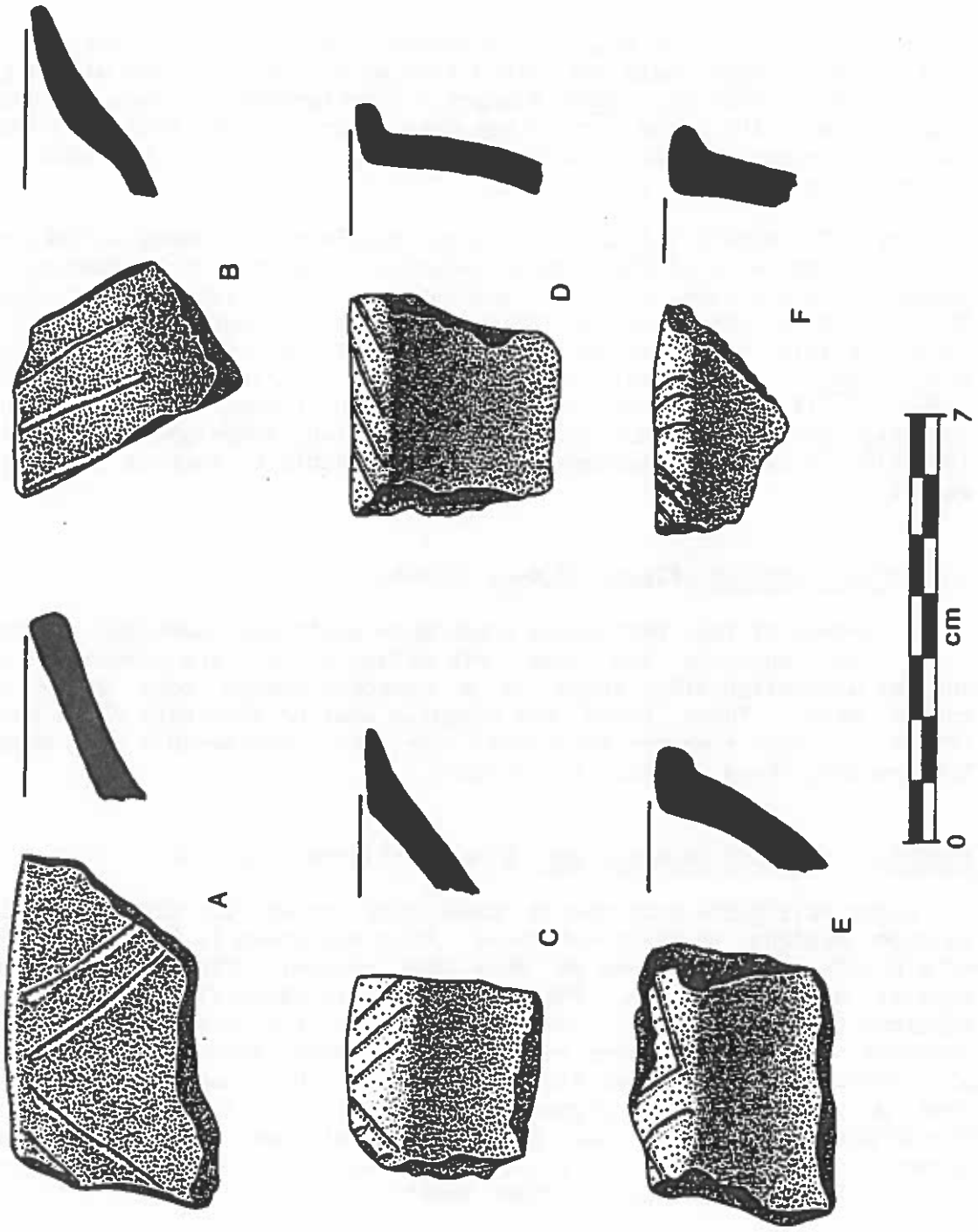


FIGURE 19. O'Byam Incised, var. Adams.

bowl lips or the interior rims of flanged plates (Figure 19,a,c,e-f). A variation of this motif is continuous incised lines placed at an angle across the flanged lip of a hemispherical bowl (Figure 19,d).

There are also some slight differences from typical O'Byam vessel forms. Var. O'Byam bowls are seldom flanged and plate flange widths are usually larger than var. Adams flanges. Stratigraphic studies at Adams suggest that the Adams variety may date slightly older than the O'Byam variety. Indeed, the Adams variety may be the stylistic forerunner of the more common O'Byam variety.

Orr (1951:Figure 9b) illustrates an example of the Adams variety rim in his discussion of the Kincaid ceramics. Similar rim treatments and vessel forms are also found on specimens of the type, Wells Broad Trailed, from the American Bottom, Illinois (Vogel 1975:104-106). Farther afield, the Adams variety is similar to Carthage Incised, var. Moon Lake, a central Alabama type described by Steponaitis (1983:310-311). The latter variety occurs on flanged-rim bowls most commonly during the Moundville I phase (A.D. 1050-1250; Steponaitis 1983:310), a temporal placement that is comparable to that of the Adams variety.

Mound Place Incised (Figure 18,d-e; 20,a-b)

A minimum of four Bell paste bowls have multiple, parallel incised lines that encircle the rims. Rim effigy adornos are common and the incised decoration often drops in a crescent-shaped bend below the adorno base. These bowls are slightly smaller than Bell Plain bowls (Table 2). Most rims are excurvate; lips vary considerably in shape. One specimen shows exterior lip notches.

Nashville Negative Painted, var. Kincaid (Figure 21,a-b,d)

Eight Bell paste body sherds have dark brown to black negative painted designs on their exteriors. Only one sherd is definitely part of a bottle, but six others do show the coarsely finished interiors typical of such vessels. The design motif is identifiable on only one specimen (Figure 21,a). It is about one third of a "cosmic symbol" or sunburst similar in color reverse to specimens illustrated by Cole et al. (1951:Plate 24C,g) from Kincaid. Most of the remaining specimens have parallel bands of pigment organized in rectilinear or concentric circle patterns, but are too small to permit an inference of the decorative motifs (Figure 21,b,d). Two specimens were painted over a white to light gray slip; the other sherds were not slipped.

Old Town Red (Figure 18,f; 20,c)

This category includes 19 body sherds of Mississippi and Bell paste.

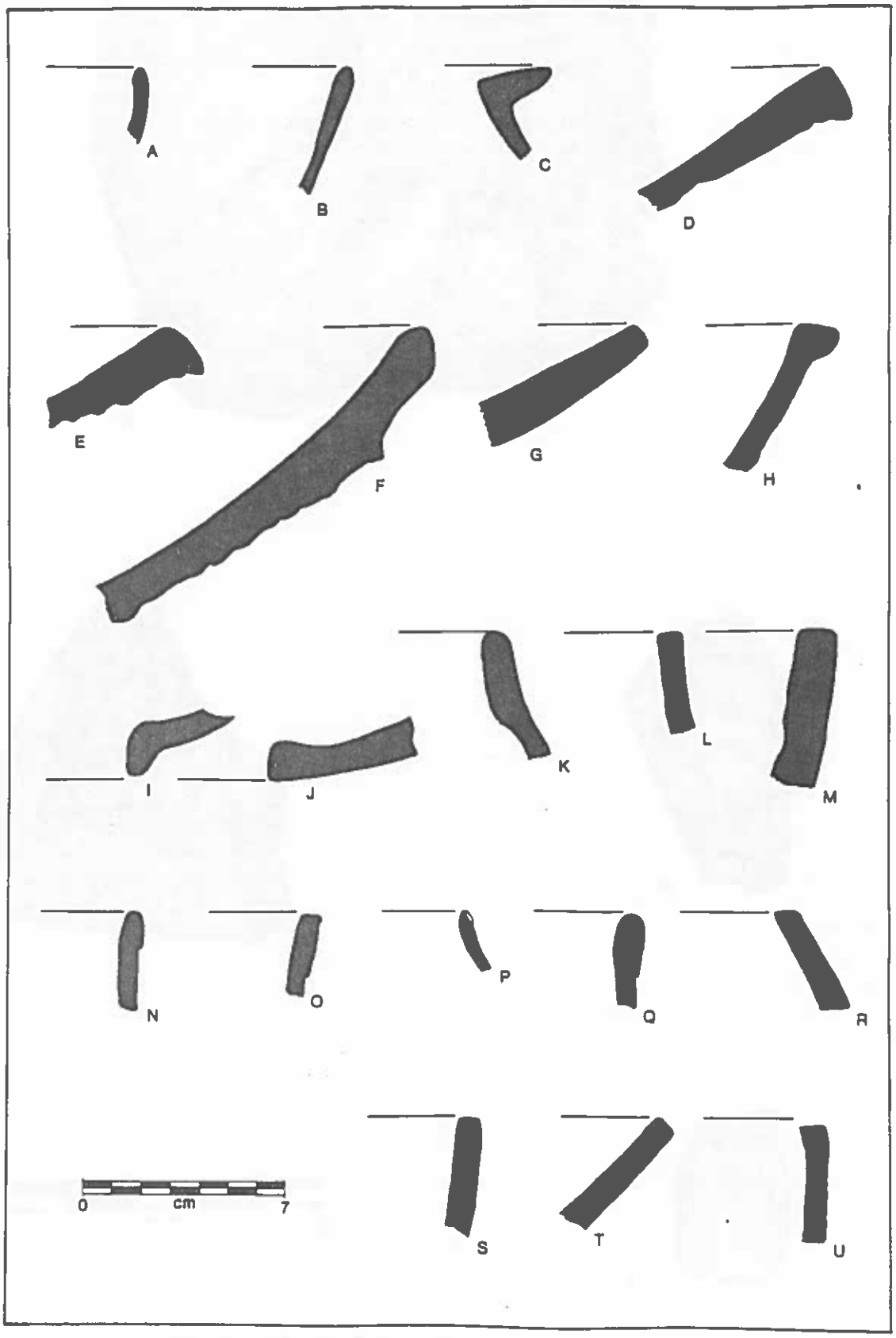


FIGURE 20. Rim Profiles: a-b, Mound Place Incised; c, Old Town Red; d-h, Kimmswick Fabric Impressed; i-m, Wickliffe Thick; n-t, Mulberry Creek Cordmarked; u, Baytown Plain.

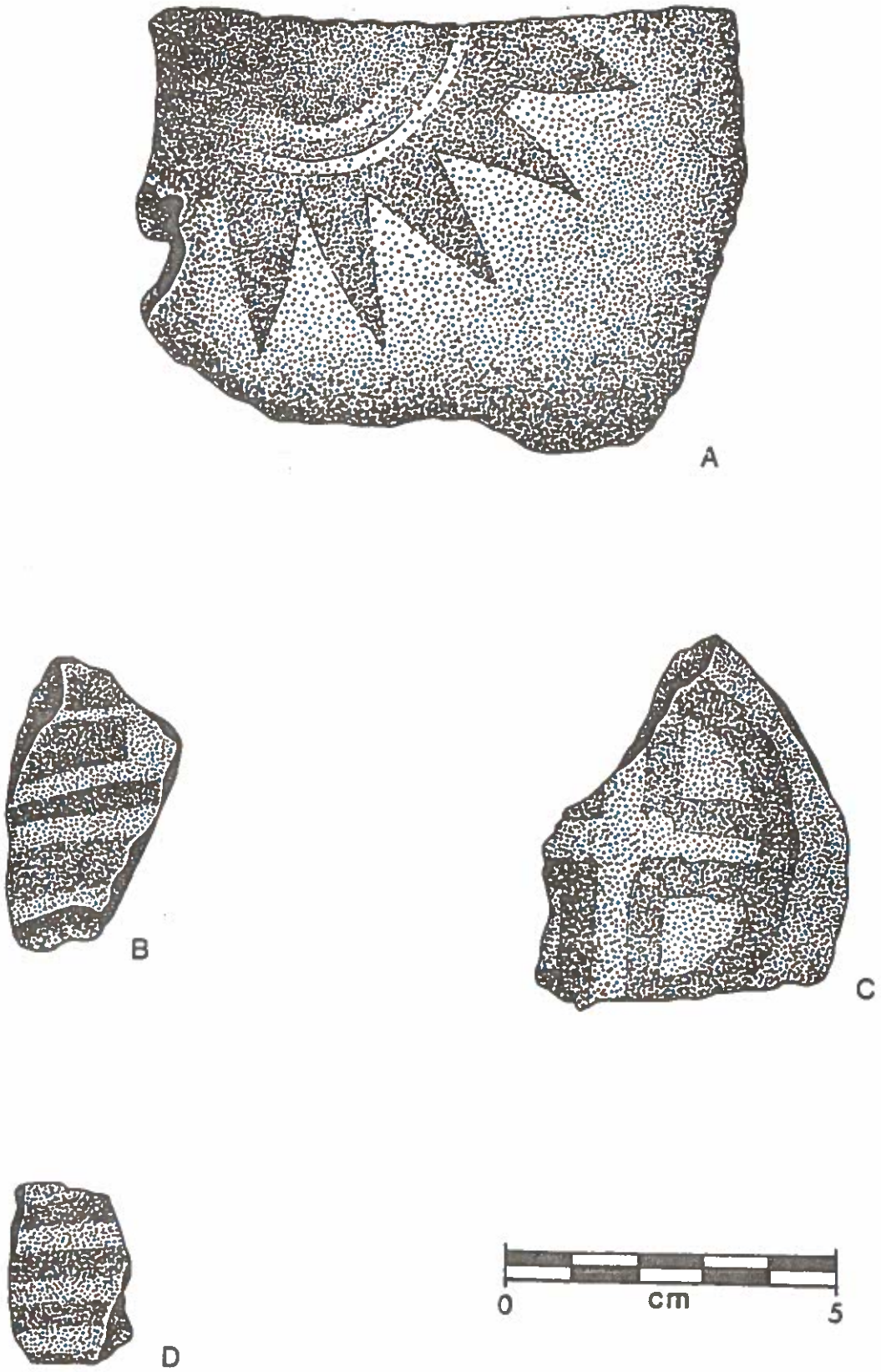


FIGURE 21. Nashville Negative Painted: a-b, Adams Site; c, Sassafras Ridge Site.

Among the sherds is one human face medallion (Figure 18,f) that was surface collected from the southwestern edge of the site. The specimen measures roughly 35 mm in diameter and the exterior is covered with red (10R5/8) slip. It was modeled from a single clay lump and appliqued onto a vessel wall. Judging from the lack of interior surface finishing and the similar examples illustrated from sites throughout the Lower Valley (e.g., Holmes 1903:Plate 15,a; Perino 1966:Figures 53-54,76), the medallion was one of a pair or more of such pieces attached to the upper shoulder of a necked bottle.

Two undecorated Mississippi paste sherds with red filmed interiors were surface collected from the spoil piles of Potholes B and C. One is an angled rim from a jar that measured 22-26 cm in orifice diameter (Figure 20,c).

One plate rim is also included in this category. The specimen has an interior brown (10YR4/3) slip. The exterior surface looks weathered, so the entire vessel may have been slipped at one time.

Kimmswick Fabric Impressed (Figure 20,d-g)

These are large, thick vessels that range in shape from a shallow "saltpan" to a broad, shallow bowl. The collection includes a minimum of nine vessels with a median diameter of 38-42 cm (Table 2). Tempering varies from a coarse Mississippi paste to predominately clay grog. Salt pans with plain exteriors were classified as Mississippi Plain. The material included here shows exterior fabric impressions that reach up to the vessel lip (Figure 20,d-e), or stop abruptly with a well defined ridge below the lip (Figure 20,f). Vessel interior surfaces were usually smoothed.

Wickliffe Thick (Figure 15,c; 18,g-h; 20,i-m)

Coarse, thick funnels are common at Adams. There are at least 30 vessels in the collection. The median upper rim diameter is 10-14 cm (Table 2). The paste is tempered with large pieces of clay grog, shell, grit, or any combination of the above. Exteriors range from wiped while the clay was still moist (common) to a smoothed finish similar to Bell Plain (rare). Vessel interiors typically exhibit a coarse surface finish.

There are two basic funnel forms. The most common one has a globular body with incurvate top and bottom rims (e.g., Phillips 1970:172). The other form is best described as a truncated ovoid (Figure 15,c). One example of the latter form was found on the floor of a structure preserved just beneath the plowzone in Unit 3 near Mound A. The lower opening is 45 mm in diameter, which is rather wide for a funnel in this region. Several other lower rims of this same form have openings as small as 20 mm in diameter. Upper rim shapes vary widely,

but are most often either vertical or incurvate with flat lips. Occasionally, excess clay from flattened lips was pushed down the rim slightly from the edge, as though the lip was flattened simply by setting the still plastic funnel top down on the ground. Lower rims are usually rounded.

As noted by Phillips (1970:171-172) and others, Wickliffe Thick shows a variety of decorative treatments. An incised pattern of parallel lines perpendicular to a vessel's long axis is common (Figure 18,g). Variations on this theme include additional incised lines that cut at an angle across the main pattern (e.g., Phillips 1970:172), and bands of parallel vertical lines separated by similar groups of horizontal lines (Figure 18,h). One body sherd shows part of a design formed by parallel sets of undulating incised lines.

Untempered Plain

Sherds from small vessels that show no apparent temper are a persistent characteristic of Mississippian assemblages in this region. They are never common, but one can count on sorting a few out of every thousand plainware sherds. There is a minimum of four bowls and one jar in the test excavation collection. The vessels are much smaller than comparable forms made in other pastes (Table 2). The bowls are generally hemispherically shaped and with rounded lips.

Mulberry Creek Cordmarked (Figure 20,n-t)

Based on the number of sherds, this is the third most common type in the collection. The paste is slightly sandy by comparison with Mulberry Creek Cordmarked sherds from the Yazoo basin of Mississippi, but it is quite different from the sandy paste of Barnes series ceramics from the Western Lowland of southeastern Missouri. Sand particles are rounded to subangular; small hematite inclusions are common. Interior smoothing ranges from wiped (a cursory attempt that leaves a bumpy surface) to a smoothed surface with essentially no observable tooling marks. Rimfolds are common. Other rim treatments, which may occur with or without rimfolds, include, first, a single incised line along the center of a vessel lip, and second, a continuous row of fingernail punctations placed on the exterior at the rim-lip juncture. The vessel forms are jars and bowls.

Jars (5) - These are slightly larger than Mississippi Plain jars (Table 2). Rim shapes are incurvate or inslanted and lips are flat or inslanted. Fingernail punctated rims occur only on jars. There are no appendages.

Bowls (12) - The median bowl diameter is 22-26 cm (Table 2), comparable to that of Mississippi Plain bowls. Rims are predominately vertical, but some sherds show inslanted or excurvate shapes. Most lips

are flat. The incised lip treatment described above occurs only on bowls.

Baytown Plain (Figure 20,u)

The paste characteristics and other attributes of this plainware are essentially the same as that of Mulberry Creek Cordmarked. Vessel forms include jars and bowls.

Jar (1) - The vessel measured 14-18 cm in rim diameter. Rim shapes are incurvate, inslanted, and everted. Lips are flat or inslanted. There are no appendages.

Bowls (7) - These are smaller than Mulberry Creek Cordmarked bowls (Table 2). Rims are primarily vertical, but can also be inslanted, constricted, or excurvate. Lips are flat or inslanted. The incised lip line described for Mulberry Creek Cordmarked also occurs on Baytown Plain bowls.

Unclassified Ceramics

Mississippi paste - Seven body sherds show portions of exterior incised motifs, but are too small to warrant further classification. One specimen shows a band of essentially parallel, fine incisions on a jar or bowl body. Two body sherds exhibit cordmarked exteriors. The interior of one of those sherds is red filmed. Both sherds were collected from the eastern village. One body sherd has a brushed exterior surface.

Bell paste - One rim, possibly from an everted lip bowl, shows fine shallow incisions that crisscross one another in a sloppy pattern. The decoration is restricted to the rim interior. Two body sherds of indeterminate vessel form exhibit portions of rectilinear incised designs. Six other specimens show portions of incised patterns, but they are too small to classify further. A bowl rim from a 10-14 cm vessel shows broad (2 mm), deep incisions below the rim. A similar body sherd has a rectilinear engraved design cut into a bowl exterior.

Other Fired Clay Artifacts (R. Barry Lewis and Lynne M. Mackin)

Earspools (Figure 18,i)

One complete and five fragmentary ring-type earspools were found. The pastes of each are fine-grained, but are not recognizably the same as that of Adams site pottery. Although the data are admittedly sparse, an examination of spool diameter estimates suggests that those artifacts were made in two sizes, a small version of about 18-28 mm in diameter,

and a larger 40-45 mm type (Table 3). Four of the six specimens were highly polished.

Similar artifacts are reported from Mississippian contexts at Angel (Kellar 1967:459) and Kincaid (Cole et al. 1951:Figure 40,10 and Figure 45,7), where they were also made from cannel coal and bone. Price and Griffin (1979:97,101) report two clay earspools from the Segment 1 portion of the Snodgrass site in the Western Lowland of southeastern Missouri.

Ear Pins (Figure 18,j-k)

Two knobbed ear pins were found in midden contexts. One is shell-tempered, has a rounded head, and measures 19 mm long. The other specimen has no apparent temper, a squarish head, and also measures 19 mm long.

Disks (Figure 18,l)

One complete and one fragmentary Bell paste disk were found in excavated contexts. Both appear to have been deliberately manufactured rather than ground into present form from sherds as is often the case with such artifacts (but not always--see Kellar 1967:457). The disk edges are flat rather than concave like earspools. The complete specimen was collected from the plowzone of Unit 4. It measures 28 mm in diameter and is 13 mm thick. The fragmentary specimen was found at 55-65 cm below surface in the same unit. It is possible that these artifacts were used as solid versions of the earspools described above. Their diameters are slightly larger than small-size spools.

Pottery Ball

One fragment of a Bell paste ball was collected from midden contexts. The reconstructed diameter is about 30 mm.

Clay Bead

One crude, fragmentary, spherical clay ball has a central perforation. The whole bead would have measured about 15 mm in diameter. The specimen shows no apparent temper.

Trowel

This category includes one Mississippi paste trowel head fragment with an estimated diameter of 9.5 cm and two pieces of flat-topped handles.

TABLE 3. Adams Site Earspools (measurements in mm).

Provenience	Spool Diameter	Ring Thickness	Ring Width	Ring Ext. Shape	Condition
Unit 2 (Feature 12)	40	4	12	Concave	Fragment
Unit 2 (Wall Trench 13)	40	6	13	Concave	Fragment
Unit 3 (30-35 cm bs)	25	6	15	Flat	Fragment
Unit 3 (40-50 cm bs)	45	10	18	Concave	Fragment
Unit 4 (70-75 cm bs)	18	4	12	Concave	Complete
Pothole J (Surface)	25	5	10	Flat	Fragment

Daub

A total of 6,110 pieces of fired clay daub or plaster were found. Most show abundant negative impressions of grass that was presumably added to the clay to improve its stability as it dried and contracted. Many specimens also display larger negative impressions of the coarse cane mats used as laths to support the plaster.

Clay Cylinder (Figure 18,m)

One complete and one fragmentary specimen were found. The whole cylinder has straight sides, measures 12 mm long and is 11 mm in diameter. The fragment has slightly excurvate sides and is 26 mm long and is 24 mm in diameter. Both may be the remains of ear ornaments.

Fired Clay Lumps

Nine clay "lumps" were also found. Seven are amorphous and range in temper from Bell paste to no apparent temper inclusions. Another flat biscuit-shaped object, collected from Pothole B, was tempered with plant fibers and grog. The remaining lump looks like a short piece of a Bell paste coil fillet.

Chipped Stone Tools (Len J. Stelle; Robert P. Kruger)

Except where otherwise noted, the following sections on the Adams site lithics are based on Stelle (1984).

Projectile Points (Robert P. Kruger)

Stemless projectile points: A-F (Figure 22,a-f; Table 4) - Blade margins are straight to slightly excurvate. One specimen (D) is a recycled Mill Creek hoe bit flake. Two projectile points (A and D) are minimally modified flakes; flake scars tend to be limited to continuous retouch along the blade margins and base.

Contracting stem projectile points: A-B (Figure 22,g-h; Table 4) - Blade margins are straight (A) or excurvate (B). Shoulders are well-defined. The stems contract slightly to thick, unthinned bases.

Unclassified projectile points: A-C (Figure 22,i-k; Table 4) - Specimen A has a corner notched stem, a slightly asymmetrical excurvate blade, and barbed shoulders. The corner notches were formed by the removal of deep, massive conchoidal flakes from each proximal corner of the preform. The basal margin is thinned and convex. Projectile point B is side notched with excurvate lateral blade margins and a slightly

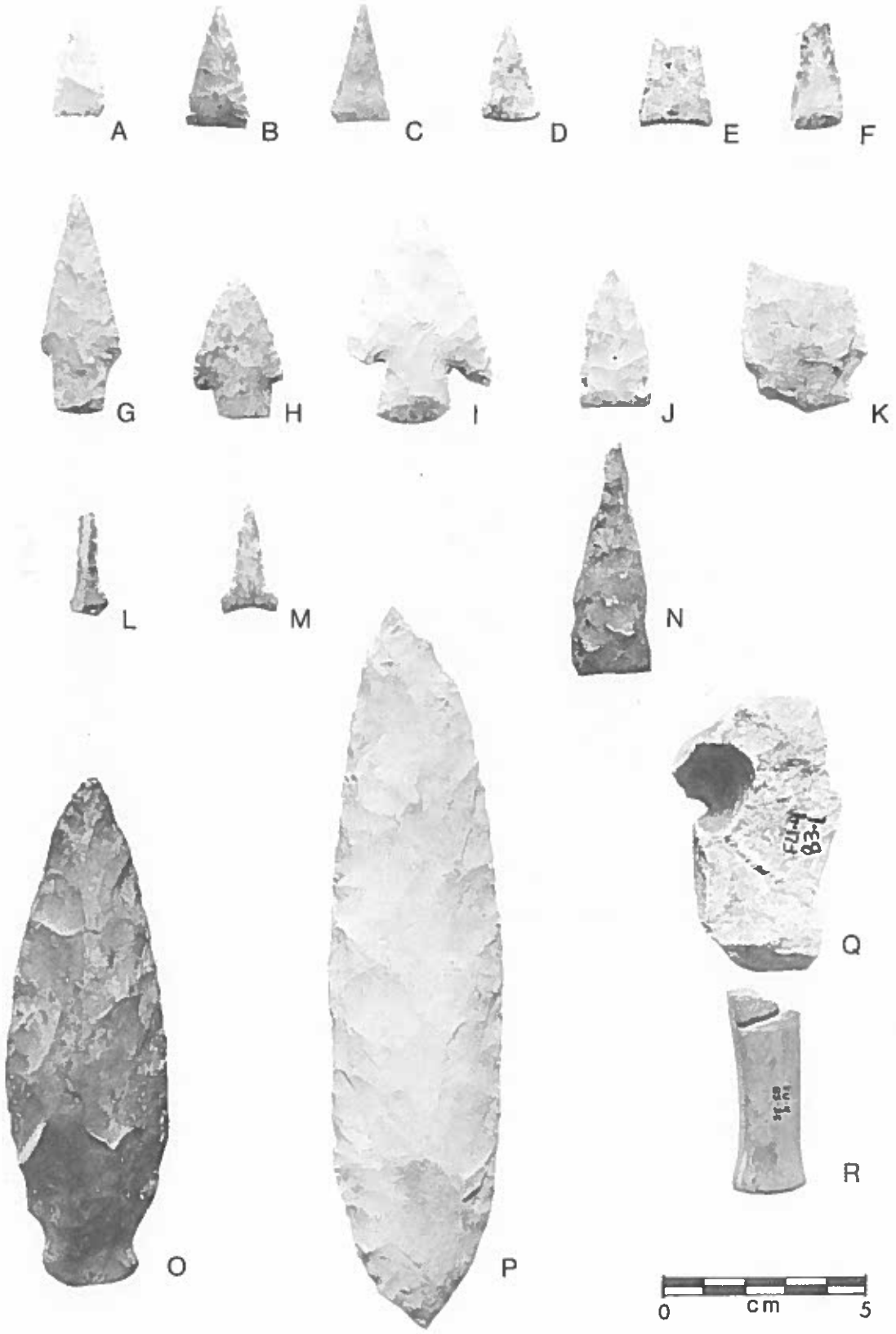


FIGURE 22. Chipped Stone and Other Artifacts: a-k, projectile points; l-n, drills; o-p, knives; q, pipe; r, winged bannerstone.

TABLE 4. Metric and Other Attributes of Adams Site Projectile Points.

Specimen	Total Length (mm)	Blade Length (mm)	Stem Length (mm)	Blade Width (mm)	Stem Width Blade Juncture (mm)	Stem Width Base (mm)	Thickness (mm)	Wgt (g)	Heat-Treated	Provenience	Remarks
Stemless Projectile Points											
a	23	-	-	-	-	14	3	1	n	Wall trench	Complete
b	30	-	-	-	-	17	4	1	y	Midden	Complete
c	29	-	-	-	-	15	4	1	y	Midden	Complete
d	24	-	-	-	-	19	4	1	n	Midden	Complete
e	22	-	-	-	-	19	4	2	n	Postmold	Proximal
f	26	-	-	-	-	14	4	1	n	Midden	Distal end missing
Contracting-stem Projectile Points											
a	55	40	15	21	15	13	6	6	n	Midden	Complete
b	36	28	8	23	14	13	7	5	y	Wall trench	Complete
Unclassified Projectile Points											
a	52	43	15	38	16	-	6	10	n	Pit	Stem missing
b	35	30	5	18	14	18	3	2	y	Pit	Complete
c	38	-	9	32	24	-	8	10	y	Surface	Proximal fragment

concave basal margin. Specimen C is a proximal fragment with an expanding stem and the butt of what appears to have been excurvate lateral blade margins. The shoulders are well-defined and the fragmentary basal margin is convex.

Projectile Point Fragments

This category includes six distal pieces, two proximal fragments, and two lateral segments of projectile points. The specimens are small and lack diagnostic characteristics that would aid their further classification.

Drills (Figure 22,l-n)

Two expanding base drills and one stemless specimen show rounding of the lateral bit margins. The microscopically observable use wear is particularly heavy on one drill, a small implement made of Purchase Gravel. The other specimens are Ft. Payne chert.

Drills/Perforators

Three Purchase Gravel flakes show unifacial or bifacial retouch directed toward the production of a point or bit. One specimen exhibits diminutive step fracture scars and rounding along the bit, features that would be consistent with use as a drill tip. The points of the other flakes do not show patterned use wear traces.

Knives (Figure 22,o-p)

Two large bifacial tools were classified as knives on the basis of size and use wear. One Ft. Payne chert specimen (Figure 22,o) is side notched and has excurvate lateral blade margins. It measures 126 mm long, 40 mm wide, and 18 mm thick. Approximately the distal one-third of this knife exhibits light rounding, step fracture scars, and other characteristics consistent with use as a cutting or hacking tool. Two diminutive mid-face facets are polished; the object appears to be a recycled woodworking tool, possibly an adz.

The other knife (Figure 22,p) is a stemless, asymmetrically ovoid, Mill Creek chert biface. It measures 178 mm long, 44 mm wide, and 16 mm thick. This specimen has rounded prominent facets and step fracture scars along the distal one-half of its lateral margins.

Blanks

Four large, coarsely flaked bifaces are classified as blanks, or

aborted preforms. One of the Mill Creek specimens is a recycled hoe remnant. Another example shows a hafting element formed by the removal of massive, conchoidal flakes and the crushing of the sharp flake scar edges in the resulting notch.

Preform

The category includes five fragmentary specimens that are distinguishable from blanks by the more complete flaking of their lateral margins.

Refined Bifaces

Two specimens were recovered. The lateral margins of each had been partially straightened by secondary retouch. They are therefore located farther along the tool production trajectory than preforms. One of these artifacts, a distal fragment, shows an abraded and polished tip.

Adzes

Seven broken specimens have thick, often nearly rounded, cross sections. Most proximal margins are heavily battered. Distal fragments show medium polish and use striations associated with woodworking. All but one of the fragments are Ft. Payne chert.

Utilized/Retouched Flakes

Spurred flakes (8 specimens) - These flakes exhibit retouch directed toward a graver-like projection. All but two specimens show only one spur. The spur apex angles have a mean value of 83° with a range of 65° -101°.

Notched flakes (4 artifacts) - Unifacially prepared, semi-circular indentations were generally placed on flake lateral margins.

Flake with burinated edge (1 piece) - The lateral margin of one flake shows retouch scars consistent with those produced by the Coup de burin technique.

Multiple edge modified flakes (13 artifacts) - Each specimen in this sub-category exhibited more than one pattern of retouch. The most common combination (38%) was that of a spur and a steeply (60°-80°) retouched linear margin. The combination of a notch and some other steep unifacial retouch pattern was nearly as common (31%). The consistent association of those modification patterns is inferred to reflect an underlying functional relationship, possibly associated with the processing of dense materials like wood, bone, and antler.

Other edge modified flakes (118 specimens) - This sub-category includes the bulk of the modified flakes. The specimens typically show linear to curvilinear patches of retouch, commonly centered on the distal portion of a given flake. Straight (42%) and convex (39%) working edges are almost equally as common on unifacially worked flakes; concave edges were observed on only 19% of those specimens. Working edge angles tend to be steep (60°-85°), a characteristic often associated with stone tools used to process relatively dense resources (Keeley 1980:119; Wilmsen 1970:70-71).

Modified Angular Fragments and Cores

Angular fragments and cores are defined as chert "chunks" with no face larger than one-third of the total chunk surface. Angular fragments have a maximum linear dimension of less than 3 cm, whereas cores have dimensions of 3 cm and larger. Sixteen angular fragments show edge modifications, six of which are unifacially worked. The remainder were bifacially retouched. Edge angles tend to be steep. Eighteen cores also exhibit patterns of retouch. Eleven cores have bifacially worked edges; six specimens were unifacially retouched. One core exhibits a notched margin. Like the angular fragments, most modified edges form steep angles.

Ground Stone Tools (Len J. Stelle)

Pipe (Figure 22,q)

One piece of a fine-grained sandstone pipe was surface collected from the spoil pile of Pothole C. The fragment consists of a portion of the right half of the artifact as viewed from its bit. The bowl and bit holes were drilled to completion; they each have a maximum diameter of 21 mm. Subsequent to the initial breaking of the pipe, it was recycled as a plano-surface type abrader.

Winged Bannerstone (Figure 22,r)

One arm, or "wing" of a banded shale bannerstone was collected from Unit 3. Part of the broken end of this artifact was grooved as if for suspension.

Hematite Crayons

Four small pieces of hematite, weighing about 6 g each, display multiple planed facets. It is inferred that these artifacts were ground in order to make red pigment.

Galena

Two small galena chunks have trianguloid shapes and appear to have been ground. They weigh 26 g and 24 g, respectively. Although small quantities of galena are often found on Mississippian sites, the aboriginal use of this mineral is uncertain. It may have been used mostly as a pigment (Walthall 1981).

Modified Cobbles (Len J. Stelle)

Abraders (Figure 23,a-e)

Plano type (48 specimens) - These abraders tend to be small with an average weight of 32 g. Each displays broad worn surfaces which are flat to slightly concave (Figure 23,a-b). All of the specimens are sandstone except for one piece of pumice and a chunk of limestone.

Grooved type (19 artifacts) - Eighteen pieces of sandstone and the cortex of one chert rock show multiple linear grooves worn into one or more faces (Figure 23,c-e). Although some of the channels are distinctly V-shaped and others are U-shaped, most fall between the two extremes. The average weight of grooved abraders is 50 g.

Multi-use Abraders (6 specimens) - These sandstone chunks show both grooved and plano type grinding wear.

Metates

Thirteen sandstone chunks and one unidentified sedimentary rock show broad, abraded, concave surfaces. Some are worn thin (about 5 mm), while others are relatively thick (approximately 30 mm). The average weight is 95 g. Each is inferred to be the remains of much larger implements that were possibly broken up as they became unusable as metates and were then recycled as various forms of abraders.

Hammerstones

Five igneous and metamorphic rocks and five pieces of chert display battered and crushed surfaces from use as hammers. The average weight is 223 g.

Pitted Anvils

Two tabular rocks, both from surface contexts, show U-shaped pits worn into each broad face. One specimen is ferruginous sandstone; the other is fine-grained sandstone.

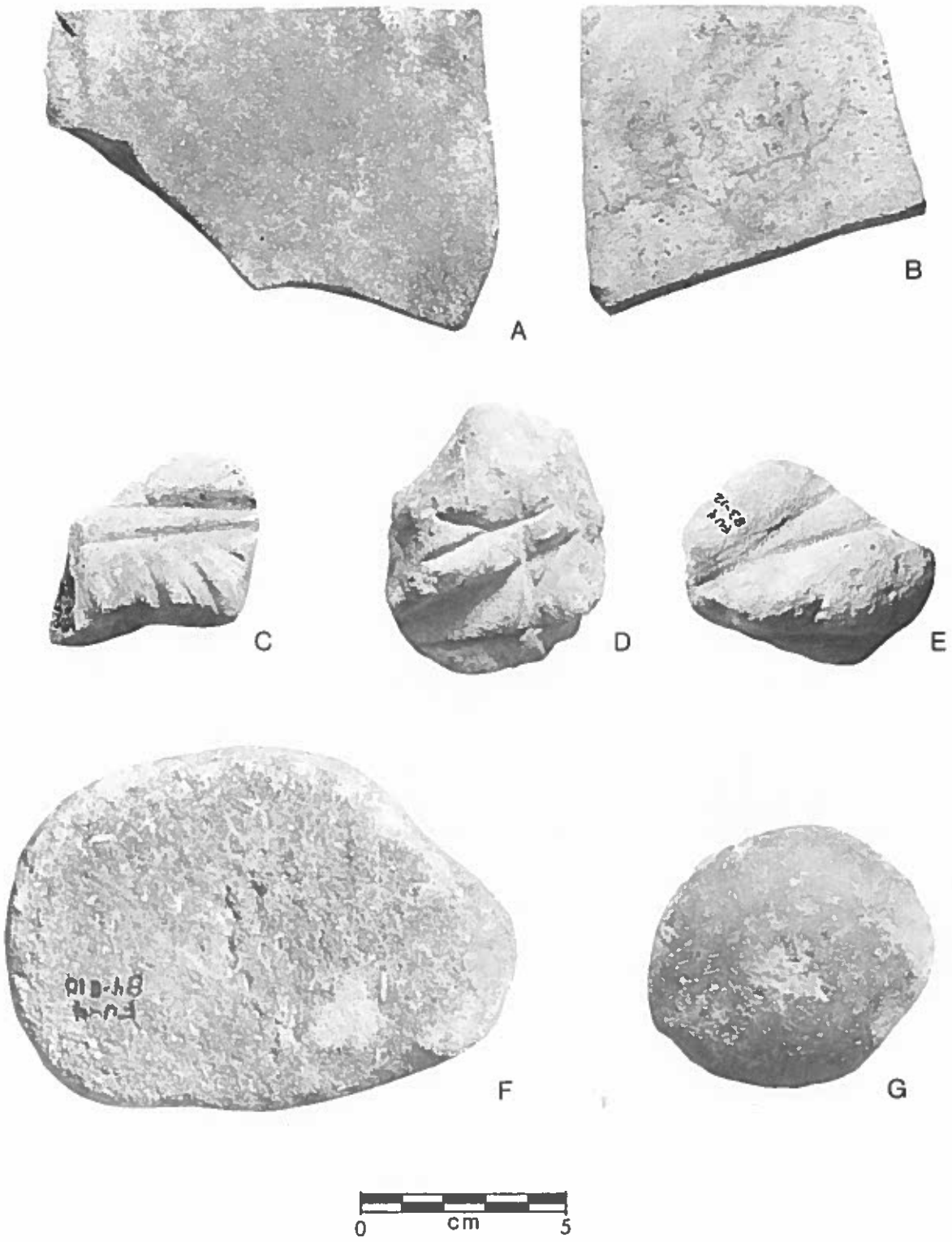


FIGURE 23. Modified Cobbles: a-e, abraders; f-g, multi-use cobbles.

Multi-use Modified Cobbles (Figure 23,f-g)

The category comprises four artifacts. Two are small ovoid hammerstones (Figure 23,g) that also show at least one pitted broad face. The other two implements are of the same general shape, but are much larger (Figure 23,f). The latter display pitted surfaces and smoothly worn faces inferred to be the result of use as a mano.

Smoothing Stones

One quartz pebble and a thermally altered Purchase Gravel pebble display use polish. These artifacts may be burnishing stones used in pottery manufacture.

Other Stone Artifacts (Len J. Stelle)

Unmodified Rocks

The category comprises whole and broken rocks and minerals that do not show purposeful modifications. Included here are 281 pieces of sandstone (70 are ferruginous), 160 pebbles and cobbles, seven pieces of cannel coal, seven small chunks of hematite, six mudstone pieces, five limestone chunks, one clay ironstone concretion, and one fluorite crystal.

Angular Fragments and Cores

The category includes 38 cores, 27 of which are polymorphic, six are single-ended, and five are double-ended. Thirty specimens retain portions of surface cortex. Five cores display the polished facets and other characteristics of recycled large tools. Ten specimens were heat-treated.

A total of 275 angular fragments were also recovered. In contrast to the cores, few angular fragments (7.5% of this sub-category) display surface cortex. Five specimens are remnants of recycled tools. Heat-treated fragments compose 35% of the total sample.

Flakes

A total of 1,116 chert flakes show no modifications or retouch. Thinning and sharpening flakes, along with other recycled debris from hoes, spades, and adzes, comprise 111 flakes, or 10% of the sample. Mill Creek and Ft. Payne cherts account for 97% of the unmodified flakes struck from recognizable tools. Approximately 40% of all flakes show portions of surface cortex. Evidence of thermal alteration, or

"heat-treating," was observed on 334 flakes. Table 5 lists the identified chert sources of the unmodified flakes.

Discussion of Stone Tool Patterning (Len J. Stelle)

Purchase Gravel, Mill Creek, and Ft. Payne cherts comprise the majority of the cryptocrystalline material in the lithic assemblage (Table 6). This section reconstructs the broad outline of chert resource exploitation patterns as they are reflected in the Adams site data. General information on chert sources is given in the Appendix.

Chert arrived at the site in two major states - as a core, and as a form associated with a bifacial reduction trajectory (i.e., blank, preform, or finished tool). Tool discard was not direct except for small items. Unusable large tools, such as axes, adzes, and hoes, re-entered the production trajectory as cores. Therefore, the archaeological manifestation of the assemblage is clearly biased for small tools and against large ones.

Analysis of the Mill Creek chert tools and debitage demonstrates that this chert arrived at Adams either as a mid-sized preform, or as a large finished tool, usually a hoe. This pattern is consistent with that documented for many other Mississippian sites (Winters 1981:25). Evidence supporting this inference at Adams includes the relative scarcity of flakes with surface cortex (Table 5), the high percentage of recycled tool flakes, and the abundance of Mill Creek thinning and sharpening flakes compared with other chert types.

Like the Mill Creek chert pattern, the Ft. Payne debris tends to center on middle to late stage biface production activities. This is reflected in the high frequencies of reducing and thinning flakes among all Ft. Payne flake byproducts (Table 5). It is inferred that this chert arrived on-site either as some type of hacking or woodworking tool or as a core. Similar patterns have been reported for other Mississippian sites (Lewis 1982; Winters 1981:26).

Purchase Gravel chert differs from the two common non-local cherts in that the complete range of debitage is represented for this type (Table 5). About one-half of the Purchase Gravel chert was also thermally altered, the only type for which this technique was a significant component of its exploitation. Undoubtedly, much of this chert was brought in its natural nodular form to the site where it was then thermally altered.

The other identified chert types (i.e., Illinois Novaculite, Burlington, St. Louis, Cobden, and Glacial Cobble cherts) occurred in much smaller quantities and the basis for inferring exploitative patterns is correspondingly restricted. Illinois Novaculite and Burlington cherts probably arrived at the Adams site in unmodified forms. The St. Louis chert shows high frequencies of secondary

TABLE 5. Chert Sources of Unmodified Flakes by Flake Morphology.

Chert Type	Block Fracture	Primary Decortication	Secondary Decortication	Reducing	Thinning	Sharpening	Shatter	Total	Percent
Mill Creek	4	-	17	29	89	42	87	268	24.0
Illinois Novaculite	-	2	21	16	8	6	3	56	5.0
Ft. Payne	-	1	13	63	49	15	65	206	18.5
Burlington	1	-	10	8	4	1	7	31	2.8
St. Louis	-	-	3	7	2	1	9	22	2.0
Purchase Gravel	14	19	334	28	36	30	40	501	44.9
Glacial Cobble	-	-	4	-	-	-	1	5	0.1
Unknown Source	3	1	11	5	1	-	6	27	2.4
Total	22	23	420	149	189	95	218	1116	99.7
Percent	2.0	2.1	37.6	13.4	16.9	8.5	19.5	100.0	

TABLE 6. Chert Sources of Chipped Stone Tools.

Artifact Class	Mill Creek	Illinois Novaculite	Ft. Payne	Burlington	Cobden	St. Louis	Purchase Gravel	Glacial Cobble	Other	Total
Projectile Points	1	-	1	1	-	-	3	-	5	11
Proj. Point Fragments	-	-	-	-	-	-	5	-	5	10
Drills	-	-	2	-	-	-	1	-	-	3
Drill/ Perforators	-	-	-	-	-	-	3	-	-	3
Knives	1	-	1	-	-	-	-	-	-	2
Blanks	2	-	-	-	-	-	2	-	-	4
Preforms	4	-	1	-	-	-	-	-	-	5
Refined Bifaces	2	-	-	-	-	-	-	-	-	2
Adzes	-	-	6	-	-	-	1	-	-	7
Utilized/ Ret. Flakes	28	5	32	2	2	5	65	2	3	144
Mod. Angular Fragments & Cores	9	1	7	2	-	1	7	2	5	34
Ang. Fragments & Cores	38	10	50	17	3	9	147	7	22	308
Unutilized Flakes	268	56	206	31	-	22	501	5	27	1116
Total	353	72	306	53	5	37	735	16	67	1644
Percent	21.5	4.4	18.6	3.2	0.3	2.2	44.7	1.0	4.1	100.0

decortication and reducing flakes, suggesting that this type was brought to the village in small quantities as a trimmed nodule.

Bone Tools and Artifacts (R. Barry Lewis)

Awls (Figure 24,a-e)

Deer ulna awls (2 specimens) - Two ulnas were ground and modified for use as awls (Figure 24,a-b).

Splinter awls (5 artifacts) - These tools were made from many kinds of bone splinters. Modifications were generally restricted to the working edge or tip (Lewis and Kneberg 1970:125). One specimen (Figure 24,c) is a double-pointed awl; the others are single-pointed (Figure 24,d-e).

Modified Antler Tines

Five tines show patterned cutmarks, scratches, or tip wear. Some, but not all of the tines may have been used as flakers. The bases of two specimens exhibit grooves where they were cut and snapped from the lower part of the tines.

Fishhooks (Figure 24,f)

One complete and one fragmentary fishhook were found. The complete specimen has a line groove around the base of its stem. It measures 2.1 cm long and is 1.4 cm wide at the hook tip. The other fishhook is broken at its bend; it has no line groove.

Antler Handle (Figure 24,g)

This tool had been cut, ground, and polished for use as an awl or punch handle. The distal end tapers to a deep channel that faced what appears to have been the lower or bottom side of the handle. The handle orientation is such that the working bit must have projected slightly downward from the handle, rather than straight outward like a knife. The specimen measures 7.6 cm long and is 2.0 cm wide at its base.

Antler Projectile Point (Figure 24,h)

One barbed point was found that had been cut and ground. It has a hollow socket that measures 7 mm at its base.

FIGURE 24. Bone Artifacts: a-e, awls; f, fishhook; g, antler handle; h, antler projectile point; i, antler tube; j, pin.

Antler Tube (Figure 24,i)

One antler tine, measuring 5.6 cm long, had been cut, snapped, and smoothed at both ends. There are other cuts and scratches along its entire length. The center of the tube had been only partially reamed out.

Pin (Figure 24,j)

A bone splinter had been ground and polished into a smooth pin that measures 10.7 cm long. It was presumably used as a hair pin or similar ornament.

Unidentified Bone Artifact

One rectanguloid piece of large mammal longbone measures 1.7 cm long and 1.4 cm wide. One broad face is unmodified; the other shows two parallel grooves oriented with the specimen's long axis. Each groove is about 2 mm wide and 1 mm deep.

Human Skeletal Remains

(Mark W. Allen)

A minimum of 30 individuals were identified from the recovered human skeletal material. Two individuals (Burials 1 and 2) were recorded in the field. The remaining bones were separated in the laboratory by the author and by Illinois State Museum personnel who analyzed approximately 20% of the faunal material from the test excavations. All of the individuals discovered in the laboratory consist of no more than a few bones each. Only two of the 11 identified adults are represented by more than teeth or phalanges. Infant bones, like those of the adults, were mostly fragmentary and disarticulated.

Maximum bone lengths were measured with an osteological board. Sex determination was possible in only one case since most of the remains were those of either infants or juveniles. Age determinations were based on dental development; the degree of cranial, vertebrae, and pelvic fusion; and the length of long bones using Johnston's (1962) tables based on the Indian Knoll, Kentucky, skeletal population. The burial descriptions are based on the suggestions of Sprague (1968) for burial terminology and classification.

Three categories of human skeletal material were recovered from the Adams site: 1) primary inhumations, 2) disarticulated bones found throughout the village midden, and 3) surface collected bones from the

spoil piles of potholes. The material and spatial distribution of each category are summarized below.

Primary Inhumations

Burial 1 is a juvenile, aged 4 to 5 years (Figure 25). It was identified in the midden of Unit 1 at 39 cm below surface. The skeleton was extended on its back with the right arm placed straight along the side of the body. The left arm was too disturbed to determine its original position. Orientation was with the head pointing due west. The burial was 80 cm long and 20 cm wide; there was no discernable burial pit around the skeleton.

The individual was aged on the basis of dentition, the degree of pelvic and vertebrae fusion, and longbone lengths. A skeletal inventory of Burial 1 is presented in Table 7. There are no signs of pathology other than rough areas on the surface of the deltoid process of both humeri. This suggests a biological disorder, perhaps an infection, rather than damage caused by erosion, rodents, or some other agent since the disturbance is present on both bones at the same place. The skeleton was mostly articulated and intact with the exception of the skull, the left arm and shoulder, the left ribs, and the left femur. The skull is represented by only 17 fragments and seven teeth. In addition, while the left ulna and metacarpals are missing, the other bones of the left side of the upper body were spread horizontally as far as 45 cm northeast of the skeleton. All of the longbones of the legs were broken due to the pressure of the overlying earth, but the medial portion of the left femur was displaced roughly 5 cm toward the inside of the body while the ends remained in articulation. The absence of rodent burrows or other soil stains suggests that Burial 1 was probably disturbed by a tree root.

In direct association with the juvenile was a Mississippi Plain jar (Figures 15,a; 25). It was located next to the lower right arm on its side with the top facing south. Around the burial were many other potsherds and debris that may or may not have been in association. These artifacts include: 36 Mississippi Plain sherds, 15 Bell Plain, three Matthews Incised, var. Beckwith, one Old Town Red, one Kimmswick Fabric Impressed, three O'Byam Incised, var. O'Byam, three Wickliffe Thick, four unclassified, surface-eroded sherds, 96 sherds smaller than 0.6 cm square, and 12 chert flakes.

Burial 2 is the remains of an infant, aged 0.5-1.0 year. The burial was in direct association with wall trenches and a refuse-filled pit (Feature 7) in Unit 2 at a depth of 55 cm below surface. The associated bones covered an area measuring 35 cm by 16 cm, but there was no discernable burial pit. The infant was aged on the basis of longbone lengths and pelvic development. An inventory of the remains is given in Table 8. No evidence of pathology was observed on the half skeleton

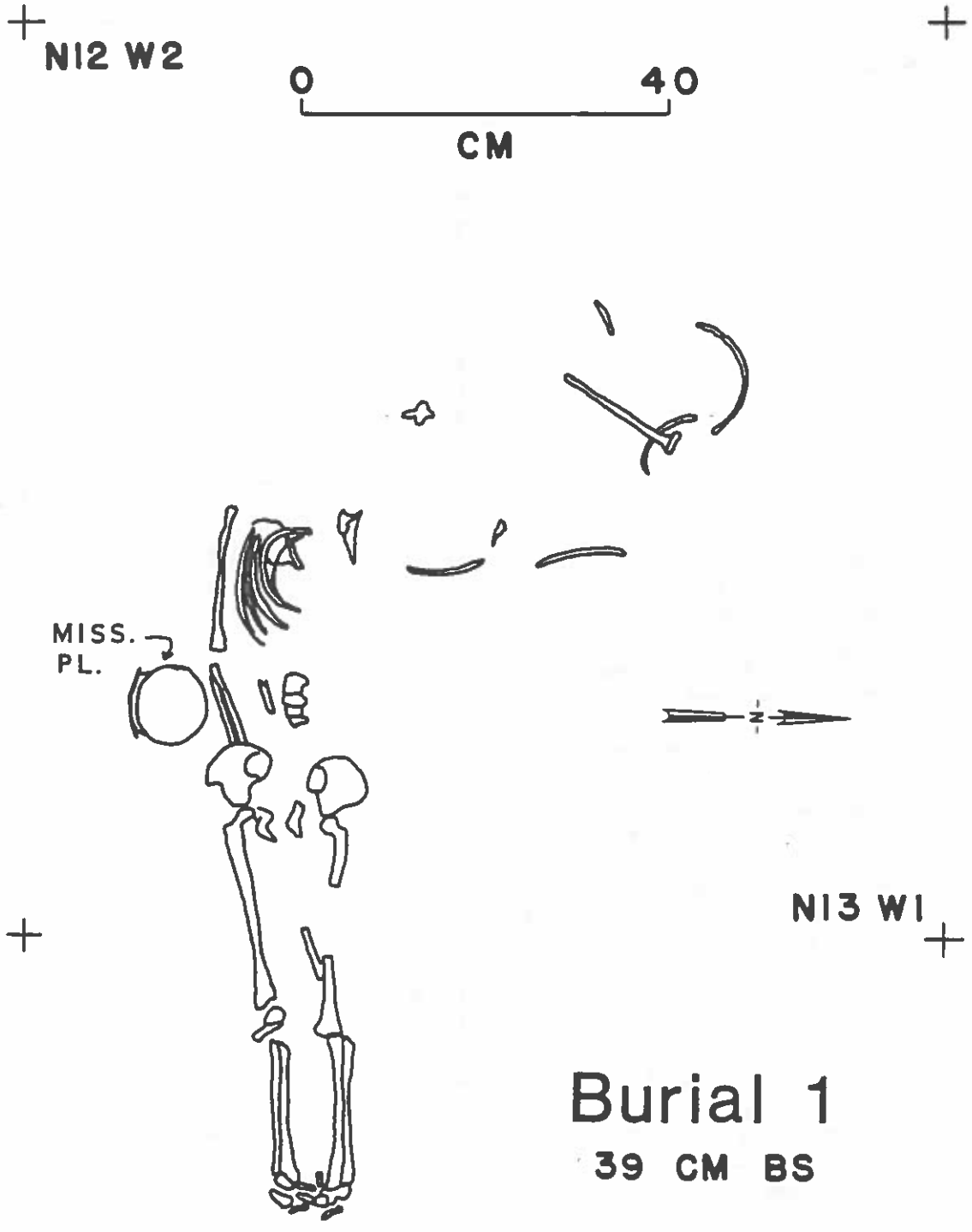


FIGURE 25. Burial 1 from the Adams Site.

TABLE 7. Skeletal Inventory of Burial 1.

Elements	Side	Quantity	Length (mm)
LONGBONES			
Clavicle	R		78
Clavicle fragments	L	2	-
Humerus	R		148
Radius	R		113
Ulna	R		127
Humerus	L		147
Radius fragment	L		-
Femur without epiphysis	R		202
Femur without epiphysis	L		200
Tibia	R		164
Tibia	L		164
Fibula	R		162
Fibula	L		162
CRANIAL BONES			
Skull fragments		17	
Lower incisors		3	
Upper incisor		1	
Lower canine		1	
Probable upper incisor		1	
Probable canine		1	
OTHER POST-CRANIAL BONES			
Scapula	L, R		
Portions of sternum		2	
2nd cervical vertebrae			
Lumbar vertebrae		5	
Vertebrae fragments (broken)			
1st rib	R		
Ribs (broken)			
Ilium	L, R		
Pubis	L, R		
Ischium	R		
Metacarpals (one 1st)	R	5	
Phalanges hand proximal		3	
Metatarsals (2 1sts)		10	
Phalanx foot proximal		1	
Femur and Tibia epiphyses			

TABLE 8. Skeletal Inventory of Burial 2.

Element	Side	Quantity	Length (mm)
Femur	L		92
Femur	R		92
Tibia	L		78
Tibia	R		78
Fibula	L		74
Fibula	R		75
Ischium	L		
Ilium	R		
Mandible	R		
Occipital fragment			
Zygomatic	L		
Distal end of humerus			
Vertebrae centrum		1	
Vertebrae arch halves		2	
Rib fragment		1	
Metatarsals (2 lsts)		10	
Foot phalanges		3	

found. The legs were articulated, but the rest of the body was badly disturbed, probably by the wall trenches and the pit. A few skull fragments, the left pubis and ischium, the right ilium, a humerus fragment, a few vertebrae fragments, and a rib were found completely out of articulation in Feature 7, the refuse-filled pit.

The body was oriented with the feet towards the north and with the legs extended. The femurs were pointing due north, and the lower legs were bent approximately 40° to the northeast. The right leg and the left femur were in proper anatomical position, but the lower leg bones of the left leg were inverted - the fibula was on the medial side of the tibia instead of the lateral, and the tibia was upside down (based on photographs taken after excavation, but before the remains were removed). Nevertheless, all bones seemed to be articulated and there is no evidence of trauma. The infant either was buried with the left leg turned to a great extent (with the femur shifting back after decomposition such that it came to rest in correct anatomical order), or the lower leg bones were disturbed by natural agents, by later wall trenches, or during excavation, and yet left with the appearance of articulation.

Material Recovered in the Midden

The skeletal material recovered from the excavated midden is listed in Table 9 by arbitrary excavation level. Unit 1 included a minimum of five individuals. Unit 2 contained at least 15 individuals. There were many infant cranial fragments, a few arm bone pieces, a rib, and two adult foot phalanges scattered throughout the unit at 28-35 cm below surface. No bone concentrations were recorded at this level, nor at any of the other levels above Burial 2. Burial 2 was found at a depth of 55-60 cm along with an adult foot phalanx, defining two more individuals. Unit 2 had a large number of wall trenches, refuse pits, and postmolds throughout the midden. Clearly, these features reflect the presence of several house rebuildings at this spot. Quite likely, the large number of infants in the unit were interred beneath house floors and were disturbed by later house constructions. In Unit 3 there was an infant petrous portion of the temporal, a left infant mandible, and an adult metatarsal. Unit 4 contained an infant petrous portion, an adult incisor, and four adult foot phalanges. The lingual surface of the incisor is chipped and polished, which suggests that something was constantly pulled through the teeth. It might be the result of an individual using the teeth as an aid in leather or fiber working. Unit 5 had no human skeletal material.

Surface Collected Material

These bones were collected from the spoil piles of holes dug by

TABLE 9. Skeletal Inventory of Other Human Bones (All bones are those of infants unless noted otherwise).

Vertical Provenience (cm BS)	Elements	Length (mm)	Estimated Age (years)
Unit 1 (N12-14WO-2)			
25-35	2 adult premolars		
	2 adult foot phalanges		
35-45	Burial 1 (see Table 7)		
45-55	Femur, distal		
	2 foot phalanges		
Walltrench 11	Adult foot phalanx		
Walltrench 14	Adult parietal		
Unit 2 (N33-35WO-2)			
28-35	18 skull fragments		
	R & L petrous portions		
	R zygomatic		
	Rib fragment		
	2 vertebrae centrums		
	Ulna, proximal		
	Radius, proximal		
	2 adult foot phalanges		
35-49	R petrous		
	R zygomatic		1.0-3.0
	L mandible		
	L zygomatic		0.0-1.0
	2 occipital fragments		
	5 skull fragments		
	10 rib fragments		
	R first rib		
	Metatarsal		
	2 L humeri, proximal		
	L humerus, distal		
	Longbone fragment		
	Femur, distal		
	R ulna	71.5	0.5-1.5
	R ulna, proximal	60.5	0.0-0.5
	Adult R rib fragment		
	2 adult foot phalanges		

TABLE 9. Continued.

Vertical Provenience (cm BS)	Elements	Length	Estimated Age (years)
49-55	25 infant skull fragments		
	9 youth skull fragments		
	R temporal		
	L temporal		
	2 left scapulas		
	L mandible		
	22 rib fragments		
	2 humeri, proximal		
	4 fibula fragments		
	R ulna	60.5	0.0-0.5
	Femur, distal		
	L Tibia, rodent gnawed	82.0	0.5-1.5
	L & R Femur shafts rodent gnawed		
	Long bone shaft rodent gnawed (possibly tibia)		
	L Femur	74.0	0.0-0.5
	R Femur	75.0	0.0-0.5
	L Tibia	67.5	0.0-0.5
	R Tibia	67.5	0.0-0.5
55-60	Burial 2 (see Table 8)		
	Adult foot phalanx		
60-65	L radius, proximal		
	R rib		
	Sphenoid?		
Walltrench 2	Adult foot phalanx		
Walltrench 3	2 Adult hand phalanges		
Walltrench 4	3 skull fragments		
	L tibia, distal		
	3 rib fragments		

TABLE 9. Continued.

Vertical Provenience (cm bs)	Elements	Length (mm)	Estimated Age (years)
Walltrench 5	Petrous portion of the temporal R zygomatic 6 skull fragments Metacarpal		
Walltrench 8	Adult metatarsal, distal Possible fibula, proximal		
Feature 10	Longbone fragment 2 rib fragments		
Unit 3 (N99-101W0-2)			
24-30	R petrous portion		
30-35	L mandible Adult metatarsal		
Unit 4 (N211-213E198-200)			
24-40	R petrous portion 3 adult foot phalanges		
45-55	Adult foot phalanx Adult upper incisor		
Pothole A			
	Adult occipital Adult parietal L maxilla with molar and canine bud L humerus L innominate Fibula, distal 4 skull fragments L femur, distal R pubis (infant) Rib (infant)	 5.0-7.0 2.5-3.5 2.5-3.5 2.5-3.5 0.5-1.0	

TABLE 9. Concluded.

Vertical Provenience (cm BS)	Elements	Length (mm)	Estimated Age (years)
Pothole C			
	Femur, distal		0.5-1.0
Pothole H			
	Adult female ilium Adult scapula fragment Adult first rib Adult thoracic vertebrae R second cunieform		20.0-30.0
Uncontrolled Surface Collection			
	Worn molar with four cusps		

relic hunters on the eastern side of the site. One other very worn molar with four cusps was recovered in an uncontrolled surface collection. From Pothole A, approximately 8 m southwest of Unit 4 (Figure 3), remains of a minimum of four individuals of different ages were collected. The distal end of an infant femur was also collected at Pothole C, 45 m northeast of Unit 4. At Pothole H on the eastern edge of the site, several bones from an adult female, sexed by the right ilium, were recovered. This individual was probably aged 20-30 years old since there is no osteophytosis on the borders of the vertebrae centrum (Stewart 1958).

Discussion

Despite the small number of excavated test pits, it is possible to make several inferences concerning prehistoric burial practices. The data suggest that the site inhabitants buried their dead within the village areas rather than in separate cemeteries. The large amount of infant skeletal material found in excavation levels that also contained wall trenches and refuse pits indicates a pattern of disposal beneath house floors and disturbance by later house constructions. Since no adult burials were found during excavation, it is uncertain what the burial pattern was for adults. The large number of recovered phalanges and teeth can probably be attributed to re-deposition by rodents since these small bones are of a manageable size for them. The material from the relic hunters' holes, however, does indicate the presence of adult skeletal material within the village midden. Clearly, further excavations are desirable and needed to solve this question.

The data also reveal differences in the ways individuals were buried. Burial 1, aged 4-5 years, was interred with a ceramic jar and perhaps other pottery and chert as well. Burial 2 had no associated grave goods and the lower legs were not extended fully, perhaps indicating a lack of careful positioning of the body at interment. It is possible that the 4-5 year old child enjoyed a somewhat higher status than the infant, as evidenced by their different burial treatments.

Faunal Remains

(R. Barry Lewis)

Only a portion of the collected faunal remains were processed and identified since there were many more samples than originally budgeted for. A total of 1,356 skeletal elements were processed (Table 10), of which 503, or roughly 37% of all processed bone pieces, could be classified to family, genus, or species. The remaining 853 elements were too fragmentary to classify further. Whitetail deer (Odocoileus

TABLE 10. Identified and Unidentifiable Faunal Remains by Taxonomic Class.

Class	Number of Identified Elements	Percent of Identified Elements	Number of Unidentified Elements	Totals	Percent of All Elements
Vertebrate	-	-	175	175	12.9
Mammals	223	44.3	334	557	41.1
Mammal/Bird	-	-	79	79	5.8
Birds	58	11.5	64	122	9.0
Reptiles	103	20.5	57	160	11.8
Amphibians	2	0.4	-	2	0.1
Fish	115	22.9	115	230	17.0
Molluscs	2	0.4	29	31	2.3
Totals	503	100.0	853	1356	100.0

virginianus) longbone fragments probably account for most of the unidentified mammal pieces. The unidentified reptile bones are nearly all turtle shell fragments (55 of 57 pieces).

Approximately 14% (153 bones) of all elements are from flotation samples; the remainder are from general level bags. Not surprisingly, comparisons of the flotation and excavated samples show that fish remains account for 80% of the flotation specimens, but only 12% of the hand collected or dry screened elements. This effect is a function of the small size of most fish bones.

Estimated minimum numbers of individuals (MNI) are based on each test excavation treated as a single analytical unit. The tests were placed so far away from one another that unit-based counts are easily justified. The decision to treat each unit as an internally homogeneous column for the MNI estimates reflects the preliminary nature of this analysis rather than the archaeological homogeneity of the midden deposits. It is a conservative, but appropriate approach for the presentation of test excavation results. The MNI per species for each excavation were estimated from the total of the most common element or element portion per side of individual.

Usable meat estimates are given as ranks for the five animals in each class that contributed the greatest amount of potential meat value. Ranks are used rather than precise estimates in kilograms since all data of this nature are subject to a wide range of errors for which few controls exist. Only the five most important animals in each class were ranked since they tend to account for most of the meat.

It was necessary to estimate animal live weights and edible fractions in order to construct the ranks. Most mammal weights were calculated from ranges published by Burt and Grossenheider (1976). Whitetail deer live weight was based on Emerson's (1978) regression equation for astragali lengths. The total live weight estimate followed Lewis (1979:175-178). Cahn (1937) was consulted for the average weights of turtles. The bird weights were calculated from Nelson and Martin (1953). Passenger pigeon mean weight was estimated from Schorger (1973:237). Fish weights were based on the averages given for relevant species in Smith (1975a:Appendix C) and Parmalee et al. (1972).

Most edible fraction estimates follow White (1953). Lewis (1979), Parmalee et al. (1972), and Smith (1975a) were consulted for the species not covered by White. White's approach is one of arguable accuracy (Stewart and Stahl 1977) and alternative schemes do exist (e.g., Smith 1975b; Uerpmann 1973). White's estimates were used in the face of criticism against them largely because the alternative schemes are little better and the general problem continues to be unresolved in the zooarchaeological literature. The single exception to this procedure was to base the whitetail deer edible portion estimate on Severinghaus' (1949) regression equation.

Large Mammals

Whitetail deer are the only large mammals represented in the test excavation fauna (Table 11). The estimated total of seven individuals includes at least three juveniles; no fetal or newborn individuals were identified.

Whitetail deer elements and element fragments show a strong bias against axial bones (Table 12). Presumably, those non-meaty, heavy bones were left at kill sites rather than being returned to the village for processing. Fore and hind quarters are represented in frequencies comparable to those expected if hunters did not prefer or select one quarter over the other in hauling back a field dressed kill (Table 12).

One must anticipate pre- and post-depositional effects on most artifact classes preserved in a midden as complex as Adams. Archaeological mammal bones usually show those effects in their differential representation according to element density. Hard durable bones like astragali, for example, tend to survive preservation better than more flimsy ones like ribs. Surprisingly few effects of differential preservation can be isolated in the Adams site whitetail deer data. Durable bones occur in about the same frequencies as other, softer bones. Some preservation effects, however, are present. Deer bones account for 78% of all carnivore-gnawed bones in the sample, but comprise only 26% of all identified bones. Thus, at least part of our picture of the aboriginal exploitation of whitetail deer is conditioned by the bone preferences of the village dogs.

Judging from the number of preserved tools, deer were the most important sources of bone raw materials. Four otherwise unmodified segments of cut and snapped antler tines were also recovered. The proximal end of one radius shows transversely placed cuts at the base of the epiphysis.

Small Mammals

Squirrels dominate the sample in terms of MNI, while raccoons provide the greatest proportion of usable meat among the small mammals (Table 11). The identified animals are consistent with similar archeological faunas from adjacent regions (e.g., Lewis 1974; Smith 1975a). The absence of the swamp rabbit deserves mention since it is common throughout the Lower Mississippi Valley. However, those rabbits typically prefer a much wetter habitat than their cousins, the Eastern cottontail (Lewis 1974:24). Consequently, their range may not have extended very far up into the Bayou de Chien Valley.

The frontals of one gray fox skull show transverse multiple cut marks.

TABLE 11. Identified Mammals.

Name	# of elements	MNI	Usable Meat Rank
Order Carnivora	1	-	-
Procyon lotor Raccoon	8	4	2
Mustela vison Mink	1	1	-
Mephitis mephitis Striped skunk	2	2	-
Canis sp. Domestic dog/Wolf	1	1	-
Urocyon/Vulpes sp. Fox	2	1	-
Urocyon cinereoargenteus Gray fox	1	1	-
Lynx rufus Bobcat	1	1	4
Sciurus sp. Squirrel	18	5	5
Sciurus carolinensis E. gray squirrel	3	2	5
Sciurus niger E. fox squirrel	14	4	5
Castor canadensis Beaver	1	1	3
Family Cricetidae Voles, mice, rats	5	1	-
Oryzomys palustris Rice rat	17	5	-
Sigmodon hispidus Hispid cotton rat	1	1	-
Ondrata zibethicus Muskrat	2	1	-

Table 11. Concluded.

Name	# of elements	MNI	Usable Meat Rank
Sylvilagus sp. Rabbit	2	1	-
Sylvilagus floridanus E. cottontail	4	3	-
Odocoileus virginianus Whitetail deer	129	7	1
	212	42	

TABLE 12. Whitetail Deer Bone Fragments by Anatomical Part.

Anatomical Part*	Number of Pieces	Anatomical Part	Number of Pieces
Vertebra		Femur	
cervical	2	shaft	3
thoracic	3	distal	3
Rib	9	Tibia	
Scapula	8	proximal	2
Humerus		shaft	4
shaft	3	distal	6
distal	1	Ankle bones	13
Radius		Metatarsal	
proximal	3	proximal	4
shaft	2	shaft	2
distal	4	Phalanx	
Ulna		1st	4
proximal	3	2nd	1
shaft	2	3rd	2
distal	2		
Metacarpal			
proximal	4		
distal	2		
Pelvis	6		

* Skull fragments are not included in the table since they are too fragmentary to permit meaningful comparisons with the other parts.

Birds

Most of the MNI are waterfowl, comprising at least three species (Table 13). Wild turkeys provided most of the usable meat, but the now extinct passenger pigeon was also an important meat source. Swanton (1946:298) has noted that the passenger pigeon was second only to the wild turkey as an important game bird in early historic Native American economies across the Southeast.

All of the waterfowl were migratory across the study region. Their availability peaked in the spring and fall. The wild turkey and greater prairie chicken were resident species. The passenger pigeon may have been resident; the study region lies at the northern end of its winter range and the southern end of its breeding range (Bent 1932:399-402). The modern sandhill crane range is such that it too is a seasonal visitor, but Bent (1926:241) suggests that its breeding range was once continuous from the northern Plains down to Florida.

Four bird elements, all but one of which are turkey, show cut marks and other modifications. The distal end of a turkey tarsometatarsus was cut and snapped from its shaft. A turkey scapula fragment and a tibiotarsus also display multiple cut marks. The remaining specimen, a large bird longbone shaft fragment, had been scraped on both broad surfaces.

Reptiles

The identified reptiles are almost entirely turtles (Table 14). The remaining specimens are only a few snake ribs. The snapping turtle, followed by the box turtles, provided the largest proportion of usable meat. One small piece of turtle carapace exhibits polished exterior and interior surfaces. It is possibly a bowl fragment.

Amphibians

A minimum of two toads (Bufo sp.) are represented by one element each. No other amphibian remains were identified.

Fish

A minimum of 16 species are represented. They account for most of the test excavation fauna MNI (Table 15). The identified species tend to thrive in a wide range of habitats. They could have been collected by the prehistoric villagers from rivers, creeks, or backwater lakes throughout the region.

Table 13. Identified Bird Remains.

Name	# of elements	MNI	Usable Meat Rank
Family Anatidae Swans, Ducks, Geese	9	3	1
Subfamily Anatinae Marsh ducks	1	1	-
Anas platyrhynchos/rubripes Mallard/Black duck	3	3	4
Anas discors/crecca Teal	2	2	-
Lophodytes cucullatus Hooded merganser	2	1	-
Tympanuchus cupido Gtr. prairie chicken	1	1	-
Meleagris gallopavo Wild turkey	23	4	2
Grus canadensis Sandhill crane	1	1	3
Ectopistes migratorius Passenger pigeon	16	5	5
Totals	58	21	

Table 14. Identified Reptile Remains.

Name	# of elements	MNI	Usable Meat Rank
Chelydra serpentina Snapping turtle	2	2	1
Family Kinosternidae Musk and mud turtles	5	3	5
Sternotherus odoratus Stinkpot	3	2	-
cf. *Kinosternon flavescens* Yellow mud turtle	1	1	-
Terrapene spp. Box turtle	45	5	2
Terrapene carolina E. box turtle	29	5	2
Terrapene ornata Ornate box turtle	8	2	2
Chrysemys sp. Pond, stream turtle	6	2	3
Pseudemys scripta Pond slider	1	1	3
Trionyx sp. Softshell turtle	1	1	4
Suborder Serpentes Snakes	3	1	-
Totals	104	25	

Table 15. Identified Fish Remains.

Name	# of elements	MNI	Usable Meat Rank
Lepisosteus sp. Gar	13	5	3
Amia calva Bowfin	4	4	-
Dorosoma cepedianum Gizzard shad	3	2	-
Family Catostomidae Suckers	12	3	2
Catostomus commersoni White sucker	1	1	5
Ictiobus/Carpiodes spp. Buffalo, Carpsucker	2	2	1
Ictiobus sp. Buffalofish	3	2	1
Ictiobus cyprinellus Bigmouth Buffalofish	4	3	1
Moxostoma sp. Redhorse	1	1	-
Family Ictaluridae Bullheads	11	4	4
Ictalurus sp. Bullhead	14	4	4
Ictalurus natalis Yellow bullhead	4	1	4
Ictalurus melas Black bullhead	1	1	4
Ictalurus nebulosus Brown bullhead	1	1	4
Ictalurus punctatus Channel catfish	3	2	4

Table 15. Concluded.

Name	# of elements	MNI	Usable Meat Rank
Family Centrarchidae Sunfish	5	2	-
Lepomis sp. Sunfish	5	2	-
Lepomis cf. *gibbosus* Pumpkinseed	1	1	-
Lepomis cf. *macrochirus* Bluegill	1	1	-
Micropterus sp. Bass	18	4	-
Micropterus cf. *dolomieui* Smallmouth bass	1	1	-
Micropterus cf. *salmoides* Largemouth bass	1	1	-
Micropterus/Pomoxis sp. Bass, Crappie	2	1	-
Pomoxis sp. Crappie	2	1	-
Pomoxis cf. *nigromaculatus* Black crappie	1	1	-
Aplodinotus grunniens Freshwater drum	1	1	-
Totals	115	54	

Size estimates for some of the identified specimens are given in Table 16. Most elements are from fish measuring 16-32 cm in length. The size distribution is skewed to the right. The smaller specimens are of such a size that they would have been most economically gathered by seines, poisons, or a combination of those techniques. At least some of the specimens were undoubtedly taken by hook and line; several bone fishhooks provide unequivocal evidence of the use of that technique.

The frequency of small fish (less than 16 cm long) in the collection is probably biased somewhat by the small proportion of identified flotation samples. A breakdown of estimated fish sizes by excavation sample type shows that nearly all of the small fish elements were recovered in the flotation samples (Table 17). It is anticipated that fish in general, and small fish in particular, will prove to be more common once the whole collection has been identified.

It is also important to note that 44% (50) of all fish elements are burned, compared to only 13% (29) of the mammal elements (Table 18). Fish remains account for 46% of all burned elements. This pattern presumably reflects native differences in food preparation techniques for fish and other animals.

Molluscs

Identifiable shells were not common, but mussel gathering must have been more than a casual activity if one is to account for the vast amount of shells used for pottery temper. The collection includes one valve each of Obovaria olivaria and Obovaria retusa, both of which are mussels of the larger rivers (Parmalee 1967). There are also 24 fragments of other pelecypods and two unidentifiable, broken gastropods.

Several land snails were also found in the waterscreening and flotation samples. The identified specimens include 10 Hawaiia miniscula and one Pupoides albilabris. Both species are ubiquitous in the East, and are common in leaf litter and other forest floor habitats (Leonard 1959:120,182).

Botanical Remains

(Richard B. Edging and Sandra L. Dunavan)

Methods

Botanical material was collected by flotation, waterscreening, and hand excavation. Flotation samples consisted of 5 l of soil taken from each excavation level in the test units and from discernible

TABLE 16. Fish Size Estimates (in cm).

Common Name	Size in cm								Totals
	< 8	8-16	16-24	24-32	32-40	40-48	48-56	88-96	
Gar	-	-	-	-	-	1	-	1	2
Bowfin	-	-	-	-	1	-	-	-	1
Gizzard shad	-	-	2	-	-	-	-	-	2
White sucker	-	-	-	1	-	-	-	-	1
Buffalofish	-	-	-	1	-	1	1	-	3
Bigmouth buffalofish	-	-	-	1	1	1	1	-	4
Redhorse	-	-	-	-	1	-	-	-	1
Bullhead family	1	2	1	-	-	-	-	-	4
Bullhead	1	2	3	7	1	-	-	-	14
Yellow bullhead	-	-	3	1	-	-	-	-	4
Black bullhead	-	-	-	1	-	-	-	-	1
Brown bullhead	-	-	1	-	-	-	-	-	1
Channel catfish	-	-	-	1	1	1	-	-	3
Sunfish	-	3	1	-	-	-	-	-	4
Pumpkinseed	-	-	1	-	-	-	-	-	1
Bluegill	1	-	-	-	-	-	-	-	1
Bass	-	1	4	7	-	-	-	-	12
Smallmouth bass	-	-	-	1	-	-	-	-	1
Largemouth bass	-	-	-	1	-	-	-	-	1
Crappie	-	-	1	-	-	-	-	-	1
Black crappie	-	-	1	-	-	-	-	-	1
Freshwater drum	-	-	-	-	-	-	1	-	1
Totals	3	8	18	22	5	4	3	1	64

TABLE 17. Estimated Fish Sizes by Data Source.

Size Range (cm)	General Level	Flotation	Totals
< 8	0	3	3
8-16	1	6	7
16-24	14	3	17
24-32	23	1	24
> 32	13	0	13
Totals	51	13	64

TABLE 18. Burned Faunal Elements by Taxonomic Class.

Class	Condition of Element				
	Burned	Possibly Burned	Calcined	Unaltered	Totals
Mammals	29	14	4	176	223
Birds	7	4	0	47	58
Reptiles	24	5	5	69	103
Amphibians	0	1	0	1	2
Fish	50	6	0	59	115
Totals	110	30	9	352	501

stratigraphic zones in archaeological features. Data recovery and analysis methods were standardized in order to promote comparisons between different excavation levels and between soil samples taken from the midden and feature fill. All of the described materials are from Mississippian contexts except for one sample from the Baytown component in Unit 1.

Flotation samples were processed by an immersion technique (Struever 1968) in a galvanized wash tub with a 1 mm mesh bottom. Light fractions were then removed. The heavy fractions were re-floated in a solution of zinc chloride in order to separate any charred plant remains still present after water floation. The floral component of each sample was then sorted into two size fractions by sieving through a 2 mm screen. Both size fractions were examined under low magnification (10-30x). The material greater than 2 mm in size was sorted into gross categories (e.g., wood, nutshell, maize, and large seeds) and each category was weighed and counted. The fraction smaller than 2 mm was carefully scanned for whole seeds, seed fragments, and the remains of cultivated plants such as maize and cucurbit rind fragments. Of the fraction smaller than 2 mm, only cupule, glume, and kernel fragments were included in the totals for maize.

Waterscreening samples comprising 15 l of fill were collected from the same contexts as the flotation samples. Each sample was processed by washing the fraction smaller than 2 mm through hardware cloth. Chemical separation with zinc chloride was also used for processing a few samples but most waterscreen samples were hand-sorted. The waterscreen sample data are size-biased against botanical remains smaller than 2 mm. Waterscreen and flotation data are therefore reported in separate columns in Tables 19 and 20.

Initial identification of the material was made with the aid of standard texts (e.g., Martin and Barkley 1961; Panshin and de Zeeuw 1970); final comparisons were made with a reference collection of modern and archaeological specimens. Identification was made to the generic level in most cases, and to the specific level when possible. A total of 25 flotation samples, 28 waterscreen samples, and 22 hand excavated lots were analyzed (Dunavan 1985; Edging 1984).

Wood

Wood charcoal was the most common plant remain. A total of 14,571 pieces, weighing 240.4 g, was sorted out of the samples. Because of the large number of fragments, 20 pieces were selected at random from each sample for identification. Wood charcoal makes up about 76% of the total charred remains by count, and about 66% of it by weight. Wood was present in all samples, although in greatly varying amounts.

Tables 19 and 20 illustrate percentages of wood taxa recovered. A

TABLE 19. Adams Site Botanical Remains from Midden Levels.

Scientific Name (Unit #)	Flotation					Water Screen					Total
	1	2	3	4	5	1	2	3	4	5	
WOOD (All Frags.)	953	684	715	2381	145	2132	538	1544	4476	1003	14571
Acer sp. (maple)	1	–	–	–	–	1	–	–	1	–	3
Arundinaria sp. (cane)	–	2	–	–	–	–	–	–	–	3	5
Betula sp. (birch)	–	1	–	–	1	–	–	–	–	–	2
Carya sp. (hickory)	11	13	5	27	8	26	12	14	36	45	197
Carya illinoensis (pecan)	2	–	–	3	2	–	6	–	–	–	13
Celtis occidentalis (hackberry)	–	–	–	1	–	–	–	–	–	–	1
Cornus sp. (dogwood)	–	–	–	1	–	–	–	–	1	–	2
Fraxinus sp. (ash)	6	–	–	8	8	10	–	2	9	–	43
Gymnocladus/Gleditsia sp. (coffeetree/locust)	1	–	–	2	–	1	–	–	8	2	14
Gymnocladus sp. (Ky coffeetree)	–	–	–	2	–	–	–	–	–	–	2
Juniperus/Taxodium sp. (cedar/cypress)	4	5	5	8	–	16	6	5	8	3	60
Liquidambar sp. (sweetgum)	–	–	1	3	–	–	–	–	7	–	11
Morus sp. (mulberry)	1	–	–	–	–	1	–	–	–	–	2
Platanus sp. (sycamore)	–	–	–	–	–	–	–	–	1	1	2
Pinus sp. (pine)	2	1	–	–	–	–	–	–	–	–	3
Quercus sp. (oak)	3	5	3	11	2	3	2	4	10	3	46
Quercus sp. (white oak)	4	2	–	3	–	–	–	2	–	1	12
Quercus sp. (Red oak)	–	–	–	–	–	2	–	–	1	–	3

TABLE 19. Continued.

Scientific Name (Unit #)	Flotation 1	2	3	4	5	Water Screen 1	2	3	4	5	Total
Salicaceae (willow/ cottonwood)	4	-	-	-	-	-	1	-	1	-	6
Sassafras sp. (sassafras)	-	1	-	1	-	-	-	-	-	-	2
Ulmaceae (elm)	-	-	-	1	-	1	1	3	4	-	10
Unknown Type A	-	-	-	-	-	-	-	-	-	2	2
Diffuse porous	9	4	8	5	3	11	1	3	1	3	48
Ring porous	17	9	8	9	21	34	21	24	37	17	197
Unidentified	32	19	10	35	16	14	10	3	14	20	173
Wood Frags. Analyzed	100	60	40	120	64	120	60	60	140	100	480
NUTSHELL (All Frags.)	328	18	22	783	16	941	272	341	1159	105	3985
Carya sp. (hickory)	148	15	15	558	3	664	204	221	681	85	2594
Carya illinoensis (pecan)	29	-	-	62	3	84	24	50	126	4	382
Juglandaceae (hickory/walnut)	-	-	-	112	9	159	21	66	366	11	744
Juglans nigra (black walnut)	-	-	-	3	-	20	-	3	15	4	45
Quercus sp. (acorn)	4	5	7	31	-	2	1	1	11	-	62
Unidentified	9	-	-	17	1	12	22	-	60	1	122
SEEDS (All Frags.)	16	3	5	57	2	10	3	11	38	2	147
Chenopodium sp. (goosefoot)	4	-	1	8	-	1	-	-	1	-	15
Diospyros virginiana (persimmon)	1	1	3	22	3	-	1	6	19	-	56
Gramineae (grass)	-	-	-	1	-	-	-	-	-	-	1
Ipomoea sp. (morning glory)	2	-	-	1	-	-	-	-	-	-	3

TABLE 19. Concluded.

Scientific Name (Unit #)	Flotation					Water Screen					Total
	1	2	3	4	5	1	2	3	4	5	
Iva annua (sumpweed)	-	-	-	-	-	1	-	-	1	-	2
Leguminosae (bean)	-	-	-	2	-	-	-	-	-	-	2
Passiflora sp. (maypops)	1	-	-	-	-	-	-	-	1	-	2
Phalaris caroliniana (maygrass)	1	-	1	4	2	1	-	-	-	-	9
Polygonum erectum (erect knotweed)	1	-	-	3	-	-	-	-	1	-	5
Polygonum sp. (knotweed)	1	-	-	1	-	-	-	-	-	-	2
Potamogeton sp. (pondweed)	-	-	-	1	-	-	-	-	-	-	1
Rhus sp. (sumac)	-	-	-	-	-	-	-	-	2	-	2
Vitis sp. (grape)	-	2	-	-	-	-	-	2	5	-	9
Unidentified	5	-	-	14	-	7	2	3	8	2	41
TROPICAL CULTIGENS											
Zea mays (maize)	260	27	28	340	34	254	54	84	562	22	1675
Cucurbita sp. (squash rind)	1	-	-	-	3	1	-	-	-	-	5
Lagenaria siceraria (gourd rind)	-	-	-	-	1	-	-	-	1	-	2
Phaseolus cf. *vulgaris* (bean)	1	-	-	-	1	-	-	-	1	-	3
Soil Vol. Analyzed (l)	25	15	10	30	20	90	45	45	105	75	460

TABLE 20. Adams Site Botanical Remains from Features.

Scientific Name (Fea. No.)	Flotation				Water Screen		Total
	9	11	12	16	11	16	
WOOD (All Frags.)	270	320	156	1042	166	591	2545
Arundinaria sp. (cane)	4	-	5	5	1	-	15
Betula sp. (birch)	-	-	-	-	-	2	2
Carya sp. (hickory)	3	7	2	6	11	6	35
Carya illinoensis (pecan)	-	-	1	4	-	-	5
Cornus sp. (dogwood)	-	1	-	3	-	-	4
Fraxinus sp. (ash)	-	-	1	2	-	4	7
Gymnocladus/Gleditsia sp. (coffeetree/locust)	-	-	-	1	-	-	1
Gymnocladus sp. (Ky coffeetree)	-	-	-	3	-	-	3
Juniperus/Taxodium sp. (cedar/cypress)	1	-	-	7	-	-	8
Liquidambar sp. (sweetgum)	-	-	-	-	-	5	5
Platanus sp. (sycamore)	-	-	-	-	1	-	1
Quercus sp. (oak)	3	-	-	-	-	-	3
Quercus sp. (Red oak)	-	-	-	4	-	-	4
Salicaceae (willow/ cottonwood)	-	-	-	2	-	-	2
Ulmaceae (elm)	-	1	-	-	-	2	3
Unknown Type A	-	-	-	-	2	-	2
Diffuse porous	-	2	2	-	-	-	4
Ring porous	3	3	3	-	-	3	12
Unidentified	6	7	6	1	5	1	26

Table 20. Continued.

Scientific Name (Fea. No.)	Flotation				Water Screen		Total
	9	11	12	16	11	16	
Wood Frags. Analyzed	20	20	20	20	20	20	120
NUTSHELL (All Frags.)	10	5	9	141	10	48	219
Carya sp. (hickory)	8	-	7	141	6	8	170
Carya illinoensis (pecan)	-	2	-	-	-	31	33
Juglandaceae (hickory/walnut)	-	3	-	-	-	6	9
Quercus sp. (acorn)	2	-	2	-	-	-	4
Unidentified	-	-	-	-	4	3	7
SEEDS (All Frags.)	4	-	1	72	-	35	112
Chenopodium sp. (goosefoot)	-	-	1	16	-	-	17
Diospyros virginiana (persimmon)	3	-	-	26	-	1	30
Gramineae (grass)	-	-	-	1	-	-	1
Iva annua (sumpweed)	-	-	-	1	-	4	5
Passiflora sp. (maypops)	-	-	-	-	-	1	1
Phalaris caroliniana (maygrass)	1	-	-	1	-	-	2
Polygonum erectum (erect knotweed)	-	-	-	12	-	3	15
Sambucus sp. (elderberry)	-	-	-	1	-	-	1
Vitis sp. (grape)	-	-	-	-	-	4	4
Unidentified	-	-	-	14	-	22	36
TROPICAL CULTIGENS							
Zea mays (maize)	18	10	11	259	6	63	367

TABLE 20. Concluded.

Scientific Name (Fea. No.)	Flotation				Water Screen		Total
	9	11	12	16	11	16	
Curcurbita sp. (squash rind)	-	2	-	-	-	-	2
Lagenaria siceraria (gourd rind)	-	1	-	-	-	-	1
Soil Vol. Analyzed (l)	5	5	5	10	15	15	55

minimum of 17 taxa were identified. Hickory is by far the most common species (comprising almost one-third of the identifiable wood), with oak and a diffuse-porous species, either red cedar or cypress, the next most common woods. A large percentage of fragments (46%) are classified as diffuse-porous, ring-porous, or unidentifiable, due to small fragment size and degraded condition.

All of the identified taxa are available in the surrounding forest. Percentages of wood identified does not necessarily represent the composition of the local forest, however, since there is no reason to believe that the inhabitants of the Adams site chose wood randomly. Factors such as cultural preference, energy value, and the context of burning influence the paleoethnobotanical record. Oaks, hickories, and a coniferous type, either cedar or bald cypress, appear to have been preferred firewoods. Harvey (1977) also suggests that oaks and hickories were preferred Mississippian building materials in this region.

Nutshell

True hickories accounted for 68% of the nutshell fragments (Tables 19-20). Pecan (Carya illinoensis) and walnut (Juglandaceae) total 30% of the collection (Tables 19-20). Nutshell comprised 20% of the total non-seed charcoal. Fifty-one percent of all nutshell remains were recovered from the lower levels of Unit 4 and from Feature 16, a hearth delineated in the bottom of Unit 4.

Factors encouraging the charring and preservation of dense nutshell such as hickory tend to make these species the most visible of the wild plant foods. Nevertheless, certain trends can be analyzed. In studies viewing changes in plant utilization through time, one finds that nuts, measured as a percentage of charred remains, declined steadily in relation to the frequencies of tropical and native cultigens from early Mississippian through Historic times (Caddell 1981; Chapman and Shea 1981; Johannessen 1984). In the little Tennessee River Valley, for example, the nut percentages decreased from 82% in the early part of the Mississippi period to 30% in the Historic Cherokee period (Chapman and Shea 1981). This decline in the importance of nuts is reflected by similar data from the American Bottom in Illinois (Johannessen 1984).

Although other food sources were of greater dietary importance during the Mississippi period, hickory nuts were an important source of protein and oil. Both hickories and acorns may have supplemented the Mississippian subsistence base during poor maize crop years (Caddell 1981; Chapman and Shea 1981; Halley 1981).

Seeds

A total of 13 taxa of native seeds and fruits were recovered (Tables 19-20). Some of the plants represent potentially important cultigens of the Eastern Agricultural Complex (Ford 1981; Struever and Vickery 1973). Persimmon (Diospyros virginiana), goosefoot (Chenopodium sp.), and erect knotweed (Polygonum erectum) comprise about 75% of all identified seeds. Maygrass (Phalaris caroliniana), grape (Vitis sp.), maypops (Passiflora sp.), and marshelder (Iva annua) are also present in small quantities.

Persimmon seeds were found in 12 of the 25 flotation samples and also as whole seed specimens in the waterscreen samples from Features 9 and 16. Persimmon seeds have been found frequently in archaeological sites in the Lower Mississippi Valley (Byrd and Neuman 1978), and in Tennessee (Chapman and Shea 1981), Alabama (Caddell 1981), Georgia (Halley 1981), and in southern Illinois (Lopinot 1983). Persimmons were eaten by many Southeastern Indian groups as a fresh fruit and dried in the form of loaves (Swanton 1946).

The starchy/oily seed complex, including goosefoot, erect knotweed, and maygrass, is also present at Adams with the starchy end of the spectrum better represented. Goosefoot was found in small numbers in about one-half of the flotation midden samples and occurred in large quantities in the hearth, Feature 16, excavated at the base of Unit 4. Erect knotweed is the third most abundant charred seed at Adams, but it occurs almost exclusively in Feature 16. Its presence in a hearth is significant since it was found in direct association with maize (Edging 1984). Current evidence suggests that erect knotweed was cultivated from the Woodland through the Mississippi periods (Asch et al. 1979). Charred seeds have been found in hearths and other contexts at large ceremonial sites and farmsteads in Illinois and Tennessee (Chapman and Shea 1981; Johannessen 1984; Lopinot 1982, 1983).

Maygrass was found only in small amounts. Unquestionable evidence for cultivation of this plant is lacking from the East, although it is often found in association with goosefoot or erect knotweed and in sites well outside its modern distribution (Cowan 1978).

The starchy seed utilization pattern followed broadly similar trajectories in the prehistoric Midwest and Southeast. The Midwestern evidence for the utilization and possible cultivation of these plants begins in the Middle Woodland period and grows in importance through the Mississippi period (Asch et al. 1979; Johannessen 1984). Maygrass and goosefoot appear in the Southeast as important additions to the Late Archaic subsistence base; they continued to be used into the Historic period. Erect knotweed and other knotweeds completed the starchy seed complex in Baytown sites in Tennessee (Chapman and Shea 1981). The common co-occurrence of these starchy seeds in both areas after Baytown times emphasizes their importance even with the introduction and acceptance of maize agriculture (Johannessen 1984).

Tropical Cultigens

A total of 2,042 maize kernels and cob fragments were found. Unit 4 and the hearth, Feature 16, contained a large proportion of the maize. The ubiquitous presence of maize in both midden and feature contexts attests to its abundance and economic importance to the prehistoric inhabitants. A total of 49 cupule or cob fragments and six kernels were measurable. The mean row number is 10.3 mm and the mean cupule width is 5.8 mm. Twenty-four percent of the maize appears to be 8-row, 49% is 10-row, 25% is 12-row, and 2% is 14-row or greater. The large percentage of 8 and 10-row corn, and the low mean row number seems to be in accordance with the relatively late estimated occupation date for Adams. Across Eastern North America, lower row numbers are generally found at later (A.D. 1200-1400) Mississippian sites (Blake 1962; Blake and Cutler 1979; Cutler and Blake 1973; Lentz 1980).

The distribution of maize has often been tied to that of another tropical cultigen--the bean (Phaseolus vulgaris) (Chmurney 1973). Three beans were identified in the test excavated sample. The bean is the last tropical cultigen to appear in the prehistoric archaeological record in the Southeast. It has been reported from many Mississippian sites in the Lower Mississippi Valley (Byrd and Neuman 1978), but has not been found at any of the excavated Mississippian sites in the American Bottom (Johannessen 1984). The lack of evidence in the latter region may be due to the fact that chances for charring may have been fewer for beans than for other types of plant food. This is possible, but given the large amount of analysis done in both the Midwest and Southeast, it seems doubtful. It is also possible that wild beans (cf. Strophostyles helvola) fit more easily in the Midwestern Mississippian subsistence pattern than Phaseolus vulgaris, a late arrival in that region (Johannessen 1984). Squash (Cucurbita sp.) and gourd (Lagenaria siceraria) comprised only a small percentage of the Adams site botanical remains. Two squash rind fragments were recovered in Feature 11, a refuse pit located on the Saddle mound, and five specimens were collected from the midden. One gourd fragment was also found in Feature 11 and three additional specimens came from the village midden.

Summary

The Adams site botanical remains include all of the well-known elements of late Mississippian subsistence in the southern United States. Native cultigens include starchy and oily seed plants (goosefoot, knotweed, maygrass, and marshelder). Tropical plants include maize, squash, gourds, and beans. The overall pattern is similar to the complex of plants reported from Mississippian sites across the Midwest and Southeast.

Discussion of Excavation Results

(R. Barry Lewis)

The Adams site was a viable prehistoric community for centuries. The oldest occupation for which there is good evidence is a Baytown period village centered at the western end of the terrace. The precise size of this component is unknown, but it was extensive enough to leave behind a 30 cm thick midden at the southern site edge. The inference that the Baytown component was limited to the western village is based on the relative frequencies of Mulberry Creek Cordmarked and Baytown Plain across the site. The western village test units yielded over 90% of those Baytown period types (Table 21). Lewis and Mackin (1984) suggested that Mound G may also date to this period. The strongest point of their argument rested on the architectural ambiguity of this mound's location relative to the rest of the mounds. However, subsequent analysis of the test unit stratigraphy revealed the possibility of another plaza on the western side of Mound A. This plaza, if indeed it did exist, would make Mound G's location more readily explicable as part of the Mississippian community and not leave it as an outlier.

The Mississippian occupation of the site was apparently well underway by A.D. 1100. It was a large community and it lasted a long time. Midden from the two villages, or village segments, accumulated to a depth of 1.0-1.5 m. We do not know when the mounds at the site were constructed. Mound G has already been discussed. Mounds A-F and the plaza appear to have been built early during the Mississippian occupation. However, several data from the test excavations suggest that the site plan, once established, was not immutable. The possible western plaza and the depositional histories of Units 4 and 5 lend weight to this argument.

Elsewhere, Lewis and Mackin (1984) have reviewed stratigraphic changes in the ceramics from the test pit units. To summarize their findings, most of the Mound Place Incised, Matthews Incised, and O'Byam Incised, var. O'Byam, sherds occurred in the upper halves of the village middens. Lewis and Mackin (1984) infer that those midden portions must be younger than A.D. 1300, given the stratigraphic patterning of the site's radiocarbon samples. O'Byam Incised, var. Adams, is possibly the stylistic ancestor of the more common O'Byam variety. Most of the identified var. Adams sherds come from the lower half of the Unit 4 midden. Based on cross-dated ceramics and the radiocarbon dates, the site contains Hoecake, Dorena, and Medley phase components. It is possible that the Mississippian occupation of the site lasted into the early Jackson phase.

Among the other debris classes (Table 21), few stratigraphic or spatial patterns emerge from an examination of the stone, bone, and

TABLE 21. Test Excavation Artifact Proveniences.

Type Name	Test Units 1	2	3	4	5		Total
Ceramics							
Mississippi Plain	972	716	787	2193	224	897	5789
Matthews Incised,							
var. unspecified	9	11	-	7	-	8	35
var. Beckwith	26	5	7	34	1	3	76
var. Manly	1	-	1	5	2	-	9
Barton Incised,							
var. Barton	-	-	-	-	-	2	2
var. Kent	-	-	-	3	-	-	3
Bell Plain	670	305	279	654	141	646	2695
O'Byam Incised,							
var. O'Byam	32	9	5	29	5	19	99
var. Adams	-	-	1	6	1	1	9
Mound Place Incised	1	1	1	4	-	-	7
Nashville Neg. Painted,							
var. Kincaid	2	1	-	-	-	5	8
Old Town Red	10	4	2	3	-	3	22
Kimmswick Fabric Imp.	45	36	41	94	12	52	280
Wickliffe Thick	123	50	45	107	13	92	430
Untempered Plain	25	23	13	14	2	3	80
Baytown Plain	172	115	110	61	25	67	550
Mulberry Creek Cm.	999	417	184	14	8	28	1650
Surface Eroded	164	90	149	131	17	50	601
Less than 1/2 in.	1817	485	644	905	75	213	4139
Other Unclassified	16	14	3	16	1	5	55
Other Fired Clay Artifacts							
Earspools	-	2	2	1	-	1	6
Ear Pins	-	-	-	2	-	-	2
Discs	-	-	-	2	-	-	2
Pottery Ball	-	1	-	-	-	-	1
Clay Bead	-	-	-	-	-	1	1
Trowel	-	1	-	2	-	-	3
Clay Cylinder	-	-	2	-	-	-	2
Daub	1454	530	841	1516	1515	254	6110
Chipped Stone Tools							
Projectile Points	4	1	1	3	1	1	11
Proj. Point Fragments	6	1	-	2	1	-	10
Drills	3	-	-	-	-	-	3
Drill/Perforators	2	1	-	-	-	-	3

TABLE 21. Concluded.

Type Name	Test Units 1	2	3	4	5		Total
Knives	2	-	-	-	-	-	2
Blanks	1	-	-	-	-	3	4
Preforms	-	-	1	-	1	3	5
Refined Bifaces	1	-	-	1	-	-	2
Adzes	1	2	1	2	1	-	7
Utilized/Retouched Flakes	50	18	20	25	13	18	144
Modified Ang. Fragments & Cores	6	4	7	7	1	9	34
Ground Stone Tools							
Pipe	-	-	-	-	-	1	1
Bannerstone	-	-	1	-	-	-	1
Hematite Crayons	2	-	1	1	-	-	4
Galena	1	1	-	-	-	-	2
Modified Cobbles							
Abraders	14	8	8	14	4	25	73
Metates	2	1	3	1	-	7	14
Hammerstones	2	1	2	-	-	5	10
Pitted Anvils	-	-	-	-	-	2	2
Multi-use Cobbles	-	2	1	-	-	1	4
Smoothing Stones	-	1	-	-	1	-	2
Other Stone Artifacts							
Unmodified Rocks	86	62	56	148	28	88	468
Angular Fragments & Cores	94	48	58	68	11	29	308
Unutilized Flakes	463	169	155	250	21	58	1116
Bone Tools and Artifacts							
Awls	2	2	1	1	-	1	7
Modified Antler Tines	1	2	-	-	1	1	5
Fishhooks	1	-	-	1	-	-	2
Antler Handle	-	-	-	-	-	1	1
Antler Projectile Point	1	-	-	-	-	-	1
Antler Tube	1	-	-	-	-	-	1
Pin	-	-	-	-	-	1	1
Unidentified Bone Artifact	-	1	-	-	-	-	1

other fired clay artifacts. Each tested portion of the site tended to yield basically the same classes of debris. Superficially, the debris from Unit 5 looks different from the other units. It is important to note, however, that Unit 5 yielded far fewer artifacts than other test units. Insofar as artifact diversity is a function of collection size, the relative lack of debris in Unit 5 is more interesting than its homogeneity. The sparseness of debris in that unit may be largely due to the specialized use of the Saddle throughout most, but apparently not all of the site's occupation.

There is abundant evidence to support the inference of permanent year-round occupation by a large social group. The size, nature, and complexity of the site offers strong support for this inference. The organic remains document site use during each season except winter, a time that typically leaves few biological cues to mark its passage. Spring and summer evidence include longbones and teeth from immature individuals of whitetail deer, raccoons, eastern box turtle, rice rats, and squirrels. Also diagnostic of those seasons are the migratory bird elements and several of the plant species represented in the collection. Fall remains comprise the migratory birds again, many of the plants, and one whitetail deer cranium that has the stumps of fully formed, unshed antlers.

The final topic to be addressed concerns stratigraphic changes in Mississippi Plain and Bell Plain. While the ceramics from the test units were being sorted, it was noticed that the Mississippi Plain sherds from plowzone contexts seem to have more grog in their pastes than is true of material from midden levels. No attempt was made to quantify the relative amounts of grog in Mississippi Plain sherds from plowzone and midden levels, so it remains only a subjective impression.

Two different mechanisms were considered by which the subjectively perceived differences could be accounted for. First, it was possible that the temper used in Mississippi Plain changed toward the end of the site occupation toward a formula that used more grog. Second, it was also possible that Mississippi Plain material with a lot of shell tempering in it would decompose faster in the plowzone than sherds with more grog in them. The second possibility was tested since the results, if positive, would necessarily cast doubt on the other hypothesis.

In setting up the test, it was reasoned that if the different sherd counts were ultimately a function of the leaching of the shell temper, then it should also be true that Mississippi Plain and Bell Plain sherd counts will markedly shift their frequencies when compared between plowzone and midden levels. Bell should fare better than Mississippi Plain due to its more compact and homogeneous paste and the significantly smaller average particle size of its shell tempering.

Figure 26 shows a scatterplot for Bell Plain and Mississippi Plain sherd counts from plowzone and the uppermost midden levels of each test excavation unit. Examination of the point distribution about the fitted

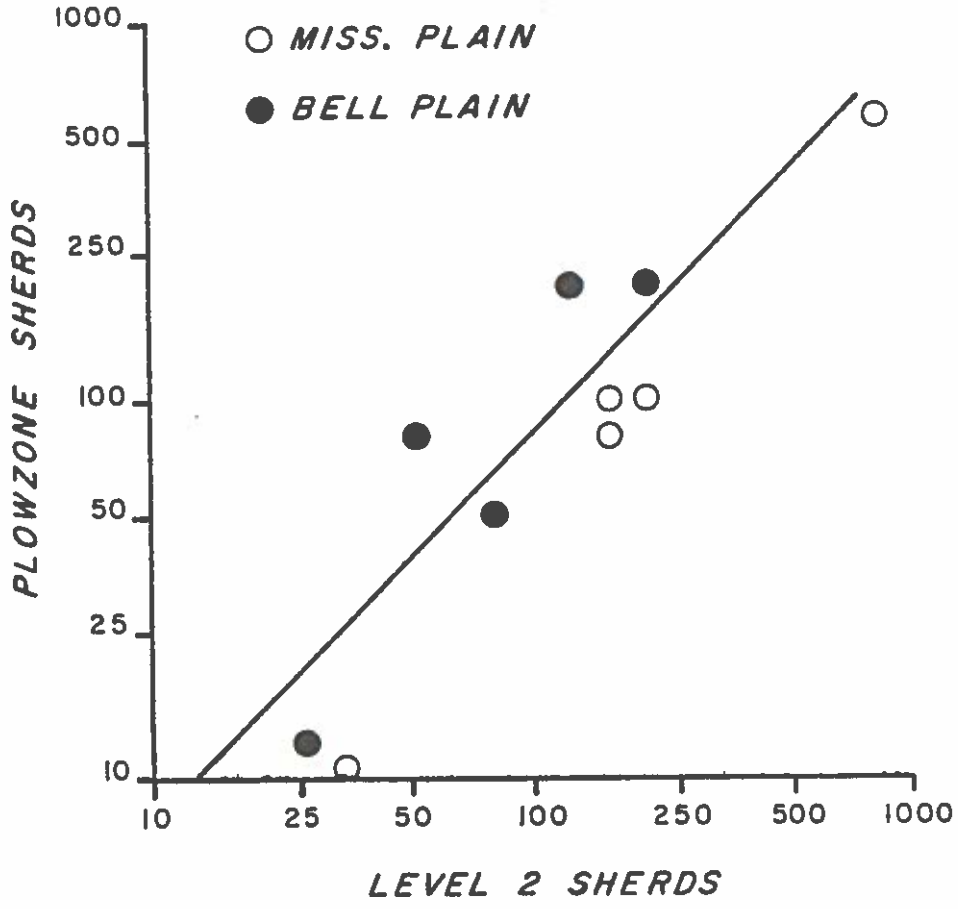


FIGURE 26. Scatterplot of Plowzone Counts Against Level 2 Counts for Bell Plain and Mississippi Plain Sherds.

line in this plot shows that most of the Bell Plain lies above the line, while the Mississippi Plain lies below it. Taken as a whole, the plot shows that Bell tends to occur in the plowzone in frequencies that are consistently greater than the corresponding Mississippi Plain material. It is inferred that the grog tempered Mississippi Plain material from plowzone contexts is basically an artifact of differential sherd destruction. Thus, changes in the frequencies of Mississippi Plain and Bell Plain in the upper midden levels reflect natural processes rather than cultural changes.

The slightly curvilinear nature of the plot (Figure 26) may reflect the fact that the destruction of Mississippi Plain is due more to chemical than mechanical factors. With increasing concentrations of sherds in the plowzone, either sherd destruction is slowed by the soil acidity effects of the CaCo-3 in the sherds, or the quantity of sherds may simply tend to inhibit leaching by interfering with the capillary action of the groundwater.

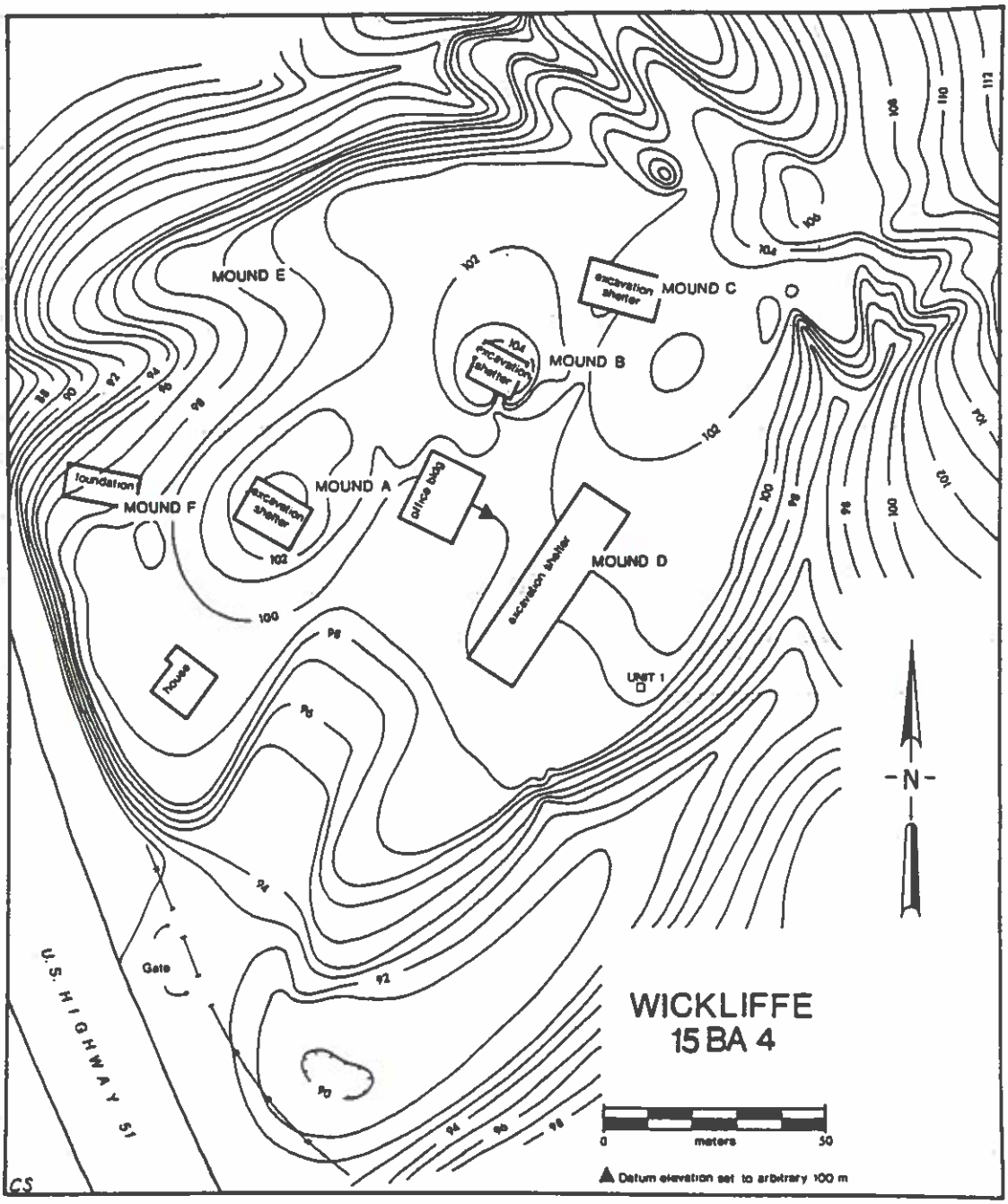


FIGURE 27. The Wickliffe Site.

THE WICKLIFFE SITE (15Ba4)

Site Description and Setting

(Richard B. Edging and Charles B. Stout)

The Wickliffe, or King site (Figure 27) is located 5 km south of the confluence of the Ohio and Mississippi rivers. The mound complex is situated on the steep bluffs 25 m above the Mississippi floodplain on the north side of the town of Wickliffe in Ballard County. Most of the site is sod-covered and surrounded by a mixed mesophytic forest. It is defined by sharp ravines that dissect the bluffs and essentially serve as the northern and eastern site boundaries. The soil is Memphis silt loam, a strongly to very strongly acid soil formed on the uplands and ridges of the region (Humphrey 1976:28).

At one time the site undoubtedly extended southwest beyond U. S. Highway 51, but this area was destroyed during road construction in the 1930s. Some additional site damage was done later when the ravine between the two largest bluff ridges was widened to accommodate a double driveway from the highway to the site. Moore (1916:508) notes that some light industry took place at this site, but the extent of any damage is unknown. Portions were also plowed for a short time in the late nineteenth or early twentieth century.

In the 1930s, the construction of U. S. Highway 51 to Cairo, Illinois, revealed the presence of archaeological deposits along the site's southwestern edge. Fain King, an amateur archaeologist from Cairo, purchased the site shortly thereafter. King's excavations spanned the next decade and produced several brief publications (King 1936, 1937, 1939). Frame buildings were erected over several of the block excavations and the site was opened as a tourist attraction to help defray excavation costs. The site was donated to Western Baptist Hospital in Paducah in 1946 and was maintained for several decades under the name, "Ancient Buried City" (Wesler 1984). In 1983 it was donated to Murray State University. It is now an archaeological research center and museum under the direction of Dr. Kit Wesler.

Previous Archaeological Investigations

(Richard B. Edging and Charles B. Stout)

Loughridge (1888) and Moore (1916) published the first descriptions of the site. Loughridge's site description and sketch map (Figure 28) are fairly accurate and have served as important benchmarks in

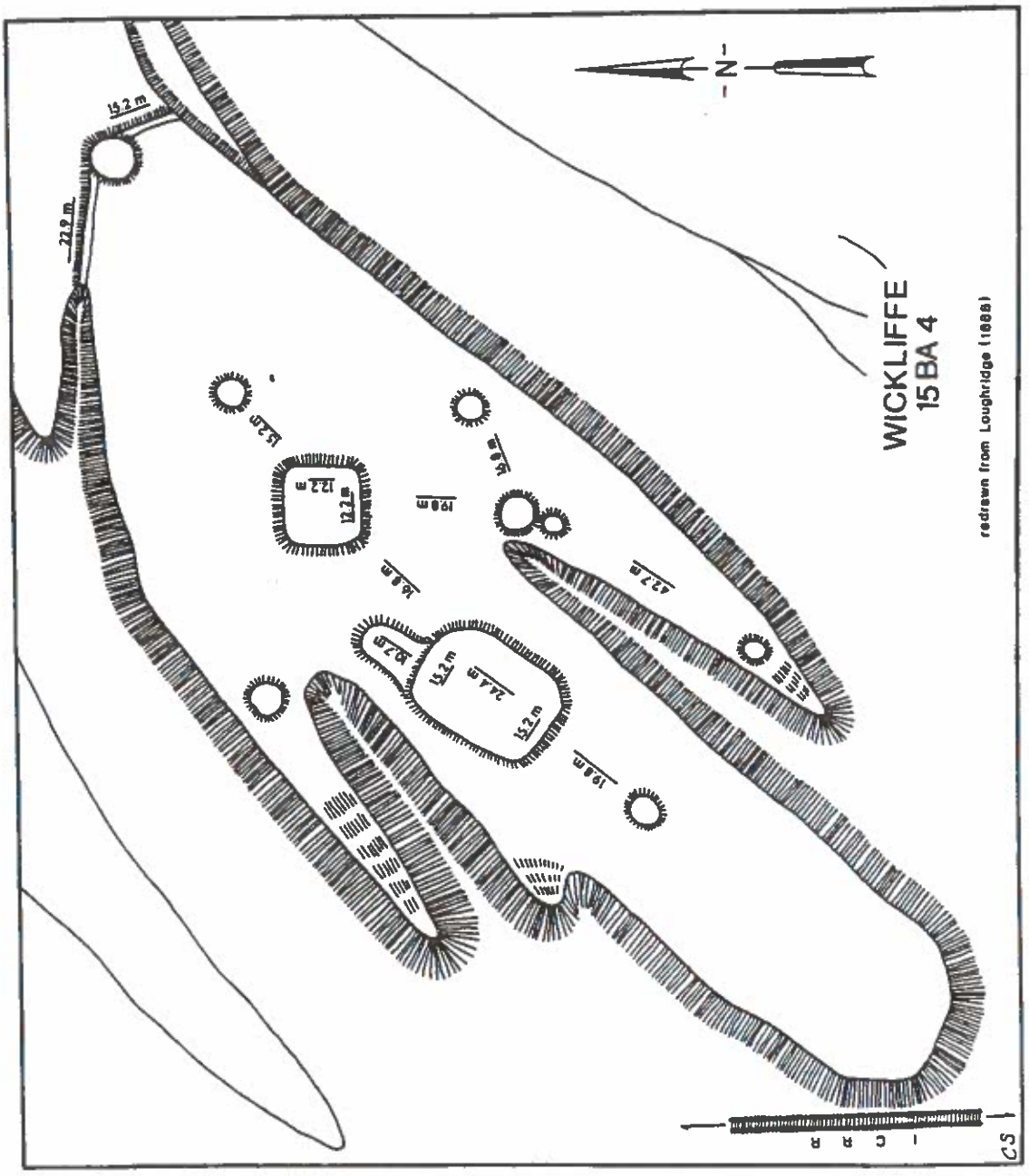


FIGURE 28. The Loughridge Map of the Wickliffe Site.

subsequent archaeological investigations. Moore's account, on the other hand, is vague.

Beyond the published accounts by the Kings, little documentation exists for the 1930s excavations. Site photographs, stratigraphic and excavation data, and many of the site maps were lost. However, thousands of potsherds, chipped and ground stone tools, scores of human burials, as well as the open block excavations testify to the intensive fieldwork conducted there. Recently, copies of field notes and one topographic site map were obtained from Mounds State Monument, Alabama (Wesler 1984). Another mound, unknown to previous investigators, was also discovered in 1983 on the easternmost bluff of the site.

Excavations and Stratigraphy

(Richard B. Edging and Charles B. Stout)

This section describes the excavations and collections as of 1983 prior to Murray State University's ownership of the site. The new director and staff have since strengthened the research and interpretive value of the excavations and exhibits.

The Exposed 1930s Excavations

The open block excavations display many archaeological materials and features, including postmolds, hearths, refuse pits, and house structures. The materials are reported to be in situ, but decades of exposure and reconstruction cast doubt on their proveniences and interpretative utility. Existing records indicate that the Kings conducted six block excavations that were designated as Mounds A-F. Mounds A-D are currently represented as specific archaeological features; for example, Mound D is referred to as the "Infant Burial Mound." However, the excavations not only exposed architectural features and burials, but habitation areas as well. Although much of the Wickliffe collections are ascribed to Mounds E and F, these excavations are no longer open and little is known about them. None of the site materials were apparently ever analyzed. Each open excavation is described in turn below.

Mound A (The Temple Mound)

This excavation has a deep, exposed stratigraphic profile that contains several soil zones. Radiocarbon samples were collected from two prominent construction layers. The deeper layer is 2.2 m below surface and dates to A.D. 1210 $\pm$ 70 (ISGS-1143); the other is 1.4 m

below surface and dates to A.D. 1260 ± 71 (ISGS-1152). The rest of the soil zones are barely discernible. There are no initial or terminal mound age estimates (Wesler 1984). The prehistoric function of this structure is also unknown.

Mound B (The Council House)

This is the least understood of the sheltered excavations. It contains a rectangular series of postmolds, a hearth, and a possible storage pit. Feature reconstruction has occasionally taken place here following the flooding of the excavation floor by heavy rains. From one of the few available excavation photographs, it appears that this mound had three main strata. The foundation of the frame shelter now obscures these profiles (Wesler 1984).

Mound C (The Adult Burial Mound)

This is a partially exposed cemetery containing juvenile and adult skeletal remains. Most of the burials appear to have been in flexed positions. They are situated in proper anatomical order on reconstructed pedestals and are accompanied by artifacts.

Mound D (The Infant Burial Mound)

This excavation contains infant and adult skeletal remains, hearths, possible storage pits, and postmold patterns representing at least two square houses. According to Wesler (1984), the sheltered area is one-half to one-third the width of the original block excavation. It once extended eastward nearly to the University of Illinois test pit location.

The 1983 Test Excavations

Unit 1 (S27-29 E34-36) was placed on a low rise that parallels the two small conical mounds sketched originally by Loughridge (Figure 28) and also shown on the University of Alabama map. This test unit is just east of the so-called "Infant Burial Mound" building. The rise itself does not show on the Loughridge or University of Alabama maps. Since the "Infant Burial Mound" excavation was once much wider, the low rise may be the eastern limit of unexcavated soil adjacent to the mound.

The plowzone and next two lower levels were excavated as natural units. The deepest two layers of housefill and midden were excavated in arbitrary levels. This separation reflects the possibility that the plowzone and Level 2 (0-23 cm below surface) were recently disturbed soil layers, possibly the remains of the backdirt from the original

Mound D excavation. The deepest three levels (23-70 cm below surface) were essentially undisturbed and reflect the complex nature of the stratigraphy.

The plowzone consisted of a hard-packed, dark grayish brown (10YR4/2) silty clay loam with numerous charcoal, daub, and clay fragments. This stratigraphic layer comprised the O1, O2 and A1 horizons. Twentieth century roofing tacks, presumably used in the construction of the original "Infant Burial Mound" structure, were recovered along with prehistoric artifacts. In the deepest 5 cm of the plowzone (Level 2,17-23 cm below surface), the soil texture changed from a silty clay to a loose friable soil. Soil colors ranged from a medium brown (10YR5/3) matrix mottled with dark grayish brown (10YR4/2) to a yellowish brown (10YR5/6) and light brownish gray (10YR6/2) ashy soil.

The silty clay loam midden below the plowzone was compact, yet moist. The soil matrix was a mosaic of medium brown (10YR5/3) mottled with dark brown (10YR3/3) and light brown (7.5YR6/4) ashy soil. Amorphous mottled soil stains were also recorded. Charcoal and daub fragments were abundant. The heavily mottled midden, animal burrows, and nature of the soil matrix made observation of possible features such as postmolds or refuse pits difficult. A wall trench, however, was delineated at 40 cm below surface and continued to a depth of 70 cm below surface. A radiocarbon sample of charred wood from 32-34 cm below surface yielded a date of A.D. 1280 $\pm$ 70 (ISGS-1171). Most of the test unit cultural materials (Table 22) were collected from this portion of the midden (i.e., 23-40 cm below surface).

The relative amount of cultural materials in the midden decreased at 40-60 cm below surface. Two wall trenches and several postmolds were delineated at 60 cm below surface (Figure 29). The final excavation level (60-70 cm below surface) yielded little cultural material (Table 22). The base of the test unit was below the zone disturbed by prehistoric site use. The soil changed from a medium brown (10YR5/3) to a light yellowish brown (10YR6/4) silty clay resembling an illuvial B horizon.

Cultural Remains

(R. Barry Lewis)

Ceramics

Mississippi Plain (Figure 30,q-t)

This coarse shell tempered type comprised 74% of the collection (Table 22). The paste tends to have few clay grog inclusions compared

TABLE 22. Wickliffe Test Unit Artifact Proveniences.

Artifact Class	Cm below Surface 0-17	17-23	23-40	40-60	60-70	Totals
Ceramics						
Mississippi Plain	76	181	211	129	15	612
Matthews Incised,						
var. unspecified	2	1	0	0	0	3
var. Beckwith	1	0	0	0	0	1
Bell Plain	31	26	23	11	1	92
Kimmswick Fab Imp.	2	2	3	4	0	11
Wickliffe Thick	1	0	1	0	0	2
Crosno Cordmarked	0	0	2	1	0	3
Untempered Plain	0	7	0	0	0	7
Surface Eroded	3	3	12	10	0	28
Less than ½ in.	2	31	24	11	2	70
Unclassified	1	0	0	0	0	1
Other Fired Clay Artifacts						
Daub	10	42	34	41	4	131
Chipped Stone Artifacts						
Projectile Point	1	1	0	1	0	3
Biface Fragment	0	0	2	0	0	2
Scraper	1	0	3	2	0	6
Modified Cobbles						
Abrader	0	1	1	1	0	3
Hammerstone	0	0	0	0	1	1
Other Stone Artifacts						
Core	4	1	4	3	0	12
Unutilized Flake	18	24	56	34	8	140
Fire-cracked Chert	7	4	80	15	2	108
Unmodified Rock	44	61	80	87	6	278
Bone Tools and Artifacts						
Cut Bone	0	0	1	0	1	2
Historic Artifacts						
Wire Nail	3	1	0	0	0	4

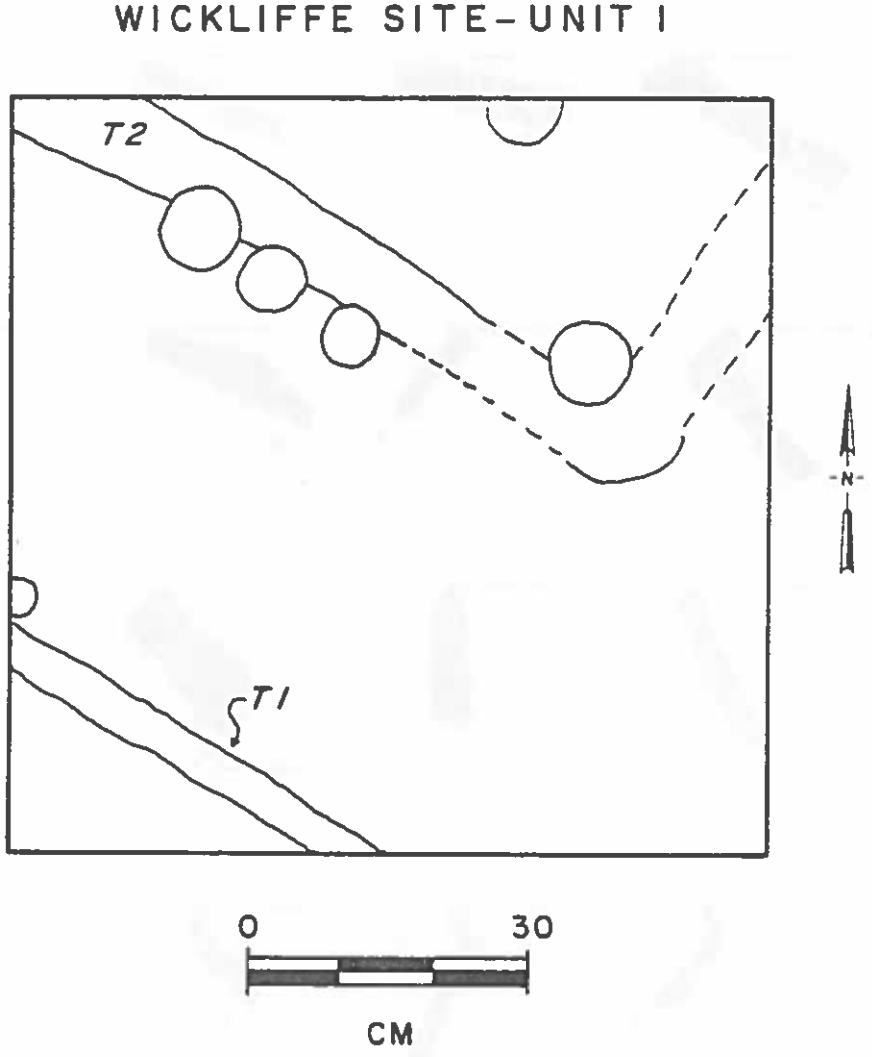


FIGURE 29. Horizontal Plan of Unit 1 Features.

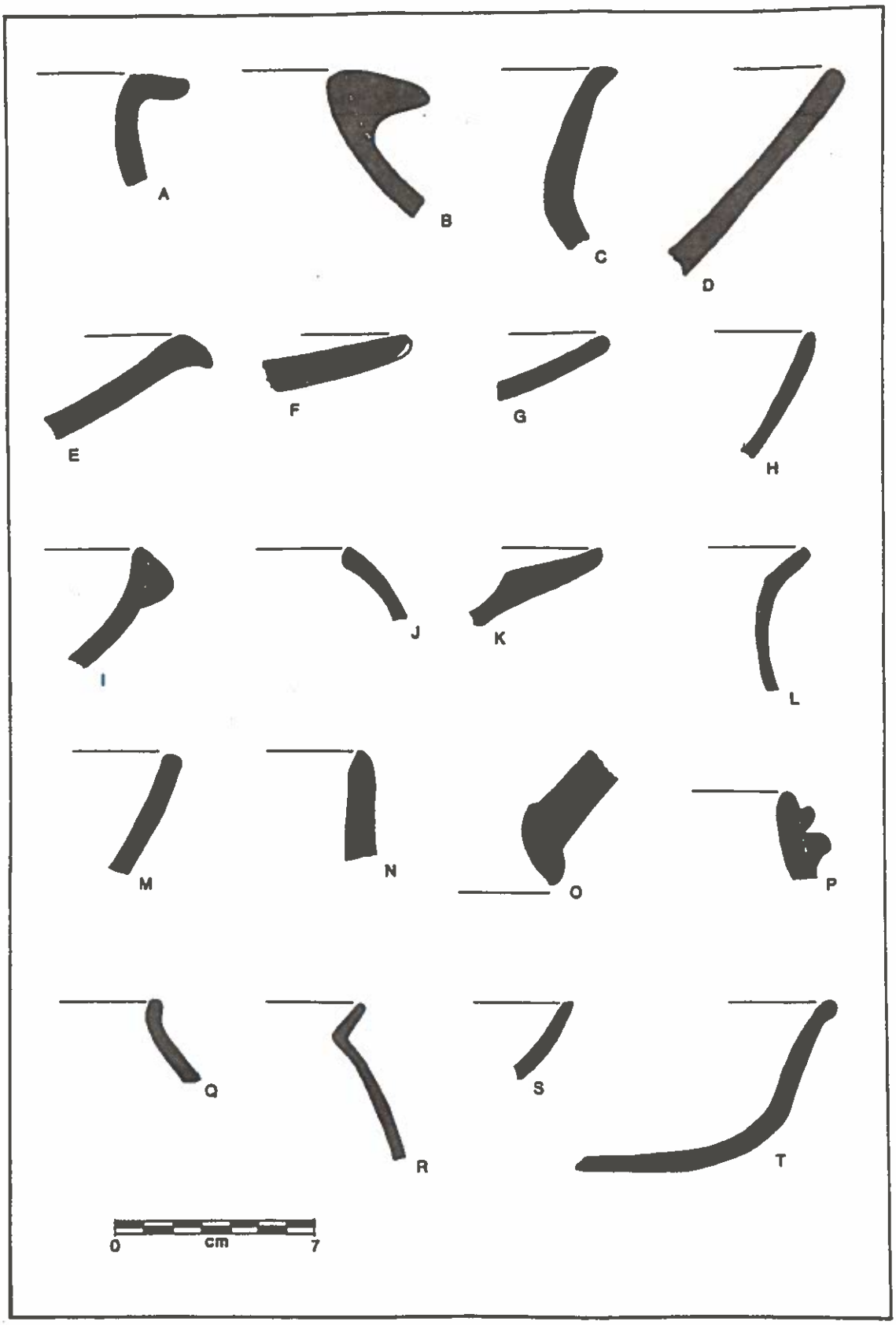


FIGURE 30. Rim Profiles: (Sassafras Ridge) a-e, Mississippi Plain; f-k, Bell Plain; l, Matthews Incised, var. Beckwith; m, Mound Place Incised; n-o, Wickliffe Thick; p, Fortune Noded; (Wickliffe) q-t, Mississippi Plain.

with the Adams site material. Thus, the Mississippi Plain and Bell Plain sherds at Wickliffe are easy to sort since the body sherds of each type are generally quite different rather than grading together as they do at some sites. The common vessel forms are jars and bowls.

Jars (5) - The median rim diameter is 14-18 cm with a range of 10-30 cm. Two rims are everted, one is angled, and the remainder are incurvate. Appendages include a loop handle fragment, a piece of a plain lug, and two strap handle fragments, one of which is decorated with four parallel incised lines along its long axis.

Bowls (5) - The median diameter is 22-26 cm, the same as at the Adams site; the range is 6-30 cm. One rim is everted; the other specimens are from hemispherically shaped bowls. No bowl appendages were identified.

One body sherd of indeterminate vessel form shows an interior carbonized crust.

Matthews Incised, var. unspecified

Three Mississippi paste sherds from the upper levels of the test unit show parallel incised lines on their exteriors. The sherds are too small, however, to permit an identification of the motifs.

Matthews Incised, var. Beckwith

One incurvate jar sherd with a 10-14 cm rim has the remains of an incised guilloche motif on its neck.

Bell Plain (Figure 31,a-c)

This fine paste ware comprised 11% of the collection (Table 22). A minimum of four bowls, a jar, a necked bottle, and a hooded bottle are represented. Bowl rim shapes are everted, flared, excurvate, and flanged; all have 14-22 cm diameters. The incurvate rim jar has a 2-6 cm diameter. The necked bottle also has an incurvate rim. The hooded bottle was identified on the basis of the modeled twin peaks of an owl effigy vessel (Figure 31,a) similar to that illustrated by Cole et al. (1951:Plate 23,h) from the Kincaid site. A duck rim effigy adorno (Figure 31,b) was found in the basal level of the excavation. Bell paste appendages include one modeled lug fragment and an incised lug (Figure 31,c).

Kimmswick Fabric Impressed

Fabric impressed salt pan sherds were uncommon in the test excavation. Only 11 body sherds were found.

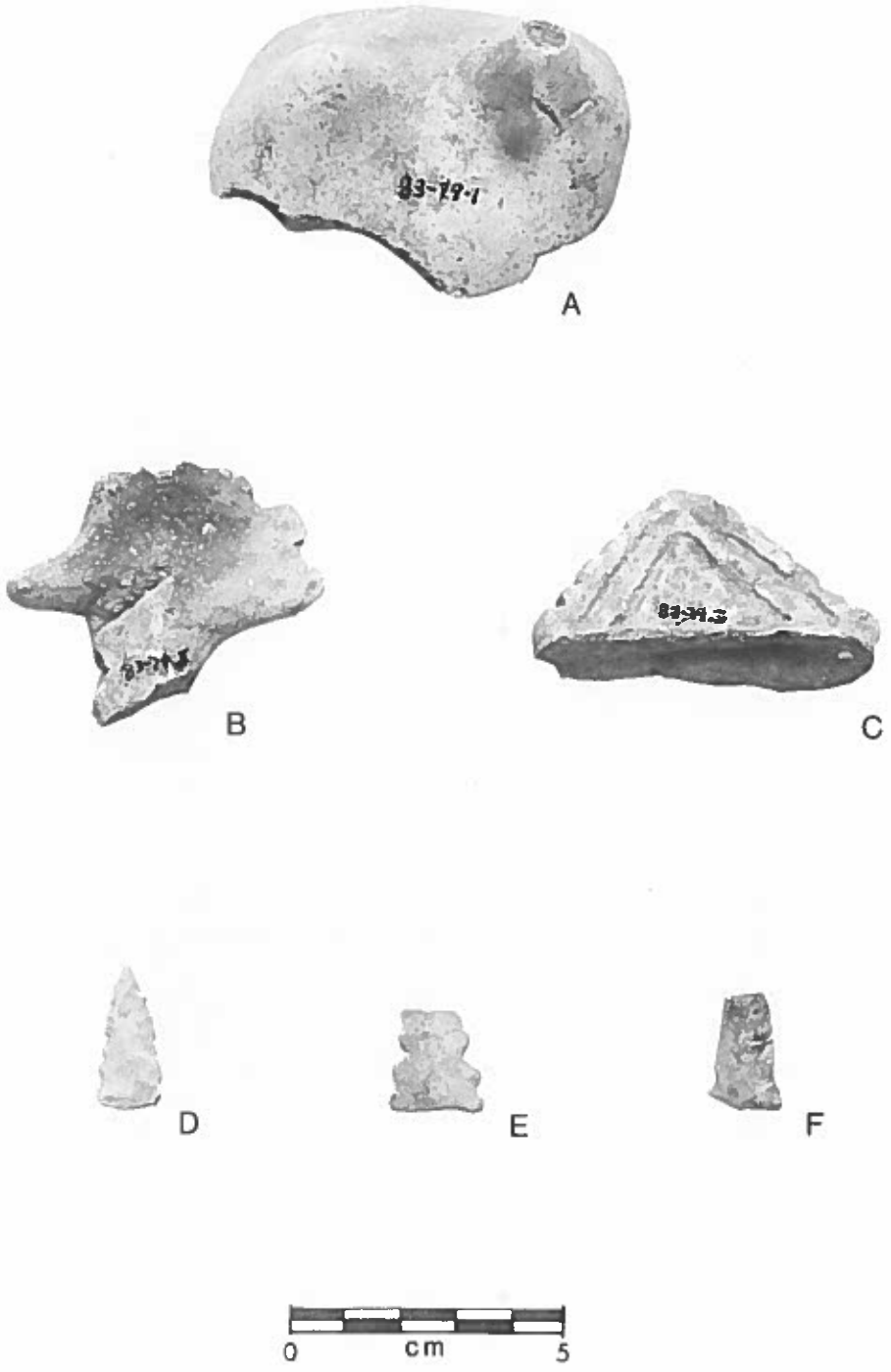


FIGURE 31. Unit 1 Artifacts: a-c, Bell Plain; d-f, projectile points.

Wickliffe Thick

The "type site" of this Mississippi period funnel yielded only two sherds in the test excavation. The one rim is from a vessel of indeterminate size.

Crosno Cordmarked

This category includes three cordmarked body sherds of Mississippi paste. Little can be said about this material except, perhaps, to note that it is a consistent minority type in our collections from the investigated sites. The type was originally defined somewhat loosely by Williams (1954) on the basis of his analysis of material from the Crosno site (22Mi1) in Mississippi County, Missouri.

Untempered Plain

Seven body sherds from small vessels were found. The paste is comparable to that of the Adams site examples.

Unclassified Ceramics

Bell paste - One surface-eroded body sherd from the plowzone level shows a zoned pattern of fine cross-hatched incisions. It is possible that the sherd is an O'Byam Incised variant, but one cannot be more definite than that.

Other Fired Clay Artifacts

Daub

A total of 129 fragments of fired clay plaster were recovered. Most show negative impressions of grass blades and cane strips. The grass was presumably mixed into the paste to help bind it. The cane strips, when woven into coarse mats, provided a crude lathing to hold the plaster.

Chipped Stone Artifacts

Stemless Projectile Points (Figure 31,d-f; Table 23)

Lateral margins are excurvate to excurvate-incurvate. Two specimens (A and C) have serrated blades made by removing deep, diminutive conchoidal flakes from one margin of each blade face. The serrations on

TABLE 23. Metric and Other Attributes of Wickliffe Site Projectile Points.

Specimen	Total Length (mm)	Stem Width Base (mm)	Thickness (mm)	Wgt (g)	Heat-Treated	Provenience (cm BS)	Remarks
a	27	13	3	0.8	y	0-17	Complete
b	22	15	5	1.5	y	17-23	Distal end missing
c	20	18	5	1.5	n	40-60	Distal end missing

specimen C are so deep that they impart a notched appearance to the blade. Specimen B has flared basal corners.

Biface Fragments

Two broken bifaces were found at 23-40 cm below surface. One is of Purchase Gravel, the other is of heat-treated Mill Creek chert. Both fragments are too small to warrant further classification.

Scrapers

Spokeshave (1 specimen) - A recycled Mill Creek chert hoe fragment shows a hemispherically-shaped notch on one lateral margin. The notch interior margin exhibits crushing, diminutive step fractures, and light rounding. The notch ends are so rounded that they feel nearly ground away. It is inferred from this wear that the tool was used on a relatively soft surface.

Side scraper/perforator (1 specimen) - One heat-treated Mill Creek chert flake shows steep retouch along one margin, part of which forms a pointed tip.

Flake scraping or cutting tools (4 artifacts) - Each specimen shows shallow to steep unifacial retouch along one or more margins. One flake is of Mill Creek chert; the other examples are from unidentified sources. All appear to have been heat-treated.

Modified Cobbles

Abraders

Plano type (2 specimens) - Two tabular sandstone rocks show smoothly ground facets on one broad face each. The working surface of the specimen collected at 23-40 cm below surface tends to be slightly concave. The 40-60 cm below surface artifact has a flat surface, but looks like a fragment of a much larger implement.

Grooved type (1 specimen) - One large chunk of ferruginous sandstone shows multiple V-shaped channels or grooves that have been worn into the rock. The specimen was collected from 17-23 cm BS.

Hammerstone

One battered cobble (234 g) shows several crushed areas which are inferred to be the result of hammering wear.

Other Stone Artifacts

Cores

The category comprises 12 unprepared cores weighing a total of 506 g. Seven are Purchase Gravel chert. There is one specimen each of Ft. Payne and Novaculite chert. The remainder are from unknown chert sources. All of the Purchase Gravel cores, one of the unknown chert specimens, and the Novaculite core retain patches of their original cortical surfaces. Four specimens are heat-treated.

Unutilized Flakes

A total of 140 flakes, weighing 572 g, show no purposeful retouch patterns nor observable evidence of wear. Broken down by identifiable chert source, there are 36 Purchase Gravel, nine Ft. Payne, seven Novaculite, and 19 Mill Creek chert flakes. Forty-nine flakes show evidence of heat-treating. Primary or secondary cortex is observable on 62 specimens. Four Mill Creek flakes and one each of Novaculite and Ft. Payne cherts show polished facets and other attributes typical of recycled bifacial tools.

Fire-cracked Chert

This category includes 108 burned pebble and cobble fragments, weighing a total of 653 g. Most specimens show small patches of cortical surfaces. The source of this material was local outcrops of Lafayette gravels and a ferruginous conglomerate.

Unmodified Rock

Ferruginous sandstone chunks are the most common stones. They account for 106 (1360 g) of all specimens in this category. This resource is widely available locally, but does not outcrop on the site. The remaining specimens include 62 pieces of sandstone, 61 pebbles, 13 chunks of mudstone, five unmodified chert chunks, four limestone pieces, and two small lumps of cannel coal.

Bone Tools and Artifacts

Cut Bone

One whitetail deer antler tine and a longbone fragment exhibit breaks accomplished by the groove-and-snap method. The antler tine also shows a light polish, which is possibly use wear, around its distal end.

Historic Artifacts

Wire Nails

Four wire nails were found in the upper 23 cm of the test unit. Two nails have metal caps that are 3.3 cm in diameter. All of the nails are inferred to be the remains of twentieth century construction activity at the site.

Human Skeletal Remains

(Mark W. Allen and Paul P. Kreisa)

Six elements were found. These consist of a phalanx, two fragments of a femur, part of a left clavicle, a left petrous portion fragment, and an unidentifiable cranial fragment. No age or sex determinations were possible. The elements were not burned, gnawed, or modified in any manner.

Faunal Remains

(Paul P. Kreisa)

The test excavations yielded a total of 514 vertebrate skeletal elements. Of this total, 47% could be identified to the family, genus, or species level. Mollusc valves and fragments added another 11 pieces, yielding an overall total of 525 processed specimens. The elements recovered by the flotation process were analyzed and are discussed separately from those recovered by screening as these methods have been shown to sample differing populations (Styles 1981). The minimum number of individuals (Table 24) was calculated from the most common element per side for each taxa (Grayson 1984). Due to sample size, age and sex data were largely unobtainable.

As seen in Table 25, mammalian and fish remains comprise the majority of the faunal assemblage. In general, all material was in a fragmented condition, with almost 74% of the elements recovered during screening represented by half of the element or less. While few of the skeletal elements have gnaw marks, most that do (9 of 10) are whitetail deer. The gnaw marks were probably caused by carnivores. Burning or calcination is present on 63% of the screened elements, but on only 23% of elements recovered by flotation. No bone tools were identified.

TABLE 24. Identified and Unidentifiable Faunal Remains by Taxonomic Class.

Class	Number of Identified Elements	Percent of Identified Elements	Number of Unidentified Elements	Totals	Percent of All Elements
Vertebrate	-	-	150	150	28.6
Mammal	120	48.4	47	167	31.8
Bird	6	2.4	11	17	3.2
Reptile	71	28.6	-	71	13.5
Fish	45	18.2	64	109	20.8
Mollusc	6	2.4	5	11	2.1
Totals	248	100.0	277	525	100.0

TABLE 25. Identified Faunal Remains from the Test Excavation.

Scientific Name	# of Elements	MNI
MOLLUSC		
Obovaria spp.	6	3
FISH		
Lepisosteus spp. Gar	15	1
cf. *Stizostedion* spp. Walleye or Sauger	1	1
Ictaluridae Catfish	1	1
Micropterus spp. Bass	12	1
Centrarchidae Sunfish	15	-
Aplodinotus grunniens Freshwater drum	1	1
Total Fish	45	5
REPTILE		
Testudines Turtles	13	-
Terrapene spp. Box turtle	40	5
Terrapene carolina E. box turtle	16	3
Terrapene ornata Ornate box turtle	1	1

TABLE 25. Concluded.

Scientific Name	# of Elements	MNI
Chrysemys sp. Pond, stream turtle	1	1
Total Reptiles	71	10
BIRD		
cf. *Cygnus buccinator* Trumpeter swan	1	1
Meleagris gallopavo Wild turkey	2	1
Passeriformes Perching birds	3	-
Total Birds	6	2
MAMMAL		
Order Carnivora	4	-
Canis sp.	4	1
Urocyon/Vulpes sp. Fox	1	1
Sciurus spp. Squirrel	6	1
Family Cricetidae Voles, mice, rats	7	-
Orozomys palustris Rice rat	8	1
Sylvilagus spp. Rabbit	3	1
Odocoileus virginianus Whitetail deer	83	3
Total Mammals	116	8

Mammals

Whitetail deer are the only large mammals represented in the sample. They account for 57% of all mammalian elements. Many of the unidentifiable pieces are also undoubtedly deer. Most elements (64%) are burned or calcined; 84% of those pieces consist of less than half of the bone. One unidentifiable deer bone fragment was evidently cut and snapped from the rest of the element, and a radius has transverse butchering marks on its shaft near the proximal end. The deer elements present in the sample tend to be biased against the axial portion of the skeleton. Both Lewis (this volume) and Kruger (1985:39) have noted a similar trend in deer element presence at Mississippian sites in the Jackson Purchase region. In the Wickliffe sample, 12 vertebral elements were identified, whereas 72 would be expected given the estimated MNI of three deer. In contrast, five radii and four tibiae were recovered, and six of each would be expected with an MNI of three. This is not true for all long bones, for instance only one femur and no humeri were found in the sample. The differential occurrence of skeletal elements is thus somewhat problematical. The data could indicate a bias due to butchering selection, with the axial elements eliminated since they contribute little meat, or the patterning may indicate sampling or preservational biases.

Small mammals identified in the screened sample include squirrel, dog/wolf, rabbit, and rice rat. Few of these are burned or calcined (16%), and most are represented by over half of the element (92%). No gnawing or butchering marks were noted on the small mammal bones. The flotation sample yielded squirrel, fox, rice rat, and unidentifiable cricetid elements. Few cricetid elements were recovered from the screened sample. Burning was present on six of the 17 elements recovered through flotation.

Birds

Few identifiable bird remains were recovered. Turkey and trumpeter swan elements comprise the identifiable screened sample. Unidentifiable passerine elements were recovered from flotation. A turkey element and an unidentifiable element from the flotation sample had been burned. The swan element, a phalanx, has carnivore gnaw marks on the proximal end.

Reptiles

Box turtles (eastern and ornate) and pond turtles comprise the identifiable reptile remains. The unidentifiable terrapene elements are probably from the common box turtle. Most turtle elements (66 of 69)

were recovered through screening. Burned elements comprise 77% of all identified reptile pieces.

Fish

Recovery technique was a major factor in the representation of fish elements in the sample. The screened sample of 17 elements represent large species, such as gar, catfish and sauger. Scales are the only identified gar elements. All of the elements recovered by screening are relatively complete. Only one burned specimen, a sauger dentary, was noted.

The flotation sample included 92 fish elements, all but one, a freshwater drum vertebra, from small species. The 27 identifiable elements are bass and sunfish species. The remaining 64 unidentifiable elements also appear to represent smaller fish. Indications of burning are present on 12 of 92 specimens.

Molluscs

Of the 11 mollusc fragments recovered, six were identifiable, all to the genus Obovaria sp. A minimum of three individuals is represented. All shell was recovered by screening and is in a generally friable condition.

Conclusions

The faunal remains indicate an intensive use of whitetail deer, and to a lesser extent, fish, turtle, small mammals, and birds. Smith's (1975) analysis of Mississippian faunal assemblages from the Northern Lower Valley indicates an exploitation strategy focusing on deer, and to a lesser extent on medium-sized mammals, migratory waterfowl, fish, turkey, and turtles. This strategy is comparable to that of the Mississippian sites from the Jackson Purchase region analyzed to date. The fauna identified at the Adams (Lewis, this volume) and Turk (Kruger 1985) sites, and the limited data presented here for Wickliffe, all underline the importance that Mississippian cultures placed on deer and renewable faunal resources, such as fish and migratory waterfowl, in their exploitation strategy. The importance of deer at the Wickliffe, Adams, and Turk sites in Western Kentucky may indicate a similar exploitative strategy as that employed by Mississippian peoples in the Cairo Lowland region; deer as the main fauna hunted with smaller animals taken in an opportunistic manner (Lewis 1974:40).

Botanical Remains

(Lynne M. Mackin)

One soil sample of 15 l was collected from the excavation unit at 23-40 cm below surface. A total of 935 pieces of carbonized botanical material, weighing 14.8 g, were sorted from the sample (Table 26). Wood charcoal represents slightly more than half of all botanical remains. Sixty fragments were randomly chosen for taxonomic identification (Table 26). Ash, oak, and hickory dominate the identifiable wood charcoal. The sample composition reflects the oak-hickory upland forest within which the site is located, and to a lesser extent, the nearby floodplain forest. It is noteworthy that the Wickliffe samples show less of the Juniperus/Taxodium type of wood than the samples from the Adams site. Wickliffe lacked the neighboring swamp forest that so distinctively marks the Adams site locality.

Nutshell comprises 21% of the non-seed charcoal (Table 26). All of the identified fragments are thick-shelled hickories and walnuts. One Carya sp. husk was identified by its porous character and exterior ridges.

Only two seeds were identified, presumably as a function of the 2 mm mesh screen used to process the sample. One specimen, Bidens sp., is characterized by a pair of prong-like awns. The other seed is possibly Chenopodium sp.

Maize (Zea mays) is the only identified tropical cultigen. Maize fragments, including kernels, cupules, and germ, account for 22% of the sorted charcoal.

Discussion of Excavation Results

(R. Barry Lewis)

The major occupation of the examined portion of the site was during the Mississippi period. The data from the "Temple Mound" and the test unit suggest that, for those site areas at least, cultural materials began to be deposited sometime prior to A.D. 1200. The ceramics from the test excavation most clearly resemble the lowest halves of the Adams site middens. The sherds are all Mississippian in age, but the incised types (e.g., Matthews Incised and O'Byam Incised) common to the Medley and Jackson phases are absent or limited to the upper levels. Drawing these lines of evidence together, portions of the Wickliffe village and at least the "Temple Mound" date to the Dorena phase (Lewis and Mackin 1984).

TABLE 26. Wickliffe Site Botanical Remains.

Plant	Number of Fragments	Percent
WOOD	485	-
Carya sp. (hickory)	5	10.2
Fraxinus sp. (ash)	9	18.4
Juniperus sp.	1	2.0
Quercus sp. (oak)	2	4.1
Quercus sp. (red group)	2	4.1
Quercus sp. (white group)	3	6.1
Salicaceae (cottonwood/willow)	4	8.2
Ulmaceae (elm/hackberry)	1	2.0
Diffuse porous	2	4.1
Ring porous	20	40.8
Unidentifiable	10	-
Total identifiable	49	100.0
NUTSHELL	191	-
Carya sp. (hickory)	55	33.7
Carya illinoensis (pecan)	23	14.1
Juglandaceae (hickory/walnut)	85	52.1
Unidentifiable	28	-
Total identifiable	163	99.9
SEEDS	2	-
Bidens sp. (beggar-ticks)	1	50.0
Unidentifiable	1	50.0
Total identifiable	1	100.0
TROPICAL CULTIGENS		
Zea Mays (maize)	201	-
Kernel	135	67.2
Cupule	63	31.3
Germ	3	1.4
Total identifiable	201	99.9
OTHER REMAINS		
Monocot stem	24	-
Amorphous charcoal	27	-
Unidentifiable	4	-

*includes *Carya* sp. husk

Ceramic collections that survive from the 1930s excavations also suggest the presence of more recent components on the site. It is impossible to be more specific since those collections are still being sorted (sorting began in 1984, not the 1930s) and the excavation grids and catalogs must be reconstructed from the labels inked on the sherds. Generally speaking, the impression gained from working with the ceramics from the three investigated sites is that Wickliffe was not occupied by large social groups during the Medley and Jackson phases.

The Wickliffe and Adams sites are alike in most other respects. Both communities were permanent, year-round villages with an economic base that rested on maize horticulture. Each contained public spaces delineated by earth architecture and were built at locations that command one's attention as they are approached.

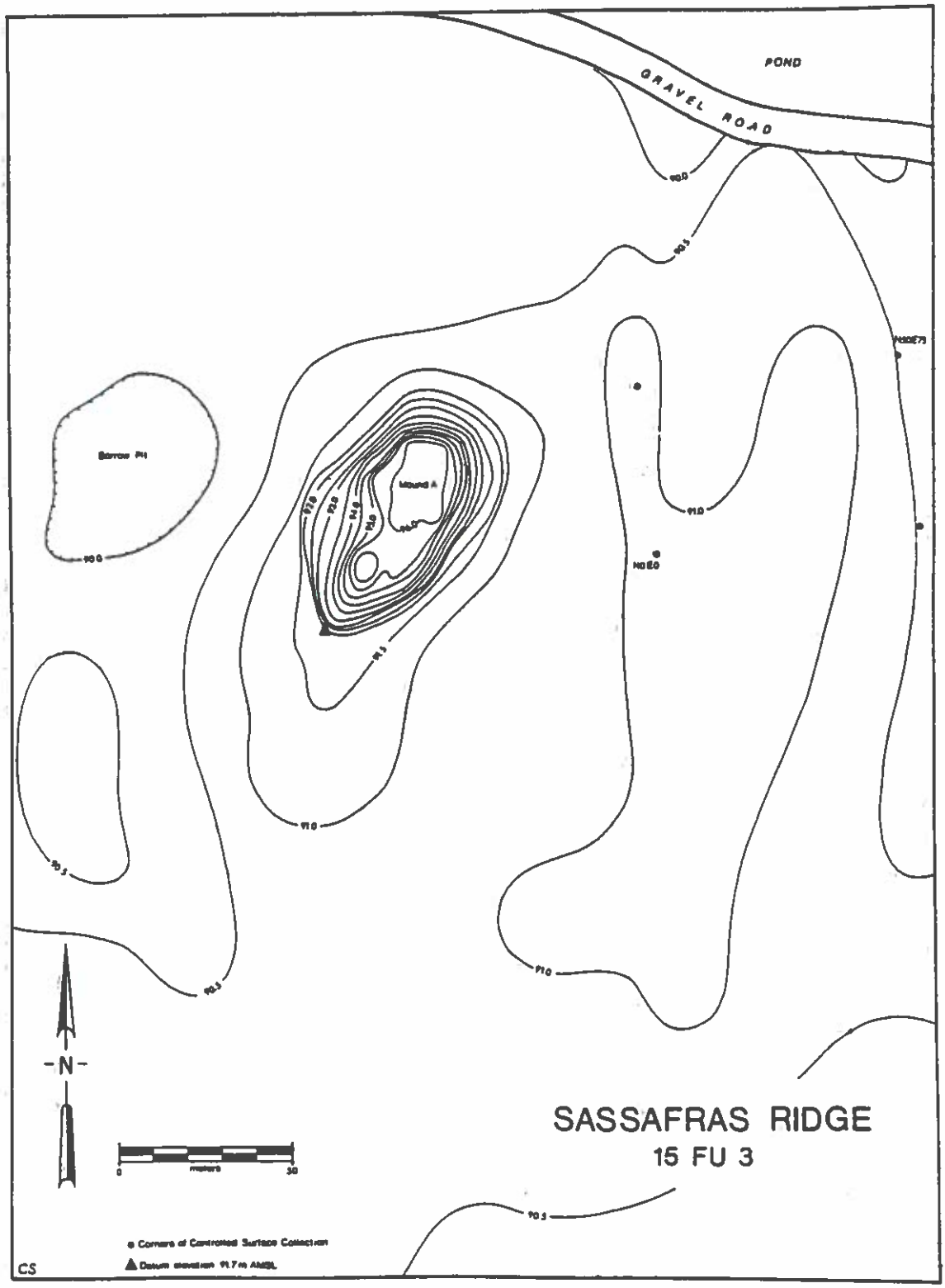


FIGURE 32. The Sassafras Ridge Site.

THE SASSAFRAS RIDGE SITE (15Fu3)

Site Description and Setting

(Charles B. Stout)

This site is located on the Mississippi River floodplain, approximately 10 km west of Hickman, Kentucky (Figure 3). It lies immediately south of Fish Pond slough. Brief descriptions of the site are found in Loughridge (1888:177-178), Moore (1916:504-505), and Funkhouser and Webb (1932:130-131). According to Loughridge (1888:177) there were once three mounds. Only the largest, Mound A, remains (Figure 32). An informant claims that a large portion of it was removed for fill dirt, but Loughridge states that relic hunters were responsible for much of the excavation. The remnants of Mound B exist only as a slight rise and a ceramic scatter 50 m southwest of Mound A. Mound C, which was located immediately east of Mound A, has been completely leveled. Early excavations by Moore (1916:505) in either Mound B or C yielded ceramic vessels containing burned human bones and teeth.

The native vegetative cover of the site would have been Sweetgum-Elm "Cane Ridge" forest. The location has been in row crop cultivation for at least 50 years. The soils are Bosket, Commerce, and Robinsonville silt loams (Newton and Sims 1961).

Mound A is approximately 6 m high and measures 80-85 m northeast-southwest by 50-60 m northwest-southeast at its base. Its dimensions at the top are 50 m by 25 m along the same respective axes. Funkhouser and Webb (1932:130) report a mound height of 50 feet (15 m), which is more than twice the actual height. Mound dimensions reported by Loughridge (1888:177) and Moore (1916:504) are consistent with the 1983 University of Illinois measurements. The top and sides of the mound are covered with thick woods and dense undergrowth. The mound orientation is uncertain due to the extent of destruction. However, assuming that its orientation has not been altered significantly, it was aligned nearly perpendicularly to Fish Pond slough. One radiocarbon sample from the top of Mound A, collected from a burned structure profiled in a pothole, was dated at A.D. 1290-1380±80 (ISGS-1142). The structure was buried about 35 cm below the present ground surface and provides a late, but not a terminal date for this platform mound.

Forty meters west of Mound A is an oval depression that probably represents a borrow pit (Figure 32). It measures 60 m northeast-southwest by 45 m northwest-southeast.

A large shallow depression encircles the site. It begins at Fish Pond 100 m northwest of Mound A and loops south before it rejoins the pond 250 m west of where it began. It is 30-35 m wide and has a radius of 125-150 m. The area between Fish Pond and the depression is approximately 15 ha. Such a depression might be the remnant of a stockade wall similar to that depicted by the topographic map of Kincaid, a Mississippian town along the Ohio River in southern Illinois (Cole et al. 1951), or it may simply be a former stream channel.

A dense surface scatter of historic debris lies 60-70 m east of Mound A. An abandoned, frame farmhouse was standing at this location in 1970, but it was subsequently removed. The most visible evidence of its existence is several shade trees and a plowed-over driveway.

Surface Collections and Spatial Patterning

(Charles B. Stout)

The landowners granted the University of Illinois permission to surface collect the site, but refused permission to excavate. Uncontrolled and controlled surface collections provide the primary data sources.

Uncontrolled Surface Collection

Mound A, pot hole spoil piles, and the surrounding fields were surface collected for prehistoric debris. Those collections were not spatially controlled. However, artifact concentrations were noted and provenienced as the collection took place.

Controlled Surface Collection

A 3,750 m plowed area approximately 25 m east of Mound A was surface collected using spatial controls (Figure 32). Six adjacent 25 m squares were staked running roughly north-south/east-west. These squares were each subdivided into 25 sampling units that measured 5 m on a side. Artifacts lying on the surface were collected and bagged for later analysis. Surface visibility was nearly 100 percent. Timed collection techniques were not used.

A total of 8,958 artifacts were recovered. Those materials were sorted at the Hickman field laboratory into the following categories: prehistoric ceramics, lithics, rough stone, unmodified gravel, faunal remains, historic materials, daub, and human remains. These categories are discussed below (numbers in parentheses are category totals):

Prehistoric Ceramics (3,062): Spatial analysis of this category was based on sherd counts. All prehistoric sherds were lumped together rather than being sorted according to types or attributes.

Lithics (1,464): These artifacts are both chipped stone tools and debitage. No distinction was made between sources of raw materials.

Rough Stone (161): This category includes pecked or broken cobbles which show no purposeful modifications.

Unmodified Gravel (368): These small cobbles and pebbles showed no evidence of purposeful modifications.

Faunal Remains (523): This category includes non-human bones and teeth.

Historic Materials (3,236): This category includes all non-aboriginal material from the site.

Daub (132): Amorphous pieces of non-pottery fired clay were grouped in this category.

Human Remains (12): This category includes human bones and teeth.

Spatial Patterning Analysis

Density contours were prepared for each of the above categories except unmodified gravel. Analysis of the contour plots revealed two relatively dense artifact scatters (Figure 33), located at the east and west ends of the collection area. These two scatters clearly reflect modern site disturbances since the light density region corresponds to the driveway location. The historic artifact density is greater on the east side of the driveway than on the west, while the densities of all the prehistoric artifacts considered together are similar on either side (Figure 33).

The density of prehistoric ceramics was highest at the east and west ends of the collection area (Figure 34); however, there are several isolated areas of high ceramic density within each gross scatter. Concentrations of lithics (Figure 35), daub (Figure 36), and rough stone were also found where ceramic concentrations were highest. Spatial patterning of the non-human faunal remains was similar to that of prehistoric ceramics, lithics, and daub, but was not as clearly defined as the other categories. The concentrations may reflect the existence of a village area containing house structures below the plowzone of the field.

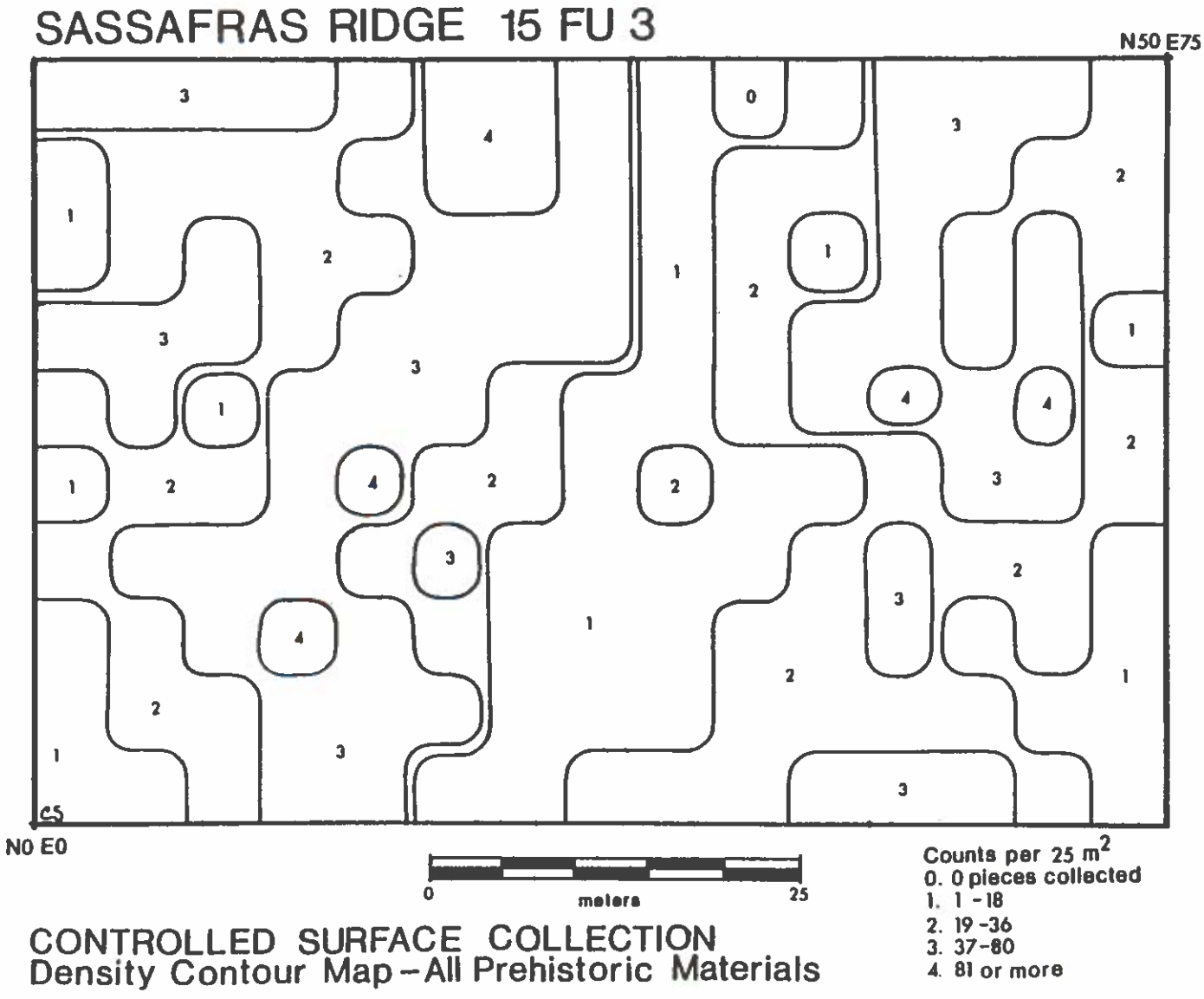


FIGURE 33. Density Map of All Prehistoric Materials.

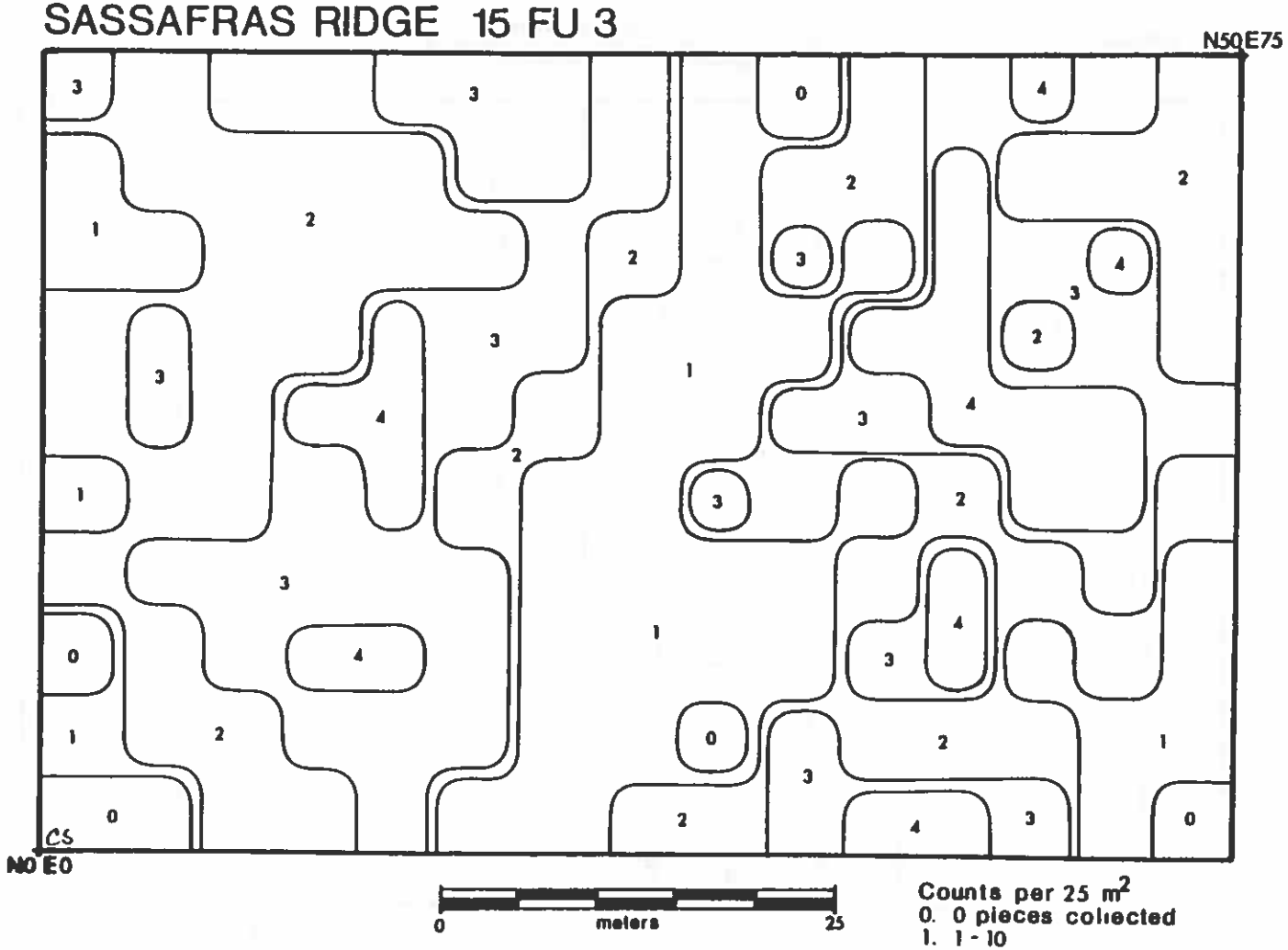


FIGURE 34. Density Map of Ceramics.

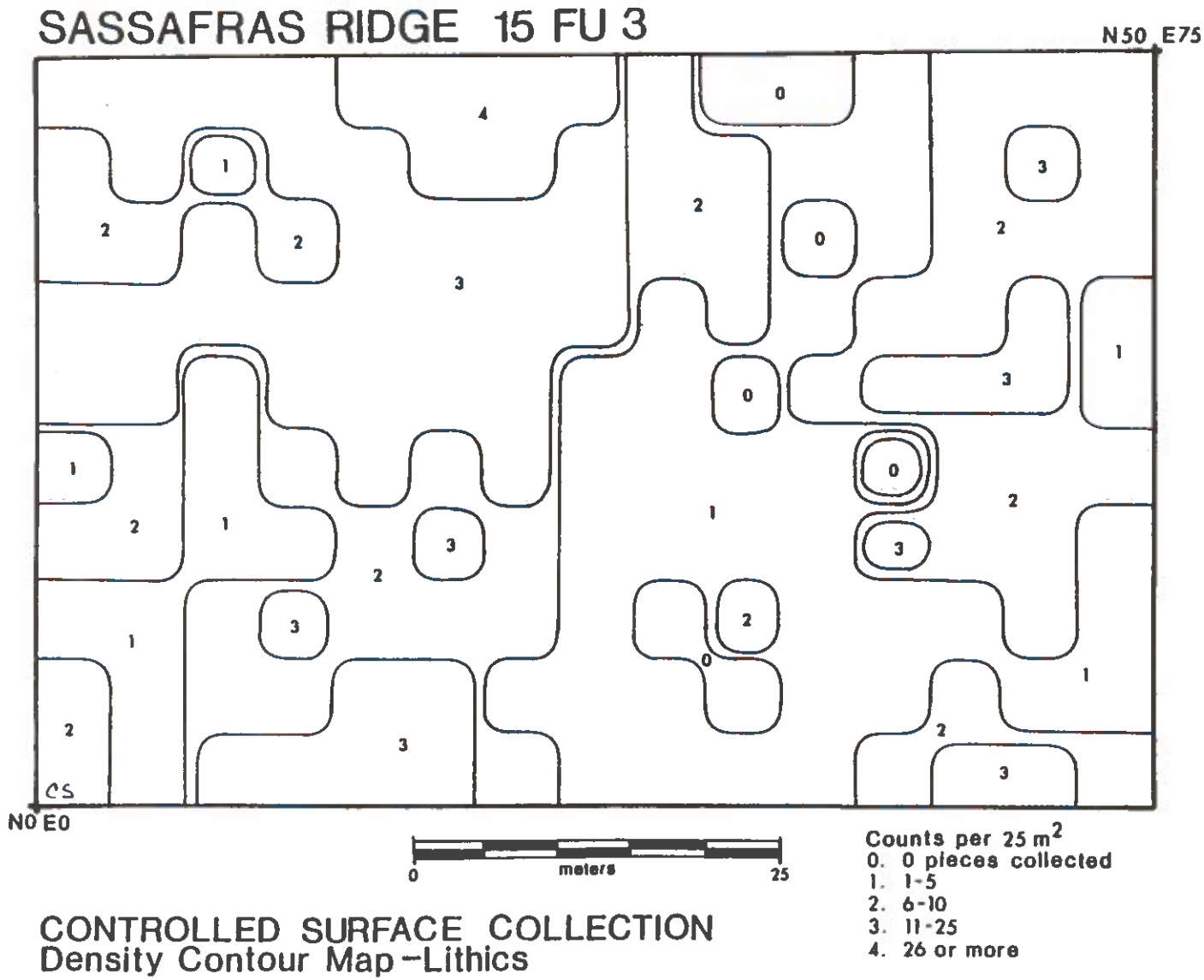


FIGURE 35. Density Map of Stone Tools and Debitage.

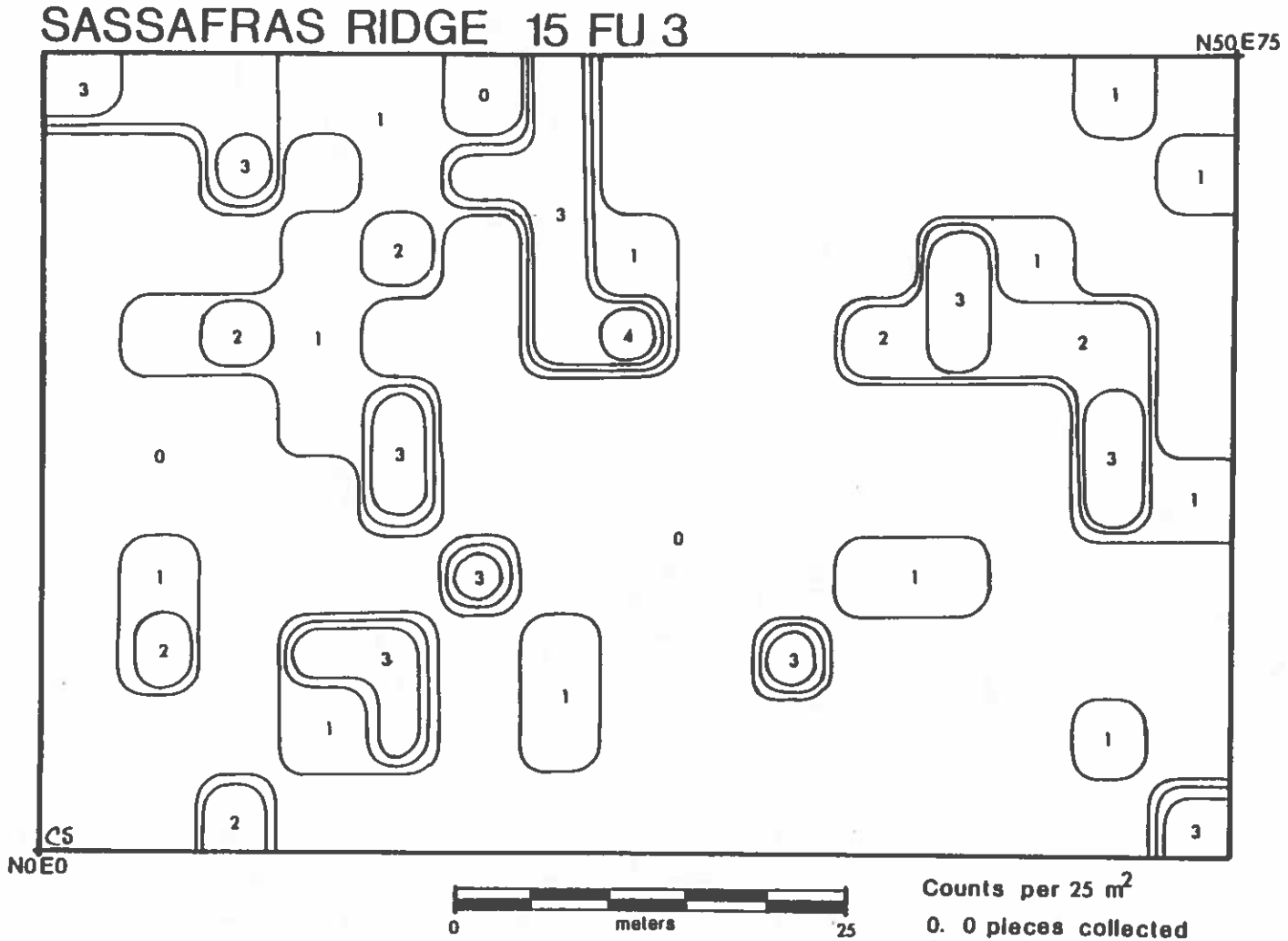


FIGURE 36. Density Map of Daub.

Human remains were scattered more diffusely on the east end of the collection area than on the west. This could be due to greater historic disturbance since the house was located east of the driveway.

In brief, the historic driveway divides scatters of prehistoric material and delineates the margin of a dense historic scatter. Removal of the plowzone could possibly reveal evidence of house structures and associated features and artifacts, especially on the west side of the historic driveway.

Cultural Remains

Ceramics (Lynne M. Mackin)

Mississippi Plain (Figure 30,a-e)

This shell tempered plainware represents 72% of the collected sample (Table 27). It is characterized by dense inclusions of coarsely ground shell. Unlike Mississippi Plain sherds from the Adams site, those from Sassafras Ridge do not have clay grog as an important inclusion. Jars are the most common vessel form with bowls and saltpans represented in smaller frequencies (Table 27). The general characteristics are described below. The minimum number of individual vessels is given in parentheses after each vessel form name.

Jars (9) - This category comprises 54% of all Mississippi Plain vessels. The median rim diameter is 18-22 cm (Table 28); it is slightly larger than that recorded for comparable Adams site jars and about equal to Mississippi Plain jars from the Cairo Lowland (Lewis 1982:21,59). Most jar rims are incurvate (27) or everted (25) in shape. Angled rims (11) are also represented. Vessel lips on incurvate rims are either flat or rounded while everted rims tend to have rounded lips. Thirteen rims have inslanted lips. One small sherd has an incised line on and parallel to the lip. Appendages are not common. They include three simple lugs, a plain strap handle, a noded loop handle, and one intermediate type handle (Phillips et al. 1951:121). There are also four strap handle fragments and one each of a loop and intermediate handle fragment.

Bowls (6) - The median diameter is 26-30 cm (Table 28). Rim shape is variable. Excurvate rims (7) are most common, but constricted (2), flared (1), and everted (1) examples are also present. Excurvate rims have either flat or inslanted lip shapes. Rounded and pointed lip shapes characterize constricted vessels. Everted or flared rims tend to have outslanted lips.

TABLE 27. Sassafras Ridge Ceramics.

Type Name	General Surface Collection	Controlled Surface Collection	Totals	Percent
MISSISSIPPIAN CERAMICS				
Mississippi Plain	190	1206	1396	41.7
Matthews Incised,				
var. unspecified	0	3	3	0.1
var. Matthews	0	2	2	0.1
var. Beckwith	1	2	3	0.1
var. Manly	0	6	6	0.2
Bell Plain	105	757	862	25.7
O'Byam Incised,				
var. unspecified	1	0	1	0.0
var. O'Byam	3	22	25	0.8
Mound Place Incised	0	1	1	0.0
Nashville Negative Painted,				
var. Sikeston	0	1	1	0.0
Old Town Red	1	11	12	0.4
Kimmswick Fabric Imp.	2	22	24	0.7
Wickliffe Thick	5	46	51	1.5
Vernon Paul Applique	1	0	1	0.0
Fortune Noded	0	1	1	0.0
Campbell Applique	0	1	1	0.0
Crosno Cordmarked	0	1	1	0.0
Untempered Plain	0	1	1	0.0
BAYTOWN CERAMICS				
Baytown Plain	0	41	41	1.2
Mulberry Creek Cm.	0	19	19	0.6
UNCLASSIFIED CERAMICS				
Surface eroded	21	113	134	4.0
less than 1/2 in.	9	745	754	22.3
Other unclassified	2	6	8	0.2
Totals	341	3007	3348	99.6
Percent	10.2	89.8	100.0	

TABLE 28. Median and Range Sizes of Sassafras Ridge Site Vessels.

Type Name	N of sherds	Rim Diameter in cm: 2-6	6-10	10-14	14-18	18-22	22-26	26-30	30-34	34-38	38-42	42-44
Mississippi Plain												
Jar	70		A	——	——	M	——	——	——	——	B	
Bowl	17		A	——	——	——	——	M	——	——	——	B
Saltpan	4										A	—— M
Bell Plain												
Jar	4		A	——	M	——	——	B				
Bowl	44		A	——	——	M	——	——	——	B		
Necked bottle	4		M	——	B							
O'Byam Incised												
Bowl	6				M	——	B					

Saltpans (2) - Rim diameters of measurable specimens range between 38-40 cm (Table 28). The remaining eight rims are greater than 44 cm in diameter.

Matthews Incised, var. unspecified

This type is represented by one incurvate jar rim with a rounded lip and a rim diameter of 14-18 cm (Table 28). It has incised curvilinear lines, but not enough of the overall motif is present to determine if it is a Matthews or Beckwith variety sherd. The rim has no appendages.

Matthews Incised, var. Matthews

One small incurvate jar rim has undulating incisions placed on the neck. This jar is 14-18 cm in diameter and has no appendages.

Matthews Incised, var. Beckwith (Figure 30,1; 37,a-b)

One everted jar rim has a distinctive, incised line-filled guilloche. The specimen has a flat lip, a diameter of 26-30 cm (Table 28), and no appendages.

Matthews Incised, var. Manly (Figure 37,c)

Five vessel neck sherds are decorated with single bands of parallel incised and punctated lines. Another body sherd has at least four rows of punctations with a parallel incised line.

Barton Incised, var. Barton (Figure 37,d)

One sherd has crosshatched incisions that most closely resemble specimens of var. Barton (e.g., Phillips et al. 1951:114). However, the paste in this sherd is more similar to Bell Plain than to Mississippi Plain and the incisions are deeper than those generally characteristic of var. Barton.

Bell Plain (Figure 30,f-k)

This type makes up 26% of the Sassafras Ridge ceramic collection (Table 27). The category includes a minimum of 16 vessels. The Bell Plain from Sassafras Ridge typically has a coarser paste than that at the Adams site. Bowls, bottles, plates, and jars are the represented vessel forms.

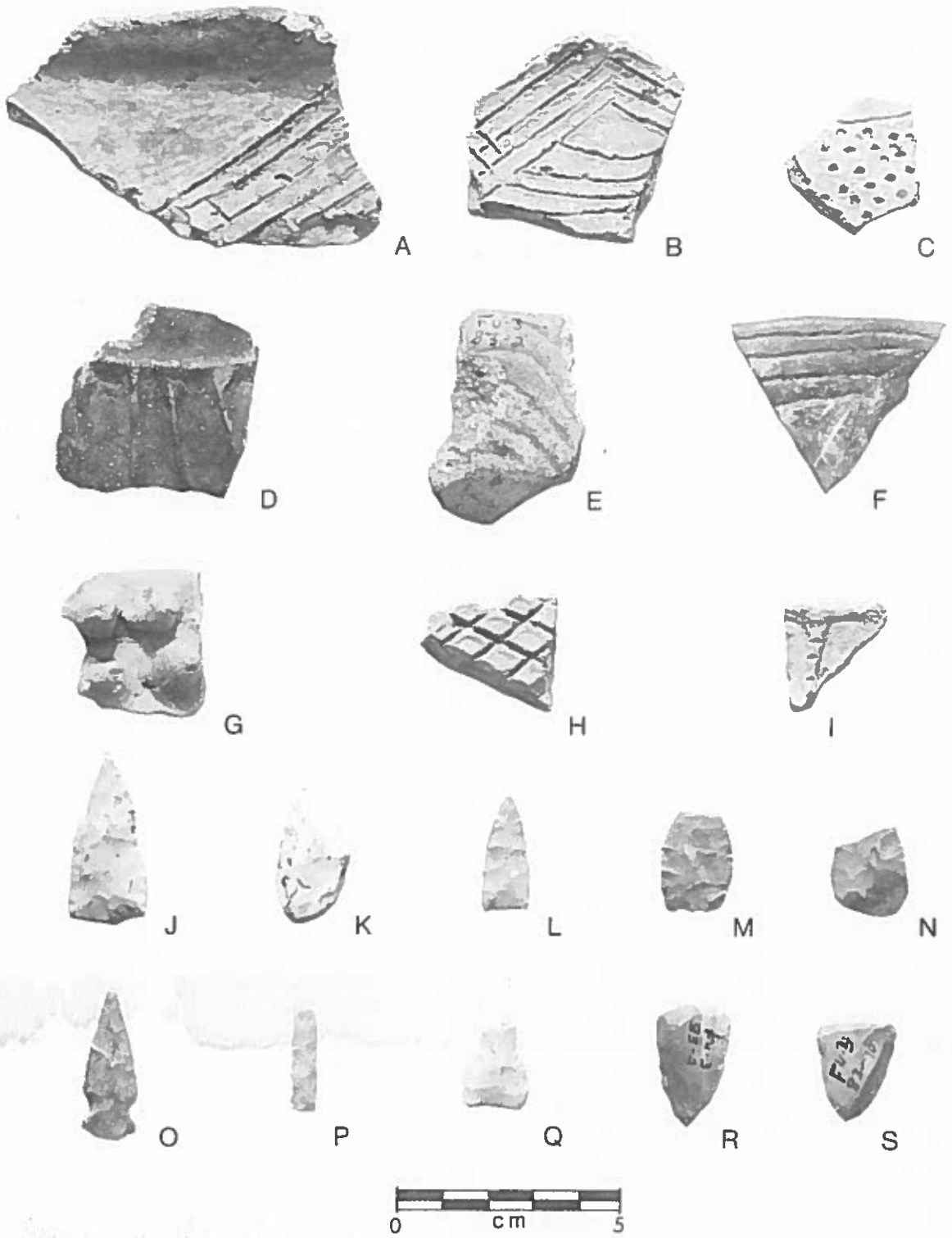


FIGURE 37. Ceramics and Stone Tools: a-b, Matthews Incised, var. Beckwith; c, Matthews Incised, var. Manly; d, Barton Incised, var. Barton; e, O'Byam Incised; f, Mound Place Incised; g, Vernon Paul Applique; h, Fortune Noded; i, Campbell Applique; j-o, projectile points; p-q, drills; r-s, scrapers.

Jars (3) - The median diameter of Bell Plain jars is 10-14 cm (Table 28), which is a smaller average than for Mississippi Plain jar diameters. Rim shapes are mostly incurvate; one everted rim is also present.

Bowls (7) - Bell Plain bowls are also smaller than Mississippi Plain bowls. The median rim diameter is 18-22 cm (Table 28). Most rims have the excurvate (25) shapes characteristic of hemispherical bowls. Constricted (4), flared (4), flanged (2), and everted (1) rim shapes are also present. Lip shapes are most often rounded or flat, but outslanting lip shapes also occur. Lip decoration is more elaborate for Bell Plain than for Mississippi Plain bowls. Seven rims are notched on the lip exterior while one rim is notched perpendicularly to the lip. Lines are either incised perpendicularly to the lip or, less frequently, incised diagonal across the lip. Two rims have modeled scalloped lips. Another is modeled in a "piecrust" fashion. The remaining rim is unevenly scalloped such that the scalloped node is skewed to the right. Nine rims with decoration or modeling are excurvate in shape. One is decorated with a notched filet or coil applique placed one cm below the lip exterior. Appendages do not appear on any of these rims. One tab appendage of Bell paste was collected and one rim has an exterior applique that is reminiscent of the fin on a fish effigy bowl.

Plates (1) - One plate rim measures 14-18 cm in diameter (Table 28). The typical flanged rim outline has either rounded or inslanted lip shapes.

Bottle rims (3) - Necked bottle rims have a median diameter of 6-10 cm; hooded bottles average 2-6 cm in diameter (Table 28). Another fragment of a possible modeled owl hood was collected. One hooded bottle rim has a lobed neck.

Modeled sherds - Two body sherds appear to be modeled. One is a node, and the other is a modeled ear.

O'Byam Incised, var. Unspecified (Figure 37,e)

One flanged plate rim with a rounded lip has curvilinear incised lines placed in an arched arrangement on the rim interior. This sherd is similar to examples of the Wells Incised type from the American Bottom (Vogel 1975:104).

O'Byam Incised, var. O'Byam

This type is represented by at least three vessels with rim diameters of 14-34 cm (Table 28). All have incised line-filled triangles on their interior rims.

Bowls (2) - Five rims are flared and one is excurvate. Two flared rims have exterior notches as a lip decoration. Another is modeled into an irregular scalloped shape and incised with imprecise and irregular lines. The excurvate rims have interior notched lips. Most lips are rounded or flat.

Plates (1) - This specimen has a diameter of 22-26 cm, which is larger than that for Bell Plain plates. Plate rims are either flared or flanged. All have undecorated lips that are rounded, outslanted, or flat.

One var. O'Byam sherd is unusually thick (1 cm). The paste of this sherd has a reddish hue. It is incised with several parallel lines.

Mound Place Incised (Figure 30,m; 37,f)

One excurvate bowl rim, which measures 22-26 cm in diameter, was found. It is decorated with four straight incised lines that are truncated by a "crescent festoon" of several incised lines (Phillips et al. 1951:147). This incising style is often found below a rim effigy adorno on Mound Place Incised bowls.

Nashville Negative Painted, var. Sikeston (Figure 21,c)

Two Bell paste sherds have reddish brown (5YR 4/4) painted designs on their exteriors. Vessel shapes are not determinable. The design motif of one specimen is only identifiable as curved parallel lines. The other sherd has a cross symbol painted directly on its burnished exterior.

Kimmswick Fabric Impressed

Four rims of this large shallow saltpan type are represented. The sherds are too small to determine rim diameter, but it is reasonable to assume that the median diameter is at least 38-42 cm (Table 28). This type has exterior fabric impressions and a flat, smooth interior.

Wickliffe Thick (Figure 30,n-o)

Ten rims of both the upper and lower opening of this funnel-shaped vessel were found. Two specimens have incised exteriors. The remainder are undecorated. The lower rim's median diameter is 2-6 cm; the upper rims measure 14-18 cm. Four rims of the top opening of these vessels were identified. Two rims are incurvate with flat lips. The other two are vertical with a rounded lip and constricted with a flat lip, respectively. Six bottom rims were also recovered; five of which

are incurvate and have the typical funnel shape described by Phillips (1970). One rim is constricted with a flat lip, similar to the vessels described as truncated ovoids in the Adams site ceramic description.

Vernon Paul Applique (Figure 37,g)

One body sherd was recovered in the general surface collection. Three appliqued strips of clay form ridges that converge slightly as they meet perpendicularly with another ridge on the sherd exterior (Phillips 1970:167). The sherd is too small to permit determination of vessel shape.

Fortune Noded (Figure 30,p; 37,h)

One incurvate jar rim with an inslanted lip was collected. The rim diameter measures 14-18 cm. It has a Mississippi paste and is decorated with parallel rows of conical nodes immediately below the lip (Phillips et al. 1951:120-122).

Campbell Applique (Figure 37,i)

One jar rim with an outslanted lip is approximately 14-18 cm in diameter. A notched arcade decorates the rim of this Mississippi paste sherd.

Crosno Cordmarked

One shell tempered sherd shows cordmarking on its exterior. It has a fine homogeneous paste with only an occasional shell inclusion.

Untempered Plain

One untempered body sherd was collected.

Mulberry Creek Cordmarked

This type is represented by 19 body sherds. The paste characteristics are variable, but clay grog tempering generally dominates over any other inclusion. None of the specimens contain shell inclusions.

Baytown Plain

Three of the 41 sherds are small fragmentary rims. Vessel forms are not determinable.

Unclassified Ceramics

Four body sherds of Mississippi paste are incised on their exteriors. Three body sherds of Bell paste are also incised. All of this material is too small to warrant further classification.

Other Fired Clay Artifacts (Lynne M. Mackin)

Earspool

One ring-type earspool fragment was recovered. It has a concave exterior and an estimated diameter of 26 mm. The ring is approximately 15 mm wide and 5 mm thick.

Pottery Disc

One Mississippi Plain body sherd has a ground and chipped circular form. It measures 39 mm in diameter and is 9 mm thick.

Chipped Stone Tools (R. Barry Lewis)

Projectile Points

Stemless projectile points: A-J (Figure 37,j-n; Table 29) - This category includes four complete specimens (A,B,D,J) and six fragmentary ones. Blade margins are straight to excurvate with one exception (I) that is incurvate. One artifact (D) may be a rejected preform. Half of the specimens were made of Purchase Gravel; the remainder are cherts from unknown sources.

Side-notched projectile points: A-B (Figure 37,o; Table 29) - One specimen (A) is complete; the other is a proximal fragment broken at the stem-blade juncture. The blade of the complete artifact has a bitriangular cross-section and excurvate lateral margins. Both stems are slightly convex.

Projectile Point Fragments

Four medial segments, three distal portions, and two proximal fragments were collected. One is Ft. Payne chert; three are Purchase Gravel; the other fragments are from unidentified sources. All of the artifacts in this category are too fragmentary to warrant further classification.

Table 29. Metric and Other Attributes of Sassafras Ridge Site Projectile Points.

Specimen	Total Length (mm)	Blade Length (mm)	Stem Length (mm)	Blade Width (mm)	Stem Width Blade Juncture (mm)	Stem Width Base (mm)	Thickness (mm)	Wgt (g)	Heat-Treated	Provenience	Remarks
Stemless Projectile Points											
a	27	-	-	11	-	11	3	1.0	y	NOE10	Complete
b	37	-	-	18	-	18	7	3.4	y	Surface	Complete
c	23	-	-	17	-	12	3	1.5	y	N30EO	Distal end missing
d	32	-	-	19	-	19	6	2.2	y	Surface	Complete
e	18	-	-	20	-	20	4	1.3	y	N5E70	Distal end Missing
f	13	-	-	15	-	15	3	0.6	y	N45E15	Proximal fragment
g	20			18	-	18	5	1.6	y	N35E30	Distal end missing
h	32	-	-	16	-	-	6	2.7	y	Surface	Proximal missing
i	18	-	-	10	-	15	4	0.9	y	N15E35	Distal end missing
j	20	-	-	14	-	14	4	0.9	y	N45E20	Complete
Side-notched Projectile Poins											
a	33	25	8	13	9	12	6	1.8	y	Surface	Complete
b	-	-	-	-	11	18	-	0.7	n	NOE40	Proximal fragment

Drills (Figure 37,p-q)

This category includes a parallel-sided specimen that measures 24 mm long, 7 mm wide, and 5 mm thick. It is made of Purchase Gravel. The second specimen is the proximal fragment of an expanding base drill made of unidentified chert. It measures 25 mm long, 8 mm wide at the drill blade, 14 mm wide at the base, and is 6 mm thick.

Chert Spade or Hoe

Only one identifiable fragment of a Mill Creek chert digging tool, a bit, was found. The relative scarcity of these tools is illusory since, as they wore out or were broken, they were recycled into smaller tools. Evidence of intensive tool recycling at Sassafras Ridge is provided by the common occurrence of cores, flakes, and small tools that exhibit use wear and other attributes of once larger implements.

Adze

A distal fragment of a chert adze was found. The identified portion is actually a large flake, the rest having been recycled as a core. The chert is of an unidentified source.

Preform

One Purchase Gravel flake was retouched to a rough bifacial form. The cross-section of the artifact is triangular. The toolmaker apparently tried to remove the massive ridge on the convex side of the flake, but failed.

Scrapers (Figure 37,r-s)

Spokeshaves (4 specimens) - These flakes, all of Purchase Gravel, each show a shallow to deep hemispherically-shaped notch formed by retouch along one flake margin. The flake scars form a steep ($>60^{o}$) working edge, but none of the specimens exhibit discernable evidence of use wear.

End scrapers (6 artifacts) - This category is characterized by a steeply retouched unifacial working edge placed transversely to the long axis of the flake (Figure 37,r-s). Crushing, smoothing, and step fracture scars, are common secondary attributes of the working edge. Three specimens are of Purchase Gravel, the remaining scrapers are of chert from unidentified sources.

Flake scraping and/or cutting tools (11 specimens) - One or more margins of each flake show continuous unifacial retouch that ranges

from a shallow to a steep angle. Five flakes are Mill Creek chert, of which two are recycled hoe bit-sharpening flakes. Four of the remaining specimens are of Purchase Gravel. One of the latter is a recycled projectile point medial segment. The other flakes are from unidentified sources.

Graver

Two flakes, one a recycled Ft. Payne chert tool, the other a Purchase Gravel flake, show unifacially worked projections. The working edges were formed by the removal of deep, diminutive conchoidal flakes; neither specimen shows identifiable use wear.

Ground Stone Tools (R. Barry Lewis)

Axe or Celt

One large bit flake from a ground and polished greenstone axe or celt was found in the general site surface collection.

Modified Cobbles (R. Barry Lewis)

Abraders

Plano type (6 specimens) - These tabular pieces of fine-grained sandstone show broad, smooth, flat to slightly concave working surfaces. None appear to be complete and it is impossible to estimate the original sizes of the implements from the fragments at hand. They are possibly the remains of metates.

Grooved type (12 specimens) - Seven chunks of fine-grained sandstone and five pieces of coarser ferruginous sandstone have V-shaped grooves worn into one or more faces. The grooves range from narrow, shallow tracks of a few mm in depth to one specimen that has a groove measuring almost 10 mm in depth.

Multi-use type (1 specimen) - This sandstone rock has working surfaces that fit into both of the above-described categories.

Hammerstone

One ovoid chert hammerstone of Purchase Gravel has battered facets at each end, interpreted to be hammerstone wear. Local gravel cores from the region typically exhibit similar crushed patches on at least part of their surface.

Other Stone Artifacts (R. Barry Lewis)

Cores

The category comprises 77 unprepared cores weighing a total of 2405 g. Cores made from Purchase Gravel account for 59 specimens. There are four Ft. Payne cores and three of Mill Creek chert. One of the former and two of the latter show polished facets and other attributes of recycled large tools. All but two of the Purchase Gravel cores retain parts of their original cortex. Six of the cores from unknown sources and one of the Ft. Payne cores exhibit surface cortex. Slightly less than half of the cores were heat-treated; this includes 34 Purchase Gravel specimens and two cores from unknown sources.

Unutilized Flakes

A total of 1,229 chert flakes, weighing 3,460 g, show no evidence of use or retouch. This total includes 640 Purchase Gravel, 59 Mill Creek, 33 Ft. Payne, and one Novaculite chert flake. The remainder are from unknown sources. Primary or secondary cortex is observable on 529 specimens. Twenty-six Mill Creek chert, five Ft. Payne, and one flake from an unknown chert source are fragments of large bifacial tools that have been recycled as cores.

Fire-cracked Chert

This category includes 93 burned pebble and cobble fragments, weighing a total of 655 g. Nearly all of the specimens appear to be from Purchase Gravels.

Unmodified Rock

Chert pebbles and cobbles comprise 558 of the 636 specimens included in this category. The relative abundance of the gravel is due mostly to the location of the controlled surface collection grid. It covered most of the habitation area and former driveway of a now-destroyed twentieth century farm house. The remaining rocks include 41 pieces of sandstone, 21 unidentified stones, 11 ferruginous sandstone chunks, and five lumps of cannel coal.

Historic Artifacts

Preliminary processing of these artifacts has been completed, but they have not yet been described. All of the material appears to date to the twentieth century. It comprises the archaeological remains of a

farm house and its associated outbuildings. The house was abandoned sometime prior to 1970 and was destroyed sometime during the following decade.

Human Skeletal Remains

(Mark W. Allen)

Several bones and teeth were found in the surface collections. Spatially uncontrolled collections yielded a few adult cranial fragments from the area around Mound A, and two molars with worn occlusal surfaces from the eastern base of Mound A. Several adult cranial fragments and two hand bones were found during the controlled surface collection. Many of these specimens were recovered from units which also contained a lot of historic debris. It is possible that this recent occupation of the site could have caused more subsurface disturbance to the site than commercial farming. Alternatively, the house may have merely been situated in a part of the site that was often used for prehistoric mortuary activities.

Discussion of Investigation Results

(R. Barry Lewis)

The limited available information suggests that this site was a large fortified Mississippian town. The ceramics include sherds of several types that occur late in the Memphis sub-area sequence (e.g., Fortune Noded, Campbell Applique, Vernon Paul Applique). This information, combined with the evidence provided by the Sassafras Ridge radiocarbon date, suggests that the site was occupied at least during the Medley and Jackson phases. Our general impression is that the ceramic assemblage is temporally closer to that from the upper middens at the Adams site rather than the material from Wickliffe.

Although it was not possible to do more than surface collect this site, it is clear from our inspection of pothole profiles in the village area that well-preserved midden deposits still exist at this site. Stout's analysis of the controlled surface collection data supports this inference.

MISSISSIPPIAN TOWNS IN REGIONAL PERSPECTIVE

(R. Barry Lewis)

Large Mississippian towns are an important feature of the archaeology of the Ohio-Mississippi rivers confluence region, if for no other reason than there are so many of them. There are, or at least once were, nearly 20 such sites in this region (Loughridge 1888; Potter 1880; Thomas 1894; Williams 1964). They have tended to dominate archaeological research simply by their size and visibility. In spite of all this attention, there have been surprisingly few examinations of these towns outside of site-specific discussions.

Among the most useful of the latter, Clay's (1976) analysis of the spatial and fortification patterns of western Kentucky sites demonstrated that even such an apparently simple phenomenon as fortifications could have been the result of several different factors that influenced a site's inhabitants. He also stresses the difficulty of understanding those sites without a much more detailed and accurate knowledge of Mississippian culture. To these problems can be added the fact that comparative analyses of complex sites are uniformly difficult. Such sites contain long occupation records and do not occur neatly packaged with sterile layers between each component. Hence, they are seldom of real utility for phase definition or for chronological discussions that are anything less than fine-grained in perspective. These big sites are most useful when the research questions focus directly on the towns themselves.

The Adams, Wickliffe, and Sassafras Ridge site investigations provide an important source of new Mississippian data for western Kentucky. This section assesses the significance of the research results within the context of northern Lower Mississippi Valley prehistory. First, the general project results are summarized. Second, comparisons are made with other sites in this and adjacent regions. Third, the ages and contemporaneity of Mississippian towns are briefly examined.

Summary of Research Results

Each of the investigated sites comprise the remains of large, complex Mississippian communities. As one approaches them from any direction, it is also clear that their locations were not fortuitously selected, nor were they necessarily chosen in response to simple economic factors. Architecturally, each site's design makes effective use of the defensive characteristics of the terrain and the intimidation value of site plans that mold themselves to that terrain (Stout 1984). Thus, the Adams site terrace itself would have been an imposing place

even without other embellishments. However, coming onto the site from the northern ramp of the Saddle, one is immediately struck by the design logic of the site's primary public space -- it was focused on the apex of the Saddle and was intended to convey visually an illusion of community power (or perhaps more appropriately, lineage power). Wickliffe was designed in much the same way. Its prominent ridge location made it maximally visible, but still defensible, and its mound arrangement incorporated illusions that made the town seem to be a larger place than it actually was (Stout 1984). Sassafras Ridge may easily have been equally as imposing as the other sites, but erosion, cultivation, and vandalism have long since removed many of this site's distinctive surface features.

Test excavations suggest that the public spaces and mounds were often altered throughout a given town's existence. Stratigraphic changes in the use of specific localities within the Adams site were tentatively identified in Units 4 and 5. In both instances there was an apparent shift from public or large group activities to habitation areas and domestic activities. In another example, the solid core extracted from Mound A at Adams, the burned structure identified in the top of Mound A at Sassafras Ridge, and the burned structures in the Wickliffe "Temple Mound," each demonstrate that these prominent features were multi-stage constructions. One wonders if the successive stages were added in a cyclical pattern as in Mesoamerican prehistory, but there are few data with which to test this idea.

The extensive, deep middens noted at each site show that the towns were not just empty stages for religious activities and political power struggles. They were viable towns in the strict sense of the term and included large and apparently permanent populations. The midden areas are packed with house floors, wall trenches, refuse-filled pits, and the accumulated debris of centuries of occupation. Scattered throughout the deposits are a surprisingly large number of human skeletal remains, especially those of infants and children. Infant mortality clearly occurred at a high rate in these towns, but probably no more so than in the surrounding small villages and hamlets.

Analysis of the faunal and botanical remains from Adams and Wickliffe revealed a pattern of resource use that differs little from that of comparable sites in other parts of the northern Lower Mississippi Valley (e.g., Lewis 1974; Smith 1975a). Whitetail deer, raccoons, turkeys, turtles, and fish composed the bulk of the hunted foods. Maize, squash, beans, and gourds were the common domesticated plants. Other important food items included hickory nuts, persimmons, and the seeds of several species in the starchy/oily seed complex. Adams and Wickliffe differ mostly in the common firewood types, the choices reflecting the characteristics of the forest cover around each site.

Material culture similarities are strong between the three sites. Each location exhibits the same basic tool kits, technology, and raw

material sources. Decorated vessels and vessels of unusual form or surface finish tend to look essentially the same across the sites. Interestingly enough, this is not true of the plain utility wares, which included most Mississippi Plain vessels and many Bell Plain vessels. The pastes of these types were recognizably different from site to site. Mississippi Plain at Adams, for example, has a lot of clay grog in the paste and is sometimes hard to distinguish from Bell Plain. At Sassafras Ridge the two types are still occasionally difficult to sort, but the Mississippi Plain sherds seldom have grog in them and the material as a whole does not look like the Adams site utility wares. By way of contrast, these two types are easily separated from one another in Wickliffe site sherd collections, but they still look distinctive to the site.

The site specific differences in utility wares are not consistently shared with many of the decorated and "special" vessels of the same basic paste. This may reflect the low value of household utensils outside of the community in which they were manufactured. Archaeologically, it looks like utility vessels were made and deposited in the same community and did not move between communities at anywhere near the same rate as vessels of some of the more elaborate types. Such an explanation would explain why the utility wares seem to be consistently different for each assemblage.

In spite of the similarities, the sites were not necessarily occupied during the same phases. Table 30 lists the available radiocarbon dates from the investigated sites. Figure 38 provides a graphical comparison of those data. The oldest dated Mississippian contexts (A.D. 1060-1160±73) are from the wall trenches at the base of Unit 4 at Adams. The lower portions of the Adams middens and the dated parts of Wickliffe are Dorena phase occupations. Adams and Sassafras Ridge have large Medley phase components. If the latter phase is strongly represented at Wickliffe, then the utilization pattern of that site must have shifted markedly from what it was during Dorena. Jackson phase components are inferred to be present at Adams and Sassafras Ridge.

Regional Comparisons

The Western Kentucky Border

Few other excavated data are available from the study region. McLeod Bluff, a Mississippi period town located along Obion Creek about 6 km north of the Adams site (Figure 1), is comparable in complexity and use to the sites reported here (Thomas 1894; Webb and Funkhouser 1933). Clay's (1961) sherd counts and Webb and Funkhouser's (1933) artifact descriptions suggest that the McLeod Bluff site spans about the same time interval as the occupation at Adams.

According to local tradition, Lake Slough, a channel that connects

TABLE 30. Radiocarbon Age Estimates for Western Kentucky Border Sites.

ISGS No.	Uncorrected Date	Stuiver Correction[1] Oldest	Stuiver Correction[1] Youngest	ADC[2]	DCA[3]
ADAMS					
1141	610±70	1320±70	1390±70	C	C
1149	700±70	1290±70	-	C	D
1150	820±70	1220±73	-	C	B
1151	610±70	1320±70	1390±70	B	A
1161	900±70	1060±73	1160±73	C	C
1172	810±80	1220±73	1260±73	C	C
WICKLIFFE					
1143	830±70	1210±70	-	C	B
1152	760±70	1260±71	-	C	B
1171	720±70	1280±70	-	C	C
SASSAFRAS RIDGE					
1142	660±80	1290±80	1380±80	C	B

1. Corrected by Stuiver (1982) method; dates with multiple dendro-year calibrations are listed by youngest and oldest estimated dates.

2. ADC - Possible Age Differential Class (Arundale 1981):

   A - Less than 20 years.
   B - About 20 years to 100 years.
   C - More than 100 years.
   D - Don't know.

3. DCA - Degree of Certainty of Association (Arundale 1981):

   A - Full certainty.
   B - High probability.
   C - Probable.
   D - Reasonable possibility.

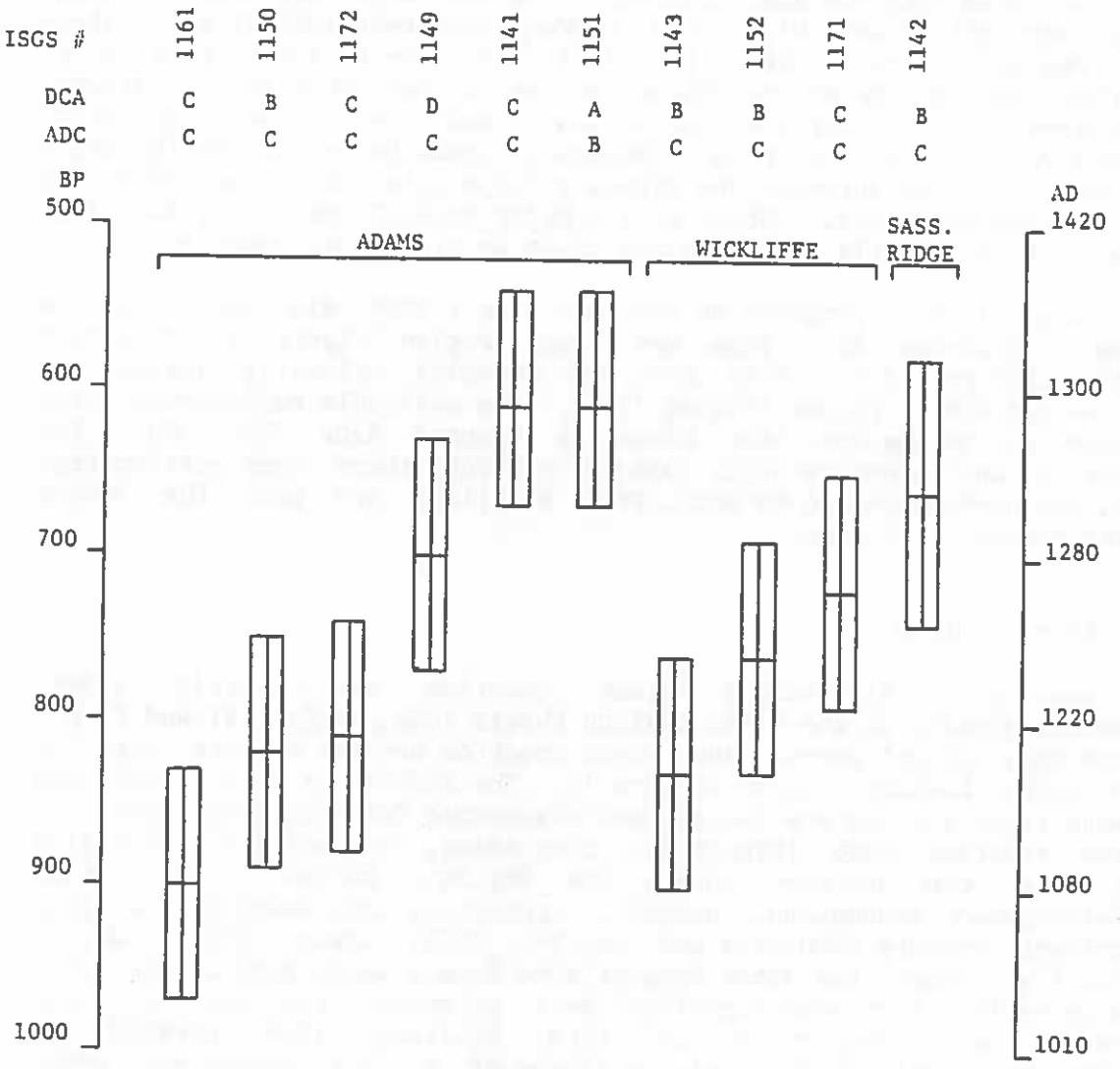


FIGURE 38. Waterbolk Diagram of Radiocarbon Dates from Western Kentucky Border Sites.

Obion Creek and Bayou de Chien, was excavated by prehistoric people in order to provide a convenient water route between the Adams and McLeod Bluff sites (Webb and Funkhouser 1933:8-9). Although this explanation is possible, it is also true that long, linear alluvial features are not unknown in bluff base locations along the Mississippi Valley. The question of the prehistoric origin of Lake Slough remains unresolved.

Excavated data are also available from the large, but little known, multicomponent Stahr Hill site (15Fu45; Carstens 1982:41-48). Stahr Hill has an estimated area of 41 ha and covers most of a ridge overlooking the Bayou de Chien bottom on the north side of Hickman (Carstens 1982). Surface collections and one test excavation demonstrated that the site contains at least Dorena and Medley phase occupations. The ceramics are directly comparable to those from the sites reported here. Stahr Hill's major unusual feature is its large size. It is slightly less than six times as big as the Adams site.

Excavations in progress at the Turk site (15Ce6) also supplement the meager excavated data from the study region (Figure 1). Turk is a Mississippi period town site that was occupied primarily during the Dorena and Medley phases (Edging 1985). The available radiocarbon dates suggest an occupation that minimally spanned A.D. 1050-1300. The ceramics and other material culture from Turk share close similarities with the test excavated material from Wickliffe and with the Dorena phase component at Adams.

The Cairo Lowland

Kentucky's Mississippi River counties are closely linked archaeologically to the Cairo Lowland (Lewis 1982, 1983). Viewed from a loose geographical perspective, those counties are the eastern edge of the Cairo Lowland region (Figure 1). The Beckwith's Fort (23Mi2) and Crosno (23Mi1) sites are the nearest comparable Cairo Lowland sites to those reported here (Figure 1). Like Adams, the Beckwith's Fort site may have been occupied during the Baytown period. The major Mississippian occupation, however, appears to have ended by the early fourteenth century (Southard and Cottier 1973; Lewis 1983). Unlike Wickliffe, where the dated samples come from a small part of the site, the Beckwith's Fort investigations were extensive and the estimated terminal date seems to be fairly firm. Williams' (1954) investigation of the Crosno site also revealed evidence of a long occupation span. Given the relative abundance of Mississippian incised types at Crosno, the represented components should extend at least through the Medley phase.

The Lower Tennessee-Cumberland Drainage

The most useful information about large Mississippian villages and

towns comes from Webb's (1952) descriptive report on the Jonathan Creek site (15M14) and Clay's (1963, 1976, 1979) analyses of the Tinsley Hill (15Ly18) and Jonathan Creek data. Jonathan Creek was a large fortified town located on the bank of the creek of the same name near the Tennessee River. It is the most extensively excavated fortified town in the Jackson Purchase. The total excavated part was roughly the southwestern quarter of the town (Webb 1952:Figure 2). The weaknesses of the excavation are mostly found in the published report. Webb's monograph was apparently based only on part of the collected information. Most of the potsherds, for example, were never catalogued, nor analyzed (Clay 1963:114). Webb also made his one attempt at anthropological and ethnohistorical inference in the Jonathan Creek report. His efforts were criticized as unfounded by the monograph's reviewers (e.g., Cotter 1954).

Clay's work at Tinsley Hill and his syntheses of the region's prehistory have done much to put the material from both sites in their proper light. Tinsley Hill was a large Mississippian village with an associated mound complex in the Cumberland River Valley (Clay 1963). Three excavation seasons there yielded the basis for Clay's (1979) regional sequence for the lower Tennessee-Cumberland that also draws heavily on the Jonathan Creek data and other sites excavated during the "reservoir salvage" era in that region.

The late prehistory of this region is essentially mirrored in the Adams, Wickliffe, and Sassafras Ridge sites. The material culture similarities between these two regions are closer than the Mississippi counties and the Memphis sub-area.

One important town site, which remains to be mentioned is the Obion site (40Hy14), located along the Obion River in Henry County, Tennessee. The major source of information about Obion is Baldwin's (1966) analysis of the results of two old excavations there. Like virtually all of the other towns discussed here, Obion was intensively occupied for a long time. Baldwin (1966:391-392, 395) estimates the occupation span at A.D. 1000-1300 and identifies the most similar nearby site as Jonathan Creek. Nevertheless, it is clear from the descriptive section of Baldwin's report that the excavated collections also contain a lot of material that is associated with post-A.D. 1300 contexts in the entire Jackson Purchase.

The Lower Ohio Valley

The two largest Mississippian towns of the region are Kincaid, located in southern Massac County, Illinois, and Angel, situated on the east side of Evansville, Indiana. Both have been the focus of extensive excavations (e.g., Cole et al. 1951; Black 1967). Material culture similarities are much greater between the western Kentucky border sites and Kincaid rather than Angel (Lewis and Mackin 1984). Viewed from the

study region, it would seem clear that both sites must have been occupied throughout much, if not most of the Mississippi period. However, the general consensus among the archaeologists who work in and around those sites is that the major occupations at both sites ended by the beginning of the fifteenth century (Butler 1983; Green and Munson 1978).

The Age and Contemporaneity of Mississippian Towns

The precise beginnings of the region's town sites are as uncertain as when they ended. None are well-known enough that one could argue convincingly that towns are distinctly Mississippian phenomena rather than being rooted in late Baytown period cultural changes. Indeed, all of the investigated "Mississippian" town sites in the region unfailingly yield Baytown period ceramics, if not preserved middens. Thus, stockade lines with early dates like those at Beckwith's Fort, which are possibly as old as A.D. 700-1000 (uncorrected), may simply reflect the existence of a stockade line around a large Hoecake village rather than merely being aberrant as suggested by Southard and Cottier (1973:54). The existence of two more recent dates of about A.D. 1100-1300 from the same stockade line does not necessarily conflict with this explanation since there is no a priori reason to anticipate that fortifications which had fallen into disuse were not rebuilt if the need arose.

The important point is that large communities with public buildings and spaces probably began during Baytown times. The Hoecake site (23Mi8) in Mississippi County, Missouri, is an excellent example. At one time Hoecake contained as many as 31 mounds and covered over 80 ha. Excavations have shown that this site was occupied for a long time, but that its peak as a village came during the late Baytown period (Williams 1974:55,86-87). Morse and Morse (1983:214-216) make much of the site's importance as an information source for the development of Mississippian culture, and rightly so. However, the scarcity of sites like Hoecake may actually be more apparent than real since so many of them are probably masked by more recent Mississippian middens and mound construction.

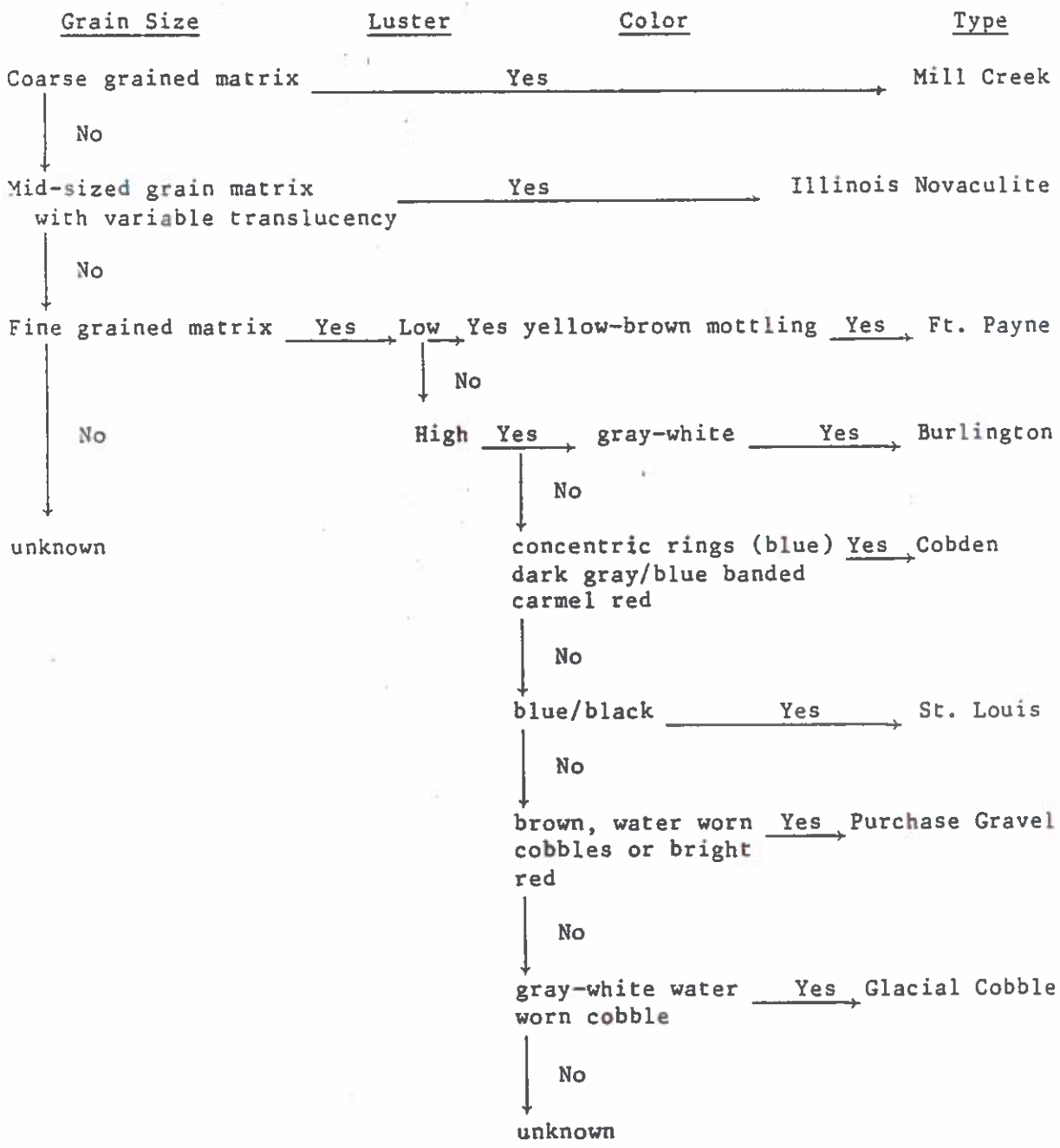
It is unlikely that all of the 20 or so Mississippian towns were occupied for the entire Mississippi period. No site, regardless of its size or complexity, necessarily provides a complete record of this period preserved in its stratigraphy. This becomes a important issue around A.D. 1350-1450. According to several archaeologists, about that time the towns of the region were abandoned and population displacements to other regions occurred (Morse and Morse 1983; Williams 1980, 1982). Lewis (1982, 1984), on the other hand, views the creation and demise of towns as differentially acting, but continuing processes that endured to the effective end of the aboriginal portion of the archaeological record in the sixteenth century. The test excavations at Adams, Wickliffe, and the surface collections at Sassafras Ridge tend to be consistent with the expectations of the latter argument.

CONCLUSIONS

The Western Jackson Purchase is one of the archaeologically least known parts of the state. Archaeologists have long been aware of the late prehistoric towns in the region, but our investigations followed a gap of nearly 50 years during which those sites received little professional attention. The topographic maps, coring transects, radiocarbon dates, and stratigraphic excavations completed during 1983 yielded a wealth of new information about three of the several known towns. This information will contribute not only to the archaeological understanding of Mississippian culture in the northern Lower Mississippi Valley, but also to the preservation of the investigated sites. Each of the investigated sites has been accepted to the National Register of Historic Places on the basis of information compiled from our research results.

Major recommendations that could be made on the basis of our 1983 research were subsequently implemented. For example, there was a crucial lack of site survey data from town site sustaining areas, and interfluvial and small stream valley locations across the region. Tom Sussenbach, University of Illinois graduate student, began a Kentucky Heritage Council-sponsored survey project during 1984 to collect such data. Part of the collected information forms the core of his Ph.D. dissertation research on the late prehistory of the region. Likewise, it is imperative that basic topographical and stratigraphic data be collected from the remaining town sites of the region. To this end, Richard Edging has mapped the Turk and Marshall sites and has completed several test excavations there with support from the Kentucky Heritage Council and the University of Illinois (Edging 1985). Similar examinations of other prehistoric towns in this region are planned for the coming years. Finally, a more detailed understanding of the internal spatial organization of town sites was needed. Charles Stout completed a Kentucky Heritage Council and University of Illinois sponsored controlled surface collection of the entire Adams site in 1984 in order to gather the data for such a study (Stout 1985). The Adams site investigation is the focus of Stout's Ph.D. dissertation. Nevertheless, those projects and the one reported here are only beginnings. A great deal of archeological research must be completed before we can begin to speak confidently of an understanding of the region's prehistory.

FIGURE 39. Chert Type Key.



APPENDIX: CHERT RESOURCE EXPLOITATION

(Len J. Stelle)

Eight discrete chert types were recognized in the analysis of stone tools from the investigated sites. Detailed description of those cherts have been published elsewhere (Bell 1943:6-15; Faulkner and McCollough 1973; Johnson 1981; Morrow 1982; Southard 1973). This section briefly summarizes the operational definitions of the types as they were employed in the present study.

Figure 39 is the chert type key utilized in the classification of chert specimens from the three western Kentucky sites. The criteria are considered to be definitive for these sites and no presumption is made regarding their applicability to other sites or regions. One might also note that while the criteria are observable at the macroscopic level, the reliability of a given identification is probably inversely related to the size of the object. This problem is, of course, particularly acute in the case of small debitage. To compensate for this difficulty, a given item was classified as "unknown source" if the classifier felt any uncertainty about the appropriate category it belonged to.

The identified cherts include the following types:

1. Mill Creek Chert - This is a common chert on Late Woodland and Mississippian sites in this general region. It was extracted from several quarry loci in Union County, Illinois (Fowke 1928:530; Peithmann 1964; Phillips 1900), or about 90 km from the Adams site. The definitive attribute of this chert is its granular, coarse matrix.

2. Illinois Novaculite - Novaculite is found in relatively small quantities on sites in this region from the Archaic to the end of the prehistoric record. The most frequently discussed source is in Union County, Illinois (Fowke 1928; Holmes 1891). Although the grain size of the matrix is somewhat variable (i.e., fine to mid-sized), the translucency characteristic is not. The translucent matrix generally displays small, opaque inclusions. Mid-sized grain matrix in combination with the property of differential translucency are considered definitive.

3. Ft. Payne Cherts - One of the most common types in the Mid-South, Ft. Payne cherts were exploited from the Tennessee-Cumberland basins up through southern Illinois. Several major quarry sites have been identified in Stewart County, Tennessee (Faulkner and McCollough 1973:57). This source area is approximately 125 km to the east of the Adams site. The critical attributes are: (1) a

fine-grained matrix; (2) a low or resinous luster; and (3) the presence of yellow-brown mottling.

4. Burlington Chert - These cherts were heavily exploited during much of the prehistoric sequence in the contiguous portions of Illinois, Iowa, and Missouri along the Mississippi Valley (Fowke 1928:532). Likely extraction loci for this material are difficult to pinpoint, but they were probably in the southern extreme of this region. The definitive characteristics are: (1) fine-grained matrix; (2) high or waxy luster; and (3) gray or white color.

5. Cobden Chert - One of the more attractive cherts, Cobden was exploited in southern Illinois since at least the Archaic. The known source locality is the upper reaches of Clear Creek in Union County, Illinois (Fowke 1928:531). While it has a fine-grained matrix and a waxy luster, the presence of concentric rings or bands in a blue to black colored background are diagnostic.

6. St. Louis Cherts - Cherts from the St. Louis Formation of the Mississippian System have a long period of prehistoric exploitation. Source areas were widely distributed to the north and east of the research area (Fowke 1928). Although several color facies are known, only dark blue and black specimens were found in the western Kentucky samples. The attribute list includes: (1) fine-grained matrix; (2) waxy luster; and (3) a dark blue or black color.

7. Purchase Gravel - This is the major local source of chert. It is widely distributed in the stream gravels of the Jackson Purchase (Loughridge 1888; Southard 1973:4). Purchase Gravel chert has: (1) a fine-grained matrix; (2) waxy luster; and (3) tan to brown color with weathered surfaces being even darker. The chert color changes to a reddish hue when thermally altered.

8. Glacial Cobble - Chert pebbles and cobbles from Mississippi River gravel bars represent the other local source. These specimens share the following characteristics: (1) fine-grained matrix; (2) waxy luster; (3) gray to white color; (4) a weathered, water-worn surface.

In summary, southern Illinois and north-central Tennessee were the source areas of the most common non-local cherts. While an obvious water link with southern Illinois exists, travel from the Adams, Wickliffe, or Sassafras Ridge sites to Stewart County, Tennessee, could have been either by way of the Ohio River or by an overland route.

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