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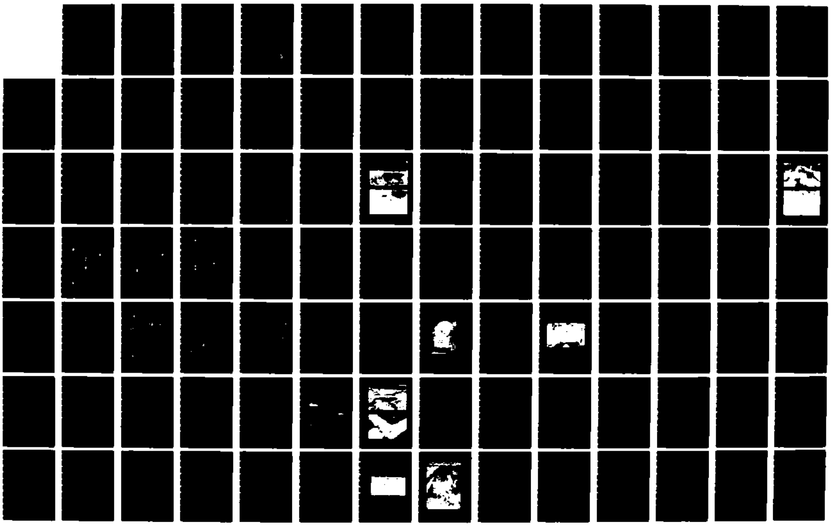

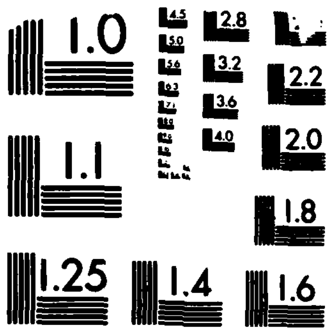


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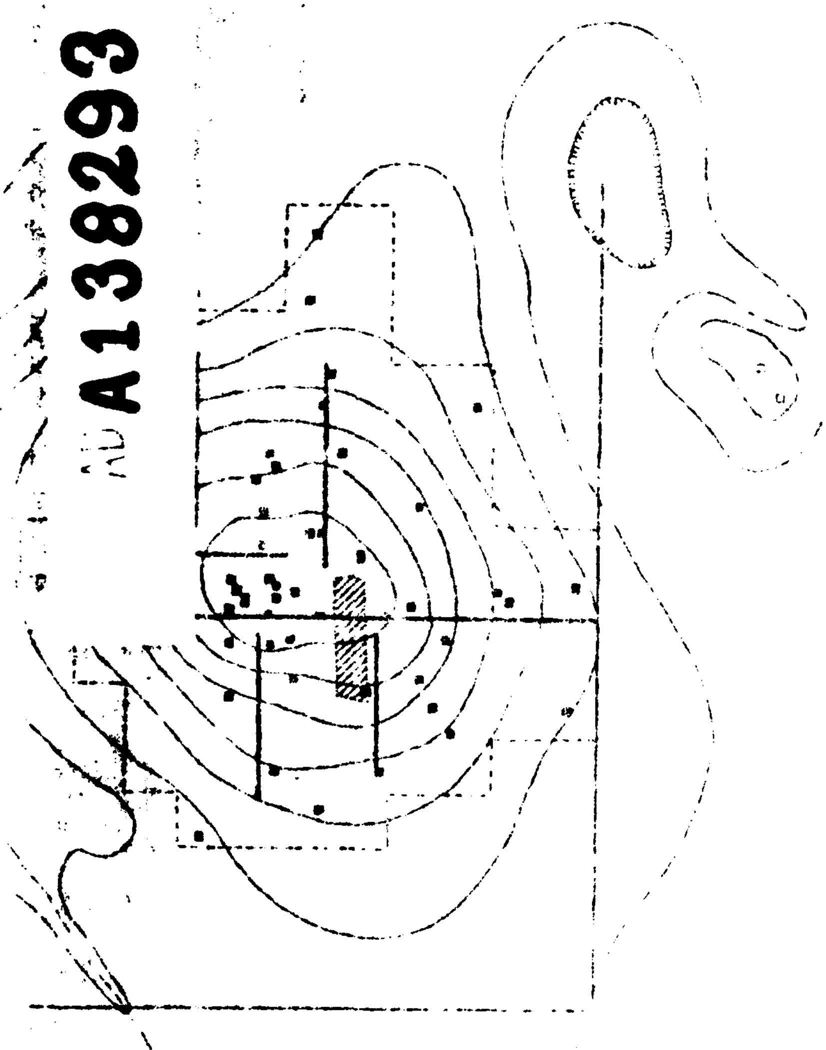
# THE F. L. BRINKLEY MIDDEN (22Ts729) ARCHAEOLOGICAL INVESTIGATIONS IN THE YELLOW CREEK WATERSHED, TISHOMINGO COUNTY, MISSISSIPPI





by
JEFFREY L. OTINGER
CHARLES M. HOFFMAN
and
ROBERT H. LAFFERTY III





Report of Investigations No. 36
Office of Archaeological Research
The University of Alabama
1982

Prepared for
The National Park Service
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Excavations at the F.L. Brinkley Midden (22Ts729), in Tishomingo County, Mississippi, were conducted by the Office of Archaeological Research, University of Alabama. Excavations were carried out to mitigate the destruction of the site by the Tennessee-Tombigbee Waterway project.

The F.L. Brinkley Midden is a stratified accretional midden dating from the Early Archaic through the Middle Woodland period. At the beginning of investigations, the site had seen extensive damage. Nevertheless much of the site, expecially the lower levels, remained undisturbed, and an excavated sample of the site was obtained by hand excavation, grader transects, and backhoe trenches.

Artifactual analysis indicates a close correspondence between physical stratigraphy and cultural stratigraphy. A large number of pit features were recorded from all levels of the site, including ten problematical large basin shaped features. These large basin shaped features, which date to the Late Archaic period, are interpreted as the remains of earth covered semisubterranean structures.


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# THE F.L. BRINKLEY MIDDEN (22Ts729) ARCHAEOLOGICAL INVESTIGATIONS IN THE YELLOW CREEK WATERSHED, TISHOMINGO COUNTY, MISSISSIPPI

by

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National Park Service
Interagency Archeological Services-Atlanta
On Behalf of
U.S. Army Corps of Engineers-Nashville District
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Report of Investigations No. 36
Office of Archaeological Research
The University of Alabama
August 1982



Prepared under the supervision of
Carey B. Oakley, Principal Investigator

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ABSTRACT

Excavations at the F.L. Brinkley Midden (22Ts729), in Tishomingo County, Mississippi, were conducted from December 1977 to July 1978 by the Office of Archaeological Research, University of Alabama. The work was sponsored by the National Park Service on behalf of the U.S. Army Corps of Engineers - Nashville District. Excavations were carried out to mitigate the destruction of the site by the Tennessee-Tombigbee Waterway project.

The F.L. Brinkley Midden is a stratified accretional midden dating from the Early Archaic through the Middle Woodland period. At the beginning of investigations, the site had seen extensive damage due to a combination of large-scale pothunting and agricultural activities. Nevertheless much of the site, especially the lower levels, remained undisturbed, and an excavated sample of the site was obtained by hand excavation, graded transects, and backhoe trenches.

Artifactual analysis indicates a close correspondence between physical stratigraphy and cultural stratigraphy. A large number of pit features were recorded from all levels of the site, including ten large basin shaped features. These large basin shaped features, which date to the Late Archaic period, are tentatively interpreted as the remains of earth covered semisubterranean structures.

The report includes extensive typological studies of lithic artifacts, and a study of the botanical remains recovered from the site.

# I. INTRODUCTION

Archaeological investigations at the F.L. Brinkley Midden (22TS729) were conducted by the Office of Archaeological Research of the University of Alabama under a contract sponsored by the Nashville District of the Army Corps of Engineers and administered by the Heritage Conservation and Recreation Services--Atlanta (now National Park Service) (Contract CX-5880-8-0153). Field work was conducted in two phases between December 1977 and July 1978. A testing phase was initiated in December 1977 and continued through February 1978 for the purpose of evaluating the significance and extent of the cultural deposits. With the completion of the testing phase it became evident that this was a significant cultural resource and that additional work was required to mitigate the effects of the Tennessee-Tombigbee Waterway construction. The location of this site was close to the center line of the waterway, which would result in complete destruction of the cultural remains. To mitigate these effects, a research design and sampling strategy were proposed for the recovery of a large portion of these cultural remains. From March 1978 through June 1978 a second phase of work was undertaken involving extensive excavations at the site. This report presents the results of both the testing and mitigation phases of excavation and analysis at the Brinkley Midden.

The Brinkley Midden (22TS729) is located approximately one mile east of Burnsville, Tishomingo County, Mississippi (Figure 1.1). It is in the NE¼ of the NE¼ of Section 12, Township 3 South, Range 9 East (USGS 7.5' series, Burnsville Quadrangle). The site is centered on a 1.5 m rise in the flood plain near the confluence of Yellow Creek and Little Yellow Creek (formerly called Bishops Creek), encompassing an area of approximately 5,500 square meters. The Brinkley Midden is named after Mr. Frank L. Brinkley, whose family owned the land for several years. The site has been under cultivation for over fifty years. Prior to that time it was wooded (F.L. Brinkley, personal communication to Richard Yarnell, January 16, 1978).

The major concern of this investigation is the general relationship of prehistoric populations to their environment. More specifically, we will examine the nature of activities performed at the site as recorded in the by-products of prehistoric human behavior. Consideration will also be given to diachronic changes in the diversity and intensity of activities as reflected in the distribution and context of artifacts within the site. Limited archaeological work has been done in the Yellow Creek drainage, and there is also a need for descriptive studies to provide information concerning the archaeological resources along the waterway. It is an additional aim of this project to contribute to this goal.

The report is organized into thirteen chapters. The first four chapters (I-IV) present background information, including discussions of the regional natural environment, the regional prehistoric sequence, the nature of the Brinkley Midden, and the research methodology and techniques of investigation employed in the fieldwork and analysis. The following three chapters (V-VII) describe and interpret aspects of the depositional contexts encountered at the site, with special attention devoted to several large basin shaped features of problematical origin. Description and

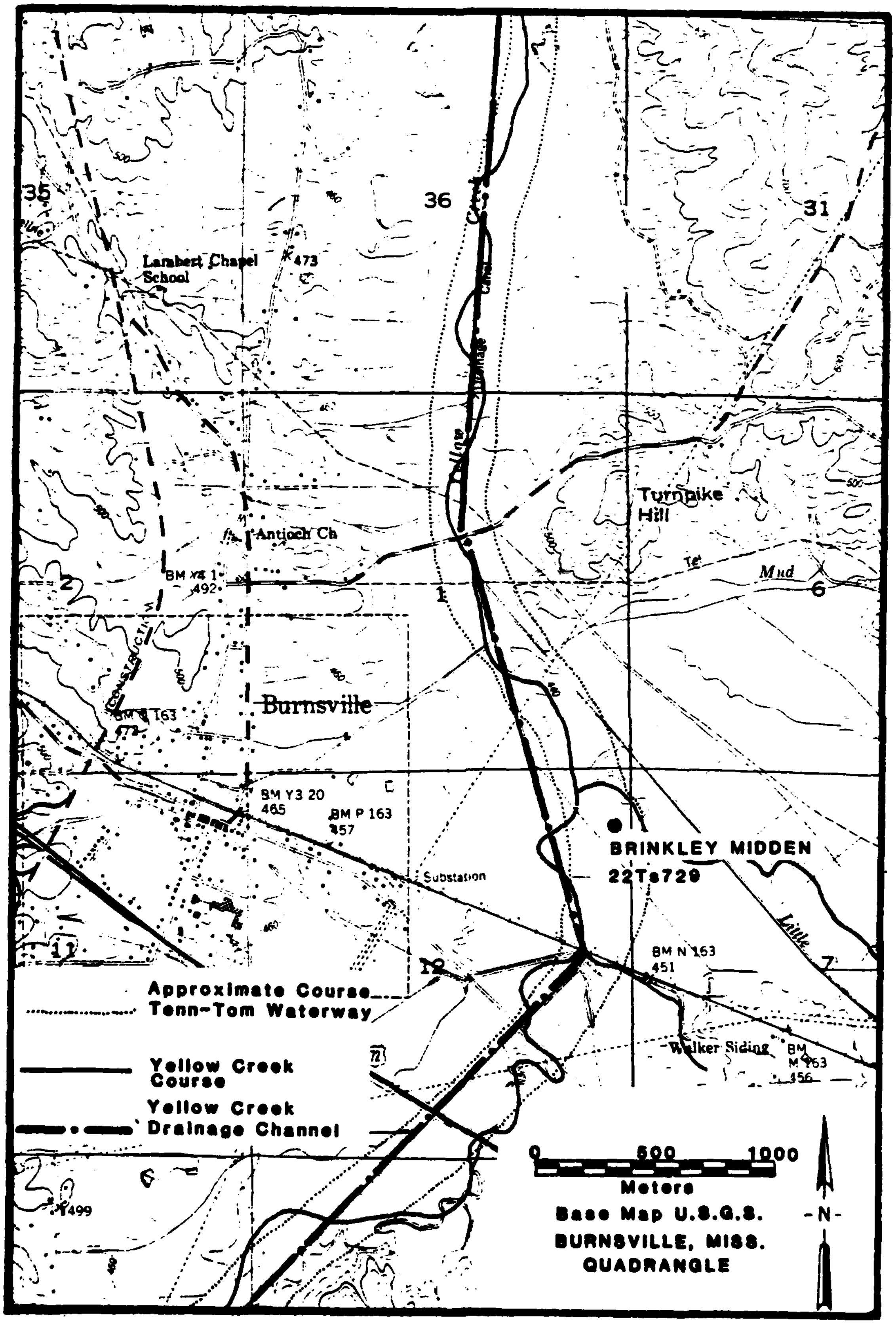



Figure 1.1. Brinkley Midden (22Ts729) and the Yellow Creek Portion of the Proposed Tennessee-Tombigbee Waterway.

analysis of the material culture are presented in Chapters VII-XI, and the recovered botanical remains are reported in Chapter XII. The report concludes with a brief interpretive synthesis (Ch. XIII).

# II. THE ENVIRONMENT

## Physiography

The Brinkley Midden is located in the physiographic region known as the Tennessee River Hills. Lowe (1925) describes this as "a region of considerable elevation and rough topography." This region encompasses the extreme northeastern corner of Mississippi including all of Tishomingo, Itawamba, the eastern parts of Alcorn, Prentiss, Monroe and Lowndes Counties. It represents a transitional area between the Appalachian Uplift and the Coastal Plain (Lowe 1919). Fenneman (1938) positions the region in the Fall Line Hills section of the East Gulf Coastal Plain Province which is also located on the eastern margin of the Mississippian Embayment. The predominant relief of Tishomingo County is hilly, though the topography ranges from level to steep (Orvedal and Fowlkes 1937).

## Geology

The bedrock formations of Tishomingo County are composed of Devonian, Mississippian, and Cretaceous period strata (Logan 1915). Devonian deposits include shales and limestones that outcrop along the banks of the Tennessee River and the lower reaches of Yellow Creek. Rocks of the Mississippian period overlie these and consist primarily of limestone, chert, shale, and sandstone. Outcrops of these materials are abundant along the Tennessee River, Bear Creek, and Yellow Creek.

The uplands bordering the Yellow Creek flood plain are predominantly comprised of Cretaceous sediments which outcrop along the hillsides and slopes adjacent to the flood plain. These deposits equate with the Tuscaloosa and Eutaw formations which cover most of Tishomingo County. The Tuscaloosa formation includes weathered chert gravels, sands, clays and intercalated lignite beds. The Eutaw formation consists primarily of sands and clays with sands predominating. Tuscaloosa gravels occur on the surface of virtually all of the ridges adjacent to the Yellow Creek floodplain, and in various places these deposits are found to extend to a depth of 50 ft (15.2 m) (Bicker 1979).

The alluvial sediments in the area consist of the flood plain and terrace soils which are the most recent geologic deposits. These Quaternary deposits consist of sands, clays and silts with occasional inclusions of redeposited Tuscaloosa gravel. The terrace deposits represent the flood plains of older stream courses when they were at higher elevations than the present day stream courses (Bicker 1979).

## Lithic Raw Materials

An assortment of lithic materials were locally available to the prehistoric occupants of the Brinkley Midden. These include sandstones, orthoquartzite, and a wide variety of cherts. The use of these materials to produce tools is evident from the artifacts recovered from this site. While it is not possible to determine the precise sources for most of these materials, areas can be defined in which these materials are generally known to occur and contrasted with areas where they are known not to occur. The primary lithic raw material classes used in the artifact analyses of the Brinkley Midden are as follows.

Sandstone. The majority of sandstone recovered from this site is highly ferruginous. It primarily occurs as fire cracked rock. However, a number of ground stone implements were made of this material. Ferruginous sandstone is available in the adjacent hills and ridges in this area. Occurring with this sandstone are deposits of hematite, which was also utilized by the inhabitants of this site. Numerous pieces of hematite were recovered from the Brinkley Midden, some of which still adhered to ferruginous sandstone. Some non-ferruginous sandstone is also present in the tool assemblage, but in much smaller quantities. There are fewer tools made of non-ferruginous sandstone, and it does not appear to have been used extensively. The geological derivation of this sandstone is uncertain, but the low frequency of tools manufactured from it suggests that it may be a non-local material.

Quartzite. Quartzite was utilized extensively for ground, pecked, and pitted stone tools on the Brinkley Midden. It also occurs in an unmodified form as fire cracked rock, but in much smaller quantities than ferruginous sandstone. There are several different grades of orthoquartzites employed for tool use on this site, which appear to be derived from multiple sources. Specific sources have not been identified, but it is possible that some of this was obtained from local Mississippian formations. However, the numerous varieties of quartzite utilized prehistorically suggests that some if not most was imported from surrounding regions.

Chert. The prehistoric inhabitants of Site 22Ts729 utilized chert resources from primarily three geologic formations: Fort Payne chert, Bangor chert, and Tuscaloosa gravels. These provided a substantial diversity and quantity of material available for manufacturing stone tools. Some of these material types, however, are available in greater proximity to this site than others. This is especially relevant in view of the suitability of these materials for different manufacturing processes. There is a great deal of variability within these formations between adjacent geographical areas. While these formations cover a large geographic region, the location of suitable materials for lithic manufacturing is more restricted.

Tuscaloosa Gravels. The Tuscaloosa Gravel formation occurs throughout northwestern Alabama and northeastern Mississippi. These gravels are comprised of a variety of cherts from different deposits in the surrounding region, and are found eroding into local stream beds from adjacent hills and ridges. The Tuscaloosa Gravels vary in the kinds of chert present between different geographical areas. Tuscaloosa gravels from Robinson Creek are different from those of Cedar Creek and Mackey's Creek, which are also different from others along the Tombigbee River in west central Alabama.

The closest known source of these cherts is in the hills and ridges to the east of the site. It is not known whether this portion of Yellow Creek contains these gravels because of the intensive channelization in recent years. However, where remnants of the old creek remain, chert cobbles are not observed. Chert cobbles are also not observed in the hills and ridges west of the site. Robinson Creek is a tributary of Yellow Creek and is the next substantial drainage to the north and east of this site. An abundance of Tuscaloosa gravels has been observed in the stream bed and surrounding ridges here. This area would provide a substantial source of raw materials for tool manufacturing.

Tuscaloosa gravels from Robinson Creek, as known from a sample obtained from a historic quarry, are available in a variety of colors, textures, shapes and sizes. Most of the cobbles observed ranged frm 10-20 cm in diameter and were predominantly oval in cross-section. The cortex is relatively thin and has the appearance of a water worn cobble. Fracture planes are often present within the material, but are not overly abundant. The colors of these cherts are largely white, yellow, brown, tan, or gray and textures range from coarse to fine. Prehistoric groups in this area had a preference for thermally altering this material prior to the conclusion of manufacturing processes. Heat treatment of Tuscaloosa gravels generally results in a distinct alteration of color, changing to a medium-dark red with increased luster, and an improved quality for tool manufacturing.

Fort Payne Chert. The Fort Payne formation occurs in bedded strata, crosscutting parts of northern Alabama, northeastern Mississippi, and central Tennessee. The variety of cherts available are variable within individual beds of different localities and, more dramatically, between different beds. The combination of these two characteristics provides substantial variability in the cherts of this formation. Cherts from the Fort Payne formation in this area can be primarily grouped into blue and tan varieties.

The Blue Fort Payne chert in this area occurs in a tabular form and is characterized by frequent fracture planes. It generally occurs as a fine textured blue chert, often mottled with coarser grey inclusions. Color ranges from a brownish grey to a deep blue. The size of this material varies according to the degree of weathering and fracturing that has taken place. This material is excellent for manufacturing stone tools, when obtained of sufficient quality. It was extensively used for tools on the Brinkley Midden, although little manufacturing with this material seems to have occurred here. Several shell middens in the Pickwick Basin (Webb and DeJarnette 1942) contained 'flint workshops' bearing this material and it is possible that many of the tools from the Brinkley Midden were manufactured at these sites.

Tan Fort Payne chert is known to occur towards the mouth of Yellow Creek where construction of the Yellow Creek nuclear power plant is taking place. It occurs in a tabular form that is frequently characterized by fracture planes. It can be obtained eroding from the hills and ridges in this area. Other deposits of this chert have been observed in Hardin and Wayne Counties, Tennessee. This material ranges in texture from coarse to fine grained. It is a light to dark tan in color. This chert was often heat treated prehistorically. This generally changes the color to a light-medium red and considerably improves the flaking quality. It can be differentiated from heated Tuscaloosa gravels by its lack of a distinct luster.

Fossiliferous Chert. Fossiliferous Bangor cherts have been observed at the site of the Yellow Creek Nuclear Power Plant (Thorne et al. 1977). It occurs in a tabular form, with frequent fracture planes. It is a silicious gray material with an abundance of fossils. The remainder of the raw materials represented by the tools and debitage on this site include Pickwick chert, (occurring near Pickwick Dam) Dover chert, Bangor chert, Tallahatta quartzite, and some unidentified materials. These were grouped into a single category of Other Cherts, because of their low frequency in the artifactual materials.

## Climate

The present day climate of Tishomingo County is characterized by rather hot summers and mild winters. Relatively uniform climatic conditions prevail over the entire county, because of the absence of any major landforms or large bodies of water. In general the present day climate of the area is typical of the mid-south, with no severe periods of extreme temperature variations or excessive periods of rainfall. Although seasonal extremes in temperature and rainfall are not characteristic of the county, the creek bottoms seasonally flood at least once during the winter and spring months.

The present day climate is not reflective of the climatic conditions of the past 8,000 to 10,000 years of human occupation in the area. Prior to postglacial times, 10,000 to 15,000 years ago, worldwide glaciation occured during the Pleistocene. The Pleistocene climatic conditions were described by Dott and Batten (1976) as a time of "worldwide fluctuation of sea-level in response to glacial oscillations." Dott and Batten also described the postglacial climate prior to the Pleistocene as a worldwide uniform mild and humid climate.

Fossil evidence and oxygen-isotope paleotemperature dating of marine shell present in the marine sediments on the continental shelf suggest a decline in temperature during the Pleistocene. In the Southwest, fossil evidence of crocodile and giant land turtle indicates these reptiles ranged as far north as South Dakota until the last Pleistocene glacial advance, the Wisconsin. These fossil reptiles suggest a mild, above freezing, humid climate (Dott and Batten 1976).

The last glacial advance, the Wisconsin, rendered the most climatic stress on the distribution and ranges of plants and animals on the continent. The extreme glacial stresses on plant distribution during Pleistocene times has partially been documented through pollen studies conducted by Delcourt (1980), Sears (1935) and Watts (1970). Following the Pleistocene, from 10,000 years ago to present, the general climate is considered to have become much drier and cooler, but because of the lack of sufficient studies in the fossil and pollen records, the climate for this time span is not well understood.

## Soils

The soils of Tishomingo County were formed in an environment of moderately high and low temperatures, relatively high rainfall and a predominantly deciduous forest. Jenny (1941) indicates that soil formation is affected by five major factors: climate, organisms, relief, parent material and time. Colinvaux (1973), however, states that vegetation and climate are the primary environmental factors involved in the soil formation process. Colinvaux (1973:43) writes that:

> Vegetation and climate, so intimately linked, are collaborators in making the soil. Soils are formed by processes working from above. If the vegetation is coniferous forest, the ground will be covered by fallen needles which rot slowly, making the cold drainage waters of the region acid.

The effects of the acid water run-off in such regions would result in the leaching of the soil minerals giving the soil profile a characteristic appearance. Colinvaux (1973:43) further writes:

> Where broad leaves of deciduous trees fall in warmer climes, the percolating water is less acid, there is less leaching and earthworms live to dig and churn the soil. Where rainfall is very heavy, chemical changes go deeper.
>
> The grand results of processes such as these is that each large formation of plants is roughly mirrored by the characteristic soil type covering a corresponding area. The way in which the climatic pattern of the earth results in a characteristic pattern of life is thus enhanced. Climate influences vegetation which influences soil which, in turn influences vegetation.

The Brinkley Midden rests upon part of the Cretaceous Eutaw formation in the bottoms of the Yellow Creek drainage. The site is associated with the Cahaba soil series, specifically Cahaba very fine sandy loam.

> The abundance of Indian relics, such as broken or imperfect arrowheads, indicates that the Indian population probably was relatively high. Although it might have been purely coincidental, it is interesting to note that these relics are most commonly found on the Cahaba soils, are less commonly found on the Prentiss soils, and seldom found on any of the other soils in the county (Orvedal and Fowlkes 1937:12).

The surrounding soils associated with the area are primarily Bibb silty loam and Iuka fine sandy loams. All of these bottomland soils are medium to highly acid and free of gravels and sandstone. These soils have developed from general alluvium washed from the uplands of the Coastal Plain. The Cahaba fine sandy loam is associated with the flood plain soils (Iuka and Bibb) at the Brinkley Midden. Orvedal and Fowlkes (1937) classify the Cahaba soils as terrace soils. They described the Cahaba soils series:

> Cahaba very fine sandy loam covers only a small total area. It occurs on the older terraces of the larger creeks and is almost everywhere associated with Prentiss silty loam (Orvedal and Fowlkes 1937:60).

The Cahaba soils are brownish gray to dark brown in color and the soil texture ranges from very fine sandy loam to silty loam. The subsoil ranges in color from a brownish red to a reddish brown with occasional sandstone concretions (Orvedal and Fowlkes 1937).

The associated Bibb and Iuka soil series are poorly to intermediately drained and subject to periodic flooding during the winter and spring. The texture of these soils ranges from fine silt to fine sandy loam. The subsoil of these floodplain soils is highly mottled, and the mottling increases with depth. Native vegetation for these soils includes mainly water tolerant species of trees: willow, willow oak, water oak, sweet gum and cypress (Orvedal and Fowlkes 1937).

The agricultural potential for these soils is poor except on the Cahaba soils, which are the best agricultural soils in Tishomingo County. According to Orvedal and Fowlkes (1937), all of the mapped Cahaba soils at the time of their research had been cleared for production of crops.

## Hydrology

The Brinkley Midden is located at the former confluence of Yellow Creek and Little Yellow Creek, at which point the flood plain is wider (3.1 km or 1.9 mi) than any other location along the course of Yellow Creek (Figures 1.1 and 2.1). Yellow Creek is a tributary of the Tennessee River. It extended 40.55 km (25.2 mi) from its headwaters to the original course of the Tennessee River prior to the construction of Pickwick Lake in 1933. The Brinkley Midden is situated approximately 25.7 km (16 mi) upstream from the Tennessee River. After construction of Pickwick Dam, the lower 12.9 km (8 mi) of Yellow Creek were inundated by the lake.

The Tennessee River is one of the largest rivers in the Southeast and the largest tributary of the Ohio River. The Tennessee River extends from its headwater around Knoxville, Tennessee, approximately 1,049 km (652 mi) where it joins the Ohio River at Paducah, Kentucky. The extensive archaeological work conducted along the Tennessee River demonstrates a great diversity of materials distributed along its course. The Tennessee River has been, from the earliest times, utilized as one of the major east-west transportation routes in the Southeast.

Thus the region's major aboriginal east-west transportation route passes within 25.7 km (16 mi) to the north of the Brinkley Midden. Archaeological work conducted in the central Tombigbee Basin by Jenkins (1975) and work conducted in Bay Springs reservoir area on Mackey's Creek by Hubbert (1977) and Lafferty and Solis (1980) indicates that Yellow Creek was used as one of the region's major north-south transportation routes between the Tennessee River and the upper Tombigbee River.

The drainage patterns of the Yellow Creek watershed have undergone drastic changes since the 1920s. Poor agricultural practices have resulted in the depletion of the usable farmland on the terraces and uplands. As these soils became eroded or unsuitable for the production of crops, new areas were cleared; farmers were forced to artificially drain and farm the poorly drained soils of the flood plains. By the time the

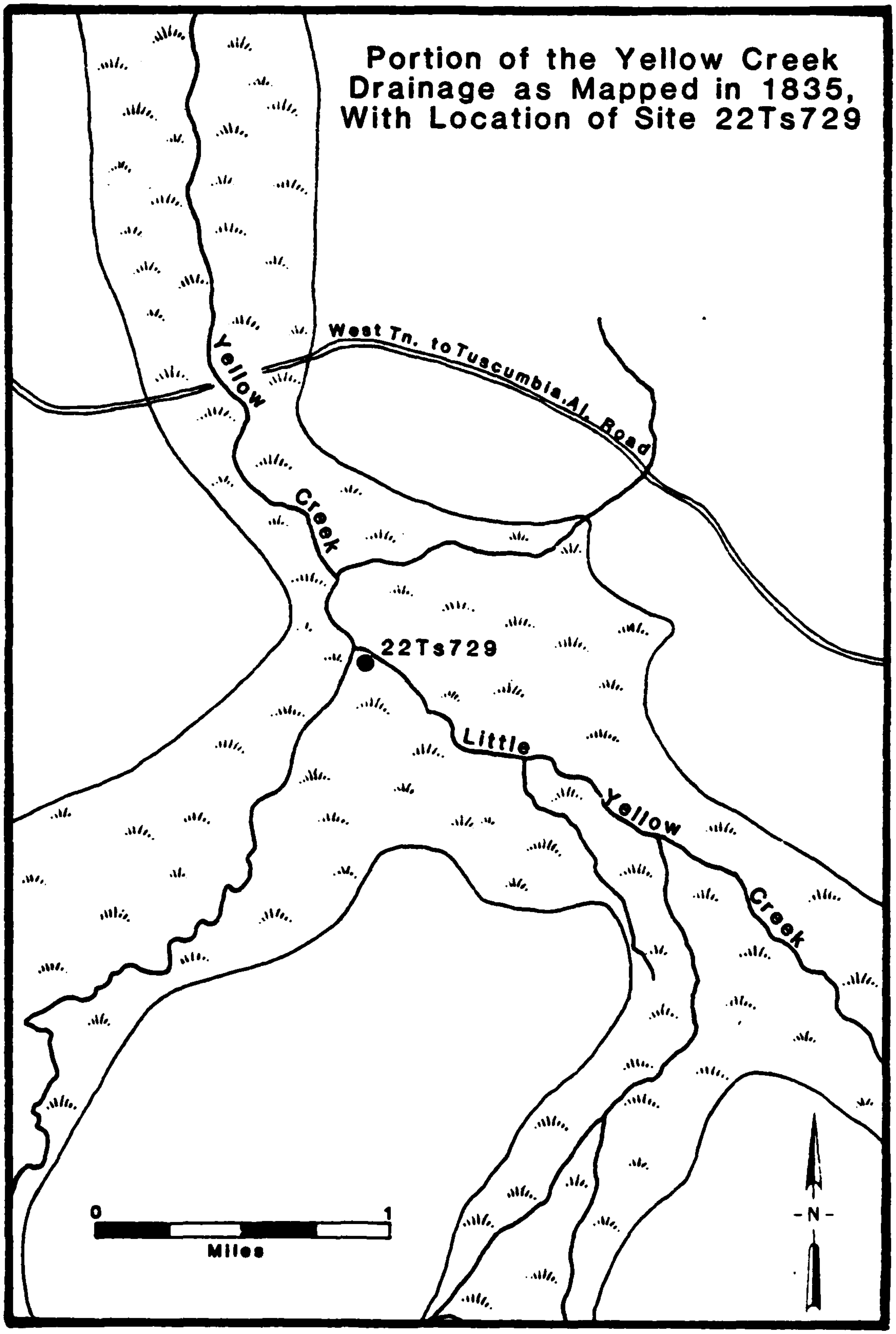

Portion of the Yellow Creek
Drainage as Mapped in 1835,
With Location of Site 22Ts729
West Tn. to Tuscumbia.Al. Road
Yellow
Creek
22Ts729
Little
Yellow
Creek
0
1
Miles
N

Figure 2.1.

first soil survey of Tishomingo County was completed in 1937, over 80 percent of the course of Yellow Creek and its tributaries had been channelized. Orvedal and Fowlkes (1937:93) discuss the effects of channelization on Yellow Creek:

> Frequently improvement in drainage upstream results in injury to areas downstream. Striking examples of this are to be found on Yellow Creek and Mackeys Creek in this county. In the mouths of the canals in the bottoms of these creeks, considerable areas have been converted into virtual wasteland.

In summary, the Brinkley Midden is located on the Yellow Creek flood plain at the former confluence of Yellow and Little Yellow Creeks. This location gave the inhabitants of the site a direct route to the fertile Tennessee River Valley. Through the years, as Europeans migrated into the area, dramatic changes took place in the Yellow Creek Valley. These changes are evident in stream course, stream flow, and accelerated alluviation.

## Biota

The northeastern portion of Mississippi including the Yellow Creek Valley is at the intersection of three major forest regions: the Eastern Deciduous Forest, the Southern Floodplain Forest of the eastern Mississippi Embayment and the Southern Oak-Pine Forest region. The overlap of these major regions results in a greater population and diversity of plant and animal species than is present in any of the named regions.

Plant species characteristic of each region have been identified in the Yellow Creek Valley and in northeast Mississippi. Examples of the various species characteristic of the forest regions found in northeast Mississippi include scarlet oak, bald cypress, and loblolly pine. Scarlet Oak is characteristic of the Eastern Deciduous Forest, which reaches the southern limit of its distribution near the extreme southern boundary of Tishomingo County in Mississippi. Bald cypress is characteristic of the Southern Floodplain Forest. Loblolly pine reaches its northern limit in Hardin County, Tennessee, just north of Tishomingo County, Mississippi (Coleman 1975).

Vegetation. Within the Yellow Creek Valley, the vegetation consists of a mixture of deciduous and coniferous trees with the more water tolerant (hydric or mesic) species dominating the bottomlands and the less water tolerant (xeric) species dominating the well drained soils of the slopes and ridges. At present, it is virtually impossible to make any associations between soil types and vegetation because of logging and agricultural practices, and the alteration of the lowland drainage patterns. Orvedal and Fowlkes (1937) found that most of vegetation-soil associations had been disturbed, although they found post oak and blackjack oak associated with Cuthbert soils (now the Smithdale-Sweatman complex) and water oak, willow oak and sweet gum associated with Myatt soils on the terraces. They also noted the presence of pines on Savannah soils, which primarily occur on the ridges, and of willow and cypress on Bibb soils in the bottomlands.

Coleman (1975) classified the present day Yellow Creek vegetation in terms of upland vegetation and bottomland vegetation. He further divided these broad types into upland xeric, upland mesic and bottomland mesic, and bottomland hydric. The xeric uplands were dry, well-drained areas of ridge tops. Mesic upland areas were the terraces and slopes. The mesic bottomlands included the first terraces, and the better drained bottoms and the hydric bottomland were areas of standing water.

The vegetation found in the upland xeric areas is dominated by shortleaf pine, blackjack oak, post oak, southern red oak and white oak. The dominant species found in the mesic upland zones are white oak, beech, tulip poplar, sweet gum and loblolly pine. The vegetation found in the mesic bottomlands is dominated by white oak, beech, tulip poplar, sweet gum and water oak. On the hydric bottomlands swamp chestnut oak, willow oak, overcup oak, swamp tupelo and bald cypress were the dominant species (Coleman 1975).

There is no doubt that plants were utilized by the prehistoric inhabitants of the Brinkley Midden, as evidenced by the carbonized remains of hickory nuts, acorns, persimmon and grape seeds discovered there. By far the most common plant remains found at the site were hickory nuts (see Ch. XII). Although hickory is not presently a dominant vegetation type in the area, hickory was found as a minority vegetation in all areas of the Yellow Creek Valley.

Fauna. The populations of fauna found today in the Yellow Creek bottoms are not representative of the native fauna. Since the mid 1800s, the environment has been extensively altered by lumbering, agriculture and channelization. These practices have altered or destroyed the natural habitats of the native fauna. This environmental pressure forced many of the faunal species to adapt to different habitats or relocate elsewhere. Black bear, wolf and mountain lion were once common but no longer inhabit the area. In contrast, other species such as white-tailed deer and beaver have flourished as their forage areas were increased and predator pressures decreased.

The major fauna important to the prehistoric occupants of the Yellow Creek Valley can be inferred from the archaeological record from sites in the Tennessee River Valley and its tributaries. White-tailed deer, gray squirrel, turkey, racoon, turtle and shellfish are the most common faunal remains found on these sites (Parmalee 1962; Jenkins 1974). These faunal species today are abundant in the Yellow Creek bottomlands. Shellfish, however, are not found in Yellow Creek.

## III. ARCHAEOLOGICAL BACKGROUND

### History of Archaeological Research

The first scientific investigations of archaeological sites in the general Yellow Creek area were reported by Cyrus Thomas (1891) from work conducted by the Bureau of American Ethnology. Several mounds along the Tennessee River were examined to investigate their construction and the materials they contained. The primary objective of Thomas' work was to describe the "customs and arts" of the mound builders and to determine whether prehistoric Indians were responsible for construction of the mounds. Thomas concluded that Indians did build these mounds, and he directed scientific attention toward other questions concerning these remains.

In 1915 Clarence B. Moore described the results of his investigations of mounds along the Tennessee River. This work was sponsored by the Academy of Natural Sciences of Philadelphia and was aimed at providing a more detailed and complete account of the contents and structure of these mounds. Moore's (1915) limited excavations usually involved placing one or more test pits in the center of each mound. Boyd's Landing, one of the mounds Moore tested, was investigated again during the Pickwick Lake excavations (Webb and DeJarnette 1942). Although little cultural material was recovered from the Boyd's Landing site (40Hn49), Moore's observation of galena in the mound enabled Webb and DeJarnette (1942:40) to identify the site as part of the Copena complex. Moore's work was the closest systematic investigation of the archaeological remains in this area prior to the federally funded projects of the 1930s.

In 1933, the Civil Works Administration was created by the Federal government to provide employment opportunities around the country. Archaeological projects were proposed in several states to provide employment for local labor. Two areas selected for investigation included the mounds at Shiloh National Military Park and a series of archaeological sites threatened by construction of Wheeler reservoir in northern Alabama.

Excavations at Shiloh National Military Park were conducted under the supervision of Dr. Frank H.H. Roberts in conjunction with the Smithsonian Institution. Several mounds, as well as a series of trenches between the mounds, were excavated. These excavations yielded the remains of more than thirty structures and several refuse areas. The presence of both conical and platform mounds suggests a Woodland through Mississippian occupation. No report of the excavations has been published on this important site except for Stirling's (1935) brief description of the work.

Archaeological work in the Wheeler Basin was conducted under the supervision of William S. Webb in cooperation with the Tennessee Valley Authority and the Smithsonian Institution. These excavations concentrated on several different kinds of sites found in this area including earthen burial mounds, shell middens, domiciliary mounds, and a few rock shelters. This research led to the identification of the Copena complex and provided a frame of reference for later investigations of similar sites (Webb 1939).

In 1936, archaeological research was undertaken in the Pickwick Basin to preserve a record of the prehistoric sites to be inundated by the Pickwick reservoir. Sites similar to those excavated in the Wheeler Basin were investigated, including two mounds near the confluence of Yellow Creek with the Tennessee River, Sites 40Hn1 and 40Hn4. Three primary kinds of sites were excavated within the Pickwick Basin: (1) shell middens used as habitation and burial sites, (2) earthen burial mounds with their associated villages, and (3) domiciliary earth mounds with their associated villages. Although 323 sites were located during the survey of the reservoir area, only 19 were excavated. This research provided the first detailed chronology for the lower Tennessee River Valley as well as one of the earliest ceramic and projectile point typologies.

Jennings (1941) reported on excavations conducted in Lee County, Mississippi, south and west of the Brinkley Midden. Several historic Chickasaw sites were investigated, as well as several Woodland sites. On the basis of these excavated Woodland sites, Jennings (1944) formally defined the Miller sequence and assigned ceramic types to the different portions of the sequence.

The Bynum and Pharr mound groups are located toward the headwaters of the Tombigbee drainage along the Natchez Trace. These sites contained several Woodland burial mounds and their associated villages and are believed to be contemporaneous with the Tennessee River Valley Copena complex (Cotter and Corbett 1951; Bohannon 1972).

Excavations at Stanfield-Worley Bluff Shelter were undertaken in the early 1960s by David L. DeJarnette and the University of Alabama (DeJarnette, Kurjack, and Cambron 1962). This research attested to the prehistoric occupation of this region for over 9,000 years and has provided the first detailed examination of the prehistoric Dalton and Morrow Mountain complexes in this area. The Dalton zone at this site was radiocarbon dated at 6970±400 B.C. (M-1153) and 7690±450 B.C. (M-1152) (DeJarnette, Kurjack, and Cambron 1962:85, 87). Although later Archaic, Woodland, and Mississippian components were also present, attention was directed towards the earlier remains, making this the first study to focus on the question of early man in this area.

Prior to the Tennessee-Tombigbee Waterway construction project, little was known of archaeological sites in the Yellow Creek drainage. Since then, a survey of the areas to be impacted has been concluded, and the frequency and distribution of sites have been recorded (Thorne 1976). Excavation and testing of many of these sites has now been completed, and the reports are in varying degrees of completion.

Excavations by Mississippi State University have focused attention on several smaller sites in the vicinity of the Brinkley Midden. These sites are primarily sherd and lithic scatters which contain material associated with the Early Archaic through Mississippian periods, as well as Euroamerican historic components (Tom Conn and John O'Hear, personal communication, February 10, 1978). The evidence at these sites also bears witness to the intensity of prehistoric activities associated with the cultural occupations of the Brinkley Midden.

The University of Mississippi has recently conducted excavations near the mouth of Yellow Creek at the location of Yellow Creek Nuclear Power Plant. Thorne, Broyles, and Johnson (1977) have been concerned primarily with a number of lithic extraction and processing sites. Preliminary results of their analyses suggest the presence of specialized sites involved with specific stages of lithic tool manufacturing (Bettye Broyles, personal communication, July 1977).

The W.C. Mann site (22Ts565), a site similar to the Brinkley Midden, is located roughly four miles to the north along Yellow Creek. Excavations by Memphis State University (Peterson n.d.) have revealed a deeply stratified midden with Early Archaic through Woodland components. Peterson (personal communication, November 1980) has identified several prepared house floors as well as a Benton component which has been radiocarbon dated at about 3,000 B.C.

Recent work by the University of Alabama in the Cedar Creek and Little Bear Creek watersheds has demonstrated evidence of human occupation and use of that area for several thousand years (Oakley and Futato 1975; Lafferty and Solis 1979). The relationship between cultural occupations along the Tennessee River and those along its upland tributaries is a current research interest under examination. Whether sites in the tributary drainages are the remains of seasonal exploitation activities or the remnants of permanently occupied communities is of particular concern.

Other archaeological investigations previously undertaken in this area deserve to be mentioned briefly. These include the work of Peterson (1973) and the research recently undertaken within the Tombigbee River Valley which includes Blakeman (1975); Blakeman, Atkinson, and Berry (1976); Jenkins and Curren (1976); Lafferty and Solis (1980); Nielsen and Jenkins (1973); Nielsen and Moorehead (1972); and Nielsen, O'Hear, and Moorehead (1973). This research has refined chronologies and understanding of cultural developments in this region.

## A Summary Prehistory of the Region

### Paleo-Indian Period

The Paleo-Indian period represents the first human occupation in the Yellow Creek region but is not evidenced at the Brinkley Midden. Hubbert (n.d.) has observed concentrations of Paleo-Indian materials near Pleistocene lakes and margins of the Tennessee River flood plain in adjacent areas of northern Alabama. Prehistoric cultural groups of this period foraged plant and animal resources, and presumably emphasized the hunting of large migratory herbivores such as mammoth, bison, and horse. This period dates sometime prior to 8,000 B.C. and is characterized by the presence of medium to large size fluted projectile points such as Clovis, Cumberland, and Redstone, as well as by a distinctive series of unifacial flaked tool classes.

### Early Archaic Period

The earliest evidence of prehistoric cultural occupations at the Brinkley Midden date from the Early Archaic period. A shift in hunting practices from big game to deer and smaller game as well as an increased reliance on plant foods, is apparent. Exploitation of resources in the upland tributary drainages of the Tennessee River is extensive and may indicate increased population densities over the previous period, or changes in exploitation patterns. The Early Archaic period is conventionally dated from 8,000 B.C. to 6,000 B.C. and is characterized by medium to large size auriculate, side notched, and corner notched projectile points with heavily ground basal margins such as Dalton, Greenbrier, Big Sandy, and Kirk Corner Notched. Ground stone implements are infrequent but present by the later part of this period.

## Middle Archaic Period

Substantial amounts of Middle Archaic cultural materials are evident at the Brinkley Midden. Increases in the abundance and reliability of resources during this period may have necessitated less mobility and allowed for a seasonally sedentary existence. A subsistence economy based on hunting deer and smaller game and gathering local plant resources is suggested. Occupations of shell middens along the Tennessee River begin during this period, and well developed ground stone and bone tool industries are present. This period dates from 6,000 B.C. to 4,000 B.C. (Griffin 1978), and is characterized by the presence of bifurcate, basally notched, and stemmed projectile points such as Buzzard Roost Creek, Eva, Morrow Mountain, and White Springs.

## Late Archaic Period

The Late Archaic period is characterized by the development of distinct regional complexes which is evidence of more or less stable adaptations to regional environments. It is during this time that intensive occupations of shell middens along the Tennessee River culminated. Increases in the exchange of both raw materials and manufactured products between contiguous regions and over long distances are evident.

This period dates from 4,000 B.C. to 1,000 B.C. (Griffin 1978) and is characterized by medium to large size projectile points such as Benton, Ledbetter, and Flint Creek; and polished stone beads, atlatl weights, and sandstone bowls. Ground stone tools are more numerous and diversified than in the preceding cultural periods.

## The Early and Middle Woodland Periods

Jenkins, Curren, and DeLeon (1975:191) have suggested that the transition from Archaic to Woodland reflects the development of sedentary settlements emphasizing an increased reliance on tropical and native cultigens. Although hunting and gathering of local animal and plant resources is still important, the cultigens provide supplementary resources. Burial complexes associated with Copena and Miller I sites are roughly contemporaneous with the Ohio Hopewellian and lower Mississippi River Valley Marksville cultural developments. This period dates from approximately 1,000 B.C. to A.D. 500 (Griffin 1978), and is characterized by the presence of fiber, sand, and limestone tempered ceramics, Copena projectile points and stemmed projectile points such as Little Bear Creek, Gary, and Bakers Creek.

## The Late Woodland and Mississippian Periods

The Late Woodland and Mississippian periods were characterized by the development of intensive agriculture. An increased dependence on tropical and native cultigens as well as the continued exploitation of locally available plants and animal resources typifies this period. Smith (1978) proposes that Mississippian adaptations were centered in specific environmental habitats, especially major floodplain valley corridors formed by tributaries of the Mississippi River. Settlements were largely restricted to extensive tracts of meander belts, backwater swamps, oxbow lakes, and natural levee ridges supporting a variety of plant and animal species.

Smith (1978) also describes the Mississippian adaptation as a particular level of sociocultural integration. The presence of platform mounds with civic or religious structures attest to the complexity and organizational capabilities of these societies. Increases in intersite and interregional trade, as well as evidence of class distinctions in burial practices, characterize the period. Clay tempered and especially shell tempered ceramics are predominant during this period, and the abundance of small triangular arrowpoints suggests the introduction of the bow and arrow.

## Historic Period

The Chickasaw were the historic aboriginal occupants of this area. The first record of Chickasaw contact with Europeans is from DeSoto's explorations of the southeastern United States in the sixteenth century (Swanton 1939). DeSoto encountered the Chickasaw in northeastern Mississippi and wintered with them during 1540 and 1541. By March of 1541, however, the Chickasaw could no longer tolerate the Spanish. Little else is known of the Chickasaw prior to the early eighteenth century.

During the eighteenth century the Chickasaw were allied with British and resisted attempts of Spanish and French expansion in the Mississippi River Valley. James Adair (1930) was a trader who lived among the Chickasaw during this period and recorded many aspects of their existence. As the Euroamerican expansion continued westward, the lands of the Chickasaw were increasingly encroached upon and gradually appropriated. The Chickasaw ceded this portion of Mississippi in 1832 and were relocated in Oklahoma shortly thereafter.

The Chickasaw were sedentary agriculturalists who retained a heavy reliance on hunting and gathering local animal and plant resources. Jennings (1941) excavated several historic Chickasaw villages in northeastern Mississippi and discusses their material remains in detail.

## IV. RESEARCH ORIENTATION AND GOALS

### Objectives

Archaeological research at the F.L. Brinkley Midden was undertaken to preserve a record of its prehistoric cultural occupancy by data recovery. Because of its imminent destruction from Tennessee-Tombigbee Waterway construction, testing was undertaken in December 1977 by the Office of Archaeological Research of the University of Alabama, in cooperation with the Heritage Conservation and Recreation Service and the U.S. Army Corps of Engineers. Upon confirming the significance and integrity of the cultural deposits, excavations were undertaken from March through June 1978.

Current models for Late Archaic subsistence and settlement patterns focus on the seasonal movements of populations from major river valleys to upland tributary drainages (Jenkins 1974, Bowen 1977). Although a number of prehistoric sites in the Tennessee Valley have been excavated, few of the large sites in the upland tributary drainages have been investigated. The only previously excavated sites similar to the Brinkley Midden are the Fraizer, Cherry, McDaniel, and Thomas sites discussed briefly by Lewis and Kneberg (1947, 1959). All of these sites are accretional middens located near the junction of upland tributary drainages of the Tennessee River, characterized by an absence or low frequency of shell and ceramics. The Brinkley Midden excavations and basic descriptive data should provide an effective evaluation of these models.

Archaeological research at the F.L. Brinkley Midden was designed to achieve the following results:

(1) Determine the vertical and horizontal extent of the site.
(2) Identify the cultural strata present.
(3) Recover samples of the cultural remains from each stratum for analysis.
(4) Identify the prehistoric cultural complexes associated with each stratum.
(5) Examine the stratigraphic relationship between cultural complexes to evaluate diachronic changes in the diversity and intensity of cultural activities.
(6) Evaluate the relationship of prehistoric populations occupying the site to their environments, particularly in consideration of current models for subsistence and settlement patterns of Archaic populations in the Tennessee River Valley.

These are the research goals for the Brinkley Midden excavation and analysis of cultural materials. More specific research problems are discussed in greater detail in the following chapters.

### Site Description

The F.L. Brinkley Midden (22Ts729) is located approximately one mile east of Burnsville, Mississippi, in Tishomingo County. It is in the NE¼ of the NE¼ of Section 12, Township 3 South, Range 9 East (U.S.G.S. 7.5

Minute Series, Burnsville Quadrangle) (Figure 1.1). This site is located on a low rise in the center of the flood plain at the former confluence of Yellow Creek and Little Yellow Creek. Figure 2.1, adapted from the 1835 Chickasaw Cession map and the U.S.G.S. 7.5 Minute Burnsville Quadrangle, illustrates the position of the Brinkley Midden at the confluence of Yellow Creek and Little Yellow Creek in the 1920s. The site is situated near the center line of the proposed Tennessee-Tombigbee Waterway, which will destroy this cultural resource. The elevation of the midden (134.2 m or 440 ft AMSL) is only 8 m above the normal pool level of Pickwick Lake (126.2 m or 414 ft AMSL). The Pickwick reservoir has raised the level of the Tennessee River between 24.4 and 34.5 m (Webb and DeJarnette 1942:2).

The Brinkley Midden appears as a 1.5 m rise above the present flood plain (Figure 4.1). The cultural deposit is between 40 and 80 cm in thickness, with features intruding to a depth of 2.0 m into geologically deposited sand. Underlying the midden is a layer of white sand which is greater than 1 m thick. This sand is alluvially deposited and is culturally sterile (E. Wilson, personal communication). Underlying the sterile white sand is a zone of tan sand. The midden is composed of dark clay, silt and sandy loam. According to Wilson (personal communication), "All of the soil material at the site is alluvium deposited from slope wash and stream erosion on the adjacent hill slopes."

The prehistoric occupation of Site 22Ts729, based on stylistic analysis of projectile points, ranged from transitional Paleo-Archaic through the Archaic to Woodland. The latest cultural deposits were largely disturbed in the plowzone, except for features which intruded from the plowzone into the earlier deposits. The different periods of cultural deposition represented in the midden were visually stratified. Darker soils ranging from dark brown to reddish brown comprised the upper strata and the deeper strata were light yellow soils (Otinger and Lafferty 1979).

## Disturbances

Historic disturbances as well as disturbances caused by natural processes have occurred on the Brinkley Midden. Thorne (1976) indicated that heavy equipment use and extensive vandalism had seriously if not totally damaged the cultural matrix of the site. During the initial testing phase, efforts were centered on the evaluation of the extent of cultural deposits and the isolation of the reported disturbed areas (Figure 4.2). These early efforts on the site led to the identification of substantial undisturbed areas of the site.

The interpretation and analysis of archaeological sites bearing disturbed matrices is a problem that is becoming increasingly more relevant in archaeological research. The rate at which archaeological sites are being destroyed is staggering, and accelerated by modern technological advances in agriculture, irrigation, and land-leveling, in addition to vandalism. Unfortunately the opportunity of conducting archaeological research on pristine sites is rare. There are often no alternatives to excavating disturbed sites when dealing with a specific area or research topic. In the Yellow Creek watershed the majority of the archaeological sites have been damaged by vandalism to some extent. Meaningful infor-

Figure 4.1. The Brinkley Site (22Ts729), View Facing Northeast.

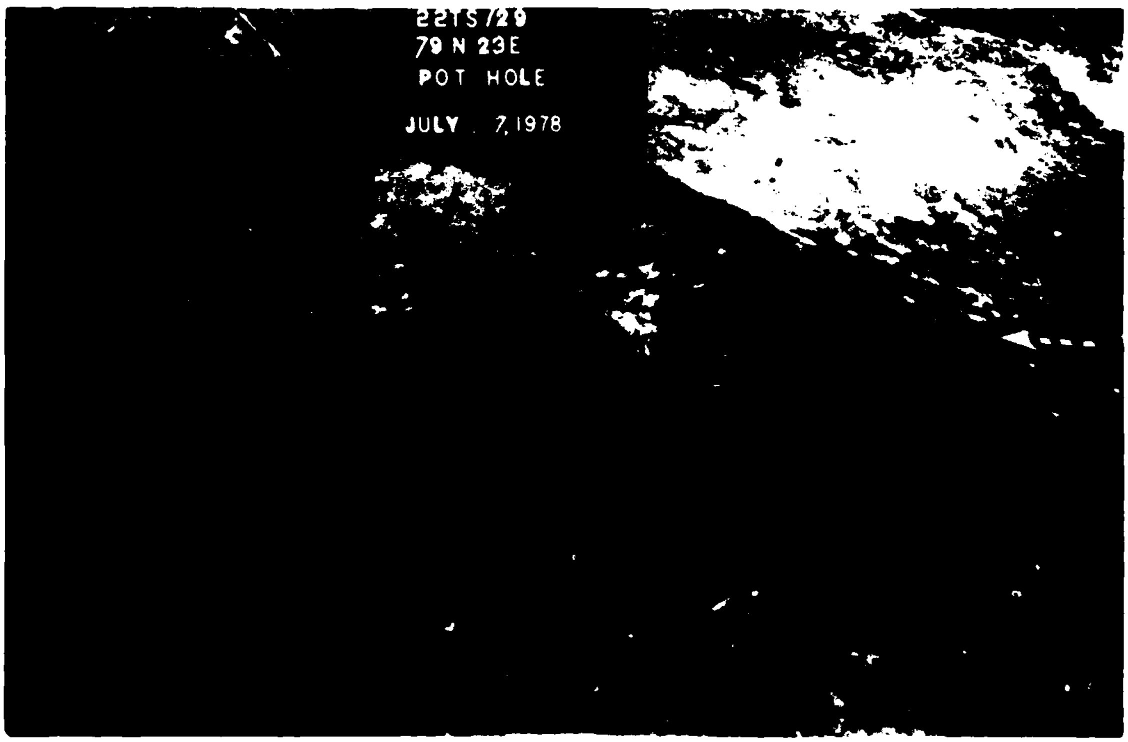



Figure 4.2. Disturbance Encountered in Backhoe Trench at Site 22Ts729.

mation can still be obtained, however, if research efforts are conducted in a manner to isolate these disturbances.

A wide range of processes have led to the disruption of the cultural matrix at the Brinkley Midden. Natural processes of the physical environment, rodent borrowing, vegetation and hydrological changes are among these. Artifactual materials present at the site suggest that the duration of human occupation was at least 8,000-10,000 years. Climatic changes over this span of time have affected the hydrology of the Yellow Creek watershed, in turn affecting the erosional and depositional processes at the site.

Another form of site disturbance rarely discussed is that rendered by the prehistoric occupants of the site (Schiffer 1976). The activities conducted by human occupants, such as the excavation of such subsurface facilities as pits and post holes, disturb any underlying cultural deposits. Not only does this destroy the underlying deposits, it also mechanically creates a new context from the redeposition of the excavated materials. Evidence of such activities is commmonly found on archaeological sites, ultimately causing inconsistencies in the interpretation of cultural materials and the isolation of relatively undisturbed occupational surfaces.

The most obvious and extensive form of disturbance at the Brinkley site has resulted from intensive agriculture, which has taken place for at least 50 years. According to Mr. F.L. Brinkley (Richard Yarnell, personal communication, January 1978) the site was plowed to a maximum depth of 30 cm (12 in). This coincides accurately with field observations of the stratigraphic profiles excavated at the site. Besides dispersing the deposits horizontally and vertically, cultivation also results in erosion and soil deflation, which contributes to the alteration of the context of the archaeological materials present.

Another source of extensive disturbance was vandalism by local inhabitants of the area (Figure 4.2). These individuals are some of the most avid and enthusiastic relic collectors in the country. One such individual from Crossroads, Mississippi informed the investigators in January of 1978 that he had often surface collected and dug on the Brinkley Midden. He also informed us that he did not dig in the center of the site, because other collectors had dug there; he primarily dug shallow trenches into one side of the site or surface collected during cultivation. During the course of excavations, trenches matching this description were frequently encountered.

During the testing phase at the Brinkley Midden a large disturbance was observed in a backhoe trench in the central site area. The limits of this massive disturbance were later defined during excavation. This disturbance is believed to have been produced by a large earth-moving machine such as a bulldozer. Prior to the archaeological investigations at the site, a local resident informed the Corps of Engineers that a bulldozer was seen plowing through the central portion. There is reason to accredit this observation, since a portion of the 58N profile trench (Figure 5.1) contained a wide rectangular disturbance 4m wide through the depth of the cultural bearing matrix. In line with this disturbance was an area in the southeastern portion of the site that resembled a swath from a bulldozer blade. The contours of the topographic map (Figure 4.3) also suggest that this occurred by the way they recess toward these portions of the site. It is not known whether this disturbance was created by attempts to level out the center of the site for agricultural purposes, or in order to expose archaeological materials for collection. However, after completion of the testing phase, this disturbance was isolated and the evidence indicated that it was not extensive. The majority of the cultural deposits in the central portion of the site remained undisturbed.

Although these disturbances greatly affected the interpretation of the artifact distributions within the site, the areas most susceptible of misinterpretation would be the controlled surface and plowzone collections. There is no way to accurately determine the extent to which the surface and plowzone have been disturbed. These data are especially suspect given the incidence of relic hunting and disturbance by heavy equipment. While these disturbances have had a significant impact on the contexts of some of the archaeological materials recovered, the artifactual content of the site has not been significantly altered and can still provide meaningful information.

Considering the extent and variety of disturbances present at the site, specific strategies were formulated to isolate disturbed areas and to evaluate the integrity of the remaining intact deposits, in order to determine the research strategies needed for mitigation.

## Excavations

Archaeological investigations at the Brinkley Midden were conducted in two phases, a testing phase and an excavation phase. The testing phase was designed to determine the integrity of the site as a cultural resource for further investigations by determining the extent of intact deposits and disturbances on the site. Testing was conducted from December 5, 1977 through April 17, 1978. The excavation phase began April 17, 1978 and continued to July 7, 1978.

### Testing

The testing phase included a controlled surface collection, mapping of the site, and the excavation and documentation of 195 meters of backhoe trenches. These activities were designed to obtain information concerning temporal aspects of the site occupation, spatial distribution of cultural material on the site's surface, and possible functional inferences based upon classes of material recovered. Information was also gathered on the extent of new disturbances, the presence of features, depths of the midden and plowzone, and stratigraphy.

Prior to the surface collection, base lines were established south and east of the site in the relatively flat bottomland of the Yellow Creek floodplain (Figure 4.3). A line running east-west was established east of the site. The point of intersection of these lines is the base point ON/OW. All provenience designations are relative to this point and indicate the southeast corner of grid units.

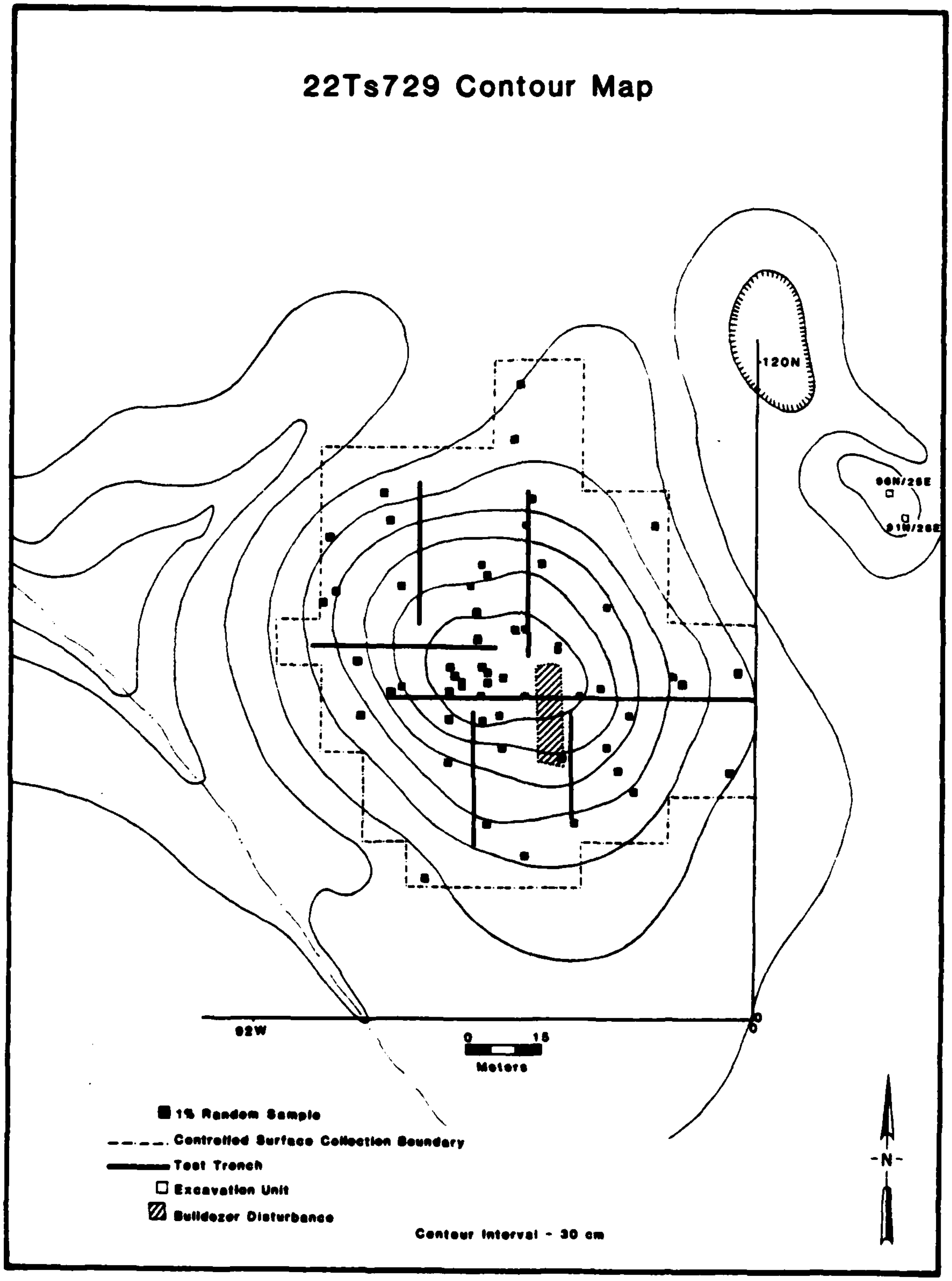

22Ts729 Contour Map
120N
92W
0
0
0 15
Meters
1% Random Sample
Controlled Surface Collection Boundary
Test Trench
Excavation Unit
Bulldozer Disturbance
Contour Interval - 30 cm
-N-

Figure 4.3.

A grid was established from these base lines with the staked grid points located 8 m apart on the north-south axis and 16 m apart on the east-west axis. This spacing of grid stations was employed to accommodate a 8 m by 16 m portable surface collection grid. This spacing also minimized the disturbance of grid stations by heavy equipment used during trenching and stripping.

A 5,550 $m^2$ area of the site was surface collected using 4 m by 4 m control units. All surface material, with the exception of sandstone which was weighed and discarded in the field, was collected and bagged according to provenience. In conjunction with the controlled surface collection, a one percent stratified random sample consisting of 55 1 m by 1 m units (Figure 4.3) was excavated. The stratification of the sample was based on site elevation and the distribution of cultural material determined by the controlled surface collection. Emphasis was placed on the higher elevations in the site center. The controlled surface collection indicated that these elevations were the most dense areas of artifact concentration. These units were excavated in 10 cm levels to the base of the plowzone.

All of the soil excavated from these units was water screened through 0.635 cm (1/4 in) mesh hardware cloth. Recovered materials were bagged and labeled. Because of the large quanity of sandstone present on the site, fractured sandstone was weighed, recorded, and discarded in the field, unless the sandstone had signs of utilization such as grinding or pecking.

## Data Recovery Excavations

Figure 4.4 provides the plan of excavation during the excavation phase of the project. The excavation phase began with the removal of the plow zone using heavy equipment, after which three areas were selected for contiguous block excavation on the basis of: (1) depositional integrity (areas of many pot holes defined in the test trenches were avoided); (2) the presence of good microstratigraphy (i.e. intrusive pit complexes); and (3) areas likely to have intact early living floors. The blocks were excavated in contiguous 1 m by 1 m units in 10 cm arbitary levels, or by natural levels if the natural microstratigraphy could be discerned. Excavations in these blocks was continued until the bottom of the cultural deposit was reached.

In addition, 11 1 m by 1 m stratigraphic units were excavated from the existing backhoe trench profiles (Figure 4.4), where good microstratigrahic levels could be discerned. Excavations were conducted in natural levels to the bottom of the cultural deposit. The excavated soil was dry screened through 0.635 cm mesh. All other stratigraphic units were processed by waterscreening through a 0.635 cm mesh screen.

A second controlled surface collection (CSC II) was made following the stripping of the plowzone (Figure 4.4) and the initiation of excavations within the designated block units. This second surface collection was made in order to maximize the field visibility of artifacts in an undisturbed context, and to determine if special activitiy areas could be

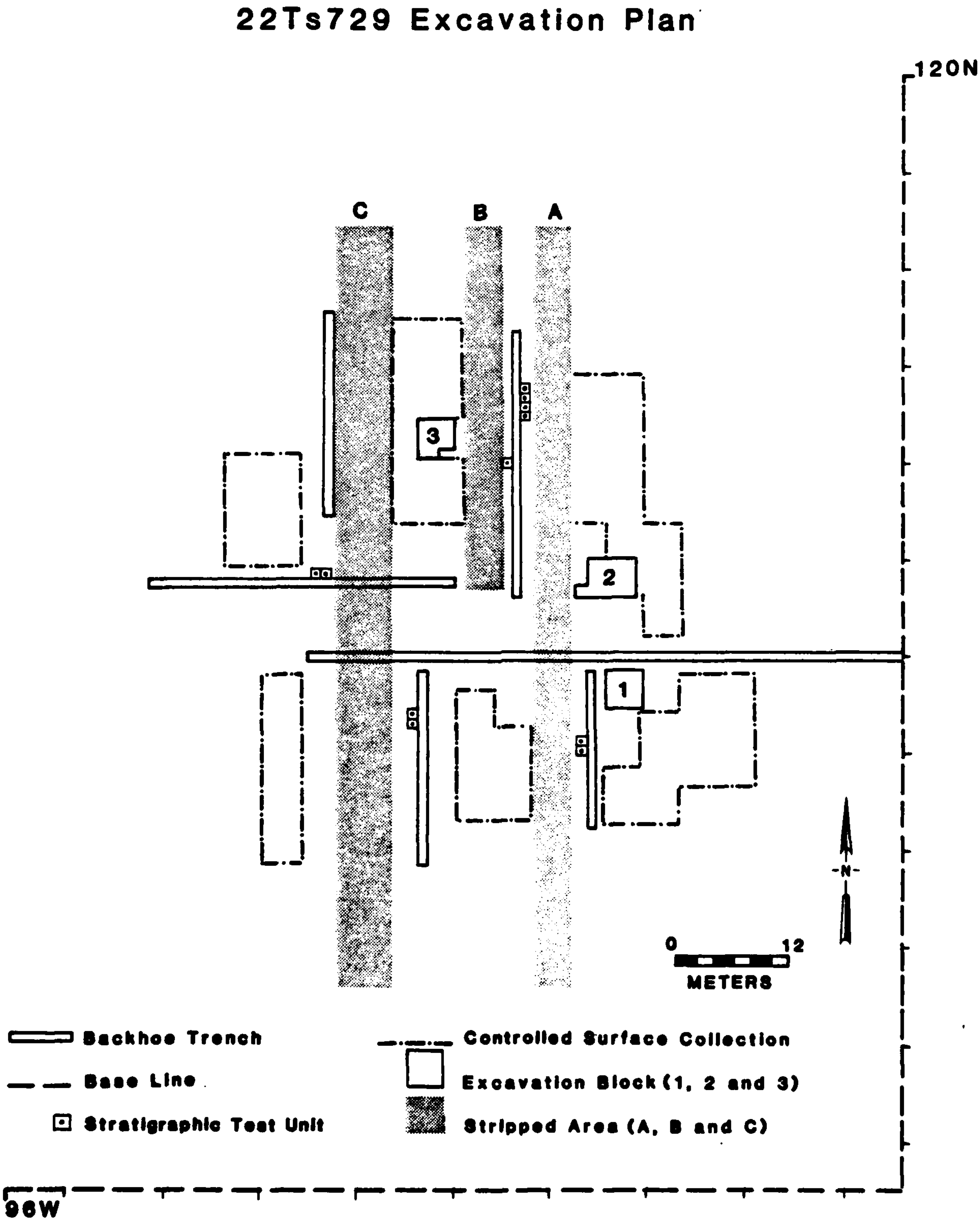

22Ts729 Excavation Plan
120N
C
B
A
3
2
1
N
0
12
METERS
Backhoe Trench
Base Line
Stratigraphic Test Unit
Controlled Surface Collection
Excavation Block (1, 2 and 3)
Stripped Area (A, B and C)
96W

Figure 4.4.

discerned by the spatial clustering of certain classes of artifactual materials (ceramics, daub, charcoal). Considering the active field time alotted in the contract and the imminent destruction of the Brinkley Midden by the construction of the Waterway, the second surface collection maximized the retrieval of data that could not have been collected under the proposed research strategy.

The collection and recording procedures for CSC II were the same as for the initial controlled surface collection during the testing phase. All diagnostic cultural materials (projectile points, ceramics) as well as artifactual materials such as daub and charcoal which might indicate the presence of special activity areas, were plotted on the site map. A roto-tiller (Troy Bilt) was used to plow the areas to be surface collected. The use of the roto-tiller mimimized artifact breakage and horizontal displacement of artifacts, in contrast to the standard cultivation methods (plowing followed by disking).

Following the initiation of excavations within the three Excavation Blocks 1, 2, and 3 a motor grader was used to strip three transects (designated stripped areas A, B, and C) across the site (Figures 4.4 and 4.5). Mechanical stripping was done to determine the extent of Early Archaic deposits and possibly to define an Early Archaic living surface and associated features. During the stripping of these transects, efforts were made to isolate and remove the overlying Late and Middle Archaic deposits (Strata 2 and 3) by monitoring the elevations of each pass of the motor grader with a transit. Each transect was further taken down by shovel skimming and all features and disturbances were mapped (Figure 4.6).

All of the soils recovered from Excavation Blocks 1-3 were processed by water screening through a 0.635 cm mesh screen or through a SMP flotation machine (Watson 1976). All features and 4 liter control samples from each level of each excavation block were processed through the flotation apparatus. All other excavated soil was processed through the 0.635 cm mesh water screens. The volume of all soils screened through the flotation machine was recorded, and the recovered materials were separated in two components (light and heavy fractions).

Figure 4.5. Mechanical Stripping Operations at Site 22Ts729.

Figure 4.6. Shovel Skimming Stripped Transect.

## V. STRATIGRAPHY

### Introduction

The deposits at the Brinkley Midden are composed of fine sandy clays of the Cahaba soil series, alluvially deposited from the surrounding uplands and terraces. The soils are some of the best agricultural soils in Tishomingo County. Consequently, archaeological deposits found within these soils have been subjected to extensive damage by cultivation and topsoiling practices. These activities have also increased the incidence of damage by relic hunters.

These alluvial sediments are some of the more geologically recent deposits of the Yellow Creek drainage, derived from the Cretaceous deposits of the surrounding uplands. From an archaeological perspective the Cahaba soils in the Yellow Creek drainage can be dated to the Early Archaic and subsequent periods.

Cultural by-products recovered from the earliest deposits at the Brinkley Midden indicate that human utilization of the site began during the Early Archaic period and proceeded at an increasing rate until the Middle Woodland period. The absence of Mississippian cultural materials is puzzling, considering the agricultural potential of the Brinkley soils and the documented agricultural strategies during the Mississippian period. One possible explanation could be that during this time, the Brinkley Midden was periodically flooded to such an extent that the site was unsuitable for Mississippian occupation. Another possible explanation could be that Mississippian horticulture in the alluvial bottoms was efficient to the degree that these uplands were not as extensively exploited. The last sequence of utilization of the Brinkley Midden began during the 1880's, at which point the site was clear-cut and put into cultivation (personal communication, F.L. Brinkley 1978), until the recent destruction of the site by the construction of the Tennessee-Tombigbee Waterway project.

The cultural deposits at the Brinkley Midden extend to a maximum depth of 60-65 cm below surface. During the preliminary stages of archaeological testing on the site, a total of 195 m of backhoe trenches were excavated on the site. As previously indicated, these trenches were positioned across the site to facilitate the evaluation of: (1) depth of deposits; (2) areal extent of deposits; (3) degree of historic disturbance; (4) cultural integrity of deposits; and (5) potential direct research strategies.

Three cultural strata were defined in the stratigraphic profiles (Figures 5.1, 5.2, and 5.3; Table 5.1), designated Strata 1, 2, and 3. The stratigraphic divisions were defined of the bases of temporal artifact assemblages, differences in soil color, texture and integrity of deposits (plow zone and disturbances). Underlying these cultural bearing deposits is a fine sandy loam (Stratum 4) which grades into a fine sand (Stratum 5).

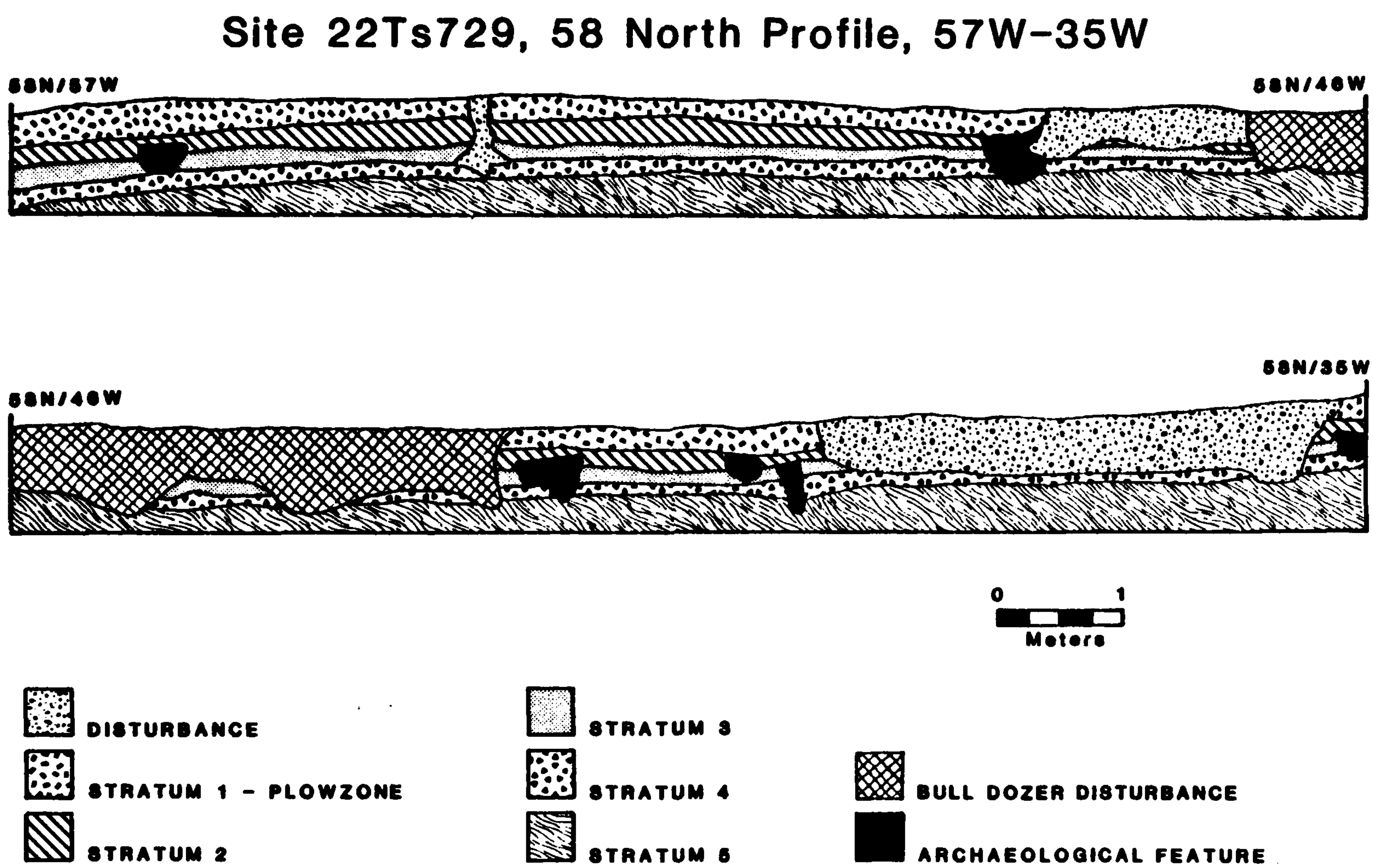

Site 22Ts729, 58 North Profile, 57W-35W
58N/57W
58N/46W
58N/46W
58N/35W
0
1
Meters
DISTURBANCE
STRATUM 1 - PLOWZONE
STRATUM 2
STRATUM 3
STRATUM 4
STRATUM 5
BULL DOZER DISTURBANCE
ARCHAEOLOGICAL FEATURE

Figure 5.1.

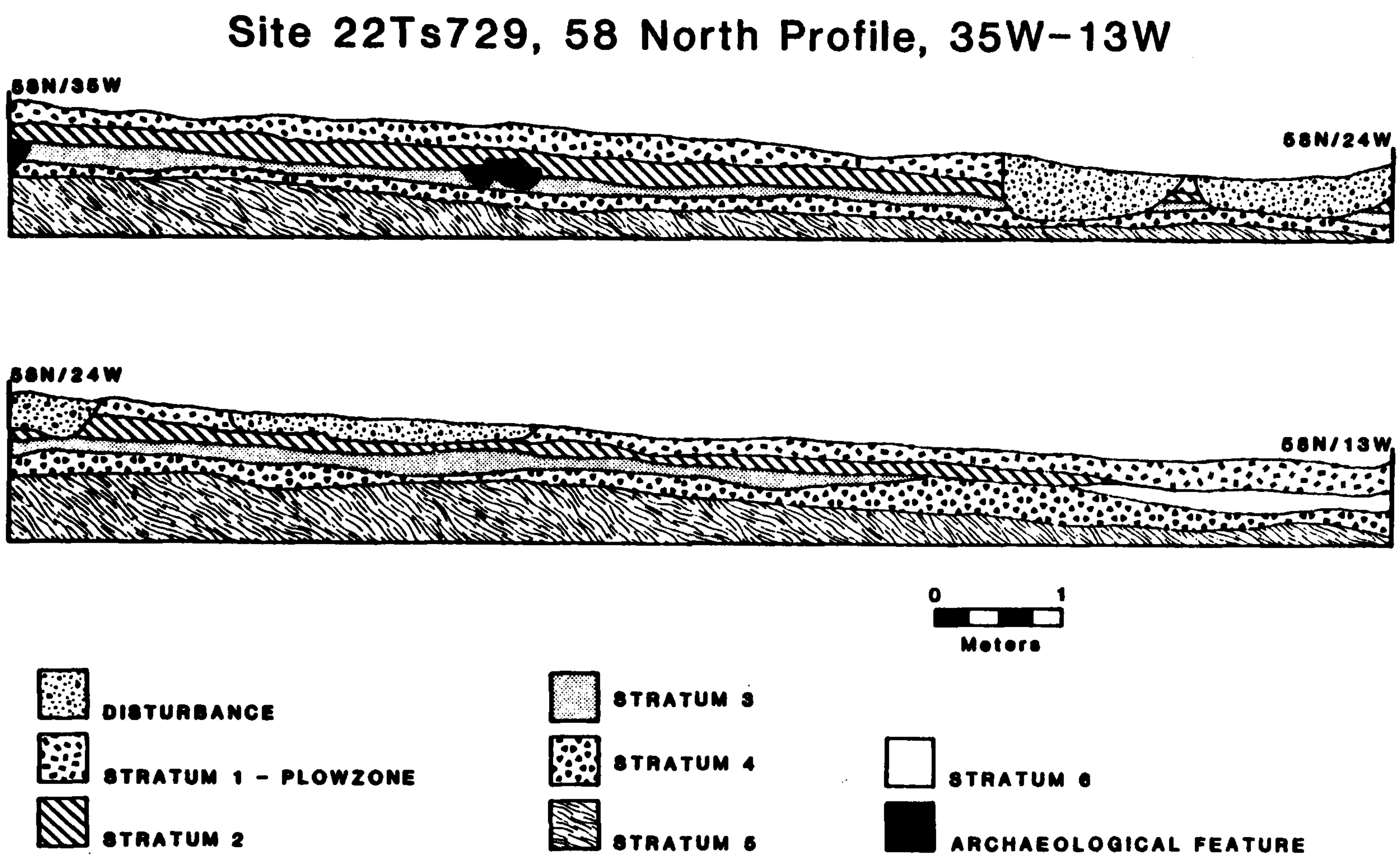
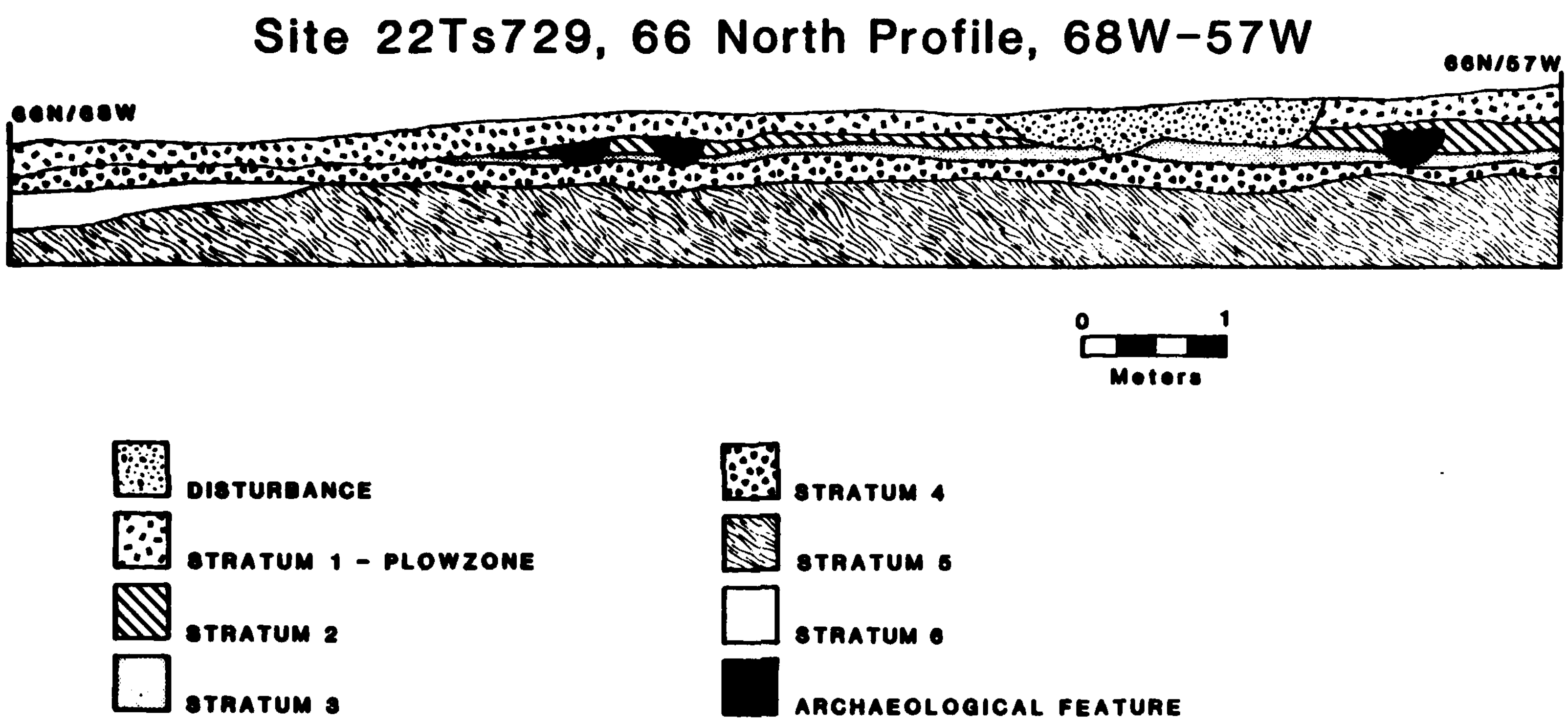

Site 22Ts729, 58 North Profile, 35W–13W
58N/35W
58N/24W
58N/24W
58N/13W
0
1
Meters
DISTURBANCE
STRATUM 1 – PLOWZONE
STRATUM 2
STRATUM 3
STRATUM 4
STRATUM 5
STRATUM 6
ARCHAEOLOGICAL FEATURE

Figure 5.2.



Site 22Ts729, 66 North Profile, 68W-57W
66N/68W
66N/57W
0
1
Meters
DISTURBANCE
STRATUM 1 - PLOWZONE
STRATUM 2
STRATUM 3
STRATUM 4
STRATUM 5
STRATUM 6
ARCHAEOLOGICAL FEATURE


Figure 5.3.

Table 5.1 Site 22Ts729, Correlation Between Excavation Levels and Depositional/Cultural Units.

| STRATIGRAPHIC LEVEL | EXCAVATION LEVEL | CULTURAL AFFILIATION |
|---|---|---|
| Stratum 1 | 1<br>2 | Middle Woodland<br>Late Archaic |
| Stratum 2 | 3<br>4 | Middle Archaic |
| Stratum 3 | 5<br>6 | Early Archaic |
| Stratum 4 | 7<br>8 | Precultural |
| Stratum 5 | 9<br>10 | Precultural |

## Description of Strata

### Stratum 1

Stratum 1 is the plow zone. The plow zone varied in thickness across the site from 15 cm to 20 cm. The soils of this stratum consisted of a dark reddish brown (5YR3/3) very fine sandy loam. The plow zone was further subdivided into Excavation Levels 1 and 2. Artifacts from all occupational periods were present in the plowzone, which is indicative of the extent of disturbance at the Brinkley Midden. Diagnostic materials from the Late Archaic and Middle Woodland period occupations were primarily isolated in the plowzone, although several features associated with these cultural periods intruded into the underlying strata.

### Stratum 2

Stratum 2 consisted of a dark yellowish brown (5YR4/4) fine sandy loam. This stratum was visually as well as texturally distinct from underlying Stratum 3. Stratum 2 varied in thickness from 20 cm at the highest elevations of the site to 10 cm or less at the lower site perimeters. This stratum was subdivided into Excavation Levels 3 and 4 based on textural differences within the zone.

The artifact assemblage from Excavation Level 2 was predominantly associated with the Middle Archaic, although Late Archaic and Middle Woodland artifacts were also recovered in Level 2 at the interface between Strata 1 and 2. The presence of intrusive features and disturbances in Stratum 2 also resulted in the mixing of these strata. Excavation Level 4 was approximately 10 cm thick and visually as well as texturally distinguishable from Stratum 3.

## Stratum 3

Stratum 3 was distinctive in soil color and texture. The soil was dark brown (5YR3/3) fine sandy loam mottled with a yellow brown (10YR5/6) fine sandy loam. This stratum contained the earliest deposits (Early Archaic) unearthed at the Brinkley Midden. A total of 14 Early Archaic projectile points recovered in situ from the excavation units or stratigraphic profiles and 4 archaeological pits were associated with this stratum. Stratum 3 was subdivided into Excavation Levels 5 and 6. These levels were visually distinguishable by the increase in the mottling of the soil as the depth of excavations increased in Stratum 3. Most of the cultural materials recovered from this stratum were from Excavation Level 5. Undiagnostic cultural materials recovered from Level 6 basically consisted of small flakes and small pieces of fractured sandstone. These materials probably occurred here through downward migration from Level 5, through the mechanism of various types of intrusions (insects, features, rodents). No cultural materials were recovered below Stratum 3 (60-65 cm below surface), except for cultural material isolated in features which intruded through Stratum 3.

## Stratum 4

Stratum 4 consisted of a yellowish brown (10YR5/6) very fine sandy loam mottled with a yellow fine sand. No cultural material was associated with this stratum except for material that percolated downward via disturbances or from intrusive cultural deposits from the overlying cultural deposits.

## Stratum 5

Stratum 5 was a white geologically deposited very fine sand, greater than one meter thick. This sand is alluvially deposited and overlies a tan sand which extends to a depth of approximately 20-33 m (Wilson 1978).

## Stratum 6

Stratum 6 was a redeposited soil matrix consisting of Strata 1 and 2. This stratum is located at the perimeters of the site and contains cultural materials from all cultural deposits at the site.

# VI. FEATURES

## Introduction

A total of 191 archaeological features was recorded and excavated at the Brinkley Midden. This total included 110 pits, 67 postholes, 10 large basin shaped features (possible houses), three hearths, and a single burial. These features were defined on the basis of soil color, texture or the presence of artifact concentrations (fire cracked rock, chipped lithics, and botanical remains). Table 6.1 presents the basic feature descriptions including dimensions, provenience, and associated cultural affiliations.

Due to the large number of features recovered, a select sample of features was analyzed. Features were selected for analysis according to stratigraphic association, feature type, and intrusions among multiple pit complexes. The cultural materials recovered from the analyzed features are presented in Table 6.2, except for botanical remains which are discussed in Chapter XII.

This chapter is organized into three sections. In the first section a generalized feature typology is established primarily on morphological characteristics. Following the typology, the horizontal distribution of the features and the cultural affiliations of features are discussed. In the final section the stratigraphic distribution and possible cultural implications are discussed.

## Feature Typology

The following feature typology is designed to facilitate the organization of the features into types based on shape/functional attributes to provide a method of assessing the distribution of feature types and the changes of feature types through time. The features are segregated into nine types. Types 1-5 are based on morphological attributes, while types 6-9 are based on functional attributes. Table 6.3 presents the feature types represented on the site by cultural affiliation.

### Morphological Types

Type 1. Basin - Features with sloping side walls which merge to form a slightly rounded bottom (Figure 6.1). These features are differentiated from shallow basin (Type 2) features according to pit depth. The pit depth of Type 1 Basin features is greater than or equal to one-half the diameter.

2. Shallow Basin - Features shallow in depth with sloping side walls that merge to form a slightly rounded bottom (Figure 6.1). Some of these features may have originally been deeper pits similar to Type 2, but had been truncated by the plowzone or by intrusive pits.

3. Cylindrical - Features with straight side walls and a definite bottom (Figure 6.1). The depth of these features is greater than or equal to the diameter. Features of similar morphology

Table 6.1. Feature Descriptions, Site 22Ts729.

| Feature No. | Cultural Affiliation | Stratum | Dimensions (Meters) N x S x Depth | Provenience N/W | Analyzed | Type | Location | Figure |
|---|---|---|---|---|---|---|---|---|
| 1 | - | 1 | 1.5x.80x.02 | 54/80 | - | Surface Hearth | - | - |
| 2 | MA* | 2 | .30x.60x.50 | 54/32 | X | Hearth | 34 W. Profile | - |
| 3 | MA | 2 | .27x.20x.35 | 78/42.3 | - | Cylin. | 42 W. Profile | - |
| 4 | MA | 2 | .12x.20x.05 | 78/42.3 | X | Shallow Basin | 42 W. Profile | - |
| 5 | MA | 2 | .26x.26x.06 | 53/30-31 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 6 | - | - | .40x.42x.04 | 53/30-31 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 7 | MA | 2 | .28x.20x.05 | 55/31 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 8 | MA | 2 | .34x.45x.04 | 55/31 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 9 | MA | 2 | .46x.45x.03 | 54-55/29-30 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 10 | - | - | .34x.37x.20 | 55/30 | - | Shallow Cylin. | Exc. Blk. 1 | 6.2 |
| 11 | - | - | .50x.64x.07 | 54-54/29 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 12 | - | - | .39x.40x.06 | 54/29-30 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 13 | - | - | .70x.63x.15 | 54/29-30 | X | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 14 | - | - | .55x.50x.09 | 55/30 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 15 | - | - | .17x.32x.08 | 55/30 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 16 | - | - | .36x.35x.21 | 55/30 | X | Shallow Cylin. | Exc. Blk. 1 | 6.2 |
| 17 | - | - | .15x.40x.03 | 55/30 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 18 | - | - | .54x.49x.08 | 55/29 | - | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 19 | - | - | .43x.27x.10 | 55/30 | X | Shallow Basin | Exc. Blk. 1 | 6.2 |
| 20 | MA | 2 | .42x.14x.11 | 55/29 | - | Shallow Cylin. | Exc. Blk. 1 | 6.2 |
| 21 | - | - | .20x.19x.10 | 55/30 | - | Basin | Exc. Blk. 1 | 6.2 |
| 22 | LA | 1 | .45x.45x.09 | 85/62.3 | - | Shallow Basin | 62 W. Profile | - |
| 23 | LA | 1 | .45x.45x.09 | 85/62.3 | - | Shallow Basin | 62 W. Profile | - |
| 25 | LA | 1 | 1.20x.65x.03 | 66-67/28 | - | Surface Hearth | Exc. Blk. 2 | 6.3 |
| 28 | EW | 1 | .64x.57x.58 | - | X | Cylin. | Exc. Blk. 3 | 6.6 |
| 29 | EW | 1 | .45x.45x.19 | 79/51 | - | Shallow Cylin. | Exc. Blk. 3 | 6.4 |
| 30 | LA | 1 | .35x.35x.07 | 64/33 | X | Shallow Basin | Exc. Blk. 2 | 6.3 |
| 31 | MA | 2 | .30x.30x.07 | 64/33 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |

Table 6.1. Feature Descriptions, Site 22Ts729 (Continued).

| Feature No. | Cultural Affiliation | Stratum | Dimensions (Meters) N x S x Depth | Provenience N/W | Analyzed | Type | Location | Figure |
|---|---|---|---|---|---|---|---|---|
| 32 | MA | 2 | .32x.36x.28 | 64/30 | - | Shallow Cylin. | Exc. Blk. 2 | 6.4 |
| 33 | MA | 2 | .32x.20x.05 | 64/33 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 34 | MA | 2 | .38x.23x.11 | 64/33 | - | Basin | Exc. Blk. 2 | 6.4 |
| 35 | EW | 1 | .51x.50x.23 | 79/51 | X | Basin | Exc. Blk. 3 | 6.6 |
| 36 | EW | 1 | .50x.45x.10 | 79/51 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 37 | EW | 1 | .41x.40x.12 | 79-80/51 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 38 | EW | 1 | .50x.59x.47 | 80/51 | X | Cylin. | Exc. Blk. 3 | 6.6 |
| 39 | MA | 2 | .35x.19x.11 | 64/32 | X | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 40 | EW | 1 | .39x.55x.43 | 80/51 | - | Cylin. | Exc. Blk. 3 | 6.6 |
| 41 | MA | 2 | .33x.41x.10 | 65/33 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 42 | LA | 1 | .25x.25x.10 | 80/51 | X | Basin | Exc. Blk. 3 | 6.6 |
| 43 | LA | 1 | .33x.33x.11 | 80/51 | X | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 44 | LA | 1 | .47x.49x.20 | 80/50 | X | Basin | Exc. Blk. 3 | 6.6 |
| 45 | MA | 2 | .45x.48x.50 | 64/33 | - | Cylin. | Exc. Blk. 2 | 6.4 |
| 46 | EW | 1 | .29x.29x.10 | 80/51 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 47 | LA | 1 | .37x.39x.18 | 80/50-51 | - | Basin | Exc. Blk. 3 | 6.6 |
| 48 | EW | 1 | .28x.28x.09 | 80/57 | - | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 49 | MA | 2 | .20x.30x.10 | 64/34 | - | Shallow Cylin. | Exc. Blk. 2 | 6.4 |
| 50 | EW | 1 | .65x.55x.47 | 80-81/60 | - | Cylin. | Exc. Blk. 3 | 6.6 |
| 51 | EW | 1 | .28x.30x.06 | 81/49-50 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 52 | MA | 2 | .21x.52x.05 | 64/33 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 53 | MA | 2 | .45x.50x.30 | 64/34 | X | Shallow Cylin. | Exc. Blk. 2 | 6.4 |
| 54 | LA | 1 | .56x.54x.18 | 65/30 | X | Shallow Cylin. | Exc. Blk. 2 | 6.3 |
| 55 | EW | 1 | .33x.33x.06 | 81/51 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 56 | EW | 1 | .62x.62x.30 | 81/50-51 | X | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 57 | MA | 2 | .20x.42x.30 | 64/33 | - | Cylin. | Exc. Blk. 2 | 6.4 |
| 59 | EW | 1 | .30x.40x.15 | 81/51 | X | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 60 | LA | 1 | .48x.54x.11 | 66-67/30-31 | X | Shallow Cylin. | Exc. Blk. 2 | 6.3 |

Table 6.1. Feature Descriptions, Site 22Ts729 (Continued).

| Feature No. | Cultural Affiliation | Stratum | Dimensions (Meters) N x S x Depth | Provenience N/W | Analyzed | Type | Location | Figure |
|---|---|---|---|---|---|---|---|---|
| 61 | EW | 1 | .40x.37x.28 | 81/50 | X | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 62 | EW | 1 | .39x.35x.19 | 81/50 | X | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 63 | EW | 1 | .39x.39x.17 | 81/49 | - | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 64 | EW | 1 | .35x.29x.17 | 81/49 | X | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 65 | EW | 1 | .35x.39x.28 | 81/49 | - | Shallow Cylin. | Exc. Blk. 3 | 6.6 |
| 66 | LA | 1 | .26x.31x.17 | 66/30 | X | Shallow Cylin. | Exc. Blk. 2 | 6.3 |
| 67 | LA | 1 | .44x.35x.13 | 66/31 | X | Shallow Cylin. | Exc. Blk. 2 | 6.3 |
| 71 | LA | 1 | .38x.34x.15 | 65/31 | - | Shallow Cylin. | Exc. Blk. 2 | 6.3 |
| 72 | LA | 1 | .27x.30x.14 | 66/33 | - | Shallow Cylin. | Exc. Blk. 2 | 6.3 |
| 74 | LA | 1 | .25x.32x.05 | 65/32 | - | Shallow Basin | Exc. Blk. 2 | 6.3 |
| 76 | LA | 1 | .35x.35x.13 | 79/50 | X | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 77 | LA | 1 | .52x.45x.10 | 79/50 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 79 | LA | 1 | .21x.26x.19 | 65/31 | X | Shallow Basin | Exc. Blk. 2 | 6.3 |
| 80 | LA | 1 | .65x.61x.14 | 75-76/44 | X | Shallow Basin | S. Trans. 1 | 6.8 |
| 81 | LA | 1 | .20x.22x.28 | 66/31 | X | Cylin. | Exc. Blk. 2 | 6.3 |
| 84 | LA | 1 | .35x.31x.18 | 65/31 | X | Basin | Exc. Blk. 2 | 6.3 |
| 85 | LA | 1 | .29x.31x.11 | 66/31 | - | Shallow Basin | Exc. Blk. 2 | 6.3 |
| 86 | LA | 1 | .21x.34x.13 | 66/31 | - | Shallow Cylin. | Exc. Blk. 2 | 6.3 |
| 87 | LA | 1 | .29x.29x.10 | 66/31 | X | Shallow Basin | Exc. Blk. 2 | 6.3 |
| 88 | MA | 2 | .33x.31x.14 | 65-66/32 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 89 | MA | 2 | .28x.18x.13 | 66/31 | - | Shallow Cylin. | Exc. Blk. 2 | 6.4 |
| 90 | MA | 2 | .43x.35x.14 | 66/31 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 91 | LA | 1 | .31x.43x.19 | 65/31 | - | Basin | Exc. Blk. 2 | 6.3 |
| 92 | MA | 2 | .33x.35x.27 | 65/30 | X | Basin | Exc. Blk. 2 | 6.4 |
| 93 | EW | 1 | .35x.35x.13 | 81/50 | X | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 94 | LA | 1 | .22x.24x.11 | 65/31 | - | Basin | Exc. Blk. 2 | 6.3 |
| 95 | MA | 2 | .20x.27x.15 | 65/30 | X | Basin | Exc. Blk. 2 | 6.4 |
| 96 | EW | 1 | .27x.27x.06 | 81/49-50 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |

Table 6.1. Feature Descriptions, Site 22Ts729 (Continued).

| Feature No. | Cultural Affiliation | Stratum | Dimensions (Meters) N x S x Depth | Provenience N/W | Analyzed | Type | Location | Figure |
|---|---|---|---|---|---|---|---|---|
| 97 | EW | 1 | .40x.33x.12 | 81/50 | - | Shallow Basin | Exc. Blk. 3 | 6.6 |
| 98 | LA | 1 | .28x.29x.07 | 65/31 | - | Shallow Basin | Exc. Blk. 2 | 6.3 |
| 99 | LA | 1 | .18x.17x.12 | 65/31 | - | Basin | Exc. Blk. 2 | - |
| 101 | MA | 2 | .22x.53x.20 | 66-65/30 | X | Shallow Cylin. | Exc. Blk. 2 | 6.4 |
| 102 | EW | 1 | .25x.25x.15 | 81/50 | - | Basin | Exc. Blk. 2 | 6.6 |
| 103 | MA | 2 | .20x.39x.15 | 66/30 | - | Basin | Exc. Blk. 2 | 6.4 |
| 104 | MA | 2 | .15x.27x.11 | 66/30 | - | Basin | Exc. Blk. 2 | 6.4 |
| 105 | MA | 2 | .23x.24x.07 | 65/31 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 106 | MA | 2 | .25x.26x.15 | 65/31 | - | Basin | Exc. Blk. 2 | 6.4 |
| 107 | MA | 2 | .35x.35x.07 | 66/30 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 108 | MA | 2 | .26x.24x.06 | 66/30 | X | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 109 | MA | 2 | .21x.25x.08 | 66/30 | - | Shallow Basin | Exc. Blk. 2 | 6.4 |
| 110 | MA | 2 | .29x.33x.13 | 66/30 | X | Basin | Exc. Blk. 2 | 6.4 |
| 111 | MA | 2 | .17x.23x.11 | 66/30 | - | Basin | Exc. Blk. 2 | 6.4 |
| 112 | MA | 2 | .22x.18x.10 | 66/30 | - | Basin | Exc. Blk. 2 | 6.4 |
| 113 | MA | 2 | .29x.20x.11 | 66/30 | - | Basin | Exc. Blk. 2 | 6.4 |
| 114 | EA | 3 | .40x.14x.29 | 64/33 | X | Cylin. | Exc. Blk. 2 | 6.5 |
| 115 | LA | 1 | 3.29x2.70x0.86 | 74-77/43-44 | X | LBSF (#1) | S. Transect B | - |
| 116 | LA | 1 | 4.10x3.20x0.55 | 73-78/33-37 | X | LBSF (#2) | S. Transect A | - |
| 117 | LA | 1 | - | - | - | LBSF (#3) | S. Transect C | - |
| 118 | LA | 1 | 1.75x1.75x0.30 | 45-47/55-56 | - | LBSF (#4) | S. Transect C | - |

Table 6.1. Feature Descriptions, Site 22Ts729 (Continued).

| Feature No. | Cultural Affili-ation | Stratum | Dimensions (Meters) N x S x Depth | Provenience N/W | Analyzed | Type | Location | Figure |
|---|---|---|---|---|---|---|---|---|
| 119 | LA | 1 | 2.30x2.30x0.61 | 47-48/55-56 | X | LBSF (#5) | - | - |
| 120 | LA | 1 | 2.45x2.45x0.35 | - | X | LBSF (#6) | - | - |
| 121 | LA | 1 | 2.40x2.40x0.50 | 49-51/51-56 | X | LBSF (#7) | - | - |
| 122 | ? | 1 | 2.40x0.75 | 52-54/55-56 | X | LBSF (#8) | S. Trans. C | 7.6 |
| 123 | ? | 1 | - | - | - | LBSF (#9) | S. Trans. C | - |
| 124 | EA | 3 | .17x.16x.50 | 65/43 | X | Cylin. | Exc. Blk. 2 | 6.5 |
| 125 | EA | 3 | .26x.32x.20 | 66/32-33 | - | Shallow Cylin. | Exc. Blk. 2 | 6.5 |
| 128 | EA | 3 | .20x.18x.25 | 66/31 | X | Cylin. | Exc. Blk. 2 | 6.5 |
| 130 | EA | 3 | .33x.44x.27 | 65/30 | X | Shallow Cylin. | Exc. Blk. 2 | 6.5 |
| 131 | LA | 1 | 2.60x2.80x0.60 | Exc. Blk. 3 | X | LBSF (#12) | Exc. Blk. 3 | - |
| 137 | LA | 1 | .20x.40x.15 | 47/60 | - | Basin | S. Trans. B | - |
| 142 | LA | 1 | .62x.62x.10 | 79/37 | - | Shallow Basin | S. Trans. A | 7.6 |
| 143 | LA | 1 | .75x.75x.11 | 74/37 | - | Shallow Basin | S. Trans. A | 7.6 |
| 144 | LA | 1 | .64x.67x.13 | 75/37 | - | Shallow Basin | S. Trans. A | 7.6 |
| 145 | LA | 1 | .66x.66x.20 | 73/37 | - | Shallow Basin | S. Trans. A | 7.6 |
| 146 | EW | 1 | 1.0x1.0x.68 | 83/64 | X | Basin | 62 W. Profile | - |
| 147 | EW | 1 | .75x1.14x.50 | 68/62 | X | Basin | 62 W. Profile | 6.8 |
| 148 | EW | 1 | .75x.90x.75 | 48/32 | X | Cylin. | 34 W. Profile | - |

*Abbreviations:
EA = Early Archaic, MA = Middle Archaic, LA = Late Archaic, EW = Early Woodland, LBSF = Large Basin Shaped Feature, Cylin. = Cylindar, Exc. Blk. = Excavation Block, S. Trans. = Stripped Transect.

Table 6.2. Cultural Material from Analyzed Features, Site 22Ts729.

| Feature No. | PP/K | PP/K Fragment | Drill | Preform | Biface | Uniface | Flake: Unutilized | Flake: Utilized | Cores | Ground Stone | Ceramic | Stratum | Cultural Affiliation* | Excavation Location Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | - | 6 | 1 | - | - | - | - | - | 2 | - | - | 2 | MA | |
| 6 | - | - | - | 1 | - | - | - | - | - | - | - | 2 | MA | I |
| 13 | - | - | - | - | - | - | - | - | 1 | - | - | - | ? | I |
| 16 | - | - | - | - | - | - | - | - | 1 | - | - | - | ? | I |
| 19 | - | 1 | - | - | - | - | - | - | - | - | - | - | . | I |
| 28 | - | 1 | - | - | 1 | - | - | - | - | - | 3 | 1 | EW | III |
| 30 | - | 1 | - | - | - | - | - | - | - | - | - | - | LA | II |
| 35 | - | - | - | 1 | - | - | - | - | 1 | - | 1 | 1 | EW | III |
| 38 | - | - | - | - | - | - | - | - | - | - | 4 | 1 | EW | III |
| 39 | - | - | - | - | - | - | - | - | - | 1 | - | 2 | MA | II |
| 40 | - | - | - | - | - | - | - | 1 | 1 | - | 8 | 2 | - | III |
| 42 | - | 1 | - | - | - | - | - | - | - | - | - | - | LA | III |
| 43 | - | 1 | - | - | 1 | - | - | 1 | - | - | - | 1 | LA | III |
| 44 | - | 1 | - | - | - | - | - | - | 1 | - | - | 1 | LA | III |
| 50 | - | - | - | - | 1 | - | - | - | - | - | - | 1 | EW | III |
| 53 | - | - | - | - | - | 1 | - | 2 | - | - | - | 2 | MA | II |
| 54 | - | - | - | - | - | 1 | - | 1 | 1 | - | - | 1 | LA | II |
| 56 | - | 1 | 1 | - | - | - | - | 1 | 1 | - | 1 | 1 | EW | III |
| 59 | - | - | - | - | - | - | - | - | - | - | 1 | 1 | EW | III |
| 60 | - | - | - | - | 1 | - | - | - | - | - | - | 1 | LA | II |
| 61 | - | - | - | - | 1 | - | - | 1 | - | - | - | 1 | EW | III |
| 62 | - | - | - | - | - | - | - | - | - | - | 1 | 1 | EW | III |
| 64 | - | - | - | 1 | 1 | - | - | - | - | - | - | 1 | EW | III |
| 66 | - | - | - | 1 | - | - | - | - | - | - | - | 1 | LA | II |
| 67 | - | 1 | - | 1 | - | - | - | - | - | - | - | 1 | LA | II |
| 76 | - | 1 | - | - | - | - | - | - | - | - | - | 1 | LA | III |
| 79 | - | - | 1 | - | - | 1 | - | - | - | 1 | - | 1 | LA | II |
| 80 | - | - | - | - | 1 | - | - | 1 | - | - | - | 1 | LA | S.T.A.** |
| 81 | - | - | - | - | - | - | - | - | - | 1 | - | 1 | LA | II |
| 84 | - | - | - | - | - | - | - | 1 | - | - | - | 1 | LA | II |
| 87 | - | - | - | 1 | - | - | - | - | - | - | - | 1 | LA | II |
| 92 | - | - | - | - | 1 | - | - | - | 1 | - | - | 2 | MA | II |
| 93 | - | - | - | - | - | - | - | - | - | - | 1 | 1 | EW | III |
| 95 | - | 1 | - | - | - | - | - | - | - | - | - | 2 | MA | II |
| 101 | - | - | - | - | 1 | - | - | - | - | - | - | 2 | MA | II |
| 108 | - | - | - | 1 | - | 1 | - | - | - | - | - | 2 | MA | II |
| 110 | - | - | - | 1 | - | - | - | - | - | - | - | 2 | MA | II |
| 116 | - | - | - | - | 1 | - | - | - | 3 | - | - | 3 | EA | II |
| 124 | - | - | - | - | - | - | - | 1 | - | - | - | 3 | EA | II |
| 128 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | EA | - |
| 130 | - | - | - | - | - | - | - | - | - | 2 | - | 3 | EA | Figure 6.7 |
| 131 | 1 | 1 | - | 2 | - | - | - | - | 2 | - | - | 3 | EA | III |
| 146 | - | 3 | 1 | 1 | - | - | - | 2 | 2 | - | 29 | 1 | EW | 67 W. Profile |
| 147 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | EW | - |
| 148 | - | 2 | - | 1 | 2 | - | - | - | 2 | - | 1 | 1 | EW | 34 W. Profile |
| TOTALS | 3 | 22 | 4 | 12 | 12 | 4 | 0 | 12 | 19 | 5 | 50 | - | - | - |

* EW = Early Woodland
EA = Early Archaic
LA = Late Archaic
MW-LW = Middle-Late Woodland
S.T. = Stripped Transect

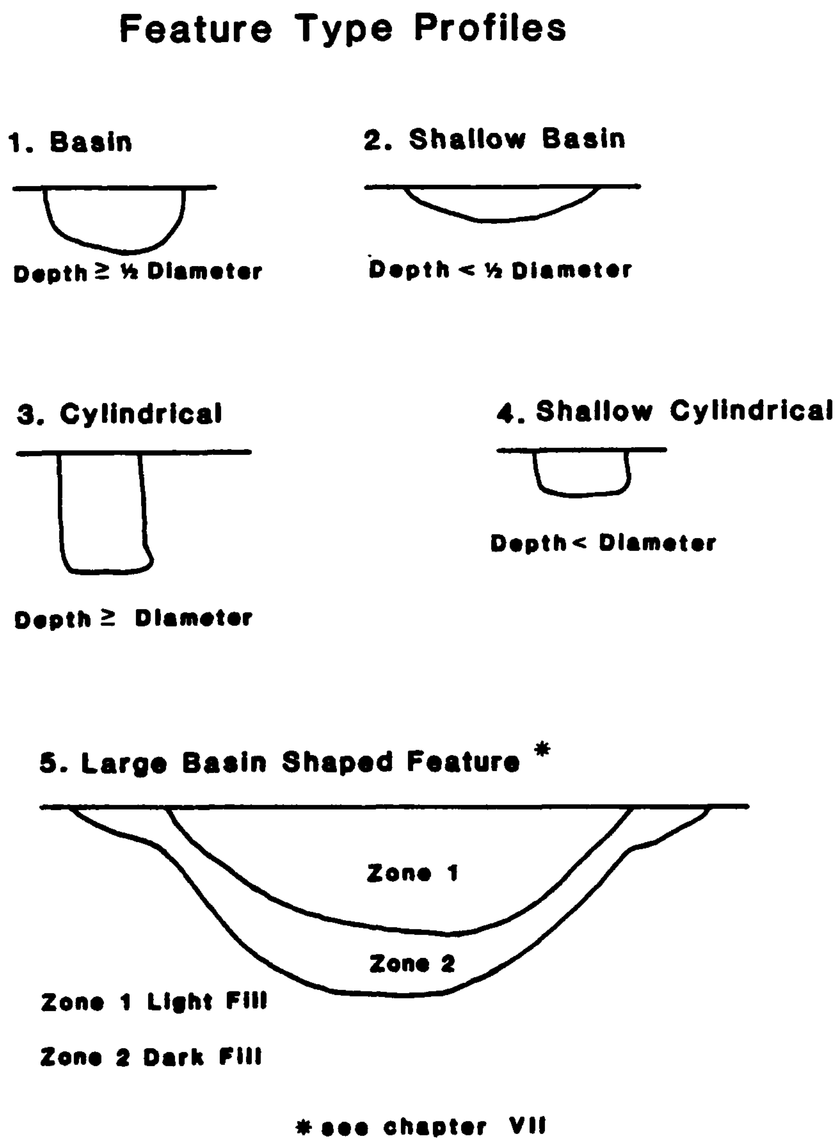

Feature Type Profiles
1. Basin
Depth ≥ ½ Diameter
2. Shallow Basin
Depth < ½ Diameter
3. Cylindrical
Depth ≥ Diameter
4. Shallow Cylindrical
Depth < Diameter
5. Large Basin Shaped Feature *
Zone 1
Zone 2
Zone 1 Light Fill
Zone 2 Dark Fill
* see chapter VII

Figure 6.1.

have been functionally associated with storage facilities throughout the archaeological record in the southeast.

4. Shallow Cylindrical - Features with straight side walls and a flattened bottom (Figure 6.1). The diameter of these features is greater than the depth.
5. Large Basin Shaped Features - Large circular to oval features consisting in plan view of a light colored soil circumscribed by a darker soil than the surrounding matrix. In cross section these features show two discrete stratigraphic zones (Figures 6.1, 7.2). These features are discussed in detail separately in Chapter VII.

Functional Types

6. Surface Hearths - Shallow surface concentrations of fired earth, charcoal, ash, and fire cracked rock. These features are all that remain from surface fires and have no consistent or uniform surface shape or profile.
7. Hearths - Features in which the interiors and fill show evidence of intense firing. The fill consists primarily of ash and charcoal.
8. Post Holes - Small cylindrical features of various depths representing excavated holes for the placement of support posts. The diameter is much smaller than Type 3.
9. Burials - Human remains interred in pits.

Table 6.3. Feature Type by Cultural Affiliation.

| Feature Type | Middle Woodland | Late Archaic | Middle Archaic | Early Archaic | Unknown | Total |
|---|---|---|---|---|---|---|
| Basin | 6 | 7 | 10 | - | 1 | 24 |
| Shallow Basin | 9 | 17 | 16 | - | 9 | 51 |
| Cylindrical | 5 | 1 | 3 | 2 | - | 11 |
| Shallow Cylin. | 7 | 7 | 6 | 2 | 2 | 24 |
| LBSF* | - | 10 | - | - | - | 10 |
| Surface Hearth | 2 | - | - | - | - | 2 |
| Hearth | - | - | 1 | - | - | 1 |
| Burial | - | 1 | - | - | - | 1 |
| TOTALS | 29 | 43 | 36 | 4 | 12 | 124 |

* Large Basin Shaped Feature (see Ch. VII)

## Distribution of Features

Most of the features at the Brinkley Midden were encountered during the excavation of Blocks 1, 2, and 3. Excavations within these blocks were performed in natural levels, which permitted constant maintenance of stratigraphic control during excavations of the features and feature complexes. When multiple feature complexes were encountered, the sequence of feature intrusions was defined, after which the features were excavated in reverse chronological order of cultural depositon. That is, intrusive features were excavated prior to the features into which they intruded.

## Excavation Block 1

Figure 6.2 shows the horizontal distribution of the features in Excavation Block 1. Prior to the initiation of excavations, the upper levels of this excavation unit were found to be extensively disturbed. These disturbed deposits intruded through cultural Strata 1 and 2. They were removed to expose the underlying intact deposits.

Features 7, 8, 19 and 20 were found intruding into the existing excavation profiles, and were stratigraphically associated with the Middle Archaic deposits. Two Early Archaic projectile points were found in features at this level. The association of these features with an Early Archaic component, however, is unlikely. The shallow depth of these features indicated these features represent the extreme bottoms of features deposited in the overlying deposits.

## Excavation Block 2

Figures 6.3, 6.4, and 6.5 illustrate the features excavated from excavation Block 2 and their cultural affiliations. A total of 52 features was excavated from excavation Block 2. Nineteen archaeological pits and 11 post holes were excavated from Stratum 1 (Figure 6.3). At this particular area of the site a very thin intact late Archaic deposit was approximately 3-5 cm thick at the base of the plowzone. This is the only undisturbed late Archaic deposit found on the site except for subsurface features. All of the features excavated from Stratum 1 were associated with these Late Archaic deposits. No ceramics where found in the pitfill of any of the features from Stratum 1. Most of the features excavated from this level fit into the shallow cylindrical feature type (Table 6.1).

A linear configuration of post holes (Figure 6.3) was discovered in this level. This suggests some form of surface structure, although no further evidence confirming this interpretation was discovered.

Figure 6.4 shows the features of Excavation Block 2 associated with the Middle Archaic stratum. A total of 31 features was excavated from this level. These were further broken down into the following feature types: fifteen Basins, five Shallow Cylindrical, six Shallow Basins and two Cylindrical. All of these features were relatively shallow except Features 45 and 57.

Four Early Archaic features (Feature 124, 125, 128, and 130) were defined in Excavation Block 2, stratigraphically associated with Stratum 3 (Figure 6.5). Feature 128 contained the only culturally diagnostic materials, a single Kirk Corner Notched point recovered from the pit fill.

# Excavation Block 1
# Features

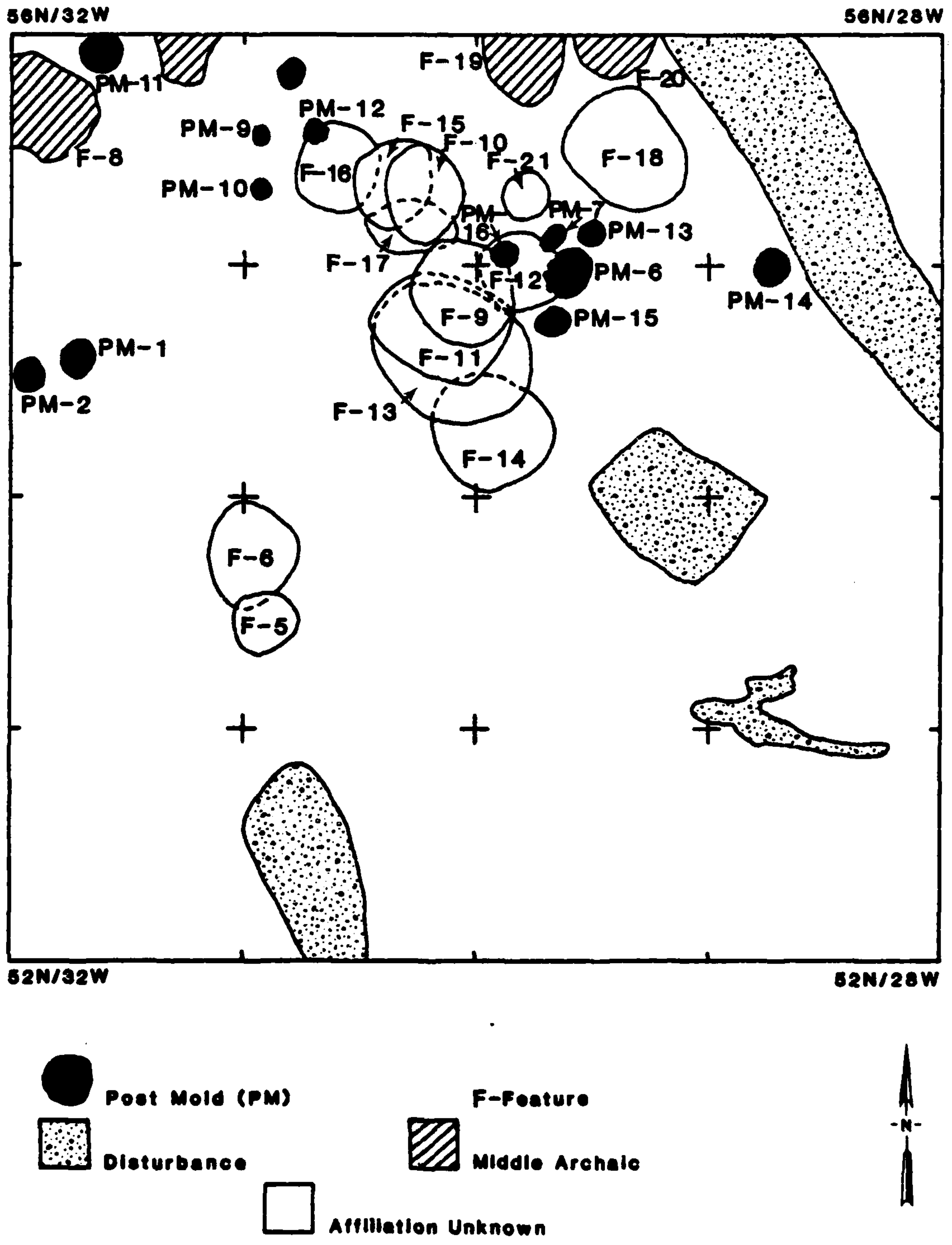



Figure 6.2.

**Excavation Block 2**
**Stratum 1**
**Late Archaic Features**

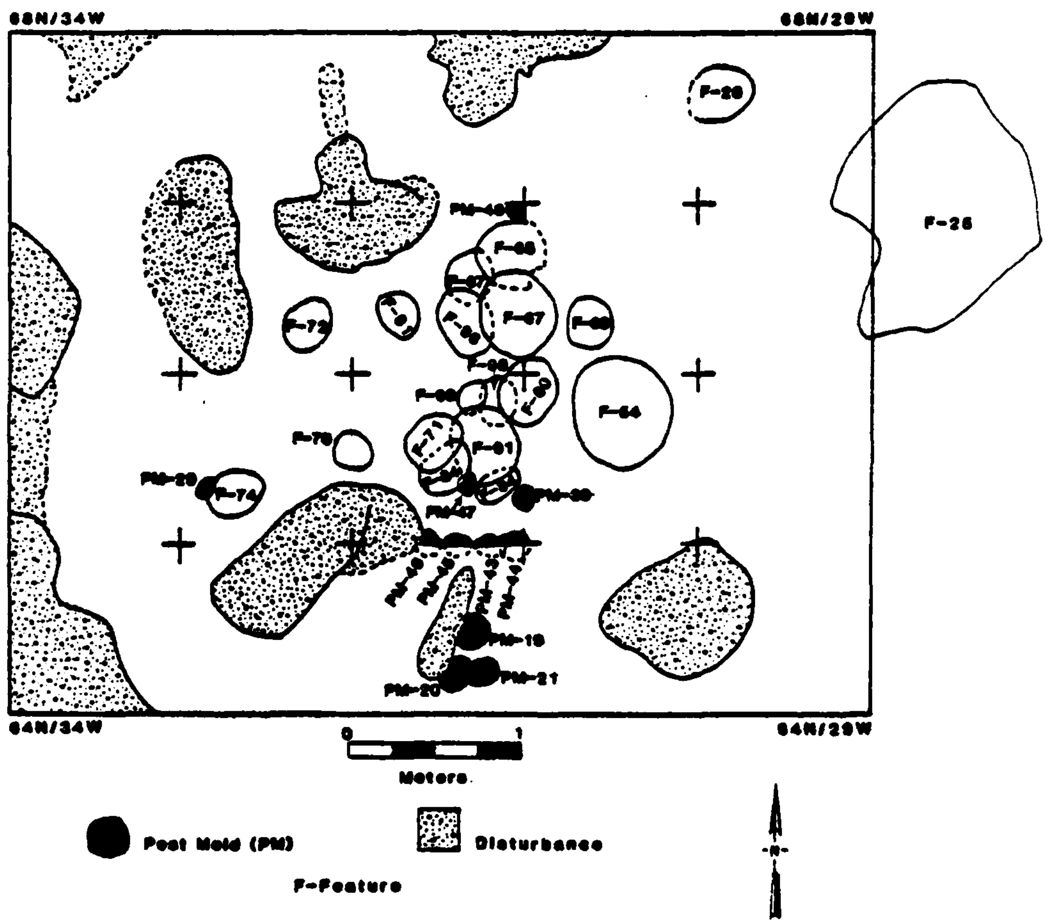
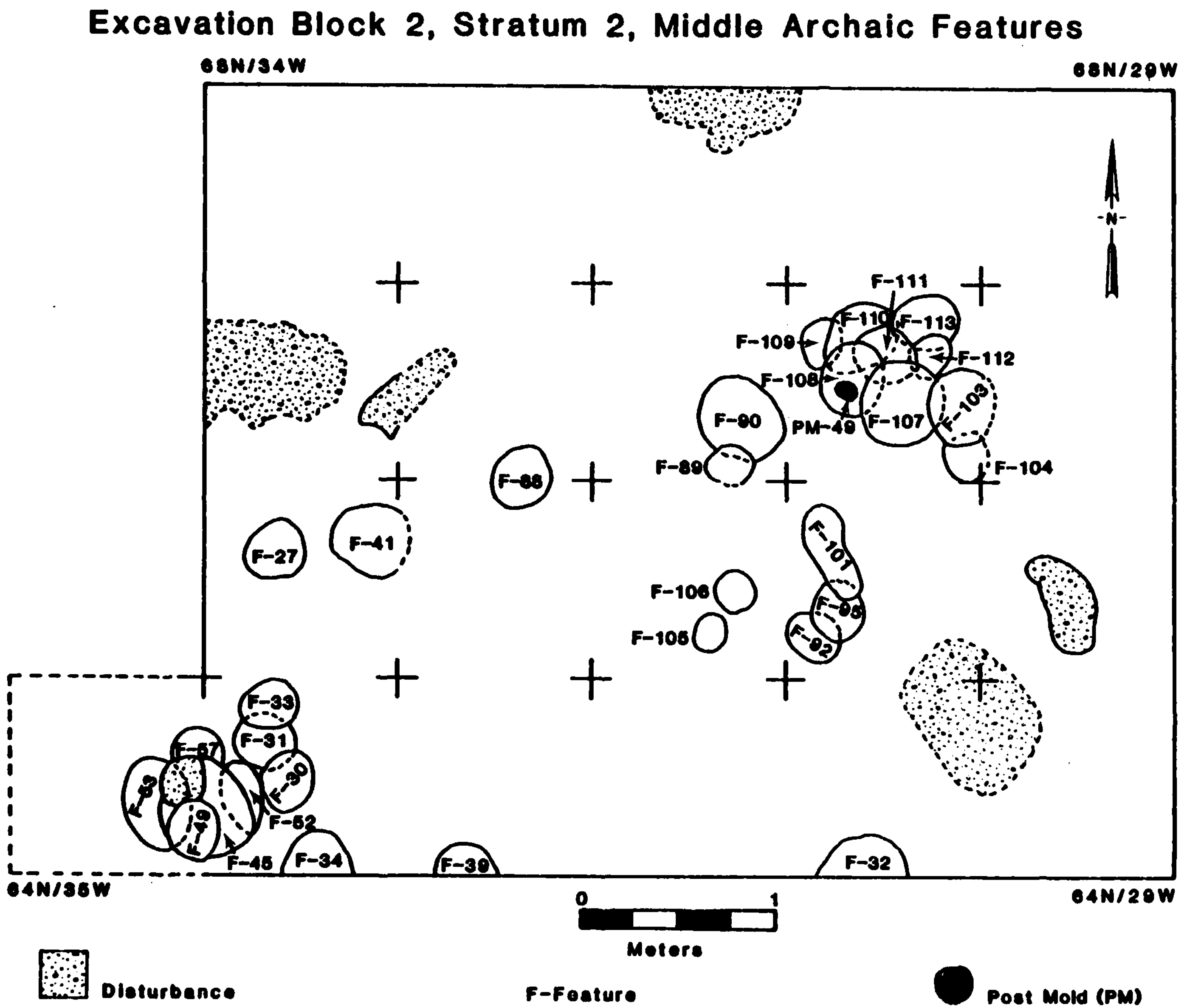



Figure 6.3.


Excavation Block 2, Stratum 2, Middle Archaic Features
68N/34W
68N/29W
64N/35W
64N/29W
N
F-111
F-110
F-113
F-109
F-112
F-108
F-90
PM-49
F-107
F-103
F-89
F-104
F-88
F-27
F-41
F-101
F-106
F-98
F-105
F-92
F-33
F-31
F-57
F-53
F-30
F-61
F-52
F-45
F-34
F-39
F-32
0
1
Meters
Disturbance
F-Feature
Post Mold (PM)
Figure 6.4.

Excavation Block 2, Stratum 3, Early Archaic Features

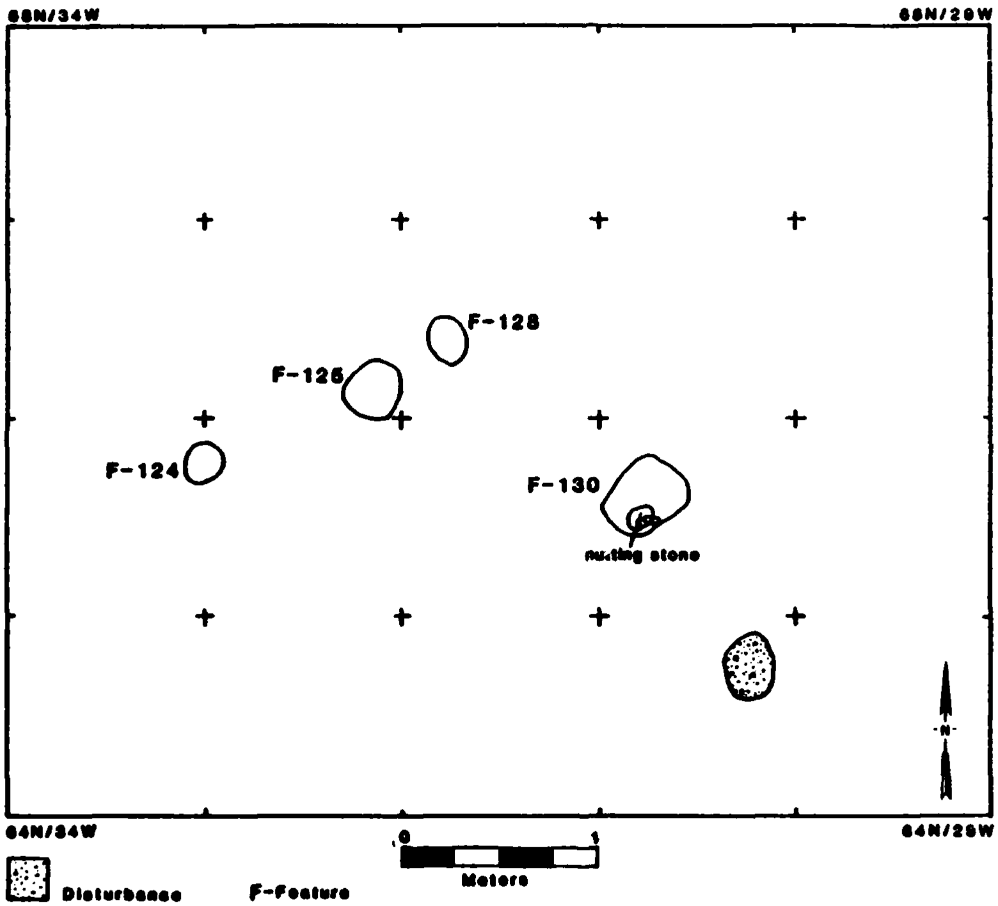



Figure 6.5.

Features 130 and 129 were relatively deep cylindrical features. Burned hickory shell and wood charcoal were found throughout the fill of these features, although no evidence of internal firing was noted during excavation. The calculated densities of hickory nut shell and wood charcoal found within these features are consistent with those calculated for Stratum 3 in general (Table 12.6). In Feature 130 a large river cobble and sandstone metate were discovered (Figure 6.6). Whether these implements were placed in Feature 130 for storage or were simply discarded as refuse is unknown. However, the occurrence of these artifacts with hickory nut shells in the pit fill suggests that hunting activities were supplemented by hickory nut procurement.

### Excavation Block 3

Figure 6.7 illustrates the multiple feature complex found in Excavation Block 3. This area proved to be the most intensely utilized area excavated. A total of 30 archaeological features was encountered in Excavation Block 3. This area of the site was also stratigraphically different from Blocks 1 and 2 in that Strata 2 and 3, associated with Middle Archaic and Early Archaic respectively, were not present in this area of the site. Most of the features (24) excavated from Excavation Block 3 were of Middle Woodland context (Figure 6.7). The association of this feature complex with Large Basin Shaped Feature 12 (see Chapter VII) is perhaps not accidental, even though the pits are much later in time, because the matrix of LBSF 12 was possibly conducive to the digging of pits due to its friable texture.

All of the features present in Excavation Block 3 appear to have been truncated by the plow zone. These features were sorted out chronologically by referring to the cultural materials recovered from them and to the sequence of pit intrusions.

### Features Encountered in Graded Transects and Backhoe Trenches

In addition to the features encountered in the block excavations, a large number of features (in excess of 100) were observed in the freshly stripped grader transects and backhoe trenches. Unfortunately, only nine of these features were excavated, due to time constraints. Features 146, 147 (Figure 6.8), and 148 were excavated from the backhoe trench profiles (Tables 6.1 and 6.2). These features appear to have originated at the base of the plowzone and were culturally associated with the Early Woodland occupation. Fiber and sand tempered ceramics were prominent in the pit fill of Features 146 and 148, indicating an Early Woodland affiliation (Table 6.2). Feature 147 contained two carbonized corn fragments and 1 Baker's Creek projectile point, indicating a Middle Woodland cultural affiliation (Figure 6.8).

Feature 2 was the only subsurface hearth identified on the Brinkley site. The fill of this feature was stratified, with a dark brown soil containing burned nut shells and charcoal overlying an almost pure ash layer at the base of the feature. Six fire fractured projectile point fragments and one drill were recovered from the fill (Table 6.2). This

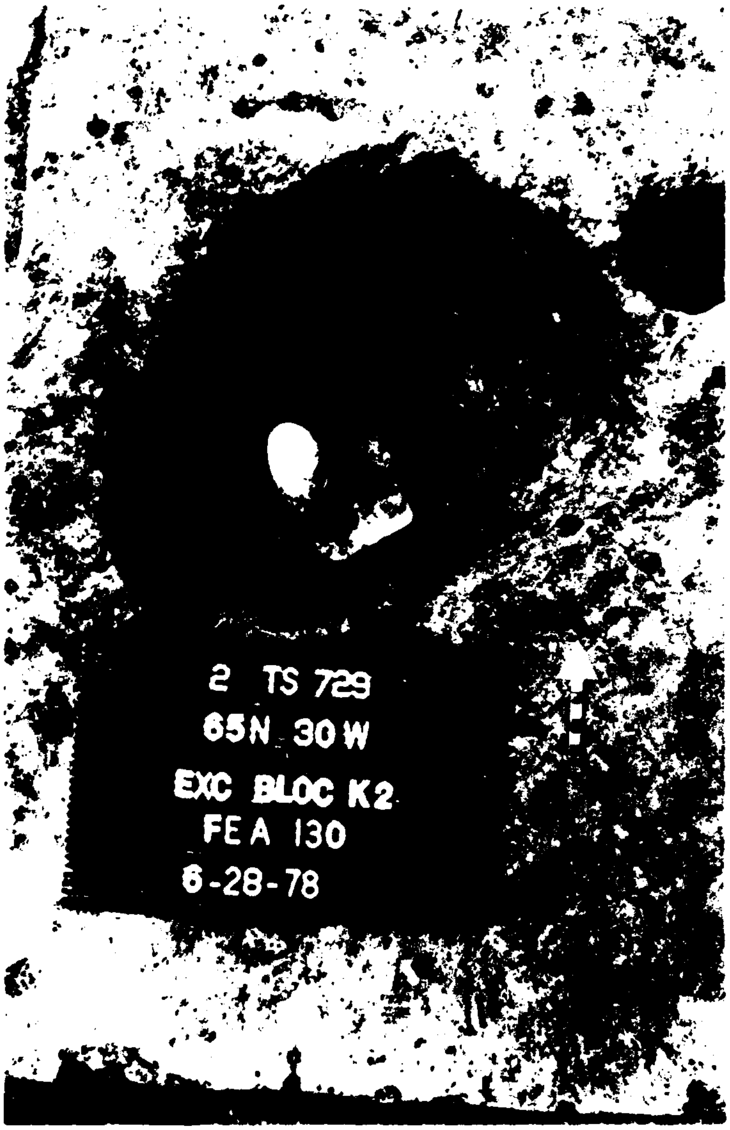


Figure 6.6. Feature 130.

## Feature Complex
## Excavation Block 3

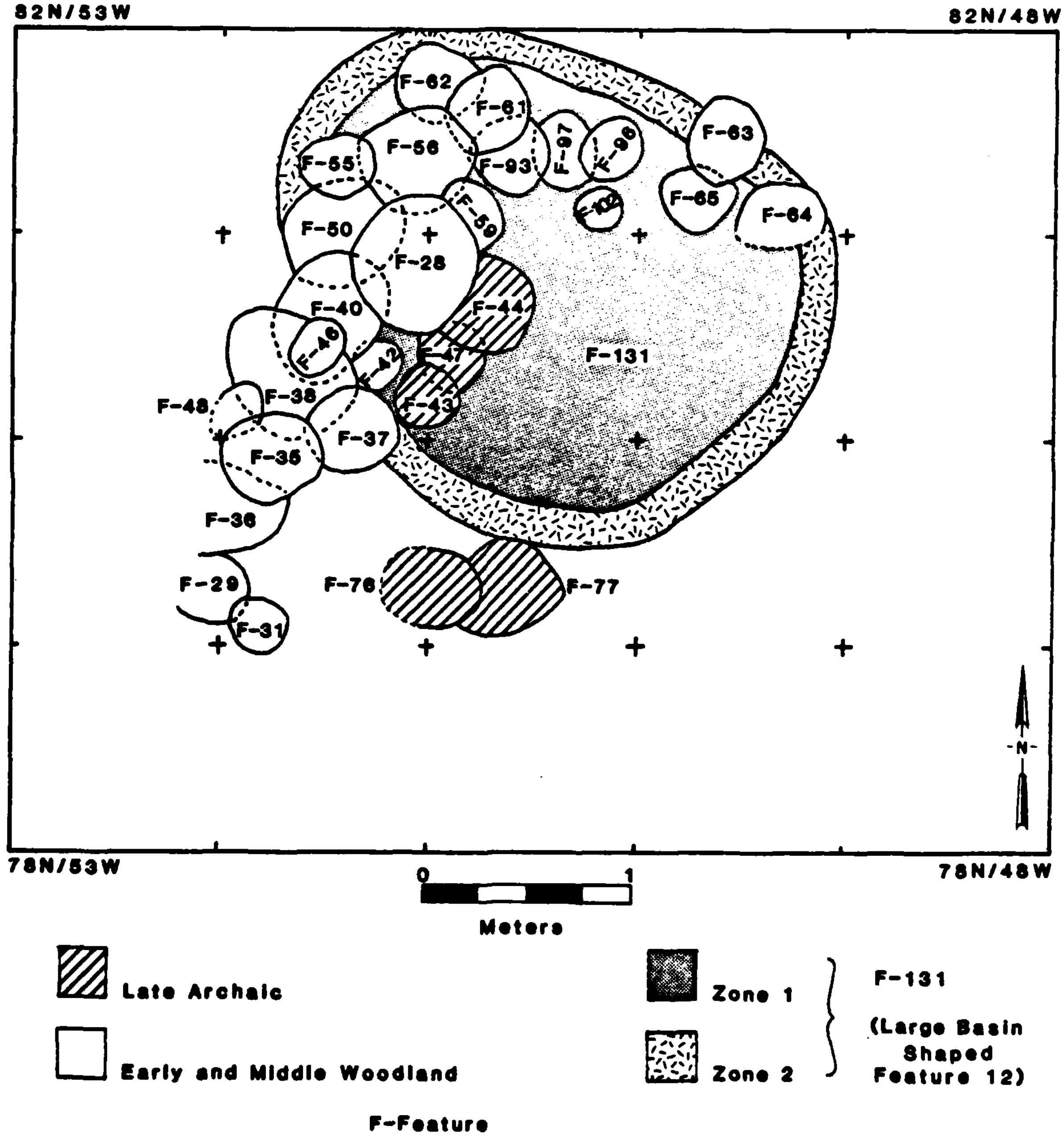



Figure 6.7.

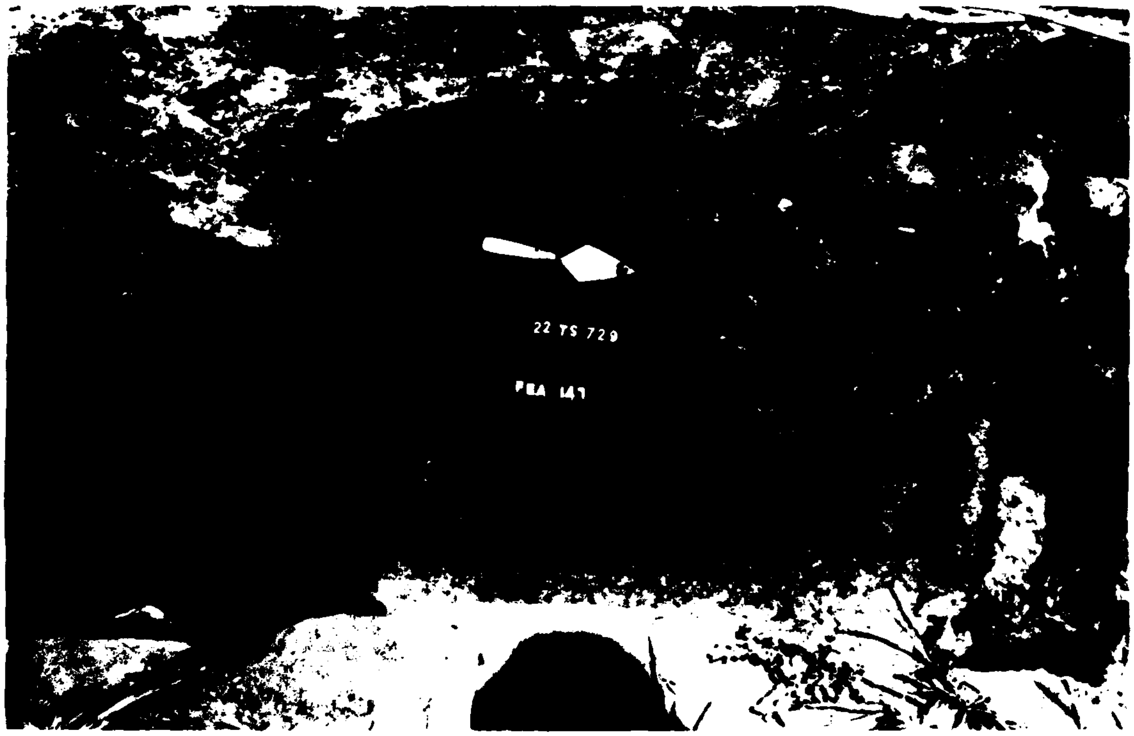


Figure 6.8. Feature 147, 62 West Trench.

hearth was stratigraphically associated with Middle Archaic deposits (Stratum 2).

Two surface hearths were identified at the Brinkley Midden. These hearths were identified while shovel skimming. These were designated Features 1 and 25 (Figure 6.3). These features appeared as diffused burned areas with charcoal and burned clay flecks. These features had no characteristic horizontal configuration, and were lens shaped in cross section. Feature 1 contained four ground stone beads and one atlatl weight fragment. Feature 2 was recorded and mapped but was not excavated.

Nine features were excavated in the grader stripped transects (Tables 6.1 and 6.2). The horizontal distribution of these features is shown in Figures 7.1, 7.5, and 7.6 in Chapter VII, due to their proximity and possible functional associations with the Large Basin Shaped Features. Features 140 and 141 were intruded by LBSF 7 (Fig. 7.6). No diagnostic artifacts were recovered from these features, although the intrusion of an LBSF in which Late Archaic materials were recovered tentatively indicates a Middle to Late Archaic affiliation for Features 140 and 141.

Feature 80 was a large shallow basin shaped pit (Type 2) located adjacent to an LBSF in Stripped Transect B. No diagnostic cultural materials were recovered from the pit. This feature is tentatively assigned to the Late Archaic because of the absence of ceramics. Burned clay and charcoal flecks were noted in the fill, but no other evidence suggesting that the feature was utilized as a hearth was noted.

Figure 7.5 shows the features located in proximity to LBSF 2. Unfortunately no diagnostic materials were discovered as additional evidence suggesting a functional association with LBSF 2.

## Cultural Affiliation of Features

Table 6.3 shows the distribution of the feature sample, classed by type, according to cultural affiliation by period. This distribution shows some interesting trends in the popularity of various feature types, in some ways indicative of changing storage and cooking technologies.

Basins and Shallow Basins first appear in the Middle Archaic, and continue through the Woodland occupation. There are consistently more shallow basins than deep basins at any given period. It may be signifcant that they are absent in the Early Archaic.

Cylindrical and Shallow Cylindrical pits first appear in the Early Archaic, and are found in all later contexts as well. These types of features are presumably best interpreted as storage facilities.

Large Basin Shaped Features (LBSFs), a feature class that will be discussed in detail in Chapter VII, are confined exclusively to the Late Archaic period, with no earlier or later examples.

The sample sizes of the remaining feature types, except for post holes, are too low to permit conclusions regarding their popularity through time. A total of 67 post holes was recorded, including the Late Archaic row of post holes in Excavation Block 2, already discussed, and a number of possible post holes at the margins of the Large Basin Shaped Features. The latter will be discussed in Chapter VII. The remaining post holes were randomly scattered throughout the excavation units and in all cultural levels. Because these cannot be related to any clearly interpretable surface features, their distribution will not be further discussed.

## Burial 1

Burial 1 was located in Stripped Transect A (72N/43W) during stripping operations. The only visible evidence of the burial was the badly decomposed (meal-like in texture) remains of the left side of a mandible. The burial pit was somewhat circular and measured 0.60 m by 0.75 m horizontally and 0.6 m deep. The size and shape of the burial pit indicate that the individual was placed in a sitting position when interred. Sitting burials have generally been associated with the Late Archaic and Woodland occupations of the shell middens in the Pickwick Basin (Webb and DeJarnette 1942).

Unfortunately, no diagnostic materials were recovered from the burial pit fill. The analysis indicates that the general site midden was used as fill. The fill contained 45 pieces of debitage, of which 64.4% (29 flakes) were tertiary flakes. Three decortication flakes and thirteen thinning flakes were also present. Most of these flakes, 91.1% (41), were Tuscaloosa gravels, while three flakes of fossiliferous chert and one flake of tan Fort Payne chert were also present.

# VII. LARGE BASIN SHAPED FEATURES

## Introduction

This chapter concerns the description, analysis, and interpretation of ten large pit-like features encountered at the Brinkley Midden. The origin and use of these features is not widely agreed upon, and their interpretation has generated a large amount of discussion and debate since the excavations. Therefore, a separate chapter is warranted regarding them, in which the problem will be set forth in detail. Moreover, as will become clear, very similar features have been excavated at a number of other sites in the Southeast and elsewhere, hence a detailed discussion here should enlighten the general issues surrounding very large basin shaped features as a generic class. The presentation will center around two alternative fundamental propositions: first, that the large basin shaped features at the Brinkley Midden (henceforth in this report abbreviated as LBSFs) are the remains of semisubterranean structures; and second, that they are the result of natural occurrences such as tree "tip-ups" or large root disturbances.

To begin, some prefatory remarks are in order concerning the development of the author's ideas concerning these features. While in the field, two of the present authors (Lafferty and Otinger) became convinced from the formal and depositional aspects of these features that they were relatively rare (at least, unknown previously to us), that they warranted special investigation, and that they should be interpreted as semisubterranean structures of Archaic provenience. Becoming satisfied in this, the investigators designated the features consecutively as Structures 1 through 12, (numbers 10 and 11 were subsequently discarded), and field records, drawings, and photographs were accordingly made using these designations. The initial conviction that these were structures was heavily conditioned by the circumstances of their first discovery. The one first labeled "Structure 2" was initially observed in plan as a dark arch looking very much like a circular wall trench. Within an hour of finding this, we had identified "Structure 1" in profile in the 42W backhoe trench, which again was of a size and shape suggesting (to us) a semisubterranean structure. Consequently, some of the field photographs reproduced in this report bear these labels. For the purposes of this report, however, this class of features has been referred to as Large Basin Shaped Features (LBSFs) 1 through 9 and 12, which designation will appear in the text and on the analysis tables. In this way we will be permitted to describe and discuss the morphology and depositional characteristics of the LBSFs in an objective manner, essentially separate from the interpretive conclusions to be offered.

As the fieldwork progressed, it became apparent that sharp differences of opinion existed concerning the nature of the LBSFs at the Brinkley site, among various investigators and observers both within and without the Office of Archaeological Research of the University of Alabama. It was speculated that at least some of the large features might have resulted from the extensive pothunting carried out earlier at the site, and Dr. Robert Thorne of the University of Mississippi submitted photographs of the site showing large crater-like holes with remnants of the screens used by the looters in their search for artifacts. Other interested observers commented that they had in recent years excavated large features at other sites which they had interpreted as natural tree tip-ups. In their opinion such features were not so dissimilar to the Brinkley LBSFs as to rule out the possibility that some or all at the latter were also merely tree tip-ups. A further possibility arose that the Brinkley LBSFs might represent such natural features which were subsequently modified and employed as semisubterranean structures by the aboriginal inhabitants at the site.

Certain characteristics of the LBSFs, to be described below, nevertheless continued to satisfy the field investigators that the interpretation of the features as intentionally prepared structures was valid. During the field term, an informal meeting was held among the field investigators, Carey Oakley, J.B. Graham, Bennett Graham, and Richard Krause in order to discuss the problem and to clarify the various interpretive options. Before the fieldwork was terminated, an extensive effort was made to gather as much data concerning the LBSF problem as time permitted.

On the basis of a preliminary analysis, the investigators prepared and delivered a paper entitled "The Depositional Implications of Archaic Structures at the Brinkley Midden, Tishomingo County, Mississippi" at the 35th annual meeting of the Southeastern Archaeological Conference, held in Knoxville, Tennessee in November of 1978. This paper contrasted the Brinkley LBSFs to natural tree tip-ups, arguing that the features could only represent intentional semisubterranean houses. Some of the details of LBSF morphology were presented, along with a critical path flow diagram modeling the procedures of house construction and their archaeological implications. The paper received much commentary from southeastern archaeologists, much of which was favorable, and the attention of the investigators was called to similar excavated features encountered elsewhere, notably in the ongoing work in the Wallace Reservoir on the Oconee River in northern Georgia. This paper was later published in the Proceedings of the Conference (Otinger and Lafferty 1980).

Still the informal discussion and debate did not subside, and one of the investigators (Lafferty) was encouraged to organize a colloquium on the LBSF problem at The University of Alabama. The colloquium, entitled "Giant Features at the Brinkley Site", was held at the Law School of the University in the spring of 1979, before a capacity audience. The case for interpreting the LBSFs as Archaic structures was presented and opened to discussion. Here this interpretation drew much criticism and skepticism, the most vocal of the critics being Dr. Richard Krause, who nevertheless agreed that we had shown to his satisfaction that the LBSFs were not tree tip-ups and were not potholes. Other interpretational options were discussed, such as menstrual huts or foot drums. The investigators continued to support their interpretation, and the colloquium resulted in several ideas toward refining the argument.

This report will later summarize the current position of the authors toward the LBSF problem. We continue to feel strongly that the remains are best interpreted as semisubterranean structures, although we recognize that a definitive case cannot at this time be made. It is certain that further investigations into this class of features, which are clearly not unique, will result in improved interpretations and hopefully a final resolution of this issue. It is in this spirit that the observations presented below are offered.

The discussion is organized as follows. First, those of the LBSFs which were excavated (only five of the eleven were extensively excavated due to time restrictions) will be described in turn, preceded by a short summary of their characteristics as a class. This discussion will include artifactual data bearing on the dating of the LBSFs and possibly on their use. This will be followed by discussions of the documented characteristics of natural features such as tree tip-ups, and of the distribution and nature of ethnohistorically and archaeologically described semisubterranean structures in the Southeast and elsewhere. Then we shall present a summary of the inferences which can be based on these data, and the conclusions which we have drawn.

## Description of Large Basin Shaped Features (LBSFs)

### General Description

Ten large basin shaped features were defined. Eight were eventually tested. All LBSFs were apparent on the stripped surface by the presence of a concentration of sandy yellow soil (Zone 1), circumscribed by a dark brown ring which continued along the base beneath the sand (Zone 2). Zone 2 was darker in color and texturally less compact than both the surrounding ledge described below and the site matrix. The diameter of these LBSFs varied considerably from a maximum of 4.1 m to a minimum of 1.75 m, with a mean diameter of 2.49 m. They were basin shaped with gently sloping side walls, and slightly rounded bottoms. The maximum and minimum depths of the LBSFs were 0.86 m and 0.22 m, respectively, with a mean depth of 0.46 m.

Some LBSFs were circumscribed by a shallow ledge, which was indicated by a dark circular stain lighter than Zone 2. The ledge fill was a compact dark brown sandy clay. Fire cracked sandstone, charcoal, and lithic debris were abundant in the ledge fill. The ledge dimensions varied considerably in width and depth (max-min. depth = 0.20 - 0.12 m., max.-min. width = 0.25-0.08 m) within and between LBSFs. In two cases, stains interpreted in the field as post molds were found intruding into the ledge at angles of 25°-45° inward (off vertical), but no continuous arrangement of posts was found. The high density of sandstone found in ledge fill, as compared with the surrounding matrix, indicates that additional sandstone may have been added to dirt around posts.

The internal stratigraphy of all LBSFs consisted of a yellow sandy zone overlying a dark brown, sandy loam (Zones 1 and 2 respectively). Zone 1 was yellow sand, virtually devoid of cultural material. This zone was observed in eight of the eleven LBSFs. No siltation bands were found within Zone 1, which indicates that alluvial processes were probably not involved in the deposition of Zone 1. The quantity of cultural material recovered from Zone 2 was considerably greater than Zone 1 and the surrounding midden (Table 7.1). Most of the upper levels of Zone 2 appear to have been deposited simultaneously with the ledge fill. Burned nut shells, fire cracked sandstone, and lithic debris were abundant within

Table 7.1. Artifact Summary for Large Basin Shaped Features.

| LBSF* | Wheeler Ceramics | Cores | Preforms ** | Bifaces ** | Projectile Point/ Knives ** | Drills ** | Uniface ** | Pigment (g) | Utilized Flakes | Sandstone (kg) | Ground/ Pecked Stone ** | Fired Clay (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Artifact Recovery from Entire Feature | | | | | | | | | | | | |
| 1 | - | 27 | 20 | 2 | 30 | 1 | 2 | 35.5 | 1 | 45.2 | - | 1,129.4 |
| 2 | - | 20 | 6 | 7 | 9 | 1 | - | 33.9 | 1 | 13.2 | 2 | 620.0 |
| 3 | 3 | - | - | - | - | - | - | - | - | - | - | - |
| 5 | - | 5 | - | - | 3 | - | - | - | - | 1.6 | 1 | 18.3 |
| 6 | - | 5 | 2 | 1 | 4 | - | - | - | - | 2.9 | - | 113.6 |
| 7 | - | 9 | 2 | 4 | 6 | - | - | - | 1 | 8.4 | - | 292.9 |
| 8 | - | 18 | 7 | 1 | 9 | - | - | 11.1 | 1 | 2.3 | - | 63.3 |
| 12 | - | 6 | 2 | - | 1 | - | - | - | 1 | 1.7 | - | 14.4 |
| TOTAL | 3 | 90 | 39 | 15 | 62 | 2 | 2 | 80.5 | 5 | 75.2 | 3 | 2,251.9 |
| Yellow Zone (Zone 1) only | | | | | | | | | | | | |
| 1 | - | 5 | 6 | - | 3 | - | 1 | 2.0 | - | 7.6 | - | 89.4 |
| 2 | - | 2 | - | - | 1 | - | - | 7.7 | - | 0.7 | - | 25.6 |
| 3 | 3 | - | - | - | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - | - | 0.2 | - | 18.3 |
| 6 | - | 1 | - | 1 | - | - | - | - | - | 0.8 | - | 76.7 |
| 7 | - | 2 | - | 3 | 1 | - | - | - | - | 1.5 | - | 31.0 |
| 8 | - | 1 | 2 | - | 1 | - | - | - | - | 0.4 | - | 12.8 |
| 12 | - | - | - | - | 1 | - | - | - | - | 0.7 | - | 3.6 |
| TOTAL | 3 | 11 | 8 | 4 | 7 | 0 | 1 | 9.7 | 0 | 12.0 | 1 | 257.4 |
| Black Zone (Zone 2 and Ledge) | | | | | | | | | | | | |
| 1 | - | 22 | 14 | 2 | 27 | 1 | 1 | 33.5 | 1 | 37.6 | - | 1,040.0 |
| 2 | - | 18 | 6 | 7 | 8 | 1 | - | 26.2 | 1 | 12.5 | 1 | 594.4 |
| 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | - | 5 | - | - | 3 | - | - | - | - | 1.4 | 1 | - |
| 6 | - | 4 | 2 | - | 4 | - | - | - | - | 2.1 | - | 36.9 |
| 7 | - | 7 | 2 | 1 | 5 | - | - | - | - | 6.8 | - | 261.9 |
| 8 | - | 17 | 5 | 1 | 8 | - | - | 11.1 | 1 | 1.9 | - | 50.5 |
| 12 | - | 6 | 2 | - | - | - | - | - | - | 1.0 | - | 10.8 |
| TOTAL | 0 | 79 | 31 | 11 | 55 | 2 | 1 | 70.8 | 3 | 63.3 | 2 | 1,994.5 |

*LBSF = Large Basin Shaped Feature; ** = Includes both complete specimens and identifiable fragments.

this zone. Archaic projectile points (Benton) were recovered from the midden zone in all LBSFs except LBSF 3, in which three fiber tempered sherds were found.

Table 7.2 shows the densities of burned sandstone per volume of dirt, standardized to show relative densities. A density score of +1.0 indicates that all of the material of that category occurred within that unit. The midden level in LBSF 1 (Zone 2) has densities of sandstone 7 times the density of a moderately dense midden deposit, which was the upper level of the midden in an excavation unit located 3 m from LBSF 1. This square appears to be typical of the densities over the rest of the midden. The lower 5 levels of the compared midden unit are approaching sterile levels, which emphasizes the relative sterility of LBSF Zone 1. In contrast, the density of materials in LBSF 4, which was later interpreted as a tree tip-up, indicates that the sandstone density was approximately half that of the general midden. In summary, the distribution of fire cracked sandstone indicates that the midden levels in the LBSFs (Zone 2) were the most dense deposits of fire cracked rock on the site. Botanical data indicate that this was also true for nut shells (see Chapter XII).

## LBSF 1

LBSF 1 was one of the most interesting features excavated at the F.L. Brinkley Midden. LBSF 1 was discovered in Stripped Transect B, in the area encompassing Units 74N/43W-77N/44W. It extended into the 1 m wide balk adjacent to the 42W test trench, which bisected the feature (Figure 7.1). On the surface LBSF 1 appeared as a circular yellow stain (composed entirely of a yellow fine silty sand), circumscribed by a dark brown to black soil, which was texturally less compact than the surrounding soil matrix. LBSF 1 was generally circular in shape (elongated somewhat north to south) and basin shaped in cross section (Figure 7.2). LBSF 1 measured 3.29 m north-south, 2.70 m east-west and 0.86 m deep.

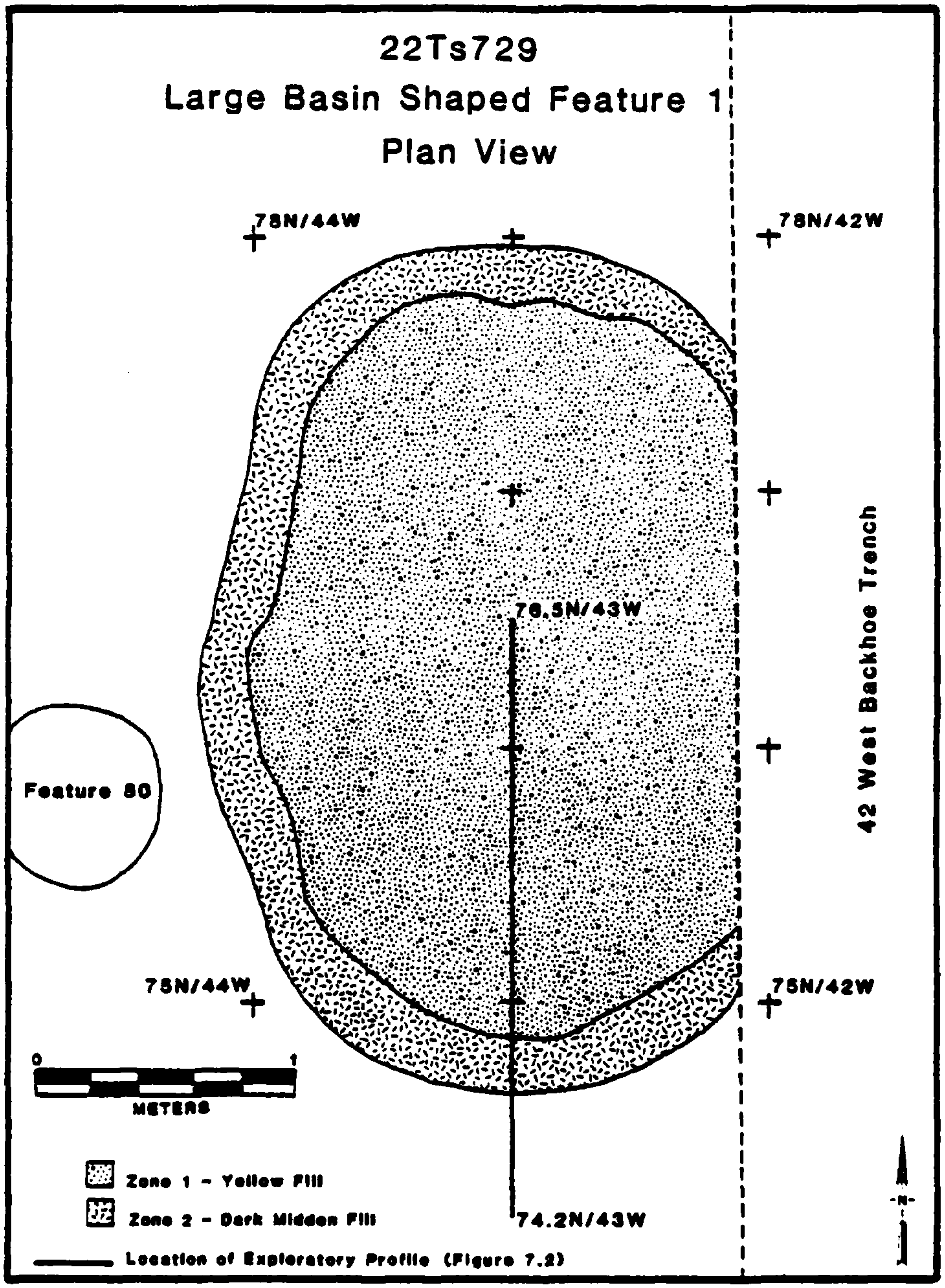
The dark midden zone of LBSF 1 was circumscribed by a ledge, which appeared as dark, slightly mottled soil (Figure 7.2). The ledge fill consisted of sandy silt. No post molds were found intruding into ledge matrix surrounding LBSF 1, and in many instances the line of demarcation between the ledge and midden was indistinct. The upper 20-25 cm of LBSF 1 was disturbed, due to mechanical stripping of Transect B 1 m west of the 42W test trench (Figure 7.3). This destroyed virtually all evidence of the ledge west of the 1 m balk adjacent to the 42W trench. Evidence of the ledge was also distorted within the 1 m wide control balk which LBSF 1 spanned, and also by a large pot hole.

Initially, two exploratory trenches were excavated in LBSF 1 to determine its extent and internal stratigraphy (Figure 7.4). Two discrete stratigraphic zones were defined: a yellow sandy zone (Zone 1) overlying a dark brown to black sand loam (Zone 2). Zone 1 consisted of yellow silty sand (Munsell 7.5YR4/6), virtually devoid of cultural material. No siltation bands were found within this zone, which indicates rapid deposition. Zone 2 was a dark brown sandy loam (Munsell 10YR2.5/2). The quantity of cultural material recovered from this zone was considerably greater than Zone 1 and the surrounding midden. The abundance of cultural

Table 7.2. Densities of Burned Sandstone in LBSFs* Compared to the Adjacent Midden, Brinkley Midden (22Ts729). For Derivation of these Statistics See Lafferty (1977:Appendix IV).

| Unit | Level | Cubic Meters A | Percent Volume Expected Frequencies B | Sandstone grams C | Sandstone percent D | Deviation D - B E | Maxmax Scores Volumetric Relative Density F |
|---|---|---|---|---|---|---|---|
| 78N/48.3W | 1-5 | 0.133 | 6.29 | 4,818.6 | 10.84 | 4.55 | 0.0484 |
| | 6-10 | 0.315 | 14.89 | 1,589.7 | 3.58 | -11.31 | -0.7642 |
| LBSF 1 | | | | | | | |
| | Zone 1 | 0.137 | 6.48 | 1,140.0 | 2.56 | -3.91 | -0.6034 |
| | Zone 2 | 1.191 | 56.31 | 31,569.2 | 71.02 | 14.71 | 0.3367 |
| | Ledge | 0.316 | 14.94 | 3,659.3 | 8.23 | -6.71 | -0.4491 |
| LBSF 4 | | 0.029 | 1.09 | 1,677.6 | 3.77 | 2.68 | 0.0271 |
| TOTAL | | 2.121 | 100.00 | 44,454.4 | 100.00 | 0.00 | N/A |

*LBSF = Large Basin Shaped Feature.



22Ts729
Large Basin Shaped Feature 1
Plan View
78N/44W
78N/42W
76.5N/43W
Feature 80
42 West Backhoe Trench
75N/44W
75N/42W
0
1
METERS
Zone 1 - Yellow Fill
Zone 2 - Dark Midden Fill
74.2N/43W
Location of Exploratory Profile (Figure 7.2)
N


Figure 7.1.

## Large Basin Shaped Feature 1, West Profile

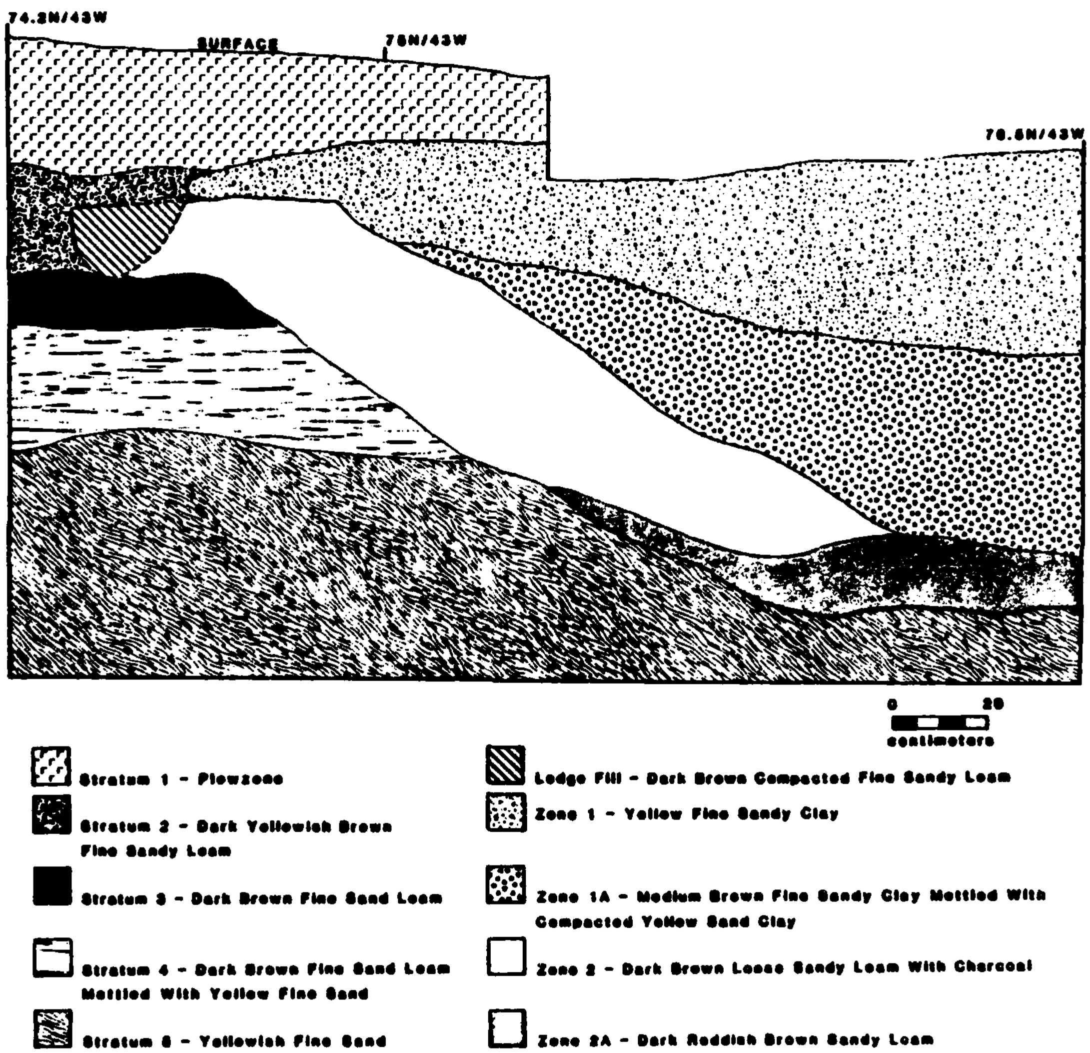



Figure 7.2.

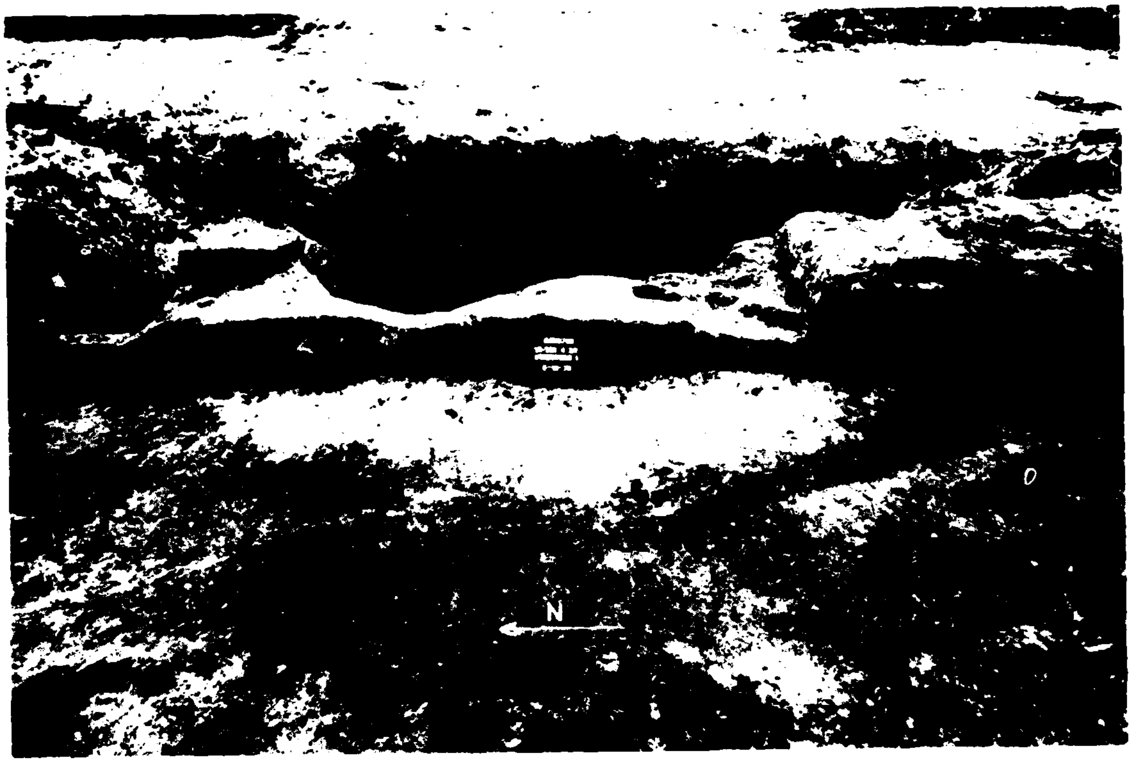



Figure 7.3. LBSF 1 Facing East.

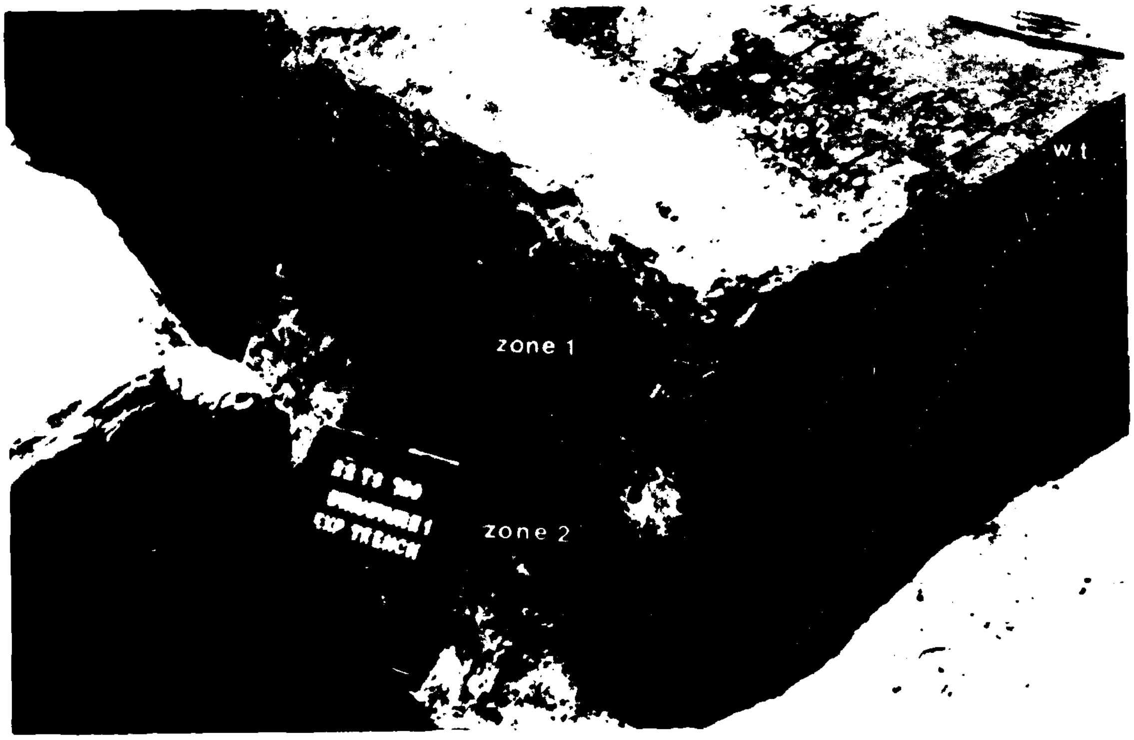



Figure 7.4. LBSF 1 Exploratory Trench, Showing Zones 1 and 2, Facing Southeast.

material recovered from Zone 2 and the homogeneity of the fill strongly suggest that Zone 2 was a primary deposit of refuse from the occupation of the site. Burned nutshells, fire cracked sandstone, and lithic debris were abundant within this zone. Zone 2 of LBSF 1 was the most dense deposit of diagnostic materials, fire cracked sandstone and carbonized botanical remains found on the site. The density of fire cracked rock was seven times the density of the most dense midden deposit, which was in the upper levels of the midden (Strata 1 and 2). Late Archaic projectile points associated with the Benton-Little Bear Creek type cluster were recovered with greater frequency from LBSF 1, Zone 2 than any other midden deposit on site (Table 7.1).

While several projectile point fragments were recovered from LBSF 1, few of them are diagnostic. Among the types represented are Benton, Kays, and Ledbetter points. Variability among many of the points is substantial, and precludes assignment to a specific type. The points from this LBSF primarily resemble Middle - Late Archaic stemmed points. Assignment to a Middle - Late Archaic provenience is supported by the absence of ceramics, and the relatively high frequency of fossiliferous chert present. Fossiliferous cherts were predominant in the manufacturing of Benton projectile points at the Brinkley Midden and attained their highest relative frequency in Excavation Levels 2 and 3 on the site. This coincides with the zone of origin of this feature.

A total of 83 tools, preforms, and cores was recovered from LBSF 1. Of these 43.4% (36) were tools, 24.1% (20) were preforms, and 32.5% (27) were cores. The predominant raw material type was Tuscaloosa gravels, followed by fossiliferous chert. Frequencies and percentages for tools, preforms, and cores are listed in Table 7.3. Artifact type frequencies and raw materials are broken down by depositional zones in Table 7.4. Weights for conchoidal lithic material, sandstone, fired clay, and pigments are listed in Table 7.5.

The following discussion is a breakdown of the artifacts recovered from the different zones in LBSF 1.

Zone 1 (Yellow Fill). No diagnostic artifacts were present in this zone. One midsection and one distal end of a projectile point made from Tuscaloosa gravels were present. One whole oval uniface scraper made from Tuscaloosa gravel was also present. Six preforms and five cores were recovered from this zone, predominantly of Tuscaloosa gravels, followed in frequency by fossiliferous chert.

Zone 1a. This was an intermediate zone between the yellow sandy fill of Zone 1 and the darker fill of Zone 2. One projectile point midsection was recovered from this interface.

Ledge (Dark Fill). One Benton projectile point of Tuscaloosa gravel and one fragment of a Benton projectile point made of Dover chert were recovered from the ledge circumscribing LBSF 1. One miscellaneous stemmed point of Tuscaloosa gravel, and one other miscellaneous expanded stem

Table 7.3. Artifact Counts and Percentages by Artifact Types and Raw Material--LBSF* 1, Site 22Ts729.

| | | Blue Fort Payne | Tan Fort Payne | Fossil-iferous | Gravels | Other | TOTAL | Artifact Type Percentage of Total |
|---|---|---|---|---|---|---|---|---|
| TOOLS | | | | | | | | |
| | Percentage of Artifact Type | 13.9 | 19.4 | 16.7 | 44.4 | 5.6 | 100.0 | 43.4 |
| | Count | (5) | (7) | (6) | (16) | (2) | (36) | |
| PREFORMS | | | | | | | | |
| | Percentage of Artifact Type | 15.0 | 5.0 | 45.0 | 35.0 | - | 100.0 | 24.1 |
| | Count | (3) | (1) | (9) | (7) | (-) | (20) | |
| CORES | | | | | | | | |
| | Percentage of Artifact Type | 14.8 | 7.4 | 25.9 | 51.9 | - | 100.0 | 32.5 |
| | Count | (4) | (2) | (7) | (14) | (-) | (27) | |
| TOTAL | | | | | | | | |
| | Percentage of Artifact Type | 14.5 | 12.0 | 26.5 | 44.6 | 2.4 | 100.0 | 100.0 |
| | Count | (12) | (10) | (22) | (37) | (2) | (83) | |

*LBSF = Large Basin Shaped Feature.

Table 7.4. LBSF* 1, Site 22Ts729--Artifact Types and Raw Materials.

| | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravel | Other | TOTAL |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| Zone 1 | 1 | 1 | 1 | 2 | - | 5 |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | 2 | - | 5 | 8 | - | 15 |
| Zone 2a | - | - | - | 1 | - | 1 |
| Ledge | 1 | 1 | 1 | 3 | - | 6 |
| Whole Preforms | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | - | - | 1 | 1 | - | 2 |
| Zone 2a | - | - | - | - | - | - |
| Ledge | - | - | - | - | - | - |
| Preform Fragments | | | | | | |
| Zone 1 | 1 | - | 2 | 3 | - | 6 |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | 1 | - | 6 | 2 | - | 9 |
| Zone 2a | - | - | - | - | - | - |
| Ledge | 1 | 1 | - | 1 | - | 3 |
| Biface Fragments-Mid/Distal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | - | - | - | 2 | - | 2 |
| Zone 2a | - | - | - | - | - | - |
| Ledge | - | - | - | - | - | - |
| Whole Projectile Points | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | - | - | - | - | - | - |
| Zone 2a | - | - | - | - | - | - |
| Ledge | - | - | - | 1 | - | 1 |
| Projectile Point Fragments-Mid/Distal | | | | | | |
| Zone 1 | - | - | - | 2 | - | 2 |
| Zone 1a | - | - | 1 | - | - | 1 |
| Zone 2 | 1 | 6 | 1 | 2 | - | 10 |
| Zone 2a | - | 1 | 1 | - | - | 2 |
| Ledge | - | - | - | 1 | - | 1 |
| Projectile Point Fragments-Proximal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 1a | - | - | - | - | - | - |

Table 7.4. LBSF* 1, Site 22Ts729--Artifact Types and Raw Materials (Continued).

| | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravel | Other | TOTAL |
|---|---|---|---|---|---|---|
| Projectile Point Fragments-Proximal (Continued) | | | | | | |
| Zone 2 | 3 | - | 2 | 3 | 1 | 9 |
| Zone 2a | - | - | 1 | - | - | 1 |
| Ledge | 1 | - | - | 1 | 1 | 3 |
| Drill Fragments | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Zone 2a | - | - | - | - | - | - |
| Ledge | - | - | - | - | - | - |
| Uniface Tools | | | | | | |
| Zone 1 | - | - | - | 1 | - | 1 |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Zone 2a | - | - | - | - | - | - |
| Ledge | - | - | - | - | - | - |
| Utilized Flakes | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 1a | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Zone 2a | - | - | - | - | - | - |
| Ledge | - | - | - | - | - | - |
| TOTAL | 12 | 10 | 22 | 37 | 2 | 83 |

*LBSF = Large Basin Shaped Feature.

Table 7.5. LBSF* 1, Site 22Ts729 -- Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 1a | Zone 2 | Zone 2a | Ledge | Total |
|---|---|---|---|---|---|---|
| Conchoidal Lithics | 3,598.0 | 176.6 | 6,263.0 | 912.0 | 2,385.6 | 13,335.2 |
| Sandstone | 5,969.1 | 1,624.6 | 27,985.1 | 2,761.3 | 6,872.4 | 45,212.5 |
| Fired Clay | 41.4 | 48.0 | 424.4 | 95.4 | 520.2 | 1,129.4 |
| Pigments | 2.0 | - | 5.4 | 4.7 | 23.4 | 35.5 |
| TOTAL | 9,610.5 | 1,849.2 | 34,677.9 | 3,773.4 | 9,801.6 | 59,712.6 |

* LBSF = Large Basin Shaped Feature

point of blue Fort Payne chert were also present in this zone. Three preforms and six cores were recovered in this zone, with Tuscaloosa gravels being the predominant raw material.

Zone 2. This zone contained the majority of artifactual material recovered from this feature. Diagnostic artifacts in this zone include one Benton (Tuscaloosa Gravel), one Kays (Dover Chert), and one Ledbetter (fossiliferous chert). The remaining six proximal portions of projectile points from this zone were primarily miscellaneous narrow stemmed points. One steep edged end scraper fragment and one drill fragment of Tuscaloosa gravel were also present. A whole perforator/knife of fossiliferous chert and one utilized flake of Tuscaloosa gravel were recovered from this zone. Eleven preforms and fifteen cores were present, with fossiliferous chert being the predominant raw material type, followed by Tuscaloosa gravels.

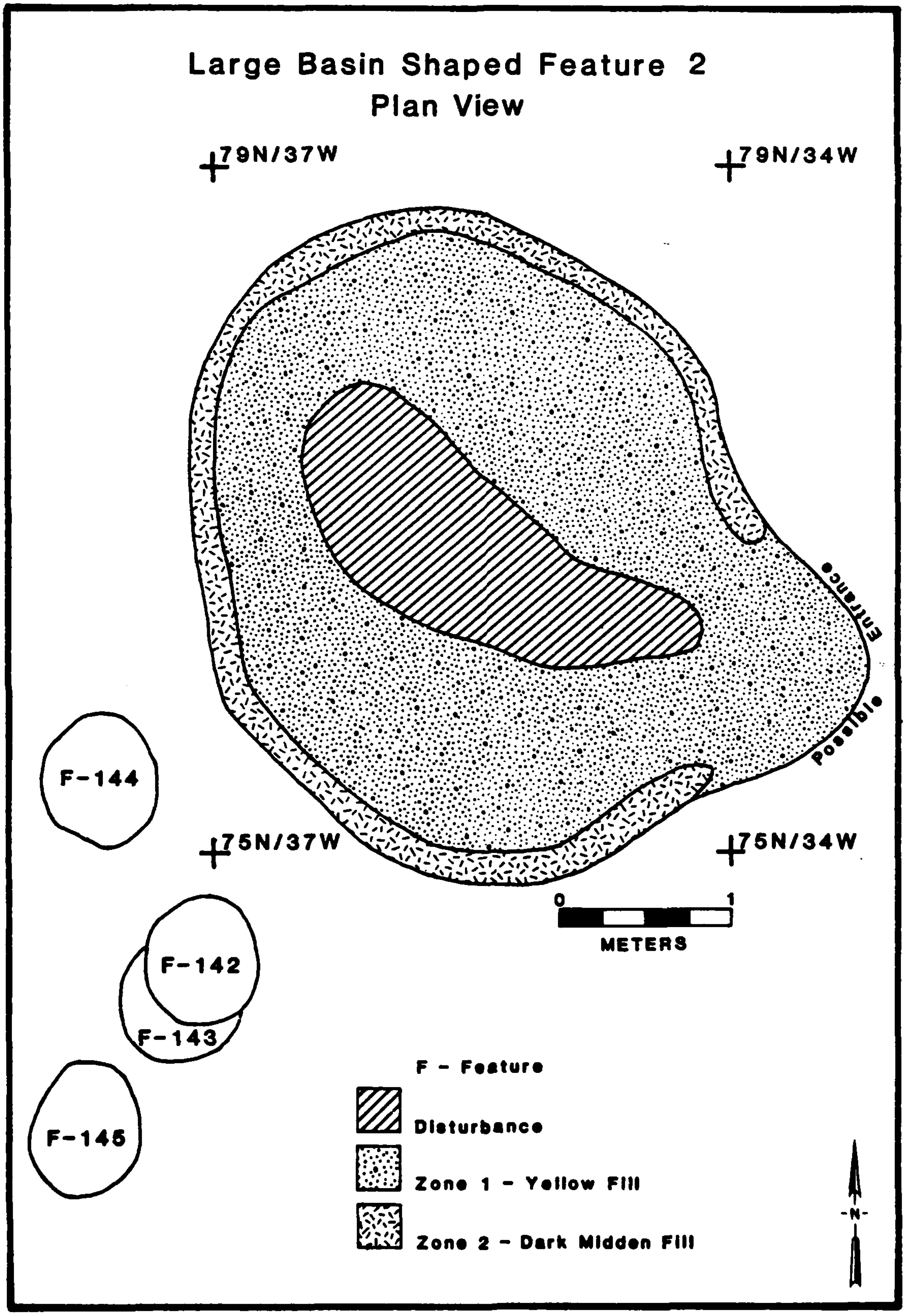
Zone 2a. This zone was the very bottom of the LBSF, a thin mottled contact zone segregated from the remainder of Zone 2. One proximal portion of a Benton projectile point made from fossiliferous chert was present.

LBSF 2

LBSF 2 was located approximately 8 m to the east of LBSF 1 in excavation units 73N-78N/33W-37W. LBSF 2 was exposed during the mechanical stripping of the north section of Stripped Transect A (Figure 7.5). Due to the method of recovery, the point of origin could not be determined, but the similarity of cultural material recovered from Structure 2 allows an attribution of LBSF 2 along with LBSF 1 both within the Late Archaic period. LBSF 2 was defined on the surface by the presence of a large circular deposit of yellow silty sand circumscribed by a dark brown to black soil. The maximum diameters north-south and east-west were 4.1 m and 3.2 m, respectively. The feature extended to a maximum depth of 0.55 m below the stripped surface. The formal structural characteristics of this LBSF were similar to LBSF 1. The internal stratigraphy consisted of a yellow sandy zone (Zone 1) overlying a dark brown midden zone (Zone 2).

The fill of Zone 1 was predominantly made up of a compacted yellow silty sand (Munsell 7.5YR5/6). The depositional characteristics were consistent with the other LBSFs at the Brinkley Midden, except for LBSFs 6 and 7. The cultural material recovered from Zone 1 was found within the vicinity of two intrusive disturbances. These consisted of a large recent disturbance measuring 2.4 m long, 0.8 m wide, and 0.5 m deep, and an aboriginal pit (Feature 136).

Zone 2 was a dark brown sandy loam (Munsell 10YR3/1), underlying Zone 1. A high concentration of burned nutshells and ash present in this zone gave the fill a grayish black color. The density of burned nutshells, sandstone and diagnostic lithic materials recovered from Zone 2 is again greater than the densities of the surrounding site matrix.



Large Basin Shaped Feature 2
Plan View
79N/37W
79N/34W
75N/37W
75N/34W
Possible Entrance
F-144
F-142
F-143
F-145
0
1
METERS
F - Feature
Disturbance
Zone 1 - Yellow Fill
Zone 2 - Dark Midden Fill
N


Figure 7.5.

No post molds associated with LBSF 2 were defined. The absence of a ledge around the perimeter of LBSF 2 may be due to the fact that approximately 20-25 cm of the upper portions were removed by mechanical stripping. One stain interpreted in the field as a post mold was found intruding into the base of the feature in unit 75N/35W.

An interesting characteristic of LBSF 2 which was absent in the other examples of this feature class was the presence of a ramp-like trough extending into the feature from the southeast. Zone 2 of LBSF 2 extended southeast to cover this graded trough, indicating that it was an integral part of the whole and not a later intrusion.

Three whole projectile points were recovered from Zone 2 of this LBSF. This includes one Ecusta, one Kirk Serrated, and one unidentified stemmed point. No ceramics were recovered. The presence of two Early Archaic points in this LBSF is surprising. The depth at which this apparently originated in the site (Midden Level 3) does not support an Early Archaic association. However, these may have been fortuitously deposited from the surrounding midden due to aboriginal pit digging. The absence of ceramics nevertheless supports an Archaic provenience.

A total of 46 tools, preforms, and cores were recovered from LBSF 2. Of these 39.5% (17) were tools, 14.0% (6) were preforms, and 46.5% (20) were cores (Table 7.6). The predominant raw material type for these artifacts was Tuscaloosa gravels 53.5% (23), followed by blue Fort Payne chert, 18.6% (8), fossiliferous chert, 11.6% (5), tan Fort Payne chert, 11.6% (5), and other lithic material, 4.7% (2). The majority of these items (76.7%) were recovered from Zone 2 (Table 7.7). Weights for conchoidal lithic material, sandstone, fired clay, and pigments are listed in Table 7.8.

## LBSF 3

LBSF 3 was a circular basin shaped feature found in the south section of Stripped Transect C. It was clearly definable on the surface by the large circular deposit of sterile yellow silty sand which was characteristic of the other LBSFs defined on Site 22Ts729 (Figure 7.6). This yellow silty sand (Zone 1) was circumscribed by a dark brown to black sandy loam (Zone 2). The density of cultural material present in the fill of Zone 2 suggests that this zone was a primary refuse deposit. LBSF 3 was bisected east-west by a test trench to determine the internal stratigraphy. The internal stratigraphy of LBSF 3 consisted of a yellow silty sand zone (Zone 1) overlying a dark brown sandy loam zone (Zone 2), the latter having been deposited at the base and side walls. The data recovered from LBSF 3 were limited due to the shortage of time. Based on field observations, the underlying dark brown zone (Zone 2) contained a higher density of cultural material than the surrounding midden. No mottling was evident within this dark homogeneous sandy loam. Burned nutshells and sandstone were the most abundant cultural materials observed in the fill of Zone 2. Three fiber tempered sherds were noted on the graded surface above LBSF 3, but their association is questionable. The level of origin for this fea-

Table 7.6. Artifact Counts and Percentages by Artifact Types and Raw Material--LBSF* 2, Site 22Ts729.

| | | Blue Fort Payne | Tan Fort Payne | Fossil-iferous | Gravels | Other | TOTAL | Artifact Type Percentage of Total |
|---|---|---|---|---|---|---|---|---|
| TOOLS | | | | | | | | |
| | Percentage of Artifact Type | 23.53 | 17.65 | - | 52.94 | 5.88 | - | 39.5 |
| | Count | (4) | (3) | (-) | (9) | (1) | (17) | |
| PREFORMS | | | | | | | | |
| | Percentage of Artifact Type | 16.67 | - | 33.33 | 50.00 | - | - | 14.0 |
| | Count | (1) | (-) | (2) | (3) | (-) | (6) | |
| CORES | | | | | | | | |
| | Percentage of Artifact Type | 15.00 | 10.00 | 15.00 | 55.00 | 5.0 | - | 46.5 |
| | Count | (3) | (2) | (3) | (11) | (1) | (20) | |
| TOTAL | | | | | | | | |
| | Percentage of Artifact Type | 18.60 | 11.63 | 11.63 | 53.49 | 4.65 | - | 100.0 |
| | Count | (8) | (5) | (5) | (23) | (2) | (43) | |

*LBSF = Large Basin Shaped Feature.

Table 7.7. LBSF* 2, Site 22Ts729--Artifact Types and Raw Materials.

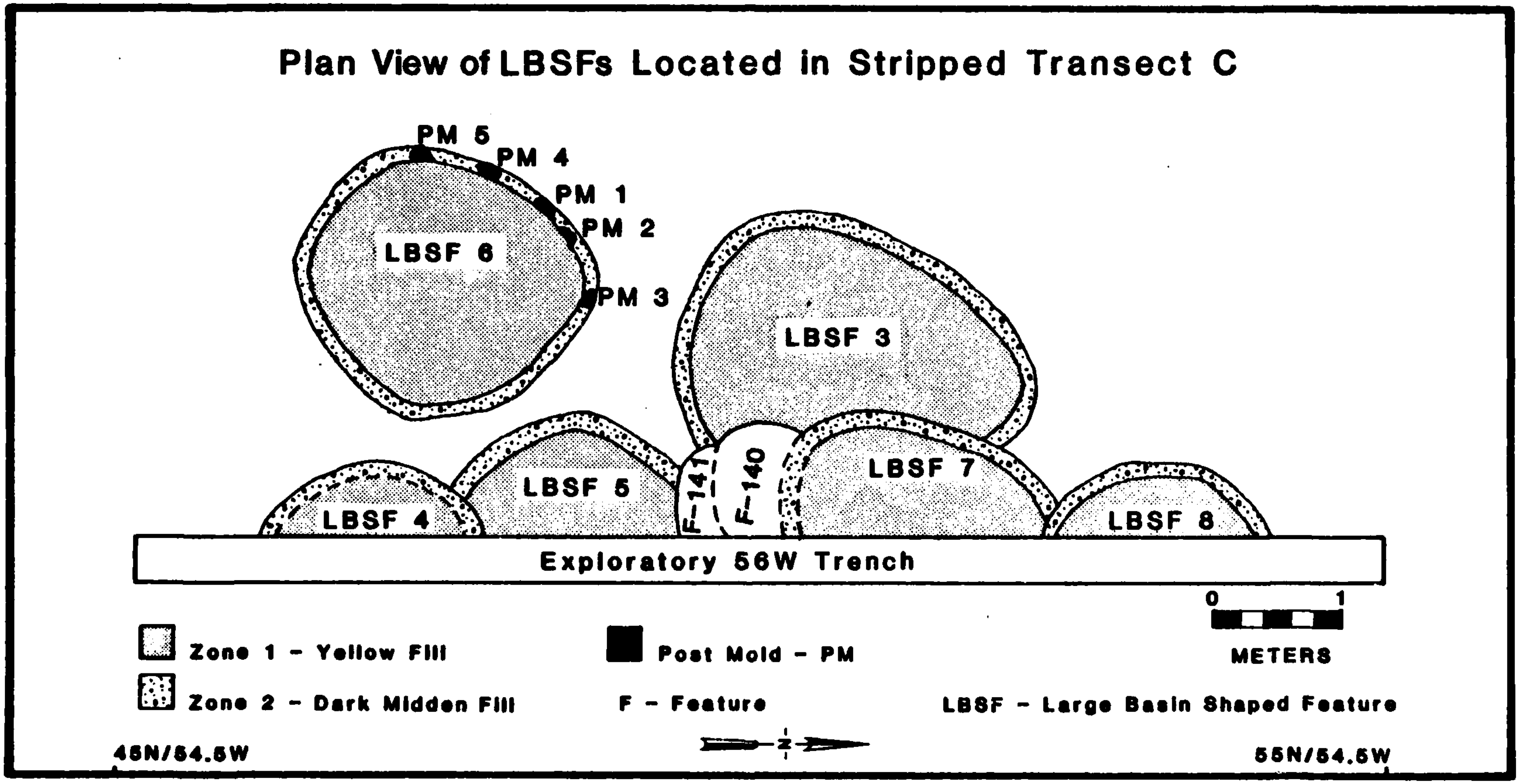
| | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravel | Other | TOTAL |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| Zone 1 | - | 1 | - | 1 | - | 2 |
| Zone 2 | 3 | 1 | 3 | 10 | 1 | 18 |
| Whole Preforms | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Preform Fragments | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | - | 2 | 2 | - | 5 |
| Biface Fragments-Mid/Distal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 2 | - | - | 5 | - | 7 |
| Whole Projectile Points | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | 1 | - | 1 | - | 3 |
| Projectile Point Fragments-Mid/Distal | | | | | | |
| Zone 1 | - | - | - | - | 1 | 1 |
| Zone 2 | - | 1 | - | 2 | - | 3 |
| Projectile Point Fragments-Proximal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | 1 | - | 1 | - | 2 |
| Drill Fragments | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | - | - | - | - | 1 |
| Utilized Flakes | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | - | - | - | - | 1 |
| Ground Cobble/Mano | | | | | | |
| Zone 1 | - | - | - | - | 1 | 1 |
| Zone 2 | - | - | - | - | - | - |
| Miscellaneous Ground Stone | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | - | 1 | 1 |
| TOTAL | 9 | 5 | 5 | 23 | 4 | 46 |

*LBSF = Large Basin Shaped Feature.

Table 7.8. LBSF* 2, Site 22Ts729 -- Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 2 | Ledge | Possible Entrance | Total |
|---|---|---|---|---|---|
| Conchoidal Lithics | 430.0 | 3,631.0 | 566.0 | 428.3 | 5,055.3 |
| Sandstone | 747.0 | 11,146.8 | 857.3 | 452.8 | 13,203.9 |
| Fired Clay | 25.6 | 519.5 | 37.3 | 37.6 | 620.0 |
| Pigments | 7.7 | 2.5 | 21.3 | 2.4 | 33.9 |
| TOTAL | 1,210.3 | 15,299.8 | 1,481.9 | 921.1 | 18,913.1 |

* LBSF = Large Basin Shaped Feature.



Plan View of LBSFs Located in Stripped Transect C
PM 5
PM 4
PM 1
PM 2
PM 3
LBSF 6
LBSF 3
LBSF 4
LBSF 5
F-141
F-140
LBSF 7
LBSF 8
Exploratory 56W Trench
0
1
METERS
Zone 1 - Yellow Fill
Zone 2 - Dark Midden Fill
Post Mold - PM
F - Feature
LBSF - Large Basin Shaped Feature
N
45N/54.5W
55N/54.5W


Figure 7.6.

ture cannot be accurately defined due to the disturbance of the upper levels of LBSF 3 by mechanical stripping (Figure 7.7). The similarity of the depositional characteristics and the stratigraphy of LBSF 3 as compared with LBSFs 1 and 2 suggest that LBSF 3 occurred as the result of similar formational processes. The intrusion of LBSF 7, in which Late Archaic projectile points were recovered, demonstrates that LBSF 3 is Late Archaic or earlier.

The ledge characteristic of other LBSFs excavated at Site 22Ts729 could not be clearly defined. The mechanical stripping destroyed all but the extreme lower limits of the ledge. Several questionable post molds were observed; but to reiterate, the lack of field time did not allow an adequate excavation of LBSF 3.

Because this LBSF was subjected to minimal testing, it did not produce any diagnostic material, except for the fiber tempered sherds noted above. No tools, cores, or preforms were recovered from testing.

LBSF 4

LBSF 4 was exposed by mechanical stripping of the south area of Stripped Transect C in units 45N-47N/55W-56W. This circular basin shaped deposit of lensed sand measured 1.75 m in diameter north-south, and extended to a depth of 0.3 m (Figures 7.6, 7.8). LBSF 4 was bisected by the 58W exploratory north-south trench. The fill of the LBSF consisted of a yellow sand interlensed with a dark brown clay loam, and a dark brown mottled zone (Figure 7.9). Lensiated siltation bands were observed and documented on the sloping edges of the basin.

The stratigraphy of LBSF 4 is similar to that of tree tip-ups observed by the authors in similar soils. When a tree is blown over it falls in one direction, pivoting on the roots and base of the stump. In the direction of the fall there is little disturbance to the soils from the fall itself, while in the opposite direction the mass of roots pulls out of the ground bringing with it soil attached to the roots. This results in the whole soil profile pulled up by the roots posed over the center of the hole, resulting in different exposed soils at different places above the hole posed to be redeposited in it. Around the edges there is loose midden, and above the center is the whole profile more loosely held above by the roots. These difference sediment sources will gradually fill in the hole, producing different zones of sediments. At the center under the root mass there will be a highly mottled zone where the most loosely consolidated soil will be deposited mainly by mechanical and fluvial means. The presence of siltation bands throughout the fill of LBSF 4 demonstrates clearly that fill deposited by fluvial processes on this site will produce siltation bands. Therefore their absence in the other LBSFs is of considerable depositional importance.

A darker zone will be produced under these soil conditions in the scar where the roots pulled out. The lower part of this will be lensiated siltation bands, as the sides erode to a stable angle of repose, and these sediments are deposited in the bottom. If the soil is composed of different sized particles of different specific gravities, then there will be

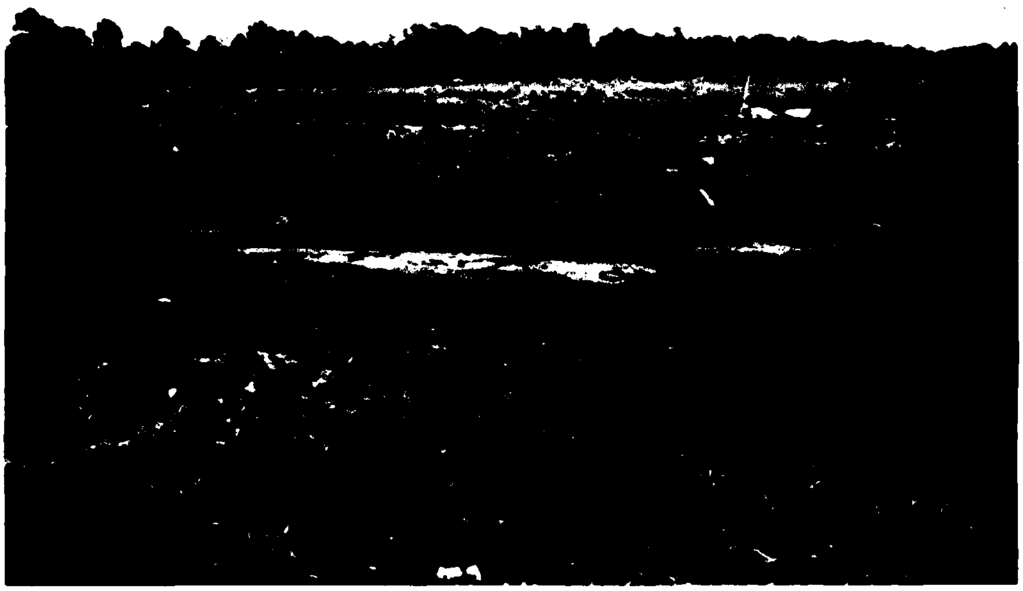


Figure 7.7. LBSF 3 (in Foreground), Facing East.

Figure 7.8. Stripped Transect C, Showing LBSFs 3, 4, 5, and 6.

## 56 West Exploratory Trench, East Profile

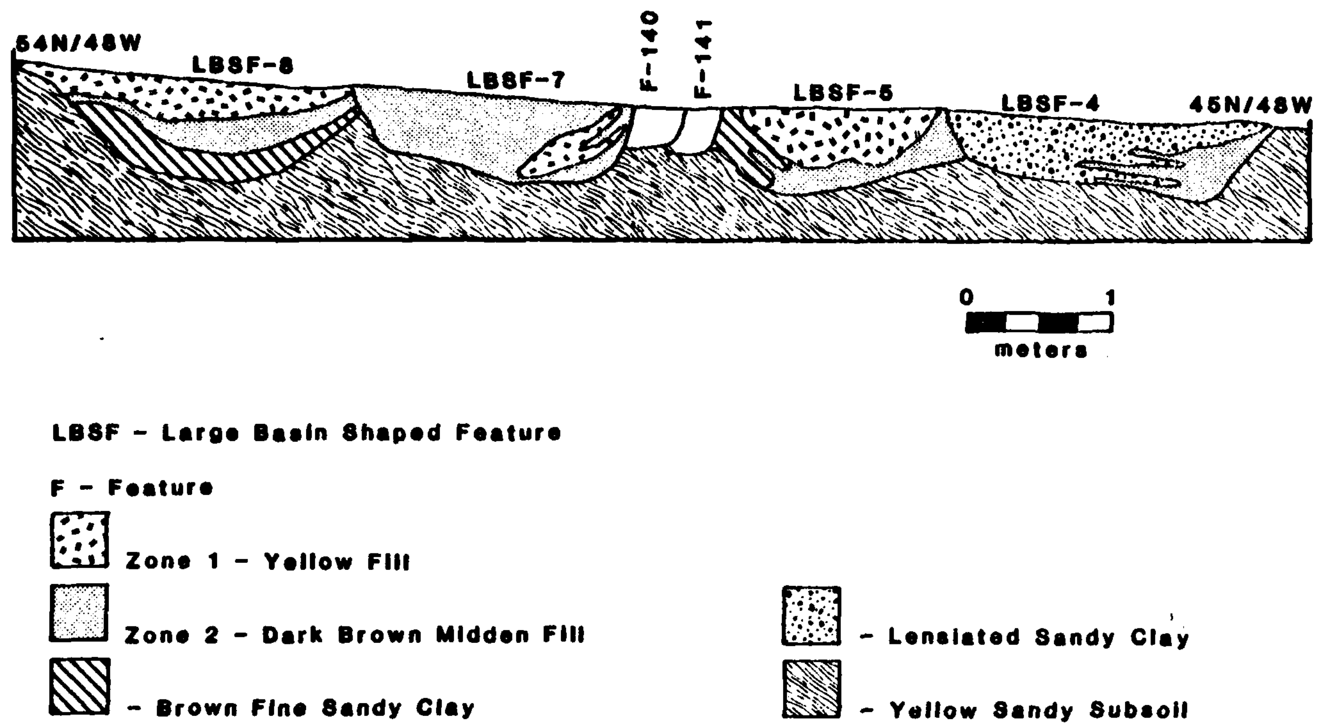



Figure 7.9.

alluvial sorting of these sediments, resulting in siltation bands. These will be most obvious around the bottom edges of the scars, as these places have the greatest slope and gradient changes. More important, however, is the observation that the profiles are only briefly exposed just after the tree fall, while the soil is most exposed to the elements. Later in the filling sequence the siltation bands will be come less distinct as (1) the hole fills, (2) the slopes lessen, (3) the gradient changes lessen, and (4) the exposed soil becomes covered with leaf litter. If the site is still occupied, the upper levels will be filled with midden deposits. There will be a great deal of interbedding of deposits at the intersection of these zones. It is also possible under many soil conditions and probably at variable time spans after the tree fall that the area not pulled up will appear looser because (1) the roots on this side will have moved some at the fall and (2) their decay will leave spaces which under certain conditions may become silt filled.

In LBSF 4 all four zones are present, strongly supporting the inference that this is a tree tip-up. The low density of material recovered from LBSF 4, as contrasted to the remainder of the LBSFs, reinforces the suggestion that LBSF 4 is depositionally unique and different from the other LBSFs at the Brinkley Midden. Its interpretation as a tree tip-up is clearly warranted.

LBSF 5

LBSF 5 was discovered in the south section of Stripped Transect C in Units 47-48N/55W-56W. It was intruded by LBSF 4 from the south and by Features 140 and 141, which are possibly related to LBSF 7 (Figure 7.6). LBSF 5 was recognized on the surface by the familiar circular depos[illegible] of yellow sand circumscribed by a dark brown to black sandy loam ring in areas around the perimeter which were not obscured by the intrusions noted above. LBSF 5 measured approximately 2.3 m in diameter north-south. It extended to a depth of 0.64 m below the level of recognition at the stripped surface. The excavation of LBSF 5 was limited due to the shortage of time. The evaluation of this feature was based on observations made on the internal stratigraphy exposed by the 58W exploratory trench (Figure 7.9).

The internal stratigraphy of LBSF 5 consisted of a yellow sand (Zone 1) devoid of cultural material, overlying a dark brown sandy loam midden (Zone 2). Like LBSF 1 it possessed a circumscribed ledge. Based on field observations, the underlying dark zone (Zone 2) contained a higher density of cultural material than the surrounding midden. Burned nutshells and fire cracked sandstone were the most abundant materials observed in the Zone 2 fill. The similarity of the stratigraphic arrangement of Zones 1 and 2, as compared with LBSFs 1 and 2, suggest that LBSF 5 had a similar origin/use and was culturally associated with the other LBSFs (excepting LBSF 4). This affiliation is further strengthened by the intrusion of LBSF 7, in which diagnostic Late Archaic cultural material was recovered. The occurrence of large quantities of burned nutshells and sandstone observed in Zone 2 support the hypothesis of an early fall to late winter primary deposition of the zone.

One whole White Springs projectile point was recovered from the ledge of this LBSF. It was manufactured from Dover chert. This point, and the absence of ceramics, suggest a Middle Archaic association for this feature.

This LBSF contained 8 tools and cores in the portions excavated. Five of these were cores. The predominant raw material type for all the tools and cores recovered was Tuscaloosa gravels (50.0%, 4) followed by fossiliferrous chert (25.0 %, 2) and Dover chert (25.0%, 2). One anvil/hammer was also present. All of these artifacts were recovered from Zone 2. Table 7.9 lists the frequency of tools and cores by raw material for this LBSF. Table 7.10 shows the weights of conchoidal lithic material, sandstone, and fired clay for this LBSF.

LBSF 6

LBSF 6 was a circular basin shaped feature which measured 2.45 m in maximum diameter (Figure 7.6), with a depth of 0.35 m below the level of recognition. On the surface LBSF 6 appeared as a circular deposit of medium brown soil circumscribed by a band of dark brown soil measuring 0.1 m - 0.15 m in width. LBSF 6 was discovered during the mechanical stripping of Stripped Transect C (Figure 7.8).

LBSF 6 was circumscribed by a ledge, indicated by a dark band of soil distinct from Zone 2, which varied considerably in width and depth. The ledge fill consisted of dark brown sandy clay loam which was texturally more compact than the surrounding matrix. Five stains interpreted in the field as post molds were found intruding into the ledge, but no contiguous arrangement was observed. Post molds 1 and 2 measured 0.19 m in diameter and were positioned on the ledge 0.09 m apart. These post molds are the only adjacently placed posts on the ledge of LBSF 6. Post Mold 1 was found intruding into the ledge at an angle of 45° off vertical.

The fill of LBSF 6 was stratified, but the internal stratigraphy was not consistent with the fill of other LBSFs encountered on the site. The fill consisted of a medium brown (Munsell 2.5YR3/2) sandy clay loam (Zone 1) deposited over an underlying dark brown (Munsell 5YR3/3) sandy clay loam (Zone 2).

Zone 1 of this LBSF contained the highest density of cultural materials obtained from the excavation of Zone 1 in the other LBSFs. Burned nutshells and sandstone were recovered from this zone in greater densities than the surrounding midden (Table 12.5), but in lower densities than the Zone 2 midden deposits of the other LBSFs with the exception of LBSF 4. The absence of a well-defined upper zone of yellow silty sand in LBSF 6, and the greater artifact density in this feature compared with the same zone in other features, suggest that different cultural and/or depositional process contributed to the formation of Zone 1 in LBSF 6 in contrast to the other LBSFs at the Brinkley Midden.

The only diagnostic artifacts recovered from this LBSF were the proximal fragments of one Morrow Mountain projectile point of blue Fort Payne Chert, which was recovered from a possible post mold in the ledge of the LBSF. This LBSF contained 11 tools, preforms, and cores in the area

Table 7.9. LBSF* 5, Site 22Ts729 — Artifact Types and Raw Materials from Zone 2**.

| | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravels | Other | Total |
|---|---|---|---|---|---|---|
| Cores | - | - | 2 | 2 | 1 | 5 |
| Projectile Points Mid/distal | - | - | - | 2 | - | 2 |
| Whole Projectile Points | - | - | - | - | 1 | 1 |
| Hammerstone/ Anvils | - | - | - | - | 1 | 1 |
| TOTAL | - | - | 2 | 4 | 3 | 9 |

* LBSF = Large Basin Shaped Features.
** No worked lithics were recovered from Zone 1.

Table 7.10. LBSF* 5, Site 22Ts729 — Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 2 | Total |
|---|---|---|---|
| Conchoidal Lithics | 881.1 | 1,138.0 | 2,019.1 |
| Sandstone | 221.4 | 1,422.2 | 1,643.6 |
| Fired Clay | 18.3 | - | 18.3 |
| Total | 1,120.8 | 2,560.2 | 3,681.0 |

* LBSF = Large Basin Shaped Feature.

Table 7.11. LBSF* 6, Site 22Ts729 — Artifact Types and Raw Materials.

| Raw Material | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravels | Other | Total |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| Zone 1 | - | - | 1 | - | - | 1 |
| Zone 2 | 1 | - | 2 | 1 | - | 4 |
| Ledge | - | - | - | - | - | - |
| Whole Preforms | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | 2 | - | 2 |
| Ledge | - | - | - | - | - | - |
| Biface Fragment Mid/distal | | | | | | |
| Zone 1 | - | - | - | 1 | - | 1 |
| Zone 2 | - | - | - | - | - | - |
| Ledge | - | - | - | - | - | - |
| Projectile Point/Knife Mid/distal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | 1 | - | 1 | - | 3 |
| Ledge | - | - | - | - | - | - |
| Projectile Point Proximal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | - | - | - |
| Ledge | 1 | - | - | - | - | 1 |
| TOTAL | 3 | 1 | 3 | 5 | - | 12 |

*LBSF = Large Basin Shaped Feature.

Table 7.12. LBSF* 6, Site 22Ts729 — Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 2 | Ledge | Total |
|---|---|---|---|---|
| Conchoidal Lithic | 300.4 | 664.7 | 272.3 | 1,237.4 |
| Sandstone | 765.4 | 1,308.5 | 776.3 | 2,850.2 |
| Fired Clay | 76.7 | 20.4 | 16.5 | 113.6 |
| Pigments | - | - | - | - |
| TOTAL | 1,142.5 | 1,993.6 | 1,065.1 | 4,201.2 |

* LBSF = Large Basin Shaped Feature.

Table 7.13. LBSF*7, Site 22Ts729 -- Artifact Types and Raw Materials.

| | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravels | Other | Total |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| Zone 1 | 1 | - | - | 1 | - | 2 |
| Zone 2 | - | - | 2 | 5 | - | 7 |
| Preform Fragments | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | - | - | 1 | - | 2 |
| Biface Fragments Mid/distal | | | | | | |
| Zone 1 | - | - | - | 3 | - | 3 |
| Zone 2 | - | 1 | - | - | - | 1 |
| Projectile Point Fragment Mid/distal | | | | | | |
| Zone 1 | - | - | - | 1 | - | 1 |
| Zone 2 | - | 1 | - | 1 | - | 2 |
| Projectile Point Fragments Proximal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | 1 | - | 1 | 1 | 3 |
| Utilized Flake | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Total | 2 | 3 | 2 | 14 | 1 | 22 |

* LBSF = Large Basin Shaped Features.

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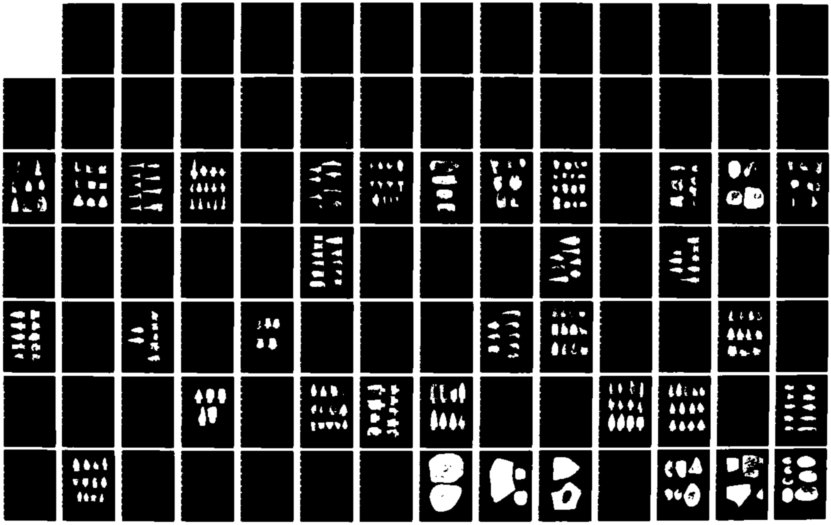

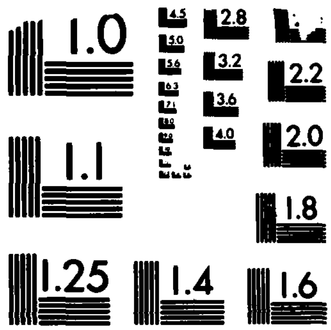


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NATIONAL BUREAU OF STANDARDS-1963-A

excavated. The majority of these were cores (5) and tools (4), with 2 preforms also present. The predominant raw materials present were Tuscaloosa gravels (45.4%, 5) followed by fossiliferrous cherts (27.3%, 3), Blue Fort Payne chert (18.2%, 2) and Tan Fort Payne chert (9.1%, 1). The majority of these artifacts were recovered from Zone 2 (81.8%, 9). No ceramics were present in any of the zones defined in this LBSF. Table 7.11 provides a breakdown for artifacts by zone for LBSF 6. Table 7.12 provides a breakdown of weights for all conchoidal lithic material, sandstone, fired clay, and pigments.

LBSF 7

LBSF 7 was encountered in the southern portion of Stripped Transect C in units 49N-51N/56W-57W, during mechanical stripping of that transect (Figure 7.6). Approximately 50% of LBSF 7 was exposed in the west transect. Excavation of LBSF 7 was limited to the exposed portion in the transect, due to the shortage of time and to the late discovery of LBSF 6 and associated LBSFs 3, 5, and 8, two weeks prior to end of scheduled field work. It was bisected by an exploratory trench, which allowed a profile view (Figure 7.9).

LBSF 7 measured 2.4 m in diameter, and extended to a depth of 0.5 m below the level of recognition. In profile, LBSF 7 was basin shaped. The stratigraphy was somewhat atypical of the other LBSFs, in that the sandy yellow Zone 1 which capped the dark midden zone in other examples was smaller and covered with midden. No ledge area was noted.

LBSF 7 intruded into Feature 140, and was intruded by LBSF 8. It lacked evidence of internal features intruding from the floor or walls. Because of the very limited investigation of this LBSF late in the field term, no comparative artifact analysis has been generated for this feature. Table 7.13 provides a breakdown of artifacts by zone for LBSF 7. Table 7.14 shows the weights of conchoidal lithics, sandstone, fired clay, and pigments.

Table 7.14. LBSF*7, Site 22Ts729--Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 2 | TOTAL |
|---|---|---|---|
| Conchoidal Lithic | 398.4 | 725.3 | 1,123.7 |
| Sandstone | 1,528.9 | 6,829.2 | 8,358.1 |
| Fired Clay | 31.0 | 261.9 | 292.9 |
| TOTAL | 1,958.3 | 7,816.4 | 9,774.7 |

*LBSF = Large Basin Shaped Feature.

Table 7.15. LBSF* 8, Site 22Ts729--Artifact Types and Raw Materials.

| | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravel | Other | TOTAL |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| Zone 1 | - | - | 1 | - | - | 1 |
| Zone 2 | 2 | 1 | 3 | 10 | 1 | 17 |
| Whole Preforms | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | 1 | - | 1 | - | - | 2 |
| Preform Fragments | | | | | | |
| Zone 1 | - | - | 1 | 1 | - | 2 |
| Zone 2 | - | - | 2 | 1 | - | 3 |
| Biface Fragments-Mid/Distal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | 1 | - | - | 1 |
| Whole Projectile Points | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Projectile Point Fragments-Mid/Distal | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | 1 | - | 2 | - | 3 |
| Projectile Point Fragments-Proximal | | | | | | |
| Zone 1 | - | 1 | - | - | - | 1 |
| Zone 2 | - | 1 | 2 | 1 | - | 4 |
| Utilized Flake | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | 1 | - | - | 1 |
| TOTAL | 3 | 4 | 12 | 16 | 1 | 36 |

*LBSF = Large Basin Shaped Feature.

LBSF 8

LBSF 8 was likewise encountered in plan view in Stripped Transect C (Figure 7.6), and was bisected by the exploratory trench, affording a profile view (Figure 7.9). Investigations were again limited to examination of the plan and profile because of late discovery and limited time for more extensive testing. LBSF 8 measured 2.4 m in diameter, and extended to 0.75 m below the point of recognition.

Both in plan view and profile, LBSF 8 was typical of the other LBSFs, showing a yellow sandy Zone 1 overlying a midden zone of dark brown sandy loam at the base of the feature (Zone 2). Zone 2 characteristically appeared as a dark ring around Zone 1 in plan view. A partial ledge was defined at the point of contact with LBSF 7, which LBSF 8 intruded.

Because of the limited investigations, no artifact analysis is presented for this feature. Table 7.15 lists artifact types and raw materials by zone. Table 7.16 shows weights of conchoidal lithic material, sandstone, fired clay, and pigments by zones.

Table 7.16. LBSF*8, Site 22Ts729--Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 2 | TOTAL |
|---|---|---|---|
| Conchoidal Lithic | 487.1 | 1,216.4 | 1,703.5 |
| Sandstone | 446.7 | 1,873.4 | 2,320.1 |
| Fired Clay | 12.8 | 50.5 | 63.3 |
| Pigments | - | 11.1 | 11.1 |
| TOTAL | 946.6 | 3,151.4 | 4,098.0 |

*LBSF = Large Basin Shaped Feature.

LBSF 9

LBSF 9 was visually noted in Stripped Transect C very late in the field investigations. Because this LBSF was not bisected by an exploratory trench, no profile of the feature could be inspected. LBSF 9 was not mapped and no excavation was carried out.

All that can be said of this LBSF is that it was consistent in plan view with most other LBSFs at the site. The plan view showed a circular light Zone 1, with a dark surrounding ring constituting Zone 2. There was no artifact recovery from LBSF 9.

LBSF 10

This LBSF designation has been discarded.

LBSF 11

This LBSF designation has been discarded.

LBSF 12

LBSF 12 was encountered in Excavation Block 3 (Figure 6.7). As can be seen in Figure 6.7, some 21 pit features intruded this area, and consequently many characteristics of this LBSF were obscured. It was not until the excavation of these pit features that LBSF 12 was recognized. The dimensions of LBSF 12 were 2.6 m north-south by 2.8 m east-west, with a depth below the recognized surface of 0.6 m.

Upon recognizing this as an LBSF, an east-west cross section was excavated, providing a profile view, shown in Figure 7.10. The stratigraphy showed the typical two superimposed zones: Zone 1 consisting of yellow sandy soil overlying Zone 2, consisting of dark brown sandy loam midden. A ledge area was defined, showing stains interpreted in the field as possible post holes. No other internal features were observed.

The only diagnostic material in LBSF 12 was one proximal fragment of a Morrow Mountain projectile point. This was located in the yellow fill of Zone 1. This projectile point and the absence of ceramics suggest a Middle Archaic assignment for this feature. This is further supported by the presence of a McIntire projectile point (Late Archaic) in Feature 132, which intrudes into this LBSF.

A total of 10 tools, preforms, and cores was recovered from LBSF 12. Six of these artifacts were cores, with 2 preforms, 1 projectile point fragment (mentioned above), and 1 utilized flake. Except for the Morrow Mountain point fragment, all of these were recovered in Zone 2. The majority of these artifacts (80%) were manufactured from Tuscaloosa Gravels.

Table 7.17 lists the frequencies of tools, preforms, and cores by raw material type and zone of occurrence. Table 7.18 lists the weights of conchoidal lithic material, sandstone, and fired clay for each zone.

## Depositional Characteristics of Natural Disturbances

As indicated previously, a major alternative interpretation to that of semisubterranean structures for the Brinkley large basin shaped features is that they are somehow the result of natural processes. More specifically, the possibility has been debated that some or all of the LBSFs are in some way the result of tree tip-ups or tree root disturbances. Consequently it will be important to briefly discuss what is known of the morphology of such natural features, for comparative use in assessing the Brinkley LBSFs. A preview of this discussion has already

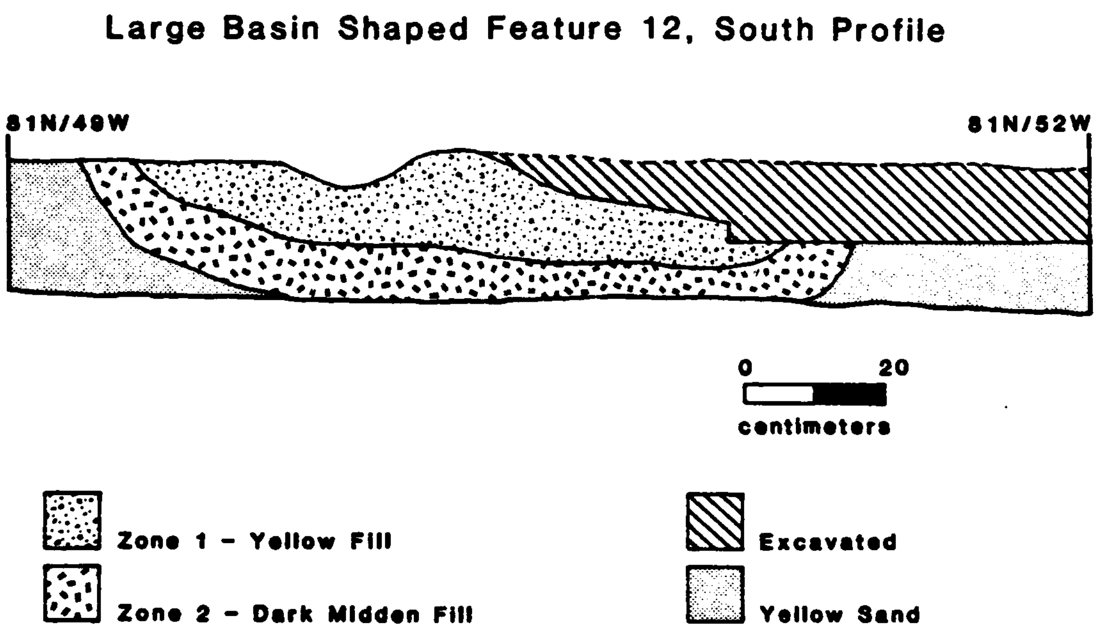

Large Basin Shaped Feature 12, South Profile
81N/49W
81N/52W
0
20
centimeters
Zone 1 - Yellow Fill
Zone 2 - Dark Midden Fill
Excavated
Yellow Sand

Figure 7.10.

Table 7.17. LBSF* 12, Site 22Ts729--Artifact Types and Raw Materials.

| Raw Material | Blue Fort Payne | Tan Fort Payne | Fossiliferous | Tuscaloosa Gravel | Other | TOTAL |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | 1 | - | 5 | - | 6 |
| Whole Preforms | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | 1 | - | - | 1 |
| Preform Fragments | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| Projectile Point Fragment-Proximal | | | | | | |
| Zone 1 | - | - | - | 1 | - | 1 |
| Zone 2 | - | - | - | - | - | - |
| Utilized Flake | | | | | | |
| Zone 1 | - | - | - | - | - | - |
| Zone 2 | - | - | - | 1 | - | 1 |
| TOTAL | - | 1 | 1 | 8 | - | 10 |

Table 7.18 LBSF* 12, Artifact Weights (g) by Analytical Category and Depositional Zone.

| | Zone 1 | Zone 2 | Total |
|---|---|---|---|
| Conchoidal Lithic | 300.4 | 1,334.6 | 1,635.0 |
| Sandstone | 741.2 | 983.2 | 1,724.4 |
| Fired Clay | 3.6 | 10.8 | 14.4 |
| Total | 1,045.2 | 2,328.6 | 3,373.8 |

*LBSF = Large Basin Shaped Feature.

been given in the description of LBSF 4, which has been interpreted as a tree tip-up.

Let us emphasize first that tree root disturbances vary greatly according to soil conditions, the size and the species of the tree, and the circumstances of felling or decomposition. Large trees without central tap root systems, such as oaks and hickories, tend to bear a large buttress-like radial root pattern which splays out at or just beneath the ground surface. These trees, when felled by storms or high winds, typically pull out a large hemispherical mass of earth leaving a semicircular crater-like depression. Such tree tip-ups can leave scars several meters across and as much as 2 m deep, which naturally fill up slowly and can be observed many years after all traces of the tree itself have decomposed. In contrast, trees such as large pines, which have a central tap root system and only minor radial feeders, leave an entirely different tree tip-up pattern. Such trees, if the trunks do not first snap off above the ground surface, tend to break off near the top of the tap root just below ground. In this case only a minor amount of dirt will be pulled up with the roots, leaving a relatively shallow irregular hole, in the center of which will sometimes be a deeper scar marking the severed tap root. Observed examples of large pine tip-ups have produced shallow irregular scars up to 1.2 m in diameter and 20 cm deep.

At an archaeological site, the kind of deposition produced would logically differ depending on whether the tree tip-up occurred before, during, or after the occupation. If the hole filled prior to the occupation, the fill sequence would be expected to be entirely sterile of artifactual debris, and would be identical in profile to non-site occurrences. Any midden buildup present would be superimposed on the naturally filled scar.

Alternatively, a tree tip-up which occurred during an occupation should tend to attract predictable kinds of cultural behaviors relative to it. For example, in the case of a shortage of firewood (see Ch. XII), the opportunity might be taken to cut up and remove the fallen trunk. Otherwise the fortuitously loosened and pulled up earth might be put to some use. The hole might be used as a refuse pit and be filled with midden. In these circumstances the naturally asymmetrical process of refilling due to erosion and redeposition of the upturned earth mass on one side would be artificially blocked, and the fill would have greater densities of artifactual materials than the general midden, as pits usually do. In nearly all cases, the hole resulting from the tree tip-up would probably be put to use, either for the discarding of primary refuse, just as abandoned storage pits are known to have been employed, or perhaps for the building of a small, insulated semisubterranean shelter. For example, Faulkner and McCollough (1974:Plate 35) excavated a tree tip-up at the Banks III Site (40Cf108) and concluded from the cultural debris obtained that the tip-up had been used as a refuse disposal pit. Deposition would also be expected to occur naturally from the erosion of the surrounding midden. The amount of such deposition would largely depend on whether the midden was previously in place <u>beneath</u> the tree root system, in which case much of it would be pulled up and redeposited in the hole; or alternatively whether the midden had only been deposited <u>around</u> the living tree, in which case much less cultural debris would be expected to laterally erode into the open tree scar.

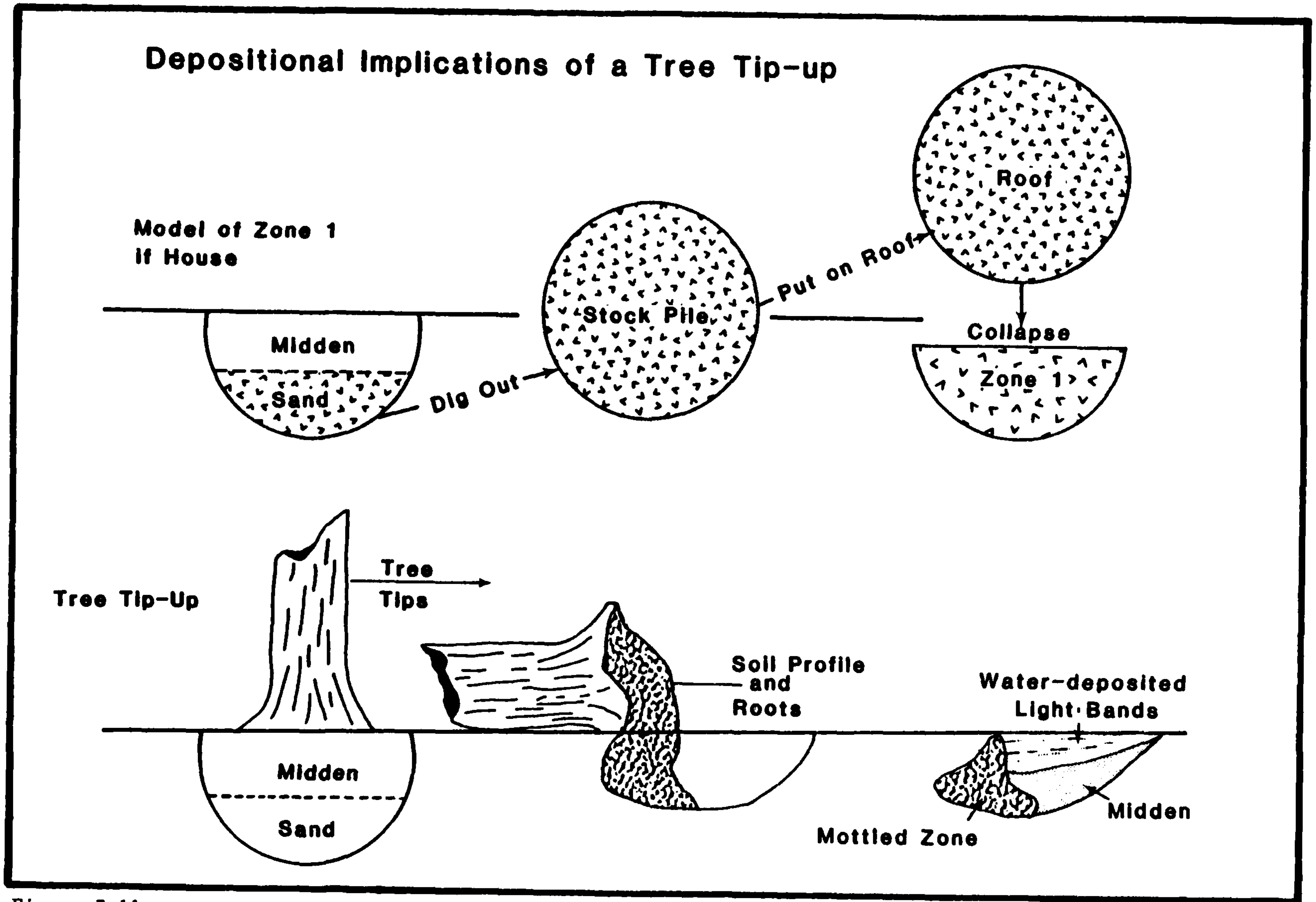
Finally, a different set of circumstances altogether would result in the case of a tree tip-up occurring after the abandonment of the site. In this case the density of cultural debris in the filled scar would be roughly the same as for the surrounding midden or lower if the living tree had interrupted continuous midden deposition. The kinds of cultural debris would be identical to that of the midden, and the morphology of the scar would be predictably similar to that of a non-site tree tip-up.

With these observations in mind, we may employ the data for a documented tree tip-up, LBSF 4 at the Brinkley Midden, as a paradigmatic case for a particular kind of on-site natural tree disturbance. As previously described, LBSF 4 measured 1.75 m in diameter and 0.3 m deep, with a circular outline. In cross-section it was asymmetrical, with a deep projection at one edge filled with a dark brown mottled zone. The remainder of the feature was filled by two superimposed lensed zones, consisting of a dark zone at the base underlying a yellow sandy zone lensed with dark brown clay loam. Both of the latter zones contained siltation bands. The feature lacked a circumscribed ledge area. The density of artifacts in the feature fill was lower than that of the surrounding midden, but the types and frequencies of artifacts were similar. The schematic drawing in Figure 7.11 illustrates the probable origin and sequence of filling of this type of tree disturbance.

In comparing this feature with the predicted outcomes discussed above, we find that LBSF 4 matches just one of the circumstantial sets: that of a tree tip-up occurring after the abandonment of the site. The lack of a primary midden deposit at the base of the feature strongly suggests that the scar was not open during the occupation and hence was not available for refuse deposition, but the presence of some artifacts in the fill shows that it did not occur prior to the human use of the site. The low density of artifacts in LBSF 4 indicates that those artifacts present were secondarily redeposited from the surrounding midden, in a sequence of natural erosion and deposition. The relatively small size of the scar suggests that a large tree was not involved, and the asymmetrical cross section and filling sequence makes sense in light of the hypothetical circumstances shown in Figure 7.11.

Several cautions must obviously be borne in mind in comparing this example of a tree tip-up to the remainder of the LBSFs encountered at the Brinkley Midden:

(1) A larger tree, especially with a marked radial root configuration, might result in a different pattern.
(2) A large, radial root configuration might well produce a kind of ledge or shelf around the scar, bearing apparent "post molds" (i.e. root molds) intruding the ledge at an angle.
(3) A tree tip-up which had been standing open at the time of occupation would predictably have a culturally modified deposition sequence, of potentially several configurations. Primary midden deposits would in this case usually be present.
(4) Both the form and depositional sequence in large tree tip-ups might be either symmetrical or assymetrical, depending on various circumstances.



Depositional Implications of a Tree Tip-up
Model of Zone 1
if House
Midden
Sand
Dig Out
Stock Pile
Put on Roof
Roof
Collapse
Zone 1
Tree Tip-Up
Tree
Tips
Midden
Sand
Soil Profile
and
Roots
Water-deposited
Light Bands
Midden
Mottled Zone


Figure 7.11.

For comparative data, several tree tip-ups have been excavated in the Normandy Reservoir, at the Banks III site (Faulkner and McCollough 1974) and at the Nowlin site (Keel 1978). These tip-ups were depositionally consistent with LBSF 4, containing a virtually sterile yellow fill and a separate dark brown fill containing cultural refuse, which suggest- that these features originated as the result of the same formational processes as LBSF 4. It is apparent from the amount of cultural material recovered from the dark brown zone of these features that they were open during the occupation of these Tennessee sites.

We have yet to mention that there are other possible kinds of tree root disturbances which might have occurred. These include the effects of large trees rotting or burning in place, in which case the disappearance of a massive stump and root system would presumably be filled in by erosion and settling from the surrounding area. Because we have no concrete data to consult regarding these phenomena, they will not be further discussed here.

## Semisubterranean Structures in the Archaeological and Ethnohistorical Record

Both round and rectangular earth lodges, only occasionally semisubterranean, are identfied with late prehistoric and early historic Indian cultures in the southeastern United States. Among the southeastern Indians these most frequently served as public buildings, usually large winter "hot houses". The circular town houses of the historic Cherokee, Creek, and Chickasaw had conical superstructures, and Adair (in Swanton 1946:387) describes Chickasaw examples in which the floor was excavated "a yard lower than the earth". Archaeological examples of semisubterranean structures in the Southeast, identified variously as public buildings or private domiciles, are found in Clemmer (1944:1-5), Bauxer (1957:423), Lewis and Kneberg (1958:145), Schnell (1968:7), Marshall (1971:24-25), and Schnell et al. (1981:95-100), among others. The cited examples are uniformly Mississippian (post A.D. 900) or later. This late southeastern tradition demonstrates an extensive range of building shape, size, and probable use. In many, but not in all, cases the walls and roof were earth-covered, and conversely there are examples of lodge-like earth-covered buildings which did not have a sunken floor (e.g., Fairbanks 1946). (It is, therefore, useful to distinguish between earth lodges, semisubterranean buildings, and semisubterranean earth lodges; and to further discriminate between public and domestic forms). In all cases these buildings were substantial, symmetrical affairs with flat floors, hearths, and internal supports.

A rather more uniform class of earth lodge was employed in historic times by various Plains Indian societies, including the Omaha, Ponca, Arikara, Skidi Pawnee, Oto, Mandan, and Hidatsa. Linton (1924:248) concluded that all of these similar structures must have "developed from a single ancestral form," as follows:

> "This form appears to have been characterized by a circular ground plan, a projecting entrance way, a more or less excavated floor, a central fire pit, a platform or series of platforms aro the walls, a roof support consisting of an outer row of

posts connected by stringers and a central group of much heavier posts, also connected by beams, closely spaced radial rafters, a grass thatch, and a final dressing of earth or sod" (Linton 1924:248).

Possible connections between the Plains and southeastern types of earth lodge have often been suggested (Linton 1924), but have never been sufficiently proven. A further possibility exists for some historical connection between these eastern forms and partially excavated earth covered dwellings in two other regions of North America: the Southwest and the Northwest Coast. While documented examples of North American sweat lodges and isolation lodges are not usually described as having excavated floors, these small structures provide a further class of possible analogs to the Brinkley LBSFs.

We do not mean to imply that there is any direct historical connection between the Brinkley LBSFs and the much later examples of southeastern semisubterranean buildings and sweat lodges. Even if the formal qualities of these kind of phenomena better matched the physical evidence, the time gap would be too great to infer a historical connection. The value of this superficial review is simply to point out the following observations.

First, both partially excavated earth covered buildings and small "sweat lodge" type structures are not foreign to the aboriginal Southeast. They had a widespread distribution in North America generally, and this fact has suggested to some investigators a considerable antiquity for these traits, possibly even an Asian origin (e.g., Linton 1924).

Second, it is clear that an excavated structure floor is an effective response to the need for insulation. When combined with a watertight superstructure and a covering of earth, the earth above and below provides a much better insulation against cold than other possible construction materials. These considerations are obviously among the determinants of the form of southeastern "hot houses" of the historic period.

## Inferences

We now come to the point where it is our obligation to assemble and digest these data, and to infer what we can from the large basin shaped features at the Brinkley Midden. This section will be confined to elementary inferences regarding specific characteristics of the LBSFs.

### Shape and Size

Summary statistics on the dimensions of the Brinkley LBSFs have already been presented. On the basis of the testing performed, we may conclude that LBSFs 1, 2, 3, 5, 6, 7, 8, 9, and 12 are sufficiently similar morphologically to have been the result of the same set of formation processes (LBSF 4 was determined to be a tree tip-up). Hence these LBSFs are justifiably considered as a definite class of features for which a uniform set of causal mechanisms might be sought. The hemispherical shape of the basins does not in itself belie either a natural or a cultural origin.

## Zone 2

Zone 2 was a thick dark brown deposit of refuse found uniformly covering the bottom and sides of the Brinkley LBSFs. With the exception of the somewhat anomalous LBSF 6, the deposit generally contained large amounts of sandstone, chipped lithics and debitage, and botanical remains, especially hickory nut shells. No evidence of prepared hearths was encountered. The high density of these cultural remains within Zone 2 as compared with the surrounding midden, and the lack of siltation bands within the zone, strongly suggest that the zone is not the natural product of erosion and redeposition of the surrounding midden. We can infer that these were primary deposits of refuse, accumulated during the Middle to Late Archaic occupation of the site.

## Zone 1

All of the Brinkley LBSFs, except for Numbers 4 and 6, bore a distinctive yellow sandy cap covering Zone 2. Zone 1 was in general nearly sterile of cultural debris, and like Zone 2 lacked siltation bands. We can infer that these were not primary refuse deposits, and further there is no clear evidence that natural processes were involved in their formation.

## Ledges

Three of the Brinkley LBSFs for which there is adequate information bore evidence of a shallow surrounding ledge at the lip. These ledges were quite variable in width and depth. The ledge fill was dark but generally distinguishable from Zone 2, and yielded cultural debris. In some cases, stains interpreted in the field as possible post molds were found intruding at an angle from vertical on the ledge, but no continuous patterns were identified. This ledge has been interpreted by the investigators as evidence for the footing of conical superstructures, but as indicated earlier, a natural origin cannot be completely ruled out.

## Internal Features

The Brinkley LBSFs were typically free of associated internal features. In one case (LBSF 2), a shallow trough-like area (a ramped entrance?) was found on the southeast side of the pit. In this same LBSF, a possible post mold was identified intruding from the base of the feature. These characteristics fail to shed much light on the natural and/or cultural origin of the LBSFs.

## Cultural Remains

Diagnostic cultural remains recovered from the Brinkley LBSFs consistently allow the inference that the features date no later than the Middle to Late Archaic period. The lithic materials encountered are characteristic of those found generally in other areas of the site, but the amount of sandstone is significantly higher in the LBSFs. Importantly, the density of charred botanical remains from the LBSFs was relatively high. The amount of charred nut shells was especially noteworthy, by weight amounting to more than charred wood. This suggests that the nut shells were being used in place of wood as fuel for fires (See Chapter XII).

## Interpretation

Here we will provide an interpretive account of the Brinkley large basin shaped features, based upon inferences drawn from the morphology and depositional contexts defined. It has been our conclusion that these features represent the remains of small Fall-Winter structures, erected by excavating a hemispherical basin, preparing a circumscribed ledge as a footing ditch, arranging a wooden conical superstructure above the basin, and depositing an insulating layer of sandy soil over the superstructure.

The nature of the midden (in situ geologic stratigraphy), natural conditions (i.e., gravitational pull) limits certain kinds of deposits from the arcaheological record, implies that certain things have happened, and precludes the possibility that other events caused the observed deposition in the LBSFs. We have intrepreted Zone 2 within the LBSFs as a primary cultural deposit, and here we suggest that it originated from the occupation of the LBSFs as structures. The large quantities of fire cracked rock in Zone 2 suggest the possibility that rocks were used to retain heat. The insulating and heat storage properties of the earth covered superstructure would efficiently retain and dissipate heat from a heat source within the structure (cf. Martindale 1979). Burning nut shells as fuel within the structures would provide such an appropriate heat source, possibly in this circumstance a more effective fuel than wood. The range of activities performed in these structures would have included the manufacture of conchoidal lithic artifacts including projectile points, accounting for these remains in Zone 2.

The sandy, nearly sterile Zone 1 in the LBSFs presumably represents the earth covering the superstructure, which collapsed in each case (except for LBSF 6 ?). We consider the lack of water-lain sediments in Zone 1 to be some of the best evidence that this represents a cultural rather than a natural feature. The presence of siltation bands in LBSF 4 shows that soil conditons on the site were conducive to producing them under natural conditions. The lack of artifacts and light tan color of the zone further argues against an interpretation as normal refuse pit fill. The interpretation offered appears to best fit the evidence from the upper portions of the LBSF fill.

Figure 7.12 shows a critical path analysis of the necessary precedent order of construction and depositional destruction. Critical path analysis is used in modern engineering to plan construction sequences by deter-

## Depositional Model for Large Basin Shaped Features

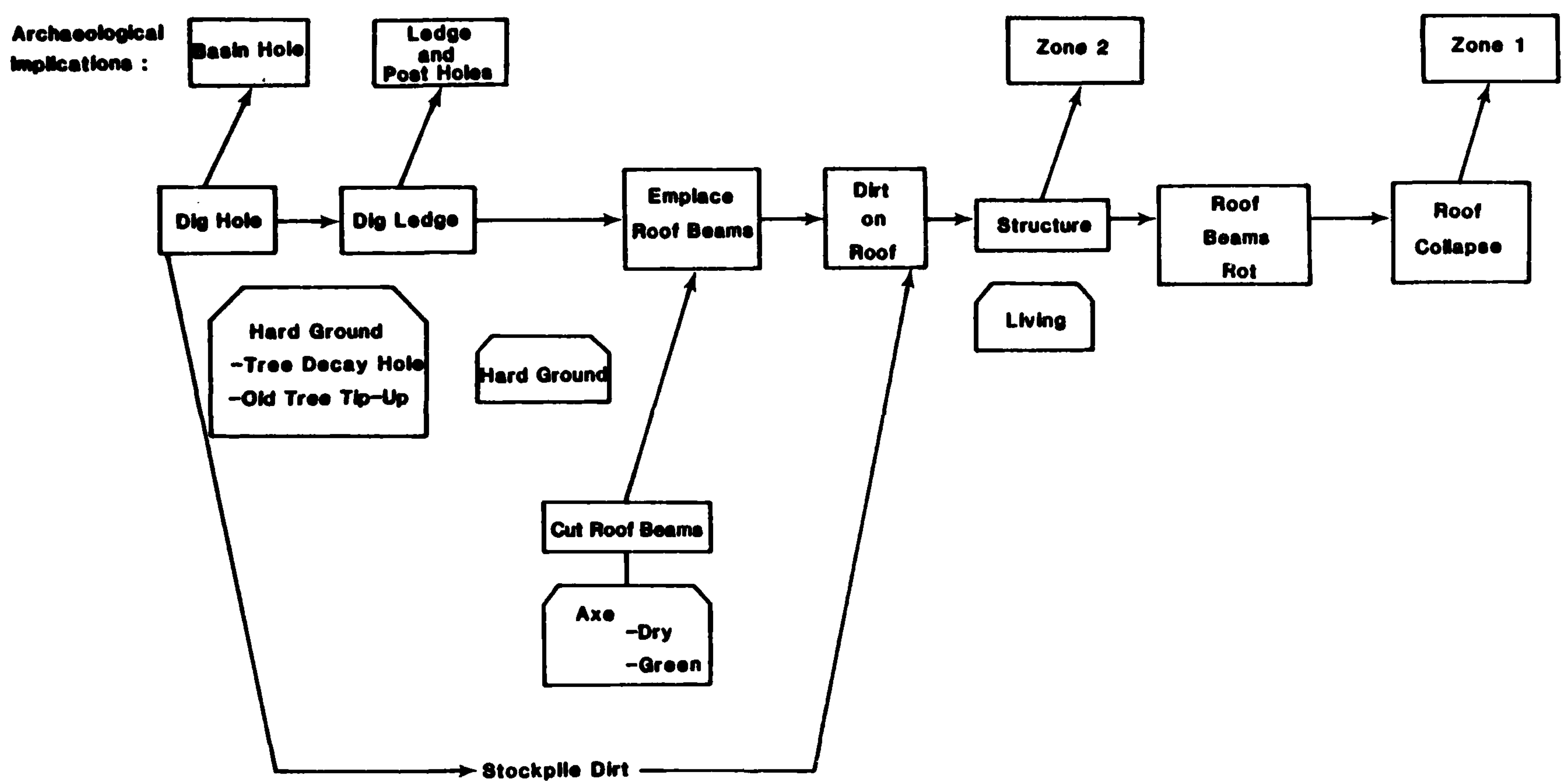



Figure 7.12.

mining which construction steps must be sequentially ordered and which not. For the LBSFs, first it is necessary to dig a hole. This can take place in several possible natural contexts: regular ground, a tree tip-up or float hole, or a decayed tree root hole. The latter contexts would have been much easier, especially considering the poorly developed digging technology probably present at these times.

Next the ledge and/or post holes for the emplacement of the superstructure were dug. Previously sized roof beams were then placed at an angle of ca. 42° off vertical, as indicated by the angle of the few post molds found intruding below the ledge. The dirt from the hole was then set on the roof as protective insulation, which must have been stablized in some manner. A large dark stain in the center of several of the larger structures suggests the possibility of central support posts or other interior furniture. The slanted walls would make more sense if this were the case, and the lower portions could have been used for storage, cold trapping, and the accumulating level of midden. If these structures were occupied in the fall and winter (as the large quantity of nut shells suggests) then heat could have been a problem. There is little evidence for internal fires. Large quantities of fire cracked rocks suggest the possibility that these were used to provide heat. This would be structurally consistent with the ethnohistorically known hot houses. According to this behavioral model, the midden zone would have been laid down when the structure was occupied. The upper sand zone (Zone 1) should have been deposited when the roof rotted and collapsed. It is possible that, properly constructed and maintained, such a structure could have lasted a long time, perhaps generations.

The most important point in this sequence is the origin of Zone 1. By the Late Archaic occupation the midden was ca. 40 cm thick and was becoming rather dark, both through natural and cultural soil formation processes. The light color of Zone 1 indicates that the soil of which it is composed had to come from the B horizon, and there had to be a mechanism to raise this to a higher position than the hole in which it was deposited, <u>while Zone 2 was being deposited</u>. Any explanation of the origin of these LBSF must account for the anomalous high position of these light soils in relation to the midden.

The only natural causes known to produce similar sized holes which can also raise B horizon soils to a higher energy potential in these latitudes are tree tip-ups, and we have shown that the deposits from these are different from the LBSFs. Tree tip-ups have a mottled central area dividing the alluvially silted hole and the mechanically loosened remainder of the root ball, which is different from the LBSFs. In four years of looking for possible natural causes which can raise a mass of naturally lower lying B horizon soils above the midden and then deposit it as a mass in a non-alluvial manner after 10 cm to 20 cm of midden has been laid down, only the possiblity of tree tip-ups has been retained.

For nature to move anything uphill, against the ever present force of gravity, requires the expenditure of energy. Kinds of natural mechanical energy include tree tip-ups, frost wedging and frost heaving, and movement of rock by glaciers and water. Natural organic uphill movement is limited to movement of rocks and soils by plant root systems and various burrowing activities by animals. None of these phenomena are known to produce anything like the size or configuration of the LBSFs, and none of these can account for Zone 1. Therefore the cultural origin of the LBSFs (with the exception of LBSF 4) is the only possible way in which Zone 1 could have been raised to a higher energy level and then deposited in a unit in the hole. Furthermore, human beings regularly move things around, so their cultural origin is not anomalous. The occurrence of Zone 1 in eight of the nine culturally derived LBSFs argues for the normal association of Zone 1 above the pit and placed in such a way that the bulk could be deposited together in the pit in a non-fluvial manner (resulting in the lack of siltation bands).

Having eliminated natural causes for producing these features, we should ask which kinds of facilities have been produced by humans which are of this size, with these specific depositional characteristics? Four years of research has resulted in the following: roasting pits, foot drums, and semisubterranean earth lodges. Of these cultural phenomena, we prefer the interpretation of semisubterranean earth lodges.

Similar structure types of comparable age are found elsewhere in the archaeological record. At Chilca, Peru (Donnan 1964:137-144), a similar structure was dated to 5370±120 B.P. (UCLA-664). This structure was semisubterranean, about 2.5 m in diameter with posts set around the periphery. The frame, which was preserved, was erected of cane and covered with grasses. Neither fire hearth nor ashes were encountered. Donnan (1964:141) points out that "the house apparently served only to provide shelter from the cold and a place to sleep. Although quite small, it could have served this purpose well." In the excavation of LBSF 2 at the F.L. Brinkley Midden a large piece of cane was found (measuring 2.2 cm in width, 6.3 cm in length, representing a joint segment with an estimated original diameter of 5.0-7.5 cm), which could have been used in the construction of the these structures. The fragment of cane is the largest that the authors of this paper have seen in these latitudes. Another similarity between this and the Brinkley structures is the absence of internal fire hearths.

In addition, at least one example of Late Archaic or Middle Gulf Formational provenience is known from the southeastern United States. Peterson (1973:16-18) encountered one edge of a feature interpreted as a semisubterranean house in his excavations of the Spring Creek site (40Py207) in Perry County, Tennessee. The house was recognized as a dark midden-like zone describing a shallow, flat-bottomed basin in parts of two adjacent excavation units. A row of post holes was encountered around the periphery of this zone and extending below it, apparently indicating a rectilinear shape. Peterson (1973:18) suggested that this house would have been "suitable for winter habitation in the Tennessee Valley." A single fiber tempered (Wheeler) potsherd was found adjacent to the house and is thought to be associated, and a radiocarbon date of 3320±160 B.P. or 1370 B.C. (GS3104) was obtained. The date is roughly consistent with the presumed Wheeler association. Archaic structures (but not semisubterranean) are also known from the Koster site (Jaehnig 1974).

The University of Georgia excavations in the Wallace Reservoir have unearthed a series of similar structures in the uplands but also at a much later time period (A.D. 1600: Mark Williams, personal communication). These structures were depositionally identical to the Brinkley structures in that there was a dense midden deposit across the bottom which was covered with a relatively sterile level of red clay (into which these structures had been excavated). Two differences noted were the presence of a central hearth and a burned smoke hole in the center of what has been described as Zone 1. Thus, in terms of size and other characteristics, these structures were virtually identical to the Brinkley structures.

In conclusion, the large basin shaped excavations found in an Archaic context at the Brinkley Midden in northeastern Mississippi appear to have been structures. These structures are much too large to have been storage pits and are larger than most other known Archaic features. The midden in the floors of the structures has denser artifactual material than other deposits on the site. This indicates an intense utilization, such as might occur in a late fall camp when the weather is becoming cold. The presence of large quantities of charred nuts supports the hypothesis of late fall and early winter occupation, and is consistent with the dry weather characteristic of these times of the year. These structures are depositionally distinct from documented tree tip-ups, though these might have been used as house preforms. The large non-alluvial Zone 1 present in most of the LBSFs implies a placement directly above the whole pit which could not have happened by any natural means known to the authors.

# VIII. CONCHOIDAL LITHIC TOOLS AND DEBITAGE

## Introduction

A variety of conchoidal lithic materials was recovered from the Brinkley Midden. This chapter discusses these remains. It is separated into two broad classes of items: (1) conchoidal lithic debitage, and (2) conchoidal lithic tools. The analysis of conchoidal lithic debitage is used to examine lithic tool manufacturing behaviors at the site. The analysis of lithic tools is used to assess the activities performed by the prehistoric inhabitants. The analysis also addresses variability in lithic raw materials. Analysis of the distribution and frequency of these materials enables generalizations concerning prehistoric lithic tool manufacturing, tool use, and raw material procurement for the site.

## Conchoidal Lithic Debitage

Chipped lithic artifacts are usually manufactured from cryptocrystalline silica which has conchoidal fracture. Conchoidal lithic tool manufacturing is a continuous reductive process. Relatively discrete stages can be identified on the basis of qualitative characteristics of lithic debitage. Lithic debitage refers to the waste by-products from the manufacture and modification of lithic tools. Debitage includes production failures and rejects, as well as flakes resulting from the manufacturing process. There are several distinct forms of debitage which provide evidence of specific manufacturing activities. The following are relatively discrete categories that provide a framework for delineating prehistoric manufacturing behaviors at the Brinkley Midden.

### Core

A core is a piece of lithic material from which flakes have been deliberately detached for further modification into tools. Although cores were sometimes used prehistorically as tools, this was not evident among the specimens examined. Cores may be manufactured from cobbles or tabular pieces of lithic material.

### Preform

A preform is a bifacially flaked piece of lithic material which has not been completely shaped and thinned. Preforms from the earlier stages of the reduction process are generally relatively thick, roughly shaped forms. They frequently exhibit deep flake scars which create undulating and uneven edges. As a preform nears a more finished form, more regular flaking is evident with more shallow flake scars and a more even edge. Preforms are in a sense a specific kind of core, in which the object of the manufacturing process is the bifacial reduction and thinning of the core to produce a bifacial tool. Preforms may be manufactured from cobble or tabular cores, or they may be produced from flakes detached from large cores.

## Decortication Flakes and Shatter

These materials are characterized by cortex on their dorsal surface. They are a by-product from the initial stages of preparing lithic raw materials for tool production. Although decortication flakes primarily appear in the earlier portion of the manufacturing process, occasionally remnants of the cortex are not completely removed until later in the production sequence. Because of this, flakes with 10 percent or less cortex on the dorsal surface were excluded from this category.

## Bifacial Thinning Flakes

These flakes exhibit a thin, wide, curved form and are characterized by the presence of thin expanding flake scars on the dorsal surface. The striking platforms frequently exhibit bifacial flake scars, an acute platform angle, and heavily ground edges from preparing flake removals. These flakes are produced from the manufacture of bifacial tools and result from a continuous reduction process. As the shaping and thinning procedures progress, the flake by-products generally become smaller and thinner.

## Blades

Blades are defined as flakes with parallel lateral margins whose length exceeds their width by a ratio of 2:1 or greater. These flakes result from a specific kind of core preparation and reduction process, aimed at providing long narrow flakes with sharp edges. Although flakes conforming to this definition are occasionally produced during other manufacturing processes such as bifacial tool manufacture, the difference between blade-like flakes and true blades is not always discernible. If blades were produced to a significant degree, one would also expect blade cores to be present. Only two blade cores were observed in the course of the analysis.

## Interior Flakes and Shatter

These are lithic flakes and shatter which lack both cortex and the diagnostic attributes characterized by bifacial thinning flakes and blades. The flake platform angles are not acute, and the platforms are not bifacially flaked as in bifacial thinning flakes. These flakes are not long, narrow, and parallel as are blades. This is a catchall category which contains the unidentifiable by-products of bifacial tool and blade production, as well as the identifiable by-products from manufacturing flakes for use in their unmodified form.

## Discussion

Because the large amounts of conchoidal lithic debitage recovered from the Brinkley Midden prohibited a complete analysis of the materials, a sample was selected for detailed examination. This sample consists of lithic materials recovered from four pairs of 1 m by 1 m excavation units. Two pairs are located along the stratigraphic trench as shown in Figure 4.4 (66N/61W-66N/62W, 84N/40W-85N/40W); and one pair each is located in Excavation Block 2 (66N/29W-66N/30W) and Excavation Block 3 (82N/49W-

82N/50W) (Figure 4.4). These excavation units were selected because of their stratigraphic integrity and lack of historic and prehistoric cultural disturbances. Although a sample of 9,951 pieces of conchoidal lithic debitage is included in this analysis, it is a small portion of the debitage collected and is restricted in spatial coverage. All cultural strata are represented, however, and all of the conchoidal lithic debitage present within each of the units is included. Levels 1 and 2 are comprised of disturbed plow zone materials and are represented solely by the excavation block units. All of the other levels in the analysis represent intact cultural strata. The lithic debitage from each provenience was analyzed according to the descriptive and morphological categories discussed above and the raw material classes discussed in Chapter II.

Tables 8.1 through 8.4 list the frequencies of lithic debitage by excavated levels. Interior flakes and shatter are the most numerous materials, but this is hardly surprising given the inclusiveness of the category. Cores occur more frequently than preforms, and bifacial thinning flakes are more numerous than either decortication flakes, shatter or blades. This suggests that lithic manufacturing activities at the Brinkley site included the complete manufacturing trajectory, although the by-products from the initial reduction processes occur less frequently than products of later procedures.

Excavation Blocks 2 and 3 exhibit a steady increase in the frequency of debitage from the lower to upper levels. This suggests a steadily increasing rate of deposition from earlier to later cultural periods. The units from the stratigraphic trench, however, reveal a slightly different pattern. Although these units show the same general pattern, a decrease in debitage frequencies from Level 4 to Level 3 is evident (Tables 8.3, 8.4). This is probably the result of sampling error, but it could indicate a decrease in the use, or a different use, of these portions of the site. Tuscaloosa gravels are the predominant raw materials and account for 83.9 percent of the debitage involved in this sample. Fossiliferous Bangor chert, and blue and tan Fort Payne chert account for most of the other debitage. Other raw materials, however, are also present (Tables 8.5-8.8).

## Conchoidal Lithic Tools

A major assumption of this analysis is that a meaningful relationship exists between the morphological design of a tool and its intended use. Choices and decisions are made during the manufacture or modification of flaked stone tools that affect their utility for different kinds of activities. Basic elements such as the angle of the working edge, or its shape and length, are important considerations when designing or selecting tools because their character can significantly affect the efficiency of a tool for certain kinds of tasks. It is because of their suitability for certain ranges of activities that certain combinations of these elements recur, and it is these regularities which we observe in the archaeological record. By constructing groups of tools that reflect these regularities, aspects of prehistoric behavior that may not otherwise be observed can be identified. Although there has been criticism of the use of functional

Table 8.1. Lithic Debitage Frequencies by Level, Excavation Block 2. 67N/29W - 66N/30W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Cores | - | - | 3 | - | - | 1 | - | 4 |
| Preforms | - | - | 3 | 3 | - | - | - | 6 |
| Decortication Flakes and Shatter | - | - | 147 | 29 | 26 | 14 | 7 | 223 |
| Bifacial Thinning Flakes | - | - | 556 | 200 | 156 | 22 | 15 | 949 |
| Blades | - | - | 9 | - | 3 | 1 | 1 | 14 |
| Interior Flakes and Shatter | - | - | 961 | 382 | 279 | 39 | 18 | 1,679 |
| TOTAL | - | - | 1,679 | 614 | 464 | 77 | 41 | 2,875 |

Table 8.2. Lithic Debitage Frequencies by Level, Excavation Block 3. 82N/49W - 82N/50W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Cores | - | - | 5 | 8 | 1 | 2 | - | 16 |
| Preforms | - | - | 1 | 1 | - | - | - | 2 |
| Decortication Flakes and Shatter | - | - | 66 | 26 | 24 | 11 | - | 127 |
| Bifacial Thinning Flakes | - | - | 198 | 137 | 98 | 43 | - | 476 |
| Blades | - | - | 12 | - | 2 | - | - | 14 |
| Interior Flakes and Shatter | - | - | 354 | 313 | 176 | 80 | - | 923 |
| TOTAL | - | - | 636 | 485 | 301 | 136 | - | 1,558 |

Table 8.3. Lithic Debitage Frequencies by Level, Stratigraphic Trench. 66N/61W - 66N/62W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Cores | 5 | 2 | 1 | 1 | 1 | - | - | 10 |
| Preforms | 2 | 2 | - | 3 | - | - | - | 7 |
| Decortication Flakes and Shatter | 31 | 31 | 17 | 64 | 6 | 1 | 5 | 155 |
| Bifacial Thinning Flakes | 88 | 73 | 59 | 201 | 24 | 9 | 9 | 463 |
| Blades | 4 | 2 | 1 | 3 | - | 2 | 2 | 14 |
| Interior Flakes and Shatter | 319 | 222 | 104 | 282 | 17 | 20 | 10 | 974 |
| TOTAL | 449 | 332 | 182 | 554 | 48 | 32 | 26 | 1,623 |

Table 8.4. Lithic Debitage Frequencies by Level, Stratigraphic Trench. 84N/40W - 85N/40W.

| | Level | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | TOTAL |
| Cores | 10 | 2 | 14 | 1 | 8 | - | - | - | - | - | 35 |
| Preforms | 4 | 7 | - | 1 | 5 | 1 | - | 1 | - | - | 19 |
| Decortication Flakes and Shatter | 65 | 108 | 24 | 30 | 15 | 17 | 16 | 6 | 2 | 4 | 287 |
| Bifacial Thinning Flakes | 291 | 199 | 151 | 147 | 122 | 57 | 52 | 28 | 39 | 17 | 1,103 |
| Blades | - | 8 | - | - | - | 1 | 1 | - | - | 1 | 11 |
| Interior Flakes and Shatter | 703 | 454 | 302 | 320 | 189 | 141 | 82 | 42 | 64 | 45 | 2,342 |
| TOTAL | 1,073 | 778 | 491 | 499 | 339 | 217 | 151 | 77 | 105 | 67 | 3,797 |

Table 8.5. Lithic Debitage Totals by Raw Material and Level, Excavation Block 2. 67N/29W - 66N/30W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Blue Fort Payne Chert | - | - | 44 | 59 | 27 | 4 | 1 | 135 |
| Tan Fort Payne Chert | - | - | 31 | 11 | 20 | 7 | - | 69 |
| Fossiliferous Bangor Chert | - | - | 71 | 8 | 25 | 5 | 1 | 110 |
| Tuscaloosa Gravels | - | - | 1,525 | 535 | 391 | 60 | 38 | 2,549 |
| Other | - | - | 8 | 1 | 1 | 1 | 1 | 12 |
| TOTAL | - | - | 1,679 | 614 | 464 | 77 | 41 | 2,875 |

Table 8.6. Lithic Debitage Totals by Raw Material and Level, Excavation Block 3. 82N/49W - 82N/50W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Blue Fort Payne Chert | - | - | 43 | 26 | 16 | 8 | - | 93 |
| Tan Fort Payne Chert | - | - | 31 | 4 | 28 | 18 | - | 81 |
| Fossiliferous Bangor Chert | - | - | 91 | 17 | 13 | 9 | - | 130 |
| Tuscaloosa Gravels | - | - | 463 | 430 | 242 | 99 | - | 1,234 |
| Other | - | - | 7 | 8 | 3 | 2 | - | 20 |
| TOTAL | - | - | 635 | 485 | 302 | 136 | - | 1,558 |

Table 8.7. Lithic Debitage Totals by Raw Material and Level, Stratigraphic Trench. 66N/61W - 66N/62W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Blue Fort Payne Chert | 21 | 22 | 15 | 41 | 4 | - | 3 | 106 |
| Tan Fort Payne Chert | 6 | 2 | 6 | 75 | - | - | - | 89 |
| Fossiliferous Bangor Chert | 29 | 12 | 5 | 98 | 1 | - | - | 145 |
| Tuscaloosa Gravels | 390 | 295 | 156 | 336 | 43 | 32 | 23 | 1,275 |
| Other | 3 | 1 | - | 4 | - | - | - | 8 |
| TOTAL | 449 | 332 | 182 | 554 | 48 | 32 | 26 | 1,623 |

Table 8.8. Lithic Debitage Totals by Raw Material and Level, Stratigraphic Trench. 84N/40W - 85N/40W.

| | Level | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | TOTAL |
| Blue Fort Payne Chert | 50 | 59 | 22 | 36 | 12 | 6 | 6 | 2 | 2 | - | 195 |
| Tan Fort Payne Chert | 3 | 51 | 3 | 7 | 8 | 6 | 1 | 4 | 1 | 0 | 84 |
| Fossiliferous Bangor Chert | 26 | 137 | 7 | 17 | 7 | 6 | 5 | 1 | 6 | 3 | 215 |
| Tuscaloosa Gravels | 993 | 530 | 456 | 436 | 308 | 199 | 139 | 69 | 97 | 65 | 3,292 |
| Other | 1 | 1 | 3 | 3 | 2 | - | - | 1 | - | - | 11 |
| TOTAL | 1,073 | 778 | 491 | 499 | 337 | 217 | 151 | 77 | 106 | 68 | 3,797 |

designations based on morphology and design, these features successfully convey an image of those items under discussion and are useful for communicative purposes.

Before discussing the general classes of tools employed in the analysis, it will be useful to include a list of the terms to be used in describing conchoidal lithic artifacts. These terms are as follows:

| | |
|---|---|
| Retouch: | To shape or transform an artifact with the use of deliberate patterned flaking; frequently to thin, sharpen, or regularize lithic materials. |
| Unifacial retouch: | Retouch directed from only one face of an artifact. |
| Bifacial retouch: | Retouch directed from two opposing faces which are located on the same edge of the artifact. |
| Marginal retouch: | Retouch confined to the edge of the artifact. |
| Semi-invasive retouch: | Retouch which extends halfway across the surface of the tool between the tool center and the tool edge. |
| Invasive retouch: | Retouch which extends more than halfway across the surface of the tool between the tool center and the tool edge. |
| Primary retouch: | Retouch resulting from the initial thinning of a bifacial tool. It is usually characterized by invasive percussion flaking. |
| Secondary retouch: | Retouch resulting from the finishing and sharpening of a bifacial tool. It is usually characterized by marginal or semi-invasive pressure or percussion flaking. |
| Impact fracture: | A longitudinally oriented fracture derived from the distal end of a tool. It usually results from the tool being impacted into a relatively hard object, detaching part of the tool with an abruptly terminated fracture. |
| Lateral snap: | A transverse fracture bisecting a tool in a relatively straight line through the cross-section, with an S-shaped appearance similar to a hinge fracture. This kind of fracture is primarily the result of stress |

being applied in a manner perpendicular to the plane of the tool.

| | |
|---|---|
| Incipient fracture: | A broad category of different fractures that occur along bedding planes or inclusions in the raw material. These are the result of flaws in the stone which create weak points, enhancing the likelihood of tool breakage. |
| Distal section: | The portion of a tool near the tip. |
| Mid section: | The portion of a tool between the tip and shoulders. |
| Proximal section: | The portion of a tool near the base or haft element. |

The general classes of tools employed in the analysis of conchoidal lithic artifacts are as follows:

Biface (Figures 8.1, a-h; 8.2, a-i)

A biface is a bifacially flaked lithic tool with a pointed distal end and one or more adjacent lateral margins characterized by a relatively acute or moderate angled working edge. This tool is distinguished from a projectile point by the absence of a prepared haft facility and its less symmetrical thin form. It is not certain whether these represent finished tools, or later stage forms in the manufacturing sequence of projectile points. Futato (1975) argues to support the latter explanation, although some specimens suggest their use as hafted tools (Dryden 1981:462). It seems probable there is truth in both arguments.

Projectile point (Figures 9.1-9.17)

A projectile point is a bifacially flaked lithic tool with a pointed distal end and one or more adjacent lateral margins, characterized by a relatively acute or moderate edge angle. The presence of a prepared haft facility, such as notching or stemming, distinguishes this tool group as well as its more symmetrical and evenly flaked form. The term projectile point is applied in a conventional sense and does not exclude the possibility these functioned as knives, spears, or other functional tools.

Drill (Figures 8.3, a-i; 8.4, a-n)

A drill is a bifacially flaked lithic tool with a pointed distal end and narrow, parallel lateral margins. The lateral working edges are characterized by steep edge angles, which frequently exhibit wear suggesting their use in a rotary manner. A haft facility is usually located opposite the working edge, or backing may be present.

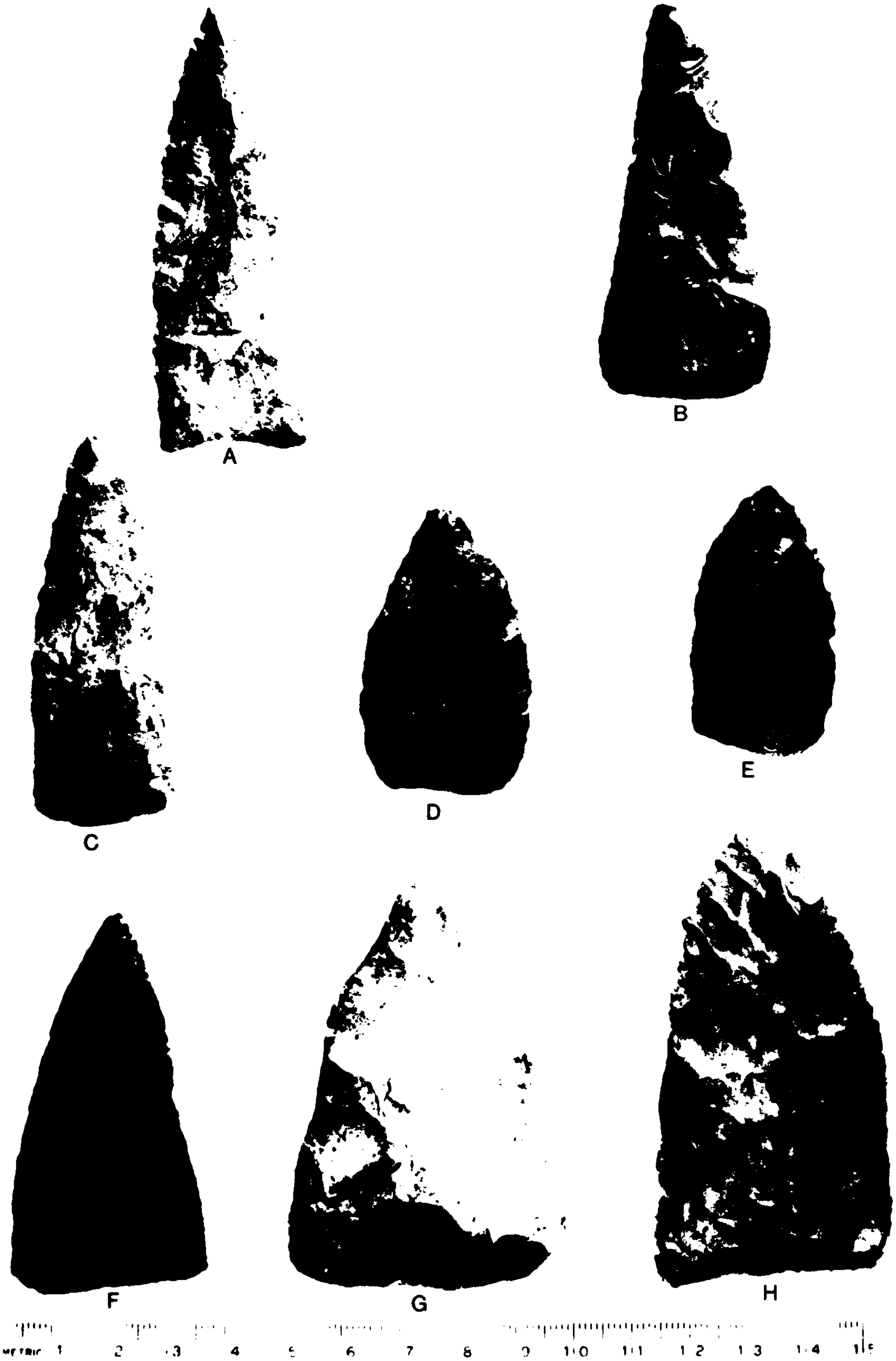



Figure 8.1. Bifaces.

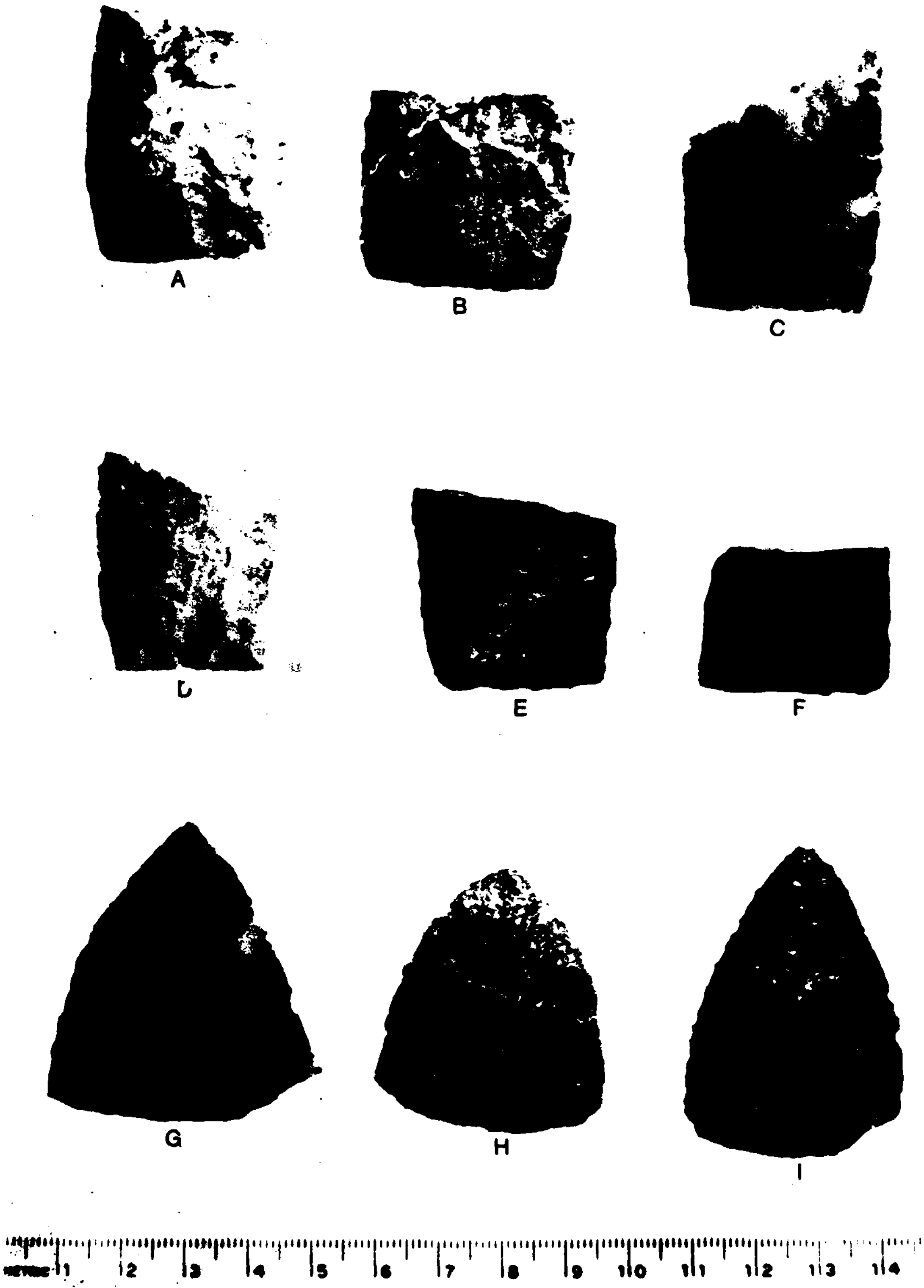



Figure 8.2. Bifaces.

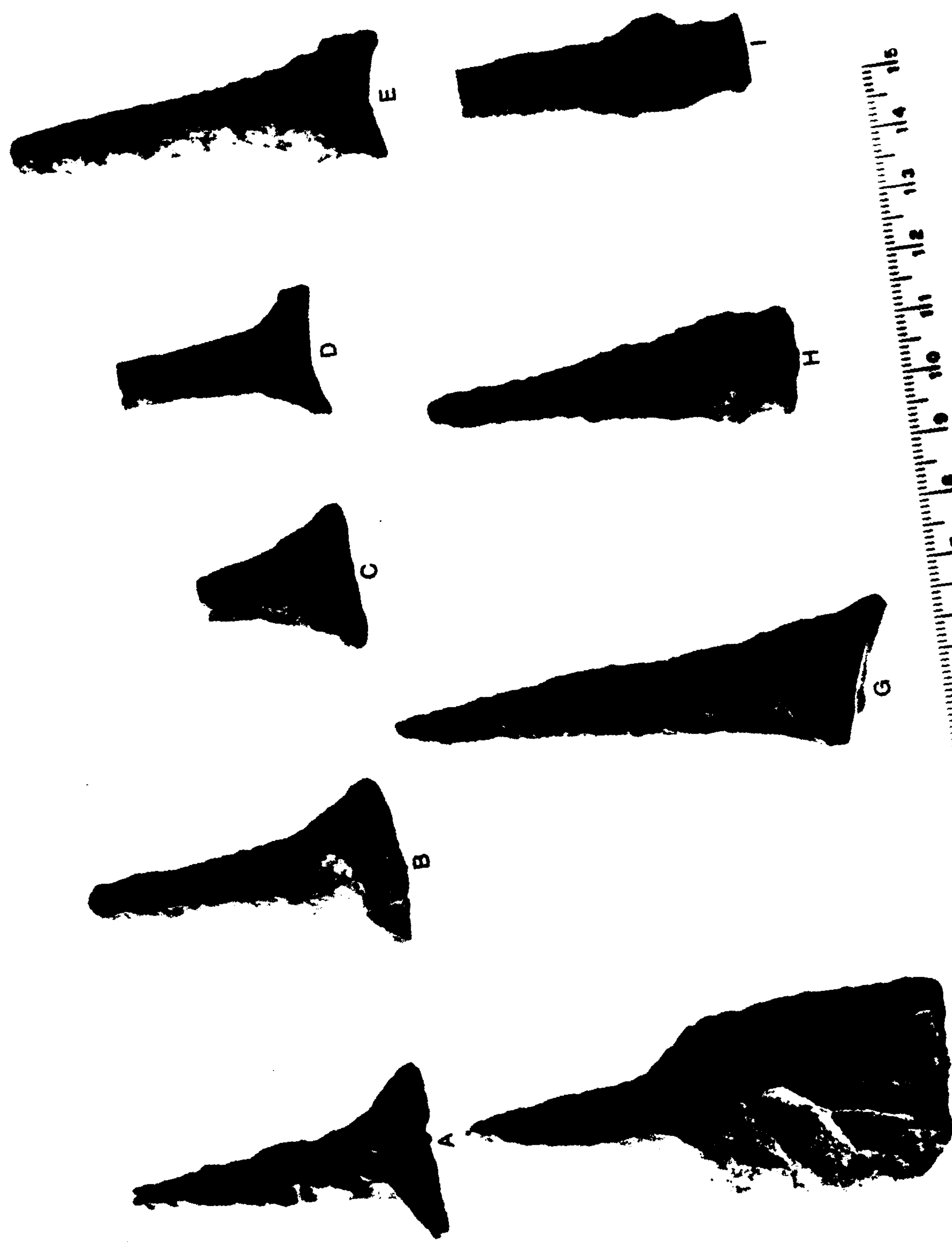



Figure 8.3. Drills.

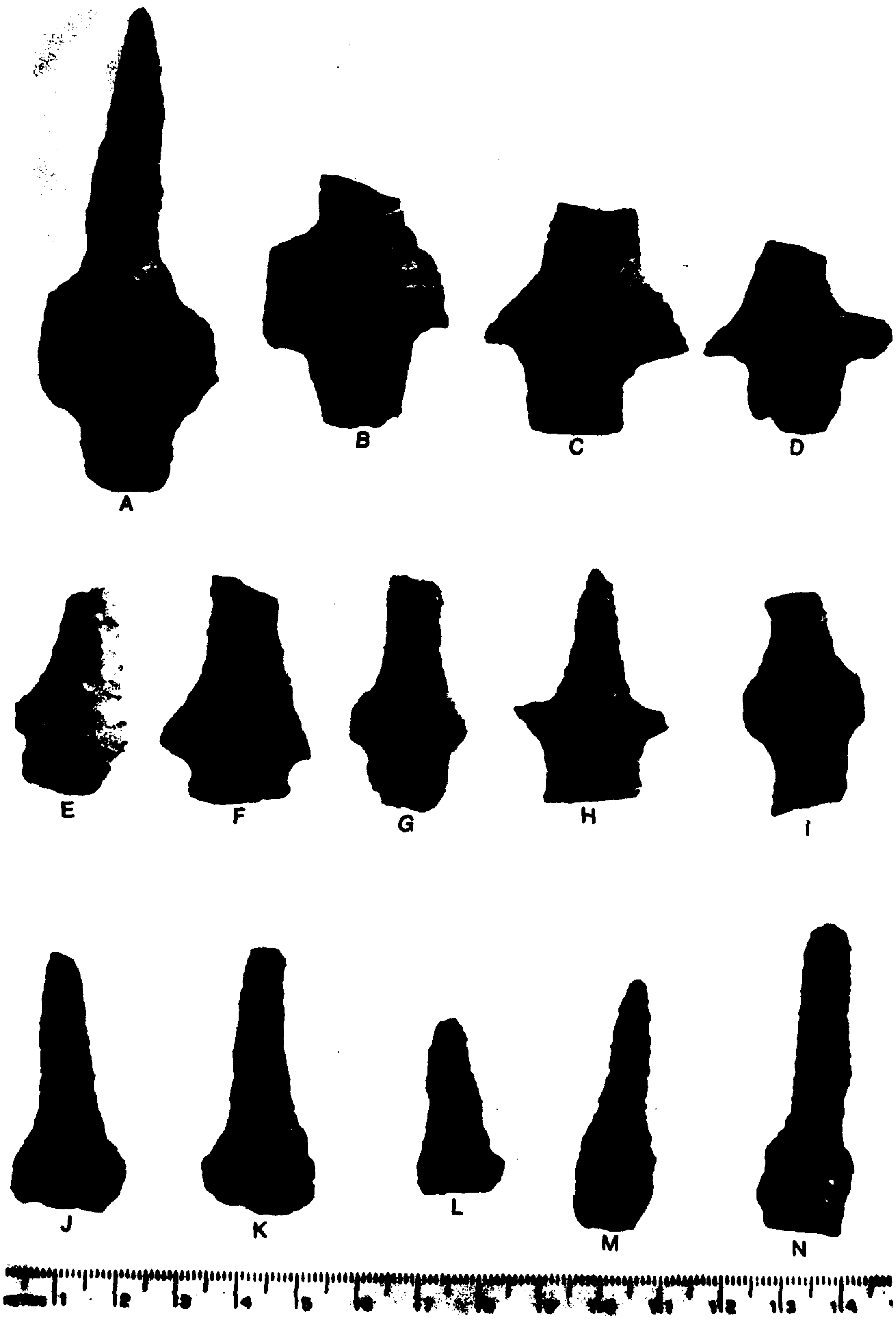



Figure 8.4. Drills.

Burin (Figures 9-5, b; 9.7, e-f; 9.9, b; 9.10, e)
A burin is a tool with a straight or slightly concave narrow working edge located at the distal or lateral margin. All of the burins observed at the Brinkley Midden were break burins (Movius et al. 1968:24) on projectile points. The working edge is formed by the "burin technique" (Crabtree 1972:48) or the "burin blow technique (Tixier 1974:9)," which results in a facet perpendicular to the plane of the tool and usually parallel to its length. These tools may have served as graving tools to modify bone, wood, and antler into tools. Haft facilities are present on all specimens.

Perforator (Figures 8.5, a-f; 8.6, e-l)
A perforator is a unifacial or bifacial lithic tool with a pointed distal end and a gradually tapering blade. The lateral working edges frequently exhibit relatively acute edge angles, and wear suggesting use in a rotary manner. A few distinctive tool forms referred to as "Jaketown" perforators by Ford and Webb (1956: 79-80) are also present (Figure 8.6, j-l).

Graver (Figure 8.6, a-d)
A graver is a unifacial or bifacial tool with a bluntly pointed distal end and a rather thick short blade. The distal tip may be heavily polished, and frequently exhibits wear suggesting use in a longitudinal or nonrotary manner. Haft facilities or backing may be present.

Adze (Figure 8.7, a,b)
An adze is a bifacial tool with a convex working edge at the distal margin of the tool and oval or rectangular outline. The working edge is usually steep and rather asymmetric in profile. This tool is fairly thick, and the proximal and lateral margins may be heavily abraded to facilitate hafting.

End scraper (Figures 8.8, a-c; 8.9, a-p)
An end scraper is a unifacial or bifacial tool with a convex working edge on the distal margin. The angle of the working edge is usually steep and may exhibit heavy polish. A haft facility or backing may be present. Two unusual bifacially flaked specimens (Figure 8.8, a,b) were included in this category because of their heavily polished and resharpened distal ends.

Side scraper. (Figure 8.8, d-g)
A side scraper is a unifacial tool with a convex or straight working edge along the lateral margins. The distal end may be pointed or blunt, and the angle of the working edge is usually steep. Haft facilities or backing may be present. An unusual specimen (Figure 8.7, d) was also grouped into this category because of its steep lateral working edge. The proximal section of this tool evidences flake removals suggesting preparations for hafting.

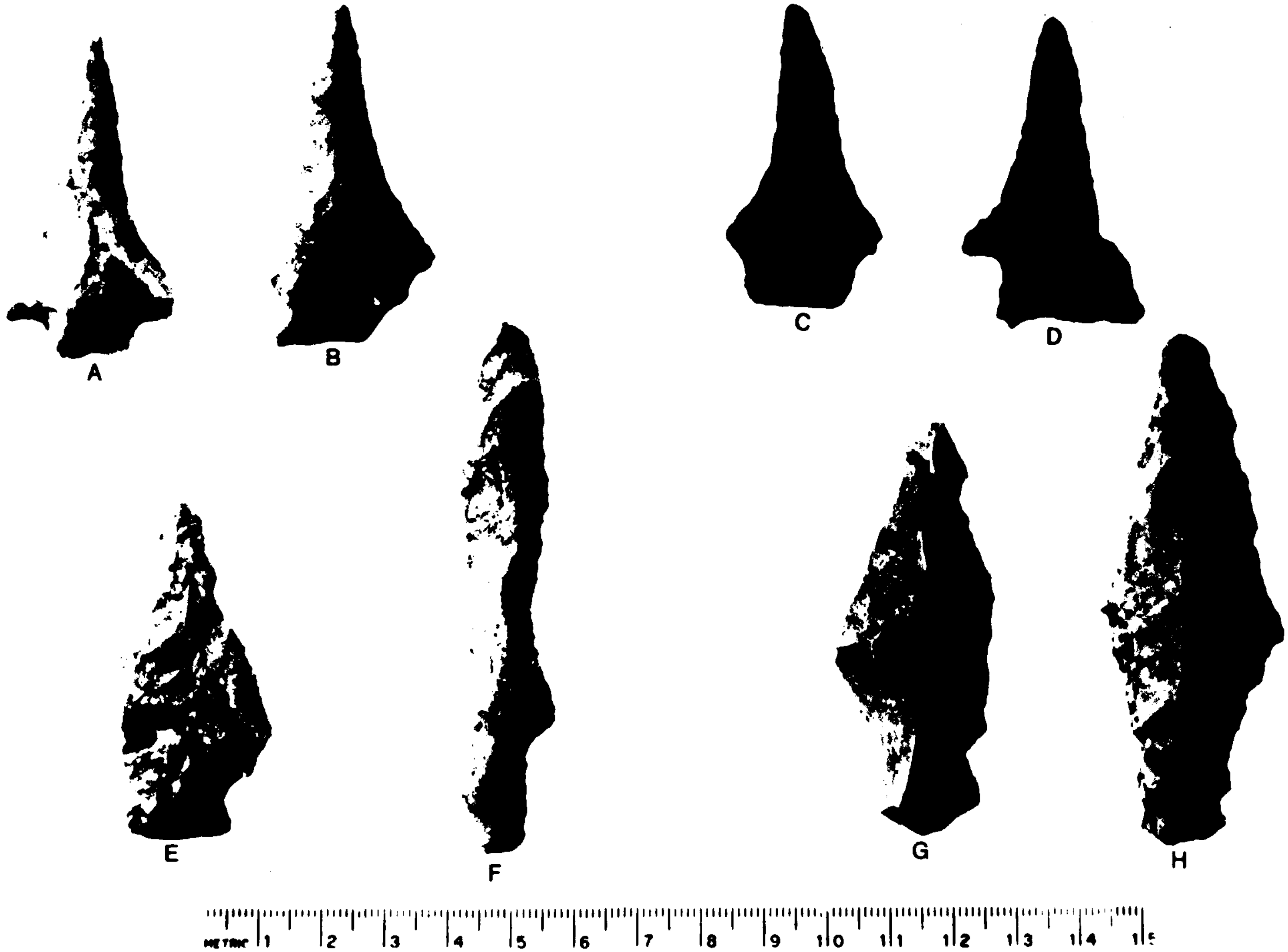



Figure 8.5. Perforators and Utilized Flakes. A-F, Perforators; G-H, Utilized Flakes.

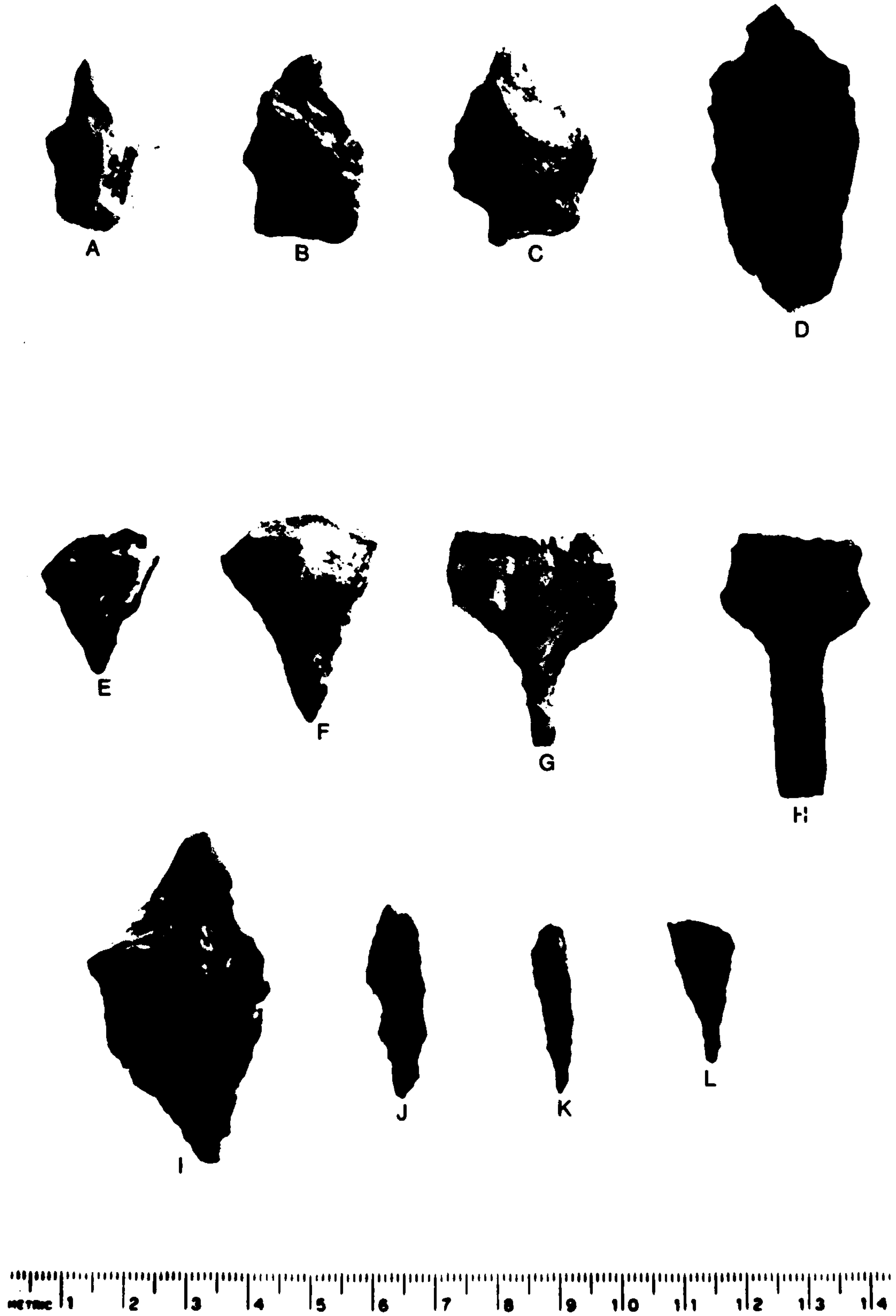



Figure 8.6. Gravers and Perforators. A-D, Gravers; E-I, Perforators; J-L, Jaketown Perforators.

Figure 8.7. Adze, Miscellaneous Biface Fragment, and Unusual Side Scraper. A–B, Adze; C, Miscellaneous Biface Fragment; D, Unusual Side Scraper.


Figure 8.8. Bifacial End Scrapers and Side Scrapers. A-C, Bifacial End Scrapers; D-G, Side Scrapers.


Figure 8.9. End Scrapers.

Spokeshave (Figure 8.10, a-g)

A spokeshave is a unifacial or bifacial tool with a concave or notched working edge characterized by a steep edge angle. Although most of these examples are unifacial tools, one proximal portion of a Morrow Mountain biface exhibits modification into a spokeshave (Figure 8.10, b).

Chopper (Figure 8.11, a-d)

A chopper is a medium to large size unifacial or bifacial tool with a convex or straight working edge on the distal and/or lateral margin. The edge angle is usually not acute, and backing is present along the margin opposite the working edge.

Utilized Flake (Figure 8.5, g,h; 8.12, a-g)

A utilized flake is one that exhibits unifacial or bifacial marginal retouch or polish along one or more edges. Utilized flakes are distinguished from lithic materials recently damaged by, plow, trowel, or water screen by the regularity and continuity of the microflaking. Tringham et al. (1974) have observed that intentionally trampled lithic flakes exhibit sporadic and discontinuous microflaking, but utilized flakes more frequently exhibit continuous and regular edges. Recently damaged edges also lack the patina that characterized much of the assemblage, appearing lighter and more lustrous.

Discussion

Although a substantial number of conchoidal lithic tools was recovered from the Brinkley Midden, comparatively few were from undisturbed excavation units. Many tools were recovered in the controlled surface collections during stripping operations with mechanized equipment. Although the majority of tools from the site were manufactured from Tuscaloosa gravels, most of the projectile points, drills, and bifacial scrapers are made from other lithic materials.

To provide an assessment of tool densities in the undisturbed excavation units, a sample was selected for analysis. This sample consists of five provenience groups from different parts of the site. The tools in each group are associated by their occurrence within the same excavation block or by shared proximity along one or more stratigraphic trenches. One provenience group is from each excavation block and comprises all of the units and levels in each block. Three other provenience groups are from the stratigraphic trench units and include (1) 37N/34W-38N/34W, 58N/32W; (2) 66N/61W-66N/62W, 50N/52W-51N/52W; and (3) 83N/40W-84N/40W, 85N/40W-86N/40W, 78N/42W (Figure 4.4).

A total of 163 tools are included in this analysis, primarily projectile points, bifaces, and utilized flakes. Each tool group is examined for stratigraphic distributions, as well as the raw material composition of the tools present. Although the variety of tools in the sample is not as diverse as it is for the site as a whole, an interesting pattern is evident.

Tables 8.9 through 8.13 list the frequency of tools by levels for each provenience group. Although there are relatively more tools in the

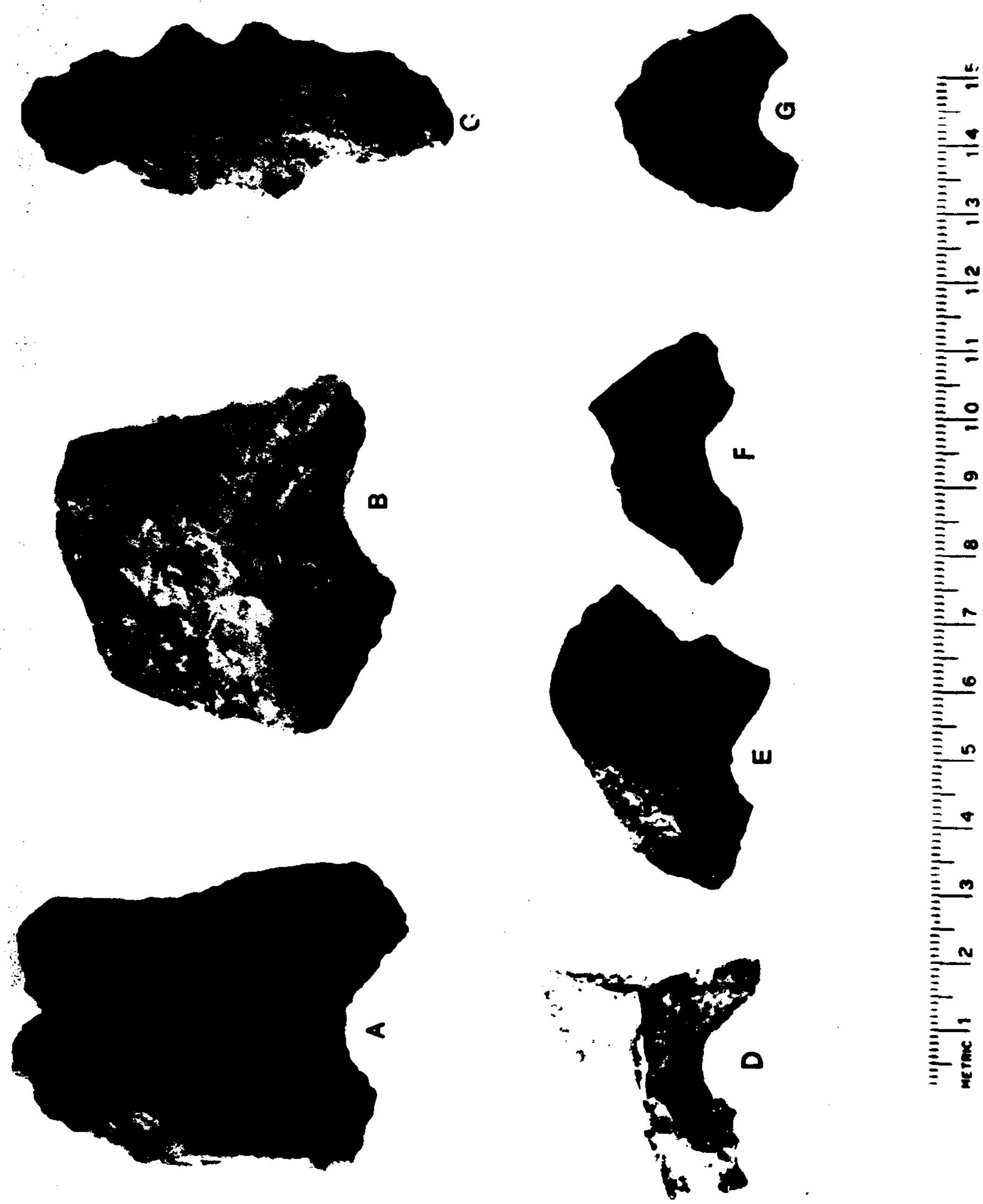



Figure 8.10. Spokeshaves.

Figure 8.11. Choppers.

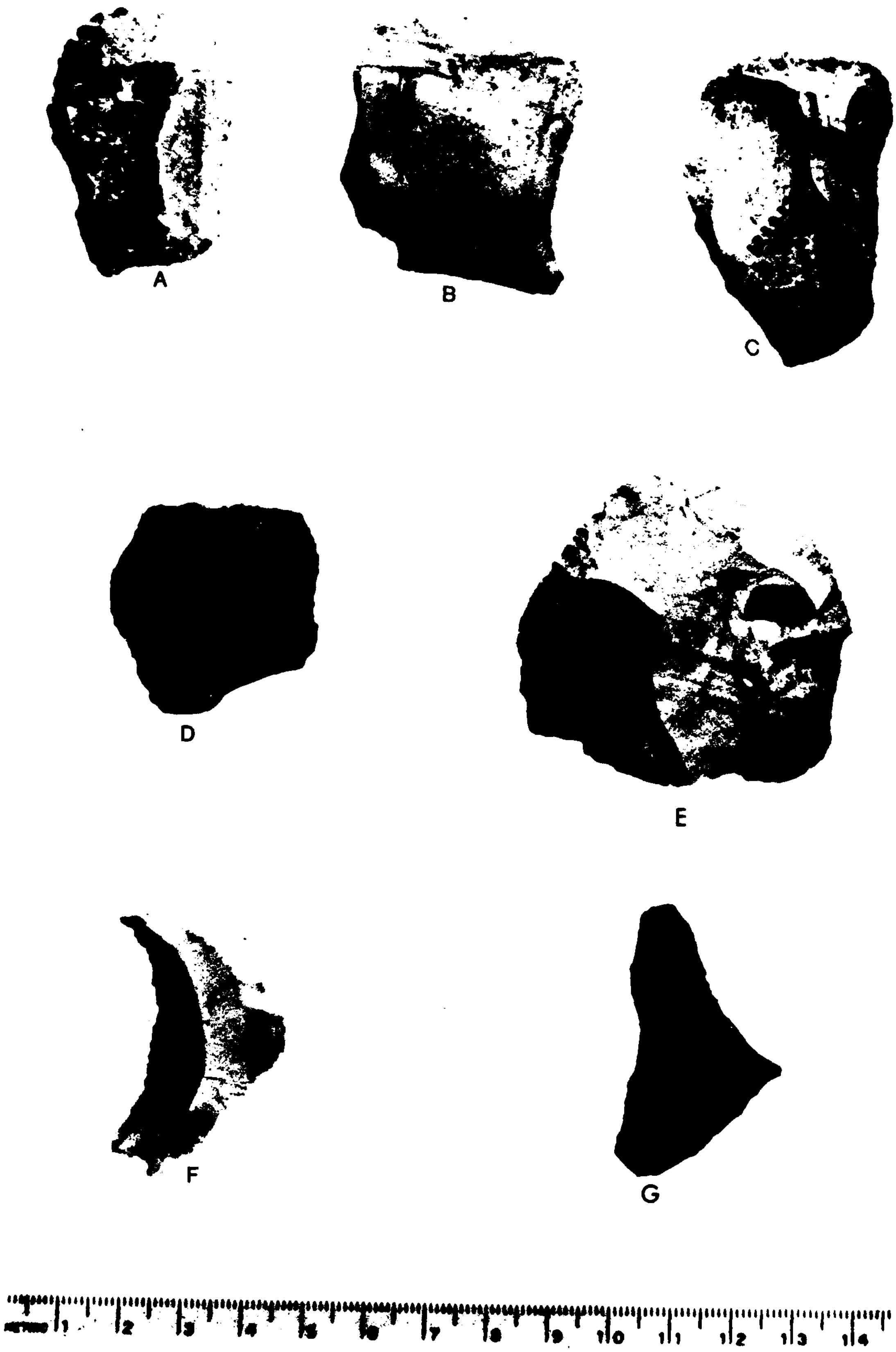



Figure 8.12. Utilized Flakes.

Table 8.9. Lithic Tool Frequencies by Level, Excavation Block 2.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Bifaces | - | - | 10 | 6 | 1 | 1 | - | 18 |
| Projectile Points | - | - | 8 | 4 | 4 | 2 | - | 18 |
| Drills | - | - | 1 | - | - | - | - | 1 |
| Utilized Flakes | - | - | 6 | 3 | 4 | 3 | - | 16 |
| Side Scraper | - | - | - | - | - | - | 1 | 1 |
| TOTAL | - | - | 25 | 13 | 9 | 6 | 1 | 54 |

Table 8.10. Lithic Tool Frequencies by Level, Excavation Block 3.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Bifaces | - | - | 6 | 4 | 2 | 2 | - | 14 |
| Projectile Points | - | - | 1 | 8 | 2 | 2 | - | 13 |
| Drills | - | - | - | - | 1 | - | - | 1 |
| Utilized Flakes | - | - | 7 | - | - | - | - | 7 |
| Side Scraper | - | - | - | - | - | - | 1 | 1 |
| TOTAL | - | - | 14 | 12 | 5 | 4 | 1 | 36 |

Table 8.11. Lithic Tool Frequencies by Level, Stratigraphic Trench. 37N/34W - 38N/34W, 58N/32W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Bifaces | 1 | 1 | - | 1 | 1 | - | - | 4 |
| Projectile Points | 2 | - | - | 3 | 1 | - | - | 6 |
| Drills | - | - | - | - | - | - | - | - |
| Utilized Flakes | - | - | - | 1 | - | - | - | 1 |
| TOTAL | 3 | 1 | 0 | 5 | 2 | - | - | 11 |

Table 8.12. Lithic Tool Frequencies by Level, Stratigraphic Trench. 66N/61W - 66N/62W, 50N/52W - 51N/52W.

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Bifaces | 2 | 5 | 2 | 2 | - | - | - | 11 |
| Projectile Points | 5 | - | - | - | - | - | - | 5 |
| Drills | 1 | - | - | - | - | - | - | 1 |
| Utilized Flakes | 3 | 1 | - | 2 | 1 | - | - | 7 |
| TOTAL | 11 | 6 | 2 | 4 | 1 | - | - | 24 |

Table 8.13. Lithic Tool Frequencies by Level, Stratigraphic Trench. 83N/40W - 86N/40W, 78N/42W.

| | Level | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | TOTAL |
| Bifaces | 6 | 3 | 3 | 1 | - | 1 | 1 | - | 2 | - | 17 |
| Projectile Points | 3 | 1 | 3 | 2 | 2 | - | - | - | - | - | 11 |
| Drills | - | - | - | - | - | - | - | - | - | - | - |
| Utilized Flakes | 1 | 5 | - | - | 1 | 1 | - | 1 | - | - | 9 |
| Scrapers | - | - | - | - | 1 | - | - | - | - | - | 1 |
| TOTAL | 10 | 9 | 6 | 3 | 4 | 2 | 1 | 1 | 2 | - | 38 |

upper levels of the site, the proportions among tool classes by stratum should suggest any shifts in adaptive strategy through time at the site. Generally, such relative proportions remain rather uniform, suggesting that in the broadest sense, similar adaptive strategies requiring similar tool kits were pursued during these cultural periods. The predominance of projectile points, bifaces, and scrapers suggests that hunting was an important reason for the site's occupation. This would support Jenkins' (1974) and Bowen's (1977) current settlement and subsistence models which view larger upland sites as seasonally occupied fall and winter camps emphasizing hunting and plant food collecting.

Despite the general stability through time of funtional lithic assemblages, there are nevertheless some suggestive trends among specific funtional classes. For example, the proportion of bifaces through time gradually increases from 24 percent in the Early Archaic, Stratum 3 (Levels 5 and 6, see Table 5.1, p. 35), to 42 percent in the Middle Archaic, Stratum 2 (Levels 3 and 4), to 45 percent in the Late Archaic/Middle Woodland, Stratum 1 (Levels 1 and 2). There is a corresponding decrease in the proportion of projectile points from Stratum 3 to Stratum 1 (39 percent to 35 percent to 28 percent). Unfortunately, without more detailed functional analysis of the tool classes, the significance of these trends remain indeterminate.

# IX. PROJECTILE POINTS

## Introduction

A variety of projectile points representing cultural occupations from the Early Archaic through Middle Woodland periods was recovered from the Brinkley Midden. The term projectile point, or point, is used in a conventional sense as suggested by Goodyear (1974:19) to refer to bifacially retouched lithic tools characterized by lateral working edges and a pointed distal end. These may have served as darts, spears or knives for many purposes. Ahler (1971) has demonstrated the suitability of projectile points as multifunctional tools, and in this report they will be considered as such.

Projectile point typology has been a concern of archaeological research for several decades. Although the purposes of typological frameworks are not always explicit, typologies, like other classificatory devices, are implemented to provide meaningful orderings of data (Warburton 1970). As Hill and Evans (1972) have effectively argued, there is no best typology; rather the utility of a typology is dependent upon the problems under investigation.

The typology used in this chapter is designed to permit comparisons of the Brinkley material with previous research in the area (DeJarnette et al. 1962, Griffin 1974). Projectile points were classified on the basis of their similarity to the previously established projectile point types of Kneberg (1956), Ford and Webb (1956), Lewis and Lewis (1961), DeJarnette et al. (1962), and Cambron and Hulse (1975). These types are considered to be historically meaningful entities in a very broad sense. Rather than representing the products of discrete cultures, the geographical distribution and temporal longevity of many of these point styles suggest they served as parts of widespread technocomplexes (Clarke 1968: 495) that crosscut both temporal and geographic cultural boundaries. They may be tradition or horizon markers. In this analysis, however, it is the conceptual categories, not the particular labels, that are most important.

The classification of projectile points from the Brinkley Midden focuses on two basic components of these tools, the blade and the haft element. The blade contains the working edge of the tool. The haft element comprises those portions designed to secure the tool to a handle or foreshaft. Characteristics of the haft element were given greater emphasis in determining projectile point types because of the variety of transformations the blade of a tool may undergo during its use life. As Goodyear (1974), Miller (1977), and Lafferty (1981) have illustrated, the blade elements of projectile points may be characterized by several different shapes and sizes depending upon the degree to which the tools have been used and resharpened. This classification focuses on the stylistic and technological characteristics of projectile points, emphasizing the morphological design and manufacturing techniques which were selected to produce them.

The following section describes each point type individually and discusses the raw materials and stratigraphic associations of the tools that comprise them. Characteristics of tool manufacturing and breakage are also considered, as well as the chronological estimations of each type. Metric dimensions of projectile points are provided from specimens thought to characterize the modality of each type.

## Early Archaic Projectile Points

Greenbrier (N = 7; Figure 9.1, a-f)

This medium to large sized shallow side notched point is heavily ground on the basal and lateral margins of the haft element. The base is straight or slightly concave, and the stem is expanding with rounded corners. The shoulders are tapered slightly, and the blade edges may be parallel, convex, or straight. All of these points are serrated along the blade margins, and three are slightly beveled. The primary retouch is invasive and characterized by broad percussion flake scars. The secondary retouch may be invasive or semi-invasive and is characterized by continuous parallel and expanding flake scars. Two examples (Figure 9.1, a, b) are characterized by transverse parallel invasive pressure retouch and are particularly finely made points.

Lewis and Kneberg (1960) defined the Greenbrier point from examples recovered in association with Paleo-Indian and Early Archaic materials in western Tennessee. Bell (1960:50) suggests this point may be contemporaneous with Dalton points, and DeJarnette et al. (1962:56-57) recognize a Greenbrier Dalton point type at the Stanfield-Worley Bluff Shelter. Greenbrier Daltons frequently occurred in the lower portions of this site (Zone D) and were found in apparent association with Big Sandy points in a context dated between 6970±400 B.C. (M-1153) and 7690±450 B.C. (M-1152). The Greenbrier point is distinguished from the Greenbrier Dalton on the basis of its sharp basal ears. The Greenbrier Dalton point has rounded ears. All of the Greenbriers except one (Figure 9.1, f) from the Brinkley Midden have heavily ground rounded basal ears. These are called Greenbrier points rather than Greenbrier Daltons because the similarities between the two types are greater than their differences. The use of two separate type names is unwarranted in this analysis.

Seven Greenbriers were recovered from the Brinkley Midden, five of which were recovered at the base of Stratum 3 (Table 9.1). This makes the Greenbrier point the most numerous Early Archaic point found in controlled stratigraphic context. Three of these tools are made of Tuscaloosa gravels and three of tan Fort Payne chert (Table 9.2). Only two projectile points were whole, three exhibited impact fractures, one was snapped transversely across the blade, and one was fractured along an inclusion in the raw material (Table 9.3). Metric data for Greenbrier points recovered from the Brinkley Midden are given in Table 9.4.

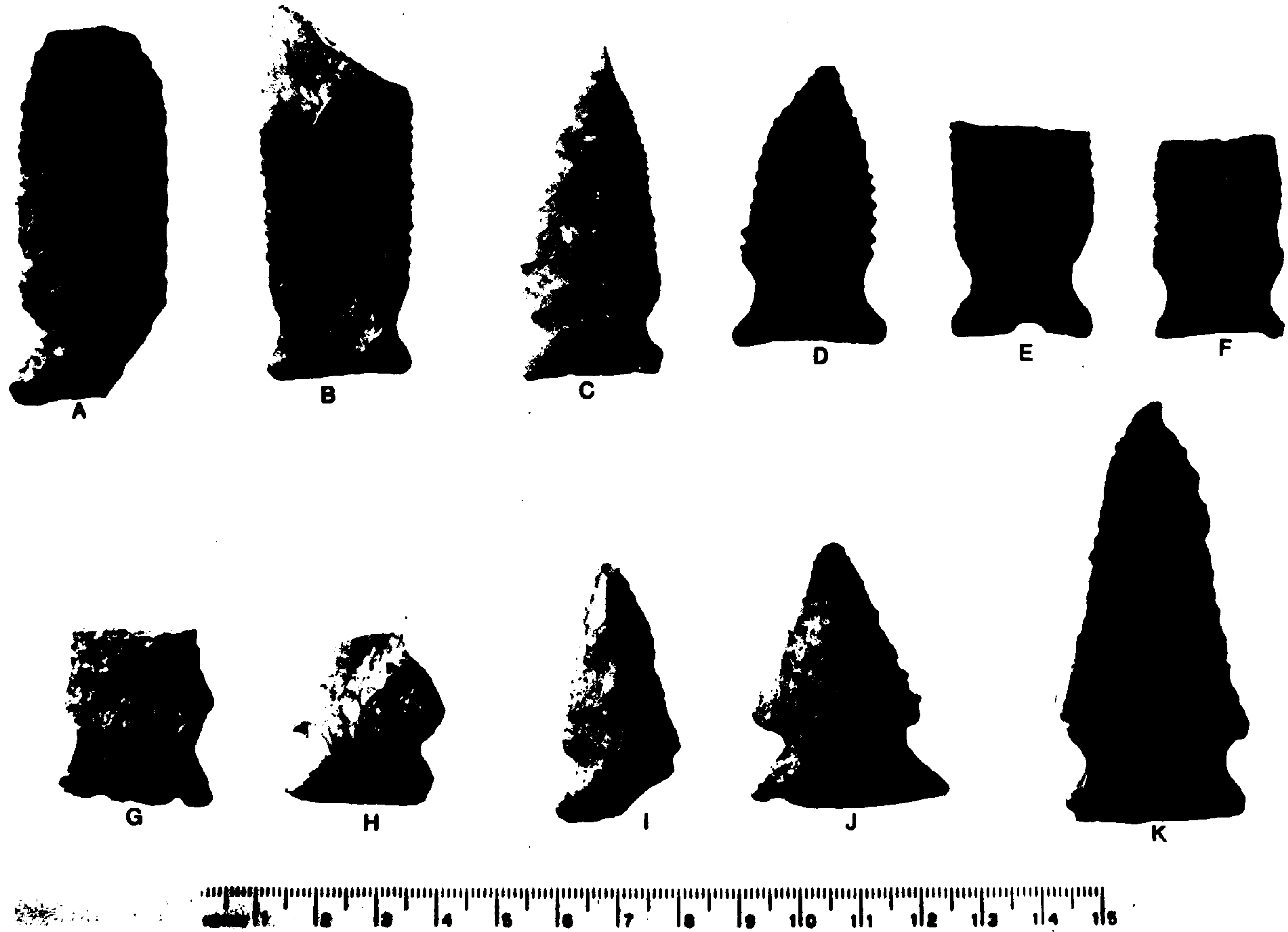



Figure 9.1. Greenbrier and Pine Tree Projectile Points. A-F, Greenbrier; G-K, Pine Tree.

Table 9.1. Early Archaic Projectile Points by Stratum.

| | Stratum 1 | Stratum 2 | Stratum 3 | Uncertain Context | Total |
|---|---|---|---|---|---|
| Greenbrier | 2 | - | 5 | - | 7 |
| Pine Tree | 2 | 1 | 1 | 2 | 6 |
| Ecusta | 1 | - | 2 | - | 3 |
| Plevna | 2 | 1 | 2 | 1 | 6 |
| Kirk Corner Notched | 5 | 2 | 3 | - | 10 |
| Kirk Stemmed | 1 | 1 | - | - | 2 |
| LeCroy | 1 | 1 | - | - | 2 |
| Big Sandy | - | - | 1 | - | 1 |
| Total | 14 | 6 | 14 | 3 | 37 |

Table 9.2. Early Archaic Projectile Points By Raw Material.

| | Tuscaloosa Gravels | Blue Ft. Payne Chert | Tan Ft. Payne Chert | Dover Chert | Total |
|---|---|---|---|---|---|
| Greenbrier | 3 | 1 | 3 | - | 7 |
| Pine Tree | 3 | - | 3 | - | 6 |
| Ecusta | - | - | 3 | - | 3 |
| Plevna | 1 | 3 | 2 | - | 6 |
| Kirk Corner Notched | - | 7 | 3 | - | 10 |
| Kirk Stemmed | - | 1 | 1 | - | 2 |
| LeCroy | - | 1 | 1 | - | 2 |
| Big Sandy | - | - | - | 1 | 1 |
| Total | 7 | 13 | 16 | 1 | 37 |

Table 9.3. Blade Element Condition of Early Archaic Projectile Points.

| | Whole | Lateral Snap | Impact Fracture | Incipient Fracture | Heat Shattered | Total |
|---|---|---|---|---|---|---|
| Greenbrier | 2 | 1 | 3 | 1 | - | 7 |
| Pine Tree | 3 | 3 | - | - | - | 6 |
| Ecusta | 2 | - | 1 | - | - | 3 |
| Plevna | 4 | 2 | - | - | - | 6 |
| Kirk Corner Notched | 4 | 6 | - | - | - | 10 |
| Kirk Stemmed | 2 | - | - | - | - | 2 |
| LeCroy | 1 | - | - | - | 1 | 2 |
| Big Sandy | 1 | - | - | - | - | 1 |
| Total | 19 | 12 | 4 | 1 | 1 | 37 |

Table 9.4. Greenbrier Metric Data (N = 6).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 2.37 | 0.10 | 2.20 | 2.50 | 0.30 |
| Haft Juncture Width | 1.85 | 0.10 | 1.70 | 2.00 | 0.30 |
| Base Width | 2.58 | 0.44 | 2.20 | 3.40 | 1.20 |
| Haft Length | 1.10 | 0.19 | 0.90 | 1.30 | 0.40 |
| Haft Thickness | 0.53 | 0.08 | 0.40 | 0.60 | 0.20 |

(Measurements are in centimeters)

Pine Tree (N = 6; Figure 9.1, g-k)

This medium to large sized corner notched point (Table 9.5) is heavily ground on the basal and lateral margins of the haft element. The base is straight or slightly convex, and the stem is expanding with distinct corners. The shoulders may be barbed, straight, or tapered, depending on the degree of resharpening the blade has undergone. Four of these points are serrated, and two exhibit slightly beveled blades. The primary flaking is invasive and is characterized by broad percussion flake scars. The secondary retouch is semi-invasive or invasive and is characterized by narrow parallel and expanding pressure flake scars. All of these well made points have a biconvex cross section, and three are complete specimens. The other three points exhibit lateral snaps across the blade (Table 9.3).

Cambron (1957:18) defined the Pine Tree point type from examples recovered at the Pine Tree site in northern Alabama. This point is believed to have an Early Archaic context. This point is similar to Coe's (1964:67) Palmer point. One of these points was recovered from Stratum 3 at the Brinkley Midden (Table 9.1). Half of these points are made from Tuscaloosa gravels, and the others are made from tan Fort Payne chert (Table 9.2).

Table 9.5. Pine Tree Metric Data (N = 4).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 2.82 | 0.33 | 2.60 | 3.30 | 0.70 |
| Haft Juncture Width | 2.12 | 0.26 | 1.90 | 2.50 | 0.60 |
| Base Width | 3.00 | 0.36 | 2.70 | 3.40 | 0.70 |
| Haft Length | 1.25 | 0.13 | 1.10 | 1.40 | 0.30 |
| Haft Thickness | 0.60 | 0.08 | 0.50 | 0.70 | 0.20 |

(Measurements are in centimeters)

Plevna (N = 6; Figure 9.2, d-g)

This medium to large sized (Table 9.6) corner notched point is heavily ground on the basal and lateral margins of the haft element. The base shows pronounced convexity, and the stem is expanding with distinct corners. The shoulders are barbed, and the blade edges may be straight, convex, or recurvate. One specimen is serrated along the blade edges, and three are steeply beveled along the blade. The steep bevel of the blade in the latter specimens produces a trapezoidal cross section. The cross sections for the other points in this category are biconvex. The primary retouch is invasive and is characterized by broad percussion flake scars. The secondary retouch is primarily semi-invasive and is characterized by continuous parallel and expanding flake scars. Four of these finely made points are complete, and the others have lateral snaps across the blade (Table 7.3).

DeJarnette et al. (1962:66) defined this point type from examples recovered at the Plevna Site in Madison County, Alabama, where it is associated with Early Archaic materials. Futato (1976:165) reported two Plevnas from Site 1Fr506 in the Bear Creek watershed. Luchterhand (1970:12) refers to these points as Dovetails and notes their association with the Early Archaic Thebes Cluster at the Dillow and Duvan rock shelters in southern Illnois. Bell (1960:82) refers to similar points as St. Charles points and notes their distribution throughout much of the eastern United States. One point of this style in a context dated at 8,750±500 B.P. (M-130) and 7,680±500 B.P. (M-131), is associated with Dalton points at Graham Cave (Luchterhand 1970:12). At the Brinkley Midden, an Early Archaic context is confirmed. The two Plevna points were recovered in situ in Stratum 3. One of these points was associated with the Greenbrier zone, and one was in a small basin shaped pit associated with the Kirk zone (Table 9.1). Three points are made of blue Fort Payne chert, two are of tan Fort Payne Chert, and one is made of Tuscaloosa gravel (Table 9.2).

Table 9.6. Plevna Metric Data (N = 3).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.23 | 0.65 | 2.50 | 3.90 | 1.30 |
| Haft Juncture Width | 1.97 | 0.06 | 1.90 | 2.00 | 0.10 |
| Base Width | 2.73 | 0.21 | 2.50 | 2.90 | 0.40 |
| Haft Length | 1.43 | 0.21 | 1.20 | 1.60 | 0.40 |
| Haft Thickness | 0.63 | 0.06 | 0.60 | 0.70 | 0.10 |

(Measurements are in centimeters)

Ecusta (N = 3; Figure 9.2, a-c)

This medium to large sized (Table 9.7) corner notched point is heavily ground on the basal and lateral margins of the haft element. The base is slightly convex, and the stem is expanding with distinct corners. This point is distinguished from similar forms (such as Plevna and Pine Tree)

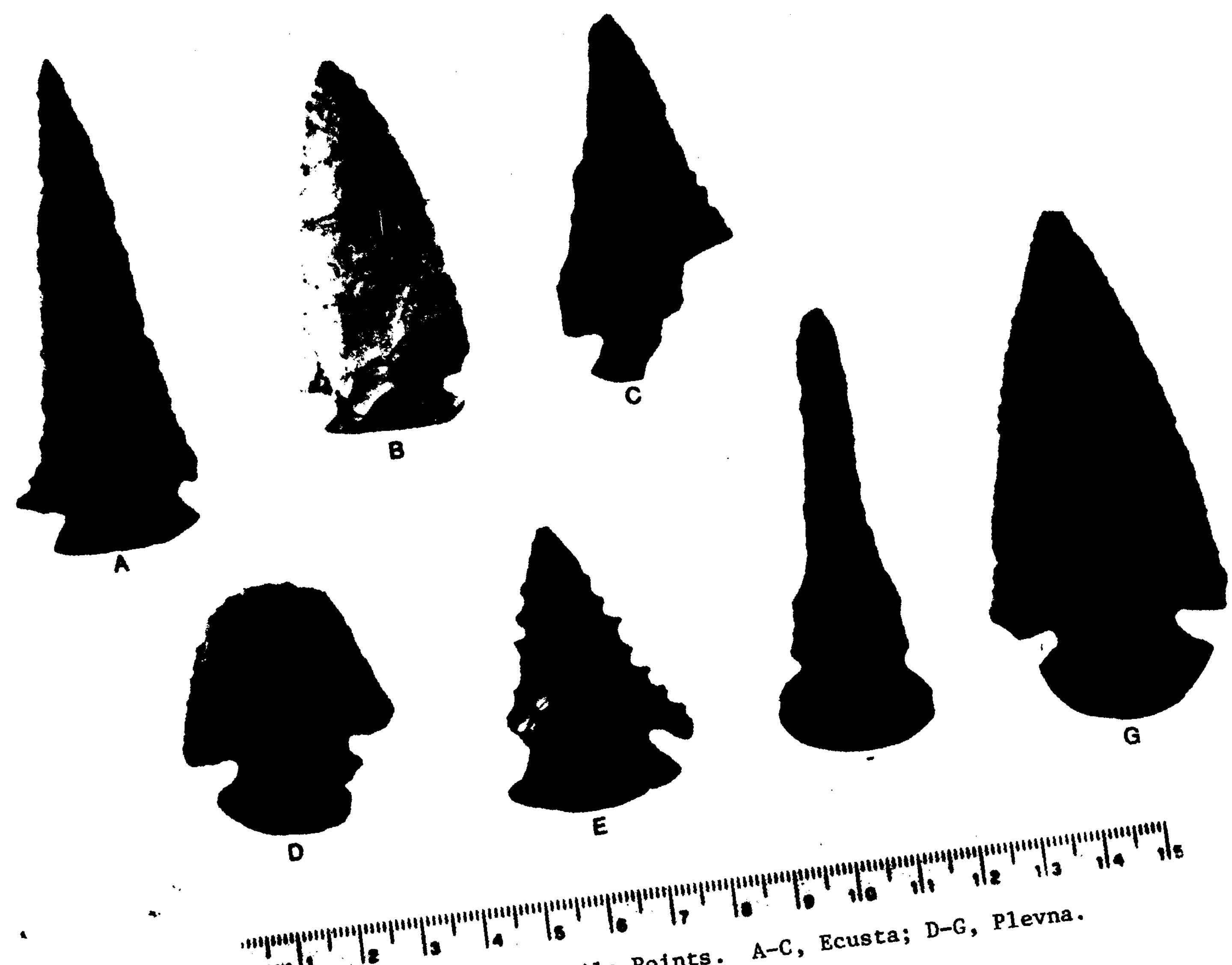



Figure 9.2. Ecusta and Plevna Projectile Points. A-C, Ecusta; D-G, Plevna.

by the burinations of the base. The burin technique was used to remove a small flake from each basal corner prior to the heavy abrasion of the haft margins. The shoulders may be horizontal or barbed, and the blade edges are straight, convex, or recurvate. One specimen is slightly serrated, and two are steeply beveled along the blade. The steep bevel of the latter specimens produces a trapezoidal cross section. The cross section of the other point in this category is biconvex. The primary retouch is invasive and is characterized by broad expanding percussion flake scars. The secondary retouch is primarily semi-invasive and is characterized by continuous parallel and expanding flake scars. Two of these well made points are complete, and the third exhibits a lateral snap which broke along a fracture plane (Table 9.3).

Harwood (1958) first recognized the Ecusta point in North Carolina. Cambron and Hulse (1975:43) have since described this point type from examples in northern Alabama. The removal of burin spalls from the heavily ground convex base distinguishes this point from other similar forms. The use of the burin technique may have served to facilitate the grinding of the basal margins. This point is similar in manufacture to Plevna, Decatur, and Kirk corner notched points. Cambron and Hulse (1975:43) report other examples from Kentucky Lake in Tennessee and from the Guntersville Basin in Alabama. All examples are found in an Early Archaic association. This is confirmed at the Brinkley Midden, where two of these points (Figure 9.2, b,c) were recovered from Stratum 3 (Table 9.1). The third specimen (Figure 9.2, a) was recovered from LBSF 2 and may have been redeposited by later prehistoric occupants of the site. All three of these points are made from tan Fort Payne Chert (Table 9.2).

Table 9.7. Ecusta Metric Data (N = 2).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.00 | 0.14 | 2.90 | 3.10 | 0.20 |
| Haft Juncture Width | 1.95 | 0.07 | 1.90 | 2.00 | 0.10 |
| Base Width | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 |
| Haft Length | 0.85 | 0.07 | 0.80 | 0.90 | 0.10 |
| Haft Thickness | 0.60 | 0.00 | 0.60 | 0.60 | 0.00 |

(Measurements are in centimeters)

Kirk Corner Notched (N = 10, Figure 9.3, a, b, d-h)

This medium to large sized (Table 9.8) corner notched point is heavily ground on the basal and lateral margins of the haft element. The base is straight or concave, and the expanding stem is slightly rounded at the corners. The shoulders are barbed, and the the blade edges may be straight, convex, or recurvate. Two specimens are serrated along the blade edges, and three are steeply beveled along the blade. The steep bevel of the blade in the latter specimens produces a trapezoidal cross section. The blade and haft element are biconvex for the other points in this category. The primary retouch is invasive and characterized by broad


Figure 9.3. Kirk Corner Notched Variants, Big Sandy, and Kirk Corner Notched Projectile Points. A-B, Kirk Corner Notched Variants; C, Big Sandy; D-H, Kirk Corner Notched.

expanding percussion flake scars. The secondary retouch is semi-invasive and characterized by continuous parallel and expanding flake scars. Unfortunately, only four of these well made points are complete. Most of the others exhibit lateral snaps (Table 9.3).

This point is named after examples recovered in the Carolina Piedmont by Coe (1964:60-70). These examples had an Early Archaic association. At the Brinkley Midden three points were recovered from Stratum 3, although most of the points are from Stratum 1 (Table 9.1). Most of these points are made from blue Fort Payne Chert (Table 9.2).

Lewis and Kneberg (1961:37) have also called this point type Cypress Creek, and Cambron and Hulse (1975:83) have referred to it as Lost Lake. It is similar to the Rice point of Missouri and Arkansas (Perino 1968:76) and the Thebes point of southern Illinois (Perino 1971:96). Chapman (1975:114) obtained a radiocarbon date of 7,380±250 years B.C. (GX-3564) from the Kirk component in Stratum VIII at Rose Island in eastern Tennessee.

Table 9.8. Kirk Corner Notched Metric Data (N = 3).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 2.93 | 0.31 | 2.60 | 3.20 | 0.60 |
| Haft Juncture Width | 1.57 | 0.31 | 1.40 | 2.00 | 0.60 |
| Base Width | 2.50 | 0.44 | 2.20 | 3.00 | 0.80 |
| Haft Length | 1.17 | 0.31 | 0.90 | 1.50 | 0.60 |
| Haft Thickness | 0.55 | 0.06 | 0.50 | 0.60 | 0.10 |

(Measurements are in centimeters)

Big Sandy (N = 1; Figure 9.3, c)

This medium sized (Table 9.9) side notched point is slightly ground on the lateral and basal margins of the haft element. The base is concave, and the stem is expanding with relatively square corners. The shoulders are horizontal or slightly tapered, and the blade edges are neither serrated nor beveled on this example. The primary retouch is invasive with broad expanding percussion flake scars, and the secondary retouch is marginal and semi-invasive characterized by parallel and (conchoidal) expanding pressure flake scars. The cross section is biconvex for the one complete point present at this site (Table 9.3).

Kneberg (1956:25) named this point from examples in the western Tennessee River Valley. Side notched points similar to these have been recovered in apparent association with Dalton points at the Stanfield-Worley Bluff Shelter (DeJarnette et al. 1962:82). The specimen from the Brinkley Midden was recovered at the base of Stratum 3 near the center of the site (Table 9.1) and is manufactured from Dover chert (Table 9.2).

Table 9.9 Big Sandy Metric Data (N = 1).

| | Value |
|---|---|
| Shoulder Width | 1.80 |
| Haft Juncture Width | 1.40 |
| Base Width | 1.80 |
| Haft Length | 1.40 |
| Haft Thickness | 0.70 |

(Measurements are in centimeters.)

LeCroy (N = 2; Figure 9.4, a)

This medium sized point (Table 9.10) has moderately ground basal and lateral margins of the haft element. The base is bifurcated, and the stem expands slightly with rounded corners. The shoulders are horizontal, and the blade is convex or straight. Serrations are present on the one complete example recovered, and blade beveling is absent (Table 9.3). The primary retouch is invasive with broad expanding percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and expanding pressure flake scars. LeCroys are thinner than the similar Buzzard Creek type, having a smaller blade, a slightly expanding rather than straight stem, and lacking the semiabrupt bifacial marginal retouch of the Buzzard Roost Creek type. The cross section is biconvex.

This point was defined by Kneberg (1956:27) from specimens at the LeCroy Site in Hamilton County, Tennessee. Other examples have been recovered at Stanfield-Worley Bluff Shelter (DeJarnette et al. 1962:60) and the Eva site (Lewis and Lewis 1961:43). Points of this type are numerous in eastern Tennessee and West Virginia as indicated by the excavations of Chapman (1975) and Broyles (1968). An Early Archaic association dated to approximately 6,300 B.C. is suggested (Chapman 1975:212). At the Brinkley Midden, one point was recovered in Stratum 1 and one in Stratum 2 (Table 9.1). One of these was made of blue Fort Payne and one was made from tan Fort Payne chert (Table 9.2).

Table 9.10 LeCroy Metric Data (N = 1).

| | Value |
|---|---|
| Shoulder Width | 3.20 |
| Haft Juncture Width | 2.20 |
| Base Width | 2.50 |
| Haft Length | 1.40 |
| Haft Thickness | 0.50 |

(Measurements are in centimeters.)

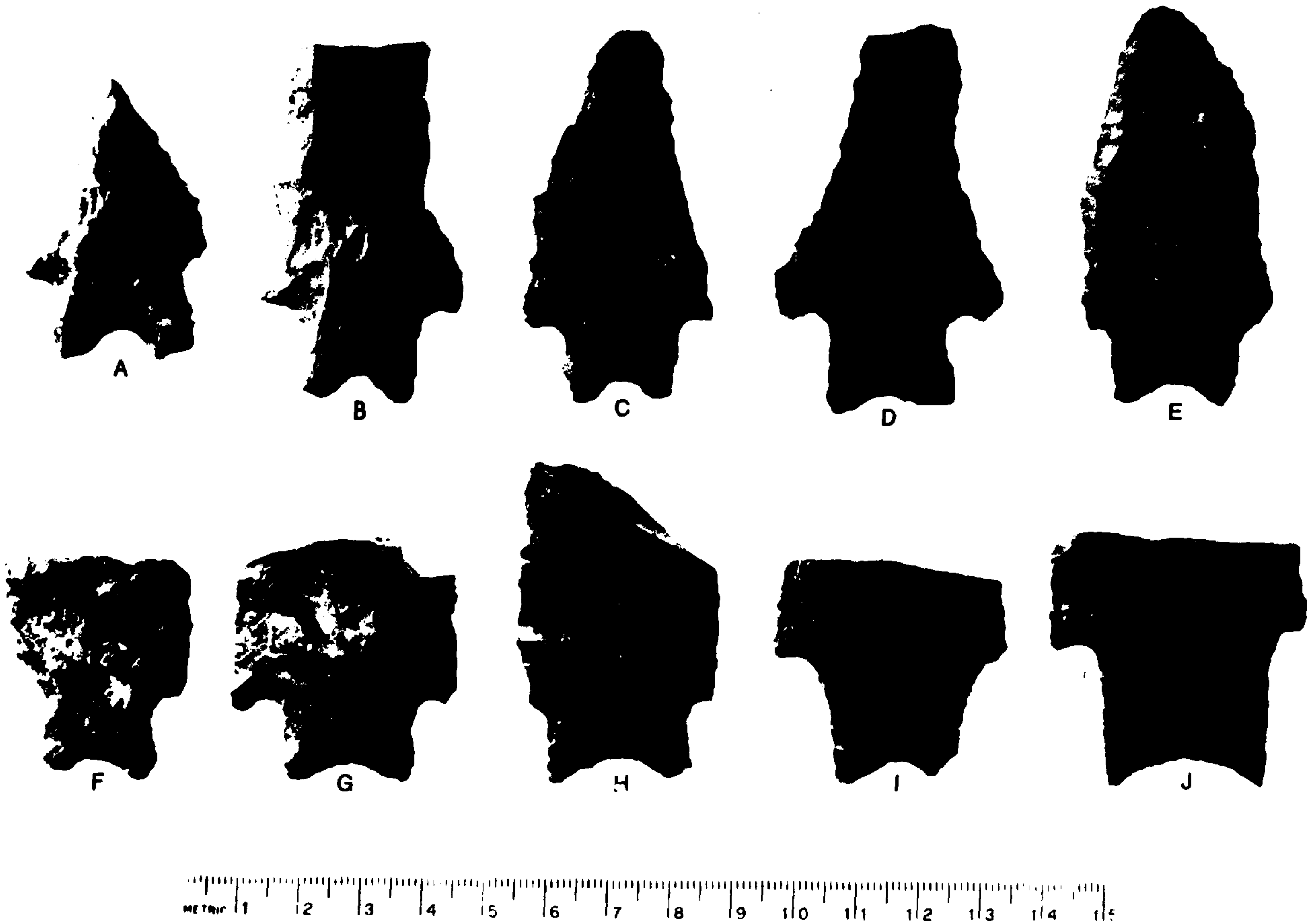



Figure 9.4. LeCroy and Buzzard Roost Creek Projectile Points. A, LeCroy; B-J, Buzzard Roost Creek.

Kirk Stemmed (N = 2; Figure 9.5, a, b)

This medium sized (Table 9.11) point has a straight or slightly tapered stem with a slightly concave base. The shoulders are horizontal or slightly tapered, and the blade form is straight or recurved. The primary flaking is semi-invasive, with invasive percussion retouch showing expanding flake scars. The secondary flaking is marginal or semi-invasive, and serrations are frequently present. This well made point has a thin biconvex cross section. Two complete specimens were found (Table 9.3).

Coe (1964:70) defined this point on the basis of projectile points recovered in the Carolina Piedmont. These occur slightly later than Kirk Corner Notched points, which suggests an Early to Middle Archaic association. At the Brinkley Midden, one point was recovered from LBSF 2, and the other was recovered from Stratum 2 (Table 9.1). One point is made of blue Fort Payne chert, and the other is made of a Tuscaloosa gravel (Table 9.2).

Table 9.11. Kirk Stemmed Metric Data (N = 2).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 2.65 | 0.21 | 2.40 | 2.90 | 0.50 |
| Haft Juncture Width | 1.70 | 0.00 | 1.70 | 1.70 | 0.00 |
| Base Width | 1.55 | 0.13 | 1.40 | 1.70 | 0.30 |
| Haft Length | 1.15 | 0.13 | 1.00 | 1.30 | 0.30 |
| Haft Thickness | 0.75 | 0.06 | 0.70 | 0.80 | 0.10 |

(Measurements are in centimeters)

## Discussion

The projectile points from the Early Archaic period are well made and usually exhibit heavy grinding of the lateral and basal margins of the haft element. The blade elements of several tools exhibit abrupt alternate beveling, while others are characterized by serrations or are modified into other tool forms (e.g., drills, scrapers). Several of these points are whole, and most others exhibit lateral snaps and impact fractures (Table 9.3). The majority of these tools are made of tan and blue Fort Payne cherts, while comparatively few are made of Tuscaloosa gravels or other cherts (Table 9.2). These points are associated with Stratum 3 where several were recovered in a controlled context (Table 9.1). The recovery of only one point in Stratum 3 not associated with this period reflects the integrity of these deposits where undisturbed areas are present.


Figure 9.5. Kirk Stemmed and Eva Projectile Points. A-B, Kirk Stemmed; C-G, Eva.

## Middle Archaic Projectile Points

Eva (N = 6; Figure 9.5, c-g)

This medium sized point (Table 9.12) is characterized by basal notches. The base is straight or convex, and the stem, formed from notching, is straight or tapered. The shoulders are barbed, and the blade may be convex or recurvate. One point has a slightly beveled blade, and two points have burinated bases (Figure 9.5, c). Primary retouch is semi-invasive and invasive with expanding percussion flake scars. The secondary retouch is marginal or semi-invasive with slightly expanding pressure flake scars. These are well made points with a relatively thin biconvex cross section.

Lewis and Lewis (1961:40) defined this point from projectile points recovered at the Eva site. A radiocarbon date from the Eva site, Stratum 4 bottom, was 5,200±500 B.C. (M-357). As Eva points were predominant in this stratum, a Middle Archaic association is suggested. This is supported at the Hester site in Mississippi (Brookes 1979) where Eva points are believed to date around 4,750 B.C. At the Brinkley Midden most of these points were recovered in Stratum 1 (Table 9.13), with Tuscaloosa gravels the predominant raw material used to manufacture these tools (Table 9.14). Two complete examples are present, and the others exhibit snaps across the blade (Table 9.15).

Table 9.12. Eva Metric Data (N = 2).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.75 | 0.35 | 3.50 | 4.00 | 0.50 |
| Haft Juncture Width | 1.50 | 0.28 | 1.30 | 1.70 | 0.40 |
| Base Width | 1.30 | 0.28 | 1.10 | 1.50 | 0.40 |
| Haft Length | 0.80 | 0.00 | 0.80 | 0.80 | 0.00 |
| Haft Thickness | 0.60 | 0.00 | 0.60 | 0.60 | 0.00 |

(Measurements are in centimeters)

Morrow Mountain Rounded Stem (N = 10; Fig. 9.6)

This medium sized point has a straight or slightly convex base and a rounded stem. The shoulders are horizontal or tapered. Blade beveling is absent. The primary retouch is semi-invasive and invasive with expanding percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and slightly expanding flake scars. Two points exhibit serrations along the blade edges, and one of these has been intentionally modified into a break burin (Figure 9.6, b). This well made point usually has a thin biconvex cross section, although three specimens are rather thick. Except for one complete point, all of these exhibit lateral snaps across the blade (Table 9.15). Bifacial retouch is the most common haft preparation technique found on the specimens of this type recovered at the

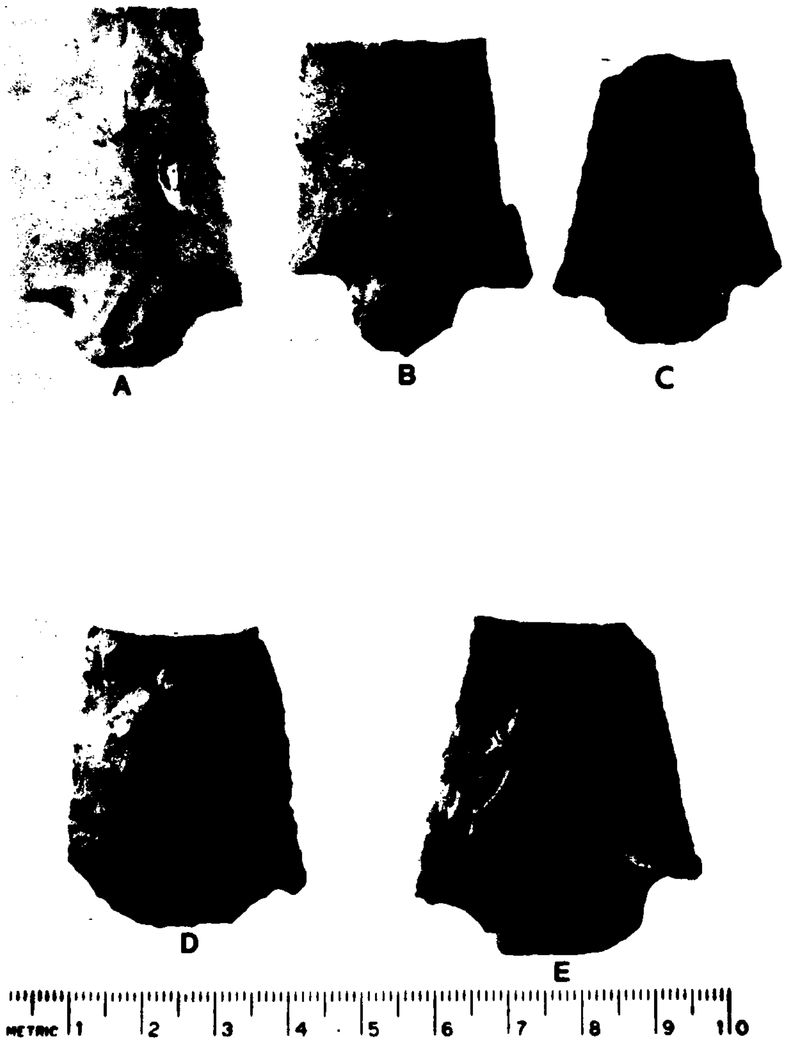



Figure 9.6. Morrow Mountain Rounded Stem Projectile Points.

Table 9.13. Middle Archaic Projectile Points by Stratum.

| | Stratum 1 | Stratum 2 | Stratum 3 | Uncertain Context | Total |
|---|---|---|---|---|---|
| Eva | 4 | 1 | - | 2 | 7 |
| Morrow Mountain | 5 | 5 | - | - | 10 |
| White Springs | 11 | 12 | - | - | 23 |
| Buzzard Roost Creek | 11 | 8 | - | - | 19 |
| Total | 31 | 26 | | 2 | 59 |

Table 9.14. Middle Archaic Projectile Points by Raw Materials.

| | Tuscaloosa Gravels | Blue Ft. Payne Chert | Tan Ft. Payne Chert | Fossiliferrous Bangor Chert | Pickwick Chert | Dover Chert | Total |
|---|---|---|---|---|---|---|---|
| Eva | 4 | 1 | 1 | 1 | - | - | 7 |
| Morrow Mountain | 2 | 2 | 2 | 4 | - | - | 10 |
| White Springs | 15 | 1 | 3 | 3 | - | 1 | 23 |
| Buzzard Roost Creek | - | 15 | 4 | - | - | - | 19 |
| Total | 21 | 19 | 10 | 8 | - | 1 | 59 |

Table 9.15. Blade Element Condition of Middle Archaic Projectile Points.

| | Whole | Lateral Snap | Impact Fracture | Incipient Fracture | Heat Shattered | Total |
|---|---|---|---|---|---|---|
| Eva | 2 | 5 | - | - | - | 7 |
| Morrow Mountain | 1 | 9 | - | - | - | 10 |
| White Springs | 12 | 9 | 2 | - | - | 23 |
| Buzzard Roost Creek | 2 | 17 | - | - | - | 19 |
| Total | 17 | 40 | 2 | - | - | 59 |

Table 9.16. Techniques of Haft Preparation for Middle Archaic Projectile Points.

| | Bifacial Retouch | Abrupt Bifacial Retouch | Unifacial Invasive Basal Retouch | Burinated Base | Flattened Base | Cortex on Base | Total |
|---|---|---|---|---|---|---|---|
| Eva | 3 | 1 | - | 2 | 1 | - | 7 |
| Morrow Mountain | 7 | 1 | - | 1 | 1 | - | 10 |
| White Springs | 13 | 3 | 2 | 1 | 4 | - | 23 |
| Buzzard Roost Creek | 3 | 16 | - | - | - | - | 19 |
| Total | 26 | 21 | 2 | 4 | 6 | - | 59 |

Brinkley Midden (Table 9.16). This point is similar to the Eva point. It, however, has a slightly broader stem and does not have barbed shoulders. Metric data for Morrow Mountain points recovered from the Brinkley Midden are given in Table 9.17.

Coe (1964:37) defined the Morrow Mountain point from specimens from the Carolina Piedmont. These are believed to have a Middle Archaic association, dating around 4,500 B.C. (Coe 1964:123). At the Brinkley Midden most Morrow Mountain points are from Stratum 2 (Table 9.13), and one is from each of LBSFs 5 and 12. No distinct preference for raw materials is apparent, although tan Fort Payne chert and fossiliferrous Bangor chert are most numerous (Table 9.14).

Table 9.17. Morrow Mountain Metric Data (N = 5).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.30 | 0.54 | 2.80 | 4.70 | 1.90 |
| Haft Juncture Width | 2.09 | 0.43 | 1.70 | 3.20 | 1.50 |
| Base Width | 1.54 | 0.29 | 1.00 | 2.00 | 1.00 |
| Haft Length | 0.82 | 0.17 | 0.50 | 1.00 | 0.50 |
| Haft Thickness | 0.52 | 0.15 | 0.40 | 0.90 | 0.50 |

(Measurements are in centimeters)

<u>White Springs</u> (N = 23, Figures 9.7, a-h; 9.8, a-d)

This medium sized point (Table 9.18) has a straight or convex base and a slightly tapered stem. The shoulders are horizontal or tapered, and the blade may be convex, straight, parallel, or recurvate. Beveling is absent on all but five points, on which it is slight. The primary retouch is invasive and semi-invasive with broad percussion flake scars. Secondary retouch is semi-invasive or marginal with slightly expanding and parallel pressure flake scars. Two of the haft elements of these points are characterized by unifacial semi-invasive basal retouch, and three others exhibit bifacial abrupt marginal retouch (Table 9.16). Four points exhibit serrations along the blade edge, and another point (Figure 9.7, b) has been burinated along one lateral edge from the tip to the shoulder. The function of the latter point is uncertain, but the modified edge does not appear to have been used as a burin. The length and regularity of the flake scar suggests that it was incurred intentionally, and it may have served to simply resharpen the point. This point may be thick or thin and usually has a biconvex cross section. Two examples (Figure 9.7, a, b) have been especially finely made. The latter points are thin and exhibit semi-invasive and invasive pressure retouch. Twelve points are complete, nine points exhibit a lateral snap across the blade, and two have impact fractures (Table 9.15).

The White Springs point was defined by DeJarnette et al. (1962:70) from projectile points recovered at Stanfield-Worley Bluff Shelter. At this site, White Springs points were found in association with Morrow

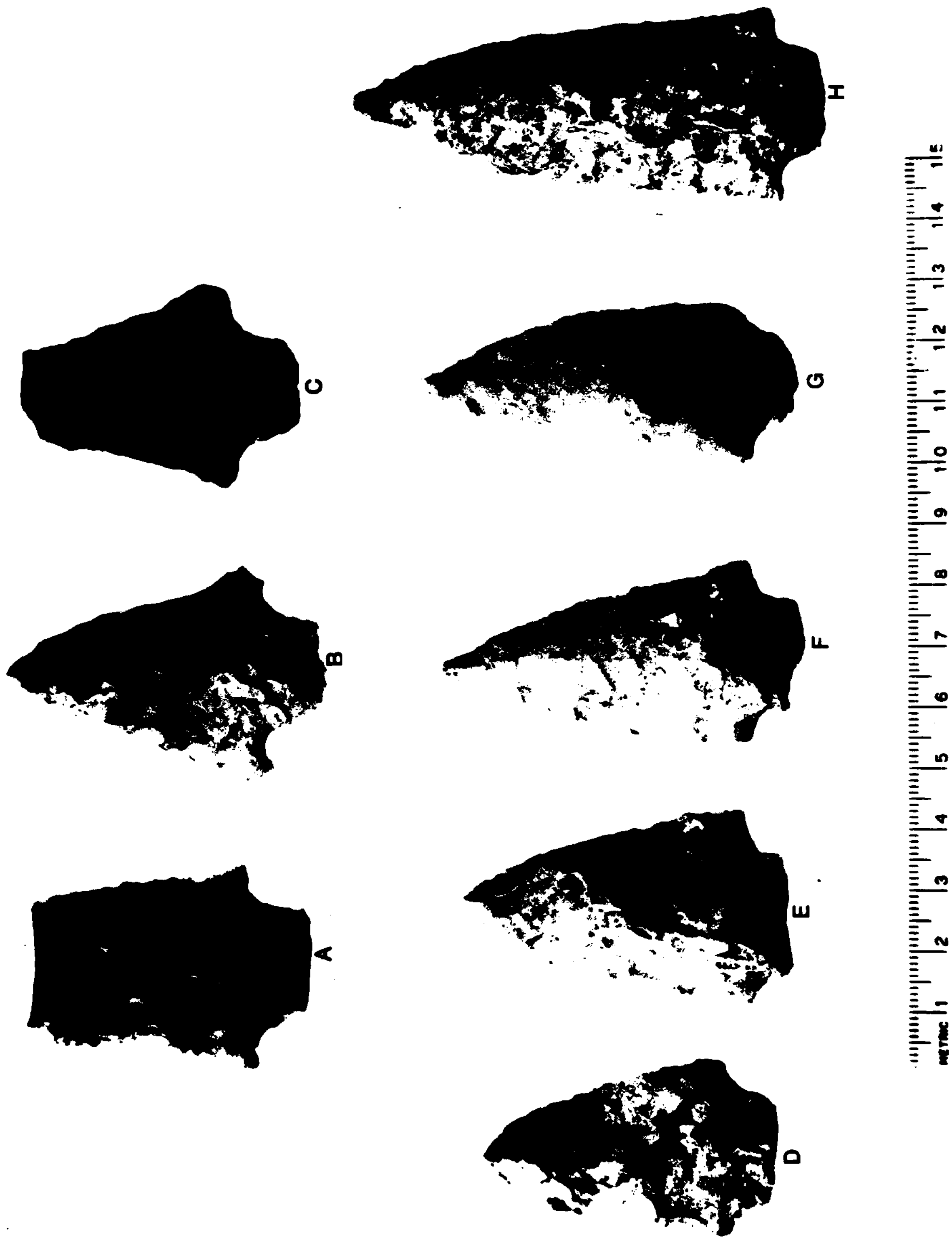



Figure 9.7. White Springs Projectile Points.

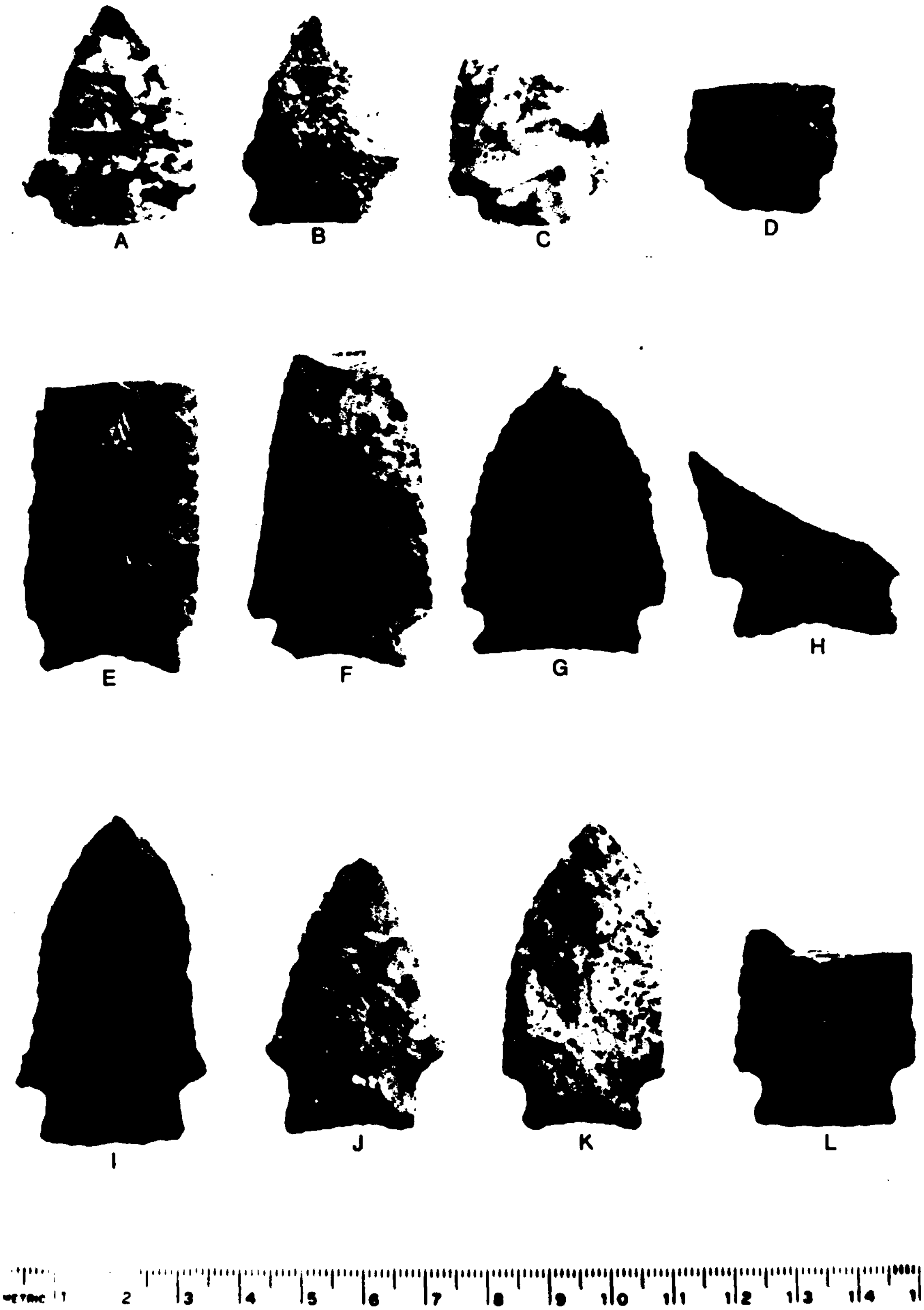



Figure 9.8. White Springs and Benton Projectile Points.
A-D, White Springs; E-L, Benton.

Mountain points in Burial 8, Zone C (1962:14). In the Pickwick Basin several White Springs points were recovered at Site 1Ct27 in Burials 85, 86, and 87 at Level 18 (Webb and DeJarnette 1942:244, 257). A Middle Archaic association is suggested. At the Brinkley Midden nine points are from Stratum 2, and the rest are from Stratum 1 (Table 9.13). Tuscaloosa gravels and tan Fort Payne chert are the predominant raw materials, although one point of Dover chert is also present (Table 9.14).

Table 9.18. White Springs Metric Data (N = 5).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.12 | 0.22 | 2.90 | 3.40 | 0.50 |
| Haft Juncture Width | 2.08 | 0.13 | 1.90 | 2.20 | 0.30 |
| Base Width | 1.88 | 0.11 | 1.80 | 2.00 | 0.20 |
| Haft Length | 0.76 | 0.11 | 0.60 | 0.90 | 0.30 |
| Haft Thickness | 0.80 | 0.07 | 0.70 | 0.90 | 0.20 |

(Measurements are in centimeters)

Buzzard Roost Creek (N = 19; Figure 9.4, b-j)

This medium sized point (Table 9.19) has a straight stem with a bifurcate base. The shoulders are horizontal, and the blade form may be straight, convex, or recurvate. The primary retouch is invasive with broad percussion flake scars. The secondary retouch is semi-invasive and marginal with parallel and expanding flake scars. This secondary retouch is usually characterized by bifacial abrupt marginal retouch for the haft element (Table 9.16). No beveling of the blade edge or serrations are evident. Two complete specimens are present, and all of the rest exhibit lateral snaps across the blade (Table 9.15). One point (Figure 9.4, b) evidences a lateral snap across the blade from which a burin blow has been struck.

Cambron (1958:17) described this point from examples observed in northern Alabama. Described by Webb and DeJarnette (1942:252, 254) as Type 30 and Type 34 in the Pickwick Basin, it is associated with the earlier occupations of the shell middens along the Tennessee River. This point is similar to LeCroy projectile points although the blade form for this point is usually larger. While Chapman (1975:212) places LeCroys in eastern Tennessee at 6,300 B.C., these points may occur somewhat later in time. Most of these points at the Brinkley Midden are from Stratum 1, and most are manufactured from blue Fort Payne chert (Tables 9.13 - 9.14).

Discussion

The projectile points from the Middle Archaic Period lack the heavily ground haft element margins of the earlier period and are generally not as well made. Bifurcate stemmed points as well as basally notched and short-

Table 9.19. Buzzard Roost Creek Metric Data (N = 10).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.37 | 0.28 | 2.90 | 3.70 | 0.80 |
| Haft Juncture Width | 2.07 | 0.19 | 1.80 | 2.30 | 0.50 |
| Base Width | 2.03 | 0.19 | 1.70 | 2.40 | 0.70 |
| Haft Length | 1.27 | 0.13 | 1.00 | 1.50 | 0.50 |
| Haft Thickness | 0.56 | 0.11 | 0.50 | 0.90 | 0.40 |

(Measurements are in centimeters)

stemmed points characterize this period. Most blade edges are straight, but others are serrated or exhibit break burins on the blades. Bifacial retouch is the predominant method employed to finish the haft element, although other techniques are also evident (Table 9.16). Most points are snapped laterally across the blade (Table 9.15) and are manufactured from Tuscaloosa gravels and blue Fort Payne chert (Table 9.14). Most of these points were recovered in Stratum 1, but several were also recovered in Stratum 2 (Table 9.13).

## Late Archaic and Woodland Projectile Points

Benton (N = 50; Figures 9.8, e-l; 9.9, a-d)

This is a medium to large sized stemmed point. The base is usually straight or concave, and the stem is either straight, slightly tapered, or slightly expanding. The shoulders are horizontal or tapered, and the blade edges are parallel or convex. The primary retouch is semi-invasive or invasive with expanding percussion flake scars. The secondary retouch is marginal or semi-invasive with parallel and expanding pressure flake scars.

Lewis and Lewis (1961:34) described this point in the western Tennessee River Valley where it is associated with a Middle to Late Archaic context. At the Eva site the Benton points were most numerous in Stratum 1 (Lewis and Lewis 1961:28), associated with the Big Sandy phase. This association is supported from evidence at the W.C. Mann Site (22Ts721) in northern Mississippi where strata containing these points were radiocarbon dated at approximately 3,000 B.C. (Drexel Peterson, personal communication, November, 1979). Bense (1982) reports nine radiocarbon dates for Benton components in this region. Eight of these dates fall between 3230±75 B.C. and 3640±75 B.C. The ninth date is 4070±85 B.C. and is probably too early. At the Brinkley Midden most of the Bentons were recovered from Stratum 1, although a substantial number also came from Stratum 2 (Table 9.20). Fossiliferous Bangor chert is the predominant raw material used to manufacture these points, but other cherts also occur frequently (Table 9.21). Eighteen whole points are present, and most of the others exhibit lateral snaps (Table 9.22).

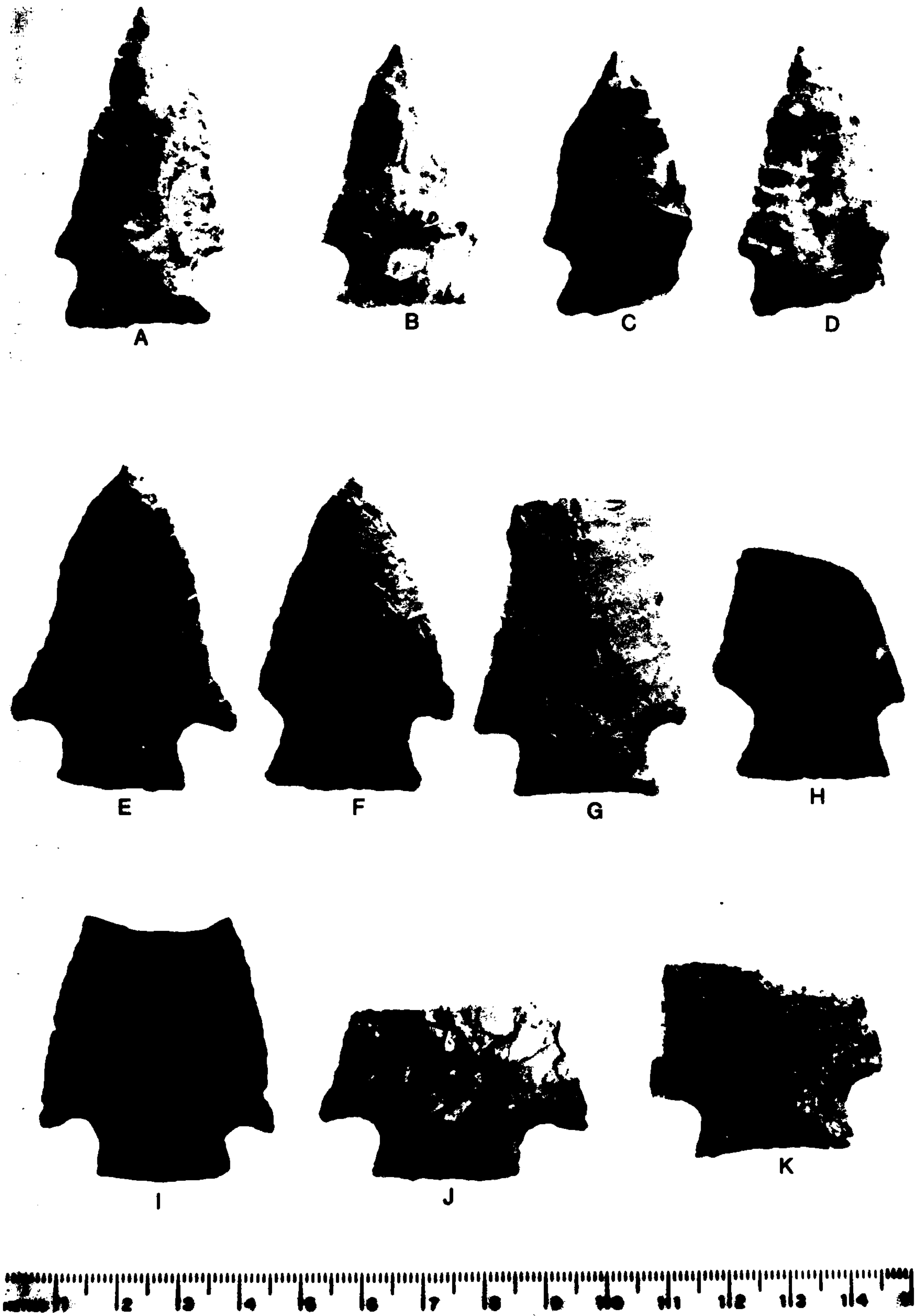


Figure 9.9. Benton and McIntire Projectile Points. A-D, Benton; E-K, McIntire.

Table 9.20. Late Archaic and Woodland Projectile Points by Stratum.

| | Stratum 1 | Stratum 2 | Stratum 3 | Uncertain Context | Total |
|---|---|---|---|---|---|
| Benton | 29 | 18 | - | 3 | 50 |
| McIntire | 15 | 8 | - | 1 | 24 |
| Damron | 6 | 4 | - | 1 | 11 |
| Cotaco Creek | 4 | 3 | - | - | 7 |
| Kays | 10 | 7 | 1 | 1 | 19 |
| Ledbetter | 27 | 17 | - | 3 | 47 |
| Little Bear Creek | 19 | 12 | - | 2 | 33 |
| Pontchartrain | 4 | 2 | - | - | 6 |
| Flint Creek | 7 | 4 | - | 1 | 12 |
| Mulberry Creek | 6 | 1 | - | - | 7 |
| Adena | 3 | 4 | - | - | 7 |
| Dallas | 2 | - | - | - | 2 |
| Gary | 1 | 1 | - | - | 2 |
| Total | 133 | 81 | 1 | 12 | 227 |

Table 9.21. Late Archaic and Woodland Projectile Points by Raw Material.

| | Tuscaloosa Gravels | Blue Ft. Payne Chert | Tan Ft. Payne Chert | Fossiliferous Bangor Chert | Pick-wick Chert | Dover Chert | Total |
|---|---|---|---|---|---|---|---|
| Benton | 13 | 10 | 11 | 15 | 1 | - | 50 |
| McIntire | 12 | 1 | 2 | 8 | - | 1 | 24 |
| Damron | 4 | 3 | 3 | 1 | - | - | 11 |
| Cotaco Creek | 3 | 2 | 2 | - | - | - | 7 |
| Kays | 1 | 14 | 2 | - | - | 2 | 19 |
| Ledbetter | 11 | 17 | 9 | 8 | - | 2 | 47 |
| Little Bear Creek | 2 | 24 | 3 | 2 | 1 | 1 | 33 |
| Pontchartrain | 2 | 2 | 2 | - | - | - | 6 |
| Flint Creek | 4 | 3 | - | 5 | - | - | 12 |
| Mulberry Creek | 1 | 3 | - | 3 | - | - | 7 |
| Adena | 2 | 4 | 1 | - | - | - | 7 |
| Dallas | - | - | 1 | - | 1 | - | 2 |
| Gary | - | 1 | 1 | - | - | - | 2 |
| Total | 55 | 84 | 37 | 42 | 3 | 6 | 227 |

Table 9.22. Blade Element Condition of Late Archaic And Woodland Projectile Points.

| | Whole | Lateral Snap | Impact Fracture | Incipient Fracture | Heat Shattered | Total |
|---|---|---|---|---|---|---|
| Benton | 18 | 29 | 2 | - | 1 | 50 |
| McIntire | 3 | 17 | 2 | - | 2 | 24 |
| Damron | 10 | 1 | - | - | - | 11 |
| Cotaco Creek | 7 | - | - | - | - | 7 |
| Kays | 1 | 15 | 3 | - | - | 19 |
| Ledbetter | 1 | 41 | 2 | - | 3 | 47 |
| Little Bear Creek | 13 | 19 | 1 | - | - | 33 |
| Pontchartrain | 2 | 2 | 1 | 1 | - | 6 |
| Flint Creek | 4 | 7 | 1 | - | - | 12 |
| Mulberry Creek | 3 | 4 | - | - | - | 7 |
| Adena | 1 | 4 | 1 | - | 1 | 7 |
| Dallas | 2 | - | - | - | - | 2 |
| Gary | - | 2 | - | - | - | 2 |
| Total | 65 | 141 | 13 | 1 | 7 | 227 |

Table 9.23. Techniques of Haft Preparation for Late Archaic and Woodland Projectile Points.

| | Bifacial Retouch | Abrupt Bifacial Retouch | Unifacial Invasive Basal Retouch | Burinated Base | Flattened Base | Cortex on Base | Total |
|---|---|---|---|---|---|---|---|
| Benton | 13 | 25 | 12 | - | - | - | 50 |
| McIntire | 19 | 5 | - | - | - | - | 24 |
| Damron | 6 | 3 | - | 1 | 1 | - | 11 |
| Cotaco Creek | 5 | 2 | - | - | - | - | 7 |
| Kays | 3 | 14 | - | - | 2 | - | 19 |
| Ledbetter | 30 | 7 | - | 1 | 6 | 3 | 47 |
| Little Bear Creek | 20 | 2 | - | - | 9 | 2 | 33 |
| Pontchartrain | 3 | - | - | - | 3 | - | 6 |
| Flint Creek | 9 | 2 | - | - | 1 | - | 12 |
| Mulberry Creek | 7 | - | - | - | - | - | 7 |
| Adena | 6 | 1 | - | - | - | - | 7 |
| Dallas | 2 | - | - | - | - | - | 2 |
| Gary | 2 | - | - | - | - | - | 2 |
| Total | 125 | 61 | 12 | 2 | 22 | 5 | 227 |

The secondary retouch of the haft element is frequently bifacial abrupt marginal retouch similar to that observed on Buzzard Roost Creek and Kays points. Unifacial semi-invasive retouch, however, is also present (Table 9.23). These points are frequently rather thick and have biconvex or planohexagonal cross sections. Blade beveling is slight on three specimens, and serrations are absent. Although many of these points are morphologically similar to McIntire points, they are manufactured differently; Bentons have marginal and semi-invasive secondary retouch, while McIntires have semi-invasive and invasive secondary retouch which produces a more symmetrical and evenly thinned tool. The Benton point is less carefully retouched than the McIntire point. Metric data for Benton points recovered from the Brinkley Midden are given in Table 9.24.

Table 9.24. Benton Metric Data (N = 10).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.00 | 0.36 | 2.60 | 3.90 | 1.30 |
| Haft Juncture Width | 2.19 | 0.28 | 1.80 | 2.90 | 1.10 |
| Base Width | 2.42 | 0.28 | 2.00 | 3.10 | 1.10 |
| Haft Length | 0.98 | 0.19 | 0.70 | 1.20 | 0.50 |
| Haft Thickness | 0.65 | 0.15 | 0.40 | 0.80 | 0.40 |

(Measurements are in centimeters)

<u>McIntire</u> (N = 24; Figure 9.9, e-k)

This medium sized point (Table 9.25) has a straight base and an expanded stem. The shoulders are horizontal or slightly barbed, and the blade shape may be straight, convex, or recurvate. Four examples are slightly beveled, but beveling is absent on the other points in this category. The primary retouch is invasive or semi-invasive with expanding percussion flake scars. Secondary retouch is semi-invasive and invasive with parallel and expanding pressure flake scars. This point is differentiated from Benton Expanded Stem on the basis of several factors. While most of the Bentons have bifacial abrupt marginal secondary retouch of the haft element, McIntires are less frequently characterized by this trait (Table 9.23). In addition to a more pronouncedly expanded stem, McIntires tend to have wider shoulders and narrower stems than the Benton points. Most McIntires are well made points characterized by a relatively thin biconvex cross section. Three complete examples of this type are present, while most of the other specimens exhibited lateral snaps (Table 9.22).

Cambron and Hulse (1975:86) defined this point from examples frequently occurring in northern Alabama. Similar to Type 7 in the Pickwick Basin (Webb and DeJarnette 1942), this type frequently occurred at the Perry site, 1Lu25, from the 1 ft to 4.5 ft levels, suggesting a Late Archaic context. At the Brinkley Midden, most of these are from Stratum 1 and Stratum 2 (Table 9.20). Tuscaloosa gravels and fossiliferous Bangor cherts are the predominant raw materials (Table 9.21).

Table 9.25. McIntire Metric Data (N = 10).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.58 | 0.43 | 3.20 | 4.50 | 1.30 |
| Haft Juncture Width | 2.18 | 0.14 | 2.00 | 2.40 | 0.40 |
| Base Width | 2.43 | 0.19 | 2.10 | 2.70 | 0.60 |
| Haft Length | 1.11 | 0.23 | 0.90 | 1.50 | 0.60 |
| Haft Thickness | 0.78 | 0.12 | 0.50 | 0.90 | 0.40 |

(Measurements are in centimeters)

Kays (N = 19; Figure 9.10, a-e)

This medium to large sized point (Table 9.26) has a slightly tapered or straight stem with a straight or convex base. The shoulders taper, and the blade shape is parallel or convex. Two specimens have slightly beveled blade edges, and none are serrated. The primary retouch is invasive with broad percussion flake scars. The secondary retouch is characterized by continuous semi-invasive or marginal pressure retouch with narrow parallel flake scars. This is a well made point that is frequently characterized by abrupt secondary retouch which gives the point a plano-hexagonal cross section (Table 9.23). Only one complete specimen is present, and most others exhibit a lateral snap across the blade (Table 9.22). Three points are impact fractured, and another point characterized by a lateral snap has been modified into a break burin (Figure 9.10, e).

This point has been described by Kneberg (1956:26) on the basis of specimens common to the western Tennessee River Valley. It is believed to have a Middle to Late Archaic association, and is similar to some of the Buzzard Roost Creek and Ledbetter points. At the Brinkley Midden most of these points were recovered from Stratum 1, although several were also recovered from Stratum 2 (Table 9.20). Two of these points were associated with Structure 1, and one was associated with Structure 7. blue Fort Payne chert is the predominant raw material used to manufacture these tools (Table 9.21).

Table 9.26. Kays Metric Data (N = 10).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.39 | 0.17 | 3.20 | 3.70 | 0.50 |
| Haft Juncture Width | 2.43 | 0.22 | 2.00 | 2.70 | 0.70 |
| Base Width | 2.18 | 0.18 | 1.80 | 2.40 | 0.60 |
| Haft Length | 1.96 | 0.24 | 1.50 | 2.30 | 0.70 |
| Haft Thickness | 0.85 | 0.13 | 0.70 | 1.10 | 0.40 |

(Measurements are in centimeters)

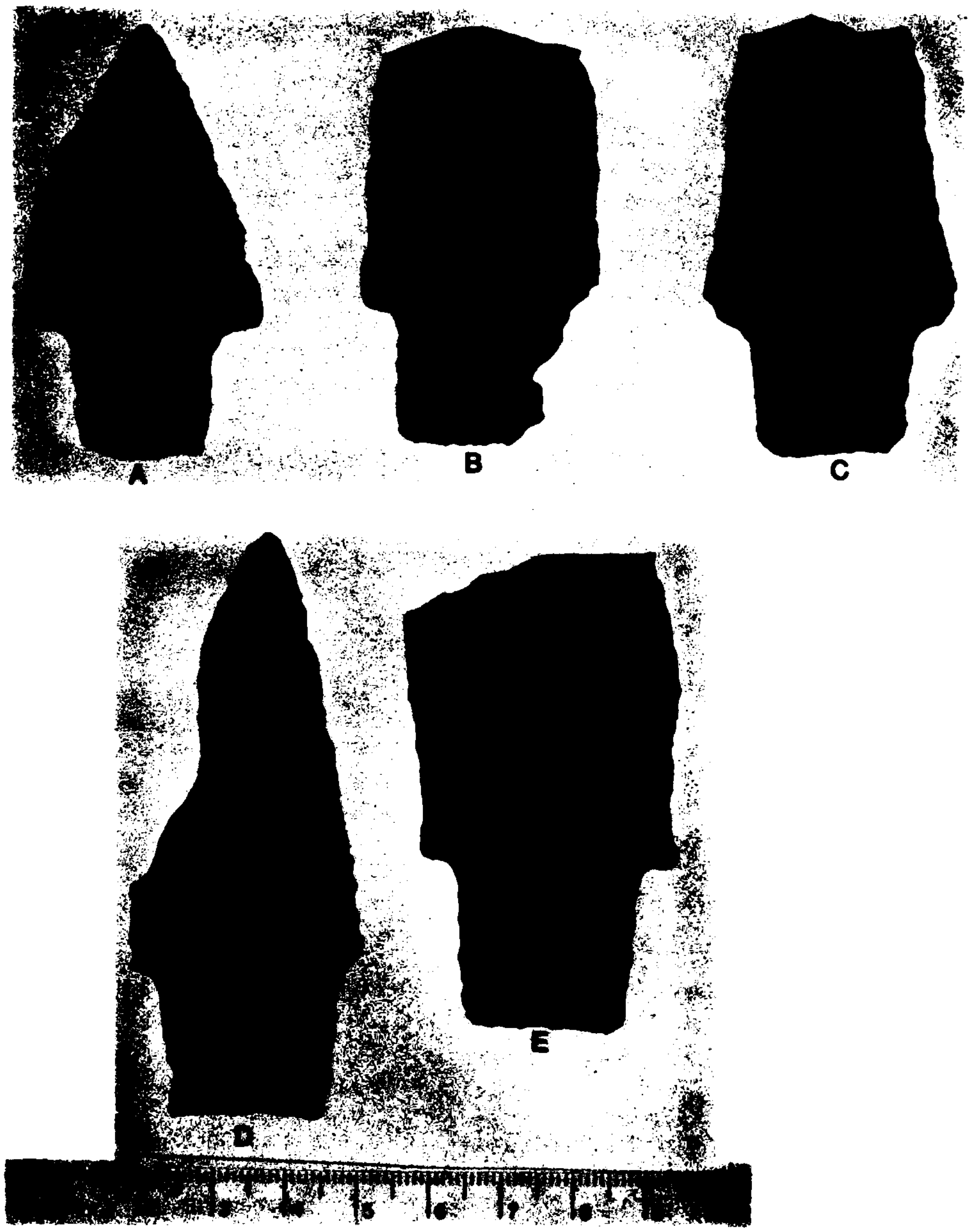



Figure 9.10. Kays Projectile Points.

Adena (N = 7; Figure 9.11, i, j)

This medium sized point has a straight or slightly tapered stem with a rounded base. The shoulders are horizontal or slightly tapered, and the blade form may be straight, convex, or recurvate. The primary retouch is invasive with broad percussion flake scars. The secondary retouch is semi-invasive and marginal with parallel and expanding flake scars. One specimen exhibits abrupt bifacial marginal retouch along the haft element. Another specimen exhibits a beveled and serrated blade. One Adena point is whole, two are slightly damaged at the distal tip, and the rest are characterized by lateral snaps across the blade (Table 9.22).

Kneberg (1956) and Bell (1958) described this point as being associated with the Adena culture. A Late Archaic to Early Woodland context is suggested (Kneberg 1956). Most of these points are manufactured from blue Fort Payne chert (Table 9.21), and most of them were recovered in Stratum 1 at the Brinkley Midden (Table 9.20).

Ledbetter (N = 47; Figure 9.12, a-i)

This is a medium to large sized point (Table 9.27) with a straight base and a narrow straight or slightly tapered stem. The shoulders are usually horizontal, and the blade form is usually convex, straight, or asymmetrical. Serrations are absent on all specimens, but two blades exhibit beveling. The primary retouch is invasive or semi-invasive with broad percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and slightly expanding pressure flake scars. Although bifacial marginal retouch is predominant, four points exhibit bifacial abrupt marginal retouch of the haft element. Six points exhibit flattened bases, and three points have cortex on the base (Table 9.23) This point is fairly well made and has a biconvex cross section. One complete specimen was recovered, and most of the other points exhibit lateral snaps across the blade (Table 9.22).

This point was defined by Kneberg (1956:26) from projectile points recovered at the Ledbetter Site in west central Tennessee. It is generally associated with the Late Archaic period in this area. At the Brinkley Midden most of these points are from Stratum 1, although three points were recovered from structures, and two were associated with Stratum 2 (Table 9.20). Blue Fort Payne chert and Tuscaloosa gravels are the predominant raw materials (Table 9.21).

Little Bear Creek (N = 33; Figure 9.13, a-h)

This medium to large size point (Table 9.28) has a straight base and a straight square stem. The shoulders are usually horizontal, and the blade edges are straight, convex, or parallel. Blade beveling is absent on all but one of these tools. The primary retouch is invasive with broad expanding flake scars. The secondary retouch is marginal and semi-invasive with narrow parallel and expanding flake scars employed to form a


Figure 9.11. Miscellaneous Expanded Stem, Miscellaneous Straight Stem, Miscellaneous Tapered Stem and Adena Projectile Points. A-D, Miscellaneous Expanded Stem; E-G, Miscellaneous Straight Stem; H, K-M, Miscellaneous Tapered Stem; I, J, Adena.

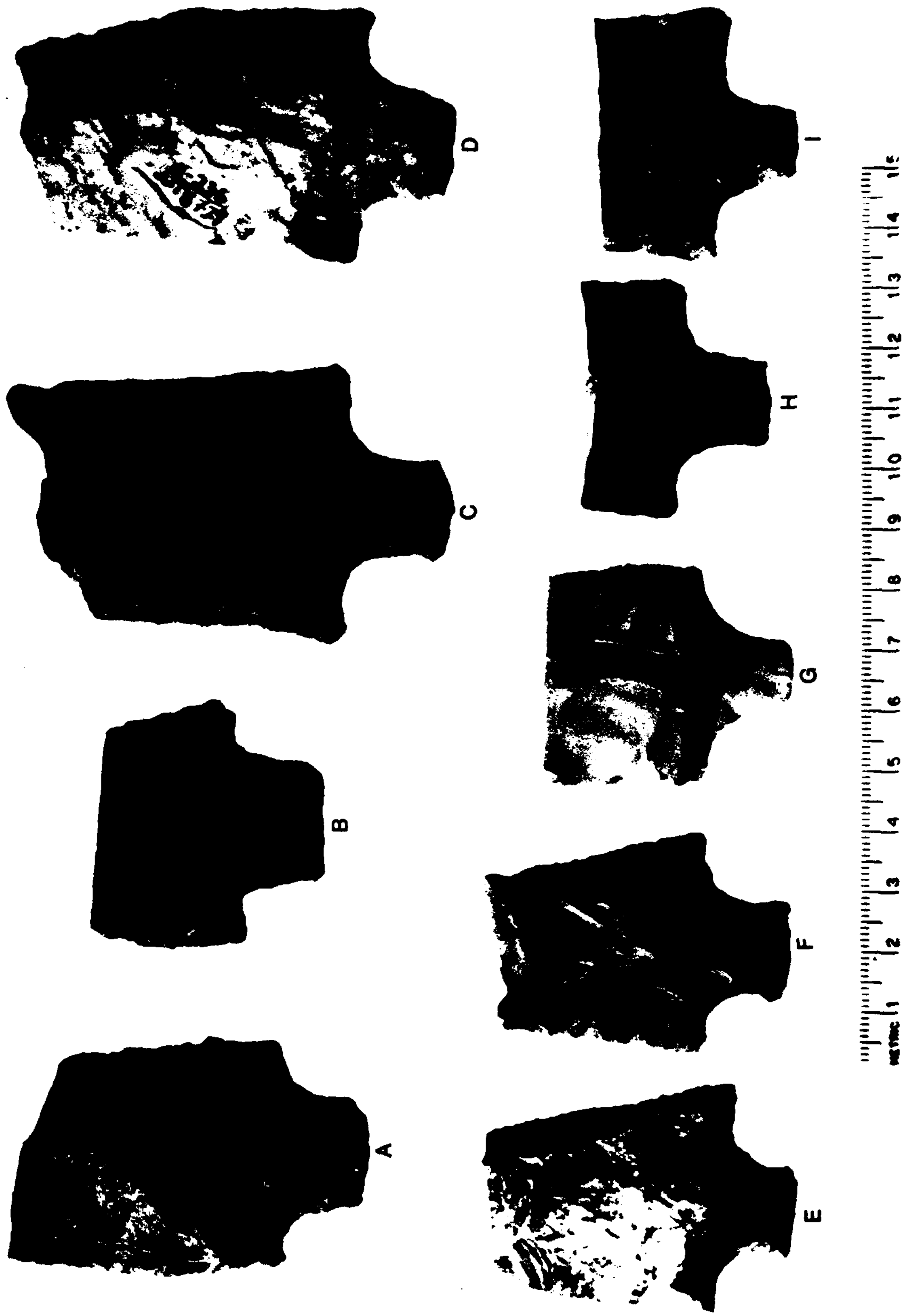



Figure 9.12. Ledbetter Projectile Points.

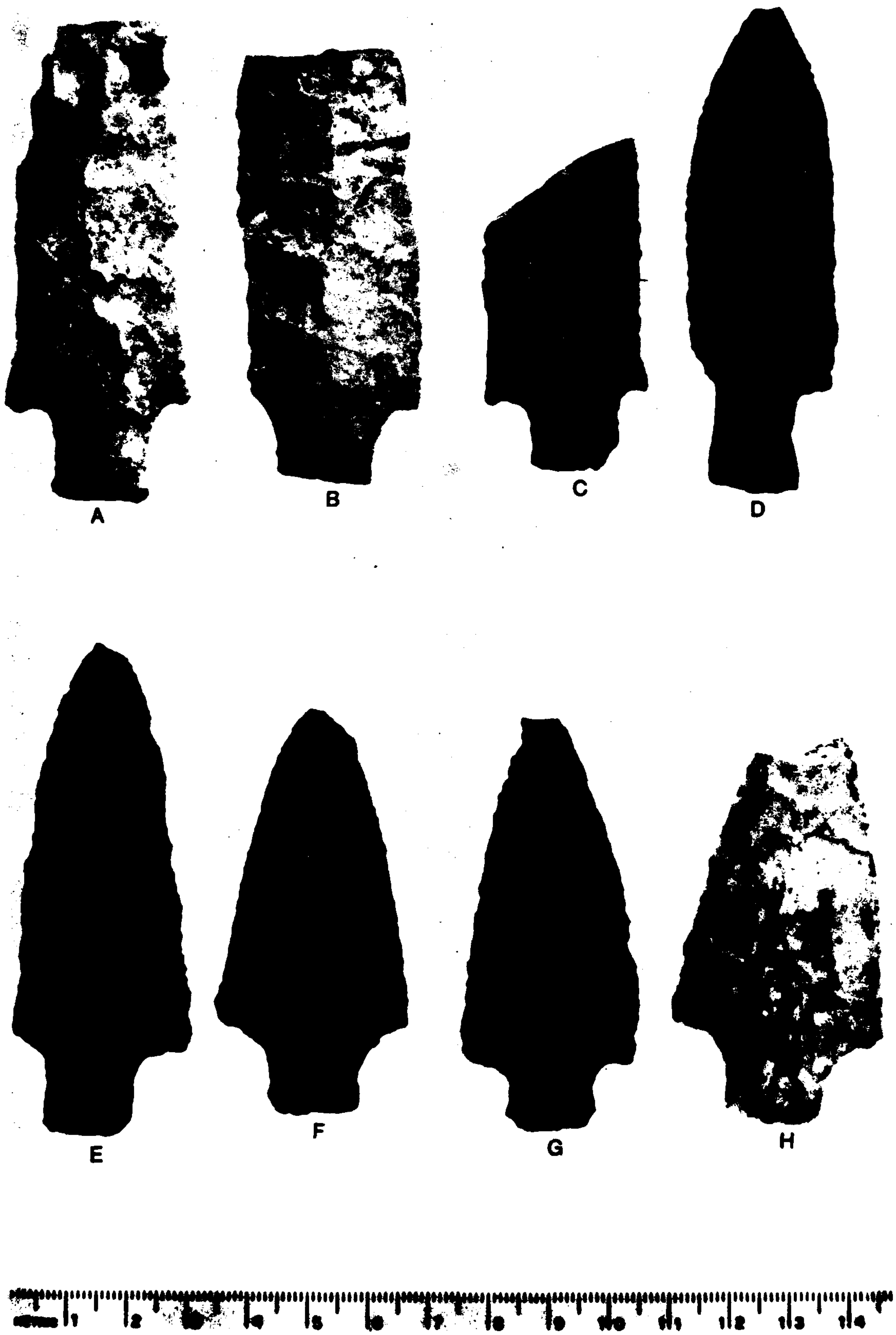


Figure 9.13. Little Bear Creek Projectile Points.

Table 9.27. Ledbetter Metric Data (N = 10).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 4.07 | 0.36 | 3.5 | 4.7 | 1.2 |
| Haft Juncture Width | 1.80 | 0.19 | 1.6 | 2.2 | 0.6 |
| Base Width | 1.51 | 0.21 | 1.3 | 1.9 | 0.6 |
| Haft Length | 1.41 | 0.20 | 1.2 | 1.8 | 0.6 |
| Haft Thickness | 0.83 | 0.12 | 0.7 | 1.0 | 0.3 |

(Measurements are in centimeters)

finely serrated blade edge. This point has a relatively thin lenticular cross section. Although most of the haft elements of this type exhibit marginal and semi-invasive retouch, several others have different haft preparations (Table 9.23). Nine points have flattened bases, two exhibit cortex on the base, and two more exhibit abrupt bifacial marginal retouch (Table 9.23). Thirteen complete specimens are present, fourteen exhibit lateral snaps, and one has an impact fracture (Table 9.22).

DeJarnette et al. (1962:61) defined this point from examples recovered at the Little Bear Creek site and the Stanfield-Worley bluff shelter. At the Spring Creek site in Tennessee, Peterson (1973:36, 40) observed that these points were associated with the Kirby Zone, which is radiocarbon dated at 1,370±160 B.C. (GX-3104). Similar forms are numerous at the Poverty Point site in Louisiana (Ford and Webb 1956:54, 64), where they are referred to as Macon or Hale points. This point appears to be related to the Late Archaic or Early Woodland cultural developments in this area. At the Brinkley Midden most of these points are from Stratum 1, though several were also associated with Stratum 2 (Table 9.20). Blue Fort Payne chert is the predominant raw material used to make these tools (Table 9.21).

Table 9.28. Little Bear Creek Metric Data (N = 10).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.20 | 0.40 | 2.40 | 3.80 | 1.40 |
| Haft Juncture Width | 1.57 | 0.18 | 1.40 | 2.00 | 0.60 |
| Base Width | 1.57 | 0.12 | 1.40 | 1.70 | 0.30 |
| Haft Length | 1.46 | 0.25 | 1.10 | 1.90 | 0.80 |
| Haft Thickness | 0.78 | 0.09 | 0.60 | 0.90 | 0.30 |

(Measurements are in centimeters)

Mulberry Creek N = 7; Figure 9.14, i-l)

This medium sized point (Table 9.29) has a convex or straight base and a tapered stem. The shoulders are also tapered, and the blade form is usually convex. All points have continuous marginally retouched serrations along the blade edges, and one example has slightly beveled blade edges. The primary retouch is invasive with broad percussion flake scars. The secondary retouch is marginal or semi-invasive with parallel and expanding pressure flake scars. These points may have a thick or thin biconvex cross section. Three projectile points are whole, and most of the rest exhibit lateral snaps (Table 9.22).

This point was defined by DeJarnette et al. (1962:64) from specimens recovered at Stanfield-Worley Bluff Shelter and the Mulberry Creek site (1Ct27) in the Pickwick Basin. This point is similar to some of the larger varieties of Gary points described by Ford and Webb (1956:52), and to Gary var. Gary west of the Mississippi River (Schambach 1982), except the Mulberry Creek point does not have as tapered and pointed a stem. Six points were recovered from Stratum 1, and another was recovered from Stratum 2 (Table 9.20). Blue Fort Payne chert, fossiliferous Bangor chert, and Tuscaloosa gravels were used to manufacture these tools (Table 9.21). This point is associated with the Late Archaic-Early Woodland period, and its use may continue until later Woodland times.

Table 9.29. Mulberry Creek Metric Data (N = 5).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.06 | 0.35 | 2.70 | 3.60 | 0.90 |
| Haft Juncture Width | 1.94 | 0.46 | 1.50 | 2.70 | 1.20 |
| Base Width | 1.36 | 0.11 | 1.20 | 1.50 | 0.30 |
| Haft Length | 1.62 | 0.22 | 1.30 | 1.80 | 0.50 |
| Haft Thickness | 0.82 | 0.08 | 0.70 | 0.90 | 0.20 |

(Measurements are in centimeters)

Cotaco Creek (N = 7; Figure 9.15, g-m)

This medium sized point (Table 9.30) has a straight or slightly concave base and a slightly expanded stem. The shoulders are horizontal, and the blade is straight or convex. Blade beveling is absent on all specimens. The primary retouch is invasive or semi-invasive with broad expanding flake scars. Secondary flaking is marginal or semi-invasive with straight or slightly expanding pressure flake scars. This well made point is generally characterized by a thin biconvex cross section. All examples are complete specimens which exhibit only minor edge damage (Table 9.22).

DeJarnette et al. (1962:53) defined this point from examples recovered at Stanfield-Worley Bluff Shelter. Benthall (1965:46) and Dye (1977:67) note the association of this type with Wheeler ceramics and

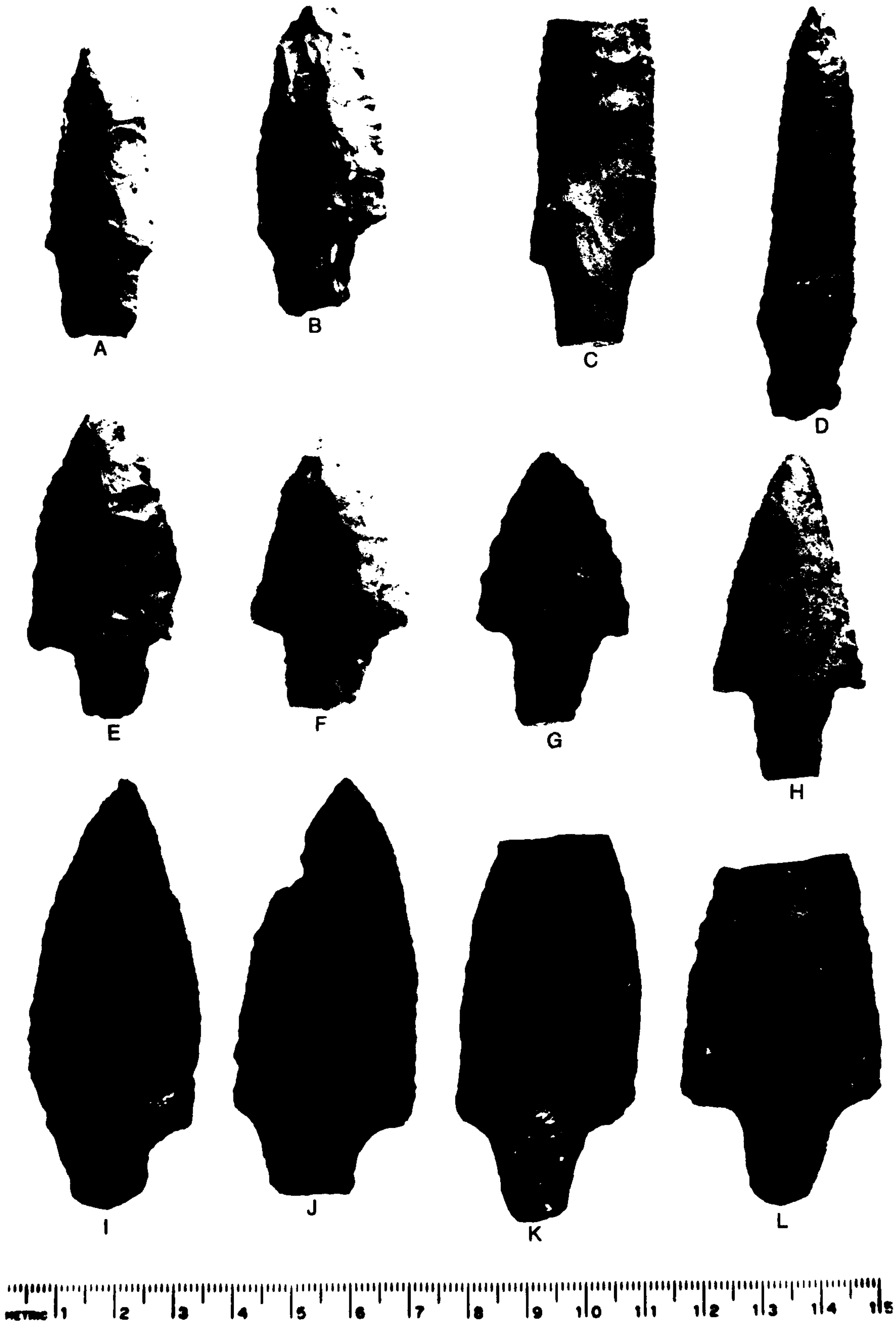



Figure 9.14. Pontchartrain, Miscellaneous Straight Stem, and Mulberry Creek Projectile Points. A-D, Pontchartrain; E-H, Miscellaneous Straight Stem; I-L, Mulberry Creek.

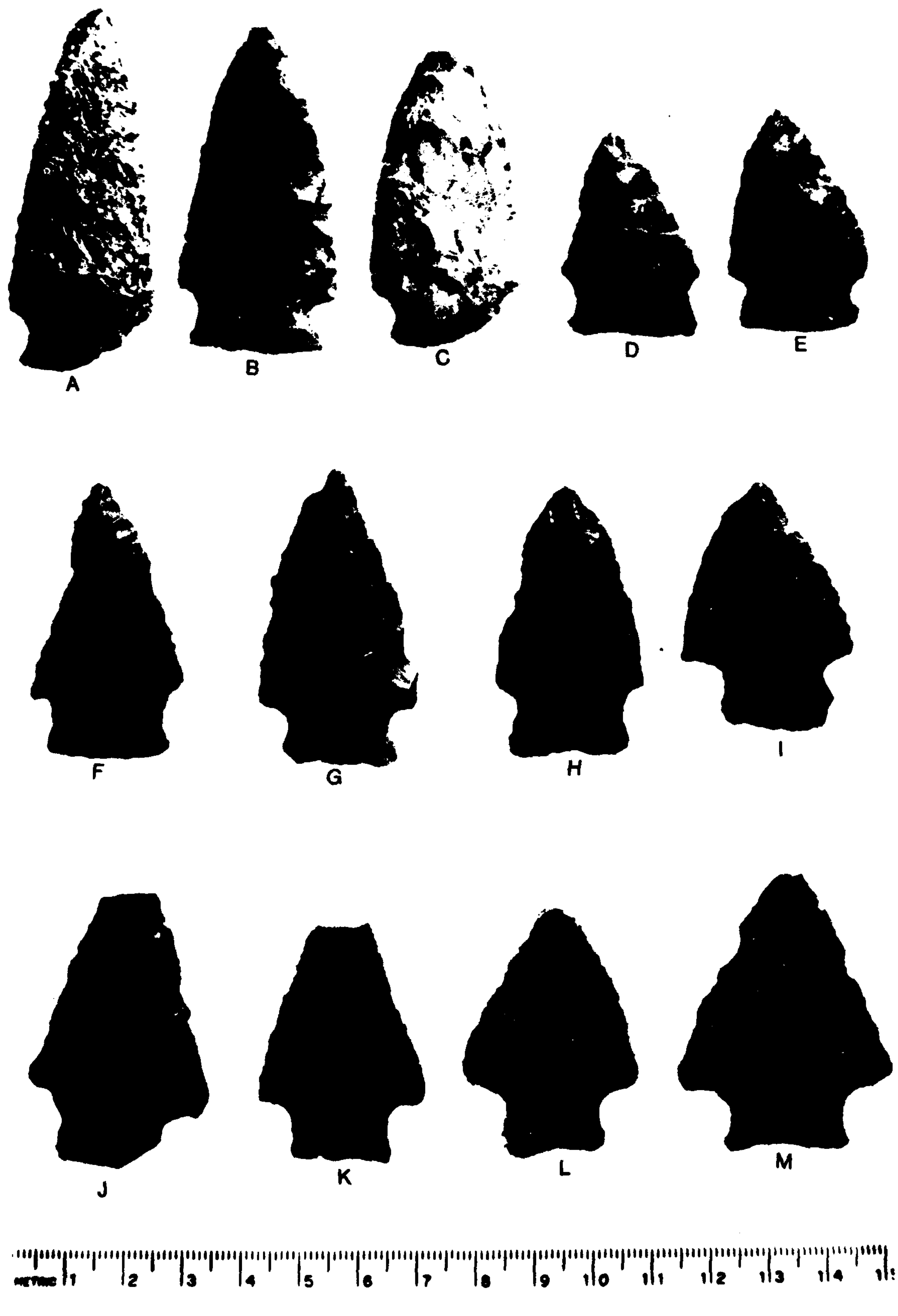



Figure 9.15. Damron and Cotaco Creek Projectile Points. A-F, Damron; G-M, Cotaco Creek.

suggest a Late Archaic to Early Woodland context. This is supported at the Brinkley Midden where 59 percent of these points were recovered from Stratum 1, although examples were also recovered from Stratum 2 and LBSF 2 (Table 9.20). No distinct preference for raw material is apparent, although Tuscaloosa gravels occur most frequently (Table 9.21).

Table 9.30. Cotaco Creek Metric Data (N = 4).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 3.17 | 0.36 | 2.90 | 3.70 | 0.80 |
| Haft Juncture Width | 1.75 | 0.17 | 1.60 | 2.00 | 0.40 |
| Base Width | 1.80 | 0.14 | 1.70 | 2.00 | 0.30 |
| Haft Length | 1.62 | 1.12 | 1.00 | 3.30 | 2.30 |
| Haft Thickness | 0.60 | 0.08 | 0.50 | 0.70 | 0.20 |

(Measurements are in centimeters)

Damron (N =11; Figure 9.15, a-f)

This medium sized point has a straight or slightly convex base and an expanding stem. The shoulders are horizontal or slightly tapered, and the blade is usually convex or straight. No examples exhibit either beveled or serrated blade elements. The primary retouch is invasive percussion retouch with expanding percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and slightly expanding pressure flake scars. Ten complete specimens are present and one point bearing a lateral snap across the blade (Table 9.22).

This point is described by Cambron and Hulse (1975) and is associated with Archaic materials along the Tennessee River Valley. Fifty-five percent of these tools are from Stratum 1 (Table 9.20). They are manufactured from a variety of raw materials (Table 9.21).

Flint Creek (N = 12; Figure 9.16, a-j)

This medium to large sized point (Table 9.31) has a convex base and an expanding bulbous stem. The shoulders are horizontal or slightly tapered, and the blade edges are usually parallel or straight. All exhibit continuous serrations along the blade edges (similar to the Little Bear Creek and Pontchartrain Points), and one example is slightly beveled. The primary retouch is semi-invasive or invasive with expanding percussion flake scars. The secondary retouch is marginal or semi-invasive with parallel and expanding flake scars. The haft elements of two specimens exhibit bifacial abrupt marginal retouch, and another has a flattened base (Table 9.23). This point frequently has a thick biconvex or diamond-like cross section. Four points are complete, seven evidence lateral snaps, and one has an impact fracture (Table 9.22).


Figure 9.16. Flint Creek Projectile Points.

Cambron (1958:12) defined this point. It frequently occurred in the Late Archaic to Early Woodland Strata (Zone A, Levels 3 and 4) at Stanfield Worley shelter (DeJarnette et al. 1962:55). This point is similar to the Pontchartrain Corner Notched point and the Palmillas point that Ford and Webb (1956:55,63) described for Poverty Point. At the Brinkley Midden three of these points are associated with LBSFs, and 67 percent of the points are from Stratum 1 (Table 9.20). Fossiliferous Bangor chert is the most frequent raw material, with Tuscaloosa gravels and blue Fort Payne chert also present (Table 9.21).

Table 9.31. Flint Creek Metric Data (N = 5).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 2.40 | 0.39 | 2.10 | 3.00 | 0.90 |
| Haft Juncture Width | 1.38 | 0.13 | 1.20 | 1.50 | 0.30 |
| Base Width | 1.62 | 0.18 | 1.40 | 1.80 | 0.40 |
| Haft Length | 1.36 | 0.11 | 1.20 | 1.50 | 0.30 |
| Haft Thickness | 0.74 | 0.11 | 0.60 | 0.90 | 0.30 |

(Measurements are in centimeters)

Pontchartrain (N = 6; Figure 9.14, a-d)

This medium sized point has a slightly tapered or straight stem with a straight or convex base. The shoulders taper, and the blade form is parallel or convex. None of these specimens have beveled blades, but all are characterized by small continuous serrations along the blade edges. The primary retouch is invasive and semi-invasive with expanding percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and slightly expanding flake scars. This is a well made point, but it has a relatively thick biconvex cross section. This point has a blade element similar to the Flint Creek point. Two points are complete, two exhibit lateral snaps, one exhibits an impact fracture, and one is fractured along an incipient fracture plane (Table 9.22).

Ford and Webb (1956:55) defined this point type from examples recovered at the Poverty Point site in Louisiana. Common throughout the lower Mississippi River Valley, this point is associated with the Late Archaic or Early Woodland period. Most of these specimens are from Stratum 1 (Table 9.20), and most are manufactured from tan Fort Payne chert (Table 9.21).

Dallas (N = 2; Figure 9.17, i-j)

This is a small to medium sized point (Table 9.32) with a pentagonal outline. The base is straight, and the stem is slightly tapered. The shoulders taper, and the blade may be straight, convex, or recurvate. Blade beveling and serrations are absent. The primary retouch is invasive with expanding percussion flake scars. The secondary retouch is marginal

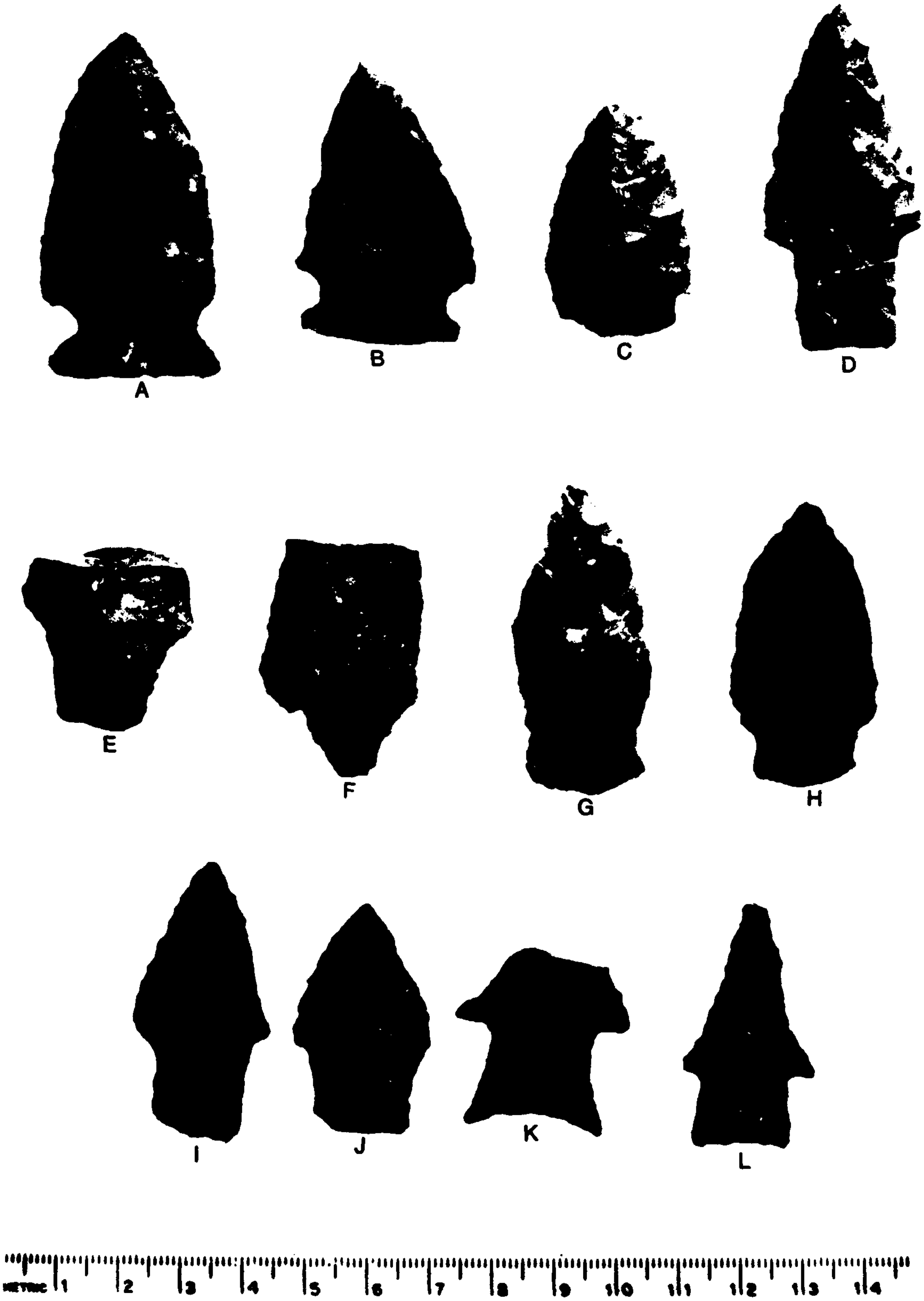



Figure 9.17. Miscellaneous Expanded Stem, Miscellaneous Tapered Stem, Miscellaneous Straight Stem, Dallas and Gary Projectile Points. A-B, G-H, K, Miscellaneous Expanded Stem; C,E, Miscellaneous Tapered Stem; D, L, Miscellaneous Straight Stem; I, J, Dallas; F, Gary.

and semi-invasive with parallel and expanding flake scars. This well made point has a thin biconvex cross section. Two complete specimens are present (Table 9.22).

This point was defined by Bell (1960:24) and is named after projectile points found in Texas and the lower Mississippi River Valley which are believed to date from 2,000 B.C. to 500 A.D. Both of these points were recovered from Stratum 1 (Table 9.20). One is made of Pickwick chert, and the other is made of tan Fort Payne chert (Table 9.21).

Table 9.32. Dallas Metric Data (N = 2).

| | Mean | Standard Deviation | Minimum Value | Maximum Value | Range |
|---|---|---|---|---|---|
| Shoulder Width | 2.20 | 0.00 | 2.20 | 2.20 | 0.00 |
| Haft Juncture Width | 1.70 | 0.14 | 1.60 | 1.80 | 0.20 |
| Base Width | 1.55 | 0.07 | 1.50 | 1.60 | 0.10 |
| Haft Length | 1.50 | 0.28 | 1.30 | 1.70 | 0.40 |
| Haft Thickness | 0.65 | 0.07 | 0.60 | 0.70 | 0.10 |

(Measurements are in centimeters)

Gary (N = 2; Figure 9.17, f)

This medium sized point has a tapered stem with a rounded or pointed base. The shoulders taper, and the blade form is convex or straight. Neither specimen is beveled, but one is serrated along the blade edges. The primary retouch is invasive to semi-invasive with broad percussion flake scars. The secondary flaking is marginal and semi-invasive with slightly expanding and parallel flake scars. This is a fairly well made point with a relatively thick biconvex cross section. This point is similar to Mulberry Creek points except that it is smaller in size and not as well made. Both recovered examples exhibit a lateral snap across the blade (Table 9.22).

Suhm and Jelks (1962:197) defined this point from examples found in Texas and the lower Mississippi River Valley. Widespread throughout this area and the central Tombigbee River Valley, Jenkins (1975:7-8) has determined them to be predominant during the Miller I and Miller II periods (Early and Middle Woodland). At the Brinkley Midden one was recovered from Stratum 1 and one from Stratum 2 (Table 7.20). One is made of blue Fort Payne chert, and the other is made of tan Fort Payne chert (Table 9.21).

Miscellaneous Straight Stem Points (N = 43; Figures 9.11, e-g; 9.17, d, l)

These are medium to large sized points with a straight stem. The shoulders may be horizontal, tapered, or barbed, and the base is usually straight or slightly rounded. The primary retouch is invasive or semi-invasive with broad percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and slightly expanding pressure flake scars. Most of these points have a biconvex or planohexagonal cross section and appear fairly heavily resharpened. Most of the specimens exhibit lateral snaps and were manufactured of Tuscaloosa gravels and blue Fort Payne chert. Most of these points were recovered from Stratum 1.

Miscellaneous Expanded Stem Points (N = 13; Figures 9.11, a-d; 9.17 a,b,g, h,k)

These are medium to large sized points with an expanding stem. The shoulders are either horizontal or tapered, and the stem is straight or slightly convex. The primary retouch is invasive or semi-invasive with broad percussion flake scars. The secondary retouch is marginal and semi-invasive with parallel and slightly expanding flake scars. Most of these points have a biconvex or planohexagonal cross section and are made of blue Fort Payne chert. Several specimens are complete with the remainder characterized by lateral snaps across the blade. These points were primarily associated with Stratum 1.

Miscellaneous Tapered Stem Points (N = 11; Figures 9.11, h, k-m; 9.17, c, e)

These are medium sized points with a tapered stem. The shoulders may be horizontal, tapered, or barbed, and the base is usually straight or slightly rounded. The primary retouch is invasive or semi-invasive with parallel and slightly expanding flake scars. Most of these points have a biconvex cross section and exhibit lateral snaps across the blade edge. Most of these tools are made from blue Fort Payne chert and Tuscaloosa gravels. They are predominantly associated with Stratum 1.

Discussion

The projectile points from the Late Archaic and Woodland periods are predominantly straight square stemmed points. Broad short stemmed points (e.g., Benton, McIntire), broad long stemmed points (e.g., Kays), narrow long stemmed points (e.g., Ledbetter, Little Bear Creek, etc.), and rounded stem points (e.g., Adena, Gary) are present. Most of the blade edges are asymmetrical, but some serrated and beveled blades are present.

Several retouch techniques and other methods of haft preparation were selected to finish these tools. The use of abrupt bifacial marginal retouch and unifacial invasive basal retouch is primarily restricted to the Benton and Kays projectile points. Leaving cortex or some other abrupt termination on the base is more prevalent among the Ledbetter, Little Bear Creek, and Pontchartrain points. These different haft preparatory techniques are believed to reflect temporally distinct but overlapping traditions for manufacturing these tools. Most of these points are snapped laterally across the blade (Table 9.22) and are manufactured from blue Fort Payne chert (Table 9.21). They were primarily found in Stratum 1, but many specimens were recovered from the LBSFs.

# X. GROUND AND POLISHED STONE ARTIFACTS

## Introduction

A variety of ground and polished stone artifacts were recovered from the Brinkley Midden. These items have been intentionally modified to create a desired shape, and many have been further modified through use. All are manufactured by pecking, grinding, and polishing. The raw materials that were used in the manufacture of these artifacts included sandstone, orthoquartzite, siltstone, chert breccia, hematite, and ferruginous sandstone concretions (Tables 10.1 and 10.2). Although most implements of orthoquartzite are manufactured from stream cobbles, the other artifacts lack the water worn cortex of the orthoquartzite examples and may have been manufactured from materials acquired in bedded deposits. Artifact classes are differentiated on the basis of manner of production, morphology, use wear pattern, and size. Reference is also made to the stratigraphic contexts of artifacts (Tables 10.3 and 10.4) and their degree of completeness. Metric measurements are based on complete specimens, except for categories lacking such examples for which measurements apply to the observed dimensions of tool fragments.

Metates (N = 6; Figures 10.1, a; 10.2, a)

These large stone implements are characterized by shallow basins that are smoothly ground to form circular, concave working areas. The exterior portions of these tools are frequently shaped by pecking. One complete metate and four fragments are from Stratum 1 (Table 10.3). The metate was found in two pieces approximately 12 m apart on the site surface. A single whole metate was also recovered from Stratum 2. Four of the metates are manufactured from sandstone, and two are manufactured from orthoquartzite (Table 10.1). Mean length: 23.0 cm; mean width: 16.0 cm; mean thickness: 6.75 cm.

Anvils (N = 7; Figures 10.1, b; 10.3, a, b)

Seven orthoquartzite fragments of medium size are characterized by flat, unifacially ground surfaces. These artifacts are smaller than the metates, less finely ground, and most specimens are roughly pecked in the center of one surface. Two complete anvils and three fragments are from Stratum 1, and another fragment was recovered from Stratum 2 (Table 10.3). A single complete anvil from Stratum 3 is of particular interest because of its context in the early Archaic component. It is the earliest known ground stone tool from the site. This anvil exhibits numerous shallow, parallel striations as well as a smoothly ground surface. It was found in Feature 130 resting beneath an orthoquartzite cobble (Figure 10.1, b). The cobble exhibited neither battering nor crushing, and its presence in association with the anvil suggests that the two artifacts may have been stored for future use.

Table 10.1. Site 22Ts729. Ground Stone Tools by Raw Materials.

| | Orthoquartzite | Sandstone | Chert | Chert Breccia | Total |
|---|---|---|---|---|---|
| Metates | 2 | 4 | - | - | 6 |
| Anvils | 7 | - | - | - | 7 |
| Anvil/Hammer | 8 | - | - | - | 8 |
| Pitted Anvil | 2 | 1 | - | - | 3 |
| Pitted Anvil/ Hammer | 5 | 1 | - | - | 6 |
| Manos | 11 | 1 | - | - | 12 |
| Mano/Hammer | 3 | - | - | - | 3 |
| Pestles | 3 | - | - | - | 3 |
| Hammerstones | 7 | - | 8 | - | 15 |
| Hafted Hammer | 1 | - | - | - | 1 |
| Misc. Ground Slabs | 1 | 1 | - | 2 | 4 |
| Misc. Ground Fragments | 114 | 69 | - | - | 183 |
| Totals | 164 | 77 | 8 | 2 | 251 |

Table 10.2. Site 22Ts729. Ground and Polished Stone Implements by Raw Materials.

| | Ortho-Quartzite | Sand-stone | Chert (Crinoid stem) | Silt-stone | Ferruginous Concretion | Hematite | Total |
|---|---|---|---|---|---|---|---|
| Atlatl Weights | 1 | - | - | 4 | 1 | - | 6 |
| Stone Vessel | - | 2 | - | - | - | - | 2 |
| Palette | - | 1 | - | - | - | - | 1 |
| Pendant | - | - | - | 1 | - | - | 1 |
| Beads | - | - | 3 | - | - | 2 | 5 |
| Ground Ball | 1 | - | - | - | - | - | 1 |
| Misc. Polished Stone Fragment | - | - | - | - | - | 1 | 1 |
| Totals | 2 | 3 | 3 | 5 | 1 | 3 | 17 |

Table 10.3. Site 22Ts729. Ground Stone Tools by Stratum.

| | Stratum 1 | Stratum 2 | Stratum 3 | Total |
|---|---|---|---|---|
| Metates | 5 | 1 | - | 6 |
| Anvils | 5 | 1 | 1 | 7 |
| Anvil/Hammers | 4 | 4 | - | 8 |
| Pitted Anvils | 3 | - | - | 3 |
| Pitted Anvil/Hammers | 4 | 2 | - | 6 |
| Manos | 12 | - | - | 12 |
| Mano/Hammers | 3 | - | - | 3 |
| Pestles | 1 | 2 | - | 3 |
| Hammerstones | 9 | 6 | - | 15 |
| Hafted Hammer | 1 | - | - | 1 |
| Ground Slabs | 3 | 1 | - | 4 |
| Misc. Ground Fragments | 139 | 40 | 4 | 183 |
| Totals | 189 | 57 | 5 | 251 |

Table 10.4. Site 22Ts729. Ground and Polished Stone Implements by Stratum.

| | Stratum 1 | Stratum 2 | Stratum 3 | Total |
|---|---|---|---|---|
| Atlatl Weights | 4 | 2 | - | 6 |
| Stone Vessel Fragments | 2 | - | - | 2 |
| Palette | 1 | - | - | 1 |
| Pendant | 1 | - | - | 1 |
| Beads | 4 | 1 | - | 5 |
| Ground Ball | 1 | - | - | 1 |
| Misc. Polished Stone Fragment | 1 | - | - | 1 |
| Totals | 14 | 3 | - | 17 |


Figure 10.1. Metate and Anvil. A, Metate; B, Anvil.

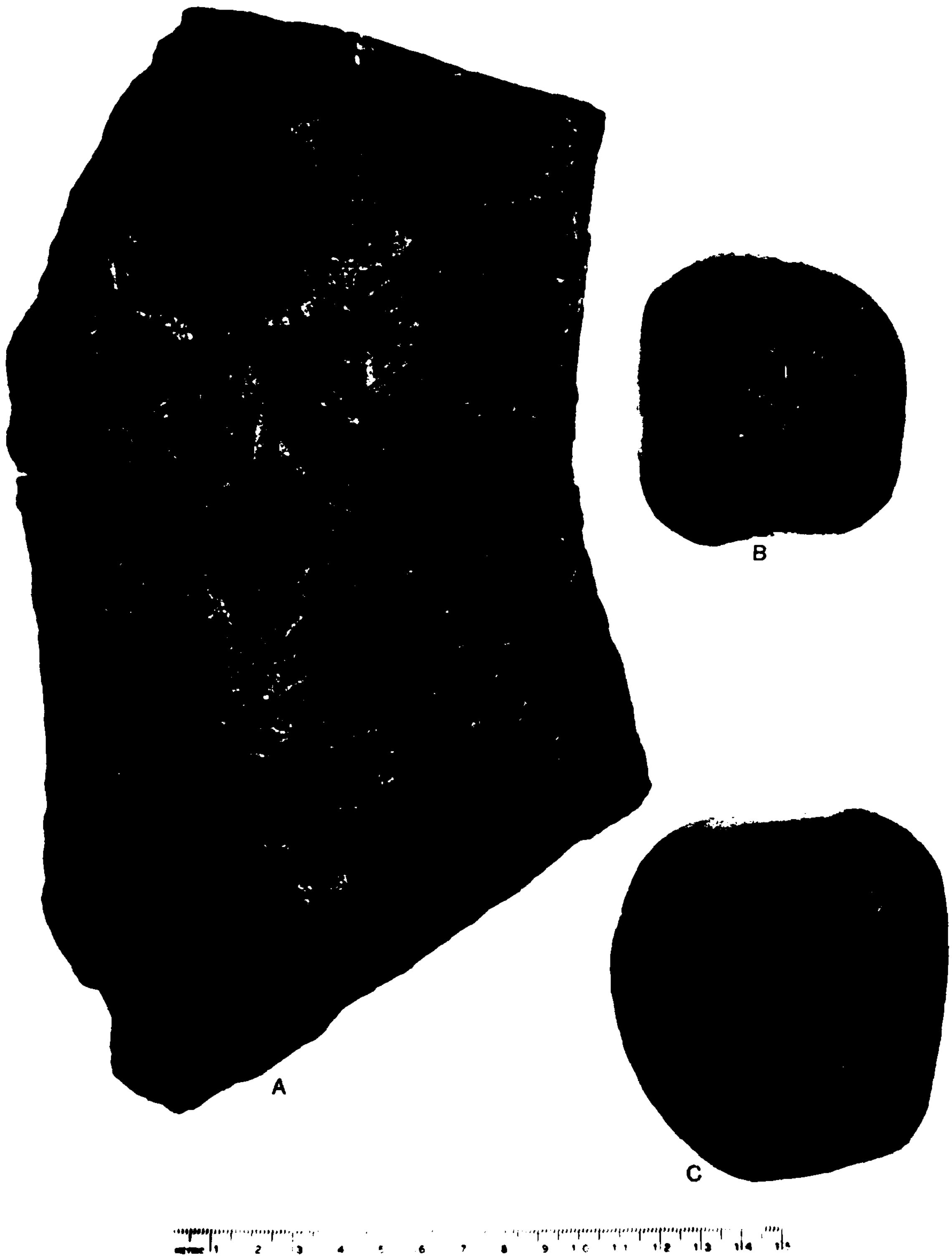



Figure 10.2. Metate and Anvil/Hammers. A, Metate; B-C, Anvil/Hammers.


**Figure 10.3.** Anvils and Hammer. A, Anvil; B, Anvil and Hammer Recovered from Feature 130, Stratum 3.

Anvil-Hammers (N = 8; Figure 10.2, b, c)

These are medium to large orthoquartzite cobbles characterized by ground and pecked surfaces with heavily battered and crushed margins. They are similar to the anvils described above but exhibit evidence of use as hammers as well. Three complete tools and one fragment are from Stratum 1, while one complete tool and three fragments are from Stratum 2 (Table 11.3). A unique example from the latter stratum exhibits numerous parallel striations which cluster in groups on two opposing surfaces and are suggestive of a back and forth motion using a thin edge or tip (e.g., sharpening of bone needles or awls). Mean length: 9.8 cm; mean width: 7.5 cm; mean thickness: 5.3 cm.

Pitted Anvils (N=3; Figures 10.4, b, c; 10.5, a, b)

These medium size implements are characterized by the presence of one or more roughly pecked isolated pits. Three complete tools were recovered in Stratum 1 (Table 10.3). Two are manufactured from orthoquartzite, and the third is manufactured from sandstone (Table 10.1). Mean length: 8.2 cm; mean width: 6.0 cm; mean thickness: 3.2 cm.

Pitted Anvil-Hammers (N=6; Figure 10.4, a, d-f)

These artifacts of medium size have isolated pits on one or more faces and crushed or battered margins. This tool form is often described as a nutting stone and is traditionally assumed to be associated with nut processing. These tools are similar to the anvils discussed above, but the margins have been used additionally as hammers. Four complete tools are from Stratum 1, and two complete tools are from Stratum 2 (Table 10.3). Five are manufactured from orthoquartzite and one from sandstone (Table 10.1). Mean length: 9.1 cm; mean width: 6.8 cm; mean thickness: 4.6 cm.

Manos (N=12; Figure 10.6, a, c, e, g)

These are medium to large tools that are characterized by convex smoothly ground surfaces and, rarely, roughly pecked areas as well. The complete manos and six fragments were recovered from Stratum 1 (Table 10.3). Eleven of these are manufactured from orthoquartzite and one is manufactured from sandstone (Table 10.1). Mean length: 7.6 cm; mean width: 5.5 cm; mean thickness: 4.0 cm.

Mano-Hammers (N=3; Figure 10.6. b, d, f)

These small to medium sized orthoquartzite cobble fragments exhibit one or more convex, smoothly ground surfaces and lateral margins that are crushed and battered from use as hammers. They are similar to the manos described above except for the marginal wear. Two complete tools and one fragment are from Stratum 1 (Table 10.3). Mean length: 9.8 cm; mean width: 6.8 cm; mean thickness: 4.8 cm.

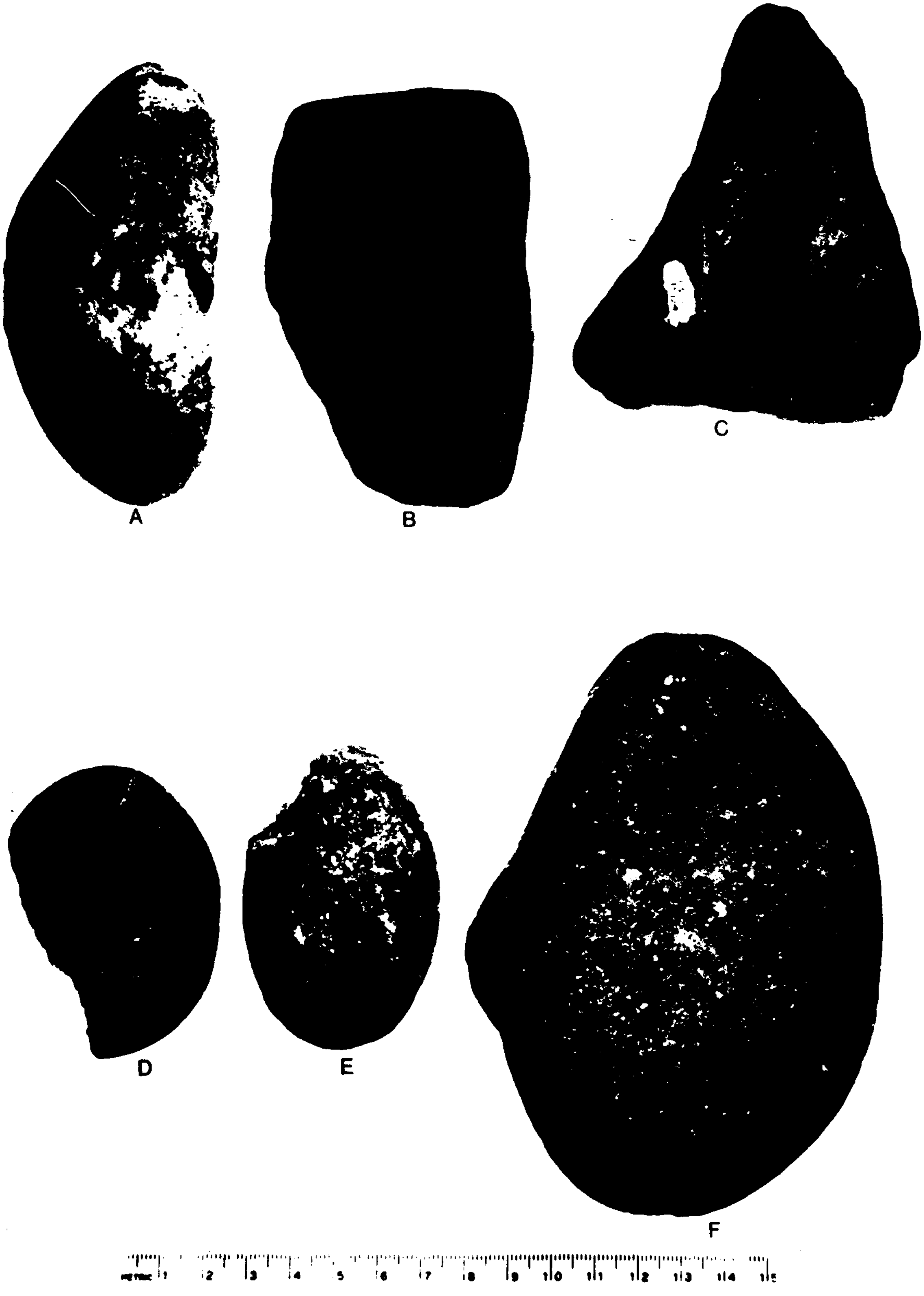



Figure 10.4. Pitted Anvil Hammers and Pitted Anvils. A, D-F, Pitted Arvil Hammmers; B, C, Pitted Anvils.


Figure 10.5. Pitted Anvils, Metate Fragment, and Miscellaneous Ground Slab. A-B, Pitted Anvils; C, Metate Fragment; D, Miscellaneous Ground Slab.

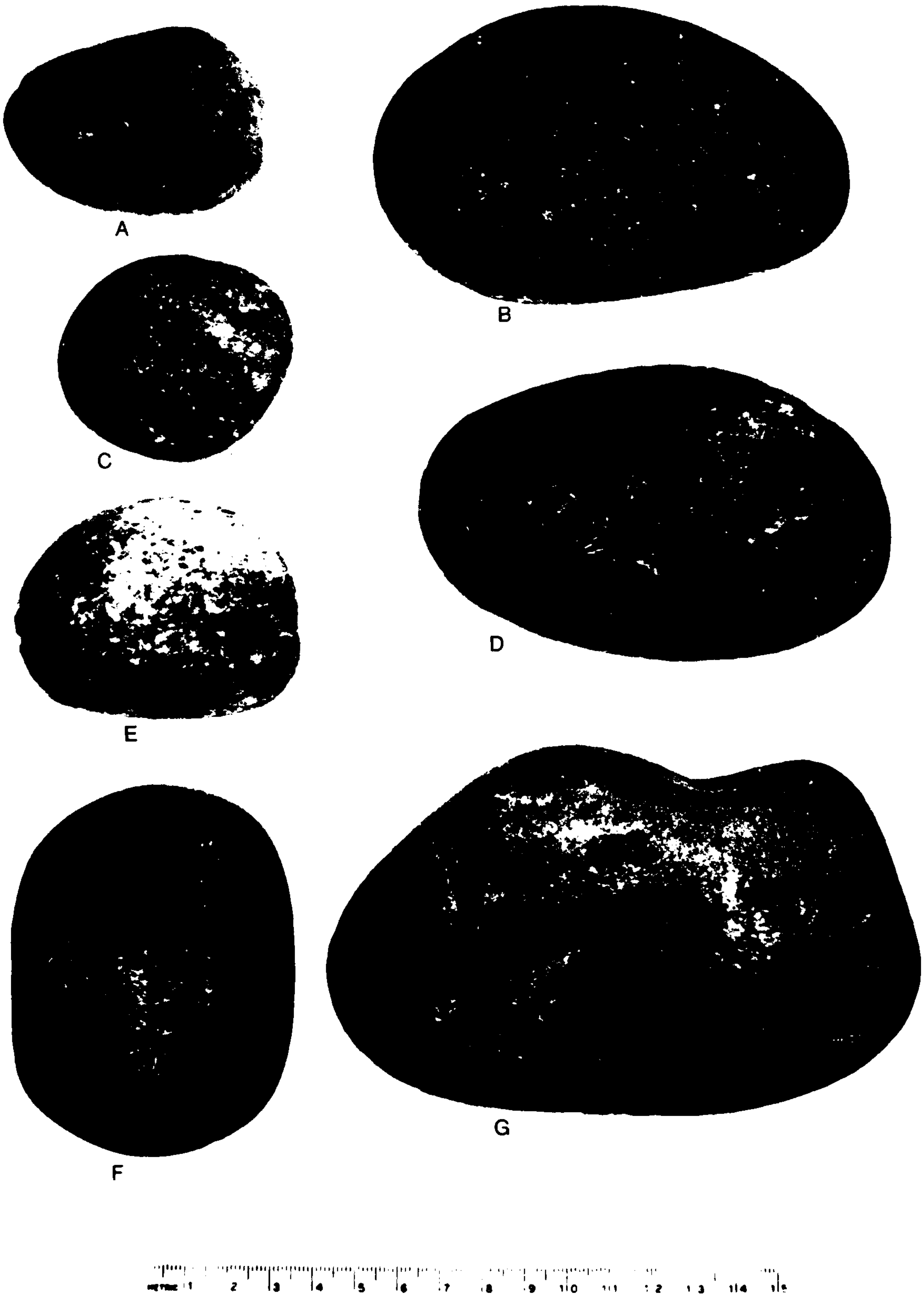



Figure 10.6. Manos and Mano/Hammers. A, C, E, G, Manos; B, D, F, Mano/ Hammmers.

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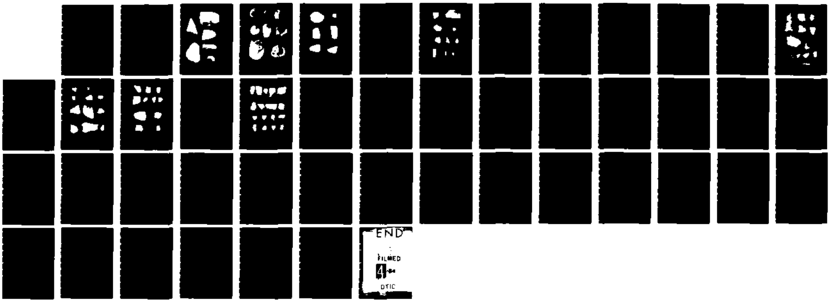

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Pestles (N=3; Figure 10.7, c-f)

The pestles are cylindrical pieces of orthoquartzite which exhibit crushing and battering on the distal ends. Three pestle fragments were recovered from the site, one in Stratum 1 and two in Stratum 2 (Table 10.3). One specimen (Fig. 10.7, d) has a reddish stain covering the distal portion which may have resulted from grinding ochre. Circular striations perpendicular to the length of the tool are present in this stained area and suggest its use in a rotary fashion. Mean length: 5.1 cm; mean width: 3.5 cm; mean thickness: 3.3 cm.

Hafted Hammer (N=1; Figure 10.7,a)

One medium sized hafted hammer was recovered in Structure 5 (Table 10.3). This distinctive orthoquartzite tool is heavily battered on two opposing distal ends, and the entire central portion of the tool has been pecked, presumably to facilitate hafting. Length: 8.9 cm; width: 5.3 cm; thickness: 5.7 cm.

Hammerstones (N=15; Figure 10.8, a-h)

These tools are characterized by heavily battered and crushed rounded surfaces. All are made from either chert or orthoquartzite, and most are of medium size. Eight complete medium sized chert hammerstones are present, seven made of Tuscaloosa gravels and one of blue Fort Payne chert (Table 10.1). Six complete orthoquartzite hammerstones and one fragment are also present. Six of these are of medium size and one is large. Other large hammerstones are present on the site, but they occur in combination with other tool forms (e.g., anvil-hammers) and are not as extensively worn. Nine hammerstones are from Stratum 1, and six are from Stratum 2 (Table 10.3). Mean length: 6.3 cm; mean width: 5.4 cm; mean thickness: 5.0 cm.

Miscellaneous Ground Slabs (N=4; Figure 10.5, d)

These ground slab fragments are smaller than the metates and anvils previously described and exhibit finely ground surfaces which form flat planes or shallow basins. Three tools were recovered from Stratum 1 and one was recovered from Stratum 2 (Table 10.3). The artifact from Stratum 2 differs from the other fragments in the presence of numerous unidirectional striations upon the ground surface. These striations are very shallow and may be the result of sharpening bone needles, awls, or other objects of similar size. The functions of the other tools are less certain. Mean length: 9.2 cm; mean width: 7.0 cm; mean thickness: 2.8 cm.

Polished Atlatl Weight Fragments (N=5; Figure 10.9, b-f)

A total of five polished atlatl weight fragments were recovered from the site, and two basic styles are evident. The first is similar to the tubular style referred to by Knoblock (1939:537), and the two specimens


Figure 10.7. Hafted Hammer, Palette Fragment, and Pestle Fragments. A, Hafted Hammer; B, Palette Fragment; C-F, Pestle Fragments.


Figure 10.8. Hammerstones.

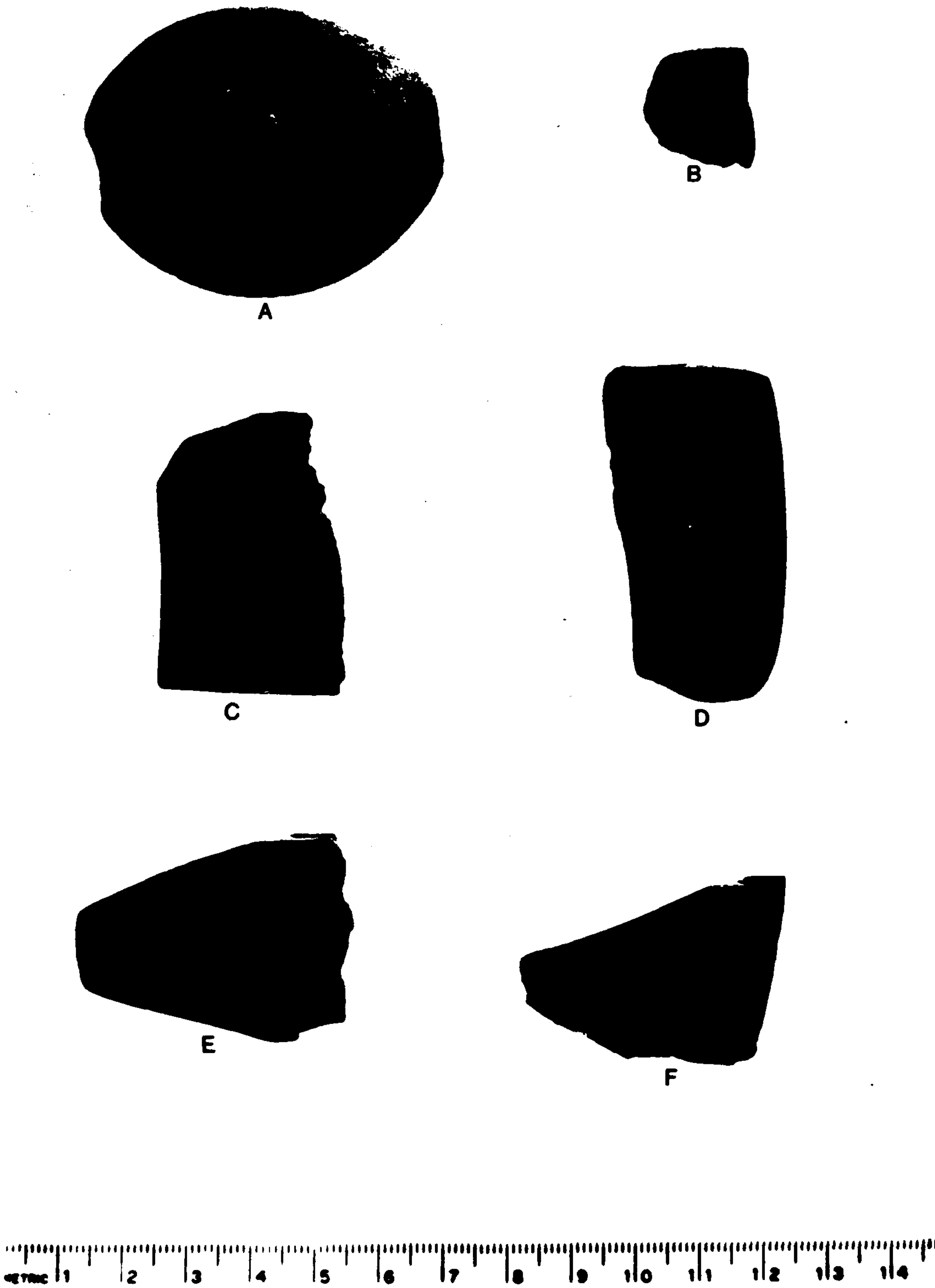


Figure 10.9. Ground and Pecked Atlatl Weight and Polished Atlatl Weight Fragments. A, Ground and Pecked Atlatl Weight; B-F, Polished Atlatl Weight Fragments.

(Fig. 10.9, c, d) of this style are made on a brown-yellow banded siltstone (Walter Manger, personal communication, University of Arkansas, fall 1979). Both are from Stratum 1 (Table 10.4). The second style is referred to as prismoidal (Lewis and Lewis 1961:66), and one specimen from Stratum 1 (Figure 10.9, e) is made from a pale blue siltstone concretion (Figure 10.9, f). Another specimen from Stratum 2 is manufactured from ferruginous sandstone (Table 10.2). An additional atlatl weight fragment (Figure 10.9, b) was recovered in Stratum 1, but its style could not be determined.

Ground and Pecked Atlatl Weight (N=1; Figure 10.9, a)

This quartzite cobble has been heavily pecked and slightly ground to form a shallow 1 cm wide groove extending around the entire circumference. It has a flattened cross-section which could have facilitated strapping it to an atlatl. Similar specimens have been found in rock shelters in Arizona and Texas where they were recovered with complete atlatls (Kidder and Guernsey 1919:81-82; Fenenga and Wheat 1940:221-23). Willey (1966:260) illustrates a similar implement which he refers to as a bolas stone. The Brinkley example comes from a unknown context, being found in the backhoe trench fill. Length: 5.7 cm; width: 4.7 cm; thickness: 3.3 cm.

Stone Vessel Fragments (N=2; Figure 10.10, a)

Two finely ground sandstone fragments are apparent remnants of stone bowls. Both have convex and concave surfaces. One specimen (Figure 10.11, a), a rim fragment, is evenly rounded in cross section. The other specimen (Figure 10.11, b), a body fragment, has a pronounced curvature. Both of these items are from Stratum 1 (Table 10.4). Stone bowls are widespread at Late Archaic sites in this region (Webb 1939:17).

Palette (N=1, Figure 10.7, b)

One sandstone palette fragment was recovered from Stratum 1. It is thin, finely ground and has a very shallow concave working surface and a flat backside. It is suitable for grinding small friable or lightweight materials that would not require a hard, dense anvil. Length: 7.8 cm; width: 4.4 cm; thickness: 1.4 cm.

Pendant Fragment (N=1; Figure 10.10, e)

This thin piece of siltstone is finely ground and polished. It was recovered from Stratum 1. Due to its fragmentary condition, it is difficult to determine the original shape of this specimen. A circular or rounded outline is suggested by marginal remnants. Length: 2.8 cm; width: 2.5 cm; thickness: 0.5 cm.

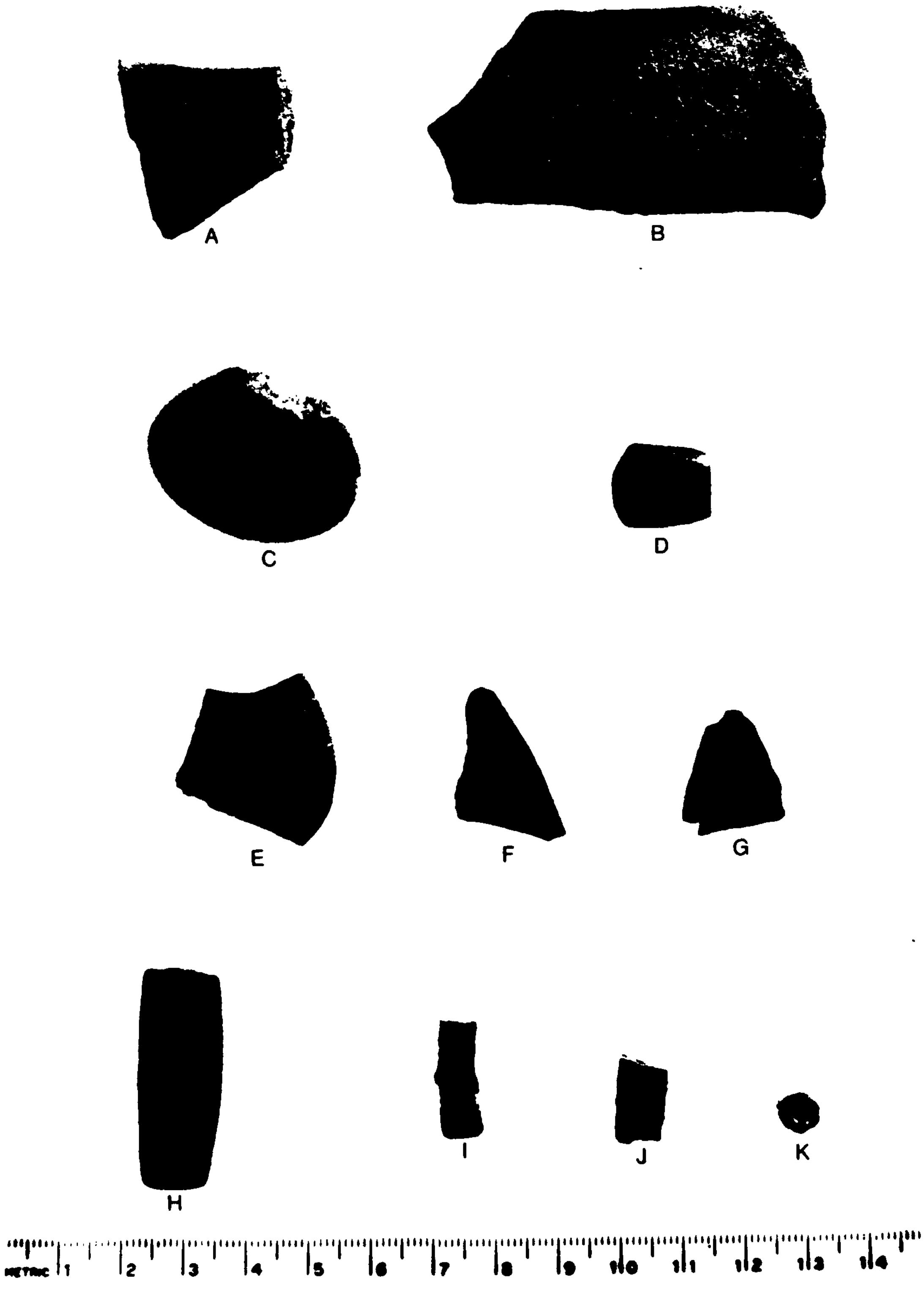


Figure 10.10. Stone Vessel Fragment, Polished Stone Fragment, Ground and Polished Stone Ball, Beads and Bead Blanks, Pendant Fragment, and Miscellaneous Stone Fragments. A, Stone Vessel Fragment; B, Polished Stone Fragment; C, Ground and Polished Stone Ball; D, H-K, Beads and Bead Blanks; E, Pendant Fragment; F-G, Miscellaneous Stone Fragments.

Beads and Bead Blank (N=5; Figure 10.10, d; h-k)

Two styles of beads are found at the Brinkley Midden. Three whole beads (Figure 10.11, i-k) are made from fossilized crinoid stems (Table 10.2) and are from Stratum 1 (Table 10.4). These beads evidence little modification other than the perforation through the center of each. The polished cylindar style is exhibited by a fourth whole bead (Figure 10.10, h) and a bead blank fragment (Figure 10.10, d). Both of these are finely ground and polished pieces of hematite. The bead in this category has a perforation through its center, but the bead blank does not. This style of bead is similar to styles found at Poverty Point (Ford and Webb 1956: 101). The bead and bead blank are from Stratum 2 and Stratum 1 (Table 10.4), respectively. These strata are roughly contemporaneous with the Archaic period occupation at the Poverty Point site.

Ground and Polished Stone Ball (N=1; Figure 10.10, c)

One finely ground and slightly polished quartzite ball was recovered from Stratum 1. The entire surface has been ground and polished and no cortex is remaining. This item may have been used as gaming device or for ceremonial activities, but its function is uncertain. Length: 3.7 cm; width: 3.2 cm; thickness: 2.8 cm.

Polished Stone Fragment (N=1; Figure 10.10, b)

One fragment of a polished ferruginous concretion was recovered from Stratum 1 (Table 10.4). It is worked on a single surface and is manufactured in a manner similar to the atlatl weight (Figure 10.9, f) described previously. Length: 2.0 cm; width 1.7 cm; thickness: 0.2 cm.

Miscellaneous Ground Stone Fragments (N=173; Figures 10.5, d; 10.10 f-g)

These items all exhibit one or more ground and/or pecked surfaces but due to their fragmentary nature cannot be identified as specific tools. Orthoquartzite and sandstone are the raw materials from which these tools are made (Table 10.2). One hundred and thirty-nine of these items are from Stratum 1, forty from Stratum 2, and four from Stratum 3 (Table 10.3).

## Discussion

The distribution of ground and polished stone implements from the Brinkley Midden shows some interesting patterns. While there are fewer ground stone tools in the lower deposits of the site, there is also a more restricted variety of tools than are present in the upper deposits (Table 10.3). Although polished stone implements first appear in Stratum 2, such items are much more prevalent in Stratum 1 (Table 10.4). As one might expect from our current understanding of prehistoric cultural developments in this area, it appears that as cultural occupations at the Brinkley Midden intensified, the ground and polished stone assemblage became more diversified and specialized, as well as more numerous.

Ground stone tools associated with the Early Archaic component from the Brinkley Midden (Stratum 3) consist of a single complete anvil and four miscellaneous ground stone fragments. As discussed earlier, this anvil was recovered from Feature 130 in association with a stream cobble, and appears to have been stored for future use but was never recovered.

Ground stone tools for the Middle Archaic component are more numerous and varied in design than those of the preceding period. The Middle Archaic assemblage primarily consists of ground and pitted anvils, hammerstones, and pestles, although one metate and one smöothly ground slab are also present. Several of these tools appears to have served more than one function, and perhaps indicate an attempt to economize the weight and number of tools carried during seasonal rounds. For mobile hunter-gatherers this would be an important consideration in tool design.

The Brinkley Midden Late Archaic component not only contains the tool forms from the preceding periods but several additional tool forms as well. Manos and metates are important tools associated with this component (Table 10.3). These tools may reflect an increased reliance on a wider variety of seed and plant foods. There also appears to be less emphasis on the production of multifunctional tools, which may reflect decreased mobility during this period. Whereas most tools from the preceding periods are either multifunctional or of a moderate size, the Late Archaic assemblage contains tools such as metates and anvils that are rather large and unwieldy for transport to other seasonal camps. If the Brinkley Midden Late Archaic populations were not sedentary year round, then these larger items were probably stored for future use during other seasons of the year.

# XI. CERAMICS

## Introduction

Ceramics comprise a relatively small portion of the artifacts recovered at the Brinkley Midden. Three broad temper groups are present. Each temper group comprises several surface treatments. Table 11.1 provides a quantitative assessment of ceramic type distributions within the site's cultural strata.

Although a total of 1,260 sherds was recovered from the Brinkley Midden, the majority of these are small fragments. To obtain an estimate of frequency relative to size, ceramics were separated into two size categories by screening all of the sherds through a 1 $in^2$ wire mesh screen. Those ceramics larger than 1 $in^2$ are classified as sherds. Those 1 $in^2$ or less are classified as sherdlets. Table 11.2 lists the frequencies of sherds and sherdlets for each ceramic type. Sherdlets account for 98.16 percent of all the ceramics present, probably reflecting the long history of agricultural activities at the site and the location of the ceramic components near the surface. The following discussion provides brief descriptions of the ceramic types and their distributions at the Brinkley site.

## Fiber Tempered Ceramics

The fiber tempered Wheeler ceramic series is the earliest in the middle Tennessee River Valley. This ceramic series is characterized by vegetal fiber temper, possibly a type of grass (Haag 1942:513). Some sherds occasionally exhibit sand in addition to the fiber used as a tempering agent. This may be the result of the sand naturally present in the clays used for pottery manufacture. Griffin (1939:139-140) and Haag (1942:513) first recognized the presence of fiber tempered ceramics in the Wheeler and Pickwick basins. These ceramics are associated with the Late Arachaic to Early Woodland transition and have been dated at 1,370 B.C. in the western Tennessee River Valley (Peterson 1973:18). At the Brinkley Midden these ceramics are predominantly associated with Stratum 1 (Table 11.1).

<u>Wheeler Plain</u> (Haag 1942; N=318)

These ceramics exhibit a moderately coarse and dense texture with a plain or nondecorated surface. Two rim sherdlets are present (Table 11.2). One has a straight wall with a rounded rim and the other has a straight wall with a flattened and slightly lipped rim. Most of these sherds are from Stratum 1 (Table 11.1) but several are from Stratum 2. This is the most numerous fiber tempered ceramic type and the second most frequent type for the site as a whole.

Table 11.1. Site 11Ts729. Ceramic Frequencies by Stratum.

| | Stratum 1 | Stratum 2 | Stratum 3 | LBSFs | Features | TOTAL |
|---|---|---|---|---|---|---|
| Wheeler Plain | 247 | 33 | 7 | 1 | 30 | 318 |
| Wheeler Punctated | 8 | - | - | - | 4 | 12 |
| Wheeler Dentate Stamped | 2 | 2 | - | - | - | 4 |
| Wheeler Simple Stamped | 2 | - | - | - | - | 2 |
| Alexander Incised | 4 | 1 | - | - | - | 5 |
| O'Neal Plain Fine | 678 | 25 | 5 | 1 | 7 | 716 |
| O'Neal Plain Coarse | 106 | 4 | 1 | - | 4 | 115 |
| Furrs Cord Marked | 36 | 6 | - | - | 4 | 46 |
| Saltillo Fabric | 10 | 4 | 1 | - | 1 | 26 |
| Mulberry Creek Plain | 23 | 3 | - | - | - | 26 |
| TOTAL | 1,116 | 78 | 14 | 2 | 50 | 1,260 |

Table 11.2. Site 22Ts729. Ceramic Frequencies for Sherds and Sherdlets.

| | Rim Sherds | Rim Sherdlets | Body Sherds | Body Sherdlets | TOTAL |
|---|---|---|---|---|---|
| Wheeler Plain | - | 2 | - | 316 | 318 |
| Wheeler Punctated | 2 | 1 | 5 | 4 | 12 |
| Wheeler Simple Stamped | - | - | - | 2 | 2 |
| Wheeler Dentate Stamped | - | - | - | 4 | 4 |
| Alexander Incised | - | - | - | 5 | 5 |
| O'Neal Plain Fine | - | 2 | 8 | 706 | 716 |
| O'Neal Plain Coarse | - | 2 | 2 | 111 | 115 |
| Furrs Cord Marked | - | 2 | 1 | 43 | 46 |
| Saltillo Fabric | - | - | - | 16 | 16 |
| Mulberry Creek Plain | - | 2 | - | 24 | 26 |
| TOTAL | 2 | 11 | 16 | 1,231 | 1,260 |

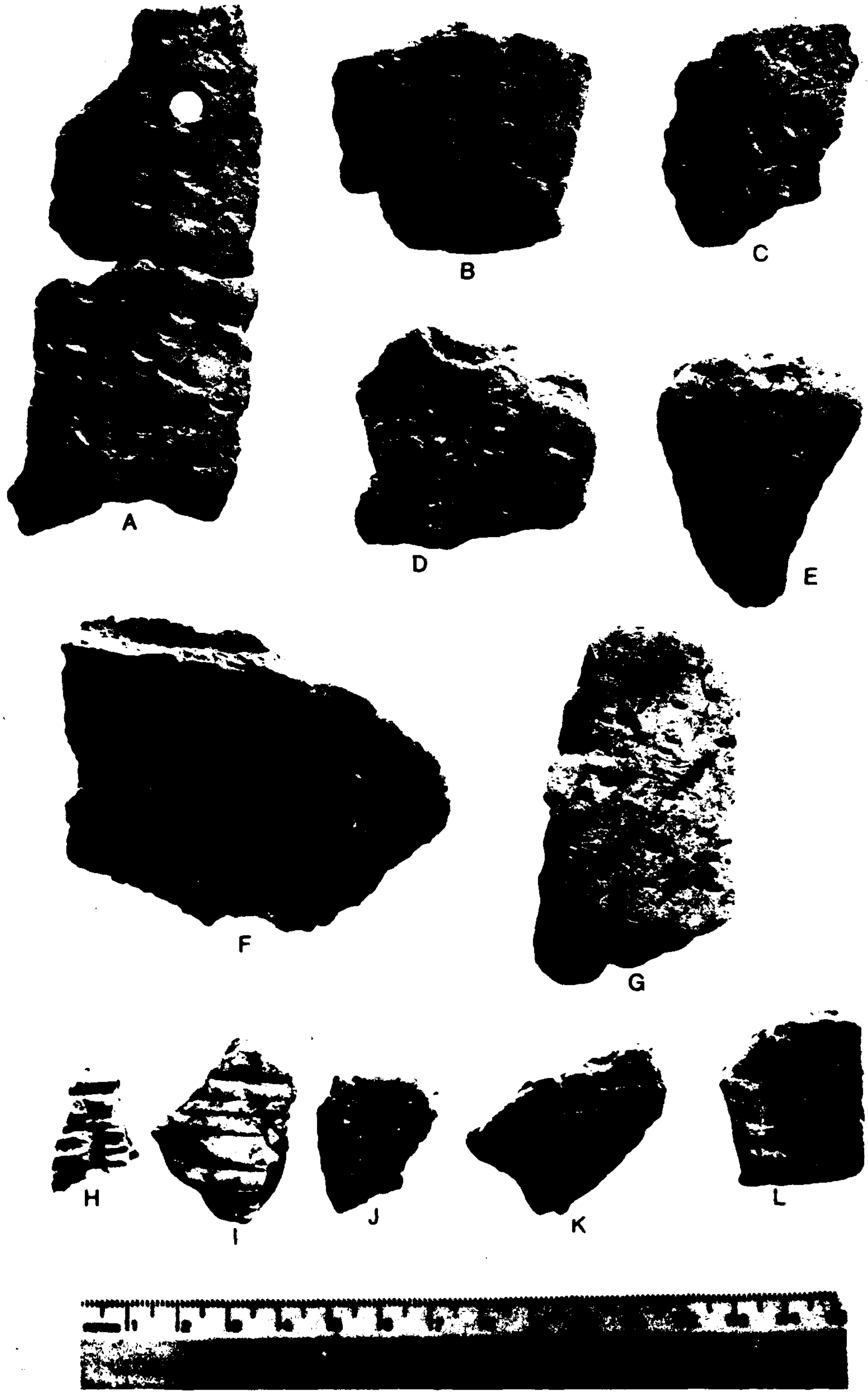


Figure 11.1. Wheeler Ceramics. A-E, G, Wheeler Punctated; F, H-I, Wheeler Simple Stamped; J-L, Wheeler Dentate Stamped.

Wheeler Punctated (Sears and Griffin 1950; N=12, Figure 11.1, a-e, g)

The use of punctations as a surface treatment distinguishes this dense, moderately coarse textured ceramic type from others in this series. The punctations, produced with a thin wide tip, are applied in an irregular pattern over the outer vessel surface. Three rim sherds and one rim sherdlet are present. All have straight walls with a rounded rim (Figure 11.1). One of the rim sherds also has a perforation two centimeters below the rim (Figure 11.1). Most of the ceramics are associated with Stratum 1. Several were recovered from Feature 146 (Chapter VI and Table 11.1).

Wheeler Dentate Stamped (Sears and Griffin 1950; N=4, Figure 11.1, j-l)

Dentations characterize the surface treatment of these dense, moderately coarse textured ceramics. The dentations are circular, evenly distributed in parallel straight lines, and appear to have been applied with a comb-like tool. Four sherdlets of this type are from Stratum 1 (Table 11.1). No rim sherds are present (Table 11.2).

Wheeler Simple Stamped (Sears and Griffin 1950; N=2, Figure 11.1, f, h-i)

These ceramics are dense, moderately coarse textured and are decorated with parallel linear impressions or stamps produced from a straight-edged tool. Two sherdlets of this type are from Stratum 1 (Table 11.1). No rim sherds are present.

## Sand Tempered Ceramics

Sand tempered ceramics were the most numerous of any temper group at the Brinkley Midden. The sand used as a tempering agent ranges from fine to coarse, and the surface finish may be rough or burnished. In addition to the plain wares, a variety of surface treatments are evident, including incising, cord marking, and fabric marking. Sand tempered ceramics are slightly later than fiber tempered ceramics (DeJarnette et al. 1962:28) and are primarily associated with the Early Woodland period. At the Brinkley Midden, sand tempered ceramics are predominantly found in Stratum 1 (Table 11.1).

O'Neal Plain (Haag 1942; N=831, Figure 11.2, d-l; 11.3, h-k)

O'Neal Plain ceramics have a homogeneous gritty texture and a plain exterior surface. The temper ranges from fine to coarse in texture, but fine sand tempering is predominant (N=716). Four rim sherdlets of this type are present (Table 11.2). Three have thin straight walls with rounded rims. Another rim sherdlet has thin straight walls with a flattened rim. One example with a rounded rim additionally has two broad incised lines parallel to the rim edge. These ceramics are present in all strata but are predominant in Stratum 1 (Table 11.1).


Figure 11.2. Alexander Incised and O'Neal (fine) Ceramics.
A-C, Alexander Incised; D-L, O'Neal(fine).

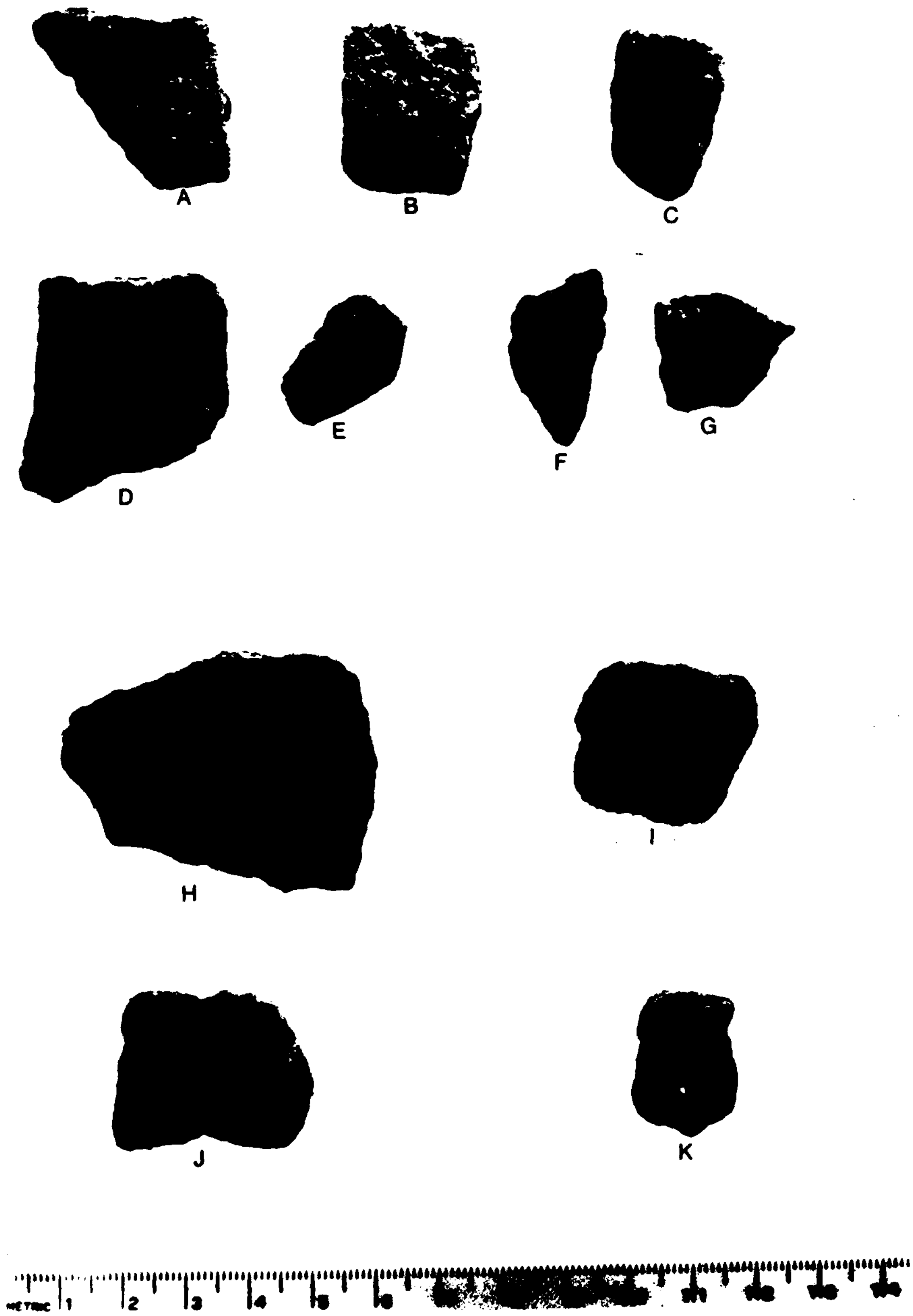


Figure 11.3. Saltillo Fabric and O'Neal Plain (coarse) Ceramics. A-G, Saltillo Fabric; H-K, O'Neal Plain (coarse).

Alexander Incised (Haag 1942; N=5, Figure 11.2, a-c)

This type differs from O'Neal Plain only by its decorative treatment. Alexander Incised exhibits a homogeneous gritty texture and has rectilinear or curvilinear incisions as a decorative surface treatment. Only linear incisions are present on the examples of this type from the Brinkley site. Four sherdlets are from Stratum 1, and one sherdlet is from Stratum 2 (Tables 11.1 and 11.2). No rim sherds are present.

Furrs Cordmarked (Jennings 1941; N=49, Figure 11.4, a-i)

These ceramics have a homogeneous gritty texture. This surface treatment type differs from O'Neal Plain by impressions of a cord-wrapped paddle placed on the outer vessel wall prior to firing. The cords are usually spaced closely together on the paddle in a linear pattern and applied to the vessel to form a continuous pattern. They are principally found in Stratum 1 (Table 11.1). Two rim sherdlets are present. One has a straight, thick wall with a rounded rim (Figure 11.4). The second has a flared wall with a rounded rim (Figure 11.5).

Saltillo Fabric Impressed (Jennings 1941; N=16, Figure 11.3, a-g)

This sand tempered ceramic has a homogeneous and gritty texture similar to O'Neal Plain. The surface treatment is created by impressing a textile or fabric against the exterior surface of the vessel prior to firing. The majority of these sherds are from Stratum 1 (Table 11.1). No rim sherds are present (Table 11.2). Jennings (1942:201) suggests that this type may be slightly earlier than Furrs Cordmarked. Both types, however, are associated with the Early Woodland period.

## Limestone Tempered Ceramics

Crushed limestone is the tempering agent for the Long Branch series. The texture is coarse but well consolidated and homogeneous. At the Brinkley Midden, the limestone temper is eroded and angular holes are present throughout the sherds. Although surface decorations such as fabric marking and check stamping are common in this series, only undecorated ceramics were present at the Brinkley Midden. Limestone tempered ceramics occur frequently in the middle Tennessee River Valley and are associated with the Middle Woodland Copena complex (Haag 1942:523).

Mulberry Creek Plain (Haag 1942; N=26, Figure 11.4, j-q)

These ceramics exhibit a coarse but well consolidated texture and an undecorated surface treatment. Two rim sherdlets are present, both of which have straight walls and flattened lipped rims (Figure 11.4, j, k). One podal support (Figure 11.2, n) is present. Haag (1942:516) indicates that podal supports are frequently found with this type. Most of these ceramics are from Stratum 1 (Table 11-1).


Figure 11.4. Furrs Cordmarked and Mulberry Creek Plain Ceramics. A-I, Furrs Cordmarked; J-Q, Mulberry Creek Plain.

## Discussion

The Brinkley Midden sherds are small in size, and few types were recovered (Table 11.2). Although over 1,200 sherds were recovered from the site, 98 percent of these are smaller than 2.5 cm (1 in). Agricultural activities may have enhanced the disintegration of some ceramics, but probably very few vessels were broken or deposited at the site. The low frequencies of sherds and sherdlets suggest that production of ceramic vessels was not a major concern at this site. The fiber tempered ceramics comprised a larger proportion of the ceramics from the lower strata (Table 11.1). The sand tempered ceramics, however, were the most numerous throughout the site.

## XII. BOTANICAL REMAINS FROM THE BRINKLEY MIDDEN

by Robert H. Lafferty, III

### Recovery and Analysis

The botanical materials recovered from the Brinkley Midden were analyzed at the University of Alabama Department of Anthropology, Ethnobotany laboratory. Mr. Randy Holland and Ms. Laura L. Knott did the analysis under the supervision of Gloria Caddell and Dr. C. E. Smith. Their results have been used as the basis of the following analysis of the botanical materials recovered.

Botanical samples were recovered in the field using a SMP flotation machine connected to the water screen pump. The samples were recovered in a #32 geologic sieve and returned to the laboratory. All feature material, excavated pit fill, and all of the fill from the LBSFs was processed through the floatation apparatus. Several column samples of midden fill were also floated to recover comparative density data.

Excavated dirt was reserved, moved to the floatation machine, measured, the total volume recorded, and then floated. Samples were dried, bagged and labeled at the close of each day. After the excavations were closed it was apparent that there was neither time nor money to analyze all of the recovered botanical remains. Consequently only a portion of the recovered samples were analyzed.

The analyzed samples were selected on the basis of the known stratigraphy and variation in feature morphology on the site. Feature samples were selected from all levels of the site and from all of the obvious variations in pit morphology. Forty-three (29 percent) of the feature samples were selected for analysis. Thirty-five of these were totally analyzed and 8 were subsampled in the lab because of their large size. Subsampled proveniences are indicated by the percentage samples on Tables 12.1 and 12.2. These percentages were incorporated in calculating the densities of materials discussed below. Botanical material from 1.17 $m^3$ of excavated feature fill was analyzed. This is approximately 38.28 percent of the total volume of excavated features (3.06 $m^3$), excluding the LBSFs.

The botanical material from LBSFs submitted to the lab for analysis was also sampled because of the large quantity of material. The excavation of the LBSFs defined 3 major different depositional zones: the light tan upper zone (Zone 1); the wall trench/shelf area; and the dark midden zone along the bottom of the LBSFs (Zone 2). Seven of the 12 defined LBSFs on the site were excavated to some extent and samples were submitted for analysis from 6 of these. One sample excavated from the shelf area of LSBF 10 was not submitted. The largest samples from each of the defined zones were submitted for analysis. Material from 2.3 $m^3$ of excavated LBSF fill was analyzed. This represents 63.4 percent of the excavated LBSF material. A total of 3.66 $m^3$ of LBSF material was excavated and floated.

A series of column samples was floated from the midden in the northwest part of the site to gain comparative density figures. In the lab

Table 12.1. Analysis of Nuts and Wood from Control Columns and Features, Site 22Ts729.

| Provenience | Stratum of Detection | Fraction of Total Analyzed* | Analysis** Volume ($m^3$) | *Carya* sp. (g) | *Juglans* sp. (g) | *Quercus* sp. (g) | Wood (g) | Unidentified (g) | Total (g) |
|---|---|---|---|---|---|---|---|---|---|
| Natural Level 1 | | | | | | | | | |
| 82N99W | - | - | 0.0085 | 2.00 | 0.05 | 0.05 | 0.10 | 0.20 | 2.40 |
| 65N30W | - | - | - | 5.50 | - | 0.05 | 0.10 | - | 5.65 |
| Natural Level 4 | | | | | | | | | |
| 65N34W | - | - | - | 0.30 | - | - | 0.05 | 0.05 | 0.40 |
| 65N32W | - | - | - | 1.00 | - | - | 0.80 | 0.05 | 1.85 |
| Natural Level 5 | | | | | | | | | |
| 66N32W | - | - | - | 0.05 | - | - | 0.05 | - | 0.10 |
| 66N30W | - | - | - | 0.40 | 0.15 | - | - | 0.05 | 0.60 |
| Natural Level 6 | | | | | | | | | |
| 75.4N63.1W | - | - | 0.015 | 3.40 | - | 0.10 | 0.10 | - | 3.70 |
| Natural Level 7 | | | | | | | | | |
| 75.4N63.1W | - | - | 0.010 | 1.80 | - | 0.10 | 0.10 | 0.10 | 2.10 |
| 75.4N63.1W | - | - | - | 11.10 | - | 0.10 | 0.20 | 0.10 | 11.50 |
| Feature 2 | 2 | - | 0.090 | 1.60 | - | 0.05 | 0.10 | 0.05 | 1.80 |
| Feature 3 | 2 | - | 0.004 | 5.30 | - | 0.05 | 0.10 | 0.10 | 5.55 |
| Feature 6 | - | - | 0.004 | 0.70 | - | - | 0.20 | - | 0.90 |
| Feature 8 | 2 | - | 0.004 | 0.60 | - | - | 0.05 | 0.05 | 0.70 |
| Feature 9 | 2 | - | 0.006 | 0.60 | - | - | 0.05 | 0.05 | 0.70 |
| Feature 13 | - | - | 0.023 | 1.70 | - | 0.05 | 0.20 | 0.05 | 2.00 |
| Feature 15 | - | - | 0.004 | 0.60 | 0.05 | 0.05 | 0.05 | 0.05 | 0.80 |
| Feature 18 | - | - | 0.010 | 1.00 | 0.05 | 0.05 | - | 0.05 | 1.15 |
| Feature 28 | 1 | - | 0.091 | 11.20 | 0.05 | 0.10 | 0.80 | 0.25 | 12.40 |
| Feature 29 | 1 | - | 0.007 | 3.00 | 0.05 | - | 1.00 | 0.05 | 4.10 |
| Feature 32 | 2 | - | 0.033 | 0.90 | - | 0.05 | 0.30 | 0.10 | 1.35 |
| Feature 38 | 1 | - | 0.018 | 9.20 | - | 0.10 | 0.60 | 0.40 | 10.30 |
| Feature 40 | 1 | - | 0.065 | 8.20 | - | 0.10 | 0.20 | 0.10 | 8.60 |
| Feature 43 | 1 | - | - | 91.20 | 0.30 | 1.30 | 4.60 | 2.30 | 99.70 |
| Feature 45 | 2 | 0.57 | 0.017 | 30.70 | 0.10 | 0.30 | 1.60 | 0.50 | 33.20 |
| Feature 50 | 1 | 0.58 | 0.029 | 10.70 | - | 0.10 | 0.40 | 0.20 | 11.40 |
| Feature 53 | 2 | - | 0.022 | 21.40 | - | 2.00 | 1.10 | 0.30 | 24.80 |
| Feature 54 | 1 | 0.33 | 0.018 | 9.40 | - | 0.05 | 0.40 | 0.10 | 9.95 |
| Feature 56 | 1 | 0.33 | 0.002 | 7.40 | - | 0.20 | 0.50 | 0.40 | 8.50 |
| Feature 57 | 2 | - | 0.015 | 12.00 | - | 0.10 | 0.50 | 0.30 | 12.90 |
| Feature 59 | 1 | - | 0.008 | 1.50 | - | 0.05 | 0.20 | 0.10 | 1.85 |
| Feature 61 | 1 | - | 0.027 | 13.00 | - | 0.15 | 0.30 | 0.50 | 13.95 |
| Feature 64 | 1 | 0.50 | 0.006 | 10.10 | - | 0.05 | 0.20 | 0.10 | 10.45 |
| Feature 65 | 1 | 0.50 | 0.012 | 14.20 | - | 0.05 | 0.60 | 0.20 | 15.05 |
| Feature 66 | 1 | - | 0.007 | 11.60 | 0.10 | 0.10 | 0.10 | 0.20 | 12.20 |
| Feature 80 | 1 | 0.50 | 0.014 | 6.30 | - | 0.05 | 0.20 | 0.20 | 6.75 |
| Feature 81 | 1 | - | 0.007 | 5.60 | - | 0.05 | 0.05 | 0.05 | 5.75 |
| Feature 83 | 3 | - | 0.006 | 6.70 | - | - | 0.10 | 1.10 | 6.90 |
| Feature 91 | 1 | - | 0.027 | 12.70 | - | 0.05 | 0.60 | 0.10 | 13.45 |
| Feature 95 | 2 | - | 0.010 | 2.60 | - | 0.10 | 0.30 | 0.20 | 3.20 |
| Feature 97 | 1 | - | 0.010 | 8.90 | - | 0.05 | 0.10 | 0.10 | 9.15 |
| Feature 101 | 2 | - | 0.010 | 2.70 | - | 0.05 | 0.10 | 0.10 | 2.95 |
| Feature 118 | 1 | - | 0.008 | 1.60 | 0.05 | 0.05 | 0.05 | 0.05 | 1.80 |
| Feature 119 | 1 | - | 0.011 | 3.00 | - | 0.05 | 0.10 | 0.10 | 3.25 |
| Feature 124 | 3 | - | 0.014 | 10.60 | - | 0.05 | 0.20 | 0.10 | 10.95 |
| Feature 125 | 3 | - | 0.010 | 0.20 | - | - | 2.10 | 0.20 | 2.50 |
| Feature 130 | 3 | - | 0.015 | 4.10 | - | 0.05 | 0.20 | 0.10 | 4.45 |
| Feature 141 | 1 | - | 0.020 | 13.20 | - | 0.10 | 0.10 | 0.10 | 13.50 |
| Feature 144 | 1 | - | 0.017 | 14.60 | - | 0.10 | 0.20 | 0.10 | 15.00 |
| Feature 145 | 1 | - | 0.021 | 10.20 | - | 0.05 | 0.20 | 0.05 | 10.50 |
| Feature 146 | 1 | - | 0.021 | 5.20 | - | 0.05 | 0.40 | 1.80 | 7.45 |
| Feature 147 | 1 | 0.04 | 0.428 | 8.40 | - | - | 0.10 | 0.05 | 8.55 |
| Total | | | | 419.95 | 0.95 | 6.30 | 20.85 | 10.65 | 458.70 |

* If less than 100% of recovered material was analyzed.
** Analysis volume: Volume of floated sample times percentage of sample if other than 100%.

Table 12.2. Analyzed Weights of Nuts, Wood and Unidentified Carbon from LBSF* Units at Site 22Ts729.

| LBSF* | Bag No. | Floated Volume $M^3$ | Analysis Volume $M^3$ | Fraction of Total | *Carya* sp. (g) | *Juglans* sp. (g) | *Quercus* sp. (g) | Wood (g) | Unknown (g) | Total (g) |
|---|---|---|---|---|---|---|---|---|---|---|
| Zone 1 | | | | | | | | | | |
| 1 | 1121 | .058 | .029 | .50 | 11.1 | - | .1 | .1 | .1 | 11.4 |
| 1 | 1150 | .031 | .016 | .50 | 14.2 | - | .2 | .5 | .2 | 15.1 |
| 1 | 1142 | .005 | .005 | 1.00 | 1.9 | - | - | .1 | .1 | 2.1 |
| 6 | 1227 | .038 | .013 | .33 | 12.4 | - | .1 | .2 | .1 | 12.8 |
| 7 | 1210 | .364 | .027 | .07 | 10.1 | .1 | .1 | .1 | .1 | 10.5 |
| Ledge | | | | | | | | | | |
| 1 | 1031 | .091 | .091 | 1.00 | 8.0 | - | .1 | .4 | .1 | 8.6 |
| 1 | 1093 | .010 | .010 | 1.00 | 13.8 | .1 | .1 | .2 | .1 | 14.3 |
| 1 | 943 | .010 | .002 | .25 | 11.8 | - | .1 | .3 | .2 | 12.4 |
| 4 | 1204 | .027 | .014 | .50 | 14.4 | - | .1 | .4 | .2 | 15.1 |
| 6 | 1215 | .034 | .008 | .25 | 10.6 | - | .1 | .2 | .1 | 11.0 |
| 6 | 1219 | .007 | .007 | 1.00 | 5.7 | - | .1 | .1 | .1 | 6.0 |
| Zone 2 | | | | | | | | | | |
| 1 | 1076 | .099 | .010 | 0.10 | 11.4 | - | .1 | .3 | .1 | 11.9 |
| 1 | 1141 | .032 | .004 | .14 | 5.8 | - | .1 | .2 | .1 | 6.2 |
| 1 | 1167 | .592 | .059 | 0.10 | 7.3 | .1 | .1 | .1 | .1 | 7.7 |
| 2 | 1186 | .352 | .023 | .06 | 11.8 | - | .1 | .2 | .1 | 12.2 |
| 2 | 1223 | .129 | .008 | .06 | 12.4 | - | .1 | .3 | .6 | 13.4 |
| 2 | 1212 | .117 | .023 | .20 | 14.4 | - | .1 | .2 | .1 | 14.8 |
| 6 | 1202 | .010 | .003 | .33 | 9.8 | - | .1 | .3 | .1 | 10.3 |
| 6 | 1220 | .058 | .058 | 1.00 | 14.8 | - | .1 | .2 | .1 | 15.2 |
| 6 | 1228 | .015 | .015 | 1.00 | 4.1 | - | - | .1 | .1 | 4.3 |
| 7 | 1218 | .148 | .011 | 0.08 | 14.1 | - | .1 | .2 | .1 | 14.5 |
| 12 | 1225 | .068 | .004 | 0.07 | 12.9 | - | .1 | .2 | .3 | 13.5 |
| 12 | 1226 | .039 | .020 | .50 | 15.8 | - | .1 | .1 | .1 | 16.1 |
| Total | | 2.334 | 0.460 | | 248.6 | 0.3 | 2.2 | 5.0 | 3.3 | 259.4 |
| Percentage of Total Weight | | | | | 95.8 | 0.1 | 0.8 | 1.9 | 1.3 | |

* LBSF = Large Basin Shaped Feature.

the large samples were subsampled into approximately 20 g samples. The subsamples were then passed through a 2 mm geologic screen and the fraction retained on the screen was analyzed. The fraction retained on screen was then analyzed in terms of different identifiable genera of nuts and wood. Seeds, which were in low occurence in all of the samples, were isolated from the sample and identified (Table 12.3).

## The General Nature of the Sample

Most of the recovered materials consisted of Hickory nut (Carya sp.) shell fragments (Tables 12.1, 12.2). There was a low quantity of wood charcoal consisting of less than 5 percent in each of the major analytical categories. In contrast, at Phipps Bend in the middle Holston Valley of upper east Tennessee, in an Early Woodland context the wood charcoal comprised over 50 percent of most samples (Lafferty et al. 1981), and similar densities were recovered from the Koster site samples (Asch, Ford and Asch 1972:3). In the Archaic components at the Bacon Bend site, Chapman (1978:87) reports that 30 to 40 percent of the recovered Early to Middle Archaic botanical material consisted of wood charcoal. Wood carbon composed more than 90 percent of most of the samples recovered at the Higgs site (Brewer 1973:144. Thus the samples recovered from the Brinkley Midden had extremely low quantities of wood charcoal and very high densities of hickory nut shell. In comparison to other sites, hickory nut shells were present in large quantity.

Hickory nut shell (Carya sp.) was the most commonly recovered species at the Brinkley Midden. It comprised over 90 percent by weight of the analyzed material in most samples including wood. While at many sites hickory comprises more than 90 percent of the nuts found, these counts usually do not include wood charcoal (e.g., Asch, Ford and Asch 1972:3-10; Lafferty 1981:401-404; Chapman 1978:87). Hickory is one of the most common species in the deciduous forests of the east (Asch, Ford and Asch 1972:7), usually being the second most common species after oak (Quercus sp.). These were apparently preferred over acorns possibly because they require less processing before eating. Hickory nuts also have high quality protein. As at other sites, this species appears to have been very important in the diet of the prehistoric occupants of this site (cf. Asch, Ford and Asch 1972:8-12). However, when compared with wood carbon, it appears to have also functioned in a manner other than just as food, which increased its chances of carbonization and thus preservation in the archaeological record. Hickory nuts become available in the fall and store well. The presence of this species suggests a late fall and winter occupation for the site.

Walnut (Juglans sp.) and acorn (Quercus sp.) comprised a small but important portion of the sample (less than 2 percent). These percentages are comparable to walnut and acorn recoveries at the Koster, Bacon Bend, and Higgs sites (Asch, Ford and Asch 1972; Chapman 1978; Brewer 1973). At Phipps Bend, however, acorns and walnuts accounted for 39 percent of the recovered botanical samples (Lafferty 1981). All of these nut species become available in September and are generally available until the first snowfall, usually in December. The presence of walnuts and acorns also indicates a fall occupation for the Brinkley Midden.

Table 12.3. Seed Counts from All Analyzed Units, Site 22Ts729.

| | Fragment | Spheres S | Spheres M | Spheres L | *Vitis* sp. | *Diospyros virginiana* | *Berberis* sp. | *Rhus* sp. | *Zea mays* | *Arundinaria* sp. (1 large frag.) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Stratum** | | | | | | | | | | |
| 82N49N | - | - | 1 | - | 1 | - | - | - | - | - |
| **Feature** | | | | | | | | | | |
| 8 | 1 | - | - | - | - | - | - | - | - | - |
| 28 | - | - | - | - | 1 | - | - | - | - | - |
| 29 | 2 | - | 1 | - | - | - | - | - | - | - |
| 45 | 1 | - | - | - | - | 1 | - | - | - | - |
| 53 | 1 | - | - | - | - | - | 1 | - | - | - |
| 56 | - | - | - | - | 1 | - | - | - | - | - |
| 80 | 2 | - | - | - | 1 | - | - | - | - | - |
| 146 | - | - | - | - | - | - | - | 1 | - | - |
| 147 | - | - | - | - | - | - | - | - | 2 | - |
| **Large Basin Shaped Feature** | | | | | | | | | | |
| 1 | 2 | - | - | - | 12 | - | - | - | - | - |
| 2 | 1 | - | - | - | - | - | - | - | - | 1 |
| 4 | 1 | - | - | - | - | - | - | - | - | - |
| Total | 11 | - | 2 | - | 16 | 1 | 1 | 1 | 2 | 1 |

Very few seeds were recovered (Table 12.3). All of the identified seeds were carbonized and recovered in undisturbed context. Grape seeds (Vitis sp.) were identified in 12 instances (Table 12.3). Most of these were recovered from the LBSFs. Grapes were relatively abundant in the lowlands of the South, and began to come into fruit in the late summer, about the middle of August. They were also easily preserved by drying, and are common on other contemporary archaeological sites.

One persimmon seed (Diospyros virginina) was recovered from Feature 45, which is of probable Middle Archaic affiliation. Persimmons were also abundant in the lowlands of the South. It is usually a pioneer tree. The fruit becomes edible after the first frost, around November. The presence of a persimmon seed implies occupation of the site in the late fall, after the persimmon fruit is ripe. The fruit may have been stored as a paste similar to apricot paste. This species is common on other archaeological sites and was historically an important food among southeastern Indians.

Berberis sp. is a native barberry. One seed was recovered from Feature 53. This feature originated in Stratum 2, Natural Level 3 (Middle Archaic). This species is not listed in the present vegetation of the Yellow Creek Drainage (Coleman 1975) and does not appear to be common on other archaeological sites (e.g., none are reported in Zawacki and Hausfater 1969; Asch, Ford and Asch 1972; Brewer 1973; Smith and Caddell 1977). The barberry flowers from May to June and is adapted to dry environments (Mohlenbrock 1975:240). The berries appear in late summer and are used today in preserves and sauces, apparently being rich in Vitamin C (Porter 1906:118). The bark, especially that of the root, is used to produce a fine yellow dye.

Rhus sp. generally seeds between July and October. Some species (e.g. staghorn sumac) may be used to prepare a high vitamin C content beverage from the seeds and others (e.g. poison ivy) are rather poisonous. Not much can therefore be said about the possible function of these seeds other than that occupation after July is implied by their presence on the site.

Possible remains of corn (Zea mays) were recovered from Feature 147 which originated at the base of the plowzone and contained Wheeler pottery. The corn consisted of two possible glume fragments (identified by C. E. Smith). If the context of this is dependable this is a rather early occurrence of corn in the Southeast.

Arundinaria sp. is the native American cane which would have been common (and still is in some areas) in the Yellow Creek bottoms and levees (Coleman 1975). The recovered fragment was recovered from the upper edge of Zone 2 on the north side of LBSF 2. This was a large fragment of a joint which would have been 5 cm to 7.5 cm in diameter.

## Seasonality

All of the positive evidence indicates that the Brinkley Midden was occupied in or after the fall, or late summer (Table 12.3). This is when most of the identified species become available, but very few preservable species become available at other times of the year, hence this interpretation might not represent the full seasonal span of the occupation. The absence of seasonally sensitive faunal remains makes it impossible to fix the seasonality of occupation more closely than this. The fall/winter period of occupation is consistent with an interpretation of the basin shaped features as semisubterranean winter lodges.

## Nutritional Adequacy

Table 12.4 summarizes the nutritional requirements of humans and the nutrition furnished by the identified edible species. These certainly do not represent all of the foods used at Brinkley (no analyzable bone was recovered), and the preserved quantities certainly do not directly represent the prevalence of use due to variations in preservation by charring, (see Lafferty 1981:412-416). We can, nevertheless, make some general inferences about the adequacy of the diet based on the biased preserved portion of the recovered and identified botanical remains.

The five species recovered alone would have provided a fairly balanced diet, with the exception of vitamins A and B. Vitamin A would have been easily available in greens (not usually preserved in the archaeological record of the Southeast) and several of the B complex vitamins in meat. While these are not represented in the archaeological record, they were probably part of the diet.

## Intrasite Variation in Botanical Densities

In order to make the samples comparable a density score was calculated in grams per cubic meter. This was done by dividing the weights of the identified species per unit by the analysis volume. The "analysis volume," a standardizing factor, was derived by multiplying the processed volume by the percentage of the sample analyzed.

The reason densities are used in this analysis is so that direct comparisons can be made between units of different volumes. Grams per cubic meter ($g/m^3$) is a simple unit to convert to and is like a "Z" score. If one compares the three units from Zone 1 of LBSF 1 for _Carya sp._ on Table 12.5, the effect of this conversion is apparent. On Table 12.2, Bag No. 1142 the weight of _Carya sp._ is 13 percent of that of Bag No. 1150. However, the analyzed volume of Bag No. 1142 is only 33 percent of Bag No. 1150. By converting to densities (Table 12.5), it is apparent that Bag No. 1142 has 41 percent the density of Bag No. 1150. Since the volume of dirt processed is taken into account in the calculations, the densities can be directly compared in spite of the variable sample sizes.

Samples from LBSFs were grouped by the three depositional units which occurred in all of these features: The low artifact density Zone 1 which overlay the other two zones; The high artifact density ledge area; and, The dark Zone 2 which was at the bottom of each feature.

Table 12.4. Minimum Daily Requirements and Nutritional Values for 100g Edible Portions of Botanical Remains Recovered from Site 22Ts729.

| Species | Part Eaten | Season Available | $H_2O$ | Calories | Protein (g) | Fat (g) | Total Carbohydrates (g) | Fiber (g) | Ash (g) | Calcium (mg) | Phosphorus (mg) | Iron (mg) | Sodium (mg) | Potassium (mg) | Vitamin A IU | Thiamine (mg) | Riboflavin (mg) | Niacin (mg) | Ascorbic Acid (mg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carya sp. (Hickory) | nut meat | Fall | 3.3 | 673 | 13.2 | 63.7 | 12.8 | 1.9 | 2.0 | .01 | 360 | 2.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Juglans sp. (Walnut) | nut meat | Fall | 3.1 | 628 | 20.5 | 59.3 | 14.8 | 1.7 | 2.3 | - | 570 | 6.0 | 3 | 460 | 300 | .22 | .11 | .7 | 0 |
| Quercus sp. (Oak) | nut meat | Fall | 39.5 | 276 | 6.2 | 15.1 | 63.5 | 2.0 | 2.6 | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? |
| Diospyros Virginiana (Persimmon) | fruit | Late Fall | 64.4 | 127 | 0.8 | 0.4 | 53.5 | 1.5 | 0.9 | 27 | 26 | 2.5 | 1 | 310 | 0 | 0 | 0 | 0 | 66 |
| Vitis sp. (grape) | fruit | Late Summer | 31.6 | 69 | 1.3 | 1.0 | 15.7 | 0.6 | 0.4 | 16 | 12 | 0.4 | 3 | 158 | 100 | 0.5 | 0.3 | .3 | 4 |
| Berberis sp. (Barberry) | fruit | Late Summer | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MINIMUM DAILY REQUIREMENTS | | | | | | | | | | | | | | | | | | | |
| USDA | Male | 18-22 | | 2800 | 60 | | | | | 800 | 800 | 10 | | 1000 | 5000 | 1.4 | 1.6 | 18 | 60 |
| Minimum Daily | Female | 18-22 | | 2000 | 55 | | | | | 800 | 800 | 18 | | 1000 | 5000 | 1.0 | 1.5 | 13 | 55 |
| Requirement | Female, Lactating | | | 3000 | 75 | | | | | 1000 | 1300 | 18 | | 2000 | 8000 | 1.5 | 2.0 | 20 | 60 |

Table 12.5. Botanical Densities in g/m$^3$ for Large Basin Shaped Features by Depositional Zones, Site 22Ts729.

| LBSF No. | Bag No. | Carya sp. | Juglans sp. | Quercus sp. | Wood | Unidentified | Total |
|---|---|---|---|---|---|---|---|
| Zone 1 | | | | | | | |
| 1 | 1121 | 382.8 | - | 3.5 | 3.5 | 3.5 | 393.3 |
| 1 | 1150 | 916.1 | - | 12.9 | 32.3 | 12.9 | 974.2 |
| 1 | 1142 | 380.0 | - | - | 20.0 | 20.0 | 420.0 |
| 6 | 1227 | 988.8 | - | 8.0 | 16.0 | 8.0 | 1020.8 |
| 7 | 1210 | 370.0 | 3.7 | 3.7 | 3.7 | 3.7 | 384.8 |
| | TOTAL | 3037.7 | 3.7 | 28.1 | 75.5 | 48.1 | 3193.0 |
| | mean=T÷5 | 607.5 | .74 | 5.6 | 15.1 | 9.6 | 638.6 |
| Ledge | | | | | | | |
| 1 | 1031 | 87.9 | - | 1.1 | 4.4 | 1.1 | 94.5 |
| 1 | 1093 | 1380.0 | 10.0 | 10.0 | 20.0 | 10.0 | 1430.0 |
| 1 | 943 | 4720.0 | - | 40.0 | 120.0 | 80.0 | 4960.0 |
| 4 | 1204 | 1066.7 | - | 7.4 | 29.6 | 7.4 | 1111.1 |
| 6 | 1215 | 1247.1 | - | 11.8 | 23.5 | 11.8 | 1294.2 |
| 6 | 1219 | 814.3 | - | 14.3 | 14.3 | 14.3 | 857.2 |
| | TOTAL | 9316.0 | 10.0 | 84.6 | 211.8 | 124.6 | 9747.0 |
| | mean=T÷6 | 1552.7 | 1.7 | 14.1 | 35.3 | 20.8 | 1624.5 |
| Zone 2 | | | | | | | |
| 1 | 1076 | 1096.2 | - | 9.6 | 28.8 | 9.6 | 1144.2 |
| 1 | 1141 | 1318.2 | - | 22.7 | 45.4 | 22.7 | 1409.0 |
| 1 | 1167 | 123.3 | 1.7 | 1.7 | 1.7 | 1.7 | 130.1 |
| 2 | 1186 | 513.0 | - | 4.4 | 8.8 | 4.4 | 530.6 |
| 2 | 1223 | 1494.0 | - | 12.1 | 36.2 | 72.3 | 1614.6 |
| 2 | 1212 | 615.4 | - | 4.3 | 8.6 | 4.3 | 632.6 |
| 6 | 1027 | 2969.7 | - | 30.3 | 90.9 | 30.3 | 3121.2 |
| 6 | 1220 | 255.2 | - | 1.7 | 3.4 | 1.7 | 262.0 |
| 6 | 1228 | 273.3 | - | - | 6.7 | 6.7 | 286.7 |
| 7 | 1218 | 1270.3 | - | 9.0 | 18.0 | 9.0 | 1306.3 |
| 12 | 1225 | 2866.7 | - | 22.2 | 44.4 | 66.7 | 3000.0 |
| 12 | 1226 | 790.0 | - | 5.0 | 5.0 | 5.0 | 805.0 |
| | TOTAL | 13,585.3 | 1.7 | 123.0 | 297.9 | 234.4 | 14242.3 |
| | mean=T÷12 | 1132.1 | .1 | 10.25 | 24.8 | 19.5 | 1186.9 |

Zone 1 had the lowest density of botanical remains of the three analytical units ($\bar{X}$=638.5 $g/m^3$, Table 12.5). Zone 2 had the second highest density ($\bar{X}$=1,186 $g/m^3$) and the ledge areas had the greatest density ($\bar{X}$=1625.5 $g/m^3$). While there is considerable overlap of the ranges of the scores, the preponderance of the lower units (Ledge units and Zone 2 units) [59 percent] have much greater densities than Zone 1 units. Surprisingly there is a very high density of Carya sp. in every unit. This species comprises well over 90 percent of the total analyzed sample, including wood and unidentified carbon.

The high density of botanical remains in general, and of Carya sp. shells in particular, in the lower depositional units of the LBSFs is apparent if compared with the features and midden units (Table 12.6). The ledge areas and Zone 2 of the LBSFs have the highest botanical densities found anywhere on the site. If these had been randomly distributed then the density of each unit of analysis should be proportionately equivalent (Table 12.7). For example, from three analytical units from the LBSFs we would expect a yield of 30 percent of the botanical remains. This is clearly not the case since 65 percent of the total analyzed botanical remains came from the LBSFs.

Table 12.7 can be used as the basis for testing the hypothesis that the density of Carya sp. is not randomly distributed at the site. Using the $X^2$ (chi squared) statistic results in a $X^2$ value of 74.944, which is significant at the 0.001 level with 8 degrees of freedom. Comparing the ledge and Zone 2 of the LBSFs with the rest of the site, in order to test the hypothesis that this distribution of Carya sp. is nonrandom, results in a $X^2$ value of 61.532, which is also significant at the 0.001 level with one degree of freedom. From this we can infer that there are mechanisms which have caused greater densities of botanical remains and particularly of hickory nuts to be preserved and deposited in the lower levels of the LBSFs.

The high density of botanical remains, and particularly of Carya sp., in the large basin shaped features, and the high frequency of this genus with respect to wood, suggest that these shells were being charred in much greater prevalence than on other sites which were used for comparison (see references under Carya sp., above). Since we are dealing with twenty-three analyzed units which involve twice the excavated and analyzed volume of features, and all of the lower LBSF units show these high densities, this is not bias due to small sample size. Differential preservation of nut shells and wood does not appear to be a factor, since the lower features and midden levels had higher proportions of wood. Bias and preservation do not appear to be factors, and since the lower levels appear to be primary depositional units which were rapidly sealed under Zone 1, it therefore appears that the high densities of nut shells in the lower LBSF depositional zones was due to the intentional burning of hickory nut shells.

Hickory nut shells have a high oil content, and burn with a very hot flame. In one experiment conducted by the author, nuts were crushed and boiled for six hours. This freed the nut meat, which was skimmed off the top. Even through these had been boiled, when dried they burned with a very hot flame. In a small enclosed space, a small, hot fire burning the nut shell oil would have been easy to contain, and would have radiated

Table 12.6. Densities, Averages ($g/m^3$).

| | Carya sp. $g/m^3$ | Juglans sp. $g/m^3$ | Quercus sp. $g/m^3$ | Wood $g/m^3$ | Unidentified $g/m^3$ | Total $g/m^3$ |
|---|---|---|---|---|---|---|
| Large Basin Shaped Features | | | | | | |
| Zone 1 | 607.5 | 0.7 | 5.6 | 15.1 | 9.6 | 638.6 |
| Ledge | 1,552.6 | 1.7 | 14.1 | 35.3 | 20.8 | 1,624.5 |
| Zone 2 | 1,132.1 | 0.1 | 10.2 | 24.8 | 19.5 | 1,186.9 |
| Features | | | | | | |
| Stratum 1 | 269.2 | 0.3 | 1.9 | 8.5 | 5.9 | 285.8 |
| Stratum 2 | 371.6 | 0.5 | 12.8 | 19.9 | 8.3 | 413.0 |
| Stratum 3 | 480.0 | 0.0 | 12.2 | 13.3 | 33.3 | 515.1 |
| Midden | | | | | | |
| Stratum 1 | 394.7 | 5.3 | 10.5 | 10.5 | 15.8 | 436.8 |
| Stratum 2 | 68.5 | 0.0 | 0.0 | 47.4 | 10.5 | 126.4 |
| Stratum 3 | 26.2 | 10.5 | 0.0 | 5.2 | 5.3 | 47.2 |
| Total | 4,902.4 | 19.1 | 67.3 | 180.0 | 129.0 | 5,233.2 |
| Mean | 544.7 | 2.1 | 7.47 | 20.0 | 14.3 | 581.4 |

Table 12.7. Percentage of Average Densities for Individual Species by Recovery Unit Categories.

| | % if Random | Carya sp. % | Juglans sp. % | Quercus sp. % | Wood % | Unidentified % | Total % |
|---|---|---|---|---|---|---|---|
| Large Basin Shaped Features | | | | | | | |
| Zone 1 | 11.1 | 12.4 | 3.6 | 8.3 | 8.4 | 7.4 | 12.2 |
| Ledge | 11.1 | 31.7 | 8.9 | 20.9 | 19.8 | 16.1 | 31.0 |
| Zone 2 | 11.1 | 23.1 | 0.5 | 15.3 | 13.8 | 15.1 | 22.7 |
| Subtotal | 33.3 | 67.2 | 13.0 | 44.5 | 41.6 | 38.6 | 65.9 |
| Features | | | | | | | |
| Stratum 1 | 11.1 | 5.4 | 1.6 | 2.8 | 4.7 | 4.6 | 4.7 |
| Stratum 2 | 11.1 | 7.6 | 2.6 | 19.0 | 11.1 | 6.4 | 7.9 |
| Stratum 3 | 11.1 | 9.8 | 0.0 | 18.1 | 7.4 | 25.8 | 9.8 |
| Subtotal | 33.3 | 24.3 | 4.2 | 39.9 | 23.2 | 36.8 | 22.4 |
| Midden | | | | | | | |
| Stratum 1 | 11.1 | 8.1 | 27.7 | 15.6 | 5.8 | 12.3 | 8.4 |
| Stratum 2 | 11.1 | 1.4 | 0.0 | 0.0 | 26.3 | 8.1 | 2.4 |
| Stratum 3 | 11.1 | 0.5 | 54.9 | 0.0 | 2.9 | 4.1 | 0.9 |
| Subtotal | 33.3 | 10.0 | 82.6 | 15.6 | 35.0 | 24.5 | 11.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

much more heat than a similar volume of wood. There is some suggestion that during the later occupation period, wood may have been in short supply around the Brinkley Midden. In the lower levels of the features and midden there are much greater densities of wood carbon than in the upper levels. It seems likely that use of the site over a long period of time could have depleted the supply of wood available. More highly controlled experiments need to be carried out using hickory nut shells as fuel.

In summary, the high botanical densities found in the lower units of the large basin shaped features (ledge area and Zone 2) suggest that hickory nuts were being burned. It was shown that there were decreasing quanitites of wood through time being reduced to charcoal and preserved in the archaeological record of the site. Hickory nut shells would have made a very hot fire quite suitable for heating the small structures. The sealed context of the lower LBSF depositional zones, and the preservation of wood charcoal in lower levels of features and midden, suggest that preservation bias is not a contributing factor. It is possible that the use of hickory nuts with wood in the fires could have reduced most of the wood to ash, thus rendering it unpreserved in this environment. In any event the empirical evidence of high densities of Carya sp. nut shells in the lower LBSF units strongly suggests the introduction of these shells into fires more frequently than at other compared sites, and for some consistent reason.

Midden samples had much lower densities of botanical materials than either LBSFs or other features (Table 12.7). The proportion of wood, however, was much higher in midden contexts than in features or LBSFs, especially in Stratum 2 (Table 12.8). Through time there is a general increase in the total amount of botanical remains present in the midden, which probably resulted from the nature of midden formation (cf. Lafferty 1981:472-476). Sites which are occupied over long periods of time usually have large quantities of botanical remains and other cultural materials in the upper levels. This is because as holes are dug into the underlying levels, materials are constantly brought to the surface and incorporated into the formational surface of the midden. At the same time there is new refuse being constantly added to this surface. The pattern represented by the total quantities of botanicals remains present in the upper levels of the site (Table 12.6) appears to be the result of this midden formaton process.

When the composition of the botanical remains are compared (Table 12.9), there is some variation in the proportions of the consitutents of the samples. Wood, as noted above, generally decreases through time as Carya sp. nut shell increases in proportion, suggesting a change in the relative use of these two materials. This again suggests that wood may have been in short supply later in the sequence and that there may have been increased reliance on Carya sp. nut shells as a means of heating. Contrary to expectations, the features reflect a different pattern of decreasing densities through time (Tables 12.10, 12.11).

Table 12.8. Percentages of Average Densities ($g/m^3$) for Recovery Unit Categories by Individual Species.

| | *Carya* sp. % | *Juglans* sp. % | *Quercus* sp. % | Wood % | Unidentified % | Total % |
|---|---|---|---|---|---|---|
| Large Basin Shaped Features | | | | | | |
| Zone 1 | 95.1 | 0.1 | 0.9 | 2.4 | 1.5 | 100.0 |
| Ledge | 95.6 | 0.1 | 0.8 | 2.2 | 1.3 | 100.0 |
| Zone 2 | 95.4 | 0.0 | 0.9 | 2.1 | 1.6 | 100.0 |
| Features | | | | | | |
| Stratum 1 | 94.2 | 0.1 | 0.7 | 3.0 | 2.1 | 100.0 |
| Stratum 2 | 90.0 | 0.1 | 3.1 | 4.8 | 2.0 | 100.0 |
| Stratum 3 | 93.2 | 0.0 | 2.4 | 2.6 | 6.5 | 100.0 |
| Midden | | | | | | |
| Stratum 1 | 90.4 | 1.2 | 2.4 | 2.4 | 3.6 | 100.0 |
| Stratum 2 | 54.2 | 0.0 | 0.0 | 37.5 | 8.3 | 100.0 |
| Stratum 3 | 55.6 | 22.2 | 0.0 | 11.1 | 11.1 | 100.0 |
| Total | 91.9 | 0.3 | 1.1 | 4.4 | 2.3 | 100.0 |

Table 12.9. Densities (g/$m^3$) of Botanicals from Natural Levels of Selected Proveniences.

| Natural Level | | *Carya* sp. g/$m^3$ | *Juglans* sp. g/$m^3$ | *Quercus* sp. g/$m^3$ | Wood g/$m^3$ | Unidentified g/$m^3$ | Total |
|---|---|---|---|---|---|---|---|
| 1 | 82N 49W | 210.50 | 10.50 | 10.50 | 10.50 | 21.00 | |
| | 65N 30W | 578.90 | - | 10.50 | 10.50 | 10.50 | |
| Mean | | 394.70 | 5.25 | 10.50 | 10.50 | 15.75 | 436.70 |
| 2 | 65N 30W | 31.60 | - | - | 10.50 | 10.50 | |
| | 65N 32W | 105.30 | - | - | 84.20 | 10.50 | |
| Mean | | 68.45 | - | - | 47.35 | 10.50 | 126.30 |
| 3 | 60N 32W | 10.50 | - | - | 10.50 | - | |
| | 66N 30W | 42.00 | 21.00 | - | - | 10.50 | |
| Mean | | 26.25 | 10.50 | - | 5.25 | 5.25 | 47.25 |
| 6 | 75.4 43.1W | 226.70 | - | 6.70 | 6.70 | 6.70 | |
| 6&7 | 75.4N 43.1W | 292.10 | - | 2.60 | 5.20 | 2.60 | |
| L7 | 75.4N 43.1N | 180.00 | - | 10.00 | 10.00 | 10.00 | |
| Mean | | 232.90 | - | 6.40 | 7.30 | 6.40 | 300.25 |

Table 12.10. Average Densities ($g/m^3$) of Botanicals from Features by Stratum of Point of Detection.

| Stratum | *Carya* sp. $g/m^3$ | *Juglans* sp. $g/m^3$ | *Quercus* sp. $g/m^3$ | Wood $g/m^3$ | Unidentified $g/m^3$ | Total |
|---|---|---|---|---|---|---|
| 1 | 269.2 | 0.03 | 1.9 | 8.5 | 5.9 | 285.8 |
| 2 | 371.6 | 0.05 | 12.8 | 19.9 | 8.3 | 413.0 |
| 3 | 480.0 | 0.00 | 12.2 | 13.3 | 33.3 | 515.1 |
| Total | 1,120.8 | 0.08 | 26.9 | 41.7 | 47.5 | 1,213.9 |

Table 12.11. Percentage of Average Densities for Individual Species by Strata of Detection for All Analyzed Features; Vertical Percentages Based on Densities (Table B-10).

| Stratum | *Carya* sp. % | *Juglans* sp. % | *Quercus* sp. % | Wood | Unidentified | Total |
|---|---|---|---|---|---|---|
| 1 | 24.0 | 37.5 | 7.1 | 20.4 | 12.4 | 23.5 |
| 2 | 33.1 | 62.5 | 47.6 | 47.7 | 17.5 | 34.0 |
| 3 | 42.8 | 00.0 | 45.3 | 31.9 | 70.1 | 42.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

## Conclusions

The botanical remains recovered and analyzed at the Brinkley Midden (22Ts729) suggests that the site was occupied in the fall and winter. Positive evidence for the occupation at other seasons is lacking, but it is possible that it was also occupied during other seasons. Bone was not preserved on the site, and few plants come to seed at other seasons, so there is no positive evidence that the site was not occupied at other seasons.

Even given the vagaries of botanical and lack of faunal preservation, there are adequate distributions of essential proteins, calories and vitamins to suggest that the prehistoric occupants of this site had a balanced diet. This balance undoubtedly would have been better documented and more understandable had more bone been preserved on the site. The large number of projectile points suggests that the lack of bone is a result of a lack of preservation and not a lack of prehistoric hunting.

The ledge areas and Zone 2 of the LBSFs produced the greatest density of botanical remains found on the site. It is argued that the anomalously high and statistically significant densities of *Carya sp.* (hickory) nut shells in these depositional units is consistent with an interpretation of the LBSFs as fall-winter structures, which may have employed the hickory nut shells as heating fuels. A decrease in wood charcoal in the features and midden samples through time indicates that wood may have become increasingly scarce through the occupation. This, coupled with the relatively high energy obtainable from the nut shells, would have made them an ideal fuel to burn in small structures. The density of hickory nuts is much higher than any of the sites selected for comparison, suggesting that something was being done with the shells that consistantly introduced them to fire.

## XIII. SUMMARY AND CONCLUSIONS

Archaeological excavations at the Brinkley Midden were conducted between December 1977 and July 1978 under a contract sponsored by the Nashville District of the Corps of Engineers and the Heritage Conservation and Recreation Service-Atlanta (Contract; CX 5880-B-0031). The investigations were conducted by the Office of Archaeological Research at The University of Alabama. The midden is located in the center of the wide flood plain at the former confluence of Yellow Creek and Little Yellow Creek. The site is situated near the center line of the divide cut of the Tennessee-Tombigbee Waterway, which will totally destroy the site. Before the construction of Pickwick Reservoir, which has raised the water table, the bottomland was rather wet; particularly in the winter and spring floods when the midden is the only above-water feature in the bottoms. The elevation of the midden (134 m AMSL) is only 7 m above the high pool level of Pickwick Lake (127 m AMSL). This reservoir has raised the level of the Tennessee River between 24-34 m (TVA 1936; Webb and DeJarnette 1942:2). This has raised the water table in Northeastern Tishomingo County, which has probably intensified the alluviation. Alluviation has also been intensified by European agriculture in these loosely consolidated Cretaceous formations (Hubbert 1978). The prehistoric landscape must have been somewhat different.

Seasonal variation in rainfall suggests that in winter and spring the bottomlands around the Brinkley Midden would have been quite wet. In the summer and fall, the area is much dryer (as much as one-fifth of the yearly rainfall, 133.3 cm, occurs in March and April). Even given the greater stability of the watershed in prehistoric times, the late summer, fall and early winter would have been the dryest time of the year and, presumably, the optimal time for occupation.

The Brinkley site consists of a 1.5 meter rise above the present floodplain. The artifact bearing matrix is between 60-65 cm in thickness with features intruding into geologically deposited sand to a depth of 2.0 meters. Underlying the midden is a layer of white sand which is one meter thick. This is alluvially deposited, culturally sterile sand (Wilson 1978) overlying tan alluvial sand. The midden is composed of dark clay, silt, and sandy loam. The presence of smaller soil particles in the darker upper level of the midden than in the lower part suggests a decreasing rate of deposition during the period of human occupation.

The time span of the occupation on the site, based on stylistic analysis of the projectile points, ranges from Transitional Paleo-Archaic, through the Archaic, to Woodland occupations in the upper levels. Woodland deposits were largely destroyed in the plowzone.

The cultural stratigraphy is correlated in a general way with the physical stratigraphy. Stratum 1, which represented the disturbed plowzone, contained a mixture of diagnostic materials associated with the Late Archaic and Middle Woodland periods. The underlying Stratum 2 yielded primarily Middle Archaic diagnostic cultural materials, although with some admixture of Late Archaic and Middle Woodland materials in the upper part of the zone. The lowermost cultural deposit, Zone 3, yielded almost exclusively cultural materials of the Early Archaic period.

A large number of refuse-filled pit features were defined and excavated, the artifactual contents of which span the entire occupation from Early Archaic to Middle Woodland. A feature typology of nine classes has been constructed based upon morphological attributes and inferred functions. These pits were largely used for storage and cooking prior to their use as refuse pits. A single burial was also encountered.

One of the most intriguing characteristics of the Brinkley Midden was the presence of ten large basin shaped features, dating to the Middle - Late Archaic period. Generally these basins contained a thick deposit of primary refuse blanketing the bottom and sides, and above this a zone of lighter sand which was nearly sterile of cultural remains. The investigators have argued that the morphology and internal pattern of deposition of these large basin shaped features are best accounted for by their interpretation as small semisubterranean earth covered structures. Such structures were probably occupied during the fall and winter months. A behavioral model of construction, use, and subsequent destruction of such lodges has been formulated, and accords well with the archaeological evidence. Nevertheless the origin and nature of these large features has been much discussed and debated, and some other interpretations are not excluded by this analysis. In our opinion we have demonstrated that these large basin shaped features are not tree tip-ups--the most frequent explanation offered by observers who favor an origin through natural causes.

A large number and variety of chipped lithic, ground stone, and ceramic artifacts were recovered and analyzed from various excavated proveniences at the Brinkley Midden. The stratigraphy of the site offers a good opportunity to examine certain trends through time. Despite a general stability through time of functional chipped lithic assemblages, there are nevertheless some suggestive trends among specific functional classes. For example, the proportion of bifaces through time graudally increases from Early Archaic through Late Archaic/Middle Woodland, while there is a corresponding decrease in the proportion of projectile points over the same period. Ground and polished stone artifact classes can be shown to increase both in frequency and variety from Early Archaic through Late Archaic/Middle Woodland. The ceramic collection from the site is very restricted, but indicates the presence of Gulf Formational and Miller Woodland ceramic components.

Botanical remains from the Brinkley Midden indicate an occupation at least during the late summer and fall. The botanical assemblage was dominated by hickory nut shell fragments, followed in frequency by acorns, walnuts, grape seeds, barberry, sumac, cane, and possibly corn. These, along with lithic tools from the site, indicate an efficient hunting and gathering economy. High densities of hickory nut shells encountered within the large basin shaped features at Brinkley is consistent with the interpretation of these features as fall-winter structures, which might have employed the hickory nut shells as heating fuels. Faunal remains were not consistently preserved at the site, but hunting is undoubtedly indicated by the frequency of projectile points.

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