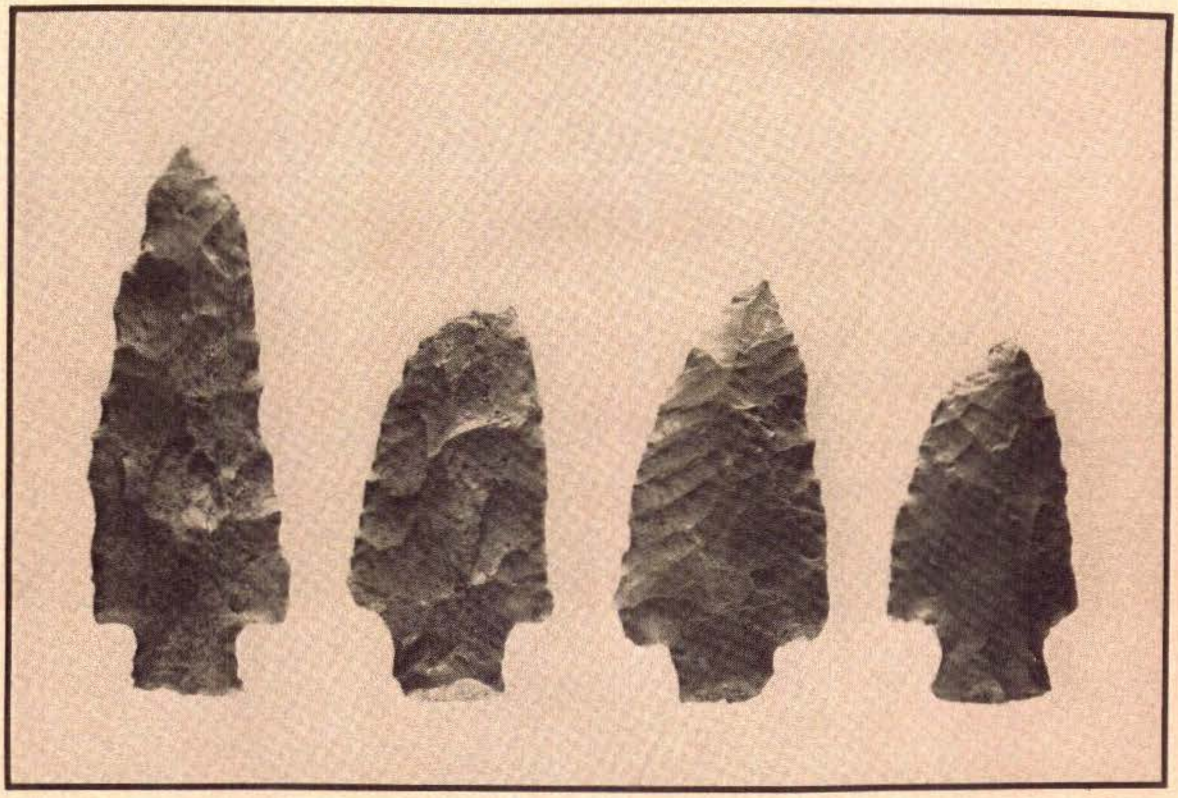
THE BAILEY SITE (40GL26):
LATE ARCHAIC, MIDDLE WOODLAND, AND HISTORIC SETTLEMENT AND SUBSISTENCE IN THE LOWER ELK RIVER DRAINAGE OF TENNESSEE



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THE BAILEY SITE (40GL26):
LATE ARCHAIC, LATE WOODLAND, AND HISTORIC SETTLEMENT AND SUBSISTENCE IN THE LOWER ELK RIVER DRAINAGE OF TENNESSEE

PREPARED FOR

The Tennessee Department of Transportation
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IN COORDINATION WITH

The U.S. Department of Transportation
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UNDER

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The regular field and laboratory crews consisted of the following personnel:

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Ray Rost and Charles Sutterland were local volunteers. Several individuals, noted on the title page, contributed their specialized abilities to the completion of this report. Terry Faulkner prepared the final maps. Miles Wright photographed the artifacts. Pamela Poe, Laurie Baradat, Mary Jane Hinton, Kim Johnson, and Charlene Weaver typed the manuscript. The efforts of all the people involved with this project are greatly appreciated.

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INTRODUCTION

Charles Bentz, Jr.

The Bailey site (40GL26) is situated on a Pleistocene terrace of Sugar Creek approximately 18 km upstream from the Elk River in southern Middle Tennessee (Figures 1 and 2). The Tennessee River is located about 20 km downstream from the confluence of Sugar Creek and the Elk River in northern Alabama. The site was initially located in October, 1983 by Tennessee Department of Transportation (TDOT) personnel, who were conducting an archaeological reconnaissance of land to be impacted by the replacement of a bridge over Sugar Creek and the relocation of State Route 11 and an intersecting gravel road that parallels Sugar Creek (Figure 2). A high density of surface material encompassing an area of approximately 1.4 ha was delimited and a "grab bag" collection of material was recovered. The collection lacked culturally diagnostic materials. The site area corresponds approximately to the field area mapped in Figure 3.

Memphis State University was contracted by the Tennessee Department of Transportation to undertake a program of Phase II archaeological investigations at the Bailey site. Test excavations were conducted during January, 1985. Six 1 m x 1 m units and one 1 m x 2 m unit were hand excavated within the proposed impact area of the construction project (Figure 3). One of the test units was located to the east of State Route 11. Five pit features of prehistoric origin were found in four of the test units. A shallow midden located immediately beneath the plowzone was identified in two of the test units. The cultural affiliation of two pit features was determined to be Middle Woodland while the midden area was assigned to the Late Archaic period. It was concluded that the Bailey site met the criteria necessary for inclusion in the National Register of Historic Places and a program of Phase III archaeological data recovery was recommended within the impact zone of the proposed bridge replacement and road relocation project (Reed and Dye 1985:11-25, 42-44).

The University of Tennessee-Knoxville was subsequently contracted by the Tennessee Department of Transportation to undertake a program of Phase III archaeological data recovery at the Bailey site. Excavations were conducted by a University of Tennessee field crew during the period from 20 May to 23 August, 1986. A total of 2,404 work hours was expended at the site during this period. The subsurface archaeological examination of the site was initiated with the machine excavation of two power units within the proposed right-of-way area. A total of 1,555 m^2 of plowzone was removed and 165 possible pit features, 5 midden areas, 5 structures, and 41 scattered postholes were exposed. One-hundred-ten of the potential pit features were excavated. Ninety-nine were of prehistoric or historic origin while 11 were tree or rodent disturbances. These numbers include the five prehistoric features and one tree disturbance excavated by Memphis State University. One potential pit feature was found upon excavation to be a posthole. Hand units were dug in two of the midden areas. Postholes that formed structure patterns and most of the isolated postholes were examined. Nine human burials and one dog skeleton were interred in pits and one human burial and one dog skeleton were found in a midden. The majority of the features on the Bailey site were the result of intensive Late Archaic

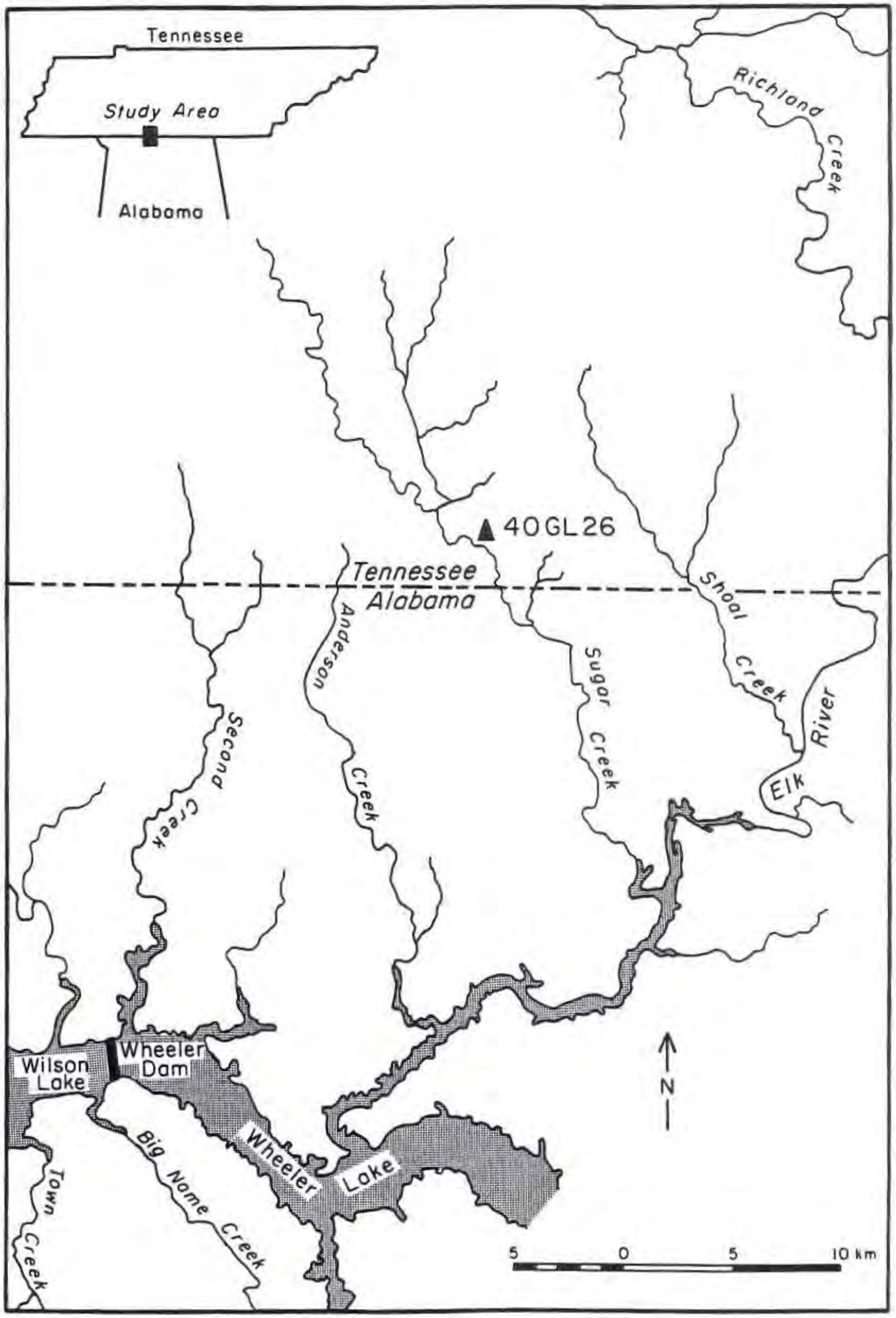


Figure 1. Bailey Site Location.

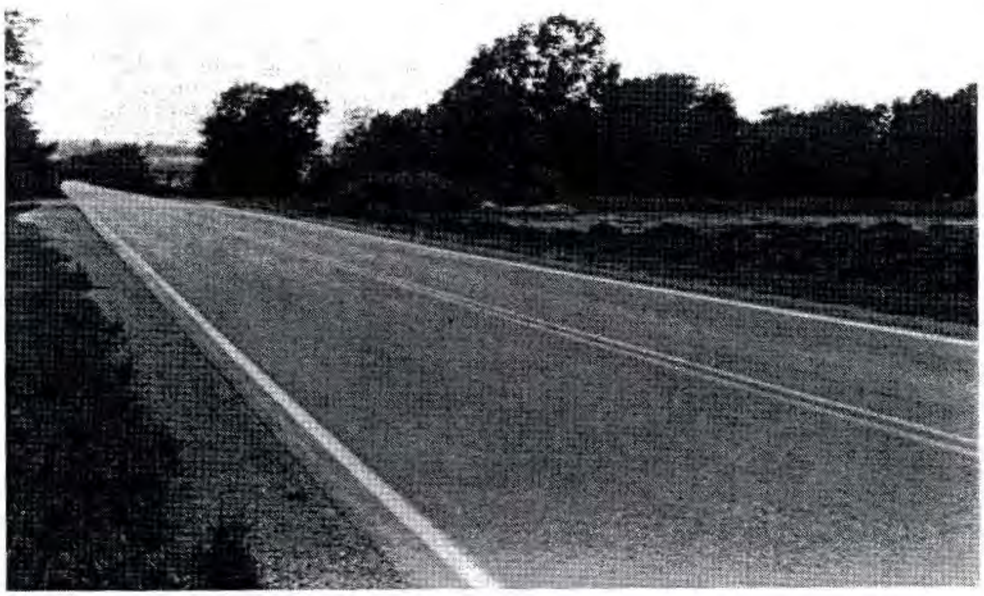


Figure 2. Sugar Creek and State Route 11.
Looking West (Top) and Southwest (Bottom).

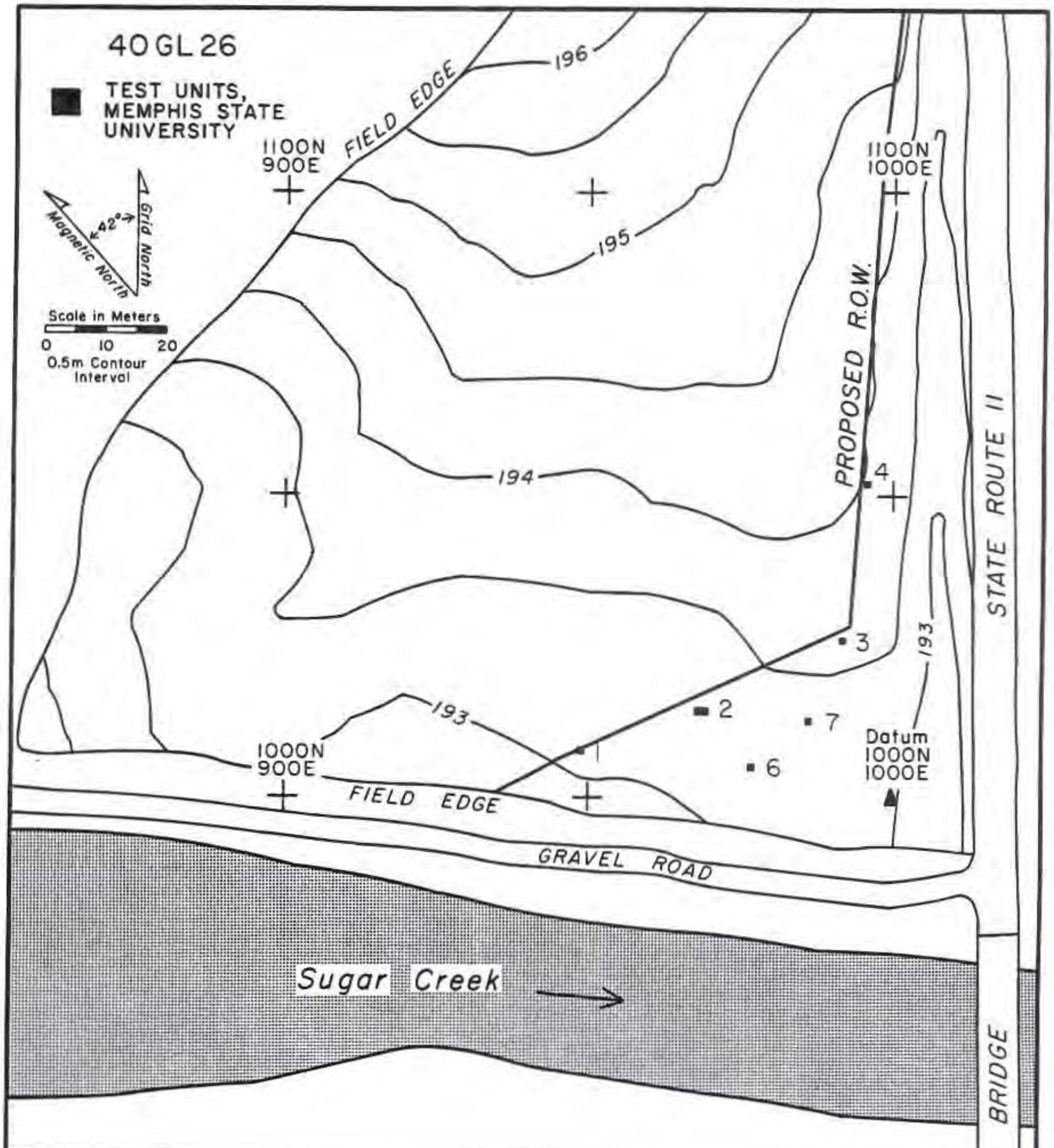


Figure 3. Memphis State University Test Units.

occupations. Additional habitations occurred during Woodland times and a single historic pit feature dates to the early nineteenth century.

The general archaeological knowledge of Middle Tennessee during the Late Archaic through Late Woodland periods has been organized into a tentative framework of settlement, subsistence, and chronological systems. Until the middle to late 1960s, only limited professional research had been conducted in the area. Investigations carried out in association with the Columbia, Tims Ford, and Normandy reservoirs (Bentz 1986a; Faulkner ed. 1968; Faulkner and McCollough 1973, 1974; Faulkner and McCollough ed. 1977, 1978, 1982a, 1982b), research funded by grants from the National Science Foundation (Cobb and Faulkner 1978; Kline et al. 1982), and projects undertaken for the Tennessee Department of Transportation (Bentz ed. 1986) have revealed information concerning prehistoric lifeways in Middle Tennessee during the Late Archaic through Late Woodland periods. The archaeological investigation of the Bailey site adds to our understanding of prehistoric lifeways and the changes that took place.

CHAPTER I

ENVIRONMENTAL SETTING

Audrey Grubb Entorf and Michael W. Morris

PHYSIOGRAPHY

Five major physiographic provinces occur in the state of Tennessee (Figure 4). From east to west these are: 1) Blue Ridge, 2) Ridge and Valley, 3) Cumberland Plateau section of the Appalachian Plateaus, 4) Interior Low Plateau, and 5) Coastal Plain (Fenneman 1938; Shimer 1972). Only the Blue Ridge Province is not found in the adjacent portion of northern Alabama. The Interior Low Plateau is composed of the Nashville Basin and the surrounding area of relatively greater relief known as the Highland Rim. The Basin is an eroded structural dome that has developed into a depression through the widening of stream valleys (Fenneman 1938:431-434). The northern half of the Nashville Basin is drained to the northwest by the Cumberland River and its tributaries, the Stones and Harpeth rivers, while the southern half is drained to the west and south by the Duck and Elk rivers, respectively (DeSelm 1959:67).

The Nashville Basin has been divided into inner and outer portions based on physiographic, geologic, floristic, and historic variability (Figure 5). The Inner Nashville Basin is composed of Lower and Middle Ordovician limestones of the Stones River and Nashville groups (Milici and Smith 1969). Topographically the Inner Basin is rolling and hilly with isolated hills as outliers of the Outer Basin. Elevation ranges between 155-203 m AMSL (Theis 1936; True et al. 1968; Wilson 1949).

The Outer Nashville Basin is underlain by erosion resistant Upper Ordovician limestones of the Maysville and Nashville groups. These Upper Ordovician limestones are extremely phosphatic and silica enriched. Topographically the deeply dissected Outer Basin consists of steep slopes between narrow rolling ridge tops and narrow valley floors, as well as smoother undulating to hilly sections adjacent to the Inner Basin. Rising some 50-100 m above the Inner Basin, the elevation of the Outer Basin ranges between 213-274 m AMSL (Theis 1936; Wilson 1949).

The Highland Rim is a level-bedded cherty Mississippian Plateau with Chattanooga black shale exposed on steep slopes. Some 24,087 km^2 of Alabama, Kentucky, and Tennessee are covered by this section of the Interior Low Plateau Province which surrounds the Nashville Basin. The elevation of the Highland Rim ranges from 289-335 m AMSL in the east and north to 259-304 m AMSL in the south and west. Spurs or ridges extend from the broader flat undissected parts of the Highland Rim into the Outer Nashville Basin (Theis 1936; True et al. 1968; Wilson 1949).

The Bailey site and the valley floor of Sugar Creek are located in the Outer Nashville Basin while the adjacent valley slopes and uplands are part of the Highland

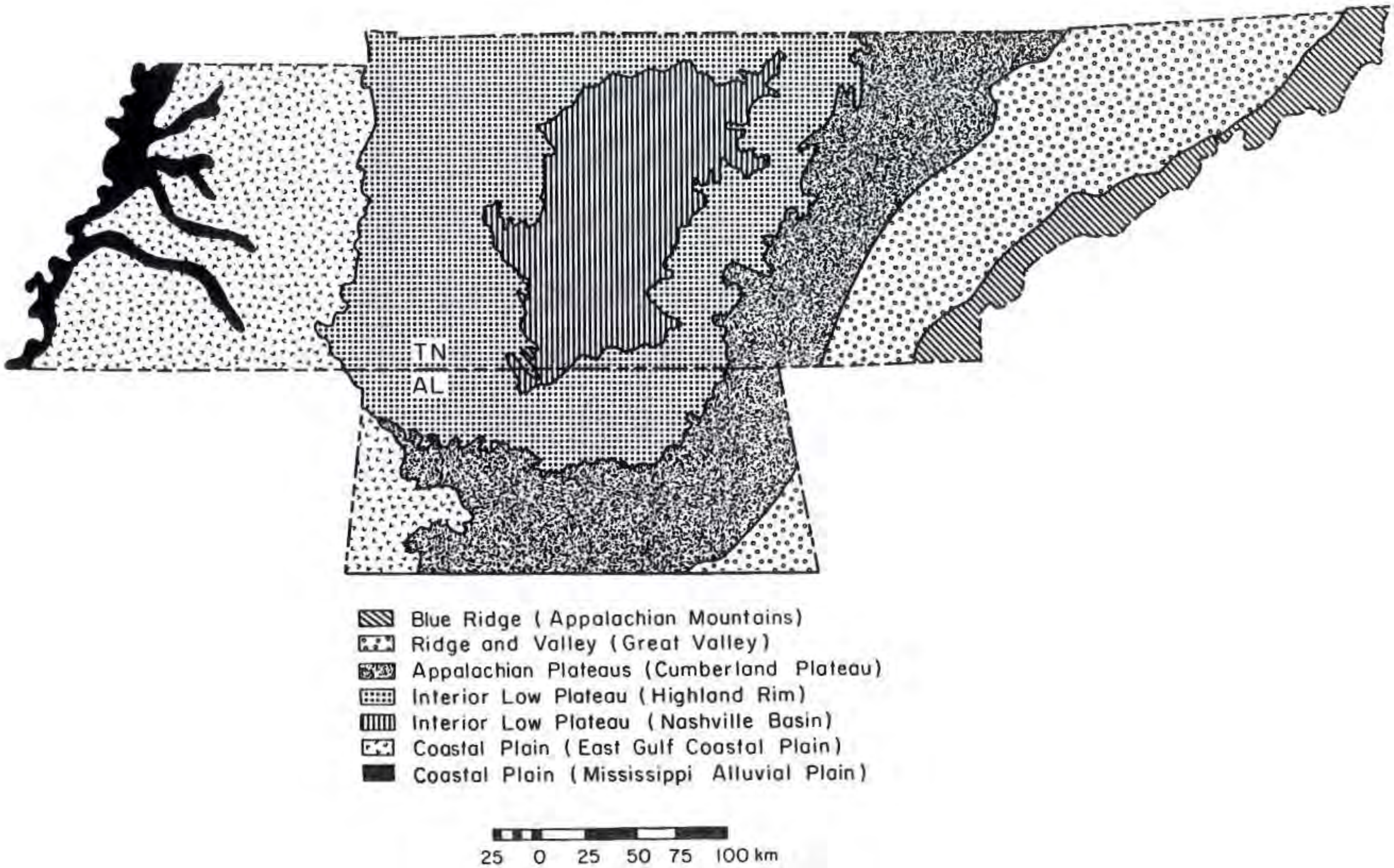


Figure 4. Physiographic Provinces of Tennessee.

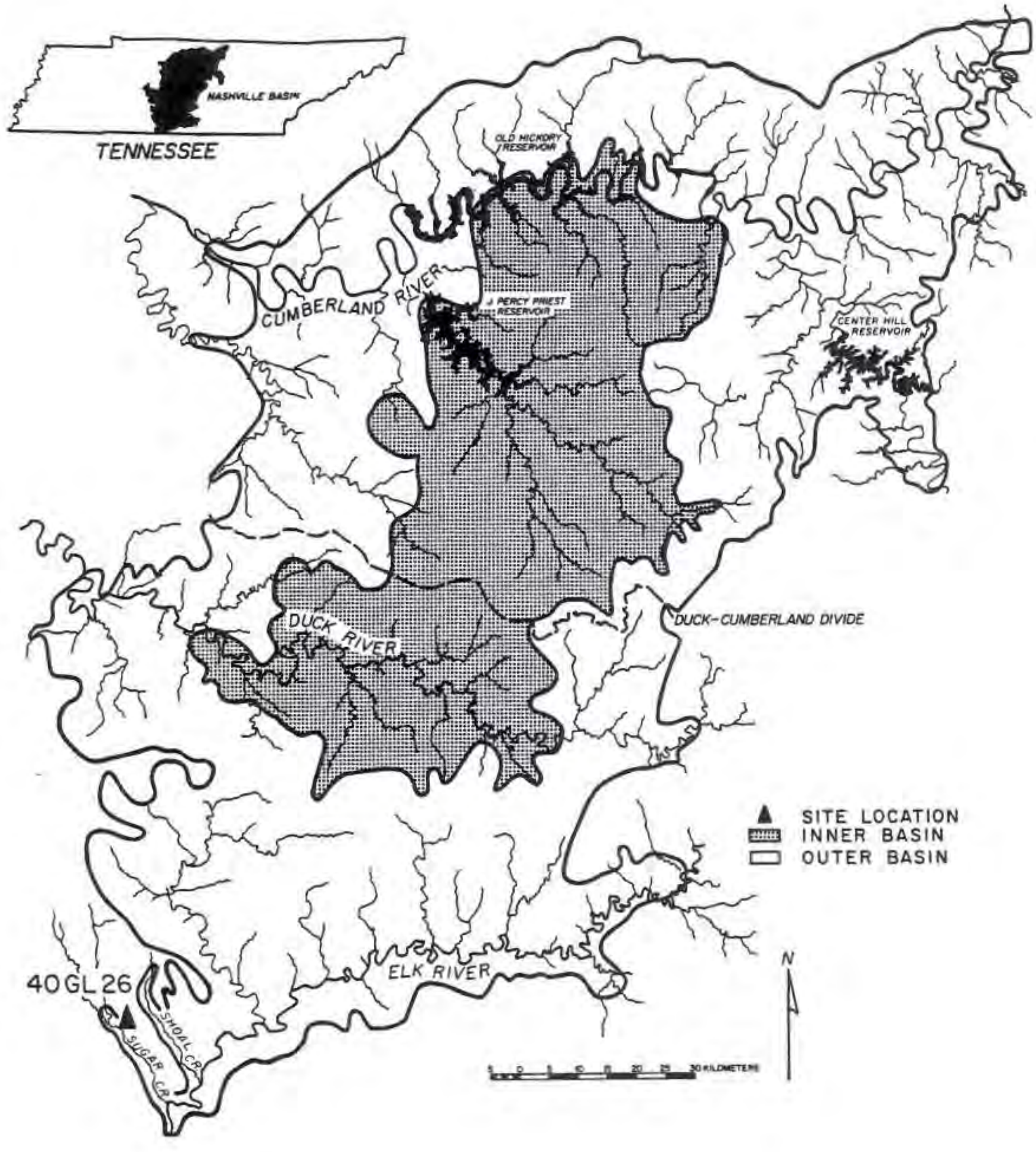


Figure 5. Nashville Basin.

Rim (Theis 1936). The Bailey site occupies alluvial land forms on the east bank of Sugar Creek about 20 km northwest of the confluence of Sugar Creek and the Elk River. The valley formation of Sugar Creek is V-shape and the valley floor is narrow. Steep slopes of resistant Mississippian and Devonian geologic age formations of the Highland Rim comprise the valley margins. The majority of the Bailey site occupies a high Pleistocene terrace which rests on Ordovician Catheys-Leipers limestone.

GEOLOGIC HISTORY

The Nashville Basin and Highland Rim are erosional remnants of Paleozoic sedimentation. The Nashville Basin is part of the pre-Cambrian structural dome of the Cincinnati Arch sometimes referred to as the Nashville Dome. The Nashville Dome is part of a gentle anticline that was structurally high but is now topographically low (Wilson 1949). The present area of the Nashville Basin (15,300 km^2) is believed to be the original area of the Dome (Miller 1974). The Cumberland Plateau to the east represents a series of deltaic sedimentary deposits of Pennsylvanian sandstones and shales. The Cumberland Plateau was formed by progradation of fluvial sediments which originated in the Appalachians and were deposited into the large shallow inland sea that is now the Interior Low Plateau. The Cumberland Plateau represents a geoform that once surrounded and covered the Dome (Miller 1974).

Throughout the Paleozoic and Mesozoic eras the Nashville Basin underwent cycles of sedimentation, submergence, uplift, and erosion. These processes eventually weathered the formation until the Pennsylvanian sandstone cap and the cherty Mississippian cap were breached exposing the less resistant Ordovician and Devonian limestones (Luther 1977). The curved and weakened surface of the Dome encouraged its truncation as streams developed in the weakened substrate and the landform succumbed to erosional forces. The Paleozoic formations surrounding the Basin were most resistant and weathered differentially leaving landforms such as the Pennsylvanian Cumberland Plateau and the Mississippian Highland Rim topographically higher than the Basin (Miller 1974). The gradual retreat of the Cumberland Plateau escarpment exposed a somewhat resistant Mississippian Plateau of cherty substrate. This broad landform known as the Highland Rim is the largest section of the Interior Low Plateau Province. At its contact with the Nashville Basin, the Highland Rim exposes an irregular escarpment of Mississippian limestones and Devonian shales.

It has been suggested that forces forming the Basin took less than 10 million years and the major drainages of the Basin including the Elk, Duck, Cumberland, and Harpeth rivers continue to follow along stress points in the substrate (Miller 1974). These rivers generally follow an east to west drainage originating in the Highland Rim to the east and flowing toward the Tennessee River Valley in the west. These drainages were instigated by tectonic upwarping during Late Pliocene-Early Pleistocene times. The Nashville Basin and Highland Rim experienced a great amount of truncation due to the down-cutting of these drainages. The rivers continued to down-cut until contact was made with some more resistant Ordovician limestones of the Carters, Lebanon, and Ridley formations, primarily found in the Inner Nashville Basin. During Late Pleistocene times the rivers ceased down-cutting and the river valleys began to fill with alluvial sedimentation from the meandering river regimes. This process has left distinct alluvial terraces and floodplains along the valley floors.

The down-cutting of rivers across the Highland Rim and Outer Basin has exposed several geologic formations, some of distinct economic importance to prehistoric peoples. One of the lower formations exposed by the Sugar Creek and Elk River valley escarpments is the Cathys-Leipers Formation. This formation consists of irregularly bedded and cross-bedded calcarenite and calcirudite fossiliferous limestones of Ordovician age (Theis 1936). In the Bailey site area, Sugar Creek is a deep slow moving creek which has deeply incised into solid Catheys-Leipers limestone bedrock. There is no cryptocrystalline chert in this formation of any economic value; however, this formation may have been an important limestone source for heating and cooking purposes, as well as for use in the manufacture of large flat digging implements and grinding stones.

Overlying the Catheys-Leipers Formation is the Mannie Shale and Fernvale Limestone formations of Late Ordovician age. These formations may have been an important source for limestone and shale.

Sporadically overlying the Mannie and Fernvale formations is the Brassfield Formation of Silurian age. Brassfield occurs in thin outcrops along the boundary of the Western Highland Rim and the Nashville Basin. The Brassfield Formation contains lenses, beds, and small nodules of light-gray to black mottled chert.

Overlying the Late Ordovician and Silurian formations is the Chattanooga Shale of Late Devonian-Early Mississippian age. This is a fissile black thinly bedded shale. Although no shale tools were recovered from the Bailey site, Chattanooga Shale was a raw material utilized by its inhabitants.

Overlying the Chattanooga Shale is the Fort Payne Formation of Mississippian age. Fort Payne cherty rocks are responsible for the knobs that have been isolated by erosion in the Nashville Basin, as well as the steep break between the Highland Rim and the Basin (Theis 1936). Bassler (1932:155) has described the Fort Payne Formation of the Nashville Basin as a massive argillaceous limestone which weathers into a solid brittle blocky chert and siliceous shale. This formation contains beds and nodules of dense cryptocrystalline chert (Wilson and Barnes 1972). This chert was of great economic value to the prehistoric occupants of the Bailey site. It is by far the most predominant lithic raw material used for tool manufacture. The material could have been procured from outcrops but it was probably collected in the form of river gravels and cobbles along the stream banks of the drainages in the area. This formation also contains quartz geodes (Chowns and Elkins 1974; Marcher 1962a). "...the origin and distribution of quartz geodes is generally restricted to the lower margins of the Highland Rim. Alluvial gravels constitute a minor source of this material throughout Middle Tennessee" (Amick 1984:58). The Fort Payne Formation may have been an important source of quartz for knapping hammers.

St. Louis-Warsaw limestone, also of the Mississippian System, is the uppermost formation capping the Highland Rim. This formation generally consists of a fine-grained to compact gray limestone containing nodules of chert (Lusk 1935; Theis 1936). These chert nodules are somewhat smaller in size in comparison to the Fort

Payne Formation chert. However, this chert is very dense and fine-grained which makes it an optimal raw material for lithic tools. Tools and debitage of this chert type were found on the Bailey site. The raw material could have been procured from upland exposures in the Highland Rim or within gravel beds of the drainages in the area. Quartz geodes are also present in the Warsaw Formation.

Overlying the St. Louis-Warsaw Formation is the Hartselle Sandstone of Mississippian age. This sandstone forms an escarpment and caps Little Mountain, a narrow outlying remnant of the Cumberland Plateau located 43-47 km south of the Bailey site in northern Alabama. In the Sequatchie Valley, a prominent linear valley in the southern portion of the Cumberland Plateau, the Hartselle Sandstone was subjected to high pressure which caused it to become a very hard fine-grained material that might be classed as a quartzite. Colors of the Hartselle Sandstone Formation include various shades of gray, especially greenish-olive and bluish-gray, which weather to a yellowish-brown (Adams et al. 1926; Dodson and Harris 1965; Harris and McMaster 1965; Johnston 1930). Hartselle Sandstone may have been an important source of sandstone and quartzite for ground stone tools such as grinding stones, celts, and knapping hammers.

The Outer Nashville Basin location of the Bailey site would have provided the prehistoric inhabitants with many different lithic resources. Lithic raw material procurement was optimal in this area and the geologic situation likely enhanced the archaeological site location.

SOILS

The soils of the Interior Low Plateau Physiographic Province are very diverse. The floodplains of the Inner and Outer Nashville Basin are derived from Quaternary age alluvium. The Staser-Armour-Maury Association predominates on these landforms which are agriculturally rich and productive (True et al. 1968). The Outer Basin floodplains are very fertile due to their phosphatic nature. They are extremely fertile where they overlie the Hermitage, Bigby, and Cathys-Leipers formations and are considered some of the richest soils in Tennessee. The Inner Basin floodplains, however, are only moderately high in phosphorous and are less productive than the Outer Basin floodplains (Edwards et al. 1974). The uplands of the Inner Basin are generally droughty with a shallowly developed root zone. Parent material is derived from limestones of the Carters, Lebanon, and Ridley formations. These limestones are composed of about 90% calcium carbonate which produces soils of low fertility and poor development. Common soils occurring in the uplands of the Inner Basin include those of the Colbert, Ashwood, Rockland, and Barfield series (Edwards et al. 1974).

Soils of the Highland Rim are primarily cherty, acidic, and highly leached. The Bodine-Mountview-Fullerton Association predominates in the Highland Rim (True et al. 1968).

The upland soils of the Outer Basin are thinly developed on steep slopes and have a high chert content. The Dellrose-Bodine-Mimosa Association predominates on the high ridge tops. Dellrose soils occur on long steep-sided slopes, Bodine soils are found on wooded hill tops, and Mimosa soils occupy the foot slopes of steep hills. Narrow bands of Armour soil occur on stream terraces and at the base of slopes in the Outer Basin within this soil association. The soil association represented at the Bailey site is the Dellrose-Bodine-Mimosa Association.

The Bailey site occupies a Pleistocene age terrace mapped as the Armour series which is taxonomically Ultic Hapludalfs (fine-silty, mixed, and thermic). The Armour soils occupy the low benches and gentle footslopes above the floodplains of the rivers of the Nashville Basin. They are generally deep, well drained, and permeable. The chief parent material is alluvium but silty areas in the upper layers may be alluvium mixed with loess. There is usually an increasing phosphorous content with depth indicating that the parent material may have been alluvium from phosphatic limestone.

CHAPTER II

FIELD AND LABORATORY METHODS

Charles Bentz, Jr.

Excavation procedures at the site first involved relocating the proposed right-of-way and establishing a mapping grid. A contour map of the site area was then constructed. A backhoe was employed in removing the plowzone from two contiguous power units (Figure 6). These power units were excavated in order to locate and determine the distribution of subsurface features found immediately beneath the plowzone. Dark stains in the soil thought to be prehistoric disturbances were flagged and subsequently trowel scraped for definition. The limits of potential pits, postholes, and middens were marked on the ground, mapped in plan view, and excavated. All of the excavated pit and midden fill was waterscreened or floated. Cultural material was removed from the waterscreened residue in the laboratory.

MAPPING

The proposed right-of-way was relocated with Tennessee Department of Transportation project area maps. An arbitrary grid system for mapping was established next. A datum point (1000 N, 1000 E) was placed near the southeast corner of the site. A United States Geological Survey Benchmark was utilized in determining an absolute elevation for the datum. A grid North-South baseline was positioned so as to parallel State Route 11. The baseline was oriented 42° east of magnetic north. The grid was expanded from the baseline and six hubs were set in and around the proposed right-of-way. These hubs were employed in constructing a contour map of the site area and in establishing mapping lines in the power units. Metal spikes were set at 8 m intervals along North-South mapping lines and 10 m intervals along East-West mapping lines. Small nails were set at 2 m intervals along these mapping lines and additional mapping lines were set along the 2 m intervals between the metal spikes. The pits, postholes, and middens were then plan mapped in the 1:20 scale.

EXCAVATION UNITS

Approximately 11% of the total site area or 80% of the site area within the proposed impact area was selected for study. Power Unit 1 (1,139 m^2) paralleled Sugar Creek and measured 50 m east-west by 13-28 m north-south (Figure 7). This unit was bounded by a gravel road and Sugar Creek to the south, the edge of the proposed right-of-way to the north, and a drainage ditch along State Route 11 to the east. The proposed right-of-way area for the relocated section of the gravel road and its intersection with State Route 11 was situated in Power Unit 1. Power Unit 2 (416 m^2) paralleled a drainage ditch adjacent to State Route 11 and measured 59 m north-

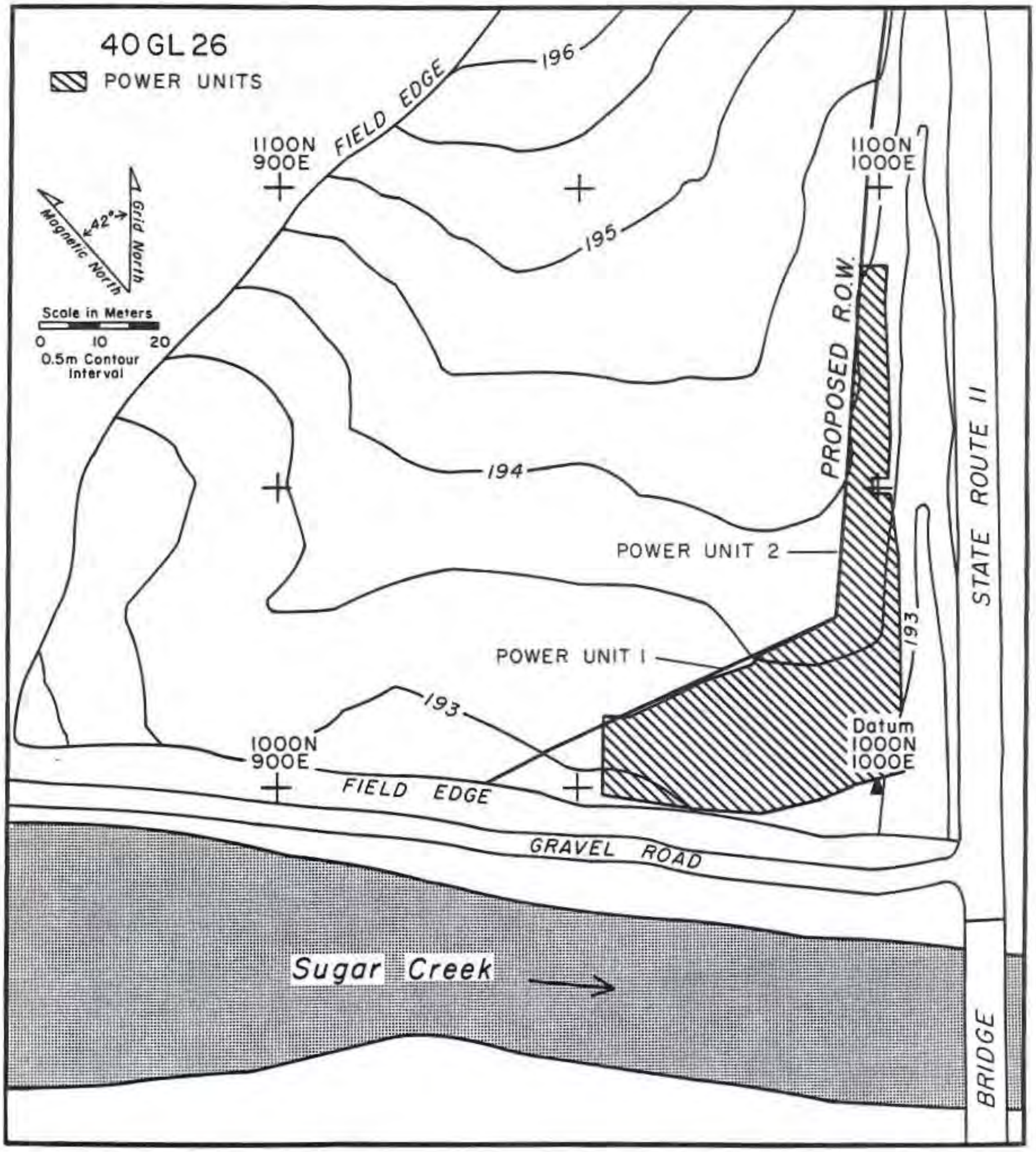


Figure 6. Power Units.

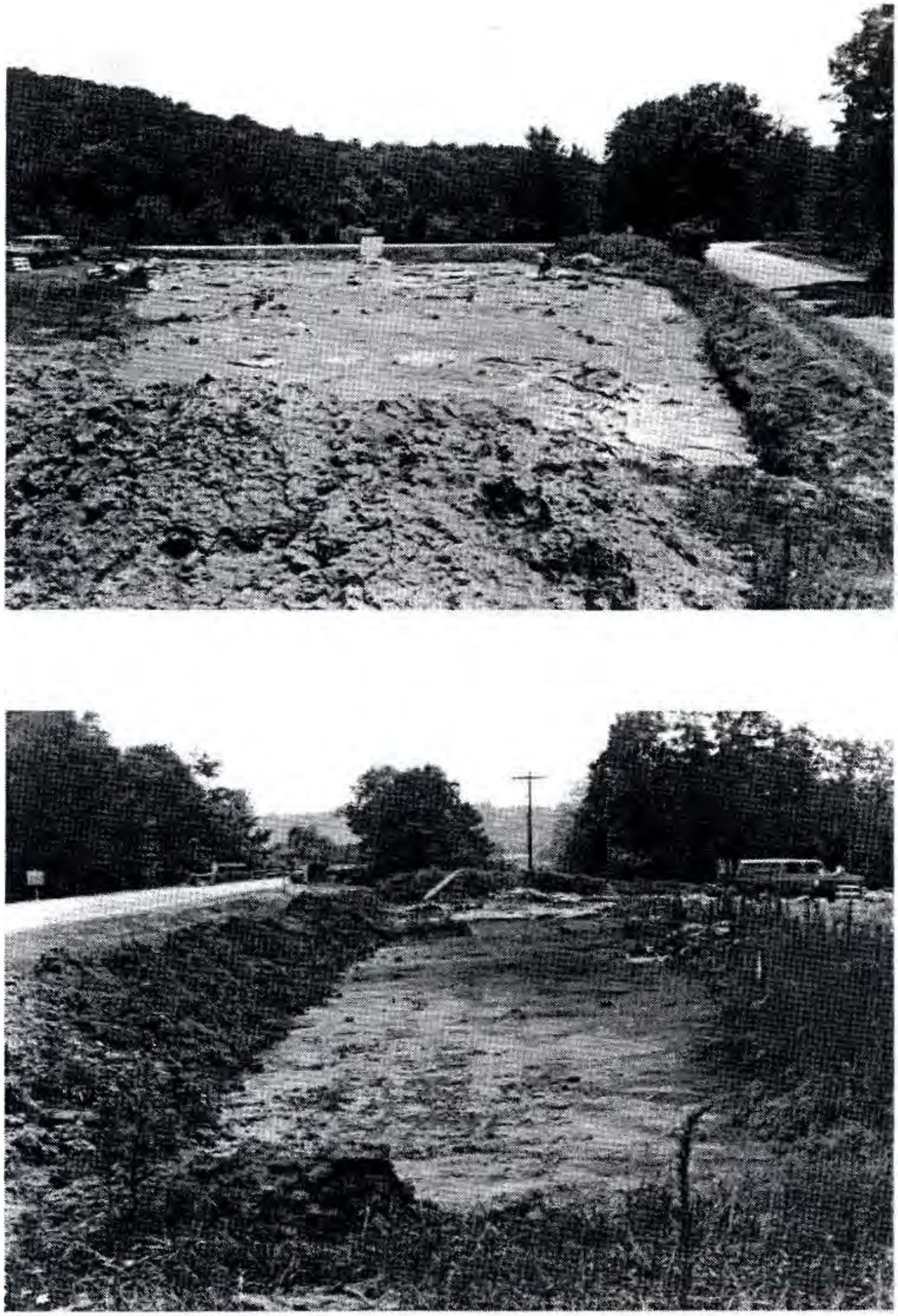


Figure 7. Power Unit 1 and Power Unit 2. Unit 1 (Top) Looking East and Unit 2 (Bottom) Looking South.

south by 5-11 m east-west (Figure 7). This unit was bounded by the drainage ditch to the east and the edge of the proposed right-of-way to the west. The proposed right-of-way area for the relocated section of State Route 11 was situated in Power Unit 2.

The majority of the features exposed within the proposed impact area were located in the east half of Power Unit 1 and at the south end of Power Unit 2. A few pit features, postholes, and four middens were found in the west half of Power Unit 1. A structure and several shallow pits were found in the central portion of Power Unit 2 while the north end of the unit was devoid of features. A 2-5 m wide strip along the east edge of Power Units 1 and 2 sloped steeply into the drainage ditch adjacent to State Route 11 and a few pit features and a structure (Structure 2) in this area were disturbed.

FEATURES

Pits

The pits were excavated in halves and by natural strata. One-half of each pit was excavated to define the size, shape, and any variation (zones) within the fill. The exposed profile wall was mapped in the 1:10 scale and photographed. The remaining half of each pit was excavated and all relevant data recorded. During excavation the fill was measured with buckets calibrated in liters to determine the total volume of each pit. Samples of fill for flotation (10 liters) were collected from arbitrary 10 cm levels established in one-half of each pit and the remaining fill was waterscreened. The fills from selected pits or zones within certain pits were entirely floated. Samples of pit fill were retained for flotation to maximize the recovery of floral and faunal material.

Two-thirds (n=110) of the 165 potential pit features on the Bailey site were investigated. The unexcavated pits included those in complex superimposed chains and those only partially exposed within the proposed impact zone. The depths of the unexcavated pits were determined with a tube sampler probe and recorded.

Middens

A shallow midden measuring 3-9 cm thick was identified in two units (Test Units 2 and 6) during the test excavations conducted by Memphis State University. An areal extent of 25 m x 25 m was delimited for the midden with a soil auger (Reed and Dye 1985:14).

Machine removal of the plowzone in Power Units 1 and 2 exposed five separate middens. At least two of these middens (Middens 1 and 3) corresponded to the midden area uncovered in the test units. Two other middens (Middens 2 and 4) were investigated during the Phase III data recovery. A 1 m wide trench divided into 1 m x 1 m units was set across Midden 2 and every fourth unit in the trench was excavated. The 1 m x 1 m units were dug in 10 cm levels and by natural strata. Ten liter flotation samples were collected from each level and the remaining fill was waterscreened. Three contiguous 2 m x 2 m units were set across Midden 4 and excavated in 10 cm levels and by natural strata. Twenty liter flotation samples were collected from each level and the remaining fill was waterscreened. The excavated volumes of the middens were determined in the same manner as the pits. The unexcavated portions of Middens 2 and 4 were removed with a backhoe. Features intruding into the subsoil beneath the middens were mapped prior to excavation.

Postholes

The postholes were cross-sectioned with a shovel and trowel. The profile was viewed with approximately 10 cm of subsoil bordering the posthole fill. Dimensions and elevations of the postholes along with a sketch of each profile were recorded. Several of the profiles were photographed. The posthole fill was not waterscreened or retained for flotation. The depths of seven unexcavated postholes intruding into the subsoil beneath Midden 2 were determined with a tube sampler probe and recorded. Eight scattered possible postholes were not investigated.

WATERSCREENING, FLOTATION, AND SORTING

A primary objective of the excavations at the Bailey site was to maximize the recovery of floral and faunal material in order to reconstruct the subsistence patterns of the site inhabitants from Late Archaic through historic times. All of the soil removed from pits and middens was subjected to waterscreening and flotation. Posthole fill was not processed because of the excavation procedures pursued in the investigation of these features.

The waterscreened fill (32,463 liters) was processed through a system consisting of paired upper and lower screen boxes (Figure 8). The upper box was lined with 6.4 mm (1/4 inch) mesh hardware cloth and the lower box was lined with 1.6 mm (1/16 inch) mesh hardware cloth. Water was pumped to the apparatus from Sugar Creek to separate the soil from the residue. The 6.4 mm and 1.6 mm residue fractions were recovered, dried, and stored for later analysis (Figure 8). The waterscreening of feature fill resulted in the accumulation of 2.0 metric tons of 6.4 mm residue and 1.4 metric tons of 1.6 mm residue.

The 6.4 mm waterscreened fractions were completely sorted. The cultural material was divided into several categories (i.e., ceramics, lithic tools, chert, fossiliferous chert, burned limestone, burned gravel, sandstone, shale, quartzite, quartz, hematite, steatite, burned clay, daub, bone, shell, plant remains, and a number of historic material categories) and the noncultural gravel was weighed and discarded. A total of 1.3 metric tons of noncultural gravel larger than 6.4 mm was thrown away. The sorted cultural material from the 6.4 mm waterscreened fractions was analyzed with the trowel sorted material. The 1.6 mm waterscreened fractions were sampled for analysis. Five minutes was spent separating floral and faunal material from each kilogram of residue.

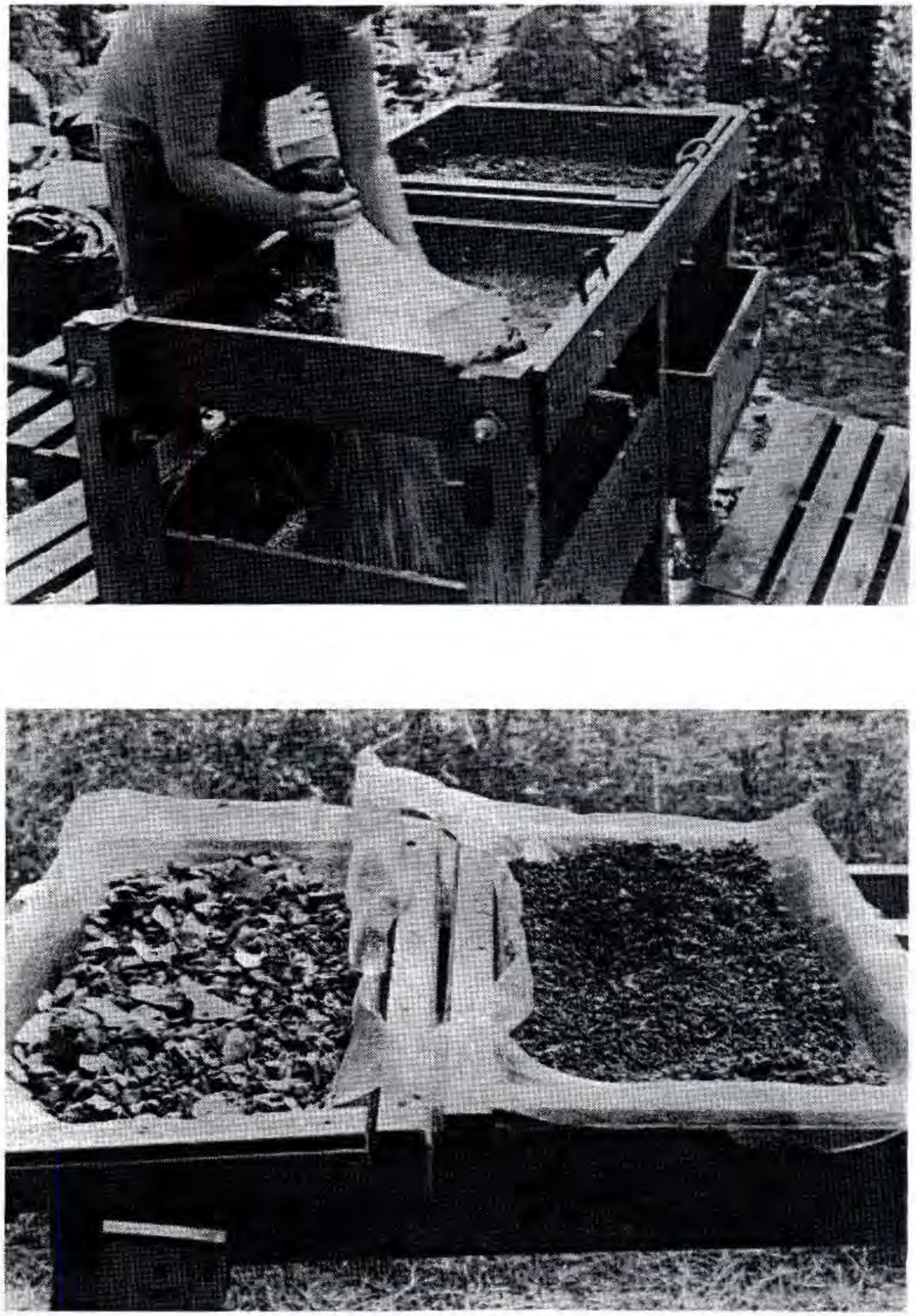


Figure 8. Waterscreen Apparatus and Waterscreened Fraction.
Fractions (Bottom) are 6.4 mm (Left) and 1.6 mm (Right).

The samples of fill collected for flotation (3,957 liters) were processed through a system consisting of two nested metal drums that were filled with water. Agitation and filling of the apparatus was provided through a hose fitted to the bottom of the outer drum. The inner drum had a screened bottom (1.6 mm mesh hardware cloth) through which soil passed during the flotation process. Material was either retained in the bottom of the inner drum (heavy fraction) or floated upward in the water and passed out of the drum through a sluice attached to the rim, where it was collected in a 250 micrometer (Number 60) geologic sieve (light fraction). The two fractions were recovered, dried, and stored. The light fractions were utilized in the paleoethnobotanical analysis. Cultural material was recovered from the heavy fractions of completely floated features.

The field and laboratory methods employed in the archaeological investigation of the Bailey site were an effective means for maximizing the data recovery. The use of heavy machinery for plowzone removal was a practical strategy for studying large areas of the site in a short period of time. The intensive use of waterscreening allowed the rapid excavation of pits and middens without the loss of significant information. The recovery of floral and faunal material through waterscreening and flotation aids in reconstructing the subsistence patterns of the past site inhabitants.

CHAPTER III

FEATURES

Charles Bentz, Jr.

A total of 146 pits, 5 middens, 5 structures, 41 scattered postholes, 10 burials, and 2 dog skeletons was revealed in Power Units 1 and 2 on the Bailey site (Figure 9). Ninety-four pits, 2 middens, 33 scattered postholes and the structures, burials, and dog skeletons were excavated during the Phase III data recovery. An additional five pits were excavated during the Phase II test excavations. The remaining 47 pits were not excavated but the depths were determined with a tube-sampler probe. Eleven excavated and numbered pits were recent disturbances, seven unexcavated and numbered pits were found to be recent disturbances when probed, and one posthole was assigned a pit feature number.

Four feature clusters were delineated in Power Units 1 and 2. These clusters reflect the spatial organization of features in the areas of the site examined and do not necessarily represent separate occupation units. The feature clusters each contained 15-79 pits in addition to other features such as middens and structures.

PITS

Size Classification

The excavated pits were separated into four size classes by plotting the excavated volume (liters) and surface area (m^2) of each on a graph (Figure 10 and Table 1). The segregation of these attributes and examination of the pit forms indicated that two classes (1 and 2) were storage facilities and two classes (3 and 4) were shallow pits. The shallow (Class 3) pits included the hearths, earth ovens, and burial pits on the site. The large shallow (Class 4) historic pit was a cellar or storage pit. Most of the shallow (Class 3) and large shallow (Class 4) pits were of indeterminate function.

The variables of depth and maximum diameter were previously used by Schroedl (1986:90-97) to separate storage facilities from other pit types at the Chota-Tanasee site (40MR2) in East Tennessee. Features with a depth:diameter ratio of 0.5 or more were categorized as storage facilities. This numerical expression indicates storage pits are at least half as deep as they are across (Schroedl 1986:92). At the Bailey site, the mean depth:diameter ratios of the large deep (Class 1) pits and the medium (Class 2) pits are 0.7 and 0.5, respectively. These ratios indicate that the Class 1 and Class 2 pits were storage facilities. The mean depth:diameter ratios of the shallow (Class 3) pits and the large shallow (Class 4) pits are 0.3 and 0.1, respectively.

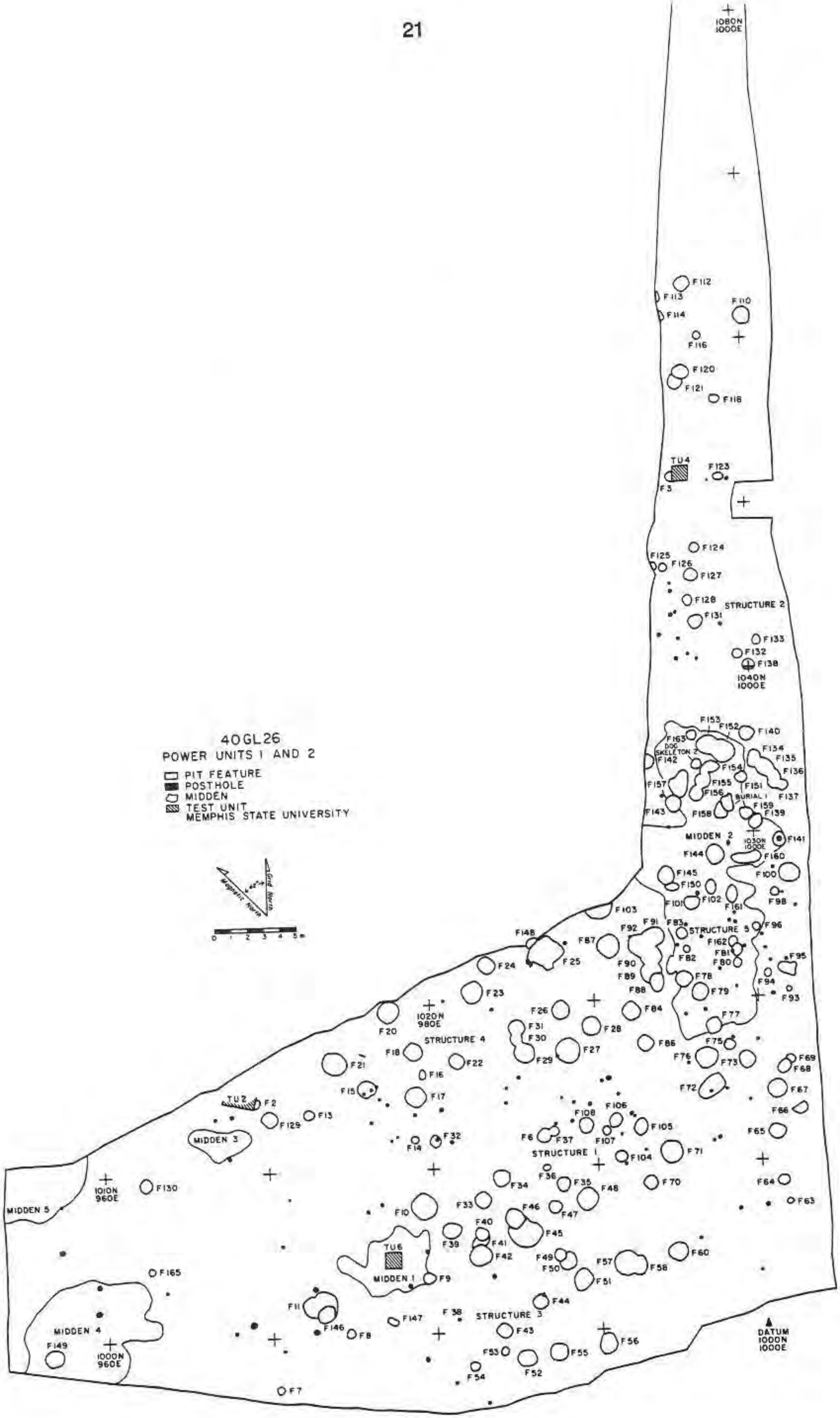


Figure 9. Feature Distribution.

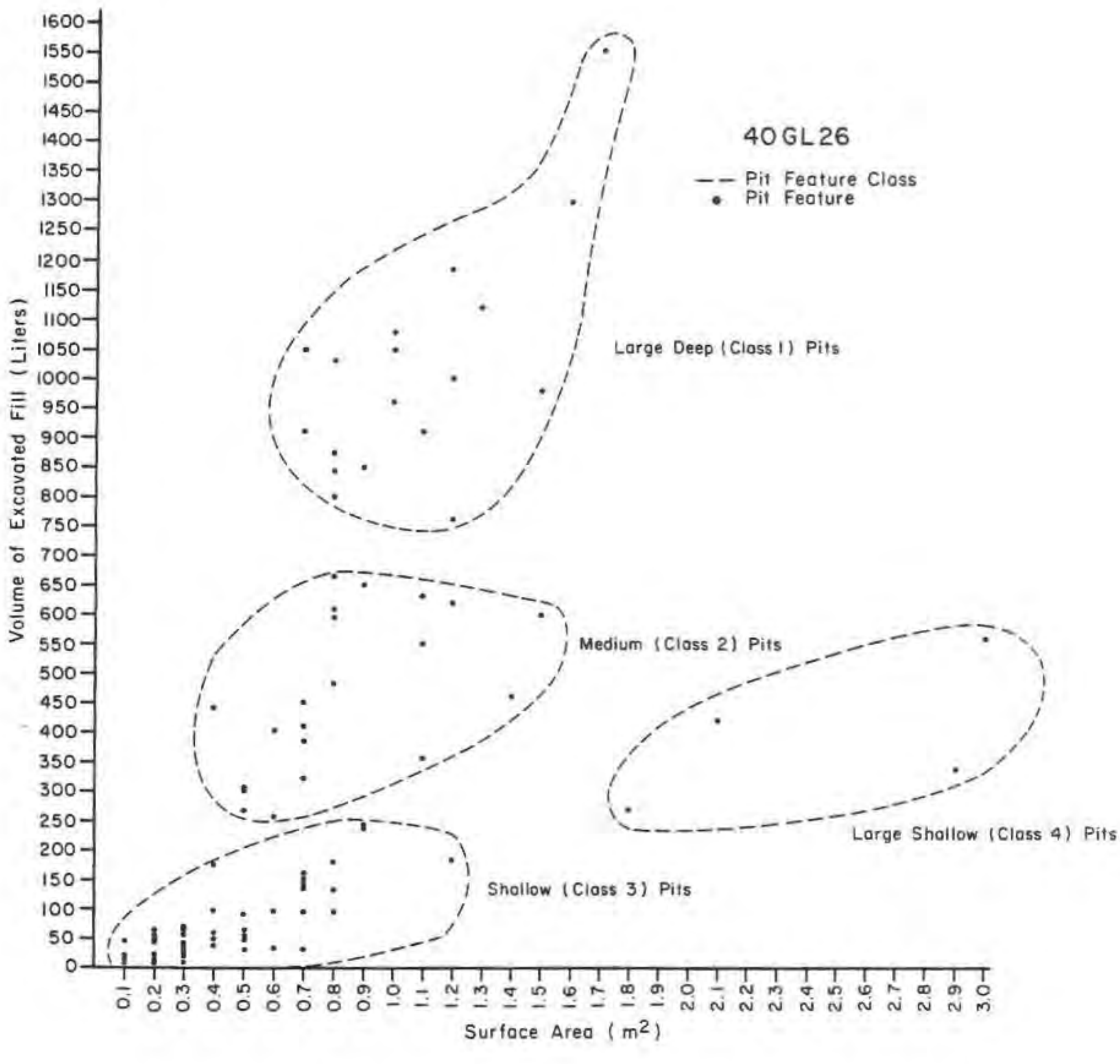


Figure 10. Pit Feature Excavated Volume:Surface Area.

Table 1. Excavated Pit Feature Attributes.

Feature Number	Length (cm)	Width (cm)	Surface Area (m^2)	Depth (cm)	Total Volume (liters)	Waterscreened Volume (liters)	Floated Volume (liters)	Volume (m^3): Surface Area (m^2) Ratio[a]	Depth (cm): Diameter (cm) Ratio	Plan Shape	Profile Shape[b]	Number of Zones	Function	Feature Cluster	Cultural Affiliation[c]
								Large Deep (Class 1) Pits							
17	131	129	1.3	82	1,121	1,046	75	0.9	0.6	Circular	IAS,FB	4	Storage	I	LA
18	114	102	0.9	74.5	849	779	70	0.9	0.7	Circular	VS,FB	3	Storage	I	LA
22	100	100	0.8	87	1,030	878	152	1.3	0.9	Circular	SES,FB	4	Storage	I	LA
26	116	108	1.0	74.5	1,076	1,006	70	1.1	0.6	Circular	SES,FB	2	Storage	I	LA
27	148	142	1.7	85.5	1,562	1,477	85	0.9	0.6	Circular	VS,RB	1	Storage	I	LA
35	102	84	0.7	85	1,048	956	90	1.5	0.8	Circular	ES,IAS,FB	1	Storage	II	LA
40	101	83	0.7	77.5	910	830	80	1.3	0.8	Circular	SES,VS,RB	1	Storage	II	LA
48	147	133	1.5	46	979	899	80	0.7	0.3	Circular	VS,FB	2	Storage	II	LW
51	132	116	1.2	53.5	760	690	70	0.6	0.4	Circular	IAS,FB	2	Storage	II	LA
52	122	109	1.0	82	960	880	80	1.0	0.7	Circular	VS,FB	1	Storage	II	LA
67	131	116	1.2	100	1,185	1,085	100	1.0	0.8	Circular	ES,FR,FB	1	Storage	I	LA
71	124	123	1.2	69	999	926	63	0.8	0.6	Circular	IAS,FR	1	Storage	II	LA
77	106	92	0.8	88	799	709	90	1.0	0.8	Circular	IAS,FB	1	Storage	I	LA
79	102	102	0.8	94	872	782	90	1.1	0.9	Circular	VS,RB	4	Storage	I	LA
84	113	113	1.0	62	1,049	985	64	1.1	0.6	Circular	ES,FB	2	Storage	I	LA
87	144	140	1.6	74.5	1,306	1,234	72	0.8	0.5	Circular	IAS,FB	2	Storage	I	LA
101	107	97	0.8	78	842	762	80	1.1	0.7	Circular	VS,RB	1	Storage	I	LA
144	118	115	1.1	68	909	839	70	0.8	0.6	Circular	IAS,RB	1	Storage	I	LA
n=18															
Range	100-147	92-142	0.7-1.7	46-100	760-1,562	690-1,477	63-152	0.6-1.5	0.3-0.9						
$\bar{x}$	119.9	111.3	1.1	76.7	1,014.2	931.9	82.3	1.0	0.7						
σn	15.6	17.0	0.3	13.2	189.5	188.9	19.5	0.2	0.2						
								Medium (Class 2) Pits							
28	118	114	1.1	28	355	325	30	0.3	0.2	Circular	IAS,RB	1	Storage	I	LA
33	102	100	0.8	44	480	420	60	0.6	0.4	Circular	IAS,FB	3	Storage	II	LA
34	104	102	0.8	72.5	608	538	70	0.8	0.7	Circular	IAS,FR	2	Storage	II	LA
42	138	128	1.4	43	460	420	40	0.3	0.3	Circular	CP	1	Indeterminate	II	LA
43	103	91	0.7	59	450	390	60	0.6	0.6	Oval	VS,FB	2	Storage	II	PLA
44	97	88	0.7	44	320	280	40	0.5	0.5	Circular	IAS,FB	3	Storage	II	LA
49	83	77	0.5	39	300	260	40	0.6	0.5	Circular	IAS,FB	1	Storage	II	PLA
50	110	105	0.9	60	650	590	60	0.7	0.6	Circular	IAS,RB	1	Storage	II	LA
55	133	118	1.2	52	620	570	50	0.5	0.4	Circular	IAS,RB	1	Storage	II	LA
56	119	119	1.1	56	630	570	60	0.6	0.5	Circular	IAS,FB	1	Storage	II	LA
60	124	116	1.1	57.5	549	469	80	0.5	0.5	Circular	dS	3	Storage/ Earth Oven[d]	II	LW
70	89	86	0.6	45	402	362	40	0.7	0.5	Circular	OSS,FB	1	Storage	II	LA
73	105	95	0.8	83	664	576	88	0.8	0.8	Circular	SES,FR,FB	2	Storage	I	LA
76	141	137	1.5	61	597	537	60	0.4	0.4	Circular	IAS,FR,FB	1	Storage	I	LA
83	73	72	0.4	69	441	374	67	1.1	1.0	Circular	SES,FB	3	Storage	I	LA
86	100	94	0.7	45	407	362	45	0.6	0.5	Circular	VS,FB	1	Storage	I	LA
105	103	99	0.8	58	594	534	60	0.7	0.6	Circular	VS,FB	1	Storage	II	LA
106	88	76	0.5	32	266	230	36	0.5	0.4	Circular	VS,FB	1	Storage	II	LA
108	93	93	0.7	45	384	335	49	0.6	0.5	Circular	VS,RB	1	Storage	II	LA
143	79	77	0.5	48	305	256	49	0.6	0.6	Circular	VS,FB	2	Storage	I	LA
148	90	88	0.6	33	258	218	40	0.4	0.4	Circular	SES,FB	1	Storage	I	ID
n=21															
Range	73-141	72-137	0.5-1.5	28-72.5	258-664	218-590	30-88	0.3-1.1	0.2-1.0						
$\bar{x}$	104.4	98.8	0.8	51.1	463.8	410.3	53.5	0.6	0.5						
σn	18.4	17.4	0.3	13.5	132.7	122.3	14.6	0.2	0.2						
								Shallow (Class 3) Pits							
13	68	60	0.3	7	20	10	10	0.1	0.1	Circular	IOS,FB	1	Indeterminate	III	ID
14	47	44	0.2	10	15	0	15	0.1	0.2	Circular	BS	2	Hearth	I	PLA
16	58	44	0.2	11	16	0	16	0.1	0.2	Oval	BS	2	Hearth	I	PLA
32	68	68	0.4	10	38	28	10	0.1	0.2	Circular	IOS,FB	1	Indeterminate	I	LW
36	48	45	0.2	3.5	7	4	3	0	0.1	Circular	IOS,FB	1	Indeterminate	II	PLA
37	77	63	0.4	10	49	39	10	0.1	0.1	Circular	IOS,FB	1	Indeterminate	II	ID
39	112	98	0.9	23	235	205	30	0.3	0.2	Circular	CP	2	Indeterminate	II	PLA
41	112	76	0.7	51	130	80	50	0.2	0.5	Oval	CP	2	Indeterminate	II	PLA
53	55	52	0.2	11.5	20	0	20	0.1	0.2	Circular	BS	1	Hearth	II	PLA
54	61	58	0.3	19	70	50	20	0.2	0.3	Circular	BS	1	Indeterminate	II	PLA
63	34	31	0.1	6	6	4	4	0.1	0.2	Circular	IOS,FB	1	Indeterminate	I	PLA
64	69	68	0.4	24	96	80	16	0.2	0.4	Circular	IOS,FB	1	Burial Pit	I	PLA
68	88	71	0.5	13	63	53	10	0.1	0.2	Circular	BS	1	Indeterminate	I	PLA
69	60	52	0.3	7	10	0	10	0	0.1	Circular	BS	1	Burial Pit	I	PLA
75	68	65	0.4	16	57	47	10	0.1	0.2	Circular	BS	1	Earth Oven[e]	I	LA

Table 1. (continued).

Feature Number	Length (cm)	Width (cm)	Surface Area (m²)	Depth (cm)	Total Volume (liters)	Waterscreened Volume (liters)	Floated Volume (liters)	Volume (m³): Surface Area (m²) Ratio[a]	Depth (cm): Diameter (cm) Ratio	Plan Shape	Profile Shape[b]	Number of Zones	Function	Feature Cluster	Cultural Affiliation[c]
								Shallow (Class 3) Pits							
80	62	52	0.3	20.5	67	47	20	0.2	0.3	Circular	BS	1	Hearth	I	PLA
81	89	68	0.5	14.5	91	47	44	0.2	0.2	Oval	IOS,FB	1	Burial Pit	I	PLA
82	38	28	0.1	18	16	10	6	0.2	0.5	Oval	VS,FB	1	Hearth	I	PLA
93	42	39	0.1	12	20	10	10	0.2	0.3	Circular	BS	1	Indeterminate	I	PLA
94	40	36	0.1	24	45	35	10	0.5	0.6	Circular	BS	1	Hearth	I	PLA
95	112	87	0.8	15	93	73	20	0.1	0.1	Oval	IOS,FB	2	Indeterminate	I	PLA
96	51	46	0.2	23	64	44	20	0.3	0.5	Circular	BS	2	Hearth	I	LA
98	52	50	0.2	20.5	43	33	10	0.2	0.4	Circular	BS	1	Indeterminate	I	PLA
100	131	114	1.2	16	184	160	24	0.2	0.1	Circular	IOS,FB	1	Indeterminate	I	LA
102	96	66	0.5	9	54	44	10	0.1	0.1	Oval	BS	1	Burial Pit	I	PLA
104	78	71	0.4	27.5	175	148	27	0.4	0.4	Circular	IAS,RB	1	Indeterminate	II	LA
107	52	52	0.2	15	20	0	20	0.1	0.3	Circular	IOS,FB	1	Hearth	II	PLA
110	104	103	0.8	11	130	120	10	0.2	0.1	Circular	IOS,FB	1	Indeterminate	IV	ID
112	98	92	0.7	14	160	150	10	0.2	0.1	Circular	IOS,FB	1	Indeterminate	IV	ID
116	50	48	0.2	7	19	9	10	0.1	0.1	Circular	BS	1	Indeterminate	IV	ID
118	71	53	0.3	9	30	20	10	0.1	0.1	Oval	IOS,FB	1	Indeterminate	IV	ID
121	90	90	0.6	18	96	86	10	0.2	0.2	Circular	IOS,FB	2	Indeterminate	IV	ID
123	65	54	0.3	13	40	30	10	0.1	0.2	Circular	BS	1	Indeterminate	IV	ID
124	63	59	0.3	7	25	15	10	0.1	0.1	Circular	BS	1	Indeterminate	IV	ID
126	45	45	0.2	23	50	40	10	0.3	0.5	Circular	BS	1	Indeterminate	IV	ID
127	103	92	0.7	21	140	124	16	0.2	0.2	Circular	BS	1	Indeterminate	IV	PW
128	70	67	0.4	14	48	38	10	0.1	0.2	Circular	BS	1	Indeterminate	IV	ID
131	107	83	0.7	19	150	130	20	0.2	0.2	Oval	BS	1	Indeterminate	IV	ID
132	70	62	0.5	11	31	0	31	0.1	0.2	Circular	BS	1	Burial Pit	IV	ID
133	65	56	0.3	12	30	20	10	0.1	0.2	Circular	IOS,FB	1	Indeterminate	IV	ID
138	79	66	0.4	11	50	40	10	0.1	0.1	Circular	IOS,FB	1	Indeterminate	IV	ID
139	96	87	0.7	10	31	17	14	0	0.1	Circular	BS	1	Indeterminate	I	LA
140	94	88	0.7	17	130	110	20	0.2	0.2	Circular	BS	1	Earth Oven	I	PLA
141	88	77	0.5	10	48	18	30	0.1	0.1	Circular	IOS,FB	1	Indeterminate	I	PLA
145	97	89	0.7	24	148	128	20	0.2	0.3	Circular	IAS,FB	1	Earth Oven	I	PLA
146	107	90	0.8	25	180	110	70	0.2	0.2	Circular	IOS,FB	3	Earth Oven	III	PW
147	68	42	0.2	24	53	0	53	0.3	0.4	Oval	IAS,FB	1	Burial Pit	III	ID
149	110	108	0.9	31	241	201	40	0.3	0.3	Circular	IAS,FB	2	Earth Oven	III	LW
150	87	46	0.3	13.5	34	34	0	0.1	0.2	Oval	BS	1	Indeterminate	I	PLA
159	107	76	0.6	10	32	5	27	0.1	0.1	Oval	IOS,FB	1	Burial Pit	I	PLA
161	114	79	0.7	14	95	68	27	0.1	0.1	Oval	IOS,FB	1	Burial Pit	I	PLA
n=51															
Range	34-131	31-114	0.1-1.2	3.5-51	7-241	0-205	0-70	0-0.5	0.1-0.6						
$\bar{x}$	76.8	65.8	0.4	15.8	72.5	54.2	18.3	0.2	0.2						
σn	24.1	20.4	0.3	8.0	59.7	54.1	13.4	0.1	0.1						
								Large Shallow (Class 4) Pits							
10	163	160	2.1	21	420	400	20	0.2	0.1	Circular	IOS,FB	1	Indeterminate	III	LA/TA
11	209	184	3.0	17	560	540	20	0.2	0.1	Circular	IOS,FB	1	Indeterminate	III	ID
25	194	188	2.9	16	338	300	38	0.1	0.1	Square	IOS,FB	2	Pit Cellar	I	H
72	183	122	1.8	19	270	250	20	0.2	0.1	Oval	IOS,FB	1	Indeterminate	I	LA
n=4															
Range	163-209	122-188	1.8-3.0	16-21	270-560	250-540	20-38	0.1-0.2	0.1						
$\bar{x}$	187.3	163.5	2.5	2.2	397	372.5	24.5	0.2	0.1						
σn	16.7	26.2	0.5	1.9	108.1	110.8	7.8	0	0						

[a] 1 liter=0.001 m³.

[b] VS-Vertical Sides; OSS-Outslanting Sides; BS-Basin-Shape; IAS-Inslanting Slides; IOS-Insloping Sides; SES-Slightly Expanding Sides; ES-Expanding Sides; CP-Compound Pit; FB-Flat Bottom; RB-Round Bottom; FR-Flared Rim.

[c] LA-Late Archaic; PLA-Probable Late Archaic; LA/TA-Late Archaic/Terminal Archaic; PW-Probable Woodland; LW-Late Woodland; H-Historic; ID-Indeterminate.

[d] Storage pit reused as an earth oven.

[e] Earth ovens also include a pit (F 6) partially dug by Memphis State University, an unexcavated pit (F 88), and a utilized tree disturbance (F 120).

The variables of volume and surface area were used to separate the Bailey site pits into four classes or sizes. A comparison of histogram plots of volume:surface area ratios (Figure 11) and depth:diameter ratios (Figure 12) indicates the former separates storage facilities from other pits more accurately and with less overlap between the classes. Four (10.2%) of the excavated storage pits (Class 1 and Class 2) have volume:surface area ratios less than 0.5 and only one (2.0%) of the excavated shallow (Class 3) and large shallow (Class 4) pits has a ratio of 0.5 or more. In contrast, nine (23.1%) of the excavated storage pits have depth:diameter ratios less than 0.5 and five (9.1%) of the excavated shallow and large shallow pits have ratios of 0.5 or more. A minimum ratio of 0.5 accurately separates most storage facilities from other pit types whether using the variables of depth and diameter or volume and surface area. The latter variables are more precise in separating storage facilities from other pit types and also can be utilized in separating a group of pits into size classes.

Large deep (Class 1) pits. The excavated large deep pits were circular in plan view and had inslanting sides with a flat bottom, vertical sides with a flat or round bottom, or slightly expanding to expanding sides with a flat or round bottom in profile (n=18) (Figure 13). The pits with slightly expanding to expanding sides had lower wall diameters 9-24 cm larger than the orifice diameters. The mean dimensions of the Class 1 pits are 120 cm x 111 cm in plan view and 77 cm in depth (Table 1). One-half (n=9) of the large deep pits contained multiple fill zones. Representative examples of the Class 1 pits are Features 17, 52, 79, and 26.

Feature 17 was a circular pit with inslanting sides and a flat bottom (Figure 14). It measured 131 cm x 129 cm in plan view and 82 cm in depth. Four major zones were defined in the fill and the depositional sequence occurred in the following order:

Zone C- A 24 cm thick layer of dark brown silt loam containing little cultural material was deposited across the bottom of the pit and up the east side to the surface. This fill episode left a secondary pit area that measured approximately 110 cm in diameter and 57 cm in depth. Two lenses of yellowish-brown silt loam at or near the bottom of the pit tapered from the sides towards the center of the feature.

Zone B2- An 8-12 cm thick layer of loose granular dark grayish-brown silt loam containing abundant cultural material was deposited in the bottom of the secondary pit area and above Zone C.

Zone B1- A 21 cm thick layer of dark yellowish-brown silty clay loam containing little cultural material was deposited over Zone B2 and extended up the sides of the secondary pit area.

Zone A- The final episode of deposition consisted of a 27 cm deep basin-shape area of dark brown silt loam containing abundant cultural material including large limestone slabs laying horizontally at the base of the zone.

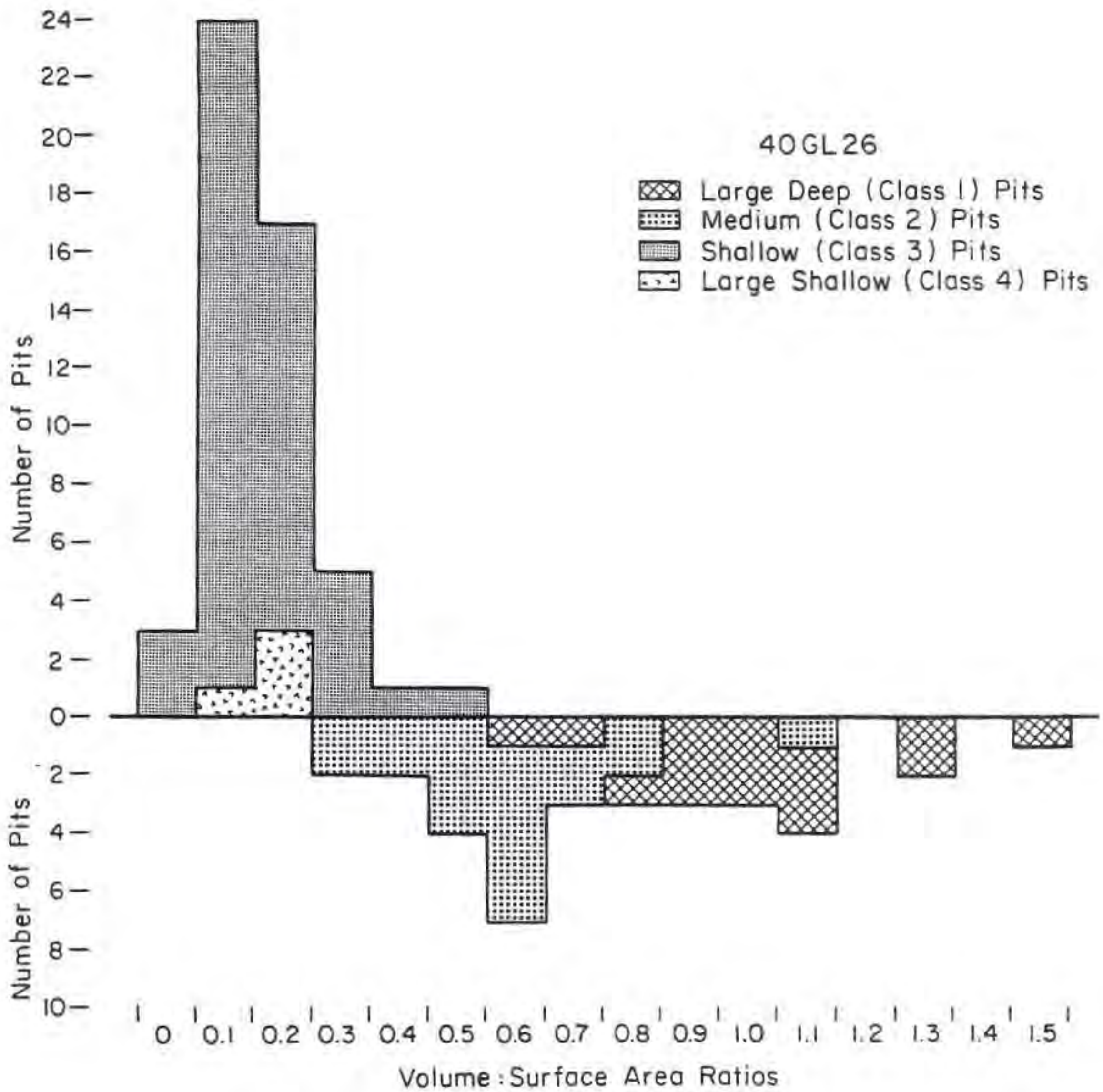


Figure 11. Volume:Surface Area Ratios of Excavated Pit Features.

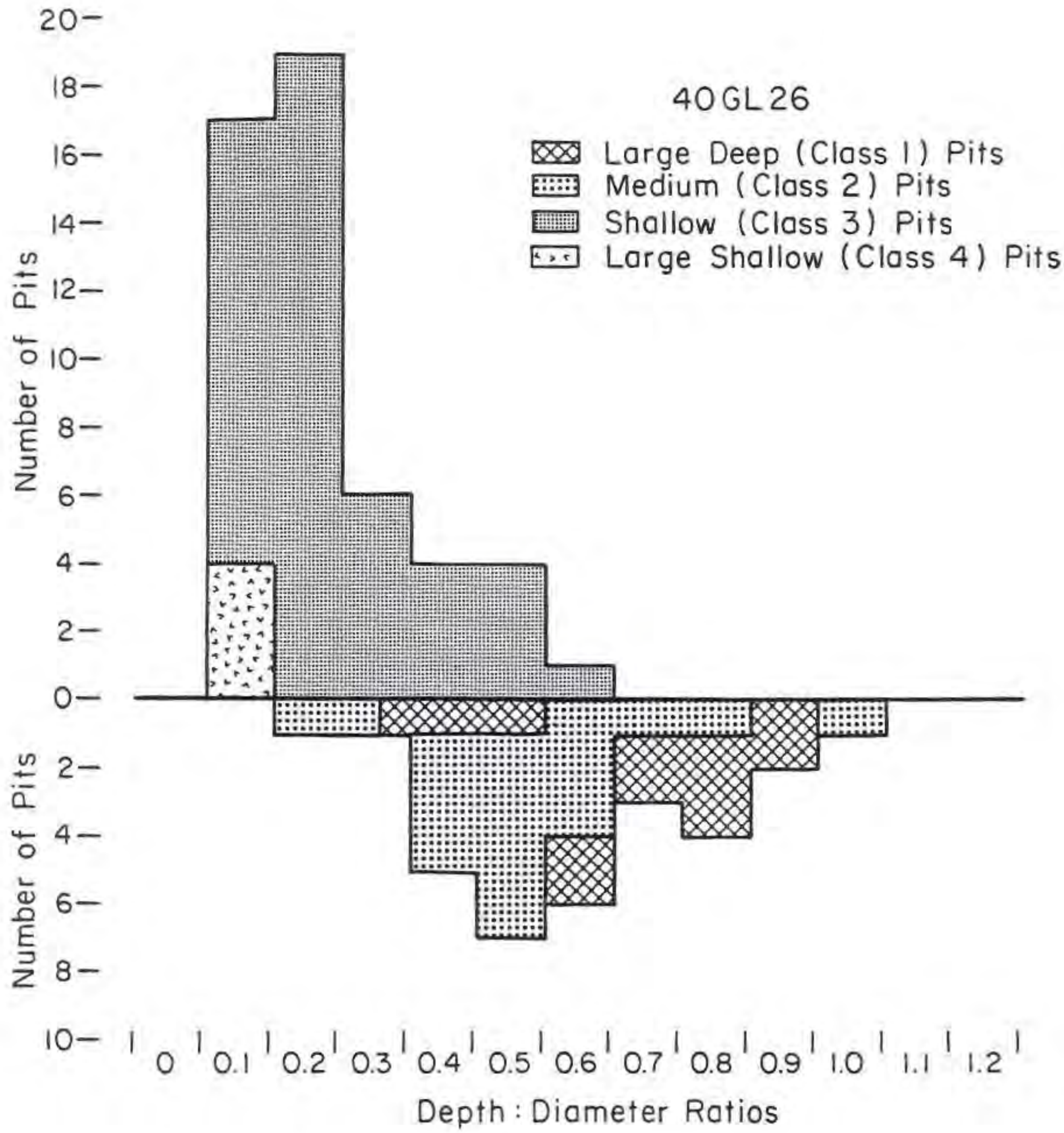


Figure 12. Depth:Diameter Ratios of Excavated Pit Features.

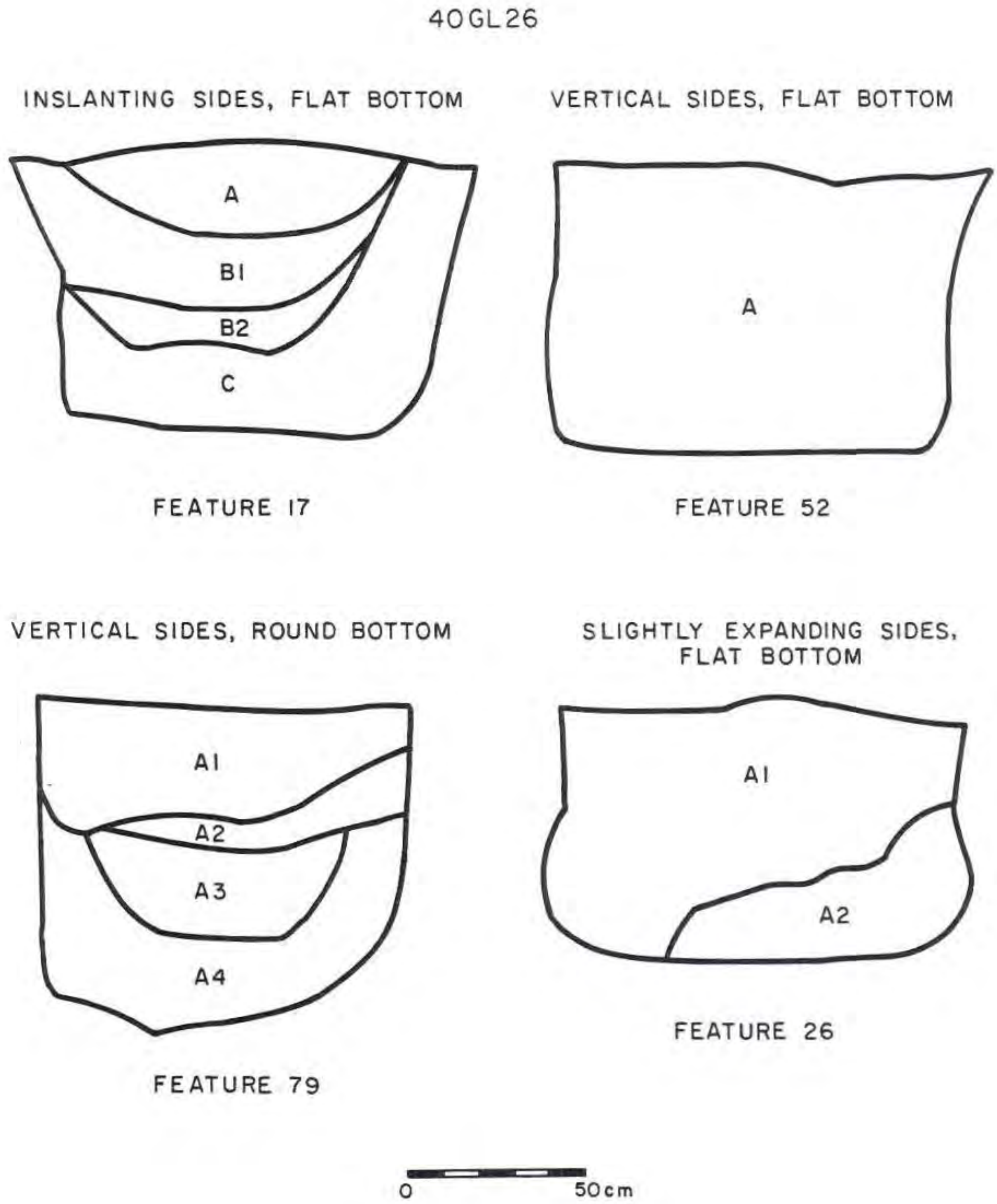


Figure 13. Profiles of Large Deep (Class I Pits).

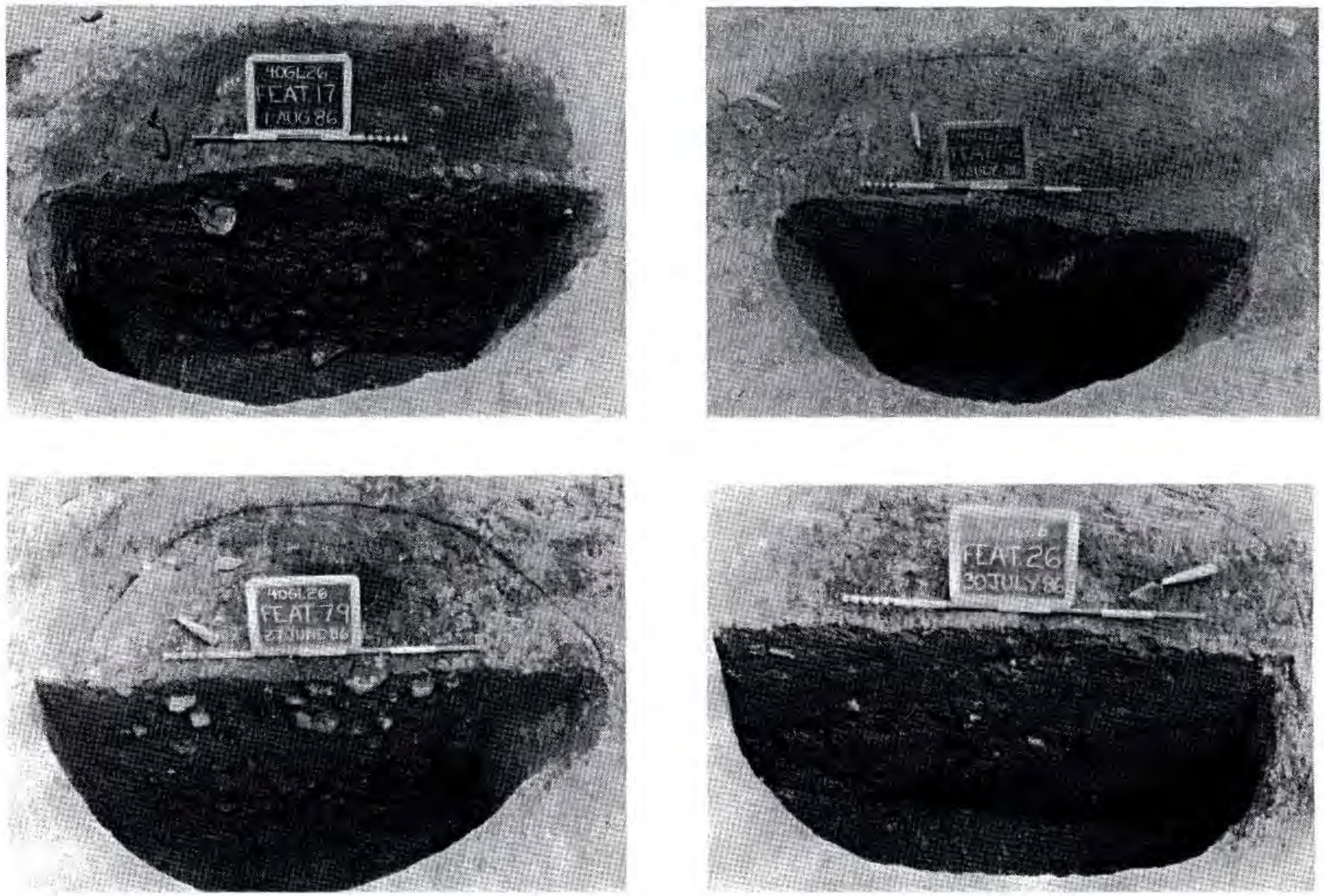


Figure 14. Large Deep (Class 1) Pits.

Feature 17 was one of three large storage facilities located in the center of Structure 4 in Feature Cluster I.

Feature 52 was a circular pit with vertical sides and a flat bottom (Figure 14). It measured 122 cm x 109 cm in plan view and 82 cm in depth. The fill was a dark brown silt loam containing abundant lithic debris. Feature 52 was located in Feature Cluster II approximately 1 m southeast of Structure 3.

Feature 79 was a circular pit with vertical sides and a round bottom (Figure 14). It measured 102 cm x 102 cm in plan view and 94 cm in depth. Four zones were defined in the fill and the depositional sequence occurred in the following order:

Zone A4- A 23 cm thick layer of loose granular dark yellowish-brown silt loam was deposited in the bottom of the pit and halfway up the sides.

Zone A3- A 27 cm deep basin-shape area of very dark grayish-brown silt loam containing cobbles of burned limestone was deposited over Zone A4.

Zone A2- A 9-17 cm thick lens of loose granular dark yellowish-brown silt loam containing little cultural material was deposited over Zone A3 and part of Zone A4.

Zone A1- A 13-37 cm thick layer of very dark grayish-brown silt loam containing burned limestone filled the remainder of the pit.

Feature 79 was intrusive into Midden 2 and the underlying subsoil. It was located in Feature Cluster I approximately 1.5 m southwest of Structure 5.

Feature 26 was a circular pit with slightly expanding sides and a flat bottom (Figure 14). It measured 116 cm x 108 cm in plan view and 74.5 cm in depth. The lower pit walls expanded to a diameter approximately 4 cm larger than the orifice. Two zones were defined in the pit fill. The initial episode of filling was a dark brown silt loam mottled with large patches of yellowish-brown silty clay loam (Zone A2). This zone did not extend across the entire bottom and was probably deposited in the pit from the south side. The remainder of the pit was filled with a dark brown silt loam (Zone A1) containing abundant cultural material. Feature 26 was located in Feature Cluster I approximately 3 m east of Structure 4.

Nearly all (88.9%) of the excavated large deep (Class 1) pits ranged from 61 - 100 cm in depth (Figure 15). Fourteen of the unexcavated pits on the Bailey site had probe depths in this range and are categorized as Class 1 pits (Table 2). Thirty-one of the excavated and unexcavated large deep (Class 1) storage pits are attributed to the Late Archaic occupations of the Bailey site. A single excavated Class 1 pit (F 48) was Late Woodland in origin.

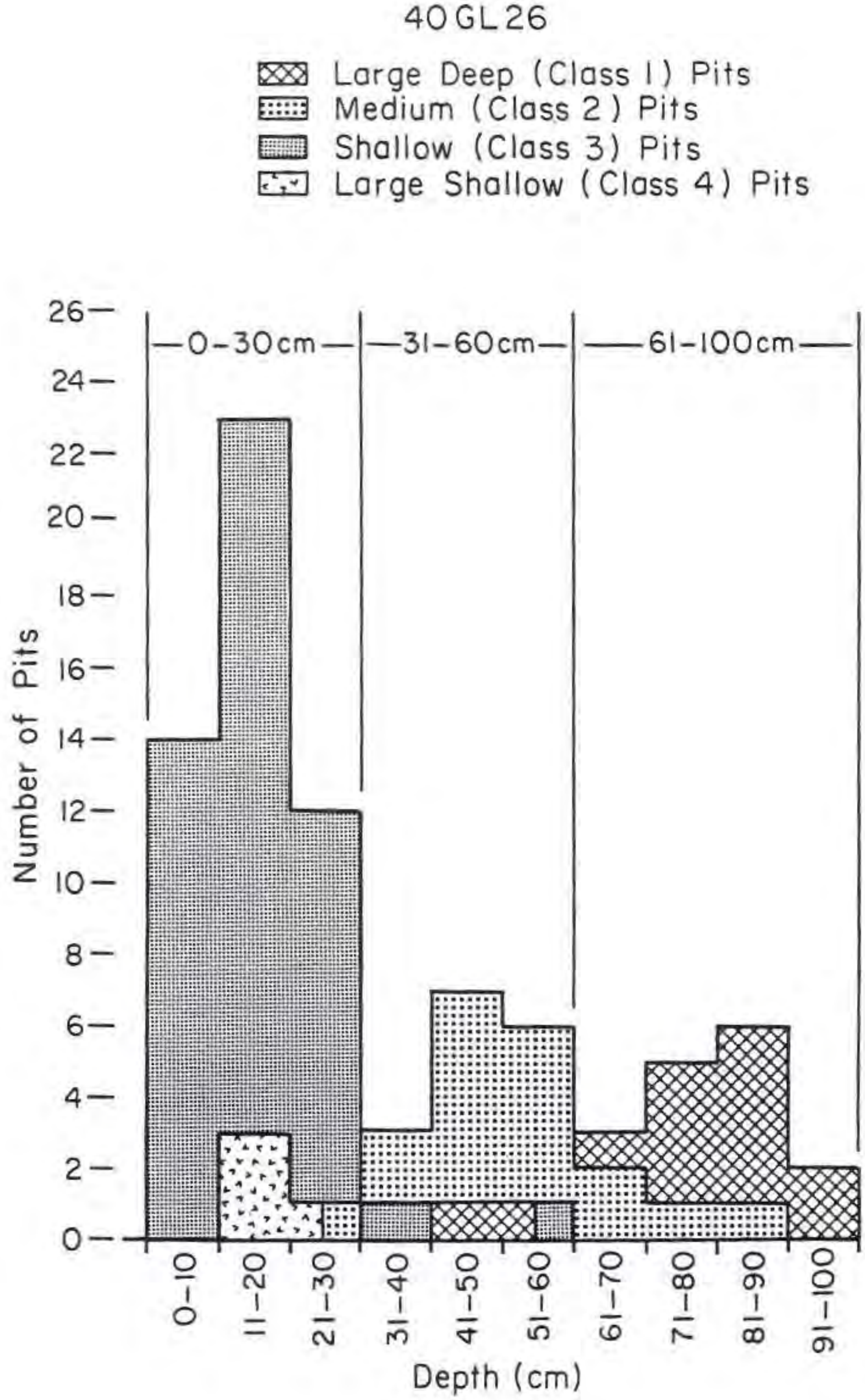


Figure 15. Excavated Pit Feature Depths.

Medium (Class 2) pits. The excavated medium pits were circular or slightly oval in plan view and the majority had inslanting sides with a flat or round bottom, vertical sides with a flat or round bottom, or slightly expanding sides with a flat bottom in profile (n=21) (Figure 16). The pits with slightly expanding sides had lower wall diameters 15-20 cm larger than the orifice diameters. The mean dimensions of the Class 2 pits are 104 cm x 99 cm in plan view and 51 cm in depth (Table 1). Over one-third (n=8) of the medium pits contained multiple fill zones. Representative examples of the Class 2 pits are Features 33, 50, 105, 108, and 83.

Feature 33 was a circular pit with inslanting sides and a flat bottom (Figure 17). It measured 102 cm x 100 cm in plan view and 44 cm in depth. Three major zones were defined in the fill and the depositional sequence occurred in the following order:

Zone C- A 10-15 cm thick layer of dark yellowish-brown silt loam containing little cultural material was deposited across the bottom of the pit.

Zone B- A 10-12 cm thick layer of loose granular black silt loam containing abundant cultural material, including burned limestone, burned clay, and bone, was deposited over Zone C.

Zone A- The final depositional episode consisted of a 15-21 cm thick layer of dark brown silt loam containing abundant chert debris.

Feature 33 was located in Feature Cluster II approximately 4.5 m north of Structure 3 and 4.5 m south of Structure 4.

Feature 50 was a circular pit with inslanting sides and a round bottom (Figure 17). It measured 110 cm x 105 cm in plan view and 60 cm in depth. The fill was a brown silt loam containing abundant chert debris and burned limestone. Feature 50 was located in Feature Cluster II approximately 2.5 m northeast of Structure 3 and 7 m southwest of Structure 1.

Feature 105 was a circular pit with vertical sides and a flat bottom (Figure 17). It measured 103 cm x 99 cm in plan view and 58 cm in depth. The fill was a dark brown silt loam containing mostly chert debris and burned limestone. Feature 105 was located in Feature Cluster II just inside the northeast wall of Structure 1.

Feature 108 was a circular pit with vertical sides and a round bottom (Figure 18). It measured 93 cm x 93 cm in plan view and 45 cm in depth. The fill was a dark brown silt loam containing mostly chert debris and bone. Feature 108 was located in Feature Cluster II just inside the northwest wall of Structure 1.

Table 2. Unexcavated Pit Feature Attributes.

Feature Number	Length (cm)	Width (cm)	Surface Area (m^2)	Probe Depth (cm)	Depth (cm): Diameter (cm) Ratio	Plan Shape	Superimposed by Midden 2[a]	Feature Cluster	Cultural Affiliation[b]
Large Deep (Class 1) Pits									
20	132	124	1.3	74	0.6	Circular		I	PLA
21	144	125	1.4	65	0.5	Circular		I	PLA
23	132	119	1.2	89	0.7	Circular		I	PLA
29	136	115	1.2	79	0.6	Circular		I	PLA
31	105	105	0.9	90	0.9	Circular		I	PLA
45	209	190	3.1	90	0.4	Circular		II	PLA
46	127	109	1.1	85	0.7	Circular		II	PLA
57	160	140	1.8	66	0.4	Circular		II	PLA
65	106	88	0.7	78	0.7	Oval		I	PLA
91	141	115	1.3	88	0.6	Circular		I	PLA
92	148	125	1.5	78	0.5	Circular		I	PLA
129	99	93	0.7	68	0.7	Circular		III	PLA
155	105	92	0.8	63	0.6	Circular	X	I	PLA
158	99	89	0.7	67	0.7	Circular	X	I	PLA
n=14									
Range	99-209	88-190	0.7-3.1	63-90	0.4-0.9				
$\bar{x}$	131.6	116.4	1.3	77.1	0.6				
σn	28.7	25.5	0.6	9.7	0.1				
Medium (Class 2) Pits									
3[c]	65	65?	0.3	45	0.7	Circular		IV	ID
30	78	78	0.5	37	0.5	Circular		I	PLA

Table 2. (continued).

Feature Number	Length (cm)	Width (cm)	Surface Area (m^2)	Probe Depth (cm)	Depth (cm): Diameter (cm) Ratio	Plan Shape	Superimposed by Midden 2[a]	Feature Cluster	Cultural Affiliation[b]
					Medium (Class 2) Pits				
47	81	81	0.5	52	0.6	Circular		II	PLA
58	125	94	0.9	33	0.3	Oval		II	PLA
90	129	118	1.2	46	0.4	Circular		I	PLA
n=5									
Range	65-129	65-118	0.3-1.2	33-52	0.3-0.7				
$\bar{x}$	95.6	87.2	0.7	42.6	0.5				
σn	26.2	18.0	0.3	6.8	0.1				
					Shallow (Class 3) Pits				
2[c]	63	63?	0.3	23	0.4	Circular		III	ID
6[c]	89	80	0.6	16	0.2	Circular		II	LW
7	59	48	0.2	25	0.4	Circular		III	ID
8	57	57	0.3	18	0.3	Circular		III	ID
9	78	69	0.4	20	0.3	Circular		III	ID
15	114	110	1.0	8	0.1	Circular		I	ID
24	110	104	0.9	20	0.2	Circular		I	ID
66	92	87	0.6	22	0.2	Circular		I	PLA
78	96	95	0.7	18	0.2	Circular		I	PLA
88	111	86	0.8	15	0.1	Oval		I	LA
89	130	120	1.2	13	0.1	Circular		I	PLA
130	90	76	0.5	10	0.1	Circular		III	ID
134	105	99	0.8	25	0.2	Circular		I	PLA

Table 2. (continued).

Feature Number	Length (cm)	Width (cm)	Surface Area (m^2)	Probe Depth (cm)	Depth (cm): Diameter (cm) Ratio	Plan Shape	Superimposed by Midden 2[a]	Feature Cluster	Cultural Affiliation[b]
					Shallow (Class 3) Pits				
135	124	100	1.0	14	0.1	Circular		I	PLA
136	120	80	0.8	7	0.1	Oval		I	PLA
137	68	66	0.4	9	0.1	Circular		I	PLA
142	100?	87	0.7	15	0.2	Circular		I	LA
151	76	66	0.4	25	0.3	Circular	X	I	PLA
152	142	137	1.5	10	0.1	Circular	X	I	PLA
153	128	116	1.2	12	0.1	Circular	X	I	PLA
154	131	82	0.8	13	0.1	Oval	X	I	PLA
156	96	86	0.7	17	0.2	Circular	X	I	PLA
162	74	61	0.4	19	0.3	Circular	X	I	PLA
163	67	62	0.3	16	0.2	Circular	X	I	PLA
n=24									
Range	57-142	48-137	0.2-1.5	7-25	0.1-0.4				
$\bar{x}$	96.7	84.9	0.7	16.3	0.2				
σn	24.7	21.7	0.3	5.3	0.1				
					Large Shallow (Class 4) Pits				
103	170	170?	2.3	18	0.1	Circular		I	ID
157	174	118	1.6	18	0.1	Oval	X	I	PLA
160	182	70	1.0	15	0.1	Oval	X	I	PLA

Table 2. (continued).

Feature Number	Length (cm)	Width (cm)	Surface Area (m^2)	Probe Depth (cm)	Depth (cm): Diameter (cm) Ratio	Plan Shape	Superimposed by Midden 2[a]	Feature Cluster	Cultural Affiliation[b]
Large Shallow (Class 4) Pits									
n=3									
Range	170-182	70-170	1.0-2.3	15 - 18	0.1				
$\bar{x}$	175.3	119.3	1.6	17.0	0.1				
σn	5.0	40.8	0.5	1.4	0				
Indeterminate Class Pits[d]									
1[c]									ID
5[c]								III	ID
113				19				IV	ID
114				17				IV	ID
125								IV	ID
165	46	39	0.1			Circular		III	ID
n=6									

[a] Excavated pits superimposed by Midden 2 are F 150, 159, and 161.

[b] LA-Late Archaic; PLA-Probable Late Archaic; LW-Late Woodland; ID-Indeterminate.

[c] Pits partially excavated by Memphis State University.

[d] Incomplete data on pits only slightly exposed in the power units and on pits investigated by Memphis State University.

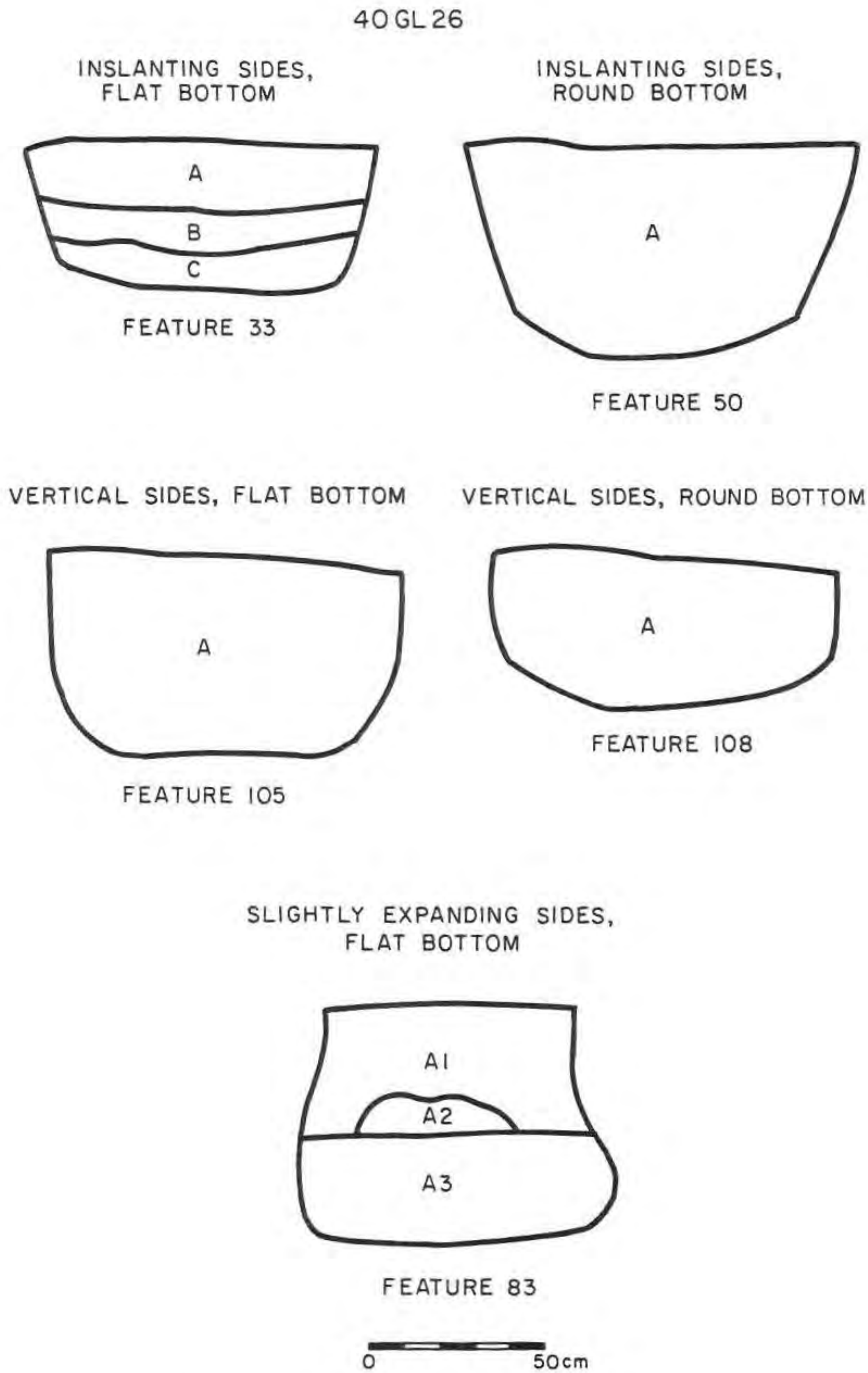


Figure 16. Profiles of Medium (Class 2) Pits.

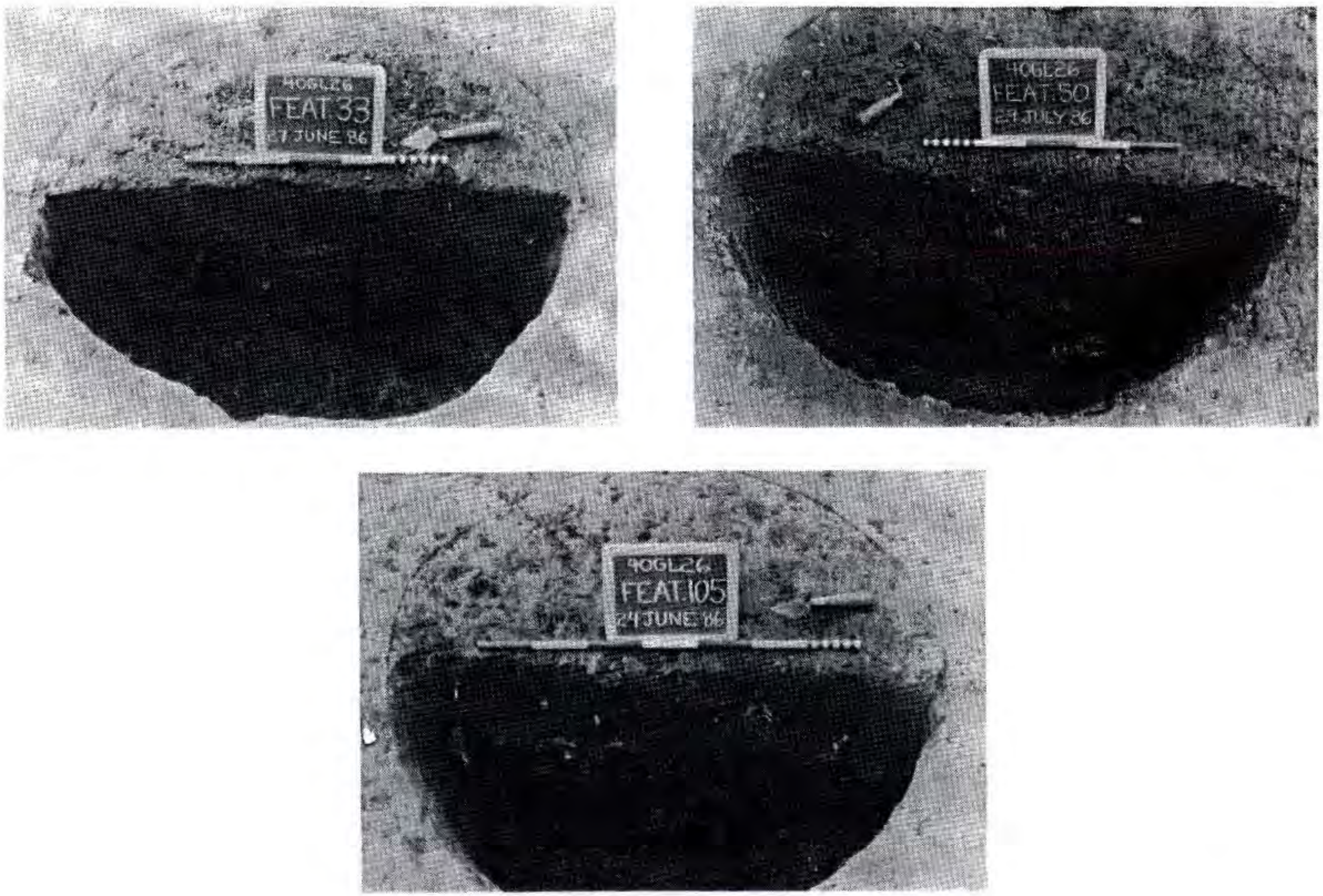


Figure 17. Medium (Class 2) Pits; F 33, 50, and 105.

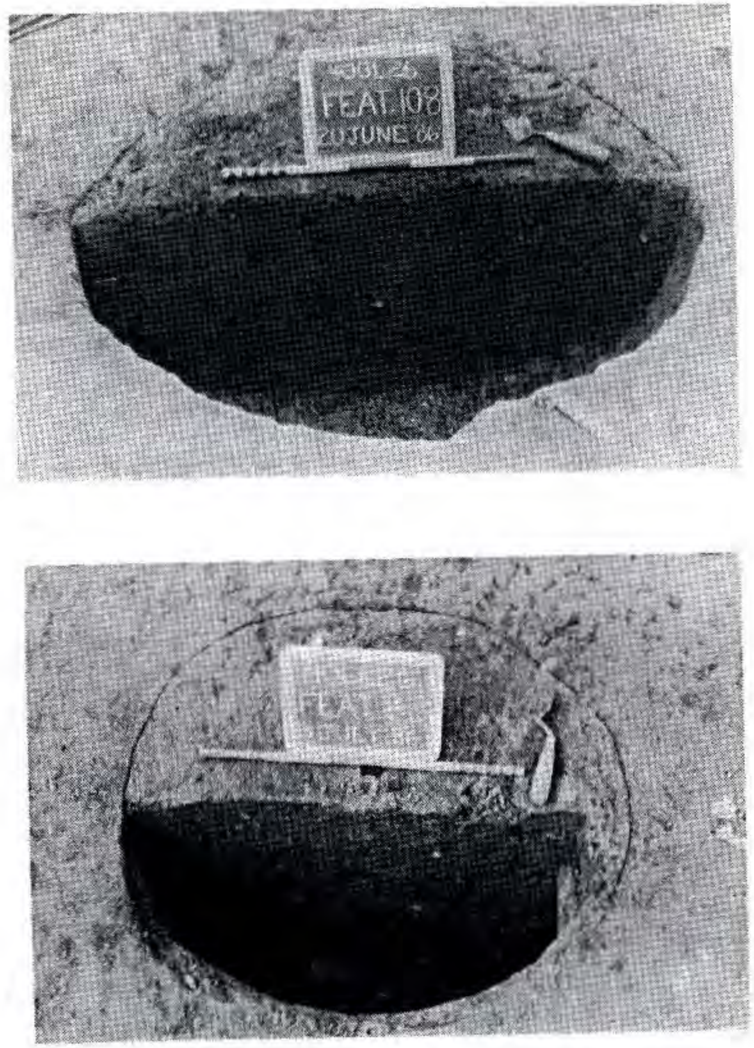


Figure 18. Medium (Class 2) Pits; F 108 and 83.

Feature 83 was a circular pit with slightly expanding sides and a flat bottom (Figure 18). It measured 73 cm x 72 cm in plan view and 69 cm in depth. Three zones were defined in the fill and the depositional sequence occurred in the following order:

Zone A3- A 31 cm thick layer of loose granular dark yellowish-brown silt loam was deposited in the lower half of the pit.

Zone A2- A 12 cm thick layer of loose granular very dark brown silt loam was deposited over Zone A3 and extended towards the sides of the pit.

Zone A1- The final depositional episode consisted of a 37 cm thick layer of very dark grayish-brown silt loam.

The fill zones contained mostly chert debris and burned limestone. Feature 83 was intrusive into Midden 2 and the underlying subsoil. It was located in Feature Cluster I adjacent to Structure 5.

Approximately three-fourths (76.2%) of the excavated medium (Class 2) pits ranged from 31-60 cm in depth (Figure 15). Four of the unexcavated pits on the site had probe depths within this range and are categorized as medium pits (Table 2). A partially excavated pit (F 3) in Test Unit 4 also had a depth within this range and is categorized as a Class 2 pit. Twenty-three of the excavated and unexcavated medium (Class 2) storage pits are attributed to the Late Archaic occupations of the Bailey site. A single excavated Class 2 pit (F 60) was Late Woodland in origin. The cultural affiliation of two excavated Class 2 pits was indeterminate.

Shallow (Class 3) pits. The excavated shallow pits were circular or slightly oval in plan view and the majority were basin-shape or had insloping sides with a flat bottom in profile (n=51) (Figure 19). Two of three compound pits occur in the Class 3 category. The compound pit form consists of a shallow main pit area with insloping sides and a flat bottom and a circular subpit in the floor which extends an additional 12-38 cm into the subsoil. The subpits had vertical sides with a round bottom, inslanting sides with a flat bottom, or were basin-shape in profile. The mean dimensions of the shallow pits are 77 cm x 66 cm in plan view and 16 cm in depth (Table 1). Less than one-fourth (n=9) of the Class 3 pits contained multiple fill zones. Representative examples of the shallow pits are Features 75, 138, and 41.

Feature 75 was a circular basin-shape pit that measured 68 cm x 65 cm in plan view and 16 cm in depth (Figure 20). The fill was a very dark grayish-brown silt loam containing a large amount of burned limestone. Feature 75 was located in Feature Cluster I approximately 1 m south of Midden 2.

Feature 138 was a circular pit with insloping sides and a flat bottom (Figure 20). It measured 79 cm x 66 cm in plan view and 11 cm in depth. The fill was a dark

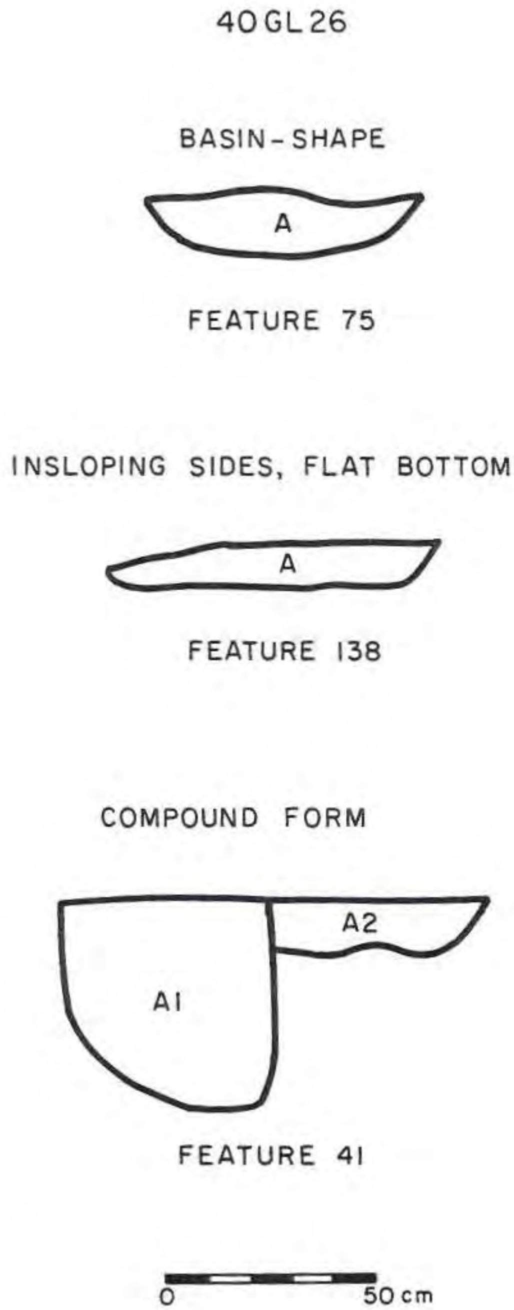
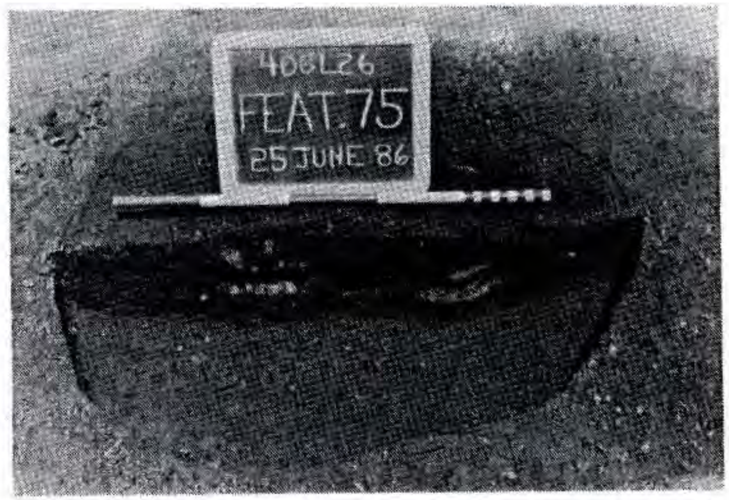


Figure 19. Profiles of Shallow (Class 3) Pits.



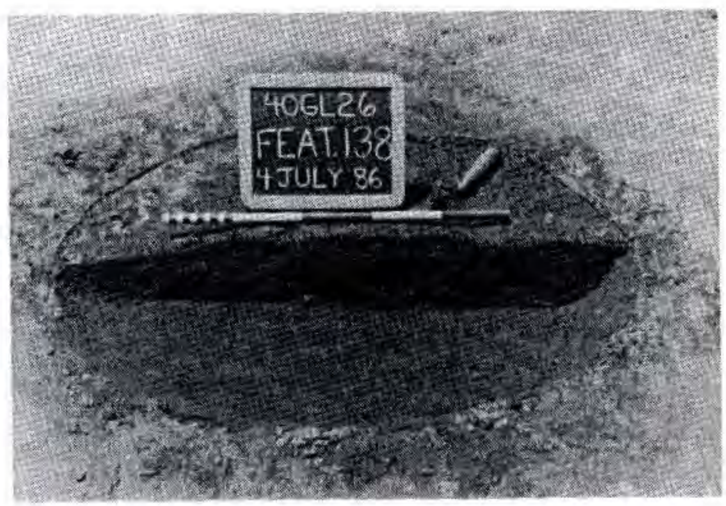


Figure 20. Shallow (Class 3) Pits.

brown silt loam containing little cultural material. Feature 138 was one of seven pits situated just inside the west wall of Structure 2 in Feature Cluster IV.

Feature 41 was an oval compound pit with insloping sides and a flat bottom in the main pit area and vertical sides and a round bottom in the subpit. It measured 112 cm x 76 cm in plan view and 51 cm in depth. The main pit area was 13 cm deep. The subpit was located along the east wall of the feature and measured 50 cm in diameter and 38 cm deeper than the main pit area. The fill in the main pit area consisted of a very dark grayish-brown silt loam and the fill in the subpit consisted of a brown silt loam. The two fill zones contained little cultural material; however, most of Feature 41 was destroyed by two later pits (Features 40 and 42). Feature 41 was located in Feature Cluster II approximately 2 m north of Structure 3.

Nearly all (96.1%) of the excavated shallow pits had depths of 30 cm or less (Figure 15). Twenty-two of the unexcavated pits on the site had probe depths of 30 cm or less and are categorized as shallow pits (Table 2). Two partially excavated pits (Features 2 and 6) in Test Units 2 and 7 had depths of 30 cm or less and are also categorized as shallow pits. Forty-seven of the excavated and unexcavated shallow (Class 3) pits are attributed to the Late Archaic occupations of the Bailey site. Three excavated Class 3 pits are probable Woodland and three excavated Class 3 pits are Late Woodland in origin. The cultural affiliation of 22 excavated and unexcavated Class 3 pits is indeterminate.

Large shallow (Class 4) pits. The excavated large shallow pits were circular, oval, or square in plan view and had insloping sides with a flat bottom in profile (n=4) (Figure 21). The mean dimensions of the Class 4 pits are 187 cm x 164 cm in plan view and 18 cm in depth (Table 1). One of the large shallow pits contained multiple fill zones. Representative examples of the large shallow pits are Features 10 and 25.

Feature 10 was a circular pit with insloping sides and a flat bottom (Figure 22). It measured 163 cm x 160 cm in plan view and 21 cm in depth. The fill was a very dark gray to very dark grayish-brown silt loam containing abundant chert debris, burned limestone, and bone. Feature 10 was located in Feature Cluster III approximately 1 m north of Midden 1.

Feature 25 was a square historic pit with insloping sides and a flat bottom (Figure 22). It measured 194 cm x 188 cm in plan view and 18 cm in depth. Most of the pit was filled with a loose granular very dark grayish-brown silt loam mottled with yellowish-brown silt loam (Zone B). Zone A was a lens of charcoal, ash, and fired clay situated along the northeast wall of the pit. Zone A was underlain by a partially reddened lens of yellowish-brown clay and a charcoal lens. The clay and charcoal lenses were in Zone B. Feature 25 contained abundant prehistoric and historic ceramics, metal items, and bone. Feature 25 was located in Feature Cluster I approximately 7 m west of Midden 2.

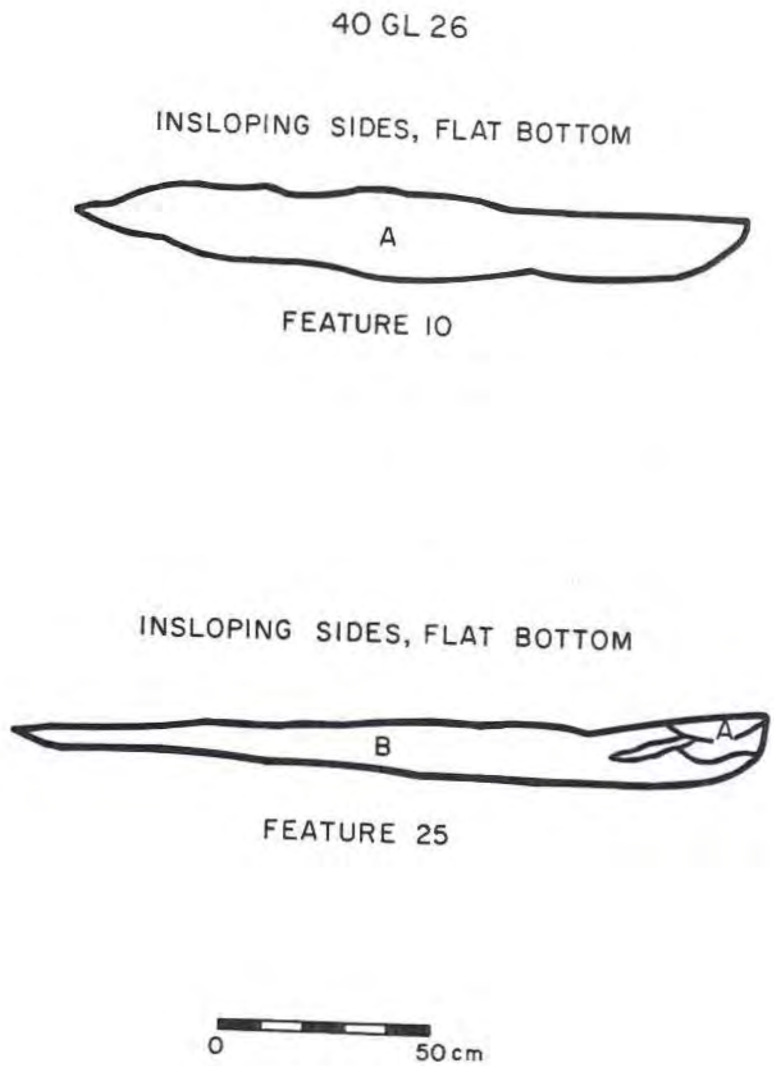


Figure 21. Profiles of Large Shallow (Class 4) Pits.

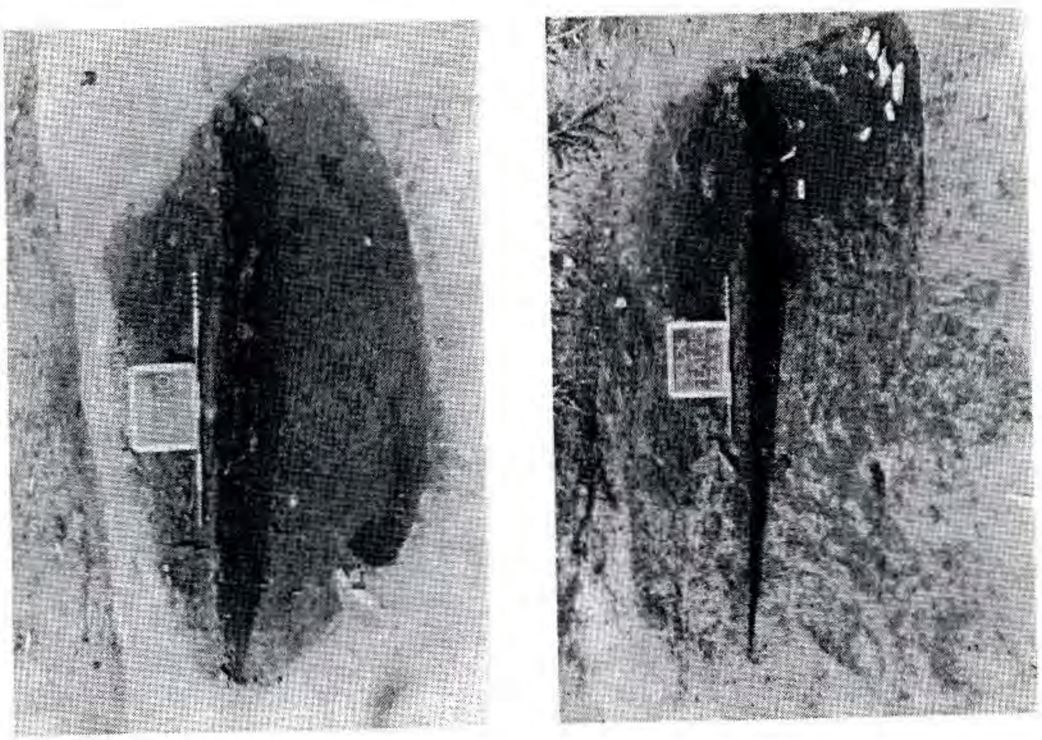


Figure 22. Large Shallow (Class 4) Pits.

All of the excavated large shallow pits had depths of 30 cm or less and surface areas at least 50% larger than the shallow (Class 3) pits (Figure 15). Three unexcavated pits had probe depths of 30 cm or less and large surface areas. These features are categorized as large shallow pits (Table 2). Three of the excavated and unexcavated large shallow (Class 4) pits are attributed to the Late Archaic occupations of the Bailey site. One excavated Class 4 pit is Late or Terminal Archaic and one excavated Class 4 pit is historic. The cultural affiliation of two excavated and unexcavated Class 4 pits is indeterminate.

Summary of size classification. The majority of the excavated large deep (Class 1) pits and the excavated medium (Class 2) pits were nearly cylindrical in shape with vertical, inslanting, or slightly expanding sides and a flat bottom. The Class 1 pits were approximately 15 cm larger in horizontal dimensions and 25 cm deeper than the Class 2 pits. The dimensions and forms of these features are indicative of storage facilities while multiple fill zones in many of the pits suggest a secondary use as refuse receptacles. The excavated large deep and medium storage pits had surface areas of 0.4-1.6 m^2 and volumes over 250 liters. Nearly all (93.1%) of the excavated and unexcavated Class 1 and Class 2 pits are attributed to the Late Archaic occupations of the Bailey site.

Most of the excavated shallow (Class 3) pits were either basin-shape or had insloping sides and a flat bottom. The Class 3 pits were approximately 30 cm smaller in horizontal dimensions and 35 cm shallower than the Class 2 storage facilities. The shallow pit class includes all of the burial pits (n=8) and hearths (n=8) on the site as well as seven of nine limestone-filled earth ovens and two of three compound pits. The functions of the remaining shallow (Class 3) pits cannot be determined from the shape, contents, or locations of these features. Nearly two-thirds (62.7%) of the excavated and unexcavated Class 3 pits are Late Archaic in origin. The cultural affiliation of over one-fourth (29.3%) of the excavated and unexcavated Class 3 pits is indeterminate.

The excavated large shallow (Class 4) pits had insloping sides and a flat bottom. The Class 4 pits were approximately 50-70 cm larger in horizontal dimensions than the large deep (Class 1) pits while the depths were about the same as the shallow (Class 3) pits. The large shallow historic feature (F 25) was probably a storage pit or pit cellar beneath a structure. The functions of the remaining large shallow pits were indeterminate. The cultural affiliations of five of the seven excavated and unexcavated Class 4 pits are Late Archaic (n=3) and indeterminate (n=2).

Four of the unexcavated pits (F 113, 114, 125, and 165) were not categorized because probe depths were not determined. Only small sections of three of these pits were exposed within the right-of-way area. Two pits (Features 1 and 5) excavated during the Phase II investigations were also not categorized.

Function

Storage facilities (n=38) were previously defined as large deep (Class 1) and medium (Class 2) pits. These features had nearly vertical sides with a flat or round bottom and mean dimensions of:

120 cm x 111 cm x 77 cm (Class 1)
104 cm x 99 cm x 51 cm (Class 2)

A single compound pit (F 42) among the Class 1 and Class 2 features was probably not a storage facility.

A hearth is a shallow (Class 3) pit containing a loose granular very dark grayish-brown to black fill and fragments of calcined bone. Evidence of *in situ* burning is indicated by areas of reddened soil on the sides and bottom of the pit or concentrations of burned clay or charcoal in the fill. The hearths (n=8) on the Bailey site were all located within Late Archaic structures. These features were used, among other things, in cooking food and to provide light.

An earth oven is a shallow (Class 3) pit containing a moderate to high density of burned limestone (>80 g per liter of excavated fill) (Figure 23). The limestone is usually concentrated in a layer at or near the bottom of the pit. Woodland earth ovens (n=4) on the Bailey site exhibited *in situ* burning in the form of reddened soil on the pit sides and bottom overlain by a thin layer of charcoal (Figure 24). One such earth oven (F 60) was constructed in the upper portion of a former storage pit. Late Archaic earth ovens (n=4) lacked evidence of *in situ* burning (Figure 24). Abundant burned limestone on the surface of an unexcavated pit (F 88) indicated this feature was probably an earth oven. The presence or absence of *in situ* burning in earth ovens may reflect the difference between heating blocks of limestone in the pit versus heating limestone in an adjacent area and depositing the hot blocks in a clean pit. A treefall depression (F 120) apparently used as an earth oven contained a densely packed layer of burned limestone in a basin-shape area of black fill located approximately 35-65 cm below the ground surface. Although somewhat variable in morphological attributes, all of the earth ovens functioned as sealed cooking pits for slowly baking food.

Burial pits (n=8) are constructs excavated for the purpose of interring the dead. These do not include storage or cooking facilities reused as burial chambers.

A single historic feature (F 25) was probably a storage pit or pit cellar beneath a structure.

The functions of the remaining pits (n=34) on the Bailey site, including three compound pits, could not be determined from the size classes, forms, and material contents. These pits may have served as small temporary storage facilities, areas of soil recovery for construction or pottery production, processing facilities, or numerous other uses.

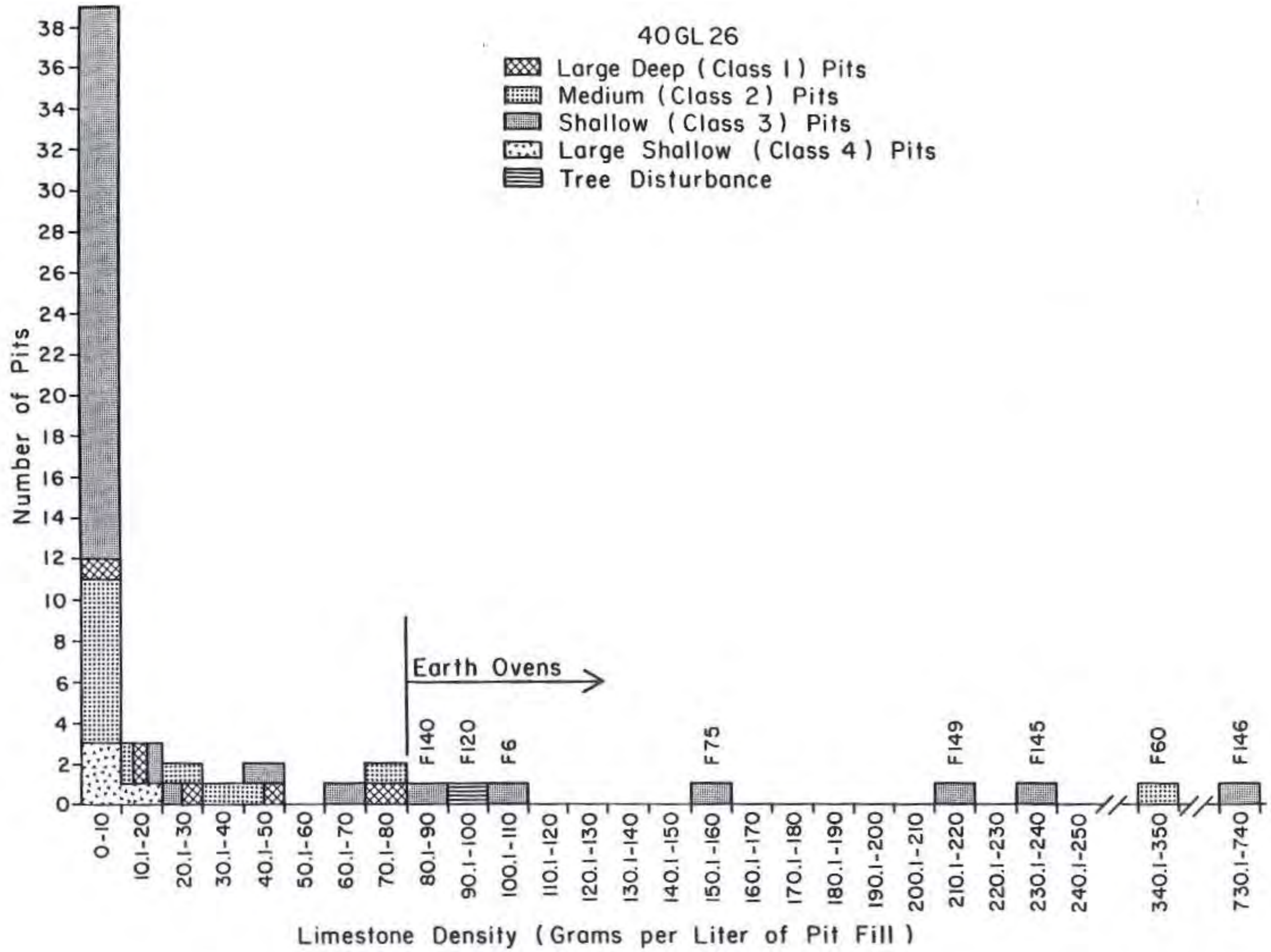


Figure 23. Burned Limestone Densities in Pit Features.

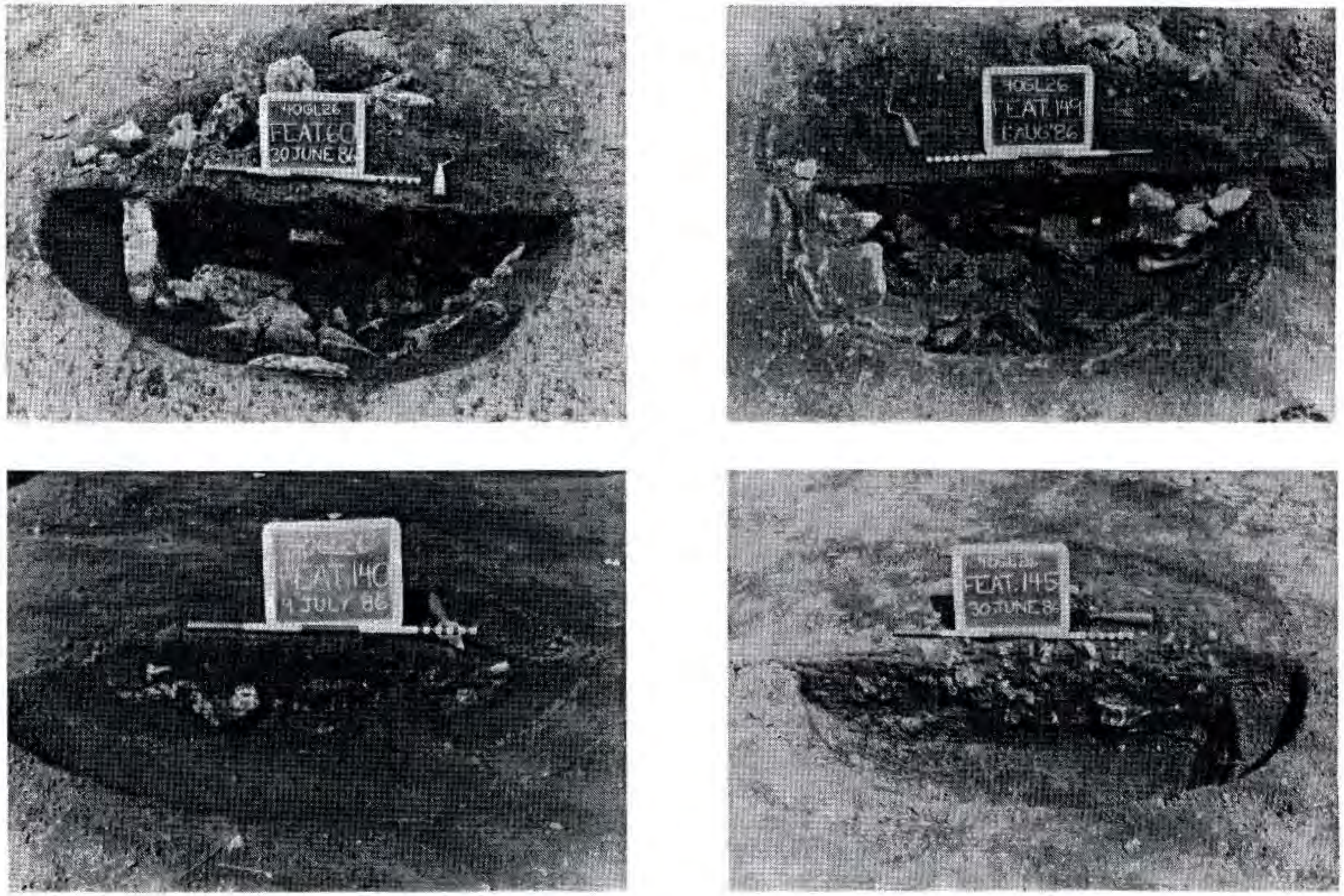


Figure 24. Earth Ovens. Late Woodland Earth Ovens (Top) and Late Archaic Earth Ovens (Bottom).

STRUCTURES

Structure 1 was located in Feature Cluster II approximately 10 m northeast of Structure 3. This three-sided rectangular structure was either a roofed shelter open on one side or a simple windbreak lacking a roof (Faulkner and McCollough 1974:245) (Figures 25 and 26). The open side faced grid southwest or magnetic west and a hearth (F 107) was centrally positioned along this side approximately 2 m from the back wall. Three interior storage pits (F 105, 106, and 108) and a shallow pit (F 104) bordered the walls and hearth. One storage pit (F 106) was situated between the hearth and back wall, the second storage pit (F 105) was in the southeast corner of the structure, and the third storage pit (F 108) was located near the north side wall. The shallow pit (F 104) was adjacent to the south side wall. The north wall of Structure 1 was replaced twice resulting in three slightly different shelter sizes. Structure 1A measured 5.0-5.7 m x 2.0-3.1 m (floor area-13.7 m^2). Structure 1B measured 5.0 m x 2.0-4.2 m (floor area-16.3 m^2) and was the largest of the three shelter construction phases. Structure 1C measured 3.8-4.3 m x 2.0-3.3 m (floor area-11.6 m^2). Twelve postholes formed the walls of Structure 1 and each construction phase was comprised of 7-9 postholes spaced 1.5-3.0 m apart. The mean dimensions of the wall postholes are 20 cm x 19 cm in plan view and 11 cm in depth. The deepest postholes were excavated in the center of the back wall (PH 27 and 28) and at the extremities of the side walls (PH 18 and 35). A single interior posthole (PH 36) was probably associated with activities around the hearth. The shallow (Class 3) hearth in Structure 1 measured 52 cm x 52 cm in plan view and 15 cm in depth (Figure 27). The fill was a black silt loam containing a few pieces of burned limestone and calcined bone. Occasional burned areas were found along the rim and wall of the pit. The mean dimensions of the three medium (Class 2) storage pits in the structure are 95 cm x 89 cm in plan view and 45 cm in depth. The fills consisted of a very dark brown silt loam containing abundant lithic tools and debris. The shallow (Class 3) pit (F 104) measured 78 cm x 71 cm in plan view and 27.5 cm in depth. The fill was a very dark grayish-brown silt loam containing mostly lithic debris. Burned limestone, fish remains, and deer bone recovered from near the bottoms of two interior pits (F 104 and 108) may be from structure related activities such as cooking and hearth cleaning. Nearly all (88.2%) of the pits in Feature Cluster II and in and around Structure 1 were assigned to the Late Archaic occupations of the Bailey site. Four pits within the structure contained Late Archaic Benton cluster, Ledbetter cluster, and Little Bear Creek cluster projectile points/knives. Structure 1 is attributed to the Late Archaic period.

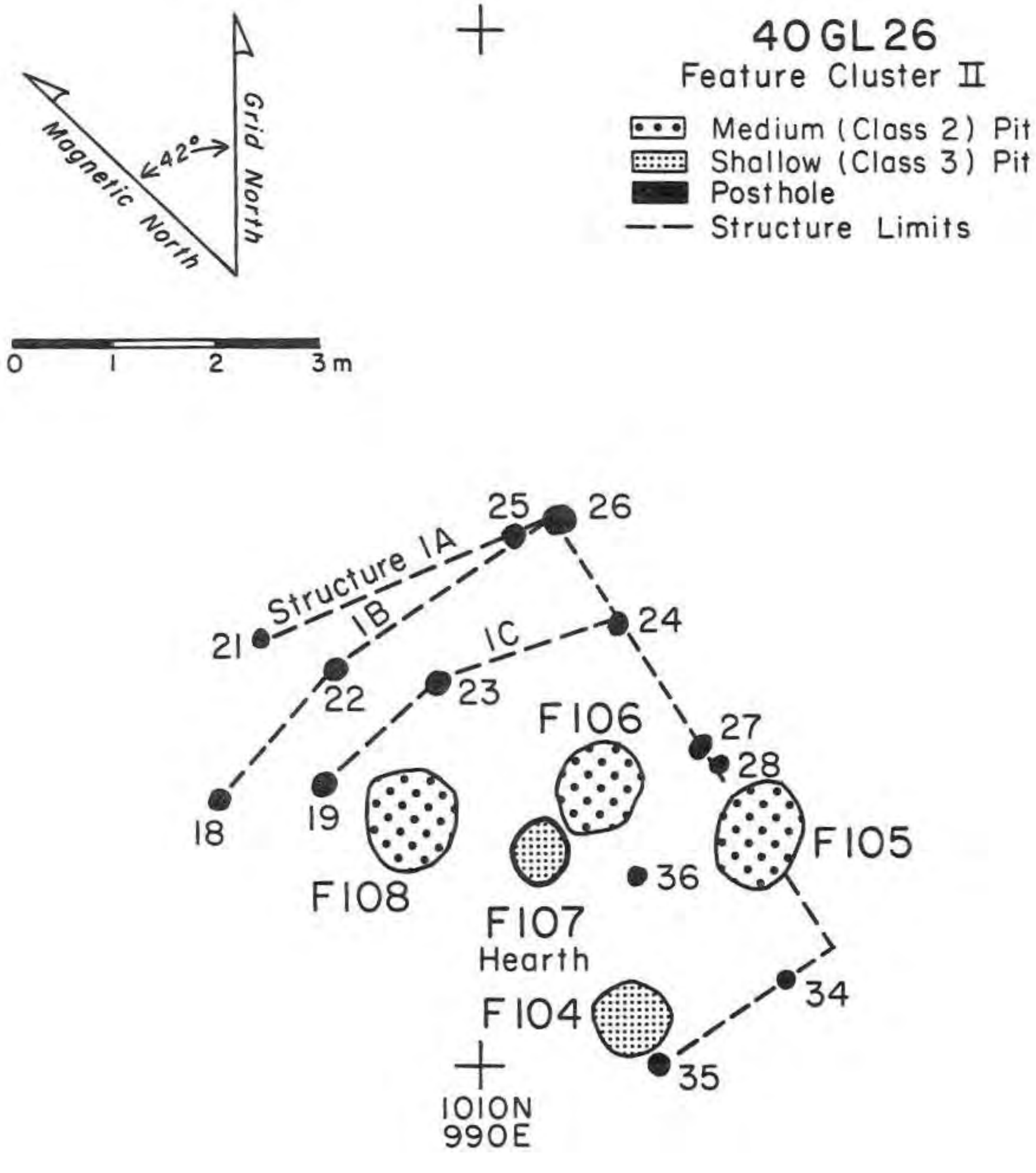


Figure 25. Structure 1.

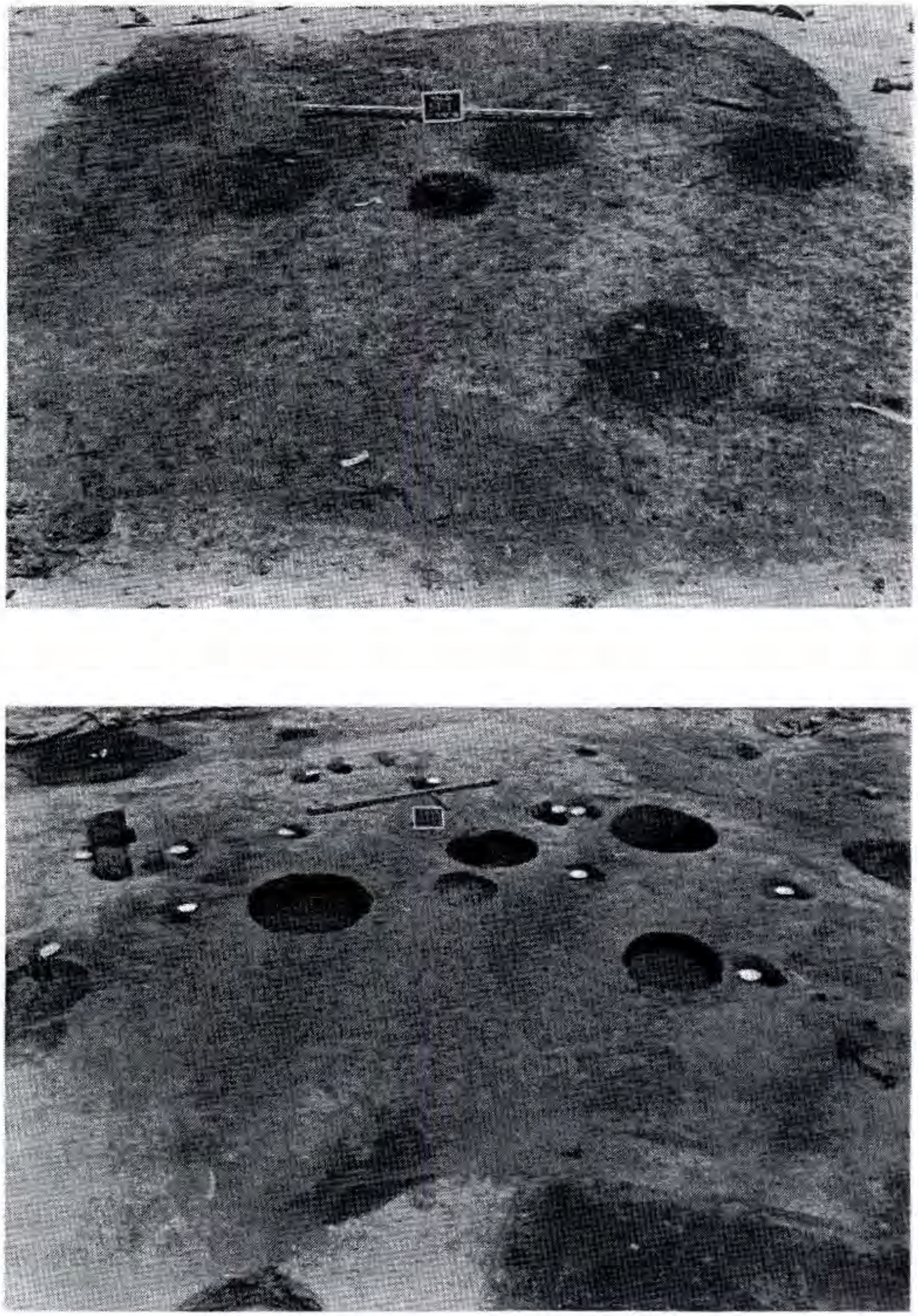


Figure 26. Structure 1 Before and After Excavation. Looking North (Top) and Northeast (Bottom), Paper Plates Mark Posthole Locations (Bottom).

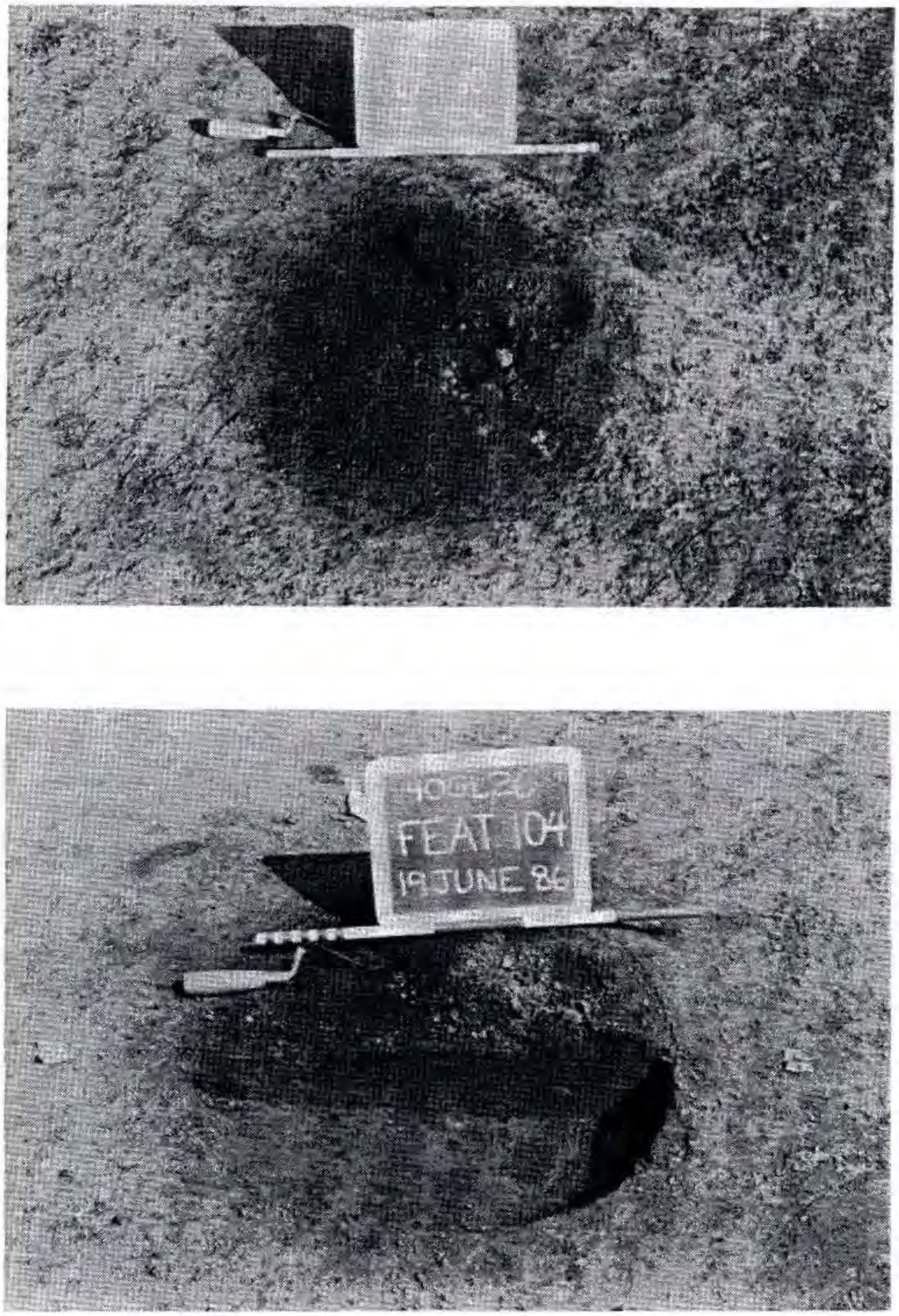


Figure 27. Plan and Profile Views of the Structure 1 Interior Hearth. Photographic Board Should Read F 107.

Structure 2 was located in Feature Cluster IV approximately 8 m north of Midden 2. This structure was probably fully enclosed with a circular to oval posthole pattern measuring 10-14 m in diameter; however, previous excavation of a wide drainage ditch paralleling State Route 11 destroyed most of the posthole pattern (Figures 28 and 29). Seven or eight shallow (Class 3) interior pits (F 123, 124, 127, 128, 131, 132, 133, and 138) ringed the west wall just inside the arc of remaining postholes. Structure 2 probably measured 13-14 m in diameter assuming F 123 and two adjacent postholes (PH 11 and 12) were associated with the posthole pattern. Excluding these features from the posthole configuration probably resulted in a structure 10-12 m in diameter. Seven postholes spaced 1.0-1.5 m apart formed the exterior wall in the southwest quadrant of the structure. Rebuilding of the wall is indicated by paired postholes (PH 1 and 2, PH 3 and 4, and PH 8 and 9). The mean dimensions of the eight wall postholes are 19 cm x 18 cm in plan view and 12 cm in depth. Two postholes (PH 5 and 7) just outside the southwest wall may have supported an exterior extended entryway into the structure. Two interior postholes (PH 10 and 11) were probably associated with activities around the pits. The mean dimensions of the eight shallow pits in Structure 2 are 78 cm x 67 cm in plan view and 13.5 cm in depth. The pit fills consisted of brown, dark brown, very dark grayish-brown, and very dark gray silt loams. One pit (F 127) contained a moderate density of burned limestone, an adjacent pit (F 128) contained a high density of chert debris, and a third pit contained a burial (F 132, Burial 3). Nearly all (94.4%) of the pits in Feature Cluster IV and in and around Structure 2 were of indeterminate cultural origin. Two Late Archaic projectile points/knives were recovered from Feature 128 and a thick sherd tempered with a few pieces of limestone was found in Feature 127. The arrangement of shallow interior pits near the wall of Structure 2 is indicative of Woodland dwellings in Middle Tennessee (Bentz 1986a:36; Kline et al. 1982:24-29). Structure 2 is assigned a tentative Woodland cultural affiliation based on the spatial patterning of features within the structure and the recovery of a sherd from an interior pit.

Structure 3 was located in Feature Cluster II approximately 10 m southwest of Structure 1. This three-sided rectangular structure was either a roofed shelter open on one side or a simple windbreak lacking a roof (Figures 30-32). The open side faced grid southeast or magnetic south and a hearth (F 53) was centrally positioned along this side approximately 3.5 m from the back wall. Two interior storage pits (F 43 and 44) and a shallow pit (F 54) bordered the walls and hearth. One storage pit (F 43) was situated between the hearth and northeast structure corner and the second storage pit (F 44) was adjacent to the east side wall. The shallow pit (F 54) was located near the west side wall. Structure 3 measured 6.6-7.4 m x 3.3-4.6 m (floor area-26.7 m^2). Six postholes spaced 2-3 m apart formed the walls of the shelter. The mean dimensions of the postholes are 23 cm x 21 cm in plan view and 16 cm in depth. The shallow (Class 3) hearth in Structure 3 measured 55 cm x 52 cm in plan view and 11.5 cm in depth (Figure 31). The fill was a very dark gray silt loam containing burned limestone and small fragments of calcined bone. A burned area was found along the rim of the pit. A very dark grayish-brown to dark brown fill in the upper portion of a posthole (F 38) positioned in the center of the shelter back wall also contained burned limestone and calcined bone. The similarities between the hearth and posthole fills indicate that a discharge midden from the hearth once covered the floor of the shelter to the back wall. The

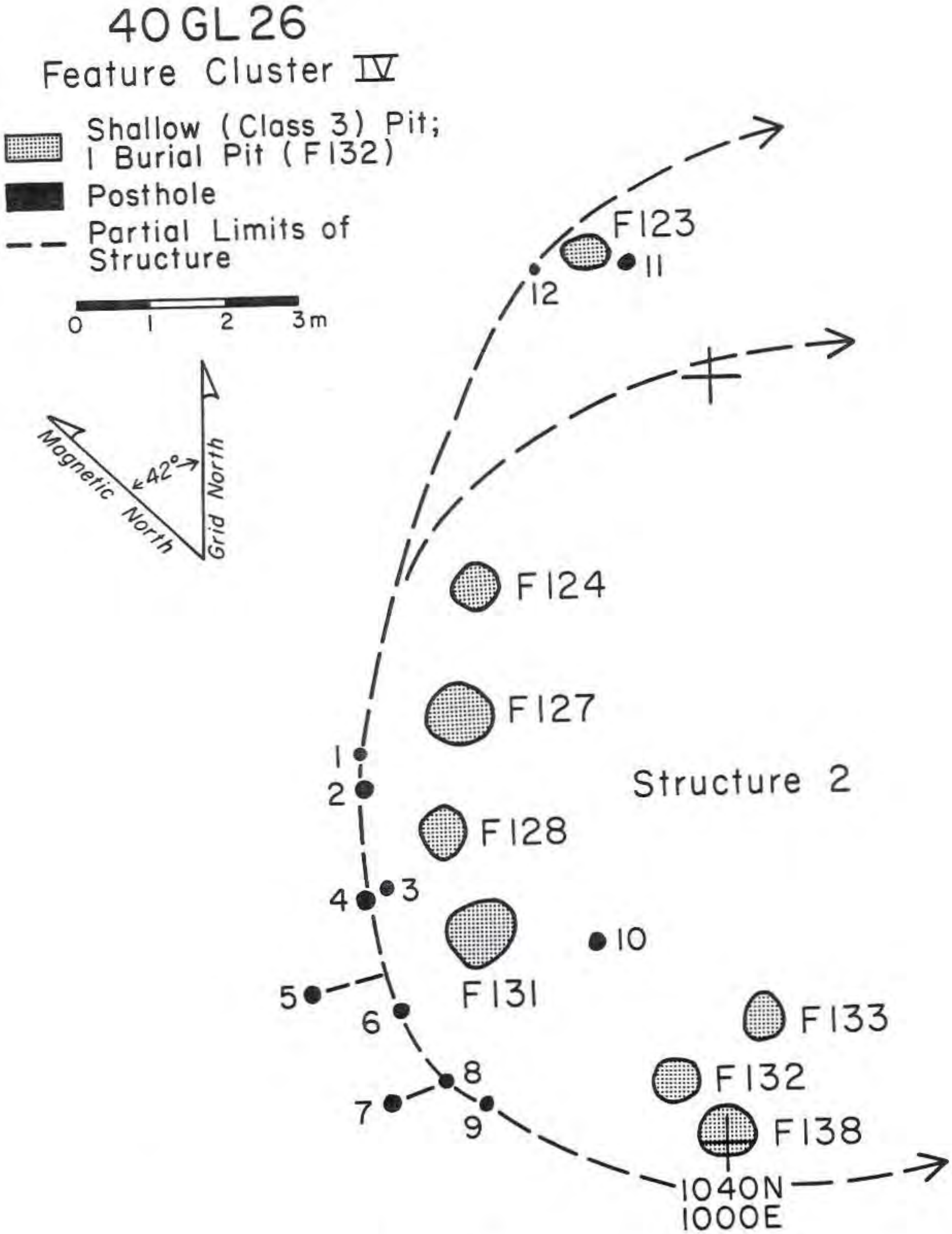


Figure 28. Structure 2.

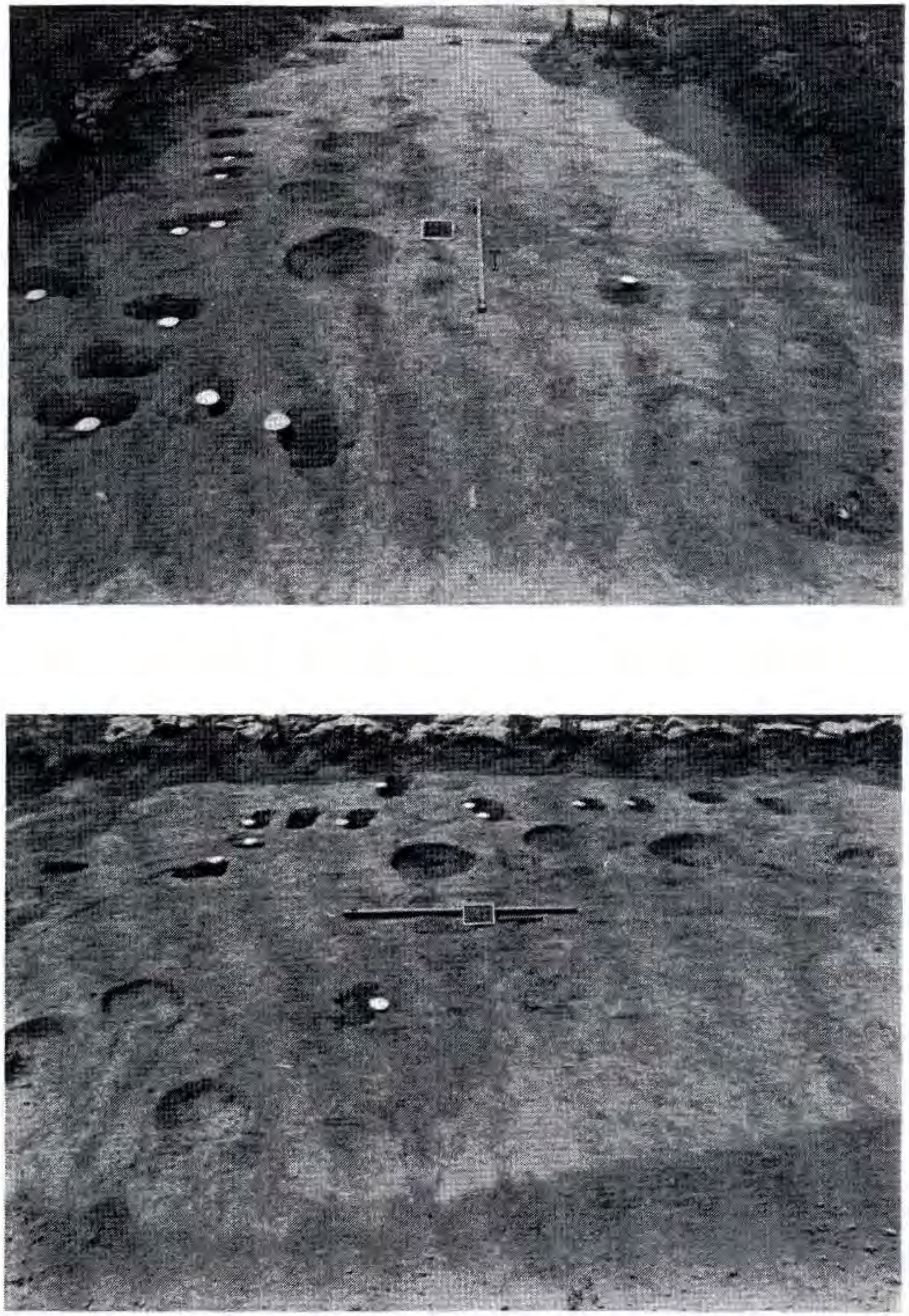


Figure 29. Structure 2 After Excavation. Looking North (Top) and West (Bottom).

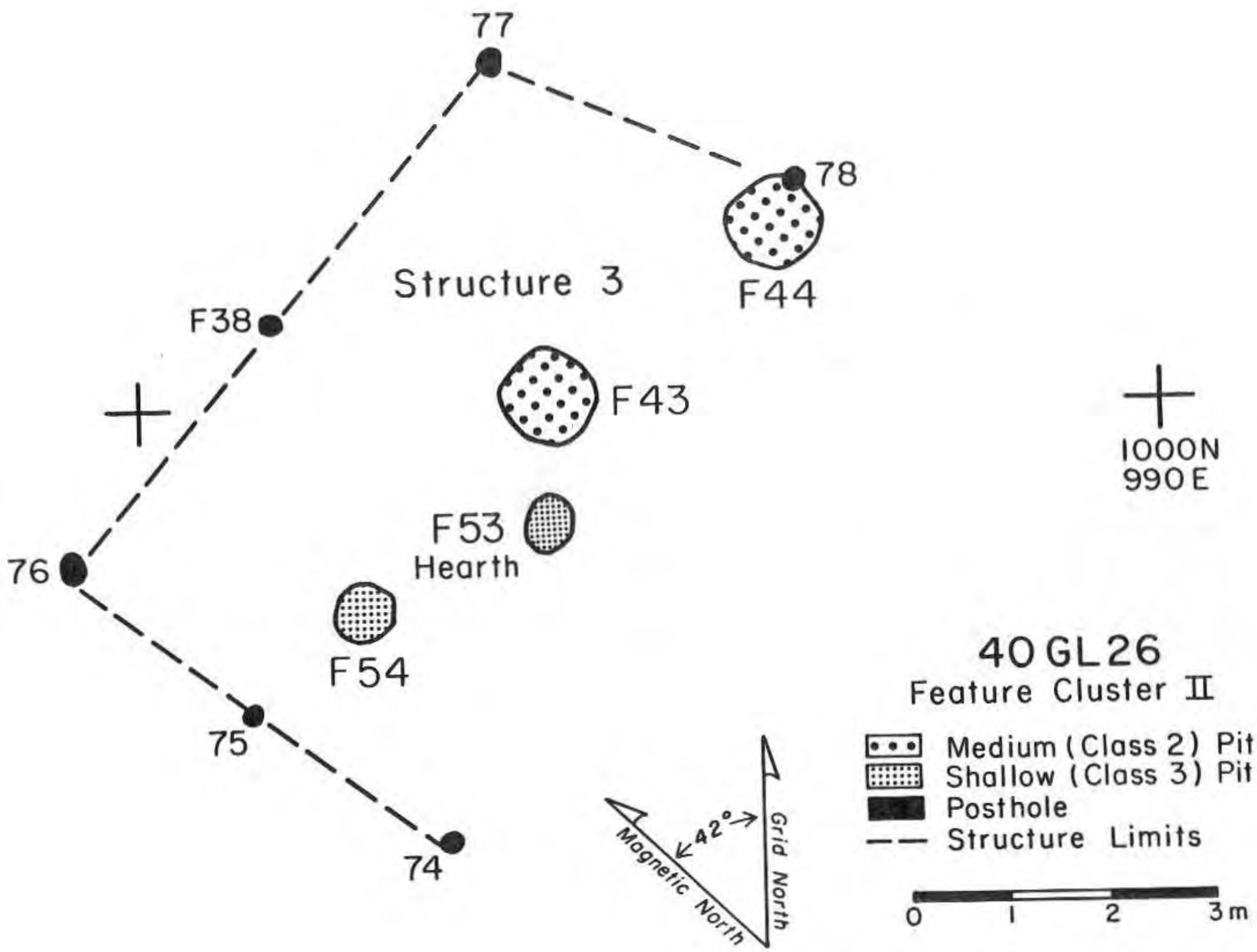


Figure 30. Structure 3.

Figure 31. Structure 3 After Excavation and Profile View of the Interior Hearth. Looking Northwest (Top).

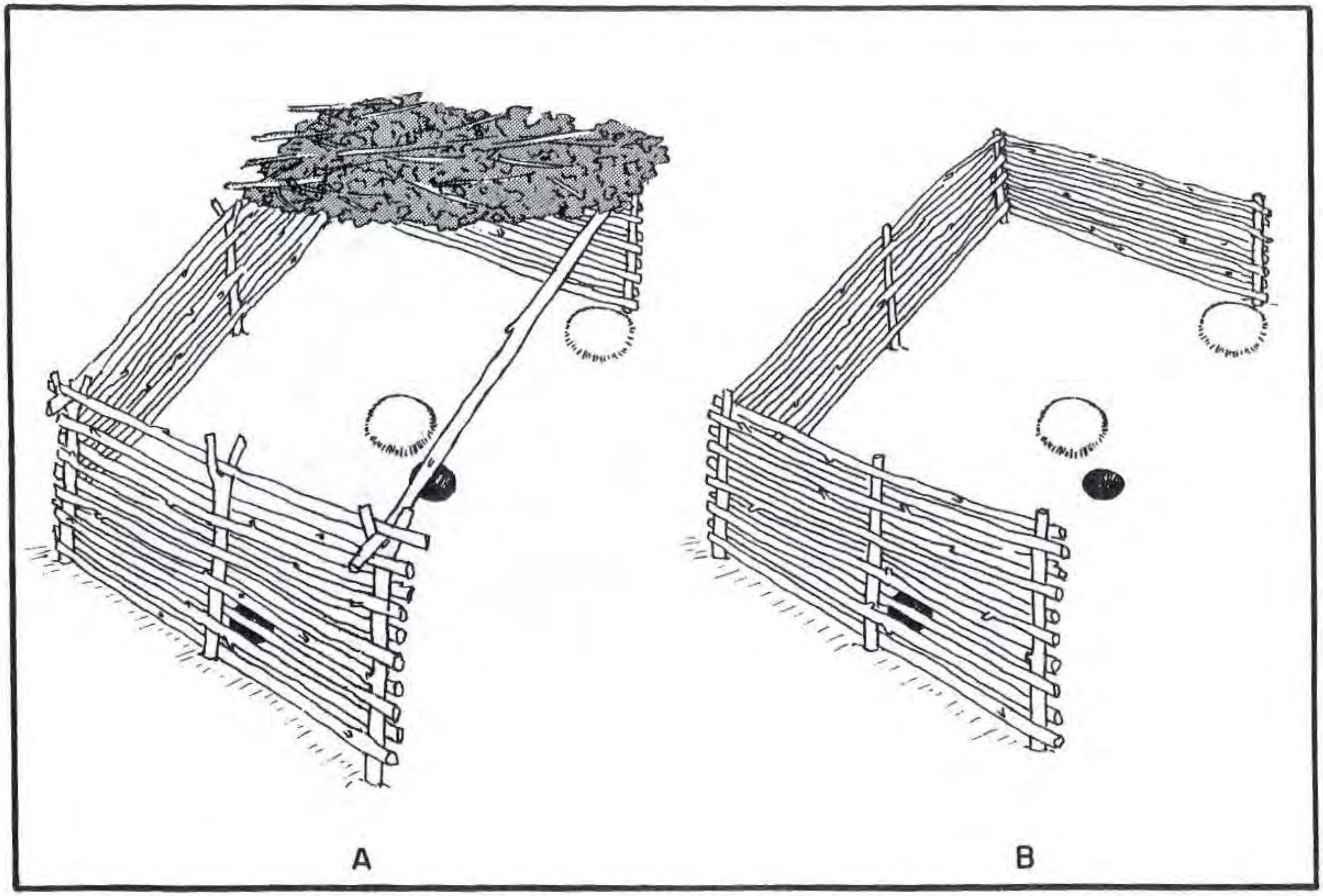


Figure 32. Structure 3 Reconstruction Drawings. A-Covered Shelter with Cut-Away View of Roof; B-Simple Windbreak.

mean dimensions of the two medium (Class 2) storage pits in the structure are 100 cm x 90 cm in plan view and 51.5 cm in depth. Multiple episodes of deposition were evident in the fills of the storage facilities. These fill zones contained mostly chert debris and consisted of dark brown to very dark grayish-brown silt loams overlying brown to dark yellowish-brown silt loams. The shallow (Class 3) pit measured 61 cm x 58 cm in plan view and 19 cm in depth. The fill was a dark yellowish-brown silt loam containing mostly chert debris. Nearly all (88.2%) of the pits in Feature Cluster II and in and around Structure 3 were assigned to the Late Archaic occupations of the Bailey site. One of the storage pits (F 44) within the structure contained a Late Archaic Ledbetter cluster projectile point/knife. Structure 3 is attributed to the Late Archaic period.

Structure 4 was located in Feature Cluster I approximately 10 m west of Midden 2. This circular structure was probably fully enclosed even though postholes were lacking in the northwest quadrant of the wall (Figures 33-35). The subsoil in this quadrant contained a high density of gravel making it difficult to detect postholes. A hearth (F 16) flanked by three deep storage pits (F 17, 18, and 22) was positioned in the center of the structure and a second interior hearth (F 14) was situated adjacent to the south wall. Six additional unexcavated storage pits (F 20, 21, 23, 29, 30, and 31) ringed the north half of the structure just outside of and adjacent to the wall. Structure 4 measured 10.5 m x 8.9 m (floor area-73.4 m^2). Ten postholes irregularly spaced 1.5-4.0 m apart formed the exterior wall of the structure. Rebuilding of the south wall is indicated by paired postholes (PH 13 and 14, PH 16 and 17, and PH 65 and 66). The mean dimensions of the wall postholes are 19 cm x 17 cm in plan view and 15 cm in depth. A 5 m long arc of seven postholes in the southwest quadrant of the structure paralleling the exterior wall probably supported a bench, partition, or interior entryway wall. The mean dimensions of these postholes are 17 cm x 16 cm in plan view and 13 cm in depth. The shallow (Class 3) central hearth (F 16) in Structure 4 measured 58 cm x 44 cm in plan view and 11 cm in depth (Figure 34). The shallow (Class 3) hearth near the south structure wall measured 47 cm x 44 cm in plan view and 10 cm in depth. The interior fill zones in the hearths were very dark gray and black in color while the peripheral fill zones were brown and dark grayish-brown to very dark grayish-brown in color. The hearth contents consisted mainly of calcined bone fragments, charcoal, and burned clay. The mean dimensions of the eight large deep (Class 1) storage pits in and adjacent to the structure are 124 cm x 115 cm in plan view and 80 cm in depth. The medium (Class 2) storage pit (F 30) adjacent to the east structure wall measured 78 cm x 78 cm in plan view and 37 cm in depth. Multiple episodes of deposition were evident in the fills of the three interior storage facilities (F 17, 18, and 22). These fill zones consisted of very dark grayish-brown, dark brown, and brown silt loams containing abundant cultural material separated by dark yellowish-brown and brown silt loams and silty clay loams containing little cultural material. These strata probably resulted from purposeful refuse deposition in former storage facilities separated by periods of erosion and natural filling of the pits and/or purposeful sealing of old refuse layers with available loose soil or subsoil. Features 17 and 22 were filled with at least 20 cm of light color soil containing little cultural material prior to the initial intensive use of these pits as refuse receptacles. Feature 18 was filled with at least 10-15 cm of darker soil containing abundant cultural material immediately after

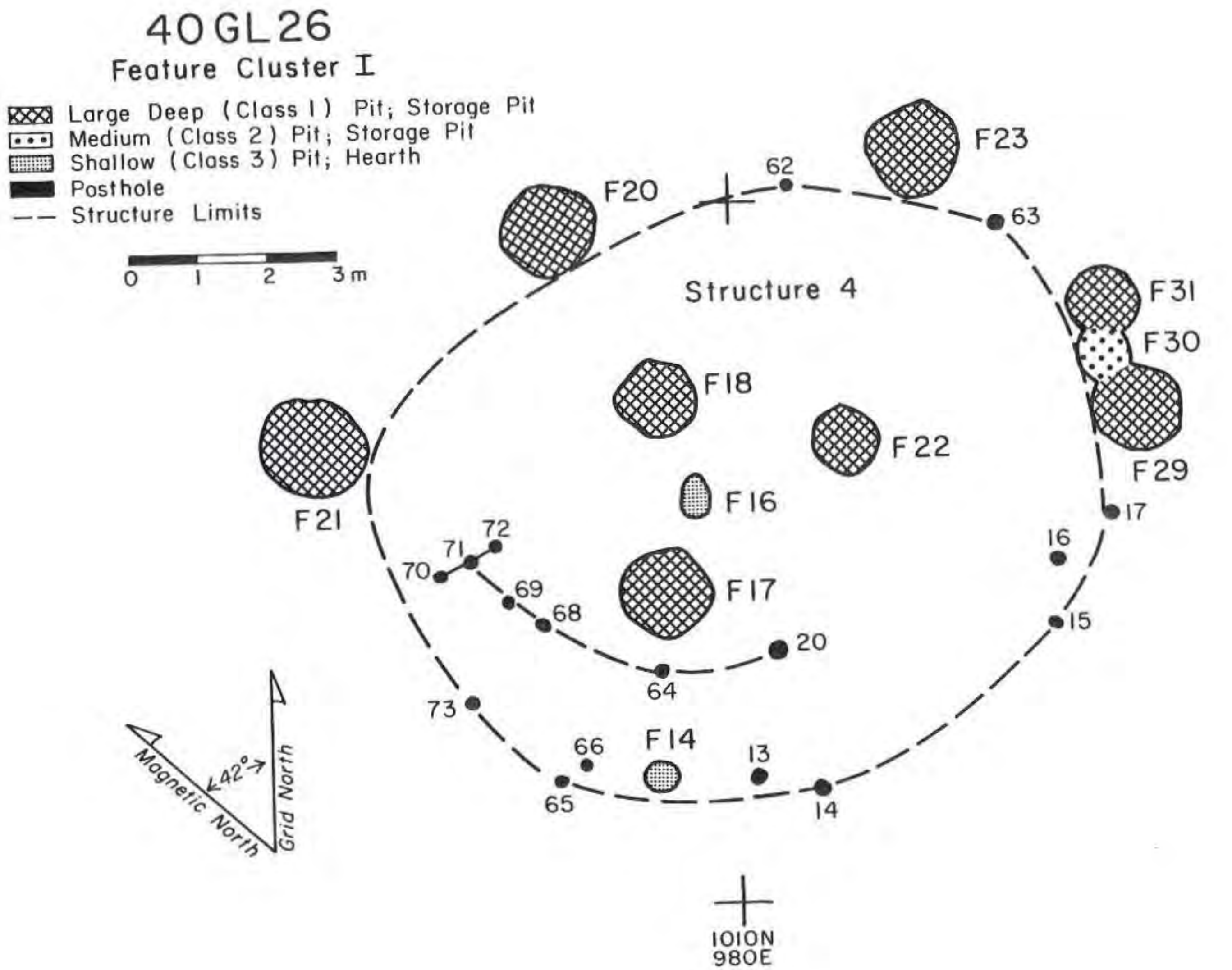


Figure 33. Structure 4.

Figure 34. Structure 4 After Excavation and Profile View of the Central Interior Hearth. Looking North (Top), Exterior Storage Pits Bordering the Structure were not Excavated (Top).

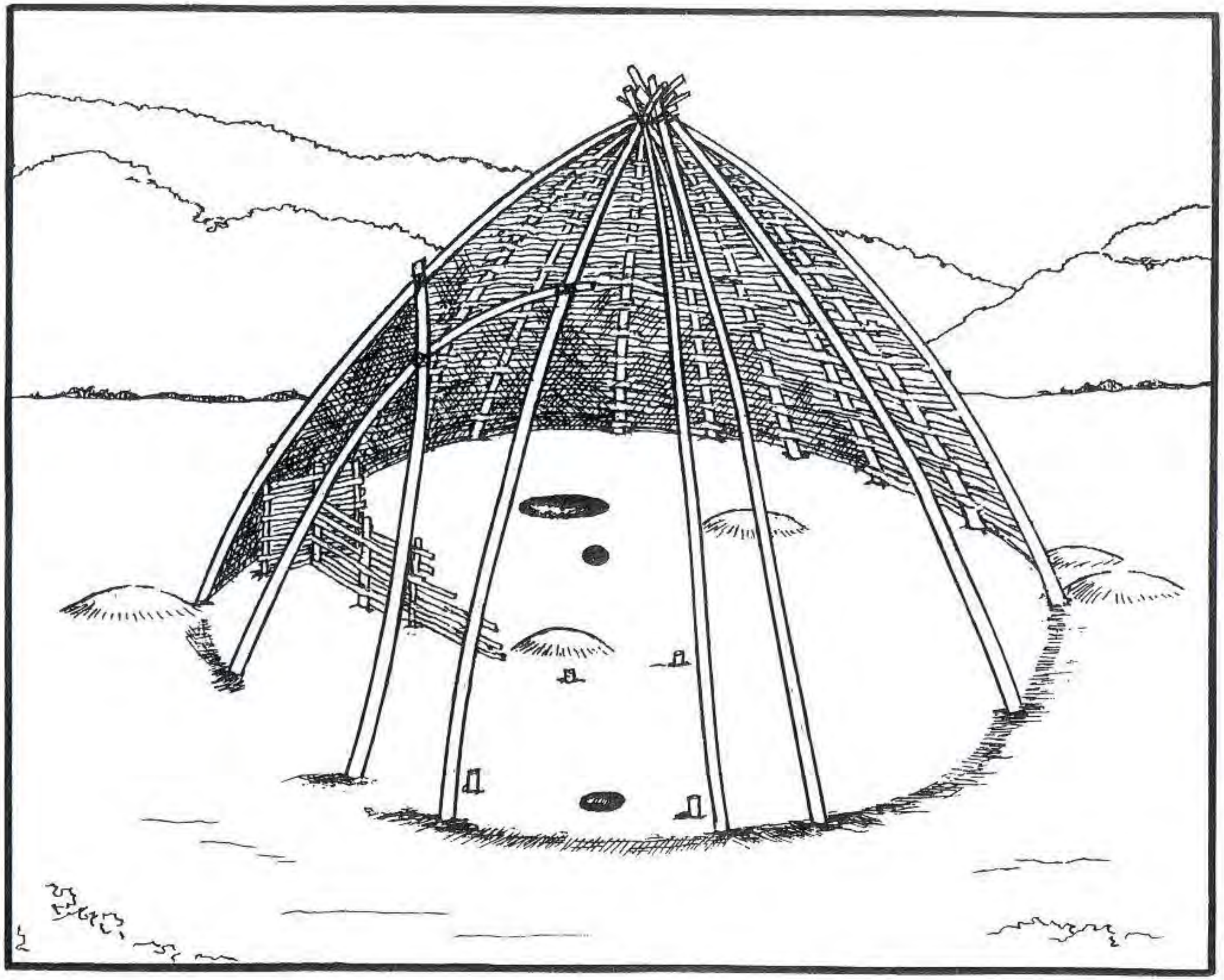


Figure 35. Structure 4 Reconstruction Drawing. Cut-Away View.

its initial use as a storage pit ceased. Feature 18 probably served as a storage pit and later as a refuse receptacle during the structure occupation while Features 17 and 22 functioned only as storage facilities during the period of structure use but not as refuse pits until long after the structure was abandoned. Nearly all (92.4%) of the pits in Feature Cluster I and in and around Structure 4 were assigned to the Late Archaic period occupations of the Bailey site. The three storage pits within the structure contained Late Archaic Benton cluster, Ledbetter cluster, Little Bear Creek cluster, and Big Sandy II cluster projectile points/knives. Structure 4 is also attributed to the Late Archaic period.

A total of 29 postholes occurred in and around Midden 2 in Feature Cluster I. A group of 19 postholes in the south half of Midden 2 and to the east of the midden appeared to form two overlapping rectangular shelter patterns (Structure 5) oriented at approximately right angles to each other. These three-sided rectangular structures were either roofed shelters open on one side or simple windbreaks lacking roofs (Figure 36). The open side of Structure 5A faced grid northwest or magnetic north. A hearth (F 96) was centrally located along the back wall and a cluster of three postholes (PH 48, 49, and 50) was positioned near the middle of the structure. Structure 5A measured 6.0-6.5 m x 2.7-3.3 m (floor area-18.8 m^2). Nine postholes spaced 1-3 m apart formed the walls of the shelter. The mean dimensions of these postholes are 20 cm x 17 cm in plan view and 14 cm in depth. Two of the postholes (PH 85 and 86) were found after the removal of Midden 2 and the remaining postholes were intrusive into the midden. The shallow (Class 3) hearth in Structure 5A measured 51 cm x 46 cm in plan view and 20.5 cm in depth. The fill zones were very dark gray to very dark grayish-brown and dark brown silt loams containing abundant burned clay, bone, chert debris, and some charcoal. Two shallow (Class 3) pits (F 98 and 162) may have been associated with the shelter occupation. The open side of Structure 5B faced grid northeast or magnetic east. Three hearths (F 80, 82, and 94) were positioned along the back wall of the structure. Structure 5B measured 6.5-6.7 m x 2.3-3.5 m (floor area-19.1 m^2). Seven postholes spaced 1.5-3.0 m apart formed the walls of the shelter. The mean dimensions of these postholesare 23 cm x 20 cm in plan view and 20 cm in depth. Three of the postholes (PH 85, 87, and 88) were found after the removal of Midden 2 and the remaining postholes were intrusive into the midden. Two wall postholes (PH 42 and 85) were associated with both Structures 5A and 5B. A cluster of three postholes (PH 48, 49, and 50) in the middle of Structure 5A was also centrally located along the open side of Structure 5B. These postholes probably contained roof supports for both construction phases of Structure 5. Two interior postholes (PH 59 and 89) were probably associated with activities around a hearth (F 94). The three shallow (Class 3) hearths in Structure 5B measured 38-62 cm x 28-52 cm in plan view and 18-24 cm in depth. The fills were dark brown to very dark grayish-brown and very dark grayish-brown silt loams containing the same material types as the hearth (F 96) in Structure 5A but in lesser quantities. A layer of charcoal was found on the bottom of one of the hearths (F 82) in Structure 5B. A shallow (Class 3) burial pit (F 81, Burial 4) was located in the middle of Structure 5B and may have been associated with the shelter occupation. Nearly all (92.4%) of the pits in Feature Cluster I and in and around Structure 5 were assigned to the Late Archaic occupations of the Bailey site. A hearth (F 96) in Structure 5A contained a Late Archaic Little Bear Creek cluster projectile

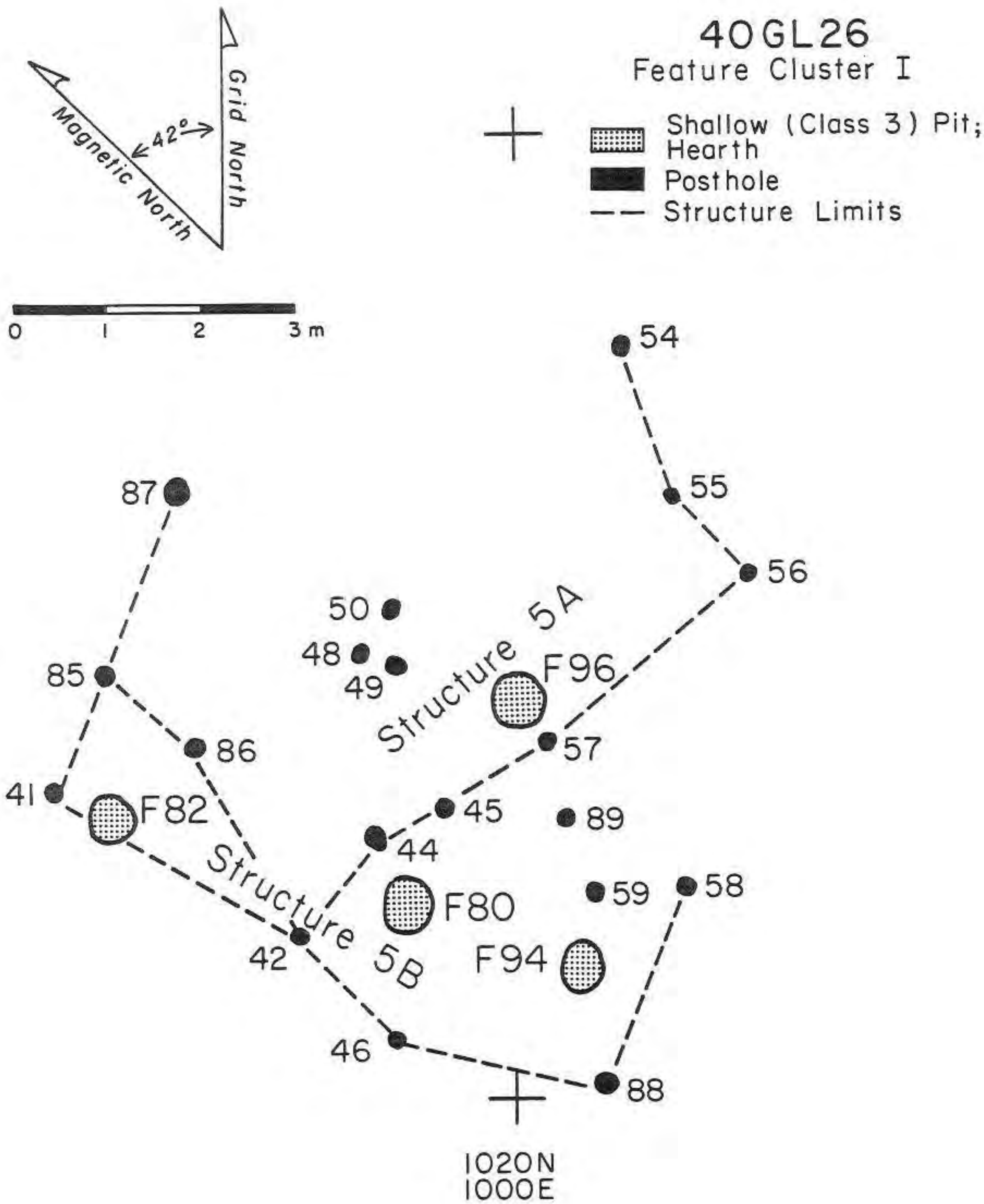


Figure 36. Structure 5.

point/knife. Structure 5 is also attributed to the Late Archaic period.

The Late Archaic structures on the Bailey site consisted of two basic forms, the open rectangular shelter and the fully enclosed circular structure. Three shelters, representing six construction phases, varied in size from 4.1-7.0 m x 2.6-4.0 m with floor areas of 11.6-26.7 m^2 ($\bar{x}$=5.7 m x 3.1 m, floor area-17.7 m^2). Each shelter contained one or more small hearths. Two shelters also each contained a medium (Class 2) storage pit adjacent to the hearth and a medium (Class 2) storage pit and a shallow (Class 3) pit near opposite side walls. The shelters were probably single family sleeping and work enclosures or windbreaks around work areas used during warm weather. Forty-one postholes scattered around the site area may represent the remains of additional shelters with less substantial walls and support systems. The enclosed Late Archaic structure was probably a cold weather multifamily dwelling. This structure was approximately four times larger than the average shelter size. Large deep (Class 1) and medium (Class 2) storage pits and shallow (Class 3) hearths formed a domestic activity zone in and around the structure where food resources were kept and processed throughout the cold season. The enclosed Woodland structure may also have been a cold season dwelling even though associated large deep (Class 1) storage pits were lacking. This structure was probably at least as large as the enclosed Late Archaic dwelling. The form and contents of the shallow (Class 3) pits in the intact section of the Woodland structure indicate that a variety of activities occurred within the dwelling including chert reduction, burial of the dead, and probably food processing and storage.

MIDDENS

Five midden areas were noted and mapped during the Phase III investigations at the Bailey site. Two of these middens (Middens 1 and 3) were examined as part of the Phase II test excavations conducted by Memphis State University and two other middens (Middens 2 and 4) were excavated during the data recovery.

Midden 2 measured 19.5 m x 5.3-9.0 m in plan view and 3-14 cm in depth (Figures 37-39). The fill was very dark brown to very dark grayish-brown in color and contained mostly chert debris. Fourteen pits and 11 postholes were intrusive into Midden 2 while an additional 15 pits and 4 postholes were found beneath the midden. The midden was probably formed by the intensive digging and filling of pits in the area. The secondary use of pits as refuse receptacles resulted in excess deposits of excavated soil remaining on the ground surface. Cultural and organic materials became mixed in the soil and separate deposits gradually coalesced into a midden layer. Nearly all (92.4%) of the pits in Feature Cluster I and in and around Midden 2 were assigned to the Late Archaic occupations of the Bailey site. Midden 2 also contained Late Archaic Benton cluster, Ledbetter cluster, and Big Sandy II cluster projectile points/knives. Midden 2 is attributed to the

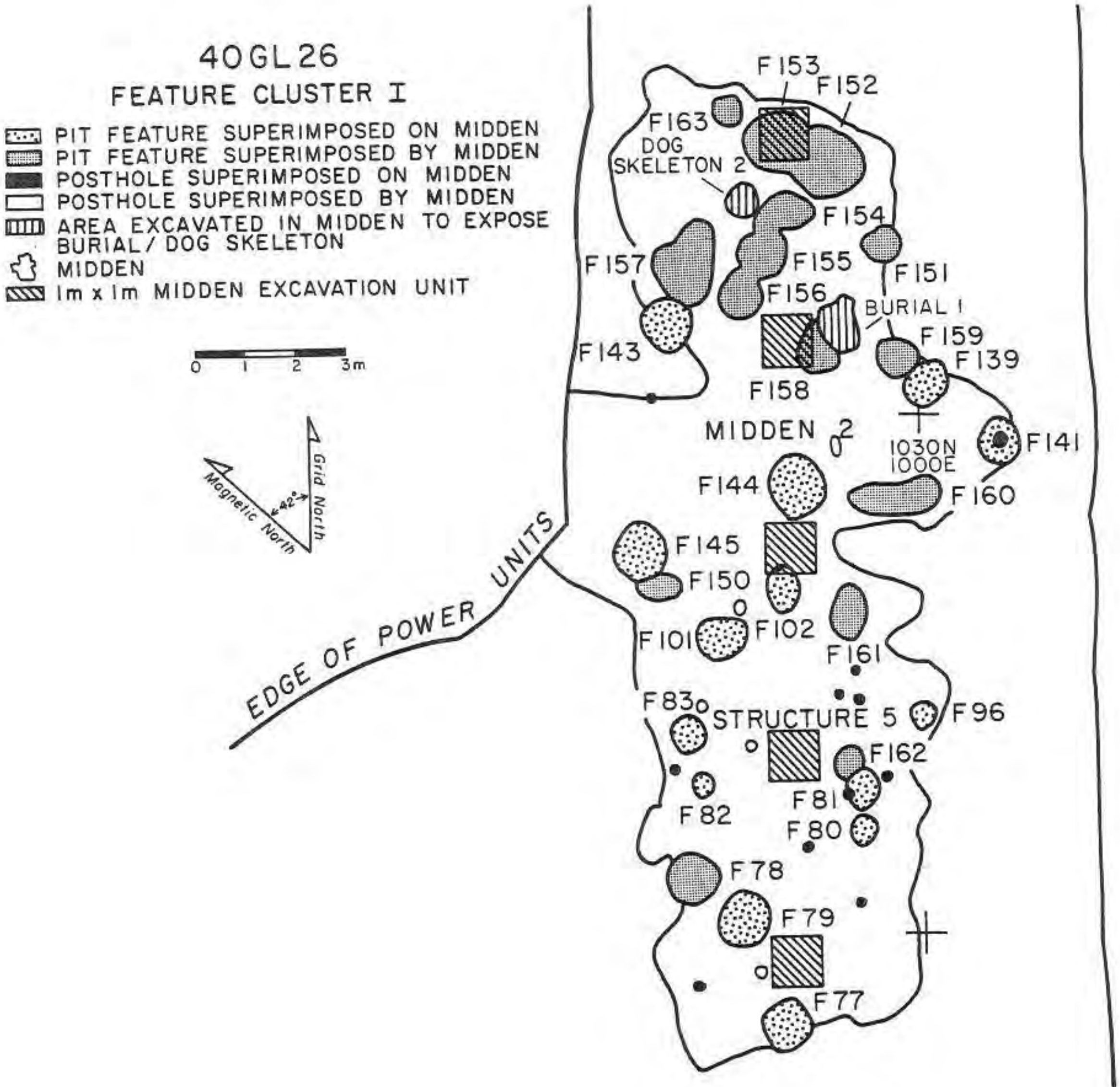


Figure 37. Midden 2.

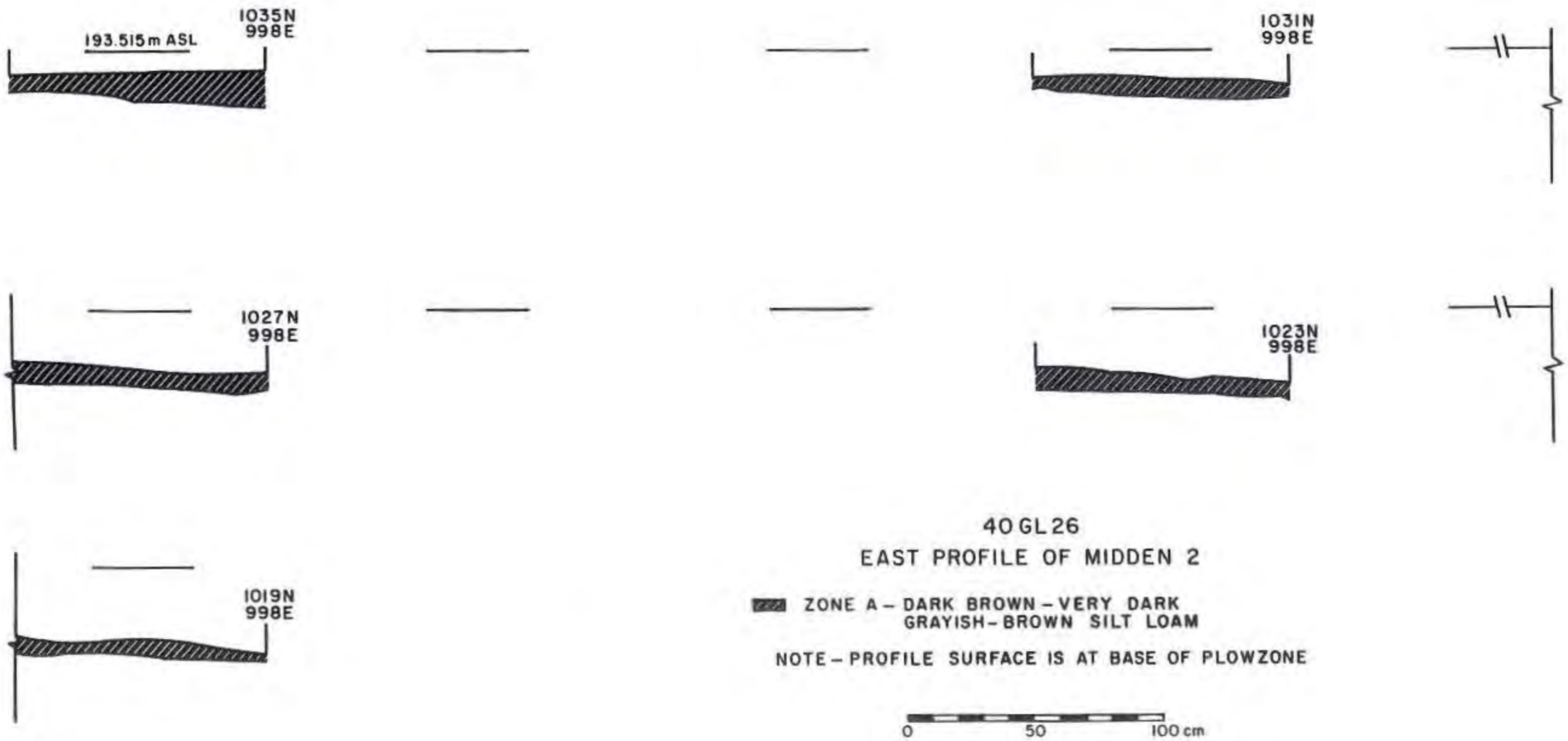
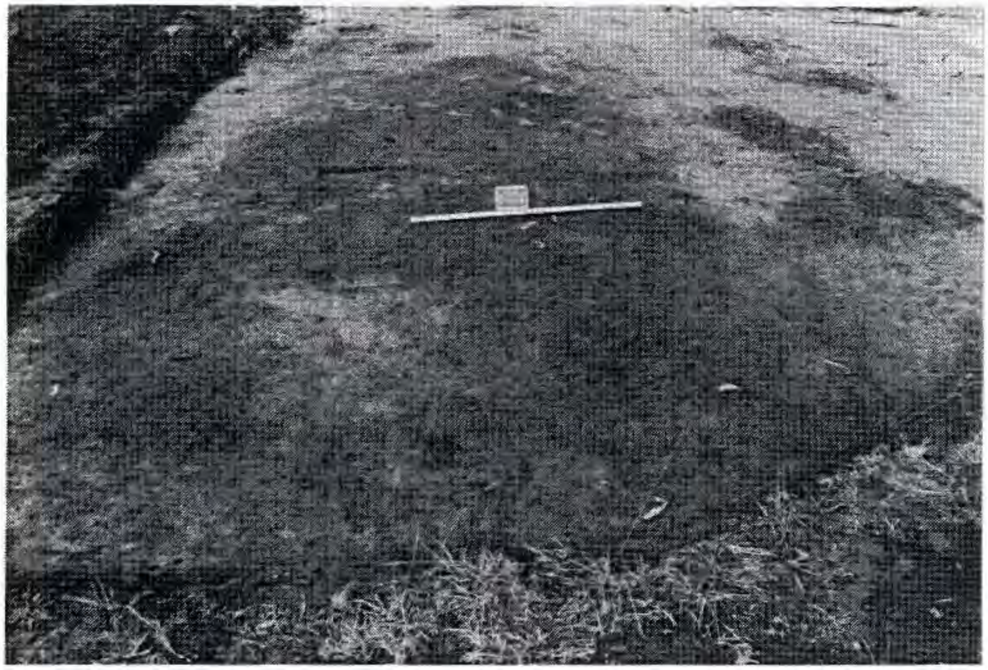


Figure 38. Midden 2 Profile.



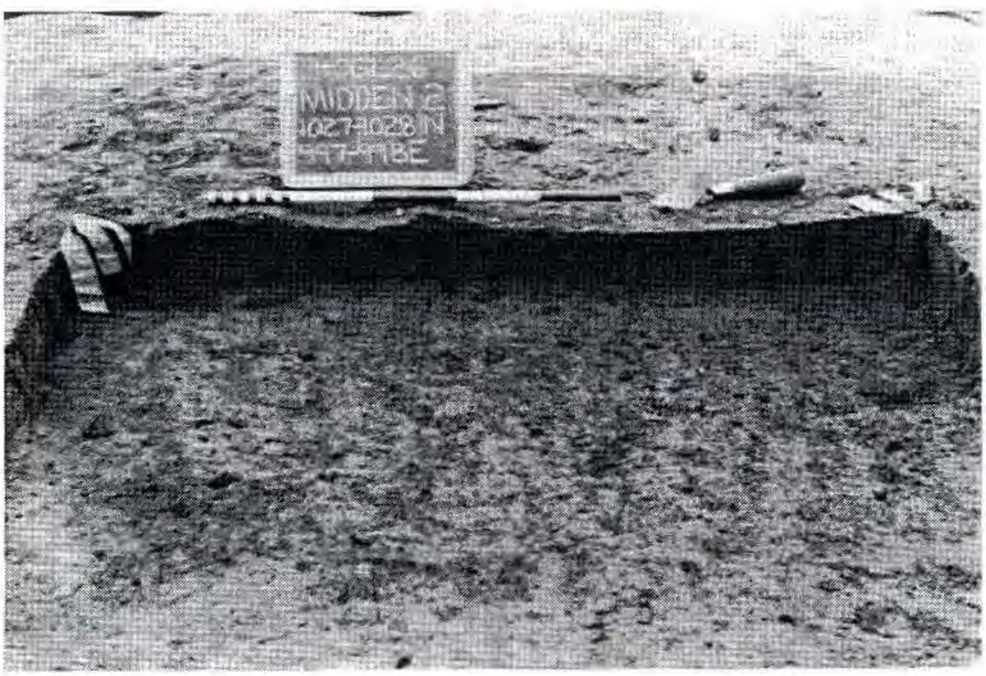


Figure 39. Midden 2 Before Excavation (South Half) and Profile View of a Midden 2 Excavation Unit. Looking South (Top) and East (Bottom).

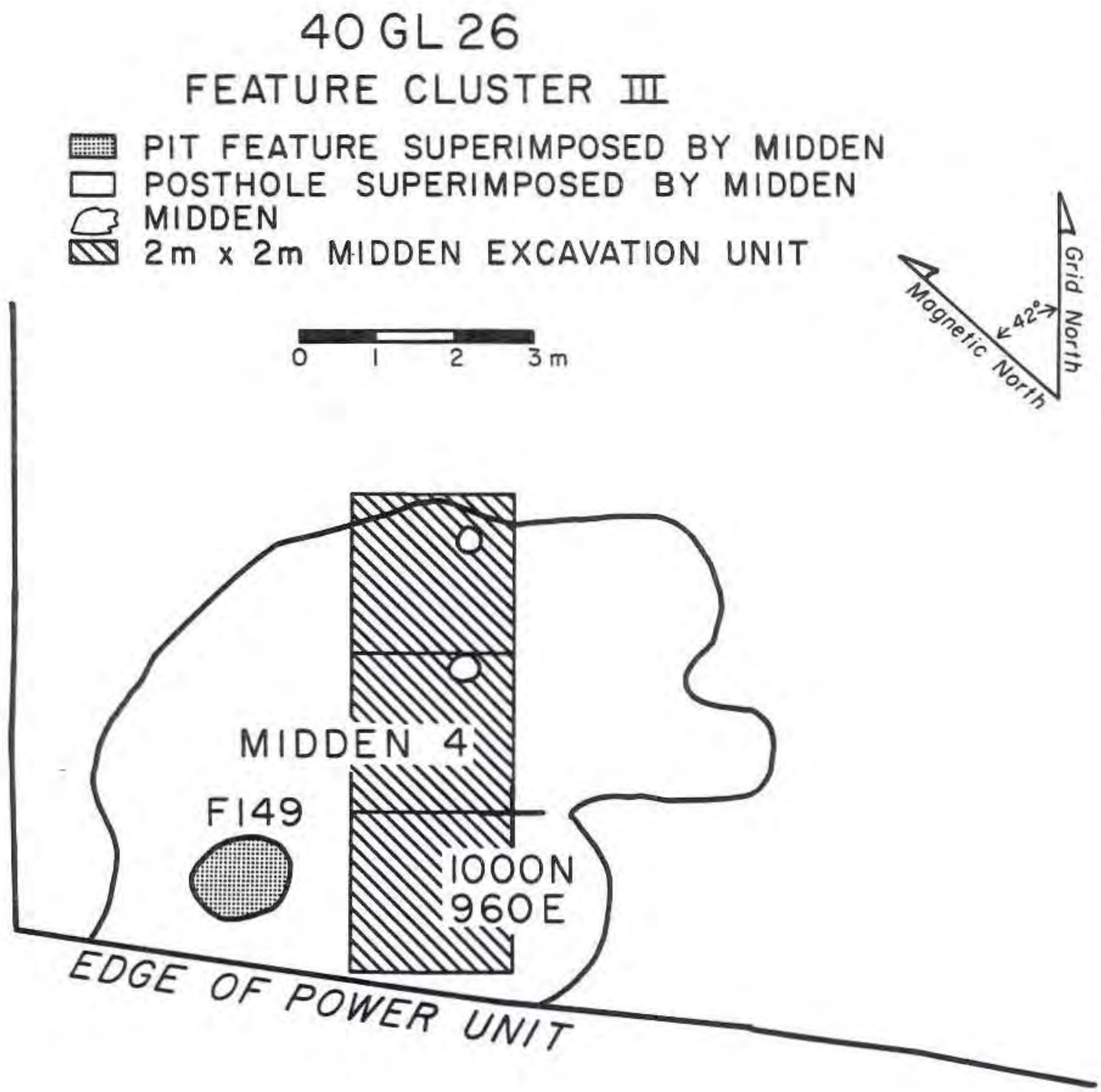


Figure 40. Midden 4.

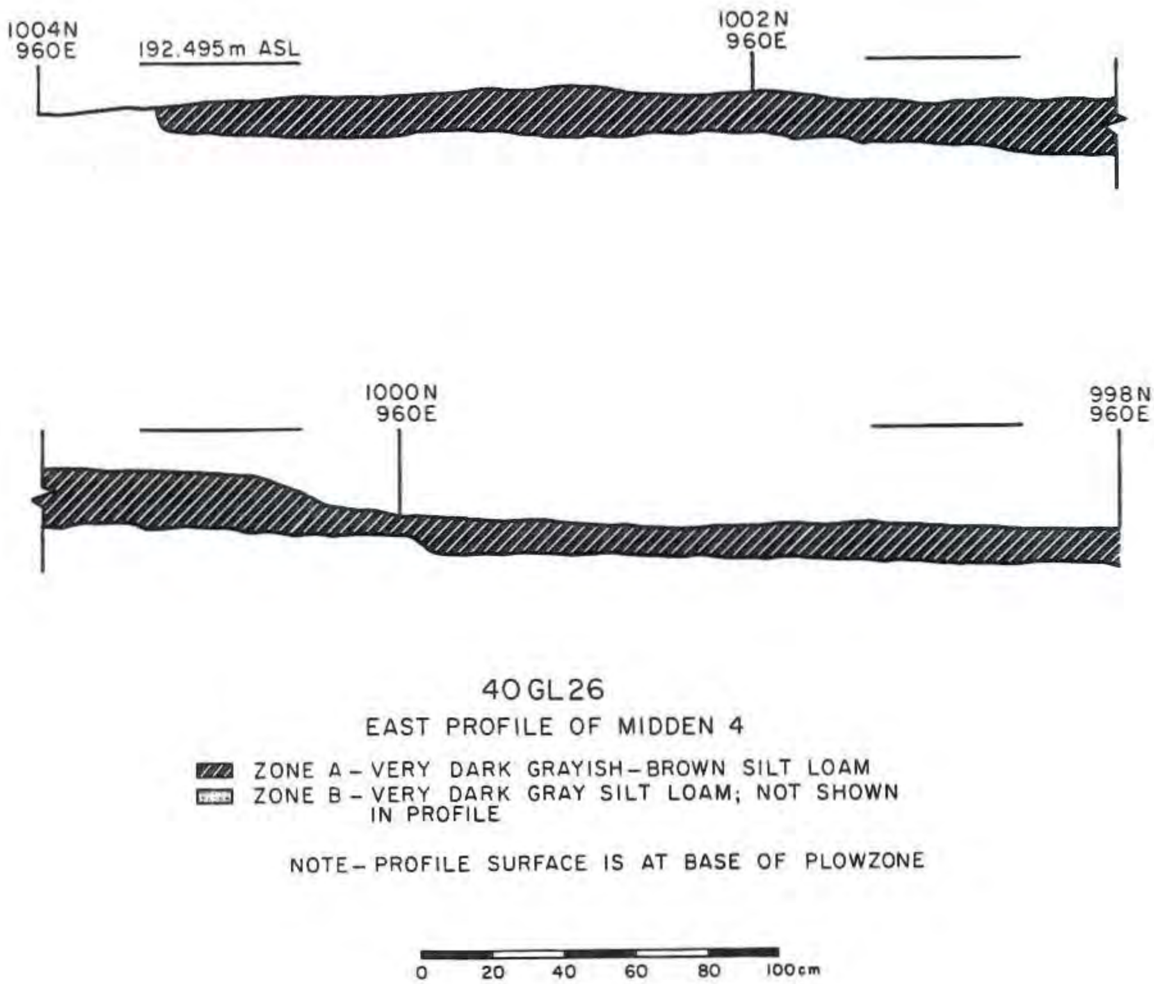
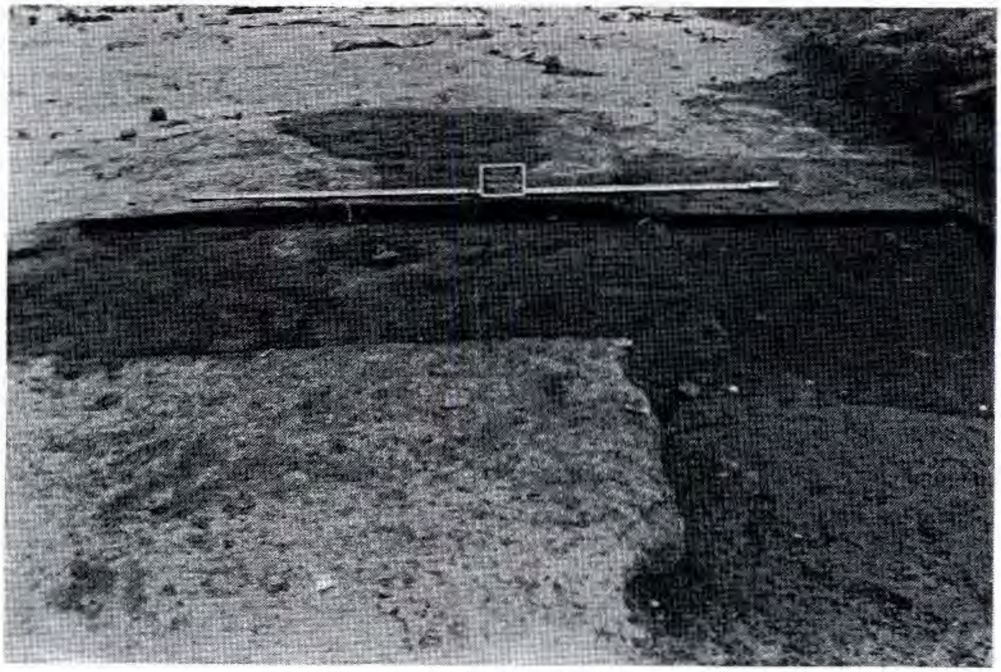


Figure 41. Midden 4 Profile.



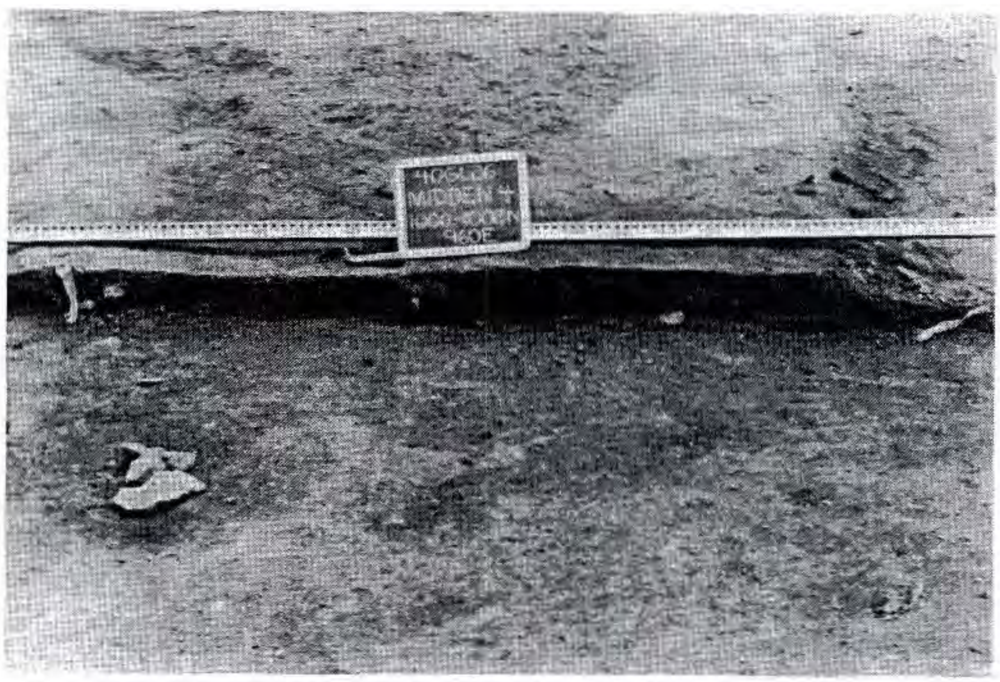


Figure 42. General Profile View of Midden 4 and Profile View of a Midden 4 Excavation Unit. Looking East (Top and Bottom).

Late Archaic period. Midden 2 was located in the east half of Feature Cluster I.

Midden 4 measured 8.4 m x 6.3 m+ in plan view and 5-16 cm in depth (Figures 40-42). Most of the fill was a very dark grayish-brown silt loam (Zone A) containing abundant pottery, projectile points/knives, chert debris, burned limestone, burned clay, and bone. Trampling of the midden material is indicated by the highly fragmented state of the pottery and chert debris. An area of very dark gray loose granular silt loam fill (Zone B) was partially exposed and excavated in the southwest quadrant of a 2 m x 2 m unit (1000-1002 N, 958-960 E) established in the midden. Zone B contained numerous large sections of bone including a complete turtle carapace. Unlike Midden 2, much of Midden 4 was probably formed as a result of activities near a shallow (Class 3) earth oven (F 149). Only two postholes, in addition to the earth oven, were found beneath the midden. Midden 4 and the underlying earth oven (F 149) contained ceramics and projectile points/knives diagnostic of the late Middle Woodland and Late Woodland. Midden 4 is attributed to the Late Woodland period. Certain ceramic and projectile point types that originated in the Middle Woodland probably continued into the Late Woodland. Midden 4 was located in the southwest corner of Feature Cluster III.

Middens 1 and 3 measured 5.7 m x 4.3 m and 3.9 m x 1.9 m in plan view and 3-9 cm in depth. The fills were very dark brown or very dark grayish-brown in color. The midden fill and overlying plowzone contained abundant grog tempered sherds in addition to other cultural material (Reed and Dye 1985:14, 46-50, 54-57). Middens 1 and 3 were located in the east half of Feature Cluster III approximately 9 m apart and 9-12 m from Midden 4. A portion of Midden 3 was apparently exposed in Test Unit 2 during the Phase II investigations. The few centimeters of midden fill in the test unit locale were probably truncated by plowzone removal during the Phase III data recovery. The remaining section of Midden 3 was situated 2 m south of Test Unit 2. Test Unit 6 was excavated in the center of Midden 1.

Midden 5 measured at least 5.1 m x 3.4 m in plan view and was not excavated. This midden was partially exposed in the northwest corner of Feature Cluster III.

Middens 1, 3, and 5 can probably be attributed to the Late Woodland occupation of the Bailey site. These midden areas, along with Midden 4, may have once formed a continuous midden layer across Feature Cluster III. Few pit features were associated with this occupation.

FEATURE DISTRIBUTION

Feature Cluster I was located in the northeast quadrant of Power Unit 1 and the south end of Power Unit 2 (Figure 43). The cluster covered an area of 462 m² and contained 79 excavated and unexcavated pits, 1 midden area, 2 structures, 16

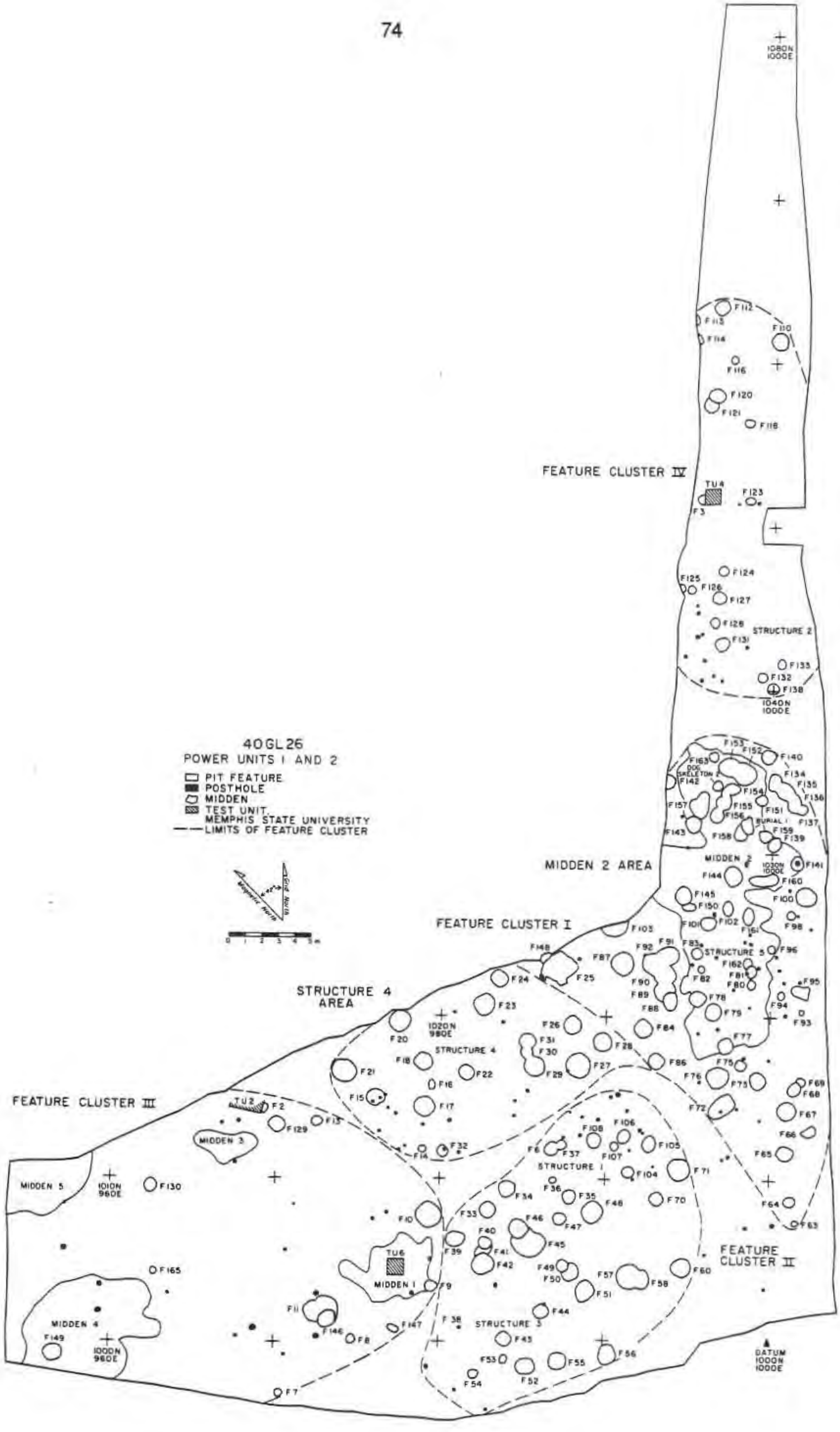


Figure 43. Limits of Feature Clusters.

scattered postholes, 7 burials, and 2 dog skeletons (Table 3 and Figure 44). One additional burial (Burial 1) was apparently interred in the midden fill. The pits consisted of 31 large deep (Class 1) and medium (Class 2) storage facilities, 43 shallow (Class 3) pits, and 5 large shallow (Class 4) pits (Table 4). The shallow pits included six burial pits, six hearths, and four earth ovens. The large shallow pits included the square historic feature (F 25). The density of pits in Feature Cluster I was determined by comparing the total pit surface area (m^2) and cluster surface area (m^2) in the form of a ratio. The pit density ratio in Feature Cluster I was a high 1:6, which indicates that for every 6 m^2 of cluster area there was 1 m^2 of pit surface area. There were numerous occurrences of superimposed pits including four separate chains of 3-5 overlapping pits. The square historic pit (F 25) dates to the early 19th century, one small pit (F 32) is Late Woodland, and four excavated and unexcavated pits (F 15, 24, 148, and 103) are of indeterminate cultural affiliation. The remaining features are identified as either Late Archaic (n=23) by associated diagnostic artifacts or as probable Late Archaic (n=50) by the forms, depths, fills, and locations within Feature Cluster I.

Midden 2 was situated in the east half of Feature Cluster I. Fourteen pits and 11 postholes were intrusive into the midden fill while an additional 15 pits and 5 postholes were found immediately beneath the midden. Over two-thirds (69.3%) of the 62 pits in and around Midden 2 were shallow (Class 3) and large shallow (Class 4) pits and nearly one-third (30.7%) were large deep (Class 1) and medium (Class 2) storage pits. Two overlapping Late Archaic shelters (Structure 5) with interior hearths were situated in the south half of and adjacent to Midden 2. The storage pits (n=19) and earth ovens (n=4) formed a sweeping arc extending from just south of the midden at Features 65 and 67 to just west of the midden at Features 87 and 90 and finally into the north half of the midden at Features 156 and 158. These large deep (Class 1) and medium (Class 2) storage pits and shallow (Class 3) earth ovens may have formed a domestic activity zone around Structure 5 and Midden 2 for the purpose of processing and amassing food resources.

Structure 4 was located 10 m west of Midden 2 in Feature Cluster I. The structure was comprised of an incomplete circular pattern of postholes, five interior pits, and associated exterior pits. The interior pits consisted of three large deep (Class 1) storage pits and two shallow (Class 3) hearths. Six large deep (Class 1) and medium (Class 2) storage facilities ringed the north half of Structure 4 just outside and adjacent to the wall. A group of three additional large deep (Class 1) and medium (Class 2) storage pits was located 3 m east of the structure. In contrast to the Midden 2 area, nearly three-fourths (70.6%) of the 17 pits in and around Structure 4 were large deep (Class 1) and medium (Class 2) storage facilities and just over one-fourth (29.4%) were shallow (Class 3) pits. Burials and earth ovens were lacking in the Structure 4 area of Feature Cluster I.

Feature Cluster II was situated in the southeast quadrant of Power Unit 1 approximately 3-7 m from Feature Cluster I (Figure 43). Six scattered postholes were found in the gap between Feature Cluster I and Feature Cluster II. Feature Cluster II covered an area of 236 m^2 and contained 34 excavated and unexcavated pits, 2 structures, and 1 burial

Table 3. Distribution of Pits in Feature Clusters.

<u>Feature Cluster I</u>	
Excavated Pits (F) - n=46	14, 16, 17, 18, 22, 25, 26, 27, 28, 32, 63, 64, 67, 68, 69, 72, 73, 75, 76, 77, 79, 80, 81, 82, 83, 84, 86, 87, 93, 94, 95, 96, 98, 100, 101, 102, 139, 140, 141, 143, 144, 145, 148, 150, 159, 161
Unexcavated Pits (F)[a] - n=33	15, 20, 21, 23, 24, 29, 30, 31, 65, 66, 78, 88, 89, 90, 91, 92, 103, 134, 135, 136, 137, 142, 151, 152, 153, 154, 155, 156, 157, 158, 160, 162, 163
<u>Feature Cluster II</u>	
Excavated Pits (F) - n=28	33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 48, 49, 50, 51, 52, 53, 54, 55, 56, 60, 70, 71, 104, 105, 106, 107, 108
Unexcavated Pits (F) - n=6	6, 45, 46, 47, 57, 58
<u>Feature Cluster III</u>	
Excavated Pits (F) - n=6	10, 11, 13, 146, 147, 149
Unexcavated Pits (F) - n=9	1, 2, 5, 7, 8, 9, 129, 130, 165
<u>Feature Cluster IV</u>	
Excavated Pits (F) - n=14	110, 112, 116, 118, 121, 123, 124, 126, 127, 128, 131, 132, 133, 138
Unexcavated Pits (F) - n=4	3, 113, 114, 125

[a] Unexcavated pits include those investigated by Memphis State University.

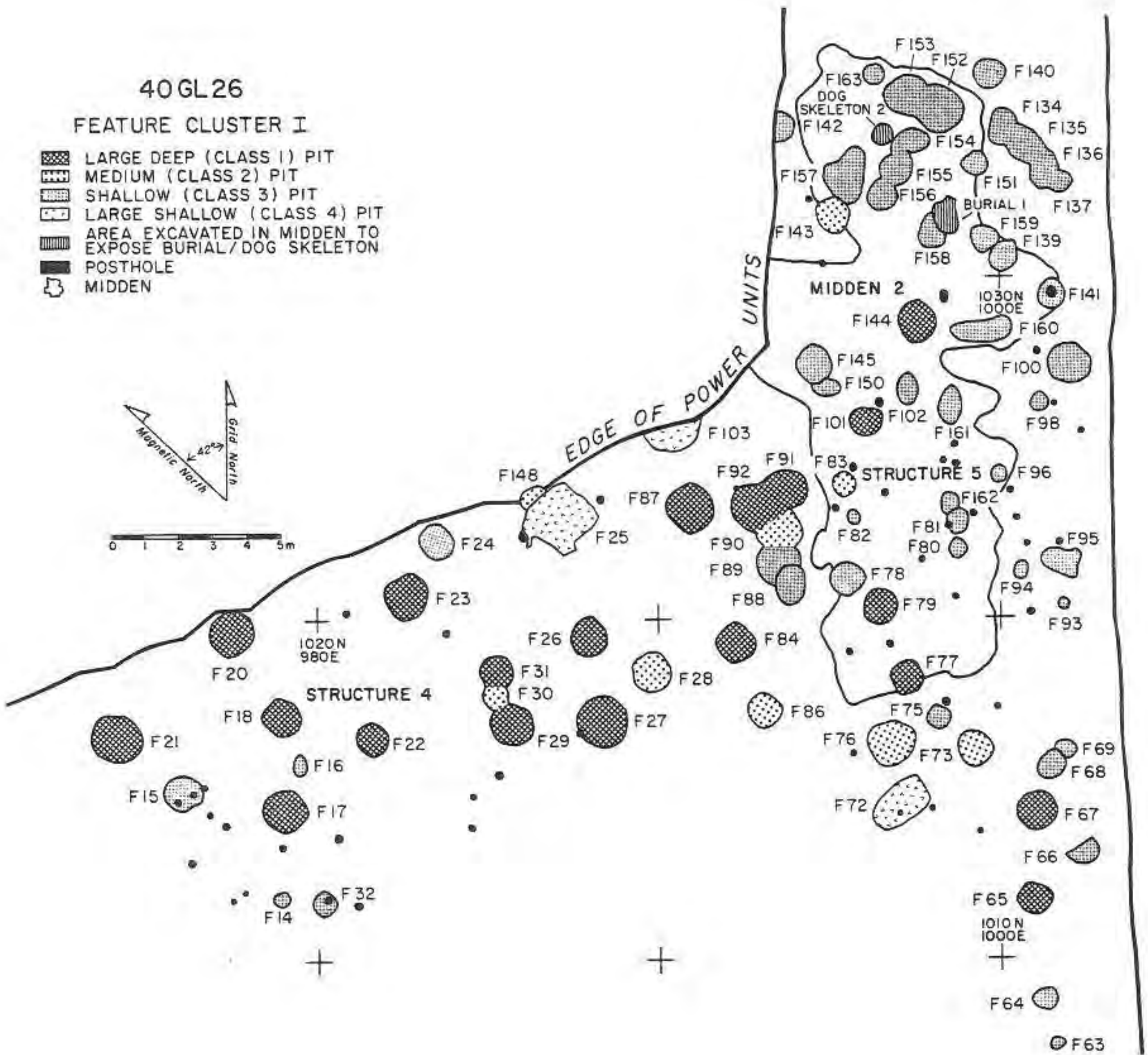


Figure 44. Feature Cluster I.

Table 4. Distribution of Pit Classes in Feature Clusters.

	Large Deep (Class 1)		Medium (Class 2)		Shallow (Class 3)		Large Shallow (Class 4)		Indeterminate	
Feature Cluster	Exc. Pits[a]	Unexc. Pits[b]	Exc. Pits	Unexc. Pits	Exc. Pits	Unexc. Pits	Exc. Pits	Unexc. Pits	Unexc. Pits	Total
I	12	10	7	2	25	18	2	3		79
II	6	3	14	2	8	1				34
III		1			4	5	2		3	15
IV				1	14				3	18
Total	18	14	21	5	51	24	4	3	6	146

[a] Exc.-excavated.

[b] Unexc.-unexcavated.
Unexcavated pits include those investigated by Memphis State University.

(Table 3 and Figure 45). The pits consisted of 25 large deep (Class 1) and medium (Class 2) storage facilities and compound pits and 9 shallow (Class 3) pits (Table 4). The shallow pits included one feature containing a burial (F 37, Burial 11) and two hearths (F 53 and 107) in the structures. The density ratio of pits in Feature Cluster II was a high 1:7, which indicates that for every 7 m^2 of cluster area there was 1 m^2 of pit surface area. There were four occurrences of superimposed pits including one chain of three overlapping pits. Late Woodland pits in Feature Cluster II consist of a large deep (Class 1) storage pit (F 48), a medium (Class 2) storage pit reused as an earth oven or stone-lined hearth (F 60), and a shallow (Class 3) pit (F 6). A shallow (Class 3) limestone-filled pit containing a burial (F 37, Burial 11) overlapped Feature 6 and is probably also Woodland in origin. The remaining features are identified as Late Archaic (n=17) by associated diagnostic artifacts or as probable Late Archaic (n=13) by the forms, depths, fills, and locations within Feature Cluster II.

The two structures in Feature Cluster II were rectangular open shelters. Each structure had a centrally located shallow (Class 3) hearth positioned along the open side. The hearth was bordered by a medium (Class 2) storage pit while a medium (Class 2) storage pit and a shallow (Class 3) pit were situated near opposite side walls. Structure 1 was at the northeast end of Feature Cluster II and Structure 3 was located at the southwest end of Feature Cluster II approximately 10 m from Structure 1. Structure 1 opened to the southwest and Structure 3 opened to the southeast. Other pits around the shelters may have been associated with these structures but no pattern among the features was evident.

Feature Cluster III was situated in the west half of Power Unit 1 adjacent to Feature Clusters I and II (Figure 43). Feature Cluster III covered an area of 408 m^2 and contained 15 excavated and unexcavated pits, 4 midden areas, 19 scattered postholes and possible postholes, and 1 burial (Table 3 and Figure 46). The pits consisted of one large deep (Class 1) storage facility, nine shallow (Class 3) pits, and two large shallow (Class 4) pits (Table 4). The shallow features included one burial pit (F 147, Burial 6) and two earth ovens (F 146 and 149). The morphological classes of three pits were indeterminate (F 1, 5, and 165). The density ratio of pits in Feature Cluster III was a low 1:42, which indicates that for every 42 m^2 of cluster area there was 1 m^2 of pit surface area. There was only one occurrence of superimposed pits in Feature Cluster III. Late Woodland features in Feature Cluster III consist of Midden 4 and an underlying shallow (Class 3) earth oven (F 149). Middens 1, 3, and 5 may also have formed during the Late Woodland. A second shallow (Class 3) earth oven (F 146) is probably also Woodland in origin. One large shallow (Class 4) pit (F 10) adjacent to Midden 1 is Late or Terminal Archaic. An unexcavated large deep (Class 1) pit (F 129) is identified as probable Late Archaic. The remaining features (n=11), including the burial pit, are of indeterminate cultural affiliation. These include two pits (F 1 and 5) that were investigated during the test excavations but not exposed as part of the data recovery.

Feature Cluster IV was located in the central portion of Power Unit 2 approximately 8 m north of Feature Cluster I (Figure 43). Feature Cluster IV covered an area of 175 m^2 and contained 18 excavated and unexcavated pits, 1 structure, 1 burial, and 1 utilized tree disturbance (Table 3 and Figure 47). The pits consisted of 1 medium (Class 2) storage facility, 14 shallow (Class 3) pits,

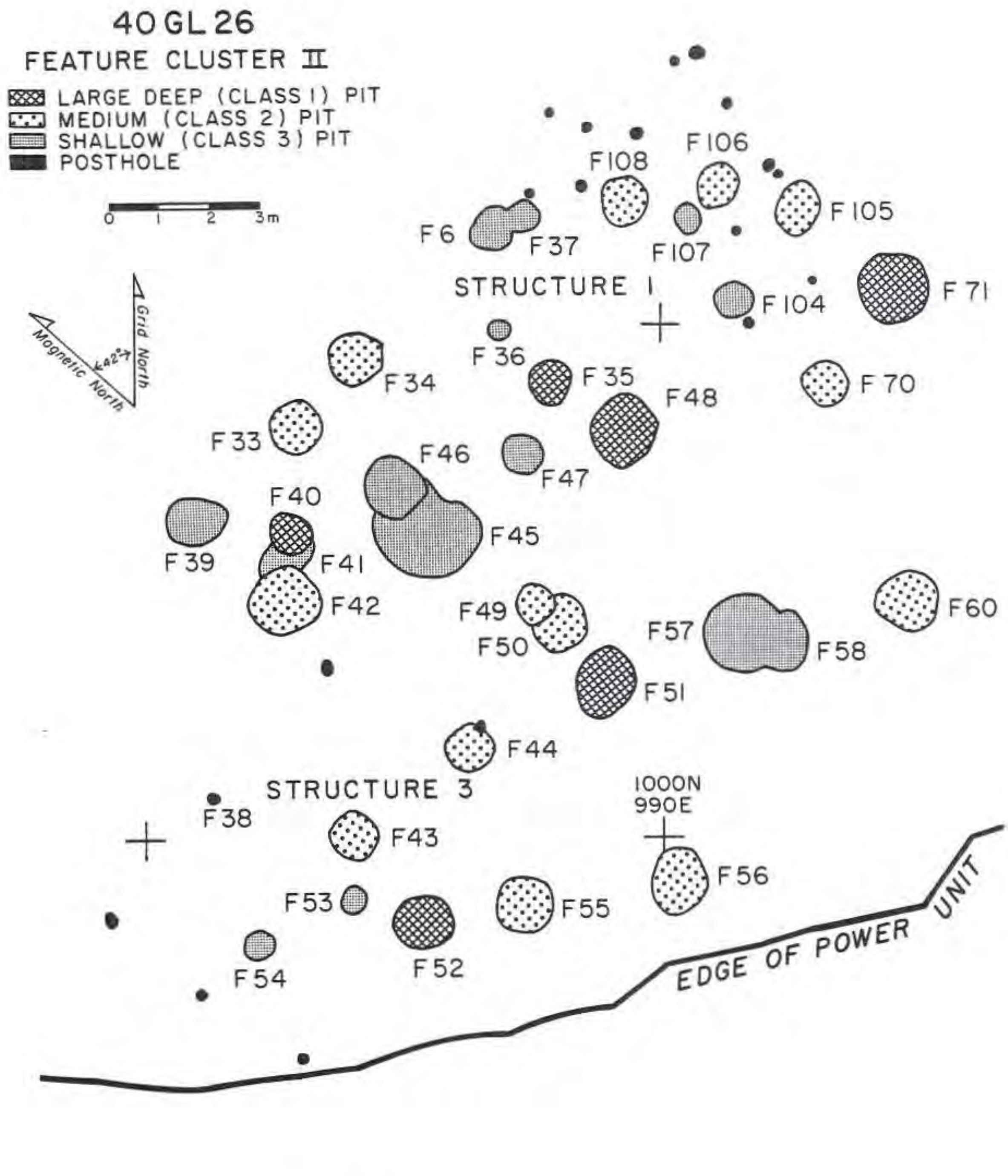


Figure 45. Feature Cluster II.

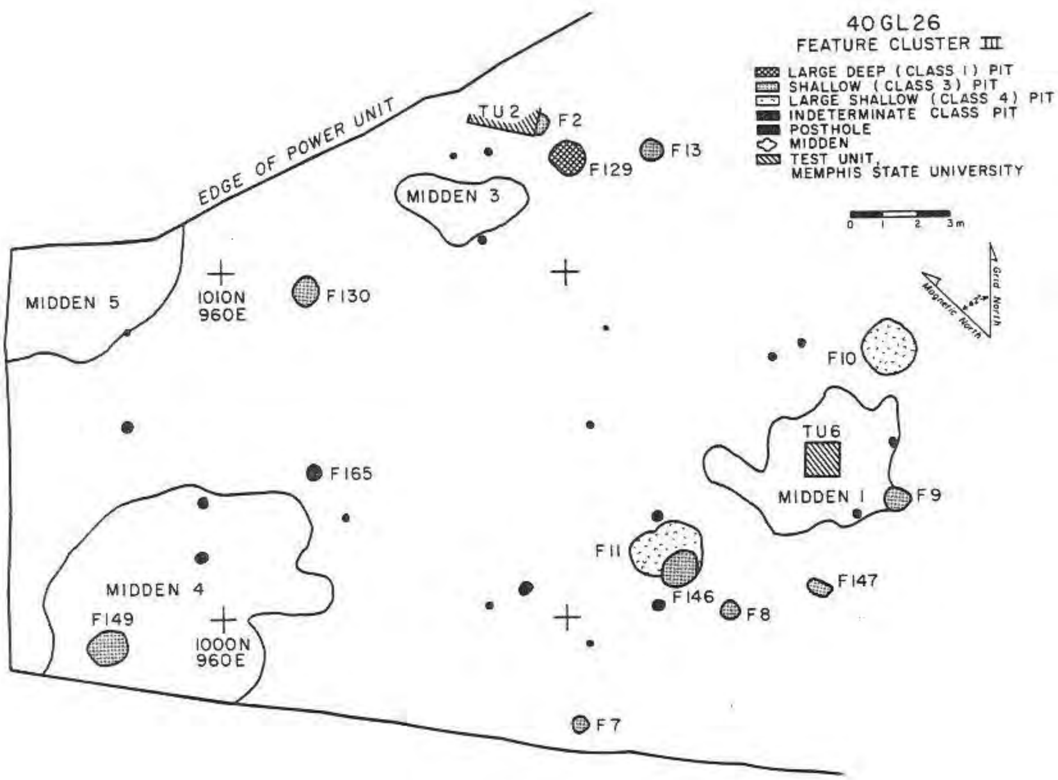


Figure 46. Feature Cluster III.

and 3 indeterminate pits that were only partially exposed within Power Unit 2 (Table 4). The shallow features included one burial pit (F 132, Burial 3). The density ratio of pits in Feature Cluster IV was a low 1:25, which indicates that for every 25 m^2 of cluster area there was 1 m^2 of pit surface area. Pit superpositioning was lacking in Feature Cluster IV. A tentative Woodland affiliation is assigned to a shallow (Class 3) pit (F 127) on the basis of a single sherd. The remaining pits (n=17) in Feature Cluster IV are of indeterminate cultural origin.

Structure 2 was situated at the south end of Feature Cluster IV approximately 8 m from Midden 2. Previous road construction destroyed most of the structural posthole pattern. A section of the west wall remained intact along with a ring of eight shallow (Class 3) pits just inside the arc of postholes. One of the shallow pits contained a burial (F 132, Burial 3).

The four feature clusters ranged in size from 175-462 m^2 and each cluster included 15-79 pits in addition to other features such as middens and structures. The pit densities in Feature Clusters I and II were high while the pit densities in Feature Clusters III and IV were low. The pits in the Midden 2 area of Feature Cluster I were mostly shallow (Class 3) and large shallow (Class 4) features while the pits in Feature Cluster II and the Structure 4 area of Feature Cluster I were mostly large deep (Class 1) and medium (Class 2) storage facilities. The shallow (Class 3) pits include the burial pits, hearths, and earth ovens. Rectangular shelters with interior hearths and also usually interior storage pits and indeterminate shallow pits were found in Feature Clusters I and II. Feature Cluster I also contained an enclosed structure with a central group of interior pits. Nearly all (91.2%) of the pits in Feature Clusters I and II are Late Archaic or probable Late Archaic. The cultural affiliations of the remaining pits in these clusters are Woodland (n=5), historic (n=1), or indeterminate (n=4). The structures, midden, burials, and dog skeletons are also Late Archaic or probable Late Archaic in origin. Feature Cluster III was mainly comprised of four midden patches and a few shallow (Class 3) and large shallow (Class 4) pits. The midden areas and an earth oven are Late Woodland or probable Late Woodland in origin; however, the cultural affiliation of nearly three-fourths (73.3%) of the pits in Feature Cluster III is indeterminate. Feature Cluster IV contained a portion of a disturbed structure and a number of shallow (Class 3) pits. A pit in probable association with the structure is tentatively identified as Woodland. The cultural affiliation of the remaining pits (n=17) in Feature Cluster IV is indeterminate; however, other pits associated with the structure but lacking diagnostics are also probably Woodland.

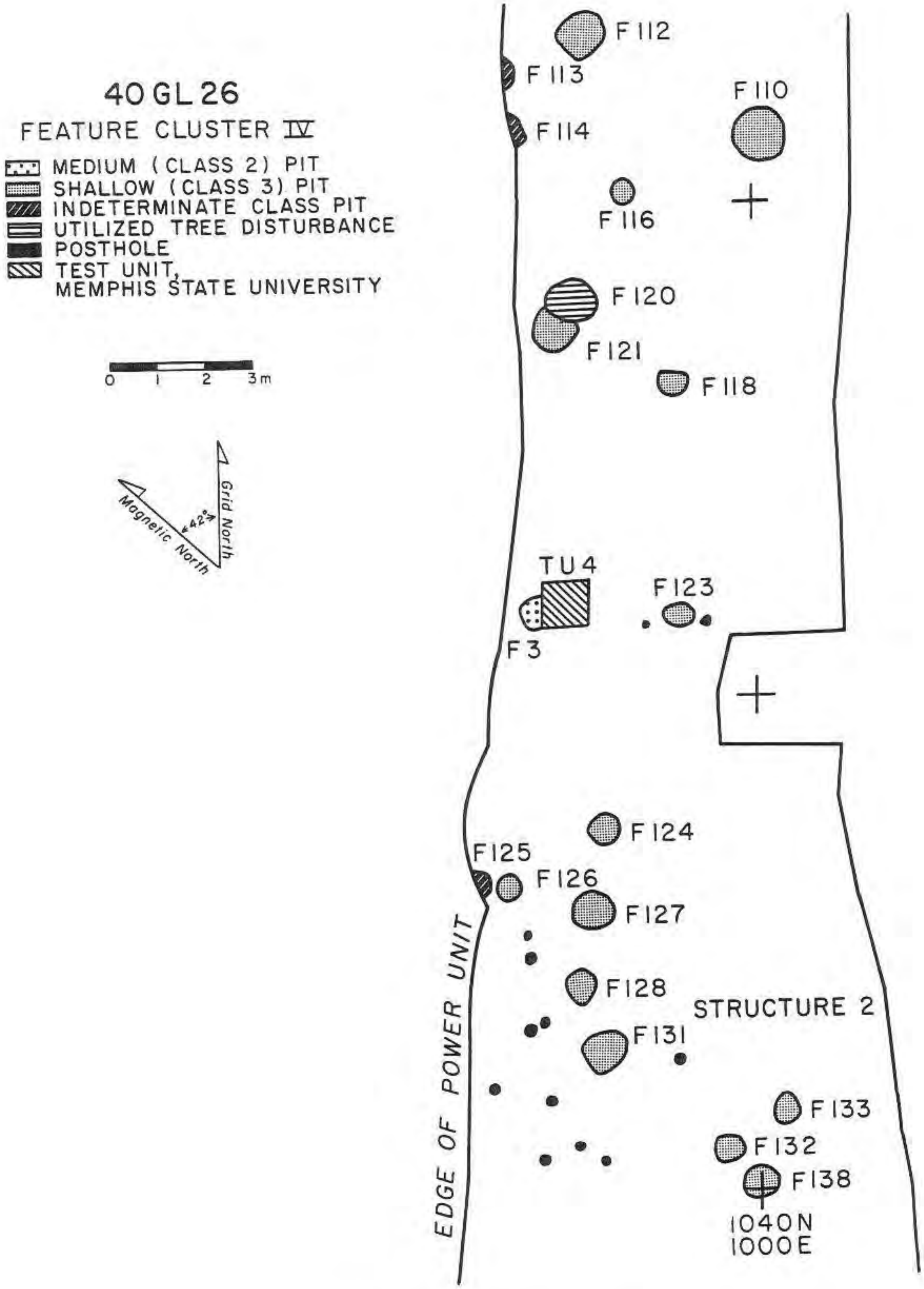


Figure 47. Feature Cluster IV.

CHAPTER IV

RADIOCARBON DATES

Charles Bentz, Jr.

For the purpose of dating the Late Archaic and Late Woodland occupations of the Bailey site, five charcoal samples were sent to Beta Analytic, Inc. for analysis. The carbonized samples submitted for radiocarbon (C-14) age determinations each consisted of 7.6-15.0 grams of walnut and/or hickory nutshell. Three of the samples date the Late Archaic period occupation of the site to approximately 2500-3000 B.C. and two samples date the Late Woodland period occupation to about A.D. 400-500.

Charcoal samples for C-14 dating were obtained from three pits in Feature Clusters I and II that contained projectile points/knives diagnostic of the Late Archaic period. Feature 144 was a large deep (Class 1) pit superimposed on Midden 2 in Feature Cluster I. Projectile points/knives in the Benton, Ledbetter, and Big Sandy II clusters were found in this pit and a charcoal sample of walnut and hickory nutshell from Feature 144 yielded a radiocarbon age and equivalent uncalibrated date of 4960±100 years: 3010 B.C. (Beta-20702). Feature 22 was one of three large deep (Class 1) pits situated in the center of Structure 4 in Feature Cluster I. Projectile points/knives in the Benton, Ledbetter, and Little Bear Creek clusters were found in this pit and a charcoal sample of walnut and hickory nutshell from Feature 22 yielded a radiocarbon age and equivalent uncalibrated date of 4450±80 years: 2500 B.C. (Beta-20990). Feature 35 was a large deep (Class 1) pit located between Structures 1 and 3 in Feature Cluster II. Projectile points/knives in the Benton, Ledbetter, and Little Bear Creek clusters were found in this pit and a charcoal sample of walnut and hickory nutshell from Feature 35 yielded a radiocarbon age and equivalent uncalibrated date of 4780±80 years: 2830 B.C. (Beta-21244).

A series of 37 radiocarbon age determinations from Late Archaic occupations in the Midsouth date archaeological phases and associated projectile point/knife clusters attributed to this time period at approximately 2450-5750 B.P. (500-380 B.C.). The radiocarbon assays place the early Late Archaic Benton cluster at 4595-5765 B.P. (2645-3815 B.C.) with a mean date of 5422 B.P. (3472 B.C.), the Ledbetter phase and cluster at 2850-5490 B.P. (900-3540 B.C.) with a mean date of 3924 B.P. (1974 B.C.), the Little Bear Creek cluster at 2915-4170 B.P. (965-2220 B.C.) with a mean date of 3465 B.P. (1515 B.C.), and the terminal Late Archaic Wade phase and cluster at 2400-3025 B.P. (450-1075 B.C.) with a mean date of 2768 B.P. (818 B.C.) (Table 5 and Figure 48).

The three radiocarbon age determinations from the Late Archaic component at the Bailey site overlap the upper end of the Ledbetter phase time range and the lower end of the Benton cluster time range. The earliest Midsouth date for the Little Bear Creek cluster is about 300-600 years later than the two Bailey site dates of this cluster. The time range of the Little Bear Creek cluster overlaps both the Ledbetter and Wade

Table 5. Radiocarbon Dates from Selected Archaic and Woodland Archaeological Phases.

Radiocarbon Age	Uncalibrated Date (B.C./A.D.)	Archaeological Phase [a]	Site	Source
5765±200	3815 B.C.	Benton	Ervin (40MU174)	Hofman 1984a:3-7
5660±190	3710 B.C.	Benton	Hayes (40ML139)	Klippel and Morey 1986:803
5645±100	3695 B.C.	Benton	East Aberdeen (22MO819)	Rafferty et al. 1980:182-185
5525±75	3575 B.C.	Benton	East Aberdeen (22MO819)	Rafferty et al. 1980:182-185
5520±65	3570 B.C.	Benton	1FR538	Futato 1983:56
5490±200	3540 B.C.	Ledbetter	Russell Cave (1JA181)	Griffin 1974:13
5245±230	3295 B.C.	Benton	Hayes (40ML139)	Klippel and Turner 1983:23
5055±105	3105 B.C.	Ledbetter	Eoff I (40CF32)	Faulkner 1977:213
4960±100	3010 B.C.	Ledbetter	Bailey (40GL26)	---
4780±80	2830 B.C.	Ledbetter	Bailey (40GL26)	---
4595±210	2645 B.C.	Benton	Spring Creek (40PY207)	Peterson, Jr. 1973:38
4450±80	2500 B.C.	Ledbetter	Bailey (40GL26)	---
4390±95	2440 B.C.	Ledbetter	Fattybread Branch (40MU408)	Amick 1986:390
4270±155	2320 B.C.	Ledbetter	Hayes (40ML139)	Klippel and Turner 1983:23
4210±155	2260 B.C.	Ledbetter	Fattybread Branch (40MU408)	Amick 1986:390
4185±165	2235 B.C.	Ledbetter	Tom's Shelter (40MU390)	Hall 1985:96
4170±90	2220 B.C.	Little Bear Creek	Okashua	Wynn and Atkinson 1976
4040±95	2090 B.C.	Ledbetter	Fattybread Branch (40MU408)	Amick 1986:390
4030±260	2080 B.C.	Ledbetter	Banks V (40CF111)	Faulkner and McCollough 1974: 297, 316
4005±80	2055 B.C.	Little Bear Creek	Okashua	Wynn and Atkinson 1976
3880±210	1930 B.C.	Ledbetter	Fattybread Branch (40MU408)	Amick 1986:390
3755±77	1805 B.C.	Ledbetter	Aaron Shelton (40CF69)	Wagner 1982:432
3655±135	1705 B.C.	Ledbetter	Iddins (40LO38)	Chapman 1981:140
3600±180	1650 B.C.	Little Bear Creek	Dam Axis (1FR524)	Futato 1975a:79
3470±75	1520 B.C.	Ledbetter	Iddins (40LO38)	Chapman 1981:140

Table 5. (continued).

Radiocarbon Age	Uncalibrated Date (B.C./A.D.)	Archaeological Phase	Site	Source
3320±155	1370 B.C.	Little Bear Creek	Spring Creek (40PY207)	Peterson, Jr. 1973:38
3280±190	1330 B.C.	Ledbetter	40RH6	Calabrese 1976:62
3225±155	1275 B.C.	Little Bear Creek	40HR275	Peterson, Jr. 1980
3205±145	1255 B.C.	Ledbetter	Iddins (40LO38)	Chapman 1981:140
3025±75	1075 B.C.	Wade	Nowlin II (40CF35)	Keel 1978:134
3020±260	1070 B.C.	Ledbetter	40RH6	Calabrese 1976:62
3020±75	1070 B.C.	Little Bear Creek	Dam Axis (1FR524)	Futato 1975a:82
2960±135	1010 B.C.	Wade	Banks III (40CF108)	Faulkner and McCollough 1974: 294, 320
2920±215	970 B.C.	Wade	Nowlin II (40CF35)	Keel 1978:133
2915±80	965 B.C.	Little Bear Creek	Walker	Dye 1980
2850±870	900 B.C.	Ledbetter	Banks V (40CF111)	Faulkner and McCollough 1974: 297
2790±80	840 B.C.	Wade	Ewell III (40CF118)	DuVall 1982:62
2705±155	755 B.C.	Wade	Westmoreland-Barber (40MI11)	Faulkner and Graham 1966:113
2575±85	625 B.C.	Wade	Oldroy (40HI131)	Herbert 1986a:158
2400±60	450 B.C.	Wade	Chapman (40JK102)	Bentz 1986b:65
2000±60	50 B.C.	Copena	Murphy Hill (1MS300)	Cole 1981:59-60
1950±100	A.D. 1	Copena	Murphy Hill (1MS300)	Cole 1981:59-60
1890±135	A.D. 60	Copena	Murphy Hill (1MS300)	Cole 1981:59-60
1875±155	A.D. 75	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1860±330	A.D. 90	Copena	Murphy Hill (1MS300)	Cole 1981:59-60
1855±100	A.D. 95	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1815±100	A.D. 135	Copena	Murphy Hill (1MS300)	Cole 1981:59-60
1800±95	A.D. 150	Copena	Tunacunnhee (9DD25)	Jeffries 1979:165

Table 5. (continued).

Radiocarbon Age	Uncalibrated Date (B.C./A.D.)	Archaeological Phase	Site	Source
1760±70	A.D. 190	Copena	Murphy Hill (1MS300)	Cole 1981:59-60
1725±60	A.D. 225	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1715±65	A.D. 235	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1710±75	A.D. 240	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1695±85	A.D. 255	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:60
1675±60	A.D. 275	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:62
1670±125	A.D. 280	Copena	Tunacunnhee (9DD25)	Jeffries 1979:165
1665±85	A.D. 285	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1640±65	A.D. 310	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1630±65	A.D. 320	Copena	Ross Mound (1MS134)	Walthall 1972:140
1575±75	A.D. 375	Copena	Leeman Mound (1MG62)	Walthall 1972:141
1570±75	A.D. 380	Copena	Hester (1FR311)	Futato 1983:82
1570±50	A.D. 380	Copena	Hester (1FR311)	Futato 1983:82
1565±55	A.D. 385	Owl Hollow	Eoff I (40CF32)	Cobb 1982:152-158
1555±185	A.D. 395	Owl Hollow	Banks III (40CF108)	Faulkner and McCollough 1974: 296, 473
1555±75	A.D. 395	Owl Hollow	Eoff I (40CF32)	Cobb 1982:152-158
1555±70	A.D. 395	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1530±60	A.D. 420	Copena	Bellefonte (1JA300)	Futato 1977:24-25
1520±60	A.D. 430	McKelvey	Bailey (40GL26)	---
1515±65	A.D. 435	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1510±395	A.D. 440	Copena	Tunacunnhee (9DD25)	Jeffries 1979:165
1495±65	A.D. 455	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1485±145	A.D. 465	Owl Hollow	Banks III (40CF108)	Faulkner and McCollough 1974: 296, 478
1485±95	A.D. 465	Owl Hollow	Shofner (40BD55)	Cobb and Faulkner 1978:12

Table 5. (continued).

Radiocarbon Age	Uncalibrated Date (B.C./A.D.)	Archaeological Phase	Site	Source
1485±60	A.D. 465	Owl Hollow	Eoff I (40CF32)	Cobb 1982:152-154
1470±60	A.D. 480	Owl Hollow	Peters (40FR45)	Cobb and Faulkner 1978:61
1470±515	A.D. 480	Owl Hollow	Banks III (40CF108)	Faulkner and McCollough 1974: 296, 473
1460±130	A.D. 490	Owl Hollow	Banks III (40CF108)	Faulkner and McCollough 1974: 296, 473
1450±60	A.D. 500	McKelvey	Bailey (40GL26)	---
1425±80	A.D. 525	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1415±60	A.D. 535	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:60
1400±110	A.D. 550	Lost Creek	1FR580	Futato 1983:61
1385±85	A.D. 565	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:60
1385±85	A.D. 565	Owl Hollow	Shofner (40BD55)	Cobb and Faulkner 1978:12
1380±95	A.D. 570	Owl Hollow	Banks V (40CF111)	Cobb 1978:80-82
1340±100	A.D. 610	Mason	Yearwood (40LN16)	Butler 1980:39
1335±60	A.D. 615	Owl Hollow	Raus (40BD46)	Cobb and Faulkner 1978:38
1320±125	A.D. 630	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1290±160	A.D. 660	Mason	Banks V (40CF111)	Faulkner and McCollough 1974: 298
1280±100	A.D. 670	Mason	Banks V (40CF111)	Faulkner and McCollough 1974: 298
1255±190	A.D. 695	Lost Creek	1FR507	Futato 1975b:154
1180±85	A.D. 770	Mason	Mason (40FR8)	Faulkner 1968:42
1165±125	A.D. 785	Owl Hollow	Owl Hollow (40FR7)	Cobb and Faulkner 1978:61
1120±90	A.D. 830	Lost Creek	Hendrix (1FR562)	Futato 1983:39
1085±90	A.D. 865	Mason	Banks V (40CF111)	Faulkner and McCollough 1974: 298

Table 5. (continued).

Radiocarbon Age	Uncalibrated Date (B.C./A.D.)	Archaeological Phase	Site	Source
1060±90	A.D. 890	Mason	Mason (40FR8)	Faulkner 1968:42
1050±65	A.D. 900	McKelvey	1JE32	Walthall 1980:138
995±95	A.D. 955	Mason	Brickyard (40FR13)	Butler 1968:196
985±70	A.D. 965	Mason	Ewell III (40CF118)	McCollough and DuVall 1976:43
980±85	A.D. 970	Mason	Ewell III (40CF118)	McCollough and DuVall 1976:43
940±200	A.D. 1010	McKelvey	Champion (1FR318)	Futato 1975c:47
795±55	A.D. 1155	Mason	Eoff I (40CF32)	Faulkner 1977:74

[a] Benton and Little Bear Creek are not formally defined phases.

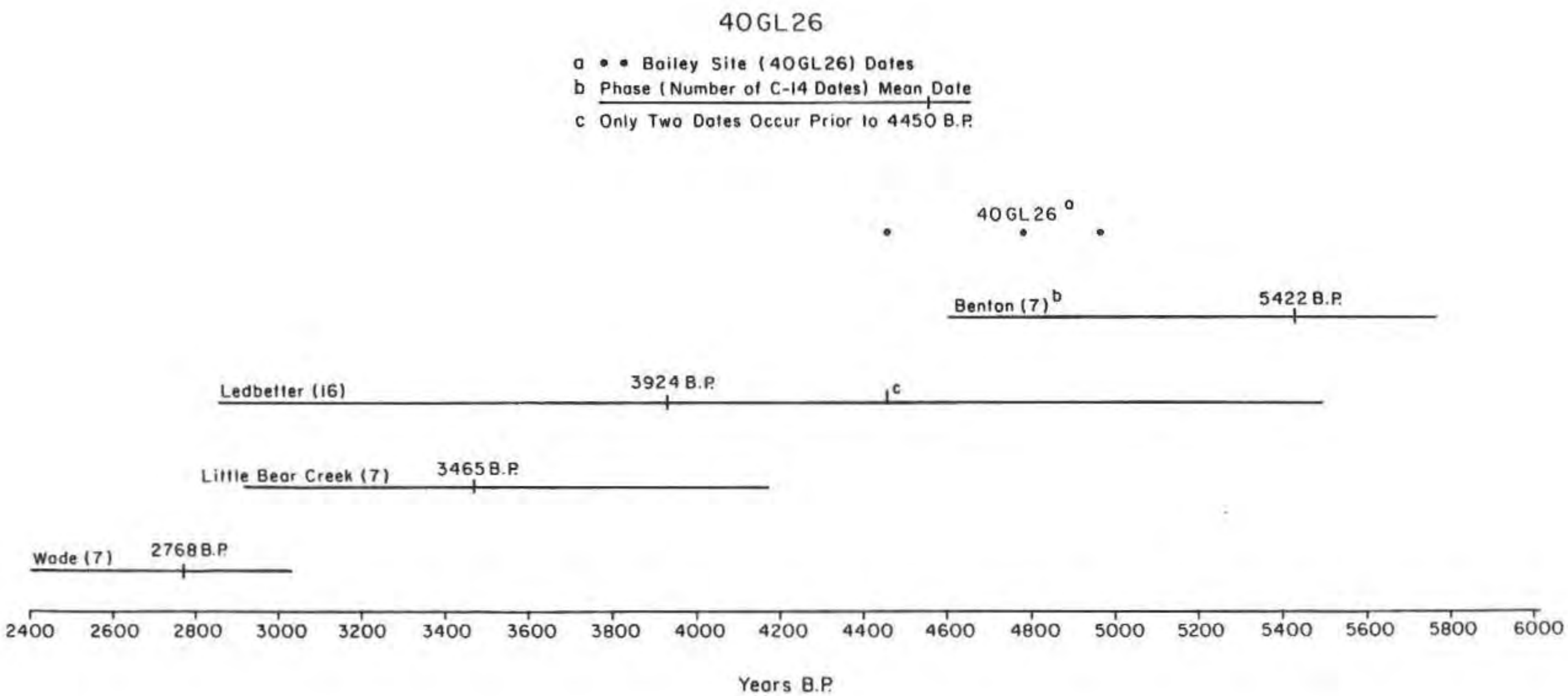


Figure 48. Chronological Distribution of Late Archaic Archaeological Phases and Projectile Point/Knife Clusters.

phases. The Benton, Ledbetter, and Little Bear Creek projectile point/knife clusters frequently occurred together in feature context and most likely represent contemporary tool types associated with the early Ledbetter phase in the southern section of the Interior Low Plateau Physiographic Province. Other typical attributes of the Late Archaic Ledbetter phase which were found at the Bailey site include large deep storage pits and shelter/windbreak form shelters.

Charcoal samples for C-14 dating were obtained from one pit and a 2 m x 2 m midden excavation unit (1000-1002 N, 958-960 E) in Feature Clusters II and III that contained ceramics and projectile points/knives diagnostic of the Middle and Late Woodland periods. Feature 60 was a medium (Class 2) storage pit/earth oven situated along the east edge of Feature Cluster II. Plain limestone tempered pottery, plain and cordmarked grog tempered McKelvey series ceramics, plain and cordmarked quartz tempered pottery, and a few sherds of chert tempered plain, cordmarked, and fabric impressed Mason series ceramics were found in this pit along with projectile points/knives in the Lanceolate Spike and Small Triangular clusters. A charcoal sample of walnut and hickory nutshell from Feature 60 yielded a radiocarbon age and equivalent uncalibrated date of 1450±60 years: A.D. 500 (Beta-21069). Midden 4 was located in the southwest quadrant of Feature Cluster III. Plain limestone tempered pottery, plain and cordmarked grog tempered McKelvey series ceramics, plain quartz tempered pottery, and a few indeterminate sherds of Mason series ceramics were found in this feature along with projectile points/knives of the Lanceolate Expanded Stem, Lanceolate Spike, and Small Triangular clusters. A charcoal sample of hickory nutshell from Level 2 of Midden 4 yielded a radiocarbon age and equivalent uncalibrated date of 1520±60 years: A.D. 430 (Beta-20796).

A series of 58 radiocarbon age determinations from Middle and Late Woodland occupations in the Midsouth date ceramics and projectile point/knife clusters attributed to selected archaeological phases at approximately 795-2000 B.P. (50 B.C.-A.D. 1155). The radiocarbon dates are from archaeological phases pertinent to interpreting the Late Woodland component on the Bailey site. The radiocarbon assays place the Middle Woodland Copena phase/mortuary complex in the Middle Tennessee River Drainage at 1510-2000 B.P. (50 B.C.-A.D. 440) with a mean date of 1724 B.P. (A.D. 226), the Late Middle Woodland Owl Hollow phase in the Upper Duck and Elk River drainages of the Interior Low Plateau Physiographic Province at 1165-1875 B.P. (A.D. 75-785) with a mean date of 1533 B.P. (A.D. 417), the late Middle Woodland Lost Creek phase in the Bear Creek Drainage of the Tennessee River uplands at 1120-1400 B.P. (A.D. 550-830) with a mean date of 1258 B.P. (A.D. 692), the Late Woodland McKelvey phase of the Middle Tennessee River Drainage at 940-1050 B.P. (A.D. 900-1010), and the Late Woodland Mason phase of the Upper Duck River Drainage and the Middle and Upper Elk River Drainage at 795-1340 B.P. (A.D. 610-1155) with a mean date of 1097 B.P. (A.D. 853) (Table 5 and Figure 49).

The two radiocarbon age determinations from the Late Woodland component at the Bailey site occur near the mean date of the late Middle Woodland Owl Hollow phase and close to the upper ends of the time ranges for the late Middle Woodland Lost Creek phase and the Late Woodland Mason phase. The radiocarbon assays overlap the lower end of the time range for the Middle Woodland Copena

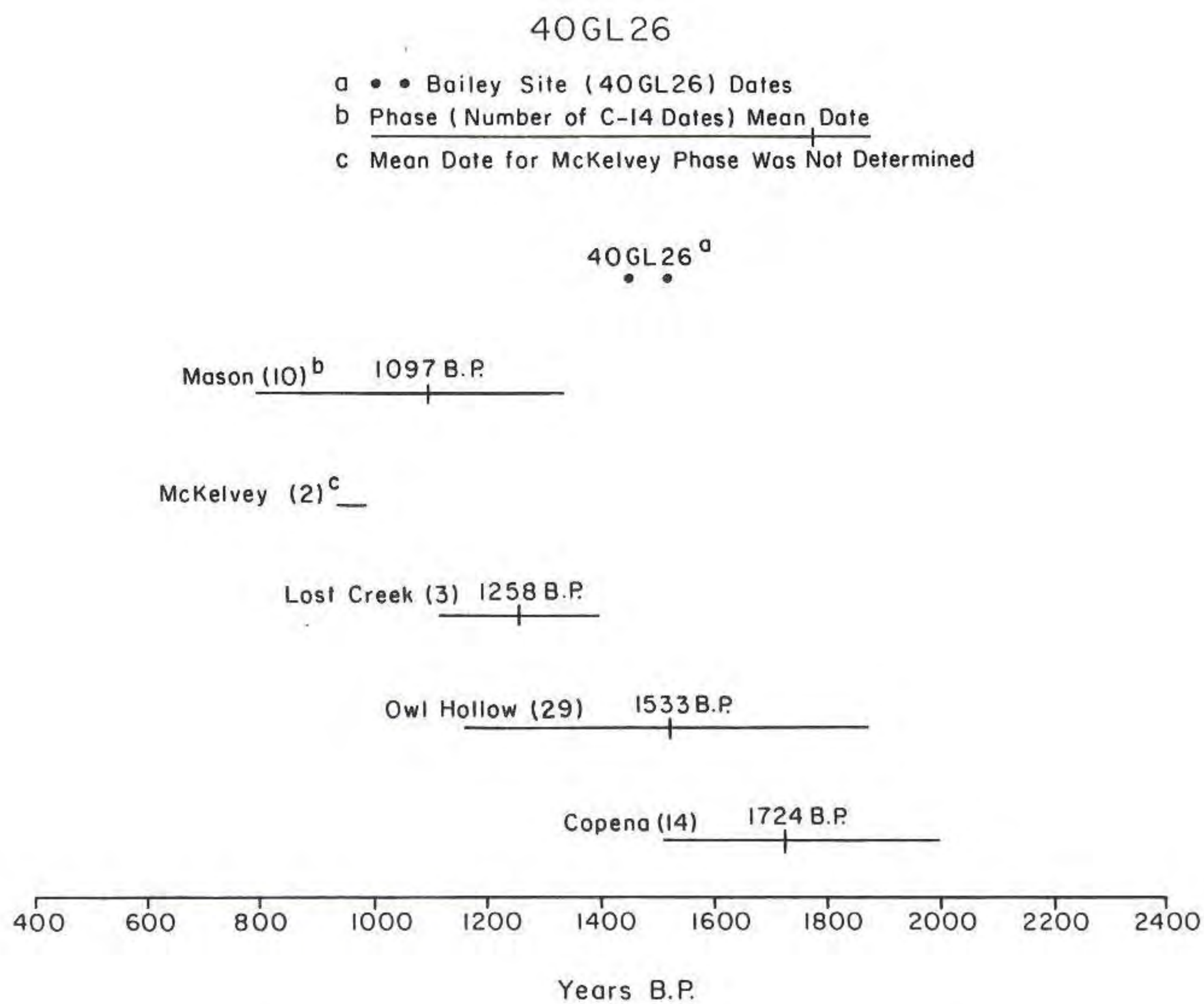


Figure 49. Chronological Distribution of Middle and Late Woodland Archaeological Phases.

phase/mortuary complex and occur about 500 years earlier than two dates for the Late Woodland McKelvey phase but overlap the accepted time range of A.D. 500-1000 for the phase. The site form consists of midden accumulations, few pit features, and little or no structural evidence. This form is typical of many Late Woodland sites in the Middle Tennessee River Drainage. The Woodland ceramics and projectile points/knives from the features at the Bailey site are typical of both the Middle and Late Woodland periods in adjacent areas of Middle Tennessee and northern Alabama. These artifacts most likely represent contemporary types associated with the early Late Woodland in the southern section of the Interior Low Plateau Physiographic Province.

Three radiocarbon age determinations place the Bailey site Late Archaic component in a transitional time period (2500-3000 B.C.) between and overlapping the Ledbetter and Benton phases. The chronological placement and Ledbetter phase site form indicated that the Late Archaic component represents an early manifestation of this phase with at least one earlier trait, the manufacture and/or procurement of Benton projectile points/knives, continuing during the transitional span of time. Two radiocarbon age determinations place the Bailey site Late Woodland component within the time range for the Middle Woodland period (50 B.C.-A.D. 830). The chronological placement and Late Woodland ceramics, projectile points/knives, and site form indicate that the component represents an early manifestation of the period with the manufacture and/or procurement of Middle Woodland ceramics and projectile points/knives continuing along Sugar Creek at least until about A.D. 500.

CHAPTER V

LITHIC RESOURCE BASE

Audrey Grubb Entorf

Stone based technology is dependent upon the lithic resources available. A study of lithic utilization and procurement is essential to gain information on settlement systems, trade, technology, and territoriality of societies that use stone tools. The Bailey site lithic assemblage consists of a variety of lithic resources. These lithic resources vary in distribution, quality, and size. The vast majority of these materials were obtainable from local sources in the Highland Rim or the Outer Nashville Basin adjacent to the site locality. Sources in the Ridge and Valley, Cumberland Plateau, Inner Nashville Basin, and Piedmont were also exploited. The regional physiography and geology of the Bailey site area have been discussed (q.v. Environmental Setting).

Detailed observations of lithic resources have been discussed for the Middle and Upper Duck River Drainage in the Nashville Basin of Middle Tennessee (Amick 1981, 1984; Faulkner and McCollough 1973; McCluskey 1976; Penny 1974; Penny and McCollough 1976), the Middle Tombigbee River Drainage in the Coastal Plain of Middle Alabama (Ensor 1981), the Bear Creek Drainage in the Coastal Plain, Highland Rim, and Cumberland Plateau of northern Alabama (Burchard 1960; Futato 1983), and the Yellow Creek Drainage in the Coastal Plain of northern Mississippi (Johnson ed. 1981; Johnson 1985; Thorne et al. 1981). These studies are incorporated in this report. The Bailey site investigations present an opportunity to contribute information about prehistoric aboriginal populations in the southern Nashville Basin, an area which has not received intensive archaeological examination.

SILICEOUS SEDIMENTARY ROCKS

Chert was, by number of pieces, the most abundant lithic resource recovered from the Bailey site. Features contained 346,877 (440,098.5 g) pieces of chert debitage and 1,530 (52,852.7 g) chert tools (Table 6).

The chert resources appear to have been primarily obtained from local Fort Payne formations. The predominant chert utilized was a Laminated Fort Payne variety. A Fibrous Fort Payne chert was also commonly used. Chert types utilized infrequently were St. Louis, Bigby Cannon, Carters, and Ridley. Chert types will be discussed separately below.

Mississippian St. Louis-Warsaw

Marcher (1962a:21-22, 1962b:827, 830) has distinguished three St. Louis chert varieties: fossiliferous, semibanded, and cannonball. St. Louis chert is available at the

Table 8. Prehistoric Material Inventory

Feature Number	Chert Debitage	Lithic Tools	Unmodified Chert	Burned Limestone	Limestone[b] Index	Limonite/ Hematite	Sandstone	Shale	Burned Gravel	Quartzite	Steatite	Quartz	Ceramics	Burned Clay	Daub
							Large Deep (Class 1) Pits								
17	7,924 (10,819.6)[a]	25 (869.9)	122 (755.6)	352 (29,714.5)	28.4				78 (255.1)	2 (119.1)			6 (30.4)[a]	137 (77.9)	
18	4,240 (7,178.3)	15 (374.4)	38 (199.6)	19 (142.4)	0.2	1 (0.7)			32 (72.9)	1 (224.4)				37 (20.9)	
22	6,472 (8,889.1)	33 (1,108.5)	9 (185.5)	237 (2,758.6)	3.1		1 (0.2)		25 (40.6)				4 (3.4)	153 (98.5)	
26	8,821 (11,721.8)	31 (579.7)	77 (246.5)	395 (7,291.6)	7.3		1 (34.7)	1 (0.1)	26 (142.7)	1 (157.1)				429 (487.1)	
27	13,775 (19,643.2)	51 (1,661.0)	141 (1,853.1)	666 (16,973.9)	11.5		1 (17.5)		85 (307.0)					1,292 (1,115.2)	
35	10,876 (14,178.0)	47 (1,311.9)	269 (1,538.6)	51 (2,285.4)	2.4				138 (551.5)	1 (51.2)			7 (1.4)	556 (337.4)	
40	12,707 (18,046.5)	56 (1,156.0)	132 (2,034.4)	280 (5,123.4)	4.2		2 (38.5)	75 (47.7)	114 (423.0)	1 (5.9)				386 (317.9)	1 (9.0)
48	10,522 (11,810.3)	63 (981.6)	269 (1,820.2)	84 (2,463.8)	2.7			5 (1.3)	44 (208.8)		1 (0.4)	1 (28.1)	236 (633.8)	382 (213.2)	
51	9,855 (15,560.3)	28 (803.8)	57 (979.7)	157 (4,201.6)	6.1				19 (76.1)					99 (63.8)	
52	7,576 (9,690.2)	35 (1,421.9)	69 (349.1)	47 (293.6)	0.3				46 (355.3)				2 (8.2)	379 (122.9)	
67	8,448 (16,066.6)	41 (1,508.2)	247 (1,299.2)	2,136 (79,642.2)	73.4			0 (0.1)	103 (382.3)			1 (54.8)		329 (210.5)	
71	9,035 (9,221.0)	22 (671.0)	404 (679.4)	145 (1,310.0)	3.8	1 (1.3)	2 (15.1)		79 (353.7)	5 (65.5)			2 (3.8)	482 (312.6)	
77	6,238 (7,859.4)	21 (482.6)	58 (831.1)	269 (14,117.1)	15.9			1 (0.1)	28 (97.9)				3 (3.6)	221 (359.1)	
79	10,832 (16,461.0)	41 (993.1)	186 (4,931.7)	469 (9,334.9)	11.9		2 (43.9)		83 (373.4)				1 (1.0)	395 (375.7)	
84	11,344 (16,169.6)	45 (1,595.0)	259 (6,805.7)	341 (7,317.7)	7.4		6 (110.1)		90 (184.9)					443 (383.7)	
87	11,047 (14,888.7)	36 (1,786.0)	475 (5,877.2)	1,162 (54,878.7)	84.5				98 (412.3)					322 (328.8)	
101	9,229 (8,397.2)	43 (1,074.4)	140 (694.9)	135 (893.4)	1.2		1 (1.0)		43 (188.5)	1 (77.6)				395 (308.7)	
144	12,472 (16,584.4)	59 (1,573.0)	254 (1,821.8)	375 (5,064.2)	6.0	3 (2.7)	1 (173.1)		53 (95.3)				1 (0.5)	757 (564.9)	
Subtotal	171,213 (233,185.2)	694 (19,902.0)	3,086 (32,633.3)	7,080 (243,804.8)		5 (4.7)	17 (432.1)	82 (49.3)	1,184 (3,880.4)	12 (700.8)	1 (0.4)	2 (82.9)	257 (686.1)	5,919 (5,498.6)	1 (9.0)
							Medium (Class 2) Pits								
28	3,575 (5,155.1)	12 (1,038.1)	132 (664.9)	9 (22.8)	0.1				29 (67.3)					283 (200.2)	
31	8,617 (10,312.8)	31 (850.8)	134 (1,573.9)	103 (980.2)	2.3			3 (6.6)	61 (370.3)					415 (363.6)	
34	6,110 (6,672.6)	28 (1,007.9)	65 (711.6)	32 (486.2)	0.9				39 (113.4)	1 (145.8)				1,436 (1,496.4)	
42	4,563 (6,313.7)	20 (156.7)	105 (531.3)		0.0				20 (106.9)	2 (26.3)			1 (0.6)	50 (35.4)	
43	4,329 (3,883.8)	16 (281.3)	37 (237.2)	3 (2.1)	0.0	2 (2.7)			12 (117.0)					33 (14.2)	
44	2,687 (3,811.9)	8 (454.1)	28 (212.8)	31 (79.9)	0.3			51 (87.4)	22 (61.9)				1 (1.1)	38 (16.7)	
49	2,179 (2,479.9)	15 (448.2)	36 (434.2)	14 (8,861.3)	34.1				25 (143.9)	1 (14.3)				32 (19.0)	
50	5,784 (7,493.1)	23 (738.1)	31 (99.9)	87 (11,659.8)	19.8									61 (50.3)	
55	6,206 (8,606.4)	28 (1,505.3)	75 (160.6)	69 (910.2)	1.6				47 (69.7)				1 (1.0)	48 (23.1)	
56	4,411 (4,758.2)	27 (961.0)	58 (416.7)	15 (752.6)	1.3				58 (61.3)					103 (57.9)	
60	3,990 (4,971.9)	28 (598.7)	131 (699.7)	1,802 (163,706.2)	349.1		5 (121.2)		68 (250.4)				138 (760.1)	387 (217.8)	1 (0.5)
70	3,862 (3,581.2)	22 (516.3)	100 (552.4)	581 (7,626.6)	21.1				15 (34.3)				2 (0.6)	249 (145.5)	
73	4,215 (6,134.6)	27 (746.1)	53 (755.5)	547 (9,639.5)	16.7		1 (6.5)	4 (2.1)	25 (330.1)				1 (1.7)	109 (97.1)	
76	6,544 (8,655.0)	24 (498.4)	132 (741.3)	465 (25,717.4)	47.9			1 (0.3)	75 (366.2)					201 (227.8)	
83	4,038 (4,526.1)	12 (133.6)	113 (583.3)	377 (10,053.6)	26.9	1 (1.2)		5 (38.1)	33 (80.9)					235 (167.1)	
86	3,638 (5,567.1)	17 (263.5)	26 (880.5)	207 (3,796.2)	10.5			1 (0.5)	30 (136.7)	1 (1.2)			4 (3.8)	149 (125.4)	
105	4,006 (4,702.3)	15 (456.4)	46 (162.9)	64 (2,455.8)	4.6		1 (1.1)	6 (2.8)	43 (72.8)	1 (1.7)			2 (2.7)	154 (96.5)	
106	2,078 (1,973.5)	12 (507.5)	16 (170.9)	48 (533.2)	2.3				19 (37.1)				1 (0.6)	106 (146.7)	
108	2,733 (3,642.4)	13 (290.3)	22 (160.8)	31 (30.6)	0.1			0 (0.1)	35 (33.4)					108 (96.0)	
143	2,618 (3,306.5)	5 (379.0)	43 (3,959.7)	344 (20,317.4)	79.4		1 (245.4)	1 (0.2)	16 (207.9)					152 (97.9)	
148	1,476 (2,680.0)	7 (107.4)	36 (119.0)	404 (15,348.9)	70.4			4 (2.8)	2 (13.0)				4 (4.4)	95 (90.1)	
Subtotal	87,909 (108,778.1)	390 (11,938.7)	1,407 (13,828.6)	5,164 (282,960.5)		3 (3.9)	8 (374.2)	76 (140.9)	668 (2,670.3)	6 (189.3)			155 (776.6)	4,442 (3,785.0)	1 (0.5)
							Shallow (Class 3) Pits								
13	34 (38.2)		1 (26.3)	2 (4.2)	0.6								2 (4.8)	1 (0.2)	
14	82 (30.5)				0.0										
16	39 (17.4)				0.0										
32	200 (228.2)	1 (29.8)	8 (12.3)	2 (7.5)	0.1				8 (16.1)				10 (66.8)	13 (4.8)	
36	38 (14.6)	7 (98.8)			0.0									1 (0.1)	
37	67 (97.8)			217 (7,515.1)	64.5									1 (1.5)	
39	1,658 (1,883.6)		49 (336.1)	53 (340.8)	1.7				21 (35.9)				10 (21.8)	56 (85.5)	
41	444 (374.0)		9 (12.7)	9 (12.9)	0.2				6 (9.4)					4 (2.2)	
53	88 (86.9)			63 (400.0)	20.0										
54	382 (283.6)		3 (0.8)		0.0										
63	12 (9.2)				0.0								1 (11.2)	9 (9.5)	
64	440 (398.2)	8 (47.7)	15 (48.5)		0.0				3 (7.2)					23 (13.5)	
68	321 (346.5)		3 (1.3)	1 (0.2)	0.0				9 (38.4)				3 (1.0)	8 (5.1)	
69	28 (10.3)				0.0										
75	274 (369.9)	2 (80.9)	3 (16.9)	170 (7,344.4)	156.3			47 (50.2)						2 (0.7)	
80	414 (375.8)	2 (37.8)	11 (91.6)	2 (5.0)	0.1				5 (11.5)				2 (3.9)	13 (9.9)	
81	383 (593.7)		8 (33.4)		0.0	1 (2.9)								13 (7.3)	
82	108 (133.0)		6 (31.7)		0.0				1 (11.4)					18 (6.9)	
93	23 (16.8)				0.0										
94	208 (467.0)		10 (21.9)	2 (0.9)	0.0				2 (33.9)					5 (4.4)	
95	292 (1,149.6)	3 (173.0)	5 (78.7)	74 (3,170.9)	41.4			1 (0.4)						8 (3.3)	

Table 8. (continued).

Feature Number	Chert Debitage		Lithic Tools		Unmodified Chert		Burned Limestone		Limestone[b] Index	Limonite/ Hematite		Sandstone		Shale		Burned Gravel		Quartzite		Steatite		Quartz		Ceramics		Burned Clay		Daub	
Shallow (Class 3) Pits																													
96	415	(2,282.2)	3	(387.6)	4	(42.1)	39	(358.1)	0.3							1	(1.0)									72	(136.5)		
98	132	(91.8)			2	(3.2)			0.0																	4	(2.7)		
100	2,475	(2,475.2)	8	(163.2)	2	(4.7)	1	(0.4)	0.0							5	(49.6)									23	(35.6)		
102	252	(221.1)							0.0																	10	(9.3)		
104	1,340	(2,238.0)	6	(536.7)	27	(457.8)	94	(1,215.3)	8.2							15	(75.5)	1	(0.4)					1	(1.4)	96	(60.6)		
107	59	(28.2)					24	(33.5)	1.7																				
110	318	(618.0)	1	(44.5)	17	(474.2)			0.0							5	(58.8)									6	(4.6)		
112	720	(620.8)	2	(97.2)	27	(35.3)	8	(26.7)	0.2							24	(84.3)							1	(1.8)	31	(34.5)		
116	16	(7.4)			4	(6.7)			0.0							5	(3.4)							1	(17.5)	1	(0.3)		
118	43	(65.6)			5	(4.5)	26	(305.0)	19.3							4	(4.4)									2	(0.7)		
121	229	(295.7)			20	(294.8)	37	(287.4)	3.1							15	(25.1)							1	(0.3)	6	(2.1)		
123	101	(148.4)			1	(0.3)			0.0							7	(5.8)									7	(4.0)		
124	38	(17.9)			3	(2.9)	3	(1.7)	0.1							1	(0.8)									2	(0.6)		
126	113	(108.7)			8	(7.5)			0.0							3	(23.7)									6	(3.3)		
127	644	(964.5)	8	(102.3)	32	(161.8)	352	(5,663.5)	45.7															1	(11.2)	42	(16.3)		
128	325	(1,206.0)	4	(251.8)	26	(168.9)	80	(844.6)	22.2							3	(4.1)									19	(9.0)		
131	247	(271.8)	2	(20.1)	22	(20.4)	1	(0.2)	0.0							10	(11.1)									18	(7.0)		
132	109	(73.8)							0.0																				
133	53	(52.4)							0.0							1	(2.1)									3	(1.4)		
138	248	(266.8)	1	(26.1)					0.0							1	(6.9)									15	(4.5)		
139	132	(128.6)	3	(131.2)	2	(27.1)	19	(175.3)	10.3							3	(29.3)									3	(1.2)		
140	689	(488.8)	3	(219.7)	85	(181.0)	562	(9,507.5)	86.4							20	(48.0)									30	(21.6)		
141	640	(2,758.9)	56	(10,204.0)	5	(9.9)			0.0					95	(95.0)	1	(6.7)									10	(7.0)		
145	1,854	(1,387.8)	4	(12.5)	38	(230.4)	1,810	(30,710.4)	236.0							27	(67.5)							1	(6.4)	129	(96.7)		
146	971	(1,131.7)			17	(319.3)	1,021	(80,766.0)	734.3							26	(31.3)							2	(2.3)	24	(10.7)		
147	92	(66.1)							0.0																				
149	1,894	(7,519.1)	6	(117.8)	85	(305.8)	1,229	(43,277.8)	295.3							8	(12.4)							25	(32.7)	106	(60.0)		
150	169	(94.0)							0.0					8	(8.1)	3	(1.7)									35	(7.9)		
159	63	(37.7)			6	(10.1)			0.0							3	(6.2)									1	(0.8)		
161	161	(149.3)			3	(4.6)	1	(0.5)	0.0							2	(1.9)									4	(1.9)		
Subtotal	29,083	(27,859.6)	126	(12,732.5)	502	(3,443.5)	5,672	(186,535.0)		1	(2.9)			103	(103.1)	246	(717.0)	1	(0.4)					58	(183.2)	854	(608.5)		
Large Shallow (Class 4) Pits																													
10	8,240	(7,410.3)	27	(656.9)	149	(1,187.4)	619	(6,472.2)	16.2	1	(0.2)	2	(36.0)			126	(179.1)	1	(54.9)					4	(3.2)	53	(37.8)		
11	4,029	(3,819.5)	22	(443.6)	64	(359.6)	26	(400.6)	0.9							25	(757.3)							11	(37.4)	40	(22.5)		
25	6,197	(6,249.4)	31	(1,007.4)	223	(1,329.8)	290	(1,555.4)	5.1			1	(2.2)	2	(4.7)	73	(565.3)							332	(492.1)	97	(66.5)		
72	2,775	(3,995.8)	21	(784.6)	10	(61.5)	9	(61.9)	0.3					1	(0.8)			2	(48.0)										
Subtotal	21,196	(21,466.0)	101	(2,892.5)	446	(2,738.3)	934	(8,500.1)		1	(0.2)	4	(38.2)	3	(5.1)	224	(1,491.7)	3	(102.9)					347	(532.7)	195	(126.8)		
Pit Total	300,401	(391,088.9)	1,311	(47,465.7)	6,441	(52,643.7)	19,050	(721,800.4)		10	(11.0)	29	(844.5)	304	(341.0)	2,327	(8,760.2)	22	(997.4)	1	(0.4)	2	(82.9)	818	(2,170.6)	12,410	(10,019.9)	2	(9.5)
Middens																													
Midden 2	7,802	(8,774.4)	39	(435.1)	103	(347.6)	2	(29.8)								117	(200.7)									251	(264.0)		
Midden 4	32,491	(35,165.8)	178[c]	(3,179.0)	1,761	(6,427.0)	1,060	(15,047.2)				2	(92.6)	1	(1.0)	476	(2,198.9)	2	(163.2)					1,340	(1,651.4)	109	(195.3)	1	(1.2)
Miscellaneous																													
N 2, E 1[d]	379	(807.8)			24	(130.0)	37	(300.8)		3	(4.7)					23	(15.6)							3	(2.1)	24	(17.7)		
N 2, E 2[d]	12	(59.5)														1	(1.0)												
PM 78							1	(71.3)																					
117[e]																								1	(39.9)				
120[e]	8,091	(8,202.3)	21	(999.8)	109	(1,216.4)	3,189	(44,543.3)								6	(95.2)							33	(27.4)	107	(68.2)		
Backdirt Near Midden 4			1	(872.1)																									
Site Total	394,877	(440,098.5)	1,530	(52,852.7)	7,638	(60,765.5)	23,134	(781,885.9)		13	(18.0)	31	(937.1)	306	(342.6)	2,945	(11,259.6)	24	(1,160.6)	1	(0.4)	2	(82.9)	2,195	(3,899.6)	13,181	(10,465.1)	3	(10.7)

[a] Number of pieces (weight in grams).

[b] Limestone Index=Weight (g) of burned limestone (≥ 6.4 mm)/Volume of waterscreened fill liters. Some or all of the burned limestone (≥ 6.4 mm) from flotation samples of certain features was used in the computation of the limestone indices.

[c] Includes lithic tools piece plotted on midden surface.

[d] Midden 2 (N 2) fill excavated around burial (B) and dog skeleton (D).

[e] Tree disturbance.

higher elevations of the Highland Rim and is abundant in the upper reaches of the Elk River (Faulkner and McCollough 1973:456-457).

Tools made from St. Louis chert include 26 bifaces, 25 projectile points/knives (PPKs), three pecking stones, and one unifacial tool. St. Louis chert tools comprise 3.6% of all lithic tools.

Mississippian Fort Payne

Fort Payne chert has been recognized as a major source of raw material for prehistoric aboriginal stone tool production throughout the Southeast (Amick 1984; Ensor 1981; Faulkner and McCollough 1973; Futato 1983; Johnson 1981; Kline 1979). There is a broad range of variation in the color, structure, size, quality, and distribution of Fort Payne chert. Amick (1984:58-64) suggests five structural categories of Fort Payne chert: quartz geodes, laminated, pepper-and-salt speckled, crinoidal, and fibrous. These categories are discernable in the Middle Duck River Basin. Fort Payne chert is available throughout the Highland Rim, on ridges within the Nashville Basin, and in alluvial gravel. Two structural categories of Fort Payne chert, Laminated and Fibrous, are discernable in the Sugar Creek Drainage.

Laminated Fort Payne. Several varieties of Laminated Fort Payne chert have been described. These varieties consist of blue-gray and tan, blue and blue-gray, blue-black, and yellow (Amick 1984:59-61; Faulkner and McCollough 1973:53; Penny and McCollough 1976:151-157).

Laminated Fort Payne is the chert raw material type chosen for 92.6% of all lithic tools recovered from features. The numerous tools made from Laminated Fort Payne chert consist of 33 hammerstones, 33 pecking stones, 214 uniface tools, 266 projectile points/knives, and 873 bifaces.

Fibrous Fort Payne. Fibrous Fort Payne has been described as a fine-grained vitreous highly tractable chert with numerous fossil inclusions and multiple colors (Amick 1984:62-64; Faulkner and McCollough 1973:54-55; Penny and McCollough 1976:176-178).

A total of 7,438 (60,765.5 g) pieces of unmodified fibrous chert was recovered from features at the Bailey site. Two Fibrous Fort Payne nutting stones were also found. Fibrous Fort Payne tools comprise less than 1% of the lithic tools.

Silurian Brassfield

The Brassfield Formation occurs in thin outcrops along the boundary of the Western Highland Rim and the Outer Nashville Basin (Wilson 1949). Amick (1984:56-57) has adequately described the Brassfield chert and noted its small nodular size. Limited distribution of this chert probably lessened its use by prehistoric aboriginals.

No tools of Brassfield chert were identified.

Ordovician Bigby Cannon

Wilson (1949) has reported several chert zones within the Bigby Cannon Formation, which is restricted to the eastern portion of the Outer Nashville Basin (Penny and McCollough 1976:155-157).

Tools of Bigby Cannon chert include three projectile points/knives and five bifaces. Bigby Cannon chert tools comprise less than 1% of the total lithic tools recovered from feature context.

Ordovician Carters

The Carters Formation is the highest formation in the Inner Nashville Basin. The closest source for Carters chert is in the valley of Richland Creek (Wilson et al. 1967) and along Agnew Creek (Wilson and Barnes 1970). Amick (1984:48-51) has described this chert as ranging in color from white to gray, with dark gray banding occasionally occurring, and tending to be grainy and blocky with fine-grained chert being rare.

One unidentifiable projectile point/knife of Carters chert was recovered. Carters chert tools comprise less than 1% of the total lithic tools.

Ordovician Ridley

The Ridley Formation occurs in upland areas within the Inner Nashville Basin. Ridley chert is available in alluvial gravels, in natural bluff or cave outcrops, and wherever Ridley bedrock underlies the soil. Amick (1984:45-48) has described Ridley chert as ranging from black to white in color. Grainy gray with fossil inclusions is the most common type of Ridley chert.

One Benton projectile point/knife of Ridley chert was recovered. Ridley chert tools comprise less than 1% of the lithic tools recovered from features.

Unidentifiable Chert

This category includes all chert which could not be classified. Some of this material is probably from the Fort Payne Formation.

Tools of unidentifiable chert consist of eight projectile points/knives and five bifaces.

One Benton projectile point/knife resembles Dover chert; however, the closest source for Dover chert is located in Stewart County, Tennessee near the town of Dover approximately 175 kilometers to the northwest of the Bailey site (Faulkner and McCollough 1973:57; Marcher 1962a).

One shallow side-notched projectile point/knife resembles Kaolin chert which has been reported from Iron Mountain in Union County, Illinois and bluffs near Clear Creek, Illinois several hundred kilometers away (Hofman and Morrow 1985; Mashage 1986; May 1984; McNerney ed. 1975; Porter 1963; Spielbauer 1976). This specimen is pink in color, highly translucent, and "frosty". Although it resembles Kaolin chert it is probably a rare local variety of chert whose origin at present is unknown.

NONSILICEOUS SEDIMENTARY ROCKS

Limestone

Relatively flat-lying limestone strata of Ordovician and Mississippian ages comprise the majority of the Highland Rim and Nashville Basin surface rocks (Floyd 1965). Limestone occurs locally in the Fort Payne, Fernvale, and Leipers-Catheys formations. All limestone recovered in feature context appears to have been thermally altered and ranges in color from white to brownish-gray and from red to brownish-red. Limestone was probably used as a secondary heat source in earth ovens.

Limestone was, by weight, the most abundant lithic resource recovered from the Bailey site (Table 6). The features contained 23,334 (781,885.9 g) pieces of burned limestone. Seven earthovens contained high densities of burned limestone (q.v. Features); three Late Archaic and probable Late Archaic earthovens (F 75, 140, and 145), one probable Woodland earthoven (F 146), two Late Woodland earthovens (F 60 and 149), and a treefall depression utilized as an earth oven (F 120). An unexcavated probable late Archaic pit (F 88) also may have functioned as an earthoven. The four Late Archaic earthovens were located in and adjacent to Midden 2 while the remaining four earth ovens were widely distributed over the site area.

Four limestone digging tools and one limestone grinding stone were recovered in feature context from the Bailey site. Limestone tools comprise less than 1% of the lithic tools recovered from features.

Limonite

Limonite is no longer considered to be a specific mineral. The term is now used as a general field term for various hydrous ferric oxides including minerals such as goethite and hematite (Gary et al. ed. 1974). Principal deposits of limonite ore occur in the Western Highland Rim and the Ridge and Valley Physiographic Province as irregular masses, veins, lumps, and fragments in residual clay and chert (Floyd 1965). Hematite occurs in local terrace deposits and in iron ore formations in the Ridge and Valley Province (Jones 1939).

Thirteen (18.0 g) pieces of hematite were recovered from feature context (Table 6). In addition, one siltstone limonite abrader was recovered in feature context. Limonite tools comprise less than 1% of the lithic tools recovered from features.

Sandstone

Sandstone is a sedimentary rock which may range in color from pure white through shades of gray, tan, yellow, red, and dark brown depending upon the amount and character of the cement and the impurities. The most widespread occurrence of sandstone near Middle Tennessee is on the Cumberland Plateau in the Hartselle Sandstone (Floyd 1965); however, sandstone also occurs in the immediate vicinity of the site in the Mannie and Fernvale formations and at the base of channel-fill deposits (Wilson and Barnes 1972).

Features contained 31 (937.1 g) pieces of sandstone (Table 6). Thirteen (327.3 g) pieces of sandstone were burned while 18 (609.8 g) were unburned. In addition, one sandstone grinding stone and two sandstone abraders were recovered from the site. Sandstone tools comprise less than 1% of the total lithic tools recovered from feature context at the Bailey site.

Shale

Shale is a very highly bedded sedimentary rock composed primarily of silt and clay minerals (Floyd 1965). This sedimentary rock occurs in the immediate vicinity of the Bailey site in the Chattanooga Shale Formation (Wilson and Barnes 1972).

A total of 306 (342.8 g) pieces of shale was recovered from feature context (Table 6). No shale tools were recovered.

Unidentifiable Rock

Gravel occurs in the beds, floodplains, and terraces of the larger streams in the site area. These streams include Sugar Creek, as well as the Elk and Tennessee rivers (True et al. 1968; Wilson and Barnes 1972).

A total of 2,945 (11,259.6 g) pieces of burned gravel was recovered from feature context (Table 6).

METAMORPHIC ROCKS

A wide variety of metamorphic rocks was utilized at the Bailey site. Many were ground on one or more surfaces or show signs of battering.

Quartzite

Quartzite is a metamorphic rock resulting from the recrystallization of quartz sandstone (Morris ed. 1969). Cobbles of quartzite readily available to the inhabitants of the Bailey site occur in the Tuscaloosa Formation on the Western Highland Rim and in the alluvial gravels of the western Outer Nashville Basin (Marcher and Stearns 1962).

Twenty-four (1,186.6 g) pieces of quartzite were recovered from features (Table 6). Numerous quartzite tools were recovered from feature context and consist of 18 hammerstones, one celt, and one Benton projectile point/knife. Quartzite tools comprise 1.3% of all lithic tools recovered from the Bailey site.

Greenstone

Greenstone is a schistose metamorphic rock that is greenish-gray in color due to the chlorite, epidote, and hornblende present. This stone is found in the Hillabee Schist Formation of east-central Alabama and other localities within the Piedmont province. The most recent study of the Hillabee Formation states that it consists of metamorphosed extrusive basic and intermediate igneous rock (Tull et al. 1978).

One greenstone celt was recovered from plowzone context.

Steatite

Steatite is a compacted fine-grained grayish-green metamorphic rock composed primarily of talc. This material occurs in the Hillabee Schist Formation of east-central Alabama and outcrops throughout the Piedmont province of Alabama and Georgia (Tull et al. 1978; Wright 1974).

Feature 48 contained one (0.4 g) piece of steatite (Table 6).

Quartz

Quartz occurs worldwide as a component of sandstone and granite or as pure crystals in agate, chalcedony, chert, flint, opal, and rock crystal (Morris ed. 1969). Quartz was available locally in the Fort Payne and Warsaw formations on the Highland Rim, as well as in alluvial gravels throughout Middle Tennessee (Chowns and Elkins 1974; Marcher 1962b; Thomas 1979).

Two (82.9 g) pieces of quartz were recovered from features, in addition to one quartz hammerstone (Table 6). Quartz tools comprise less than 1% of all lithic tools recovered from feature context at the Bailey site.

LITHIC RESOURCE SUMMARY

Situated in a transitional zone between the Highland Rim and the Nashville Basin, the inhabitants of the Bailey site had ready access to abundant lithic resources. These lithic resources vary in distribution, quality, and size.

Lithic resources of chert, limestone, quartz, quartzite, sandstone, and shale are available in both the Highland Rim and the Nashville Basin. Also available in the Highland Rim is limonite. Nonlocal lithic resources utilized by the inhabitants of the Bailey site consist of greenstone and steatite. The Piedmont Province is the nearest source for greenstone and steatite. Lithic resources of sandstone and shale are available on the Cumberland Plateau.

The chert resources from the Highland Rim and the Nashville Basin range in size from large to small and in quality from rich to poor, respectively (Amick 1984:68). Chert resources on the Highland Rim are abundant, readily accessible, large in size, and of high quality. These resources include St. Louis and Fort Payne chert. Chert resources within the Nashville Basin are abundant and readily available but are of small size and poor quality. The poorest quality chert available in the Inner Nashville Basin includes Carters and Ridley chert while higher quality chert available in the Outer Basin includes Bigby Cannon and Fort Payne chert.

Sandstone is of small size and limited availability in the Highland Rim while on the Cumberland Plateau it is widely available and of large size.

Lithic resources exploited by the Bailey site occupants indicate that locally abundant materials were extensively utilized; however, locally unavailable lithic materials such as steatite and greenstone were acquired from other areas as raw materials or finished artifacts. This indicates a high degree of familiarity with lithic resource availability and a fairly large area of movement.

CHAPTER VI

LITHIC TOOLS AND CHERT DEBRIS

Audrey Grubb Entorf

The majority of the cultural remains recovered from the Bailey site are lithic tools and debris. Pecked and ground stone tools and chert tools and their manufacturing debris will be examined in this section. A total of 1,530 (52,852.7 g) lithic tools and 346,877 (440,098.5 g) pieces of chert debitage greater than 6 mm in size was recovered from 94 pit features, 2 middens, and 3 miscellaneous contexts excavated during the Phase III investigations. The lithic assemblage also includes 34,694 (856,478.7 g) pieces of nonchert lithic debris and unmodified chert (q.v. Lithic Resource Base).

LABORATORY METHODS

Mass Analysis

A technique termed mass analysis was developed by Ahler (1975, 1983) to allow rapid processing of lithic artifacts into technologically meaningful categories. All chert specimens from the Bailey site were hand manipulated through a series of nested screens. Three size grades were employed: 1) greater than 2.54 cm (1 inch), 2) greater than 1.27 cm (½ inch), and 3) greater than 0.64 cm (¼ inch). Following the sieving process, tools were removed for further analysis. Specimens in each size grade were counted and weighed to the nearest tenth of a gram.

Debitage Sampling Strategy

Due to the large quantity of recovered chert debitage (n=346,877), a sampling scheme was deemed necessary (Table 7). A tiered sampling design was implemented. First, 25% of the features excavated at the Bailey site were chosen to be analyzed. These 25 features are representative examples from all pit size classes, feature clusters, structure associations, and cultural affiliations and include all features with C-14 dates (Table 8). Chert debitage from the 23 pit features and two midden units chosen for analysis consisted of 107,067 specimens. In general, when more than 300 specimens were represented in a size grade a 10% random sample was analyzed from that feature size grade. The 10% random sample was obtained by hand manipulating the chert debitage through a standard geologic riffle sorter. The analyzed debitage included 1,899 chert specimens from size grade 1, 3,247 chert specimens from size grade 2, and 10,235 chert specimens from size grade 3 (Table 9). All size grade 1

Table 7. Chert Debitage by Size Grades.

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Large Deep (Class 1) Pits				
17	147	(5,732.8)[a]	1,188	(3,008.4)	6,589	(1,878.4)	7,924	(10,619.6)
18	145	(4,317.5)	725	(1,728.6)	3,370	(1,132.2)	4,240	(7,178.3)
22	146	(4,422.9)	1,176	(2,850.2)	5,150	(1,616.0)	6,472	(8,889.1)
26	214	(5,768.3)	1,776	(3,897.8)	6,831	(2,055.7)	8,821	(11,721.8)
27	346	(10,379.6)	2,567	(6,047.3)	10,862	(3,216.3)	13,775	(19,643.2)
35	197	(6,778.7)	2,109	(4,815.6)	8,570	(2,583.7)	10,876	(14,178.0)
40	279	(7,891.5)	2,821	(6,883.1)	9,607	(3,271.9)	12,707	(18,046.5)
48	164	(4,706.9)	1,714	(4,326.6)	8,644	(2,776.8)	10,522	(11,810.3)
51	279	(7,899.5)	2,310	(5,398.3)	7,266	(2,262.5)	9,855	(15,560.3)
52	131	(4,459.1)	1,561	(3,394.2)	5,884	(1,836.9)	7,576	(9,690.2)
67	182	(10,551.2)	1,494	(3,583.1)	6,772	(1,932.3)	8,448	(16,066.6)
71	120	(3,885.9)	1,422	(3,255.4)	7,493	(2,079.7)	9,035	(9,221.0)
77	116	(3,768.6)	1,089	(2,543.2)	5,033	(1,547.6)	6,238	(7,859.4)
79	230	(8,416.0)	2,025	(5,479.4)	8,377	(2,765.6)	10,632	(16,661.0)
84	283	(8,554.7)	1,969	(4,733.5)	9,092	(2,881.4)	11,344	(16,169.6)
87	255	(8,454.3)	1,996	(4,430.9)	8,796	(2,003.5)	11,047	(14,888.7)
101	116	(2,406.1)	1,661	(3,816.7)	7,452	(2,174.4)	9,229	(8,397.2)
144	237	(6,937.6)	2,226	(6,259.3)	10,009	(3,387.5)	12,472	(16,584.4)
Subtotal	3,587	(115,331.2)	31,829	(76,451.6)	135,797	(41,402.4)	171,213	(233,185.2)

Table 7. (continued).

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Medium (Class 2) Pits				
28	80	(2,908.8)	574	(1,362.0)	2,921	(884.3)	3,575	(5,155.1)
33	150	(3,575.6)	2,288	(4,903.0)	6,179	(1,834.2)	8,617	(10,312.8)
34	97	(2,314.7)	1,200	(2,870.2)	4,813	(1,487.7)	6,110	(6,672.6)
42	94	(2,842.8)	858	(2,111.6)	3,611	(1,159.3)	4,563	(6,113.7)
43	51	(1,008.4)	848	(1,912.7)	3,230	(962.7)	4,129	(3,883.8)
44	47	(1,417.9)	562	(1,494.1)	2,078	(699.9)	2,687	(3,611.9)
49	42	(953.5)	436	(1,017.7)	1,701	(508.7)	2,179	(2,479.9)
50	117	(3,561.4)	1,018	(2,509.1)	4,649	(1,422.6)	5,784	(7,493.1)
55	139	(4,225.5)	1,261	(2,881.6)	4,806	(1,499.3)	6,206	(8,606.4)
56	78	(2,013.5)	757	(1,742.3)	3,576	(1,002.4)	4,411	(4,758.2)
60	76	(1,961.3)	709	(1,789.3)	3,205	(1,171.3)	3,990	(4,921.9)
70	60	(1,573.1)	673	(1,158.5)	3,129	(849.6)	3,862	(3,581.2)
73	99	(3,222.6)	792	(1,895.6)	3,324	(1,016.4)	4,215	(6,134.6)
76	120	(3,879.6)	1,268	(3,118.6)	5,156	(1,656.8)	6,544	(8,655.0)
83	66	(1,636.4)	686	(1,823.4)	3,286	(1,066.3)	4,038	(4,526.1)
86	60	(2,856.1)	646	(1,657.7)	2,932	(1,053.3)	3,638	(5,567.1)
105	46	(2,162.7)	799	(1,624.1)	3,161	(915.5)	4,006	(4,702.3)
106	26	(701.5)	336	(715.4)	1,716	(556.6)	2,078	(1,973.5)
108	55	(1,717.3)	532	(1,270.8)	2,146	(654.3)	2,733	(3,642.4)
143	45	(1,535.0)	406	(1,029.4)	2,167	(742.1)	2,618	(3,306.5)
148	36	(1,428.4)	323	(757.7)	1,567	(493.9)	1,926	(2,680.0)
Subtotal	1,584	(47,496.1)	16,972	(39,644.8)	69,353	(21,637.2)	87,909	(108,778.1)

Table 7. (continued).

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Shallow (Class 3) Pits				
13			8	(29.1)	26	(9.1)	34	(38.2)
14			5	(8.7)	77	(21.8)	82	(30.5)
16			4	(4.7)	35	(12.7)	39	(17.4)
32	2	(79.1)	33	(94.0)	165	(55.1)	200	(228.2)
36			1	(2.8)	37	(11.6)	38	(14.4)
37	2	(58.2)	13	(23.4)	52	(16.2)	67	(97.8)
39	29	(654.6)	268	(770.3)	1,361	(458.7)	1,658	(1,883.6)
41	4	(74.4)	67	(163.1)	373	(136.5)	444	(374.0)
53	2	(33.6)	10	(29.0)	76	(24.3)	88	(86.9)
54	2	(83.5)	58	(104.1)	322	(96.0)	382	(283.6)
63			1	(5.0)	11	(4.2)	12	(9.2)
64	10	(149.0)	67	(142.0)	363	(105.2)	440	(396.2)
68	4	(156.8)	48	(100.2)	269	(89.5)	321	(346.5)
69			4	(5.8)	24	(4.5)	28	(10.3)
75	8	(178.9)	40	(118.8)	226	(72.2)	274	(369.9)
80	3	(50.2)	98	(220.3)	313	(105.3)	414	(375.8)
81	6	(318.9)	83	(189.4)	294	(85.4)	383	(593.7)
82	1	(58.4)	17	(43.0)	90	(29.6)	108	(131.0)
93			4	(11.4)	17	(5.4)	21	(16.8)
94	8	(322.8)	31	(93.1)	169	(51.1)	208	(467.0)
95	12	(959.0)	45	(112.1)	235	(78.5)	292	(1,149.6)
96	22	(1,998.1)	62	(172.3)	331	(111.8)	415	(2,282.2)
98			26	(60.8)	106	(31.0)	132	(91.8)
100	33	(1,099.6)	441	(833.5)	2,001	(542.1)	2,475	(2,475.2)
102	3	(43.3)	52	(112.1)	197	(66.3)	252	(221.7)

Table 7. (continued).

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Shallow (Class 3) Pits				
104	34	(1,232.8)	277	(680.6)	1,029	(324.6)	1,340	(2,238.0)
107			3	(8.5)	56	(17.7)	59	(26.2)
110	15	(352.7)	79	(198.4)	224	(66.9)	318	(618.0)
112	8	(128.6)	118	(302.9)	594	(189.3)	720	(620.8)
116			2	(4.3)	14	(3.1)	16	(7.4)
118	1	(23.6)	12	(32.0)	30	(10.0)	43	(65.6)
121	3	(55.4)	28	(66.5)	198	(83.8)	229	(205.7)
123	5	(80.3)	18	(42.9)	78	(23.2)	101	(146.4)
124			6	(8.0)	32	(9.9)	38	(17.9)
126	4	(55.6)	14	(29.5)	95	(23.6)	113	(108.7)
127	14	(348.3)	145	(422.0)	485	(194.3)	644	(964.6)
128	18	(962.5)	59	(172.4)	248	(71.1)	325	(1,206.0)
131	3	(81.7)	39	(99.9)	205	(90.2)	247	(271.8)
132	2	(21.9)	14	(26.2)	93	(25.7)	109	(73.8)
133			14	(38.6)	39	(13.8)	53	(52.4)
138	6	(111.3)	48	(115.7)	194	(59.8)	248	(286.8)
139			22	(86.0)	110	(40.6)	132	(126.6)
140	4	(98.1)	95	(204.6)	590	(186.1)	689	(488.8)
141	22	(2,354.9)	76	(222.7)	550	(179.3)	648	(2,756.9)
145	15	(294.3)	298	(660.3)	1,541	(433.2)	1,854	(1,387.8)
146	18	(441.6)	128	(408.1)	825	(282.0)	971	(1,131.7)
147			14	(41.7)	78	(24.4)	92	(66.1)
149	24	(887.4)	357	(1,054.4)	1,513	(577.3)	1,894	(2,519.1)
150	1	(12.4)	27	(44.9)	141	(36.7)	169	(94.0)

Table 7. (continued).

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Shallow (Class 3) Pits				
159			9	(23.6)	54	(14.1)	63	(37.7)
161	5	(39.0)	33	(67.7)	123	(42.6)	161	(149.3)
Subtotal	353	(13,900.8)	3,421	(8,511.4)	16,309	(5,247.4)	20,083	(27,659.6)
				Large Shallow (Class 4) Pits				
10	86	(1,943.7)	1,481	(3,246.3)	6,673	(2,220.3)	8,240	(7,410.3)
11	51	(1,678.0)	586	(1,021.3)	3,387	(1,111.2)	4,024	(3,810.5)
25	93	(2,331.9)	901	(2,277.2)	5,203	(1,640.3)	6,197	(6,249.4)
72	93	(2,254.9)	503	(1,146.6)	2,139	(594.3)	2,735	(3,995.8)
Subtotal	323	(8,208.5)	3,471	(7,691.4)	17,402	(5,566.1)	21,196	(21,466.0)
Pit Total	5,847	(184,936.6)	55,693	(132,299.2)	238,861	(73,853.1)	300,401	(391,088.9)
				Middens				
Midden 2	100	(3,939.7)	1,235	(2,832.3)	6,467	(2,002.4)	7,802	(8,774.4)
Midden 4	370	(11,146.4)	4,827	(12,196.1)	27,295	(9,823.1)	32,492	(33,165.6)

Table 7. (continued).

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Miscellaneous				
M 2, B 1[b]	12	(372.5)	104	(275.5)	463	(159.8)	579	(807.8)
M 2, D 2[b]	2	(37.4)	2	(15.9)	8	(6.2)	12	(59.5)
120[c]	75	(2,335.9)	952	(2,413.2)	4,564	(1,453.2)	5,591	(6,202.3)
Site Total	6,406	(202,768.5)	62,813	(150,032.2)	277,658	(87,297.8)	346,877	(440,098.5)

[a] Number of pieces (weight in grams).

[b] Midden 2 (M 2) fill excavated around burial (B) and dog skeleton (D).

[c] Tree disturbance.

Table 8. Attributes of Analyzed Features.

Feature Number	Feature Cluster	Cultural Affiliation[a]	Associated Structure Number	C-14 Date
		Large Deep (Class 1) Pits		
17	I	LA	4	
18	I	LA	4	
22	I	LA	4	4450 B.P. ± 80
35	II	LA		4780 B.P. ± 80
84	I	LA		
101	I	LA		
144	I	LA		4960 B.P. ± 100
n=7				
		Medium (Class 2) Pits		
60	II	LW		1450 B.P. ± 60
76	I	LA		
105	II	LA	1	
106	II	LA	1	
n=4				

Table 8. (continued).

Feature Number	Feature Cluster	Cultural Affiliation[a]	Associated Structure Number	C-14 Date
		Shallow (Class 3) Pits		
16	I	PLA	4	
53	II	PLA	3	
75	I	LA		
82	I	PLA	5B	
96	I	LA	5A	
104	II	LA	1	
107	II	PLA	1	
127	IV	PW	2	
128	IV	ID	2	
141	I	PLA		
149	III	LW		
n=11				
		Large Shallow (Class 4) Pit		
10	III	LA/TA		
n=1				

Table 8. (continued).

Feature Number	Feature Cluster	Cultural Affiliation[a]	Associated Structure Number	C-14 Date
		Middens		
Midden 2[b]		LA		
Midden 4[b]		LW		1520 B.P. ± 60

[a] LA-Late Archaic; PLA-Probable Late Archaic; LA/TA-Late Archaic/Terminal Archaic; PW-Probable Woodland; LW-Late Woodland; ID-Indeterminate.

[b] Coordinates of sampled unit in Midden 2: 1023 N, 997 E.
Coordinates of sampled unit in Midden 4: 1000 N, 958 E.

Table 9. Chert Debitage Sample by Size Grades.

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
Large Deep (Class 1) Pits								
17	147	(5,732.8)[a]	123	(271.7)	607	(191.3)	877	(6,195.8)
18	145	(4,317.5)	124	(267.0)	376	(120.6)	645	(4,705.1)
22	146	(4,422.9)	122	(286.8)	425	(131.2)	693	(4,840.9)
35	197	(6,778.7)	317	(725.2)	1,031	(305.7)	1,545	(7,809.6)
84	283	(8,554.7)	384	(1,192.0)	1,153	(357.9)	1,820	(10,104.6)
101	116	(2,406.1)	208	(451.4)	955	(274.0)	1,279	(3,131.5)
144	237	(6,937.6)	269	(763.9)	923	(285.6)	1,429	(7,987.1)
Subtotal	1,271	(39,150.3)	1,547	(3,958.0)	5,470	(1,666.3)	8,288	(44,774.6)
Medium (Class 2) Pits								
60	76	(1,961.3)	76	(197.9)	430	(142.1)	582	(2,301.3)
76	120	(3,879.6)	161	(422.0)	697	(194.3)	978	(4,495.9)
105	46	(2,162.7)	81	(187.6)	299	(92.7)	426	(2,443.0)
106	26	(701.5)	48	(102.0)	186	(65.4)	260	(868.9)
Subtotal	268	(8,705.1)	366	(909.5)	1,612	(494.5)	2,246	(10,109.1)
Shallow (Class 3) Pits								
16			4	(4.7)	35	(12.7)	39	(17.4)
53	2	(33.6)	10	(29.0)	76	(24.3)	88	(86.9)

Table 9. (continued).

Feature Number	Size Grade 1		Size Grade 2		Size Grade 3		Total	
				Shallow (Class 3) Pits				
75	8	(178.9)	40	(118.8)	87	(30.0)	135	(327.7)
82	1	(58.4)	17	(43.0)	90	(29.6)	108	(131.0)
96	22	(1,998.1)	62	(172.3)	58	(18.3)	142	(2,188.7)
104	34	(1,232.8)	278[b]	(680.6)	145	(63.9)	457	(1,977.3)
107			3	(8.5)	56	(17.7)	59	(26.2)
127	14	(348.3)	148[b]	(422.0)	69	(27.9)	231	(798.2)
128	18	(962.5)	59	(172.4)	248	(71.1)	325	(1,206.0)
141	22	(2,354.9)	76	(222.7)	550	(179.3)	648	(2,756.9)
149	24	(887.4)	38	(91.9)	157	(58.7)	219	(1,038.0)
Subtotal	145	(8,054.9)	735	(1,965.9)	1,571	(533.5)	2,451	(10,554.3)
				Large Shallow (Class 4) Pit				
10	86	(1,943.7)	197	(391.6)	674	(211.7)	957	(2,547.0)
Pit Total	1,770	(57,854.0)	2,845	(7,225.0)	9,327	(2,906.0)	13,942	(67,985.0)
				Middens				
Midden 2	5	(153.9)	81	(145.9)	48	(12.5)	134	(312.3)
Midden 4	124	(3,573.9)	321	(1,116.4)	860	(299.0)	1,305	(4,989.3)

Table 9. (continued).

Feature Number	Size Grade 1	Size Grade 2	Size Grade 3	Total
Site Total	1,899 (61,581.8)	3,247 (8,487.3)	10,235 (3,217.5)	15,381 (73,286.6)

[a] Number of pieces (weight in grams).

[b] Number of pieces increased by one (F 104) and three (F 127) from initial size grading (Table 7) to sampling (Table 9). The increase in number of pieces was probably due to breakage in artifact bags.

chert debitage was examined from the 25 features chosen for analysis. Size grade 2 chert debitage was completely examined from 11 features while a 10% sample was analyzed from 14 features. Size grade 3 chert debitage was completely analyzed from only 6 features while a 10% sample was analyzed from the remaining 19 features.

CHERT DEBITAGE

The chert specimens consist of flake debris and nonflake debris. Flake debris in each size grade was sorted into six categories: primary flake, secondary flake, tertiary flake, broken flake, biface thinning flake, and blade (Table 10). The nonflake debris in each size grade was sorted into four categories: tested cobble, blocky debris, core, and fire-cracked chert. Within each of the ten debitage categories three additional attributes were recorded for each size grade: raw material, thermal alteration, and cortex.

Chert

Chert raw material types available in the site vicinity include St. Louis, Fort Payne, Bigby Cannon, Brassfield, Carters, and Ridley. The availability of these chert types has been discussed (q.v. Lithic Resource Base).

Thermal Alteration

Thermal alteration has been recognized as an important part of both core and biface reduction strategies (Grubb 1986:54-58). The physical properties of thermally altered Fort Payne, St. Louis, Bigby Cannon, Carters, and Ridley cherts have been experimentally determined and described by numerous researchers (Bond 1981; Hood and McCollough 1976; Morrow 1981; Robison and Hood 1976). Because the determination of whether a chert specimen has been thermally altered is not a simple distinction, three categories of thermal alteration are utilized: no evidence of thermal alteration, possibly heated, and definite evidence of thermal alteration. When partial color change has occurred, the specimen is judged to have probably been heated. Thermal alteration is judged to have occurred when one or more of the following traits are present: color change, increased luster, and heat fractures such as pot lids, crenation, crazing, or expansion fractures.

Cortex

Cortex refers to the natural outer weathered surface or rind on a chert cobble or nodule (Crabtree 1972:56). Three cortex categories are used. These consist of incipient fracture planes, matrix cortex, and water-worn cobble cortex. Incipient

Table 10. Chert Debitage Categories from Analyzed Features by Size Grades.

Debitage Category	Size Grade 1		Size Grade 2		Size Grade 3		Total	
Tested Cobbles	24	(5,460.0)[a]					24	(5,460.0)
Blocky Debris	138	(6,490.9)	52	(206.6)	275	(167.6)	465	(6,865.1)
Cores	222	(19,715.8)	20	(132.3)			242	(19,848.1)
Fire-Cracked Chert	101	(3,272.6)	200	(601.3)	1,188	(454.5)	1,489	(4,328.4)
Primary Flakes	50	(1,385.6)	13	(64.8)	1	(0.7)	64	(1,451.1)
Secondary Flakes	679	(17,048.9)	632	(2,441.8)	656	(317.4)	1,967	(19,808.1)
Tertiary Flakes	190	(3,112.9)	278	(929.8)	137	(88.4)	605	(4,131.1)
Broken Flakes	191	(2,144.0)	1,110	(2,159.6)	5,564	(1,502.3)	6,865	(5,805.9)
Biface Thinning Flakes	300	(2,901.5)	925	(1,906.7)	2,412	(683.5)	3,637	(5,491.7)
Blades	4	(49.6)	17	(44.4)	2	(3.1)	23	(97.1)
Total	1,899	(61,581.8)	3,247	(8,487.3)	10,235	(3,217.5)	15,381	(73,286.6)

[a] Number of pieces (weight in grams).

fracture planes are smooth flat surfaces with a thin mottled mineral veneer deposited over the fracture plane. Matrix cortex ranges from white to yellow in color and the texture is rough, soft, and thick. Cobble cortex ranges from white to brown in color and the texture is smooth, hard, and thin. The sharp edges of cobble cortex have frequently been dulled and rounded by alluvial tumbling.

Cortex values were recorded for their technological information. Incipient fracture planes are most common on material derived from matrix residual deposits rather than alluvial sources. Presence of matrix cortex implies procurement by digging or collecting bedrock outcrops (e.g. bluffs and caves), as well as exposed ground surfaces. A non-alluvial origin is suggested with matrix cortex. Presence of cobble cortex suggests procurement from alluvial sources such as stream beds, old terraces, or natural outcrops. Cortex must be removed from chert in order to produce chipped stone artifacts. Presence or absence of cortex on a specimen indicates the stage of chert reduction, as well as distance from the chert source.

Chert Debitage Categories

Flake debris. Flake debris consists of positive waste flakes which exhibit no evidence of subsequent utilization or retouch. Flake debitage was subdivided into six morphological categories. These categories were based on three discrete variables: the percent of cortex present, the presence of dorsal flake scars, and the platform configuration.

Primary flakes have cortex on 100% of the dorsal surface. A total of 64 primary flakes of Laminated Fort Payne chert was identified in the chert debitage sample. Cobble cortex is present on 60 primary flakes while 4 have matrix cortex. No evidence of thermal alteration is present on 28 flakes while 36 were definitely heated.

Secondary flakes exhibit some dorsal cortex (less than 100%) and have at least one flake scar on the dorsal surface. A total of 1,967 secondary flakes was identified in the debitage sample of which 1,962 are Laminated Fort Payne chert, 4 are St. Louis chert, and 1 is Unidentified chert. Cobble cortex is present on 1,672 specimens while 295 have matrix cortex. No evidence of thermal alteration is present on 423 secondary flakes while 1,544 were definitely heated.

Tertiary flakes lack cortex on the dorsal and ventral margins and exhibit flake scars on the dorsal surface. A total of 605 tertiary flakes was identified in the debitage sample of which 603 are Laminated Fort Payne chert and 2 are Fibrous Fort Payne chert. Cobble cortex is present on 109 specimens while 9 have matrix cortex. No evidence of thermal alteration is present on 69 tertiary flakes while 536 were definitely heated.

Broken flakes lack cortex and a platform. A total of 6,865 broken flakes was identified in the debitage sample of which 6,863 are Laminated Fort Payne chert, 1 is Brassfield chert, and 1 is St. Louis chert. No evidence of thermal alteration is present on 188 broken flakes while 6,677 were definitely heated. Broken flakes comprise the most abundant flake debris category at the Bailey site.

Biface thinning flakes exhibit the negative impressions of previously removed flakes on the dorsal surface. The platform is normally small and often lipped on the ventral margin and may exhibit the results of crushing or abrading. A total of 3,637 biface thinning flakes was identified in the debitage sample of which 3,634 are Laminated Fort Payne chert, 2 are St. Louis chert, and 1 is Fibrous Fort Payne chert. Cobble cortex is present on 362 flakes while 63 have matrix cortex. No evidence of thermal alteration is present on 178 biface thinning flakes while 3,459 were definitely heated.

Blades are biface thinning flakes with a length at least twice the width. Twenty-three blades of Laminated Fort Payne chert were identified in the chert debitage sample. Seven blades have cobble cortex. No evidence of thermal alteration is present on 1 blade while the remaining 22 were definitely heated.

Nonflake debris. Nonflake debitage consists of the spent chert nucleus discarded after producing flakes (negative flake scars present) with no evidence of subsequent utilization or retouch. Four categories of stone debris were recognized: tested cobble, blocky debris, core, and fire-cracked chert.

Tested cobbles have less than three flakes removed and minimal decortication. A total of 24 tested cobbles of Laminated Fort Payne chert was identified in the chert debitage sample. Cobble cortex is present on 20 tested cobbles while 4 have matrix cortex. Eighteen tested cobbles have no evidence of thermal alteration while six were definitely heated.

Blocky debris exhibits negative flake scars, no flake platforms, and numerous incipient fracture planes. A total of 465 blocky debris of Laminated Fort Payne chert was identified in the chert debitage sample. Cobble cortex is present on 112 specimens while 112 have matrix cortex. Seventy-eight blocky debris have no evidence of thermal alteration while 387 were definitely heated.

Cores have three or more negative flake scars which were intentionally produced. A total of 242 cores was identified in the chert debitage sample of which 240 are Laminated Fort Payne chert and 2 are St. Louis chert. Cobble cortex is present on 157 cores while 45 have matrix cortex. Fifty-one cores have no evidence of thermal alteration while 191 were definitely heated.

Fire-cracked chert (fire-cracked chert) has no evidence of flaking but exhibits attributes of heating. Fire damaged chert is characterized by discoloration, pot lids, fire spalls, crazing, expansion, and crenation fractures. A total of 1,489 pieces of fire-cracked chert was identified in the chert debitage sample of which 1,482 are Laminated Fort Payne chert and 7 are Fibrous Fort Payne chert. Cobble cortex is present on 558 pieces of fire-cracked chert while 193 have matrix cortex. All specimens were definitely heated.

LITHIC TOOLS

Tools were separated from debris during all phases of field and laboratory processing to maximize their recovery. Four general categories of tools were recognized: pecked and ground stone tools, unifacial tools, unhafted bifacial tools, and hafted or stemmed bifacial tools (Table 11). Within each of the four tool categories four additional attributes were recorded: raw material, thermal alteration, cortex, and biface failure. Of these attributes, only raw material was recorded for the nonchert pecked and ground stone tools.

Raw Material

Lithic raw material types available in the site vicinity include chert, limestone, quartz, quartzite, sandstone, shale, and limonite. Local chert types include St. Louis, Fort Payne, Bigby Cannon, Brassfield, Carters, and Ridley. Nonlocal lithic resources utilized by the inhabitants of the Bailey site consist of greenstone and steatite (q.v. Lithic Resource Base).

Thermal Alteration

Six thermal alteration categories were used in analyzing the chert tools: no evidence of heating, possibly heated, definitely heated, definitely heated after final modification, definitely heated before final modification, and definitely heated before and after final modification. The first three categories were used in the debitage analysis and have been previously defined. Specimens definitely heated after final modification exhibit increased luster, discoloration, and heat fractures on ventral or broken flake surfaces. These pieces were probably unintentionally altered. Specimens definitely heated before final modification exhibit color change, contrasting luster, and rippling and chipping after the occurrence of heat fractures. These pieces represent intentional thermal alteration to improve the flaking quality of the chert. Specimens definitely heated before and after final modification are difficult to recognize because post-flaking alteration tends to erase the effects of heating before modification. Specimens in this category usually exhibit luster, color change and rippling with crazing, and pot lids and/or crenated fractures.

Cortex

The cortex categories discussed in the chert debitage section also apply to the chert tools.

Table 11. Lithic Tools.

Feature Number	Hafted Bifacial Tools		Unstemmed Bifacial Tools		Unifacial Tools		Pecked and Ground Stone Tools		Total	
					Large Deep (Class 1) Pits					
17	5	(64.8)[a]	18	(595.4)	1	(24.2)	1	(185.5)	25	(869.9)
18	3	(26.9)	12	(297.5)					15	(324.4)
22	11	(182.9)	17	(645.7)	3	(101.5)	2	(178.4)	33	(1,108.5)
26	9	(72.0)	22	(507.7)					31	(579.7)
27	14	(164.1)	27	(669.9)	2	(27.7)	8	(799.3)	51	(1,661.0)
35	7	(105.0)	32	(916.0)	6	(107.9)	2	(183.0)	47	(1,311.9)
40	10	(148.5)	34	(398.2)	8	(209.1)	4	(400.2)	56	(1,156.0)
48	11	(68.5)	35	(625.6)	16	(244.1)	1	(43.4)	63	(981.6)
51	6	(80.1)	18	(570.0)	3	(107.0)	1	(46.7)	28	(803.8)
52	6	(60.9)	18	(515.8)	6	(216.5)	5	(628.7)	35	(1,421.9)
67	5	(61.8)	24	(814.0)	9	(193.6)	3	(438.8)	41	(1,508.2)
71	3	(24.2)	13	(391.9)	3	(94.2)	3	(160.7)	22	(671.0)
77	4	(35.8)	12	(336.2)	5	(110.6)			21	(482.6)
79	11	(146.5)	23	(509.8)	6	(135.0)	1	(201.8)	41	(993.1)
84	7	(115.8)	27	(725.8)	7	(198.0)	4	(555.4)	45	(1,595.0)
87	6	(114.1)	21	(812.4)	7	(86.5)	4	(773.0)	38	(1,786.0)
101	7	(106.2)	22	(250.0)	6	(130.1)	8	(588.1)	43	(1,074.4)
144	18	(391.6)	29	(537.9)	10	(207.1)	2	(436.4)	59	(1,573.0)
Subtotal	143	(1,969.7)	404	(10,119.8)	98	(2,193.1)	49	(5,619.4)	694	(19,902.0)
					Medium (Class 2) Pits					
28	3	(75.3)	7	(72.1)	1	(2.9)	1	(887.8)	12	(1,038.1)
33	6	(84.5)	16	(392.0)	6	(121.0)	2	(253.3)	31	(850.8)

Table 11. (continued).

Feature Number	Hafted Bifacial Tools		Unstemmed Bifacial Tools		Unifacial Tools		Pecked and Ground Stone Tools		Total	
Medium (Class 2) Pits										
34	7	(115.9)	17	(745.2)	2	(32.0)	2	(114.8)	28	(1,007.9)
42	5	(9.8)	13	(122.2)	3	(24.7)			20	(156.7)
43			11	(170.4)	3	(10.4)	2	(100.5)	16	(281.3)
44	1	(18.0)	6	(331.8)	1	(104.3)			8	(454.1)
49			11	(407.9)	4	(40.3)			15	(448.2)
50	6	(73.1)	15	(478.2)	1	(44.2)	1	(142.6)	23	(738.1)
55	7	(93.1)	12	(468.9)	5	(288.4)	4	(654.9)	28	(1,505.3)
56	3	(43.8)	9	(160.2)	11	(140.0)	4	(617.0)	27	(961.0)
60	7	(34.9)	10	(134.6)	10	(310.7)	1	(118.5)	28	(598.7)
70	3	(36.5)	11	(324.6)	7	(117.7)	1	(37.5)	22	(516.3)
73	4	(43.8)	16	(521.4)	7	(180.9)			27	(746.1)
76	3	(72.0)	16	(338.1)	4	(67.0)	1	(21.3)	24	(498.4)
83	4	(48.3)	7	(84.6)	1	(0.7)			12	(133.6)
86	3	(33.4)	13	(178.4)			1	(51.7)	17	(263.5)
105	1	(21.8)	9	(65.1)	1	(25.4)	4	(344.1)	15	(456.4)
106	3	(64.7)	5	(131.9)	4	(310.9)			12	(507.5)
108	2	(25.4)	8	(206.6)	3	(58.3)			13	(290.3)
143	1	(7.3)	2	(56.7)	1	(7.7)	1	(307.3)	5	(379.0)
148			7	(107.4)					7	(107.4)
Subtotal	69	(901.6)	221	(5,498.3)	75	(1,887.5)	25	(3,651.3)	390	(11,938.7)

Table 11. (continued).

Feature Number	Hafted Bifacial Tools		Unstemmed Bifacial Tools		Unifacial Tools		Pecked and Ground Stone Tools		Total	
					Shallow (Class 3) Pits					
32			1	(29.8)					1	(29.8)
36			6	(76.9)	1	(21.9)			7	(98.8)
64			2	(41.9)	2	(5.8)			4	(47.7)
75	1	(27.5)	1	(53.4)					2	(80.9)
80			1	(18.5)	1	(14.3)			2	(32.8)
95			2	(123.5)	1	(49.5)			3	(173.0)
96	1	(15.6)	2	(327.0)					3	(342.6)
100	1	(8.7)	5	(82.0)	1	(2.3)	1	(70.2)	8	(163.2)
104	2	(28.5)	2	(19.8)			2	(488.4)	6	(536.7)
110			1	(44.5)					1	(44.5)
112			2	(97.2)					2	(97.2)
127			6	(76.8)	1	(17.4)	1	(8.1)	8	(102.3)
128	2	(20.1)			1	(6.8)	1	(224.9)	4	(251.8)
131			2	(20.1)					2	(20.1)
138			1	(26.1)					1	(26.1)
139	2	(30.9)					1	(100.3)	3	(131.2)
140			2	(71.4)			1	(148.3)	3	(219.7)
141			46	(8,832.6)	5	(674.7)	5	(696.7)	56	(10,204.0)
145	1	(8.9)	2	(1.5)	1	(2.1)			4	(12.5)
149	1	(2.6)	4	(98.2)	1	(16.8)			6	(117.6)
Subtotal	11	(142.8)	88	(10,041.2)	15	(811.6)	12	(1,736.9)	126	(12,732.5)

Table 11. (continued).

Feature Number	Hafted Bifacial Tools		Unstemmed Bifacial Tools		Unifacial Tools		Pecked and Ground Stone Tools		Total	
					Large Shallow (Class 4) Pits					
10	5	(40.9)	18	(413.6)	4	(202.4)			27	(656.9)
11	4	(42.9)	15	(291.7)	3	(109.0)			22	(443.6)
25	7	(36.0)	20	(360.7)	2	(158.8)	2	(451.9)	31	(1,007.4)
72	2	(26.5)	12	(224.8)	4	(137.2)	3	(396.1)	21	(784.6)
Subtotal	18	(146.3)	65	(1,290.8)	13	(607.4)	5	(848.0)	101	(2,892.5)
Pit Total	241	(3,160.4)	778	(26,950.1)	201	(5,499.6)	91	(11,855.6)	1,311	(47,465.7)
					Middens					
Midden 2	6	(80.1)	10	(238.5)	2	(38.4)	1	(78.1)	19	(435.1)
Midden 4	56	(450.0)	111	(1,427.7)	6	(261.8)	5	(1,039.5)	178	(3,179.0)
					Miscellaneous					
120[b]	2	(26.3)	10	(292.9)	6	(301.1)	3	(280.5)	21	(900.8)
Backdirt Near M 4							1	(872.1)	1	(872.1)
Site Total	305	(3,716.8)	909	(28,909.2)	215	(6,100.9)	101	(14,125.8)	1,530	(52,852.7)

[a] Number of pieces (weight in grams).

[b] Tree disturbance.

Biface Failure

Biface failures refer to possible reasons bifaces were discarded during or after manufacture. These have been discussed extensively by other authors (Amick 1982:19-21, 33-34; Crabtree 1972; Johnson 1979, 1981; Johnson ed. 1981; Purdy 1975; Roper 1979; Tsirk 1979) and include hinge, reverse, perverse, transverse hinge, lateral snap, incipient fracture plane, crenation fracture, pot lids, expansion fracture, haft snap, edge collapse, impact/use fracture, and combinations. Many times an individual biface specimen will exhibit more than one biface failure. Therefore, the number of biface failures represented in a single category may be more than the number of individual specimens in that category.

Pecked and Ground Stone Tools

These tools were not usually flaked but exhibit shaping and use from wear on faces and along peripheral edges. These tools were subdivided into seven morphological categories: hammerstones, pecking stones, celts, grinding stones, digging tools, nutting stones, and abraders.

Hammerstones. Hammerstones exhibit evidence of battering on the margins. These artifacts were probably hard hammer percussors used in flint knapping. Two cobbles exhibit battering depressed areas on opposite faces suggesting a combination hammerstone/anvil function.

Fifty-three (8,752.5 g) knapping hammers were recovered from feature context. Seventeen of the hammerstones are quartzite and 35 are of Fort Payne chert while 1 is quartz. Cobble cortex is present on 46 specimens while 6 have matrix cortex. All cobbles exhibit evidence of battering on the peripheral edges indicating use as knapping hammers. The size distribution of the measurable hammerstones is:

	Length	Width	Thickness
Range	34.4-110.6 mm	31.3-93.9 mm	12.0-67.2 mm
Mean	69.2 mm	57.2 mm	41.7 mm
S.D.	18.0 mm	13.7 mm	16.7 mm
n	37	37	38

Pecking stones. Pecking stones are flaked specimens with subsequent evidence of battering on the outer margins. These artifacts were probably hard hammer percussors used in flint knapping.

Thirty-six (3,492.6 g) pecking stones were recovered from feature context. Thirty-two of the pecking stones are of Fort Payne chert while four are of St. Louis chert. Waterworn cobble cortex is present on 26 specimens while 6 have matrix cortex and 1 has incipient fracture planes. Twelve pecking stones exhibit evidence of thermal alteration while 3 may have been heated and 21 show no evidence of heating. All of these specimens exhibit evidence of battering on the peripheral edges indicating use as pecking stones. The size distribution of the measurable pecking stones is:

	Length	Width	Thickness
Range	40.9-106.1 mm	34.9-86.8 mm	8.5-48.5 mm
Mean	65.9 mm	54.1 mm	26.9 mm
S.D.	14.3 mm	11.9 mm	9.7 mm
n	28	33	35

Celts. Celts are pecked into shape. These tools are thick or flattened with a ground and polished bit (Faulkner and McCollough 1973a:158-159; Morris ed. 1969:216; Walthall 1973a:409). This artifact type was rarely observed on the Bailey site.

Two (254.8 g) celts were recovered from feature context. One (193.8 g) small complete greenstone celt with a flared bit was recovered from the historic pit (F 25). A storage pit (F 40) contained one (61.0 g) fragment of a quartzite cobble that was shaped into a celt by pecking and then highly polished. The size distribution of the measurable celts is:

	Length	Width	Thickness
Range	77.0 mm	53.8-57.0 mm	33.4 mm
Mean		55.4 mm	
S.D.		1.6 mm	
n	1	2	1

Grinding stones. Grinding stones recovered from the Bailey site are tabular with a smooth and concave surface which has been modified through use as a grinding slab or palette. This artifact was fairly rare.

Two (228.7 g) grinding stones were recovered from feature context. One (80.4 g) tabular piece of sandstone found in a storage pit (F 33) has one smooth and slightly concave face that apparently was utilized as a grinding slab or palette. A shallow earth oven (F 140) contained one (148.3 g) tabular piece of limestone with a smooth and concave face which had apparently been modified through use as a small grinding stone or palette. The size distribution of the grinding stones is:

	Length	Width	Thickness
Range	70.0-106.5 mm	48.8-80.0 mm	6.1-19.2 mm
Mean	88.3 mm	64.4 mm	12.7 mm
S.D.	18.3 mm	15.6 mm	6.6 mm
n	2	2	2

Digging tools. During Late Archaic and Woodland times limestone was a lithic material chosen for bifacial digging implements. The digging tools recovered from the Bailey site are subrectangular to oval with the sides expanded outward from the battered flattened end to the midsection.

Two features (F 139 and Midden 4) contained four (1,307.0 g) tabular pieces of bifacially and/or unifacially flaked limestone tools that were subrectangular to oval with the sides expanding outward from the battered flattened end to the midsection. The size distribution of the digging tools is:

	Length	Width	Thickness
Range	71.6-195.0 mm	69.6-104.0 mm	16.1-28.0 mm
Mean	120.5 mm	88.0 mm	19.4 mm
S.D.	54.9 mm	15.6 mm	5.7 mm
n	4	4	4

Nutting stones. Nutting stones are usually large in size with depressions utilized for various activities. This artifact type was rarely observed.

Two (456.9 g) nutting stones were recovered from feature context. Both nutting stones were made from Fibrous Fort Payne chert. The specimens have pitted concave depressions in the centers of opposite faces indicating use as nutting stones. The size distribution of the nutting stones is:

	Length	Width	Thickness	Diameter Concave Depression
Range	96.8-122.9 mm	48.8-90.5 mm	35.0-37.3 mm	17.8-29.3 mm
Mean	109.9 mm	69.7 mm	36.2 mm	24.7 mm
S.D.	13.1 mm	20.9 mm	1.2 mm	3.9 mm
n	2	2	2	2

Abraders. Abraders have grooves worn from sharpening the edge of a workpiece utilized in flint knapping activities.

Three (210.9 g) abraders were recovered from feature context. These specimens will be described individually below.

One (140.2 g) abrader is a rim fragment from a sandstone bowl that measured 20 cm in diameter at the lip. This rim section represents 8% of the vessel rim. Two intersecting V-shape abrader grooves on the exterior surface of the sherd measure 10-12 mm in width and 5.2-9.2 mm in depth. This abrader was recovered from a shallow pit (F 141).

One (8.5 g) small grooved sandstone fragment from F 141 is probably from the same vessel as the bowl rim described above; however, it does not fit the rim section. The edges of the sandstone fragment and rim section are probably too worn to be refitted.

One (62.2 g) limonite abrader was recovered from a storage pit (F 84). One face has a slight depression measuring 17.7 mm x 15.6 mm. A grooved cross measuring 21.5 mm in length and 3.5 mm in width cuts into the depression. The opposite face has a shallow prominent groove which measures 15.8 mm long and 2.0 mm wide with possible evidence of two other grooves on this face. The size distribution of the abraders is:

	Length	Width	Thickness
Range	33.0-90.2 mm	19.6-60.0 mm	13.5-35.4 mm
Mean	61.2 mm	41.7 mm	22.8 mm
S.D.	23.3 mm	16.7 mm	9.2 mm
n	3	3	3

Unifacial Tools

Unifacial tools have been modified primarily on one face. These specimens were manufactured largely from flake debitage but also include one core, one blocky debris, four cobbles, and two hammerstones. The unifacial tools were subdivided into three morphological categories: retouched unifacial tools, utilized unifacial tools, and multipurpose unifacial tools. These categories will be described separately below.

Retouched unifacial tools. A total of 111 (3,320.5 g) retouched unifacial tools was recovered from feature context. Two retouched flakes are of St. Louis chert while the remaining 109 are of Fort Payne chert. Cobble cortex is present on 65 specimens while 5 have matrix cortex and 41 have no cortex. Thermal alteration occurred before flaking in 56 specimens while 20 were possibly heated and 35 exhibit no evidence of thermal alteration.

Retouch is unifacial exclusively on 86 specimens while 25 have bifacial retouch. Sixty specimens are secondary flakes, 15 are tertiary flakes, 11 are biface thinning flakes, 1 is a blade, 20 are broken flakes, and 4 are cobbles. Retouch occurred on the distal end of 9 specimens, one lateral margin of 47 specimens, two lateral margins of 17 specimens, the distal end and one lateral margin of 10 specimens, the complete margins of 18 specimens, the proximal margins of 3 specimens, and indeterminate margins of 7 specimens. Margins are indeterminate when the specimen is fragmentary. Metric measurements were taken when possible on the platform lengths and widths of retouched unifacial flake tools and the overall lengths and widths of all retouched unifacial tools.

	Flake Tool Platforms		Retouched Unifacial Tools	
	Length	Width	Length	Width
Range	3.4-51.3 mm	1.5-20.5 mm	22.6-103.2 mm	6.9-105.6 mm
Mean	17.5 mm	7.2 mm	51.0 mm	40.8 mm
S.D.	9.4 mm	4.4 mm	17.4 mm	16.2 mm
n	52	54	86	97

Utilized unifacial tools. Ninety-four (2,371.3 g) utilized unifacial tools were recovered from feature context. All 94 utilized tools are of Fort Payne chert. Cobble cortex is present on 40 specimens while 6 exhibit matrix cortex, 1 has incipient fracture planes, and 47 have no cortex. Thermal alteration occurred before flaking in 51 specimens while 1 was definitely heated, 18 were possibly heated, and 24 exhibit no evidence of thermal alteration.

The utilized edge is exclusively unifacial on 89 specimens while 5 have some bifacial utilization. Two specimens are primary flakes, 33 are secondary flakes, 17 are tertiary flakes, 21 are biface thinning flakes, 19 are broken flakes, 1 is blocky debris, and 1 is a cobble. Utilization occurred on the distal ends of 4 specimens, one lateral margin of 67 specimens, the lateral margins of 10 specimens, the distal end and one lateral margin of 7 specimens, the complete margins of 3 specimens, and indeterminate margins of 3 specimens. Metric measurements were taken when possible on the platform lengths and widths of utilized unifacial flake tools and the overall lengths and widths of all utilized unifacial tools.

	Flake Tool Platforms		Utilized Unifacial Tools	
	Length	Width	Length	Width
Range	3.5-39.2 mm	1.4-19.9 mm	18.6-107.2 mm	10.5-68.8 mm
Mean	16.8 mm	6.8 mm	49.1 mm	37.7 mm
S.D.	10.1 mm	4.3 mm	20.3 mm	15.0 mm
n	55	55	68	82

Multipurpose unifacial tools. Ten (409.1 g) multipurpose unifacial tools were recovered from feature context. These multipurpose unifacial tools include hoe/adze flakes, hammerstones, microtools, a core, and a retouched/utilized tertiary flake. These tools will be described separately below. Metric measurements were taken when possible on the platform lengths and widths of multipurpose unifacial flake tools and the overall lengths of all multipurpose unifacial tools.

Three (5.3 g) Fort Payne chert biface thinning flakes with unifacial utilization on the ventral surfaces were recovered from feature context. These flakes are from chert hoes or adzes which were not recovered. No cortex was present on the flakes. One flake had no evidence of thermal alteration while two were definitely heated before use.

	Flake Tool Platforms		Hoe/Adze Flake Multipurpose Unifacial Tools	
	Length	Width	Length	Width
Range	5.5-17.9 mm	2.2-7.2 mm	14.7-40.0 mm	13.7-23.5 mm
Mean	11.1 mm	4.0 mm	25.0 mm	17.2 mm
S.D.	5.1 mm	2.3 mm	10.8 mm	4.4 mm
n	3	3	3	3

Three (207.6 g) secondary flakes of Fort Payne chert with cobble cortex and unifacial utilization were recovered from feature context. These flakes are from chert hammerstones. One flake exhibits no evidence of thermal alteration while two were heated before flaking. One hammerstone flake was retouched bifacially on the complete margin while two were utilized unifacially on the distal end and on one lateral margin, respectively.

	Flake Tool Platforms		Knapping Hammer Flake Multipurpose Unifacial Tools	
	Length	Width	Length	Width
Range	25.5-28.2 mm	10.6-18.2 mm	44.3-89.7 mm	53.5-60.0 mm
Mean	26.9 mm	14.4 mm	67.1 mm	57.2 mm
S.D.	1.4 mm	3.8 mm	18.5 mm	2.7 mm
n	2	2	3	3

Two (1.9 g) Fort Payne chert broken flakes with unifacial utilization and no cortex were recovered from feature context. These flakes were worked into microtools. One flake exhibits no evidence of thermal alteration while one was heated before flaking. Both microtools were retouched. One flake was retouched unifacially on two lateral margins and measures 18.0 mm x 4.8 mm in length and width, respectively. One microtool was retouched bifacially on the complete margin and measures 25.5 mm in length and 9.8 mm in width.

One (165.0 g) unifacially retouched core of Fort Payne chert with cobble cortex was recovered from feature context. This core exhibits evidence of possible heating. It was retouched on one lateral margin and measures 66.5 mm in length and 44.5 mm in width.

One (29.3 g) tertiary flake with bifacial retouch on the proximal surface and unifacial utilization on two lateral margins was recovered from feature context. This tertiary flake of Fort Payne chert has no cortex and exhibits no evidence of thermal alteration. The platform measures 19.0 mm in length and 7.8 mm in width while the overall tool measures 52.8 mm in length and 41.9 mm in width.

Unhafted Bifacial Tools

Bifaces have been flaked on both faces, exhibit symmetry, and lack any evidence of stemming, hafting, or notching. Six stages of reduction were recognized in the production of bifaces. These six stages will be described separately below.

Initial Stage bifaces. The initial stage of biface reduction includes bifaces in early stages of thinning and fragments of amorphous pieces (Faulkner and McCollough 1973:83). These bifaces were formed by percussion flaking and usually exhibit cortex.

Forty-five (6,594.4 g) Initial Stage biface tools were recovered from feature context. All 45 initial stage bifaces are of Fort Payne chert. Cobble cortex is present on 34 specimens while 6 exhibit matrix cortex, 1 has incipient fracture planes, and 4 have no cortex. There is no evidence of thermal alteration in 33 specimens, 1 was possibly heated, 2 were definitely heated, 7 were heated before flaking, and 2 were heated after flaking. Biface fragment types present consist of 1 medial blade section, 13 blade sections with one end of the bifaces, 3 indeterminate, and 28 complete bifaces. Biface failures include 14 lateral snap, 2 hinge, 9 edge collapse, 3 step, 2 reverse, 1 incipient fracture plane, 1 perverse, 1 pot lid, and 1 expansion fracture. The size distribution of the measurable Initial Stage bifaces is:

	Length	Width	Thickness
Range	69.7-150.0 mm	41.5-95.3 mm	6.7-48.6 mm
Mean	90.8 mm	60.7 mm	28.7 mm
S.D.	18.2 mm	12.8 mm	9.0 mm
n	26	38	44

Intermediate Stage I bifaces. The second stage of biface reduction also includes bifaces in the early stages of thinning that were formed by percussion flaking alone; however, these bifaces have little or no cortex present.

A total of 115 (8,563.1 g) Intermediate Stage I bifacial tools was recovered from feature context. Five specimens are of St. Louis chert while 110 are of Fort Payne chert. Cobble cortex is present on 53 specimens while 18 exhibit matrix cortex, 13 have incipient fracture planes, and 31 have no cortex. There is no evidence of thermal alteration in 45 specimens, 11 were possibly heated, 3 were definitely heated, 48 were heated before flaking, 5 were heated after flaking, and 3 were heated before and after flaking. Biface fragment types present consist of 12 medial blade sections, 3 tips, 1 base, 31 blade sections with one end of the bifaces, 32 indeterminate, and 36 complete bifaces. Biface failures include

71 lateral snap, 5 hinge, 33 edge collapse, 12 step, 10 reverse, 40 incipient fracture plane, 6 perverse, 7 transverse, 11 pot lid, 9 expansion, and 6 crenation fractures. The size distribution of the measurable Intermediate Stage I bifaces is:

	Length	Width	Thickness
Range	43.6-172.4 mm	27.9-100.0 mm	5.9-43.5 mm
Mean	83.0 mm	50.7 mm	20.0 mm
S.D.	29.5 mm	13.1 mm	6.8 mm
n	42	89	113

Intermediate Stage II bifaces. The third stage of biface reduction includes bifaces which have received considerable thinning from percussion work but exhibit little or no pressure flaking.

A total of 144 (5,640.7 g) Intermediate Stage II bifaces was recovered from feature context. Two specimens are of Bigby Cannon chert while the remaining 142 are of Fort Payne chert. Cobble cortex is present on 56 specimens, 3 have matrix cortex, 9 have incipient fracture planes, and 76 have no cortex. There is no evidence of thermal alteration in 47 specimens, 23 were possibly heated, 3 were definitely heated, 62 were heated before flaking, 7 were heated after flaking, and 2 were heated before and after flaking. Biface fragment types present consist of 15 medial blade sections, 15 tips, 10 bases, 31 blade sections with one end of the bifaces, 52 indeterminate, and 21 complete bifaces. Biface failures include 108 lateral snap, 8 hinge, 29 edge collapse, 8 reverse, 9 step, 26 incipient fracture plane, 6 perverse, 7 transverse, 18 pot lid, 14 expansion, 7 crenation, 1 haft snap, and 1 impact/use fracture. The size distribution of the measurable Intermediate Stage II bifaces is:

	Length	Width	Thickness
Range	43.6-153.3 mm	17.7-67.7 mm	4.8-32.6 mm
Mean	90.8 mm	44.5 mm	14.8 mm
S.D.	30.7 mm	9.9 mm	4.8 mm
n	25	99	143

Intermediate Stage III bifaces. The fourth stage of biface reduction includes bifaces that have been thinned and shaped and exhibit some percussion flaking but are primarily formed from pressure work.

A total of 199 (4,125.4 g) Intermediate Stage III bifaces was recovered from feature context. Five specimens are of St. Louis chert while 194 are of Fort Payne chert. Cobble cortex is present on 40 specimens, 2 have matrix cortex, 5 have incipient fracture planes, and 152 have no cortex. There is no evidence of thermal alteration in 38 specimens, 37 were possibly heated, 4 were definitely heated, 105 were heated before flaking, 11 were heated after flaking, and 4 were heated before and after flaking. Biface fragment types include 27 medial blade sections, 35 tips, 29 bases, 23 blade sections with one end of the bifaces, 70 indeterminate, and 15 complete bifaces. Biface failures include 149 lateral snap, 3 hinge, 24 edge collapse, 12 step, 9 reverse, 24 incipient fracture plane, 17 perverse, 20 transverse, 30 pot lid, 24 expansion, 15 crenation, and 1 impact/use fracture. The size distribution of the measurable Intermediate Stage III bifaces is:

	Length	Width	Thickness
Range	31.7-218.0 mm	10.0-64.2 mm	3.0-36.4 mm
Mean	86.8 mm	37.8 mm	10.4 mm
S.D.	47.4 mm	9.2 mm	3.6 mm
n	18	132	199

Late Stage bifaces. The fifth stage of biface reduction includes bifaces that have been thinned and shaped but either the faces were not finished to the same degree or the specimens were abandoned before the final shaping.

A total of 221 (2,343.7 g) Late Stage bifaces was recovered from feature context. Three specimens are of Bigby Cannon chert and 11 are of St. Louis chert while 207 are of Fort Payne chert. Cobble cortex is present on 30 specimens, 2 have matrix cortex, and 189 have no cortex present. There is no evidence of thermal alteration in 32 Late Stage bifaces, 38 were possibly heated, 1 was definitely heated, 129 were heated before flaking, 13 were heated after flaking, and 8 were heated before and after flaking. Biface fragment types present include 29 medial blade sections, 76 tips, 35 bases, 27 over one-half complete, 41 indeterminate, and 13 complete bifaces. Biface failures include 164 lateral snap,2 hinge, 37 edge collapse, 14 step, 6 reverse, 13 incipient fracture plane, 6 perverse, 6 transverse, 43 pot lid, 48 expansion, 22 crenation, 1 haft snap, and 5 impact/use fractures. The size distribution of the measurable Late Stage bifaces is:

	Length	Width	Thickness
Range	29.6-84.5 mm	8.0-63.0 mm	3.3-19.5 mm
Mean	59.1 mm	30.5 mm	8.7 mm
S.D.	13.6 mm	9.7 mm	2.6 mm
n	19	160	220

Final Stage bifaces. The sixth and last stage of biface reduction includes bifaces that have been completed and may exhibit use wear or some type of biface failure.

A total of 181 (1,630.4 g) Final Stage bifaces was recovered from feature context. Two specimens are of Bigby Cannon chert, 5 are of St. Louis chert, and 1 is of unidentified chert while 173 are of Fort Payne chert. Cobble cortex is present on 11 specimens and 170 have no cortex present. There is no evidence of thermal alteration in 13 Final Stage bifaces, 16 may have been heated, 2 were definitely heated, 135 were heated before flaking, 9 were heated after flaking, and 6 were heated before and after flaking. Biface fragment types present include 37 medial blade sections, 92 tips, 17 bases, 12 over one-half complete, 14 indeterminate, and 9 complete bifaces. Biface failures include 144 lateral snap, 17 edge collapse, 4 step, 1 reverse, 3 incipient fracture plane, 4 perverse, 11 transverse, 35 pot lid, 30 expansion, 10 crenation, 1 haft snap, and 14 impact/use fractures. The size distribution of the measurable Final Stage bifaces is:

	Length	Width	Thickness
Range	13.0-148.0 mm	7.2-63.2 mm	2.7-19.5 mm
Mean	63.1 mm	25.6 mm	7.3 mm
S.D.	35.2 mm	10.3 mm	2.4 mm
n	13	157	180

Miscellaneous biface fragments. Biface fragments that do not fit into the biface reduction categories due to their fragmentary nature are classified as miscellaneous bifaces.

Four (11.5 g) miscellaneous biface fragments were recovered from feature context. All four miscellaneous biface fragments are of Fort Payne chert. Cobble cortex is present on one specimen while three have no cortex present. Two specimens were heated before flaking, one was heated after flaking, and one was heated before and after flaking. The biface fragment type of the four specimens is indeterminate. Biface failures include 1 lateral snap, 2 incipient fracture plane, 2 pot lid, 1 expansion, and 2 crenation.

Hafted or Stemmed Bifacial Tools

A total of 305 (3,723.5 g) hafted or stemmed bifacial tools categorized as projectile points/knives is discussed below. These comprise 19.9% of the lithic tools. Ninety-two of the points did not correspond to named types while 213 are considered diagnostic. Whenever possible, stemmed bifaces are assigned to point clusters defined by Faulkner and McCollough (1973). Diagnostic projectile points/knives are discussed by cultural period from Early Archaic to Late Woodland followed by undiagnostic points and fragments.

Kirk cluster. This cluster is represented by medium to large-size corner notched and straight stemmed projectile points/knives which usually have serrated blade edges. Kirk cluster projectile points/knives are associated with the Early Archaic period (Coe 1959).

Five (63.5 g) Kirk cluster projectile points/knives were recovered from two pit features (F 11 and 145) and Midden 2 (Table 12). Basal edges of these specimens are wide and either straight or incurvate. Stems are short, expanded, beveled, and corner notched. Cross sections are flattened. Shoulders are barbed. Blade edges are serrated, beveled, or serrated and beveled. Four of the projectile points/knives were manufactured from Fort Payne chert while St. Louis chert was utilized for one. Cobble cortex is present on the edge of one specimen. All five points were thermally altered before flaking. Biface failures represented include four lateral snap and three edge collapse. The size distribution of the measurable Kirk cluster projectile points/knives is:

	Length	Width	Thickness
Range	74.4 mm	32.2-43.9 mm	7.1-9.5 mm
Mean		37.0 mm	7.8 mm
S.D.		4.3 mm	1.1 mm
n	1	4	5

Eva/Morrow Mountain cluster. This cluster is represented by a medium to large-size basally notched and rounded base projectile point/knife. Eva/Morrow Mountain cluster projectile points/knives are associated with the Middle Archaic period in Tennessee (Alexander 1982; Faulkner and McCollough 1973; Hofman 1982, 1984a; Joerschke 1983; Lewis and Lewis 1961; Lindstrom 1981; Morse and Morse 1964).

Table 12. Distribution of Projectile Point/Knife Clusters.

Feature Number	Kirk	Eva/Morrow Mountain	White Springs/Sykes	Benton	Ledbetter	Big Sandy II	Little Bear Creek	Flint Creek	Wade	McFarland	Lanceolate Expanded Stem	Lanceolate Spike	Small Triangular	Additional
							Projectile Point/Knife Cluster							
							Large Deep (Class 1) Pits							
17				1[a]	1	2	1							
18					1		1							1
22				2	3		3					1		2
26				1	6									2
27		1	1	2	3									7
35				2	3		1							1
40					6		2							2
48					1			1				1	1	7
51				1	2	1	1							1
52					1		1							4
67					2									3
71				1			1							1
77				1			1							2
79				1	3	1	1							5
84				1	3	1								2
87				1	2						1			2
101					4		1							2
144				1	13	1								3
Subtotal		1	1	15	54	6	14	1			1	2	1	47
							Medium (Class 2) Pits							
28					2									1
33					3		2							1
34				1	3		1							2
42						1	1							3
44					1									
50					1									5
55				1	2		1							3
56					1		2							
60							2					1	2	2
70							3							

Table 12. (continued).

Feature Number	Kirk	Eva/Morrow Mountain	White Springs/Sykes	Benton	Ledbetter	Big Sandy II	Little Bear Creek	Flint Creek	Wade	McFarland	Lanceolate Expanded Stem	Lanceolate Spike	Small Triangular	Additional
							Projectile Point/Knife Cluster							
							Medium (Class 2) Pits							
73					1		1							2
76					3									
83							2					1		1
86				1								1		1
105					1									
106					2		1							
108				1	1									
143				1										
Subtotal				5	21	1	16					3	2	21
							Shallow (Class 3) Pits							
75					1									
96							1							
100				1										
104							2							
128							2							
139				1	1									
145	1													
149														1
Subtotal	1			2	2		5							1
							Large (Class 4) Pits							
10				1			1		2					1
11	3													1
25						1					2	1	2	1
72				1										1
Subtotal	3			2		1	1		2		2	1	2	4

Table 12. (continued).

Feature Number	Projectile Point/Knife Cluster													
	Kirk	Eva/Morrow Mountain	White Springs/Sykes	Benton	Ledbetter	Big Sandy II	Little Bear Creek	Flint Creek	Wade	McFarland	Lanceolate Expanded Stem	Lanceolate Spike	Small Triangular	Additional
Pit Total	4	1	1	24	77	8	36	1	2		3	6	5	73
Middens														
Midden 2	1			1	1	1								2
Midden 4				4	7	1	2	2	1	1	16	4	1	17
Miscellaneous														
120[b]					1		1							
Site Total	5	1	1	29	86	10	39	3	3	1	19	10	6	92

[a] Number of projectile points/knives.

[b] Tree disturbance.

One (22.8 g) Eva/Morrow Mountain cluster projectile point/knife was recovered from Feature 27 (Table 12). This specimen is flattened in cross section and basally notched and has barbed shoulders and a parallel blade shape. The point was manufactured from Fort Payne chert. Cortex was not present on the point and it was possibly heated. Biface failures present include one lateral snap, one edge collapse, and one haft snap. The width of the specimen is 42.8 mm and the thickness is 7.4 mm.

White Springs/Sykes cluster. This cluster is represented by a medium-size projectile point/knife with a short broad stem. White Springs/Sykes cluster projectile points/knives are associated with the late Middle Archaic (Cambron and Hulse 1975:128; DeJarnette et al. 1962; Faulkner and McCollough 1973; Lewis and Lewis 1961).

One (19.8 g) White Springs/Sykes cluster projectile point/knife was recovered from Feature 27 (Table 12). This specimen has a very wide straight base, a very short expanded stem, horizontal shoulders, an obtuse distal end, and a parallel blade shape. The cross section is biconvex. The White Springs/Sykes projectile point/knife was manufactured from Fort Payne chert. No cortex was present on it. The point was thermally altered before flaking. A perverse biface fracture is evident. The length of this specimen is 73.7 mm, the width is 29.2 mm, and the thickness is 9.7 mm.

Benton cluster. This cluster is represented by medium to large-size broad stemmed projectile points/knives with steeply beveled stem edges. The Benton cluster projectile points/knives are associated with the Middle and Late Archaic periods in Alabama (Cambron and Hulse 1975:12-13) and Tennessee (Faulkner and McCollough 1973:118; Grubb 1986:77-81; Hall 1983; Hall et al. 1985; Hofman 1984b; Klippel and Turner 1983).

Twenty-nine Benton cluster projectile points/knives (435.9 g) were recovered from 22 pit features, Midden 2, and Midden 4 (Table 12 and Figure 50). Three of the pit features (F 22, 35, and 144) were radiocarbon dated (q.v. Radiocarbon Dates). The basal edges of these specimens are predominantly wide and straight or incurvate while two are bifurcated. Five of these points also have beveled basal edges. Stems are mostly short and straight or expanded while two are incurvate and one is contracted. Three of these points also have beveled stems. Shoulders are generally horizontal but seven are inversely tapered. Cross sections are mostly biconvex or flattened while three are planoconvex and one is median ridged. Twenty-one Benton points were manufactured from Fort Payne chert, 5 from St. Louis chert, 1 from Ridley chert, 1 from quartzite, and 1 from an unidentifiable chert similar to Dover. One point has cobble cortex on one face and one edge. Seven specimens exhibit no evidence of thermal alteration, 4 were possibly heated, 17 were heated before flaking, and 1 was heated after flaking. Biface failures include 12 lateral snap, 2 hinge, 7 edge collapse, 3 step, 5 perverse, 4 pot lid, 1 expansion, 2 crenation, and 2 impact/use fractures. The size distribution of the measurable Benton cluster projectile points/knives is:

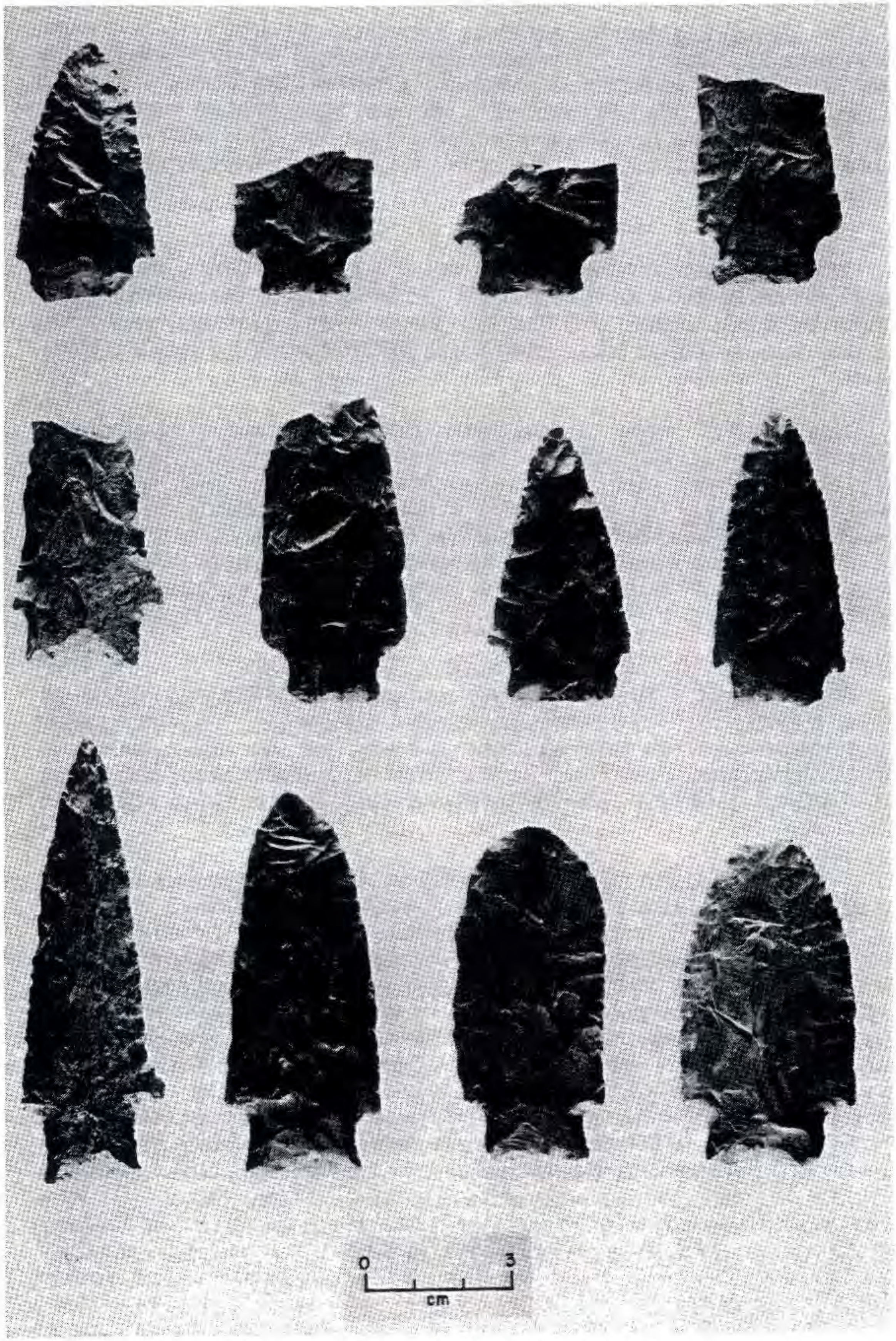


Figure 50. Benton Cluster Projectile Points/Knives.

	Length	Width	Thickness
Range	58.2-91.6 mm	27.5-36.9 mm	6.0-12.0 mm
Mean	68.6 mm	31.4 mm	8.5 mm
S.D.	12.2 mm	3.2 mm	1.5 mm
n	7	27	28

Ledbetter cluster. This cluster is represented by large-size stemmed projectile points/knives with asymmetrical blade edges. The Ledbetter cluster projectile points/knives are associated with the Late Archaic period in Alabama (Cambron and Hulse 1975:78; Futato 1983), Mississippi (Thorne et al. 1981), and Tennessee (Faulkner and McCollough 1973:151-152; Lewis and Kneberg 1959; Grubb 1986:73-77). Attributes used to distinguish Ledbetter cluster projectile point types appear to be variations resulting from different stages in the manufacturing process. For example, Ledbetters are not fully thinned (Figure 51), Pickwicks have expanded barbed shoulders (Figure 52), Mulberry Creeks have pronounced excurvate blades (Figure 53A), and Maples' have large shoulders and wide stems (Figure 53B). Evidence from several sites suggests Ledbetter, Pickwick, Mulberry Creek, and Maples projectile points/knives should be combined under one name (Thorne et al. 1981). Faulkner and McCollough (1973) were the first to suggest combining large asymmetrical stemmed Late Archaic projectile points/knives under the name Ledbetter cluster.

Eighty-six (1,844.0 g) Ledbetter cluster projectile points/knives were recovered from 31 pit features, Midden 2 and Midden 4 (Table 12). Three of the pit features (F 22, 35, and 144) were radiocarbon dated (q.v. Radiocarbon Dates). The basal edges of these specimens are predominately straight while seven are excurvate, nine are incurvate, and four are rounded. Eight of these points also have beveled basal edges. Stems are mostly straight while 14 are expanded, 10 are incurvate, and 20 are contracted. Eight of these points have beveled stems. Shoulders are horizontal, inversely tapered, tapered, expanded, and rounded. Cross sections are generally biconvex while 16 are flattened, 13 are planoconvex, 5 are rhomboid, and 1 is median ridged. Seventy-six Ledbetter cluster points were manufactured from Fort Payne chert, 9 from St. Louis chert, and 1 from Bigby Cannon chert. Two points have matrix cortex, 13 have cobble cortex, and 1 has incipient fracture planes. Twenty-seven specimens exhibit no evidence of thermal alteration, 15 were possibly heated, 41 were heated before flaking, 2 were heated after flaking, and 1 was heated before and after flaking. Biface failures include 28 lateral snap, 4 hinge, 25 edge collapse, 12 step, 1 reverse, 2 incipient fracture planes, 3 perverse, 5 pot lid, 5 expansion, 2 crenation, 6 haft snap, and 14 impact/use fractures. One Ledbetter projectile point/knife was reworked into an end scraper. The size distribution of the measurable Ledbetter cluster projectile points/knives is:

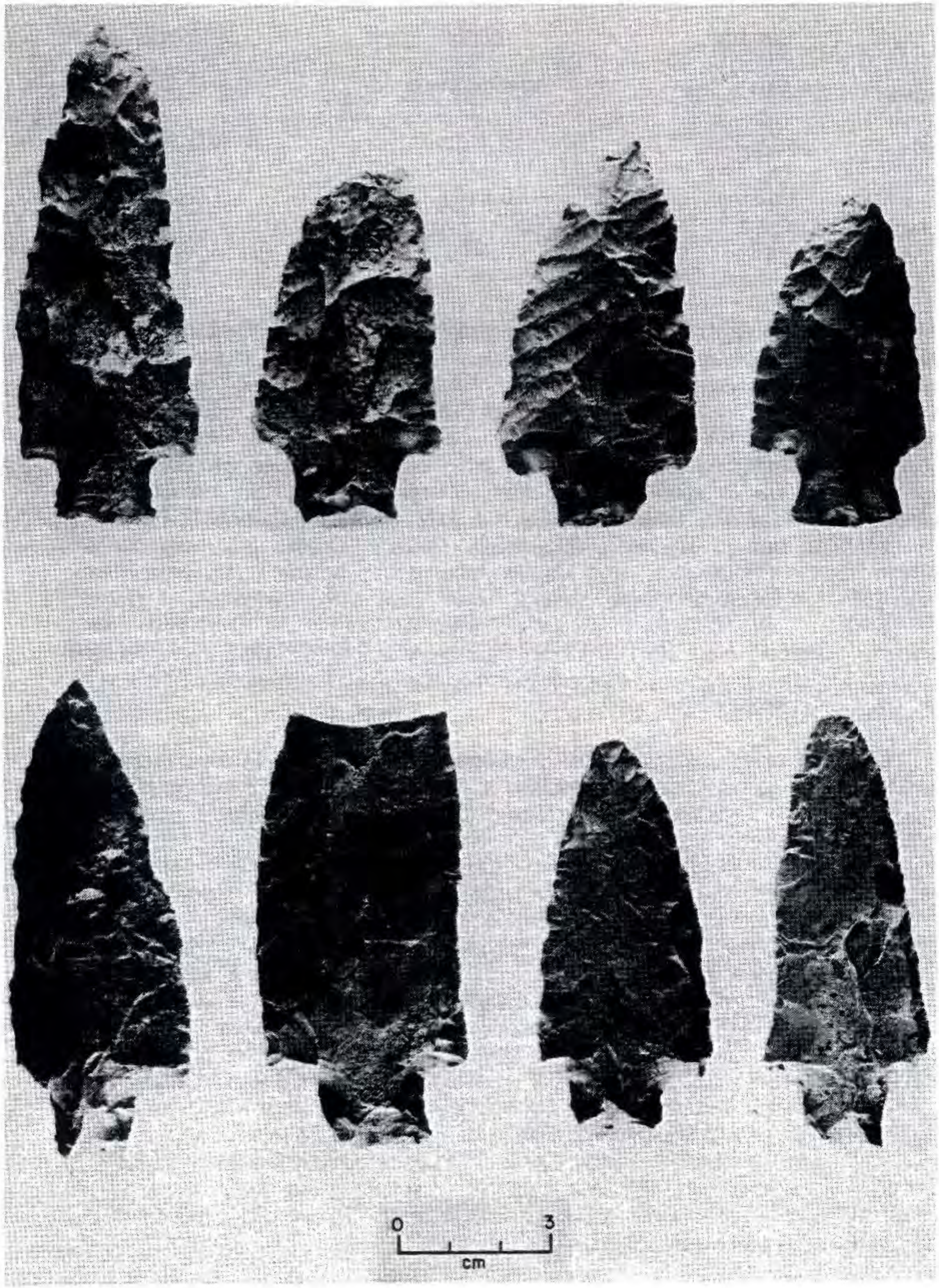


Figure 51. Ledbetter Cluster Projectile Points/Knives: Ledbetter Type.

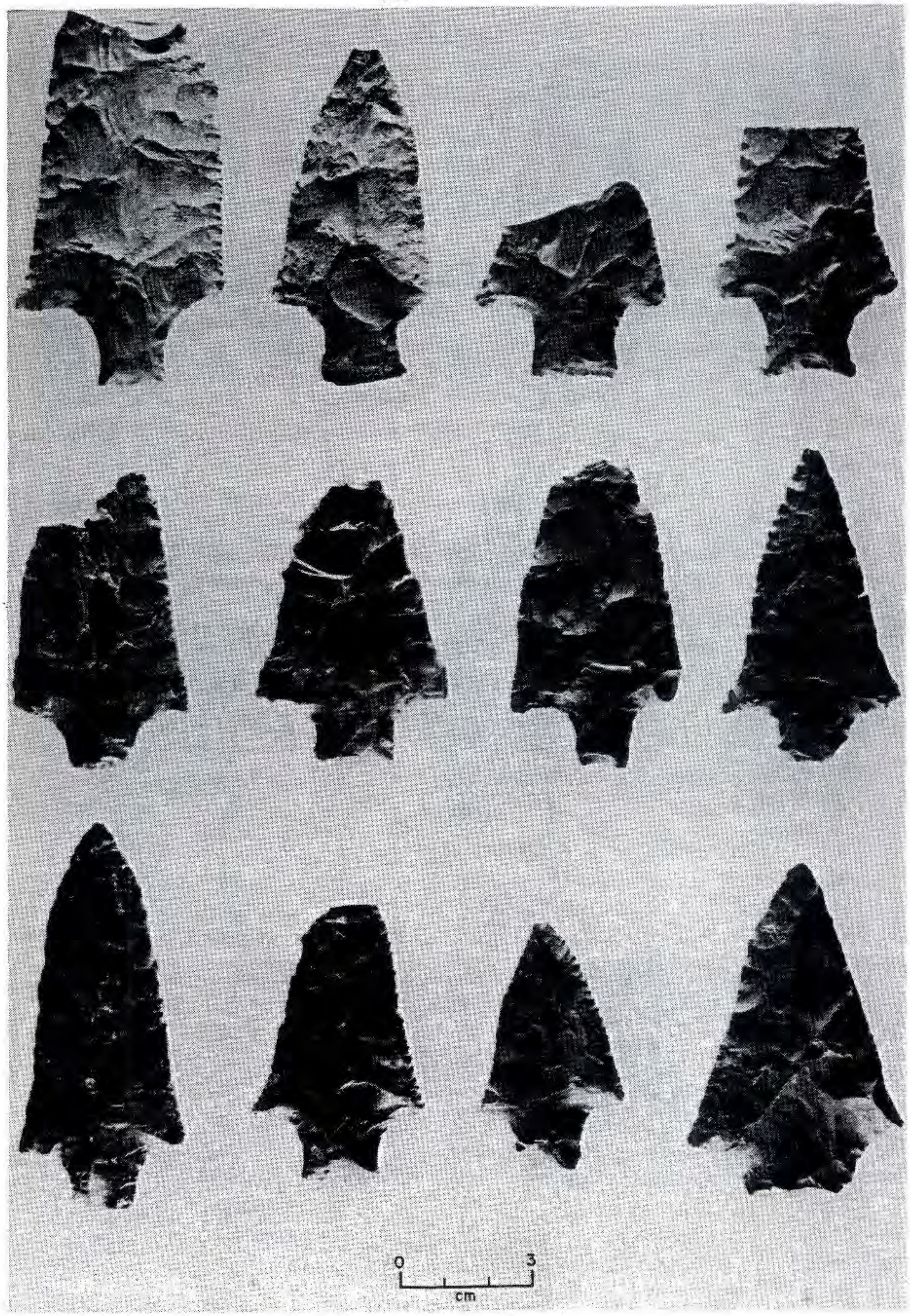


Figure 52. Ledbetter Cluster Projectile Points/Knives: Pickwick Type.

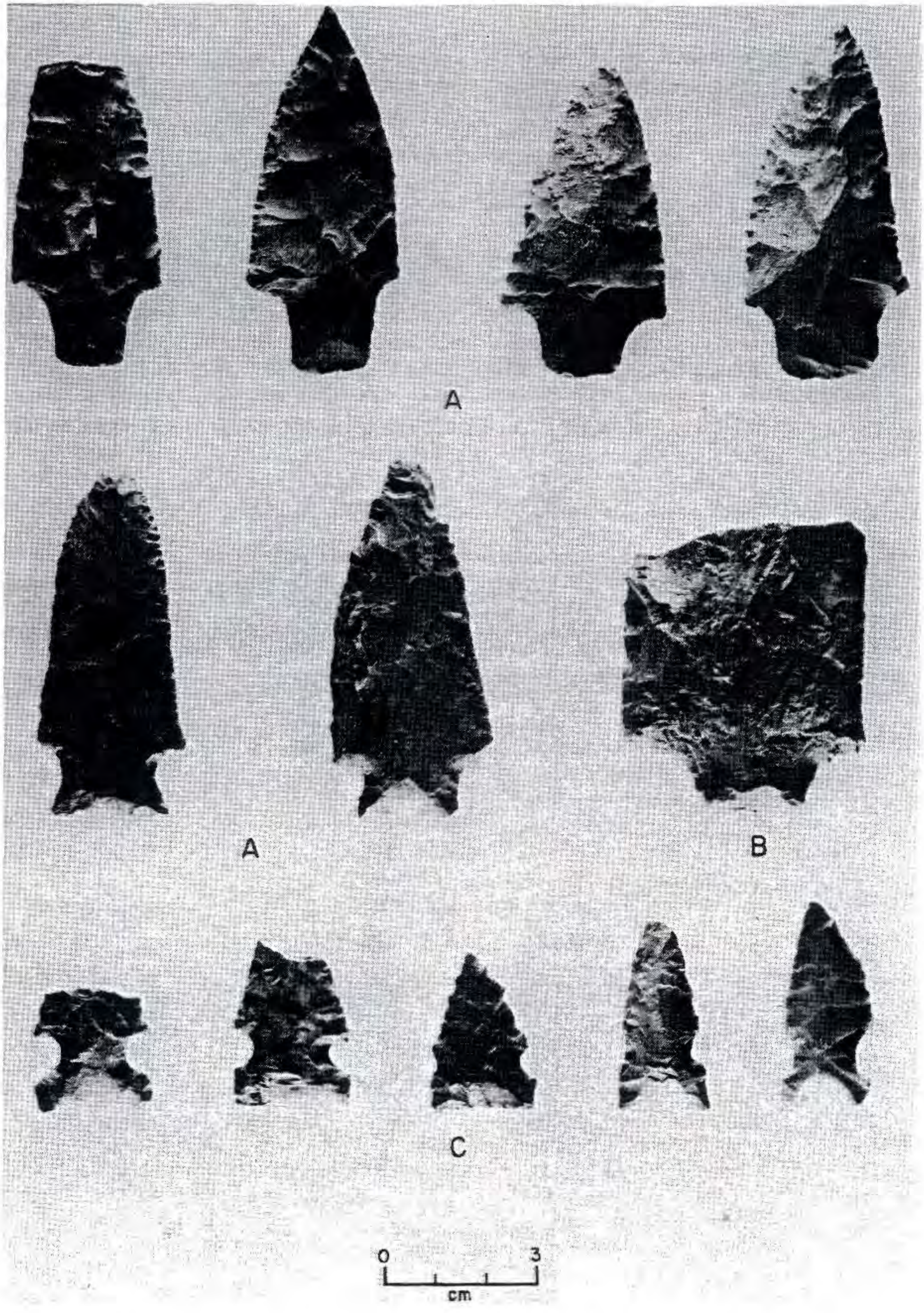


Figure 53. Ledbetter Cluster: Mulberry Creek and Maples Types and Big Sandy II Cluster Projectile Points/Knives. A-Mulberry Creek; B-Maples; C-Big Sandy II.

	Length	Width	Thickness
Range	39.6-102.2 mm	25.8-50.8 mm	6.7-19.1 mm
Mean	70.8 mm	35.5 mm	10.6 mm
S.D.	13.6 mm	5.7 mm	2.3 mm
n	25	72	84

Big Sandy II cluster. This cluster is represented by small to medium-size side-notched projectile points/knives. The Big Sandy II cluster projectile points/knives are associated with the Late Archaic period in Tennessee (Cridlebaugh 1983:138-140; Lewis and Kneberg 1959; Lewis and Lewis 1961:37; Nance 1987:136, 138). This point was described by Cambron and Hulse (1975:14) as an unground variant of the Big Sandy I. Lewis and Kneberg (1959) and Nance (1987) suggest a time span of 4000-1000 B.C. for this variant.

Ten (37.9 g) Big Sandy II cluster projectile points/knives were recovered from seven pit features, Midden 2, and Midden 4 (Table 12 and Figure 53C). One of the pit features (F 144) was radiocarbon dated (q.v. Radiocarbon Dates). The basal edges of these specimens are predominantly incurvate while one each is bifurcated and straight. One point also has a ground basal edge. Stems are expanded, short, and side-notched. Shoulders are mostly horizontal while one is barbed and two are tapered. Cross sections are flat, biconvex, rhomboid, or median ridged. Blade edges are beveled and straight. The 10 points were manufactured from Fort Payne chert and lack cortex. Thermal alteration occurred before flaking on five points, two were heated before and after flaking, two were possibly heated, and one has no evidence of heating. Biface failures include three lateral snap, one step, one pot lid, three expansion, and one crenation. The size distribution of the measurable Big Sandy II cluster projectile points/knives is:

	Length	Width	Thickness
Range	32.3-41.5 mm	15.8-23.7 mm	5.9-7.7 mm
Mean	37.5 mm	19.7 mm	6.6 mm
S.D.	3.9 mm	2.9 mm	0.5 mm
n	3	6	9

Little Bear Creek cluster. This cluster is represented by medium to large-size long-stemmed projectile points/knives. The Little Bear Creek cluster projectile points/knives are associated with the Late Archaic and Early Woodland periods and the Gulf Formational stage in Alabama (Cambron and Hulse 1975:82; DeJarnette et al. 1962:61, 79; Oakley and Futato 1975) and Tennessee (Howser 1976:682-683).

Thirty-nine (479.6 g) Little Bear Creek cluster projectile points/knives were recovered from 27 pit features and Midden 4 (Table 12 and Figure 54). Two of the pit features (F 22 and 35) were radiocarbon dated (q.v. Radiocarbon Dates). The basal edges of these specimens are predominantly straight or rounded while one is incurvate. One of these points also has a beveled basal edge. Stem shapes are primarily contracted while ten are straight and two are incurvate. Cross sections are mostly biconvex while four are planoconvex, two are flattened, one is rhomboid, and one is median ridged. Blade shapes present include parallel, excurvate, straight, and excurvate-incurvate. Blade edge treatments include six beveled and two serrated. Distal ends are acute, acuminate, apiculate, and mucronate with the majority broken. Fort Payne chert was utilized in the manufacture of 37 Little Bear Creek cluster points while St. Louis chert was used for two. Cobble cortex is present on 11 of the projectile points/knives while 1 has matrix cortex. Thermal alteration occurred before flaking on 15 points, 11 were possibly heated, 1 was heated before and after flaking, and 12 have no evidence of heating. Biface failures include 10 lateral snap, 2 hinge, 9 edge collapse, 1 step, 2 pot lid, 3 expansion, 3 haft snap, and 3 impact/use fractures. Two Little Bear Creek projectile points/knives were reworked into end scrapers. The size distribution of the measurable Little Bear Creek cluster projectile points/knives is:

	Length	Width	Thickness
Range	31.9-73.1 mm	18.2-33.7 mm	6.8-12.3 mm
Mean	61.4 mm	25.1 mm	9.3 mm
S.D.	13.0 mm	4.6 mm	1.1 mm
n	17	37	37

Flint Creek cluster. This cluster is represented by medium to large-size stemmed projectile points/knives with finely serrated blade edges. The Flint Creek cluster projectile points/knives are associated with the Gulf Formational stage and the Terminal Archaic-Early Woodland in Alabama (Ensor 1981:94-95; Futato 1983:225-228) and Tennessee (Amick 1986:314).

Three (40.1 g) Flint Creek cluster projectile points/knives were recovered from Feature 43 and Midden 4 (Table 12). The basal edges of these specimens are straight or rounded. Stems are straight or slightly incurvate. Shoulders are expanded or barbed. Cross sections are one each flattened, biconvex, and rhomboid. One blade has beveled and serrated edges. Two points were manufactured from Fort Payne

Figure 54. Little Bear Creek Cluster Projectile Points/Knives.

chert while St. Louis chert was utilized for one. Matrix cortex is present on a face of one point. Thermal alteration took place before flaking on two specimens and after flaking on one. Biface failures include one each of edge collapse, step, pot lid, expansion, and impact/use fracture. The size distribution of the measurable Flint Creek cluster projectile points/knives is:

	Length	Width	Thickness
Range	60.0 mm	24.4-28.7 mm	7.6-12.1 mm
Mean		24.4 mm	9.5 mm
S.D.		2.2 mm	1.9 mm
n	1	2	3

Wade cluster. The Wade cluster projectile points/knives are associated with the Gulf Formational stage and the Terminal Archaic-Early Woodland in Alabama (Cambron and Hulse 1975:33, 86, 122; DeJarnette et al. 1962:69; Ensor 1981:95-96; Futato 1983:222-225) and Tennessee (Faulkner and McCollough 1973:110, 122-123, 149; Faulkner and Graham 1966). This cluster consists of the Wade, Motley, McIntire, and Cotaco Creek types.

Three (26.5 g) points which resemble the Wade and Cotaco Creek types were recovered from F 10 and Midden 4 (Table 12). The basal edges of these specimens are straight. Stems are straight or incurvate. Shoulders are barbed. Cross sections are biconvex to flattened. Blade shapes are straight. The three points were manufactured from Fort Payne chert and have no cortex. Thermal alteration took place before flaking on two specimens while one was possibly heated. Biface failures include two lateral snap, two edge collapse, one incipient fracture plane, and one impact/use fracture. The size distribution of the measurable Wade cluster projectile points/knives is:

	Length	Width	Thickness
Range			6.9-7.9 mm
Mean			7.5 mm
S.D.			0.4 mm
n			3

McFarland cluster. This cluster is represented by medium to large-size stemless triangular projectile points/knives. The McFarland cluster projectile points/knives are associated with the early Middle Woodland in northern Alabama (Futato 1983:231) and Middle Tennessee (Faulkner and McCollough 1973:146-148; Kline et al. 1982:43-46).

One (8.0 g) McFarland cluster projectile point/knife was recovered from Midden 4 (Table 12) which was radiocarbon dated (q.v. Radiocarbon Dates). This specimen has a straight auriculated base. The cross section is biconvex. The point was manufactured from St. Louis chert which was heated before flaking. Biface failures present are one each of lateral snap and step fracture. The width of the McFarland cluster projectile point/knife is 22.3 mm and the thickness is 8.2 mm.

Lanceolate Expanded Stem cluster. This cluster is represented by small thick expanded stem and medium to large-size expanded stem and notched projectile points/knives. The Lanceolate Expanded Stem cluster projectile points/knives are associated with the Middle Woodland period in Alabama (Cambron and Hulse 1975:8, 21; DeJarnette et al. 1962:47; Ensor 1981:92-93; Futato 1983:235-239) and Middle Tennessee (Faulkner and McCollough 1974:579). The Bakers Creek and Swan Lake types are included in this cluster.

Sixteen (49.7 g) Swan Lake points were recovered from Midden 4 (Table 12 and Figure 55A) which was radiocarbon dated (q.v. Radiocarbon Dates). One (12.1 g) Bakers Creek projectile point/knife and two (18.1 g) undifferentiated Lanceolate Expanded Stem cluster projectile points/knives were recovered from two pit features (F 25 and 87) (Table 12). The basal edges of these specimens are predominantly straight while three are incurvate, two are excurvate, and two are rounded. Stems are expanded or incurvate. Shoulders are horizontal, tapered, inversely tapered, rounded, or expanded. Cross sections are mostly biconvex or median ridged while four are flattened. Fort Payne chert was primarily utilized in the manufacture of Lanceolate Expanded Stem cluster points while one is St. Louis chert and one is Bigby Cannon chert. Three projectile points/knives exhibit cobble cortex on two edges and one face. Fourteen specimens were heated before flaking, one was heated after flaking, one was heated before and after flaking, two were possibly heated, and one exhibits no evidence of thermal alteration. Biface failures include six lateral snap, seven edge collapse, three step, one transverse, two pot lid, two expansion, and four impact/use fractures. The size distribution of the measurable Lanceolate Expanded Stem cluster projectile points/knives is:

	Length	Width	Thickness
Range	29.9-50.5 mm	12.3-29.2 mm	6.0-8.8 mm
Mean	38.6 mm	17.1 mm	7.3 mm
S.D.	5.9 mm	4.6 mm	0.8 mm
n	7	17	17

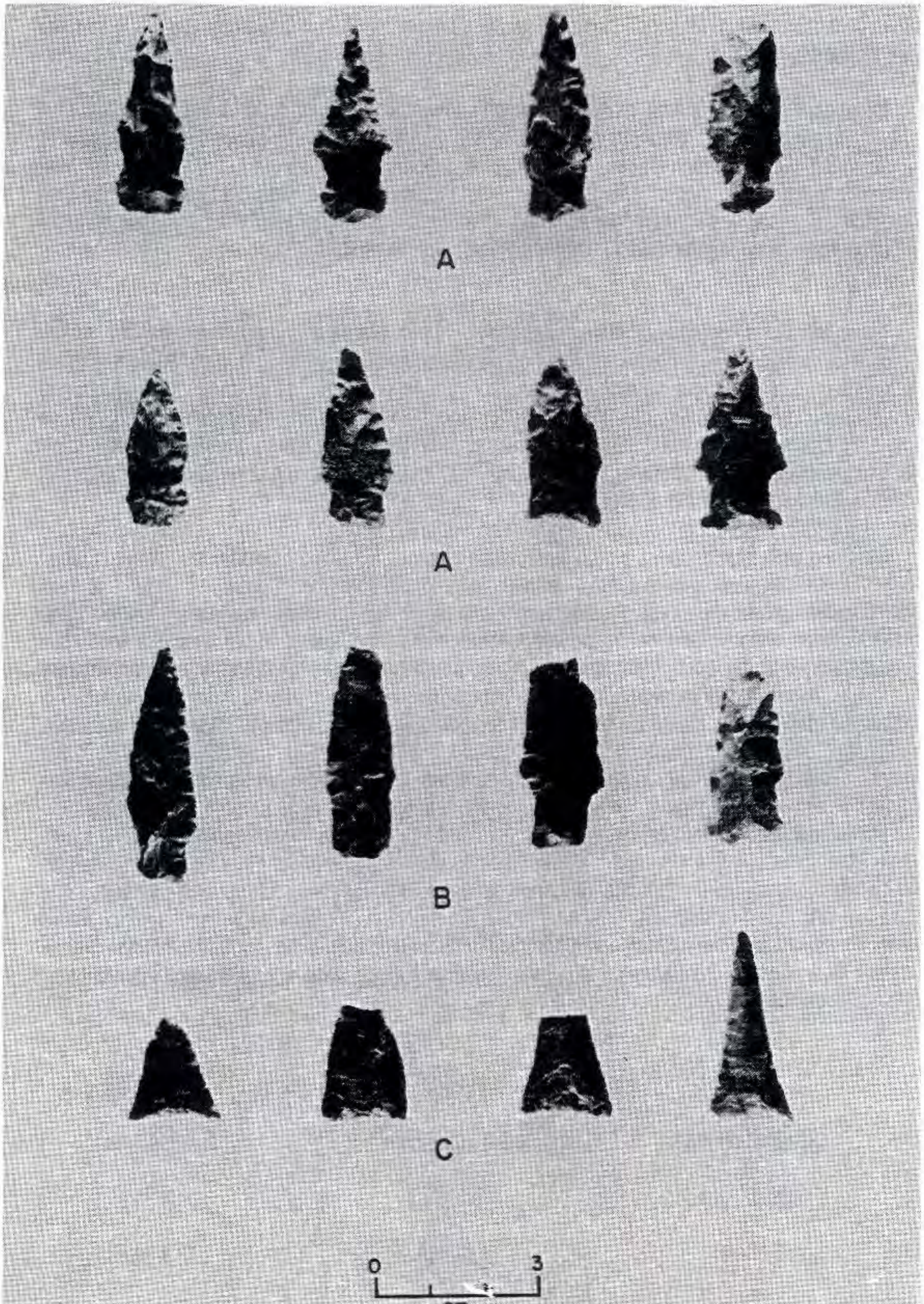


Figure 55. Lanceolate Expanded Stem Cluster: Swan Lake Type, Lanceolate Spike Cluster, and Small Triangular Cluster Projectile Points/Knives. A-Swan Lake; B-Lanceolate Spike; C-Small Triangular.

Lanceolate Spike cluster. This cluster is represented by medium-size stemmed projectile points/knives. The Lanceolate Spike cluster projectile points/knives are associated with the early and late Middle Woodland in Alabama (Ensor 1981:94; Futato 1983:240) and the late Middle Woodland in Middle Tennessee (Faulkner and McCollough 1973:144-145). This cluster is similar to the Bradley and Flint River Spike types in the Tennessee River Valley (DeJarnette et al. 1962:56; Kneberg 1956:27).

Ten (51.6 g) Lanceolate Spike cluster projectile points/knives were recovered from six pit features and Midden 4 (Table 12 and Figure 55B). One of the pit features (F 60) and Midden 4 were radiocarbon dated (q.v. Radiocarbon Dates). The basal edges of these specimens are predominantly straight while one is rounded. Stems are mostly straight while two are contracted and two are expanded. Shoulders are usually tapered while one has horizontal shoulders. Cross sections are generally median ridged and biconvex while one each is rhomboid and planoconvex. Fort Payne chert was primarily utilized in the manufacture of Lanceolate Spike cluster points while one is of St. Louis chert. Three specimens exhibit no evidence of thermal alteration, one was possibly heated, and six were heated before flaking. Biface failures include four lateral snap, five step, two impact/use fractures and one each of hinge, edge collapse, and crenation. The size distribution of the measurable Lanceolate Spike cluster projectile points/knives is:

	Length	Width	Thickness
Range	33.4-48.8 mm	12.2-18.1 mm	6.1-11.8 mm
Mean	43.5 mm	15.0 mm	8.7 mm
S.D.	6.9 mm	1.8 mm	2.1 mm
n	5	9	10

Small Triangular cluster. This cluster is represented by small stemless triangular projectile points/knives that morphologically resemble the type Hamilton Triangular (Kneberg 1956:24). The Small Triangular cluster projectile points/knives are associated with the Late Woodland and Mississippian periods in Alabama (Ensor 1981:89-91; Futato 1983:240-242) and Tennessee (Chapman 1982:101-104; Faulkner 1968:83; Faulkner and McCollough 1973:143-144; Kleinhans 1978:396-400).

Six (7.9 g) Small Triangular cluster projectile points/knives were recovered from three pit features (F 25, 48, and 60) and Midden 4 (Table 12 and Figure 55C). One of the pit features (F 60) and Midden 4 were radiocarbon dated (q.v. Radiocarbon Dates). The basal edges of these specimens are auriculated and incurvate. Haft areas are expanded. Cross sections are flattened. All six points were manufactured from Fort Payne chert. One specimen has cobble cortex on one face and one edge. One point exhibits no evidence of thermal alteration while five were heated before flaking. Biface failures include two lateral snap and one edge collapse. The size distribution of the measurable Small Triangular cluster projectile points/knives is:

	Length	Width	Thickness
Range	18.9-37.3 mm	14.7-17.8 mm	2.7-4.5 mm
Mean	28.3 mm	16.7 mm	3.7 mm
S.D.	7.5 mm	1.2 mm	0.6 mm
n	3	5	6

Additional projectile points/knives and fragments. Ninety-two (606.0 g) unidentifiable projectile point/knife fragments were recovered from 32 pit features, Midden 2, and Midden 4. These consist of 7 complete specimens, 34 stems, 38 stem and blade sections, 12 blade and shoulder segments, and 1 medial fragment. Undoubtedly many biface edge and tip fragments were formerly projectile points/knives.

The basal edges of these specimens are straight, excurvate, incurvate, bifurcated, and rounded. One point also has a ground basal edge and five have beveled basal edges. Stems are straight, expanded, incurvate, contracted, rounded, side notched, and corner notched. Four of these points also have beveled stems. Shoulders are mostly horizontal or tapered while a few are barbed, expanded, or rounded. Cross sections are predominantly biconvex or flat while seven are rhomboid, three are planoconvex, and two are median ridged. Fort Payne chert was primarily utilized in the manufacture of these projectile points/knives while four specimens are of St. Louis chert and one each is of Bigby Cannon chert, Carters chert, and an unidentified chert which resembles Kaolin. Six point fragments have cobble cortex and two have matrix cortex present on nine faces and five edges. Fourteen point fragments exhibit no evidence of thermal alteration, 10 were possibly heated, 2 were definitely heated, 53 were heated before flaking, 7 were heated after flaking, and 6 were heated before and after flaking. Biface failures include 34 lateral snap, 2 hinge, 26 edge collapse, 8 step, 1 reverse, 3 perverse, 18 pot lid, 20 expansion, 10 crenation, 33 haft snap, and 5 impact/use fractures.

BIFACE CACHE

One of the most interesting features excavated at the Bailey site contained a tool cache of 46 bifacial tools, 5 unifacial tools, 3 hammerstones, and 2 abraders. Feature 141 was a circular shallow (Class 3) pit with insloping sides and a flat bottom. It was intrusive into Midden 2 and measured 88 cm x 77 cm in plan view and 10 cm in depth. The fill was a dark brown silt loam containing abundant burned bone, burned clay, charcoal, shale, chert debitage, and lithic tools.

Feature 141 was discovered during plow zone stripping of Power Unit 1. Six bifaces were disturbed by the backhoe and collected. During excavation of the feature, all bifaces and biface fragments larger than 2.54 cm (1 inch) were piece plotted (Figures 56 and 57). Elevations were taken before and after each specimen was removed. Thirty-nine bifaces, 4 utilized flakes, 2 hammerstones, 2 tested cobbles, 3 cores, a cluster of shale fragments, and 1 primary flake were piece plotted. Two areas of burned bone were also mapped (Figure 56). The fill from this shallow feature was mostly processed by flotation while a small portion was waterscreened. Artifacts from Feature 141 include 55 fragments of at least 46 bifaces which have been partially reconstructed. Two of the six bifaces recovered from F 141 during plowzone stripping were refitted with biface fragments recovered from waterscreened pit fill.

Chert Debitage

Flake debris. Flake debitage from Feature 141 was subdivided into five morphological categories: primary flake, secondary flake, tertiary flake, broken flake, and biface thinning flake.

Three (91.1 g) primary flakes of thermally altered Laminated Fort Payne chert were recovered. Cobble cortex is present on one specimen while two have matrix cortex.

Sixty-nine (300.6 g) secondary flakes of Laminated Fort Payne chert were recovered. Cobble cortex is present on 65 secondary flakes while 4 have matrix cortex. No evidence of thermal alteration is present on 25 specimens while 44 were definitely heated.

Nine (21.3 g) tertiary flakes of Laminated Fort Payne chert were recovered. Cobble cortex is present on the platform of three of these flakes. No evidence of thermal alteration is present on four specimens while five were definitely heated.

A total of 315 (161.8 g) broken flakes was recovered, of which 314 are Laminated Fort Payne chert and 1 is St. Louis chert. Broken flakes have no cortex present. No evidence of thermal alteration is present on 16 specimens while 299 were definitely heated.

A total of 104 (62.9 g) biface thinning flakes was recovered, of which 103 are Laminated Fort Payne chert and 1 is St. Louis chert. Cobble cortex is present on nine biface thinning flakes. No evidence of thermal alteration is present on 11 specimens while 93 were definitely heated.

Nonflake debris. Four categories of nonflake debitage were recognized from Feature 141: tested cobble, blocky debris, core, and fire-cracked chert.

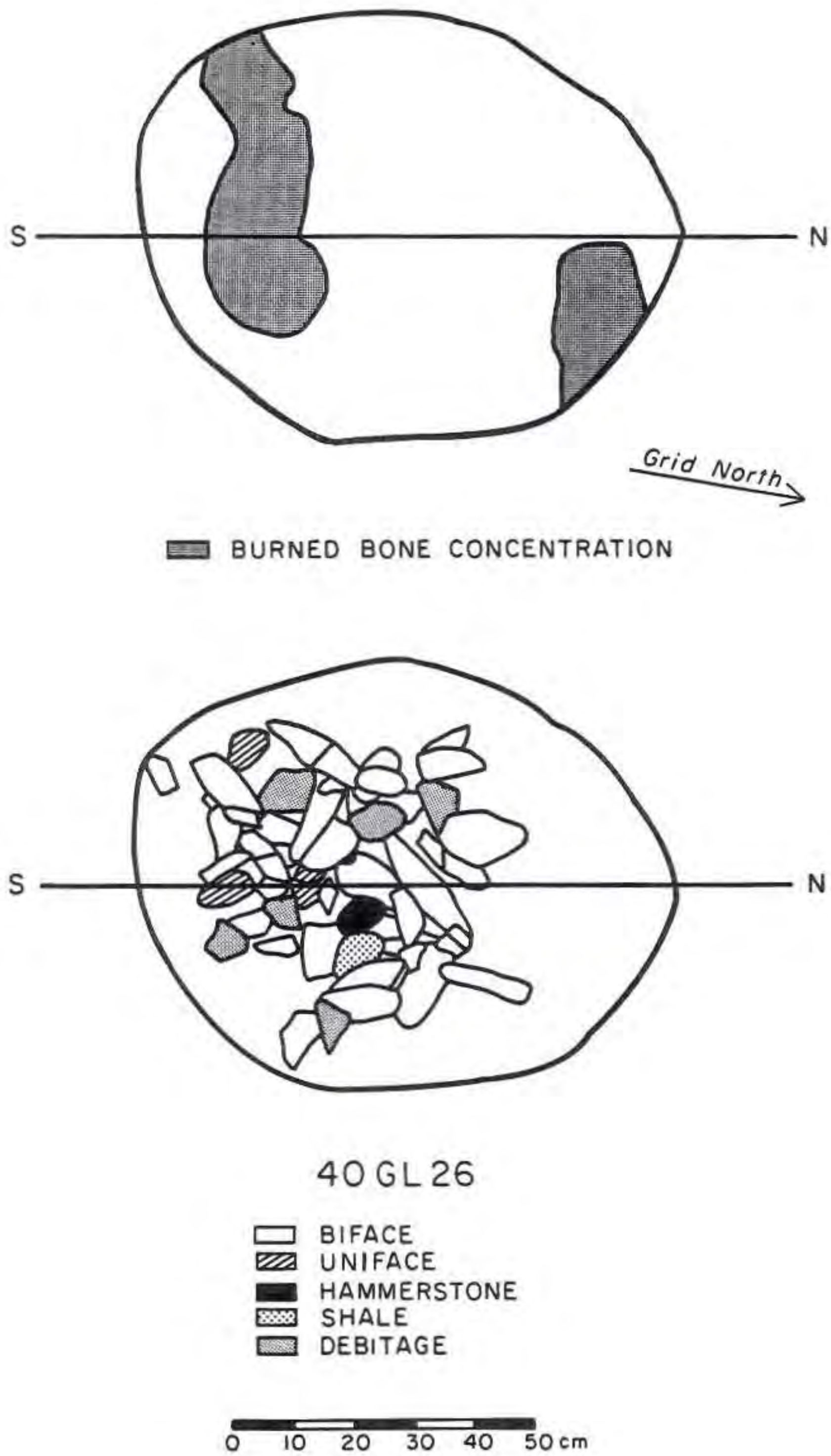


Figure 56. Burned Bone Concentration and Biface Cache in Feature 141.

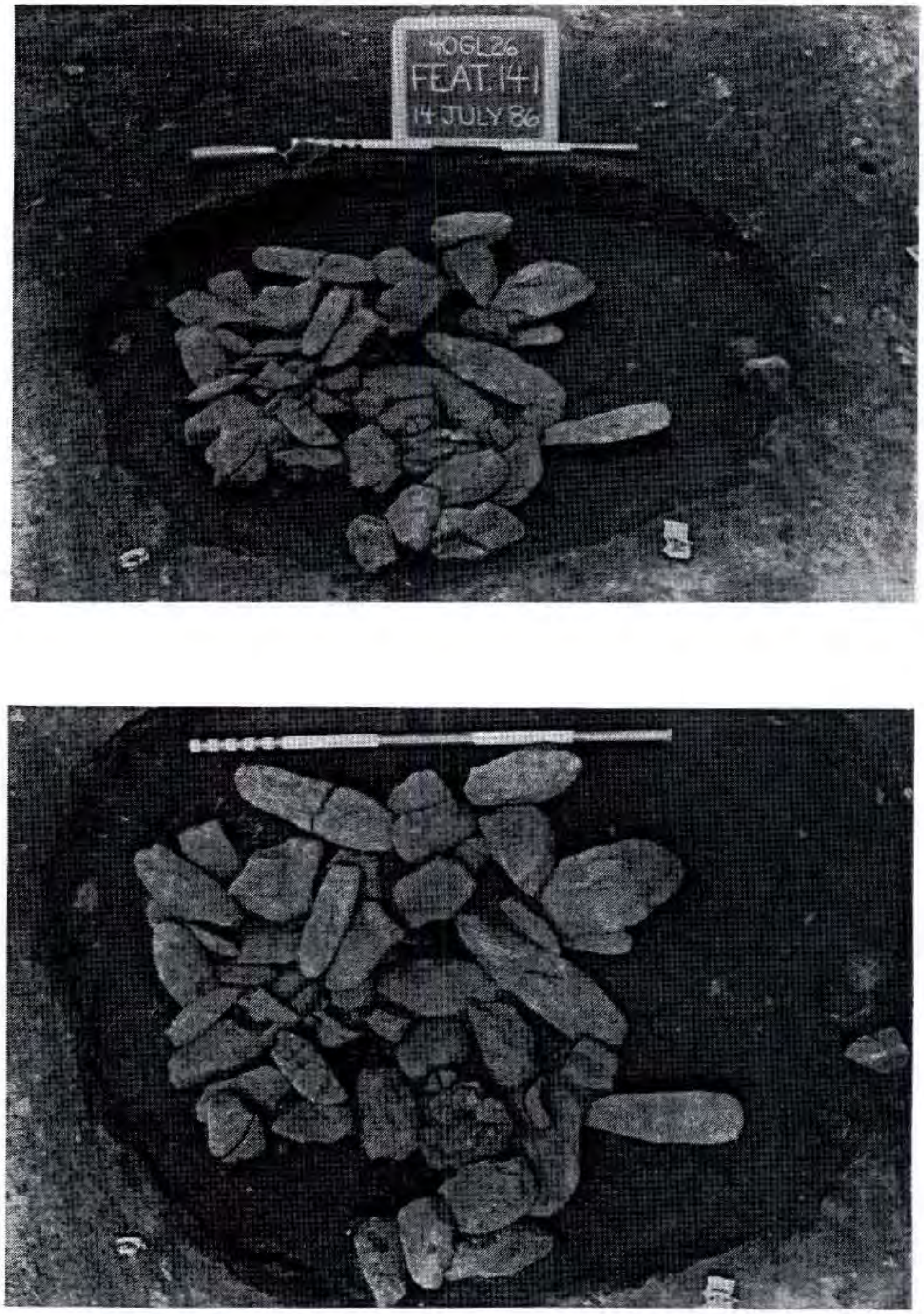


Figure 57. Feature 141 Biface Cache. General and Close-up Views.

Two (774.4 g) tested cobbles of Laminated Fort Payne chert with cobble cortex were recovered. One tested cobble has no evidence of thermal alteration while one was definitely heated.

Nineteen (29.4 g) pieces of blocky debris were recovered. The blocky debris were manufactured from Laminated Fort Payne chert and all were definitely heated. Cobble cortex is present on three specimens while four have matrix cortex.

Eight (1,235.7 g) cores were recovered. Six are Laminated Fort Payne chert and two are St. Louis chert (Figure 58A). Cobble cortex is present on seven of the cores. No evidence of thermal alteration is present on two cores while six were definitely heated.

A total of 119 (79.7 g) pieces of fire-cracked chert of Laminated Fort Payne chert was recovered. Cobble cortex is present on 36 specimens while 20 have matrix cortex.

Lithic Tools

Three general categories of tools were recognized: pecked and ground stone tools, unifacial tools, and unhafted bifacial tools. No hafted or stemmed bifacial tools were recovered from Feature 141. Within each of the three tool categories, three additional attributes were recorded: raw material, thermal alteration, and cortex. Biface failure was also recorded for unhafted bifacial tools.

Pecked and ground stone tools. These tools were subdivided into two morphological categories: hammerstones and abraders.

Three (548.0 g) hammerstones were recovered, of which two are quartzite (Figure 58B) and one is Laminated Fort Payne chert. Cobble cortex is present on two hammerstones while no cortex is present on one. No evidence of thermal alteration is present on any of the hammerstones.

Two (148.7 g) abraders recovered from Feature 141 were discussed previously in this chapter (Figure 58C).

Unifacial tools. Five (674.7 g) utilized unifacial tools of Laminated Fort Payne chert were recovered (Figure 58D). Cobble cortex is present on three specimens while one has matrix cortex. No evidence of thermal alteration is present on four unifaces while one was definitely heated.

The utilized edge is exclusively unifacial on all five flakes. Three specimens are secondary flakes, one is a tertiary flake, and one is a broken flake. Utilization occurred on one lateral margin of three specimens and indeterminate margins of two. Metric

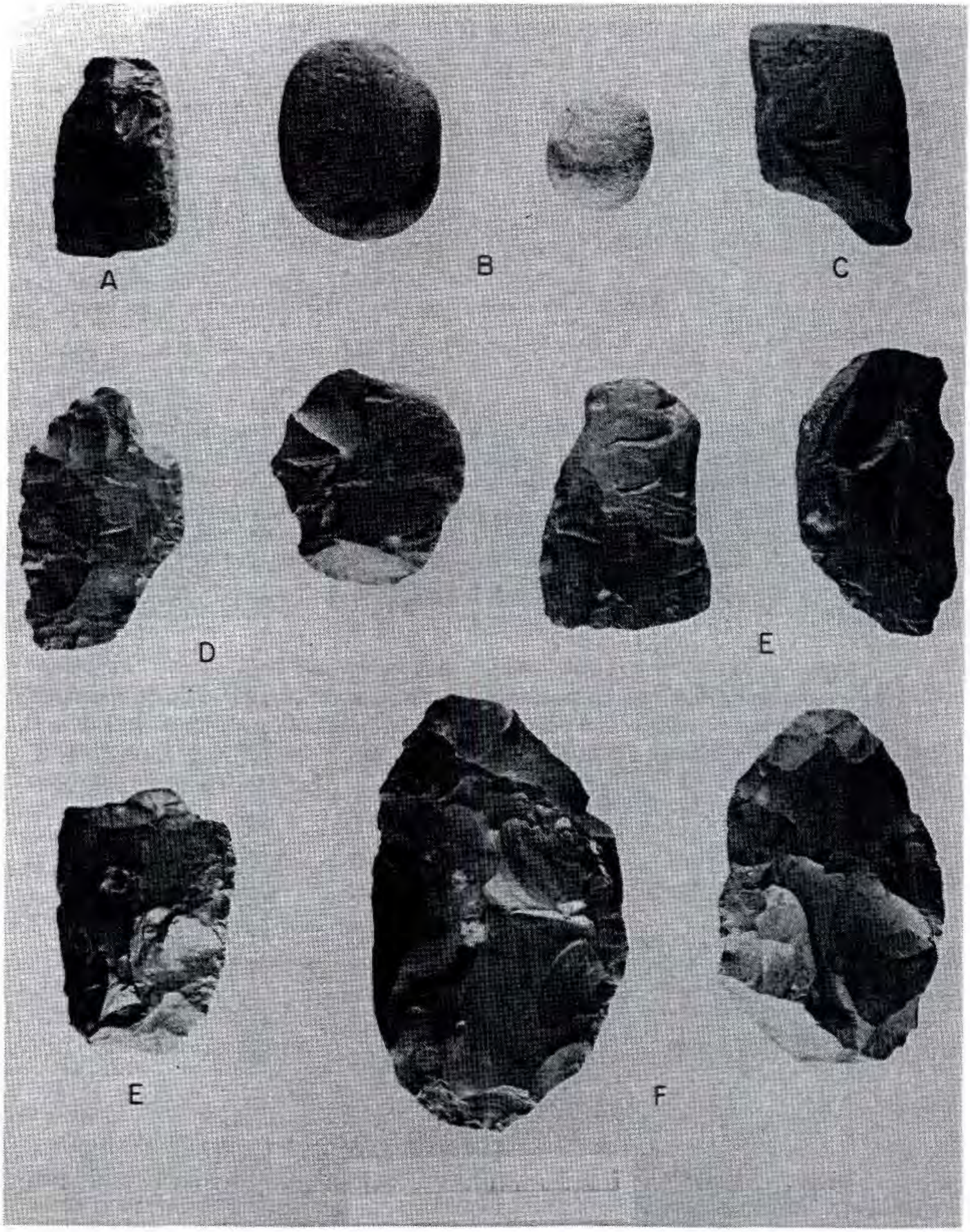


Figure 58. Core, Hammerstones, Abrader, Unifaces, and Initial Stage and Intermediate Stage I Bifaces from Feature 141. A-Core; B-Hammerstones; C-Abrader; D-Unifaces; E-Initial Stage Bifaces; F-Intermediate Stage I Bifaces.

measurements were taken when possible on the overall lengths and widths of the utilized unifacial tools:

	Length	Width
Range	77.1-107.2 mm	63.7-76.6 mm
Mean	91.7 mm	68.2 mm
S.D.	11.8 mm	5.0 mm
n	4	4

Unhafted bifacial tools. Six stages of biface reduction were recognized in the production of bifaces. These six stages have been discussed previously in this chapter. Five stages of biface reduction were recognized in the bifaces from Feature 141: Initial Stage biface, Intermediate Stage I biface, Intermediate Stage II biface, Intermediate Stage III biface, and Final Stage biface. No Late Stage bifaces were recovered. The bifaces range from those in the Initial Stage of reduction, almost entirely covered in cortex, to finely thinned specimens in the Final Stage of biface reduction.

Eight (2,175.0 g) Initial Stage bifaces were recovered (Figure 58E). All of the bifaces were manufactured from Laminated Fort Payne chert and exhibit cobble cortex. Three bifaces have no evidence of heating while four were heated after flaking and one was heated before flaking. Biface failures represented include two expansion, one edge collapse, and six incipient fracture planes. The size distribution of the measurable Initial Stage bifaces is:

	Length	Width	Thickness
Range	89.2-150.0 mm	57.1-71.5 mm	29.5-48.6 mm
Mean	109.3 mm	64.7 mm	38.2 mm
S.D.	17.5 mm	5.2 mm	6.5 mm
n	8	8	8

Twelve (3,183.0 g) Intermediate Stage I bifaces were recovered (Figures 58F and 59A). Eleven bifaces were manufactured from Laminated Fort Payne chert while one was of St. Louis chert. Four bifaces have cobble cortex, one has matrix cortex, and four have incipient fracture planes. One Intermediate Stage I biface has no evidence of heating, one may have been heated, three were definitely heated, one was heated before flaking, five were heated after flaking, and one was heated before and

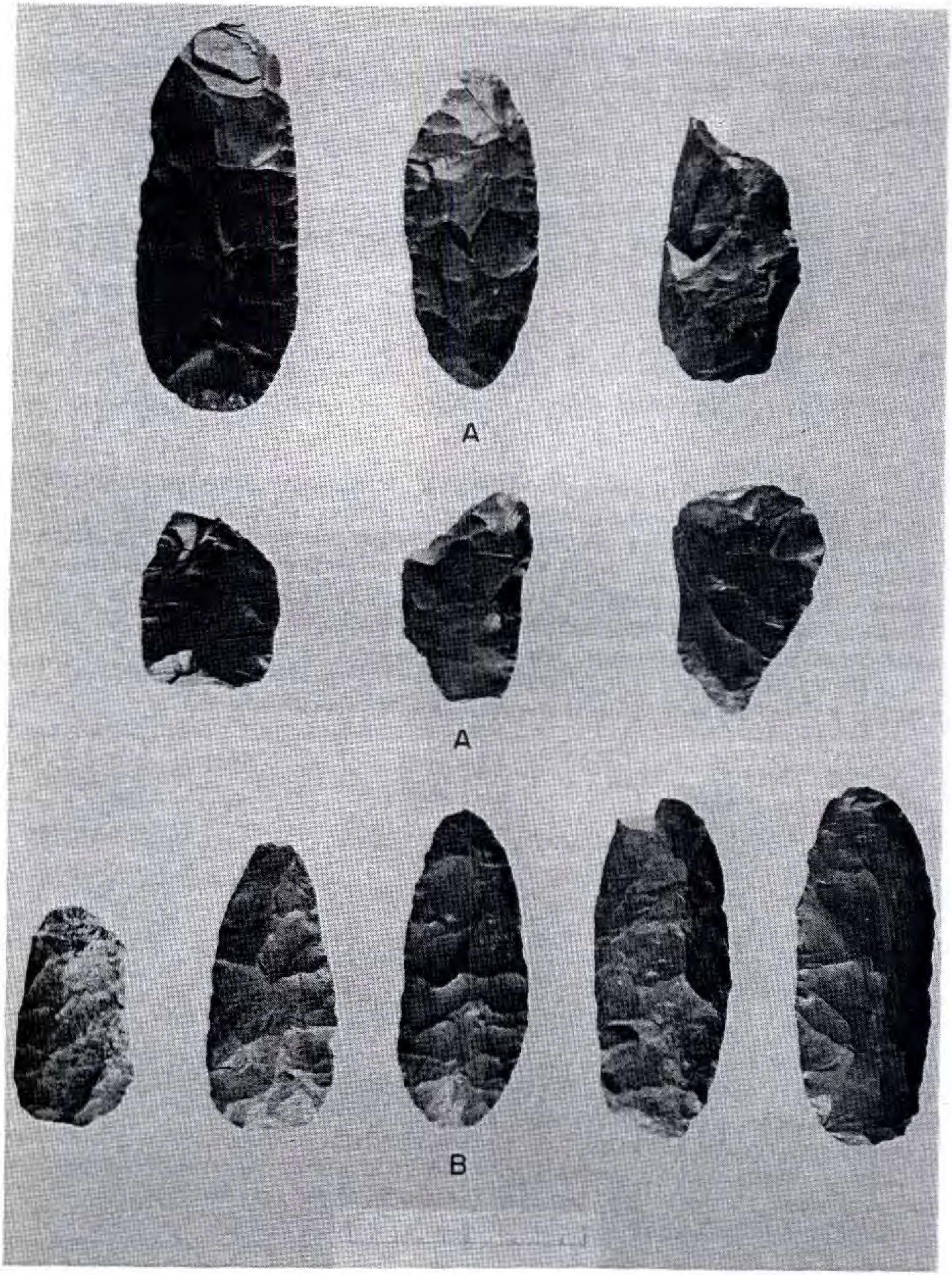


Figure 59. Intermediate Stage I and Intermediate Stage II Bifaces from Feature 141. A-Stage I; B-Stage II.

after flaking. Biface failures represented include one step fracture, three lateral snap, three expansion fractures, three edge collapse, four crenation, five reverse fractures, and nine incipient fracture planes. The size distribution of the measurable Intermediate Stage I bifaces is:

	Length	Width	Thickness
Range	76.2-172.4 mm	53.6-100.0 mm	20.9-43.5 mm
Mean	121.2 mm	67.0 mm	29.8 mm
S.D.	31.9 mm	13.8 mm	7.1 mm
n	10	12	12

Eleven (1,684.7 g) Intermediate Stage II bifaces were recovered (Figure 59B). All of the bifaces were manufactured from Laminated Fort Payne chert. Four bifaces have cobble cortex, two have matrix cortex, and one has incipient fracture planes. One Intermediate Stage II biface has no evidence of heating, three may have been heated, two were heated before flaking, three were heated after flaking, and two were heated before and after flaking. Biface failures represented include four crenation, three lateral snap, two step, two incipient fracture plane, two expansion, and one each of potlid, edge collapse, reverse, hinge, and impact/use fracture. The size distribution of the measurable Intermediate Stage II bifaces is:

	Length	Width	Thickness
Range	90.0-153.3 mm	42.8-67.7 mm	15.8-32.6 mm
Mean	129.0 mm	55.1 mm	22.2 mm
S.D.	19.1 mm	6.8 mm	4.1 mm
n	8	10	11

Ten (1,404.9 g) Intermediate Stage III bifaces were recovered (Figure 60A). All of the bifaces were manufactured from Laminated Fort Payne chert. Three bifaces have cobble cortex and one has incipient fracture planes. One Intermediate Stage III biface has no evidence of heating, four may have been heated, two were heated before flaking, two were heated after flaking, and one was heated before and after flaking. Biface failures represented include four lateral snap, three step, two incipient fracture planes, and one each of edge collapse, crenation, reverse, and transverse. The size distribution of the measurable Intermediate Stage III bifaces is:

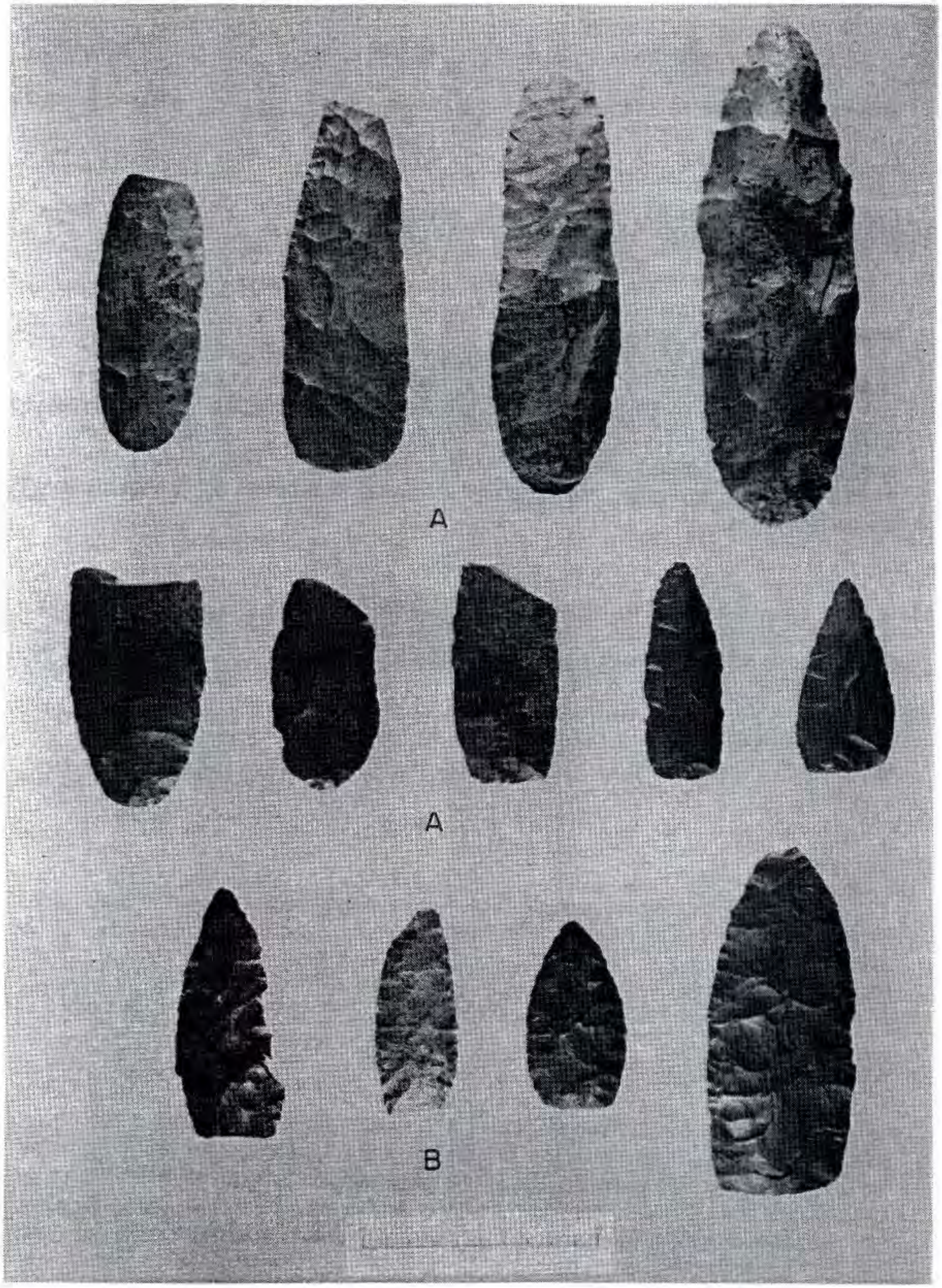


Figure 60. Intermediate Stage III and Final Stage Bifaces from Feature 141. A-Stage III; B-Final Stage.

	Length	Width	Thickness
Range	85.1-218.0 mm	22.5-64.2 mm	10.0-36.4 mm
Mean	147.9 mm	46.3 mm	19.0 mm
S.D.	50.9 mm	11.8 mm	7.0 mm
n	5	10	10

Four (378.8 g) Final Stage bifaces were recovered (Figure 60B). Three bifaces were manufactured from Laminated Fort Payne chert while one was of Bigby Cannon chert. Cobble cortex is present on three bifaces. All four Final Stage bifaces have been thermally altered. One was heated before and after flaking and three were heated after flaking. Biface failures include three edge collapse, three expansion, and one pot lid fracture. The size distribution of the measurable Final Stage bifaces is:

	Length	Width	Thickness
Range	83.4-148.0 mm	35.5-63.2 mm	12.5-19.5 mm
Mean	113.1 mm	46.2 mm	15.2 mm
S.D.	26.6 mm	10.3 mm	2.8 mm
n	3	4	4

One (6.2 g) miscellaneous biface fragment was manufactured of Laminated Fort Payne chert which was heated after flaking. A crenation fracture was the only biface failure. This fragment was not assigned to a biface reduction stage due to its fragmentary nature.

Lithic Resources

Chert was by number of pieces and weight the most abundant lithic resource recovered from Feature 141. The predominant chert type utilized was Laminated Fort Payne (q.v. Lithic Resource Base). Chert types utilized infrequently were St. Louis and Bigby Cannon. Tools of sandstone and quartzite were also recovered along with a concentration of shale fragments. The shale fragments probably represent the remains of a hoe or digging implement.

Thermal Alteration

Most of the bifaces recovered from Feature 141 have evidence of thermal alteration. Thirty-two (69.6%) bifaces were thermally altered while 8 (17.4%) were possibly heated and 6 (13.0%) have no evidence of thermal alteration. In addition, 22 heat related biface fractures were recorded. Four heat fractured bifaces were refitted. The heat fractures exhibited by these bifaces probably occurred in Feature 141. Exactly how this heating was accomplished has not been determined. Charcoal and calcined bone were present in the feature but little burned clay was recovered from the pit. Two possibilities are suggested for the *in situ* heat fracturing of the bifaces:

1) a fire was built over the pit but was somewhat insulated with a layer of soil between the feature contents and the fire or

2) the hot charred debris from a fire at another location was placed on the lithic contents in the pit.

A large quantity of burned animal bone was recovered from Feature 141. No human bones were identified among these. This feature was apparently not a repository for a human cremation.

Intrasite Relationships

Although no diagnostic material was recovered from Feature 141, this pit was probably associated with the Late Archaic occupation. This assumption is based on the location of the feature in the Late Archaic midden (Midden 2) and Feature Cluster I, which contains mostly Late Archaic features.

The tool contents of Feature 141 are distinct from the tool contents of other shallow (Class 3) pits on the site. Unhafted bifaces recovered from shallow pits were examined. The number of unhafted bifaces recovered from shallow pits was found to range from 1-46 with 4.9 the mean quantity; however, when Feature 141 is excluded the range is 1-6 with 2.5 the mean quantity (Table 11). Fifty-one shallow (Class 3) pits were excavated at the Bailey site. Thirty-three of these contained no unhafted bifaces (Table 11). Unhafted bifaces were recovered from all large deep (Class 1), medium (Class 2), and large shallow (Class 4) pits. The number of unhafted bifaces by pit size class is:

	Large Deep (Class 1) Pits	Medium (Class 2) Pits	Shallow (Class 3) Pits	Large Shallow (Class 4) Pits
Range	12-35	2-17	1-46	12-20
Mean	22.4	10.5	4.9	16.3

S.D.	7.0	4.0	10.1	3.0
Bifaces (n) in Pits	18	21	18	4
Pits (n) in Class	18	21	51	4

INTERPRETATION OF THE LITHIC ASSEMBLAGE

Lithic concentrations resulted primarily from manufacturing and processing activities conducted at the site. The quantities of various raw materials recovered suggest that there were probably similar patterns of lithic resource utilization during Late Archaic and Late Woodland times at the Bailey site. Despite the recognition of 31 lithic tool categories, the assemblage as a whole was remarkably uniform in appearance and distribution.

A huge quantity of chert debitage and a large number of lithic tools were recovered (Table 6). The largest concentrations of material were directly associated with the prehistoric occupations and the related feature clusters. These clusters are interpreted as primary lithic activity areas at the site where lithic tools were both manufactured and utilized.

Variation in an archaeological assemblage is assumed to be directly related to the human activities performed at that location. Therefore, assemblages should vary with respect to the specific activities performed. Since lithic reduction is accomplished in recognizable discrete stages, lithic analysis should lead to the identification of different activities among assemblages.

The excavated Late Archaic component contained a wide variety of lithic artifacts consisting primarily of discarded projectile points/knives and bifaces. In addition, flake tools, drills, gravers, denticulates, digging tools, hammerstones, abraders, and one celt were recovered. Lithic tools recovered indicate that site activities included hunting, butchering, wood working, hide working, bone working, tool maintenance, plant food processing, and heating and cooking based on implied lithic function (Faulkner and McCollough 1973; Hofman and Turner 1979; House 1975).

The excavated Late Woodland component contained a variety of lithic artifacts consisting primarily of discarded projectile points/knives and bifaces. In addition, hammerstones, digging tools, and flake tools were recovered. Lithic tools recovered indicate that site activities included hunting, tool maintenance, plant food processing, and heating and cooking based on implied lithic function (Faulkner and McCollough 1973; Hofman and Turner 1979; House 1975).

CHAPTER VII

PREHISTORIC CERAMICS

Charles Bentz, Jr.

The prehistoric ceramics from the Bailey site were initially classified and quantified by the tempering agent. Surface treatments, sherd thicknesses, and temper characteristics were then described. The surfaces and cores of the sherds were color coded with the *Munsell Soil Color Charts* (1973). To simplify the color coding system, the various hues, values, and chromas of a color were combined and only the verbal description of the color was noted. Ceramic weights were used in the comparison of various pottery types.

A total of 2,195 (3,899.6 g) sherds was recovered from 36 pit features, 2 middens, and 2 tree disturbances. About three-fourths (80.6%) of the ceramics by weight was contained in five features; four Late Woodland pits (F 32, 48, 60, and 149) and the Late Woodland midden (Midden 4). An additional 12.6% of the prehistoric ceramics was found in the historic pit (F 25). The remaining pottery (6.8%) occurred as isolated sherds in numerous pits. Most of these isolated sherds were probably transported from Woodland deposits into Late Archaic pits by tree roots and burrowing animals. Of the total ceramic assemblage, 59.6% is limestone tempered, 29.9% is grog tempered, and 10.5% consists of quartz, chert, sand, and fiber tempered types and a temperless ware (Table 13).

LIMESTONE TEMPERED CERAMICS

The limestone tempered ceramics usually contain a uniform distribution of holes resulting from the leaching of this carbonate form of tempering. The holes generally measure 1-4 mm in diameter. The temper particles are present in only a few sherds. A typical sherd in cross-section exhibits approximately 12 temper particles or casts of the particles per cm^2 of surface area. A ceramic type of possible nonlocal origin (Pickwick Complicated Stamped) contains about 24 pieces of tempering per cm^2 of sherd cross-section surface area and few of the particles measure over 1 mm in diameter. The sherd thickness generally ranges from 4-8 mm. The exterior sherd surfaces are brown, yellowish-brown, and reddish-brown in color. The interior sherd surfaces are brown, gray, and reddish-yellow and the sherd cores are gray in color.

Nearly two-thirds of the pottery found at the Bailey site has limestone fragments as the added tempering material. These sherds were further divided on the basis of surface treatment (Table 14). The limestone tempered ceramic types represented are:

Table 13. Prehistoric Ceramics by Temper Type.

Feature Number	Temper Type: Limestone		Grog		Quartz		Chert		Sand		No Temper		Fiber		Total	
Large Deep (Class 1) Pits																
17	6	(30.4)[a]													6	(30.4)
22	4	(3.4)													4	(3.4)
35					2	(1.4)									2	(1.4)
48	151	(221.3)	77	(376.6)	3	(1.6)	6	(28.5)					1	(5.8)	238	(633.8)
52	1	(0.5)					1	(7.7)							2	(8.2)
71	1	(3.4)							1	(0.4)					2	(3.8)
77			1	(3.6)											1	(3.6)
79	1	(1.0)													1	(1.0)
144	1	(0.5)													1	(0.5)
Subtotal	165	(260.5)	78	(380.2)	5	(3.0)	7	(36.2)	1	(0.4)			1	(5.8)	257	(686.1)
Medium (Class 2) Pits																
42	1	(0.6)													1	(0.6)
44			1	(1.1)											1	(1.1)
55	1	(1.0)													1	(1.0)
60	42	(40.9)	52	(535.9)	26	(127.3)	16	(43.7)	1	(4.0)	1	(8.3)			138	(760.1)
70	1	(0.2)			1	(0.4)									2	(0.6)
73	1	(1.7)													1	(1.7)
86	4	(3.8)													4	(3.8)
105	2	(2.7)													2	(2.7)
106	1	(0.6)													1	(0.6)
148	4	(4.4)													4	(4.4)
Subtotal	57	(55.9)	53	(537.0)	27	(127.7)	16	(43.7)	1	(4.0)	1	(8.3)			155	(776.6)

Table 13. (continued).

Feature Number	Limestone		Grog		Quartz		Chert		Sand		No Temper		Fiber		Total	
	Temper Type															
Shallow (Class 3) Pits																
13	2	(4.8)													2	(4.8)
32	10	(66.8)													10	(66.8)
39	3	(2.3)	3	(12.8)	4	(6.7)									10	(21.8)
63	1	(11.2)													1	(11.2)
68	1	(1.0)													1	(1.0)
80	2	(3.9)													2	(3.9)
104									1	(1.4)					1	(1.4)
112	1	(1.8)													1	(1.8)
116	1	(17.5)													1	(17.5)
121													1	(0.3)	1	(0.3)
127	1	(11.3)													1	(11.3)
145													1	(6.4)	1	(6.4)
146	2	(2.3)													2	(2.3)
149	24	(32.0)	1	(0.7)											25	(32.7)
Subtotal	48	(154.9)	4	(13.5)	4	(6.7)			1	(1.4)			2	(6.7)	59	(183.2)
Large Shallow (Class 4) Pits																
10	4	(3.2)													4	(3.2)
11	11	(37.4)													11	(37.4)
25	260	(373.3)	37	(60.5)	29	(45.8)	1	(0.5)	5	(12.0)					332	(492.1)
Subtotal	275	(413.9)	37	(60.5)	29	(45.8)	1	(0.5)	5	(12.0)					347	(532.7)
Pit Total	545	(885.2)	172	(991.2)	65	(183.2)	24	(80.4)	8	(17.8)	1	(8.3)	3	(12.5)	818	(2,178.6)

Table 13. (continued).

	Temper Type							
Feature Number	Limestone	Grog	Quartz	Chert	Sand	No Temper	Fiber	Total
Midden								
Midden 4	1,174 (1,388.9)	106 (159.2)	53 (78.4)	2 (2.2)	4 (19.8)		1 (2.9)	1,340 (1,651.4)
Miscellaneous								
M 2, B 1[b]	2 (0.9)	1 (1.2)						3 (2.1)
117[c]	1 (39.9)							1 (39.9)
120[c]	13 (10.4)	17 (12.3)	3 (4.9)					33 (27.6)
Site Total	1,735 (2,325.3)	296 (1,163.9)	121 (266.5)	26 (82.6)	12 (37.6)	1 (8.3)	4 (15.4)	2,195 (3,899.6)

[a] Number of pieces (weight in grams).

[b] Midden 2 (M 2) fill excavated around Burial 1 (B 1).

[c] Tree disturbance.

Table 14. Prehistoric Ceramic Inventory.

Feature Number	Limestone						Grog					Quartz			Chert				Sand			No Temper	Fiber		
	Plain	Cordmarked	Simple Stamped	Check Stamped	Complicated Stamped	Indeterminate	Plain	Cordmarked	Check Stamped	Net Impressed	Indeterminate	Plain	Cordmarked	Indeterminate	Plain	Cordmarked	Fabric Impressed	Indeterminate	Plain	Cordmarked	Indeterminate	Plain	Dentate Stamped	Punctate	Indeterminate
Large Deep (Class 1) Pits																									
17	2 (19.9[a])		2 (10.0)			2 (0.5)																			
22	4 (3.4)																								
35												2 (1.4)													
48	68 (156.5)		3 (9.7)	6 (11.3)		74 (43.8)	20 (61.8)	39 (294.6)	2 (6.1)	1 (6.8)	15 (7.3)			3 (1.6)			5 (27.3)	1 (1.2)					1 (5.8)		
52						1 (0.5)											1 (7.7)								
71	1 (3.4)																		1 (0.4)						
77							1 (3.6)																		
79	1 (1.0)																								
144	1 (0.5)																								
Subtotal	77 (184.7)		5 (19.7)	6 (11.3)		77 (44.8)	21 (65.4)	39 (294.6)	2 (6.1)	1 (6.8)	15 (7.3)	2 (1.4)		3 (1.6)			6 (35.0)	1 (1.7)	1 (0.4)				1 (5.8)		
Medium (Class 2) Pits																									
42	1 (0.6)																								
44											1 (1.1)														
55	1 (1.0)																								
60	11 (18.3)	1 (8.3)		1 (3.3)		29 (11.0)	13 (140.4)	23 (377.8)	1 (2.8)	2 (7.6)	13 (7.3)	7 (51.2)	3 (67.4)	16 (8.7)	1 (4.0)	2 (24.1)	1 (3.5)	12 (12.1)	1 (4.0)			1 (8.3)			
70						1 (0.2)								1 (0.4)											
73			1 (1.7)																						
86	1 (2.6)					3 (1.2)																			
105	1 (1.7)					1 (1.0)																			
106	1 (0.6)																								
148	4 (4.4)																								
Subtotal	20 (29.2)	1 (8.3)	1 (1.7)	1 (3.3)		34 (13.4)	13 (140.4)	23 (377.8)	1 (2.8)	2 (7.6)	14 (8.4)	7 (51.2)	3 (67.4)	17 (9.1)	1 (4.0)	2 (24.1)	1 (3.5)	12 (12.1)	1 (4.0)			1 (8.3)			
Shallow (Class 3) Pits																									
13	2 (4.8)																								
32	1 (1.2)			2 (51.2)	6 (13.7)	1 (0.7)																			
39	2 (1.8)					1 (0.5)		2 (5.9)	1 (6.9)			1 (0.6)[a]	3 (6.7)												
63	1 (11.2)																								
68	1 (1.0)																								
80	2 (3.9)																								
104																				1 (1.4)					
112	1 (1.8)																								
116				1 (17.5)																					
121																									1 (0.3)
127						1 (11.3)																			
145																								1 (6.4)	
146	2 (2.3)																								
149	16 (26.8)			1 (2.7)		7 (2.5)	1 (0.7)																		
Subtotal	28 (54.8)			4 (71.4)	6 (13.7)	10 (15.0)	1 (0.7)	2 (5.5)	1 (6.9)			1 (0.5)	3 (6.2)							1 (1.4)				1 (6.4)	1 (0.3)
Large Shallow (Class 4) Pits																									
10						4 (3.2)																			
11	7 (10.6)		1 (5.4)	3 (21.4)																					
25	191 (316.0)	1 (9.6)		1 (5.5)		67 (43.0)	17 (34.9)	4 (10.6)			16 (15.0)	24 (40.8)		5 (5.0)				1 (0.5)	4 (11.3)		1 (0.7)				
Subtotal	198 (325.6)	1 (9.6)	1 (5.4)	4 (26.9)		71 (46.2)	17 (34.9)	4 (10.6)			16 (15.0)	24 (40.6)		5 (5.0)				1 (0.5)	4 (11.3)		1 (0.7)				
Pit Total	373 (594.3)	2 (18.1)	7 (26.8)	15 (112.9)	6 (13.7)	192 (119.4)	52 (241.4)	68 (688.9)	4 (15.8)	3 (14.4)	45 (30.7)	34 (93.9)	6 (73.6)	25 (15.7)	1 (4.0)	2 (24.1)	7 (38.5)	14 (13.8)	6 (15.7)	1 (1.4)	1 (0.7)	1 (8.3)	1 (5.8)	1 (6.4)	1 (0.3)
Midden																									
Midden 4	855 (1,270.2)	1 (0.5)	2 (15.1)			316 (103.1)	42 (59.4)	13 (69.5)			51 (30.3)	38 (71.5)		15 (6.9)				2 (2.2)	1 (15.7)	1 (2.5)	2 (1.6)			1 (2.9)	
Miscellaneous																									
M 2, B 1[b]	2 (0.9)										1 (1.2)														
117[c]					1 (39.9)																				
120[c]	2 (2.8)					11 (7.6)	5 (7.5)				12 (4.8)	1 (0.4)		2 (4.5)											
Site Total	1,182 (1,868.2)	3 (18.6)	9 (41.9)	15 (112.9)	7 (53.6)	519 (230.1)	99 (308.3)	81 (758.4)	4 (15.8)	3 (14.4)	109 (67.0)	72 (165.8)	6 (73.6)	42 (27.1)	1 (4.0)	2 (24.1)	7 (38.5)	16 (16.0)	7 (31.4)	2 (3.9)	3 (2.3)	1 (8.3)	1 (5.8)	2 (9.3)	1 (0.3)

[a] Number of pieces (weight in grams).

[b] Midden 2 (M 2) fill excavated around Burial 1 (B 1).

[c] Tree disturbance.

Ceramic Type	n	Weight (g)
Mulberry Creek Plain	1,182	1,868.2
Flint River Cordmarked	3	18.6
Wright Check Stamped	15	112.9
Bluff Creek Simple Stamped	9	41.9
Pickwick Complicated Stamped	7	53.6
Indeterminate	519	230.1
Total	1,735	2,325.3

Most (89.2%) of the limestone tempered pottery with identifiable surface treatments, including 37 rim sherds, has plain exteriors (Mulberry Creek Plain) (Figure 61A). The rims usually have incurving or inslanting necks and rims and rounded to slightly flattened lips (Figure 62). Five rim sherds are decorated with plain notches on top of the vessel lips. Three of these rims, probably from the same vessel, have lip notches measuring 3 mm wide and spaced 8-11 mm apart. One small rim sherd has a single narrow diagonal lip notch measuring 2 mm wide. The fifth rim sherd has two narrow shallow diagonal notches or incised lines on top of the lip measuring 1 mm wide and spaced 3 mm apart. A basal portion of a vessel has a podal support. Incised designs occur on three body sherds. Two small sherds have straight parallel incised lines 1.5-2.5 mm wide and spaced 4.5 mm apart. The third sherd has fine incised or engraved lines forming two nested chevrons with a straight line intersecting the chevron apices. This sherd has a sandy paste and may not have been manufactured locally.

Three body sherds have exterior surfaces marked by a cordwrapped paddle (Flint River Cordmarked). These sherds are small and the cordage twist is indeterminate.

One rim sherd and fourteen body sherds are impressed with rectangular, square, and rhomboid/diamond-shape check patterns (Wright Check Stamped) (Figure 61B). Square to rectangular check stamps occur on two-thirds of the sherds and diamond-shape check stamps are found on the remaining one-third. The check stamped rim sherd is from an everted rim jar with an inner orifice diameter of approximately 34 cm. The vessel lip is slightly flattened and the neck is incurving. The exterior surface is impressed with small square checks measuring 3 mm x 3 mm. The surface treatment was smoothed and nearly

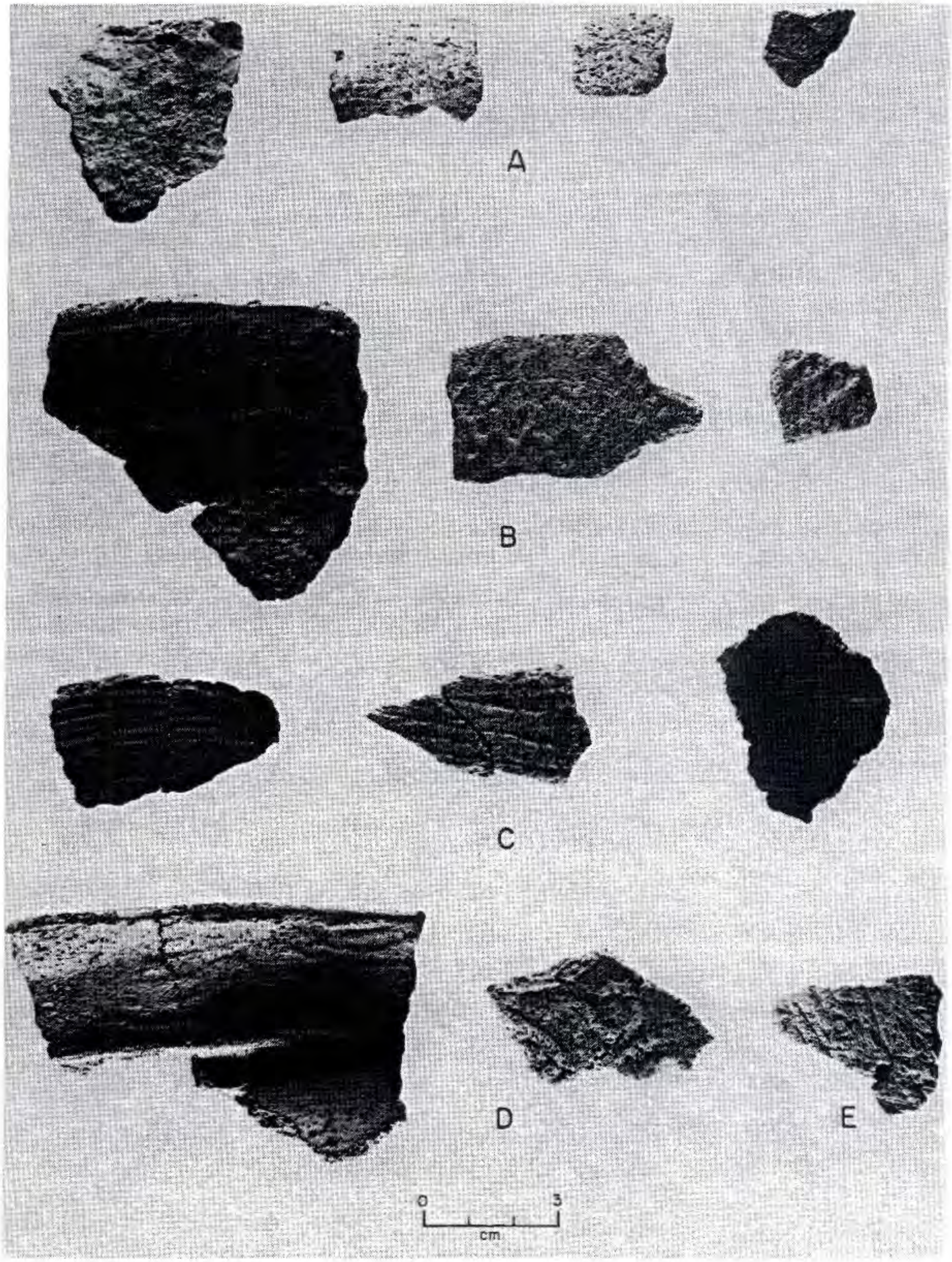


Figure 61. Limestone Tempered Ceramics. A-Mulberry Creek Plain; B-Wright Check Stamped; C-Bluff Creek Simple Stamped; D-Pickwick Complicated Stamped; E-Indeterminate.

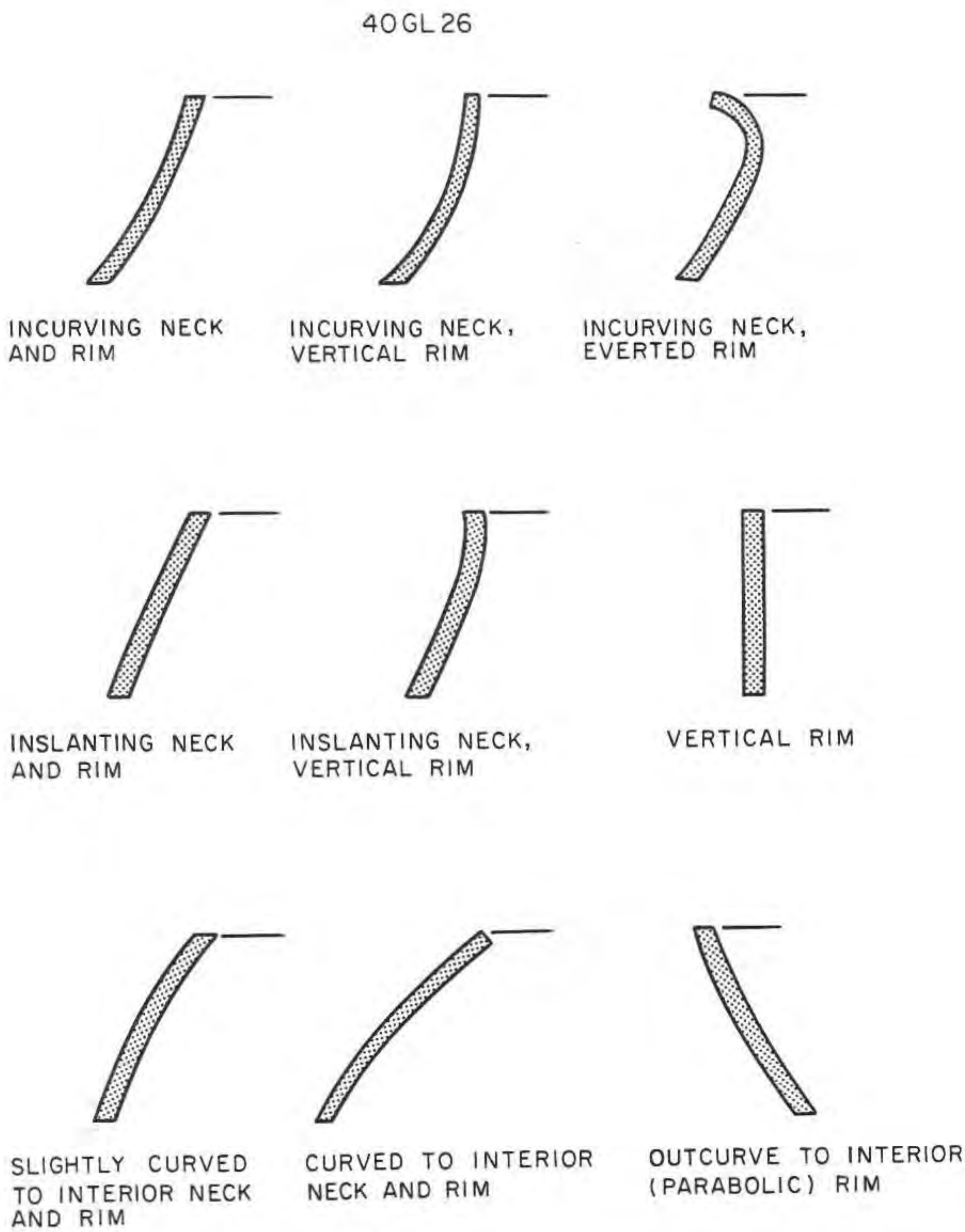


Figure 62. Ceramic Vessel Neck and Rim Forms.

obliterated during vessel manufacture. A shoulder section from a check stamped jar has a plain incurving neck and a diamond pattern check stamped body. The checks measure 3-4 mm x 3-4 mm. Other check stamped sherds have elongated rectangular checks measuring 1.5-2.5 mm x 5.5-6.5 mm and diamond-shape checks measuring 3.5-5.5 mm x 5.0-6.5 mm.

One rim sherd and eight body sherds were marked with a parallel lined paddle or the edge of a straight instrument (Bluff Creek Simple Stamped) (Figure 61C). The rim sherd is impressed with lines paralleling the vessel lip. These lines are 1 mm wide and spaced 2 mm apart. The simple stamping on the rim sherd is most prominent in a 2 cm wide band below the vessel lip. The remaining surface treatment was smoothed and nearly obliterated during vessel manufacture. Other simple stamped sherds are marked with lines measuring 1-4 mm wide and spaced 2.0-4.5 mm apart. Some sherds have narrow pronounced impressions with spaces between the lines measuring at least twice as wide as the impressions. Other sherds have broad markings with somewhat irregular edges and spaces approximately half the width of the impressions.

One rim sherd and six body sherds are decorated with a curvilinear design (Pickwick Complicated Stamped) (Figure 61D). The rim sherd is from an everted rim jar with an inner orifice diameter of about 36 cm. The vessel lip is rounded and the neck is incurving. The curvilinear design occurs only on a 3.4 cm wide rim strip applied to the exterior vessel surface and the neck is plain. The six complicated stamped body sherds are probably from the same vessel. The design element appears to consist of nested diamonds or zigzag lines with incurvate sides and an open circle measuring 2.5 cm in diameter.

A thick (15 mm+) indeterminate sherd contains one large temper fragment measuring 6 mm in diameter and a few small temper particles measuring about 1 mm in diameter (Figure 61E). The surface of the sherd is impressed with strands of fiber spaced 1.5-3.0 mm apart. The fiber strands do not appear to be woven into a fabric or twisted into individual cords.

GROG TEMPERED CERAMICS

The grog tempered ceramics contain occasional pieces of crushed pottery in a micaceous paste. The temper particles are rounded and measure 1-4 mm in diameter. A typical sherd in cross-section exhibits only two temper particles per cm^2 of surface area. The sherd thickness generally ranges from 5-9 mm. The exterior and interior sherd surfaces are brown, gray, pink, and pinkish-gray in color and the cores are gray. A single thin sherd has reddish-yellow surface and core colors.

Nearly one-third of the pottery recovered from the site has fragments of crushed pottery as the added tempering material. These sherds were further divided on the basis of surface treatment (Table 14). The grog tempered ceramic types represented are:

Ceramic Type	n	Weight (g)
McKelvey Plain	99	308.3
Mulberry Creek Cordmarked	81	758.4
Wheeler Check Stamped	4	15.8
Unclassified Net Impressed	3	14.4
Indeterminate	109	67.0
Total	296	1,163.9

Approximately one-fourth (28.1%) of the grog tempered pottery with identifiable surface treatments, including five rim sherds, has plain exteriors (McKelvey Plain) (Figure 63A). A jar rim section has an incurving neck and a vertical rim with a flattened lip. The vessel wall thickness is 9 mm. Another vessel is represented by a bowl rim section with an outcurve to interior (parabolic) rim and a rounded lip. The walls of the vessel taper from 8 mm towards the base to 5 mm at the lip. Three small rim sherds, two of which are probably from the same vessel, have flattened lips and indeterminate profiles. A small thin (3-4 mm thick) body sherd has a very compact paste and a polished interior surface. The sherd is tempered with a few scattered pieces of grog measuring about 1 mm in diameter.

About two-thirds (69.1%) of the grog tempered pottery, including three rim sherds, have exterior surfaces marked by a cordwrapped paddle (Mulberry Creek Cordmarked) (Figure 63B and 64A). The cordage was S-twist and measured 1.0-2.5 mm in diameter. The cord impressions are spaced 2.0-3.5 mm apart. A large rim section from a hemispherical jar with a constricted opening has an orifice diameter of approximately 20 cm. The rim and neck of the jar are curved to the interior and the lip is slightly flattened. The vessel wall thickness is 5.0-6.5 mm. Prominent vertical cordage impressions on the exterior surface are closely spaced and narrow. The S-twist cordage measured 1.0-1.5 mm in diameter. Another vessel is represented by a jar rim section with an inslanting neck, a vertical rim, and a flattened lip. The vessel wall thickness is 8-9 mm. The vertical cordage impressions on the exterior surface are wider and not as prominent as on the hemispherical jar. The S-twist cordage measured 1.5-2.5 mm in diameter. The third cordmarked rim sherd has a rounded lip decorated with semicircular punctates on the exterior surface (Figure 64B). The punctates measure 5-6 mm in diameter and probably occurred in a single row around the vessel lip. A cordmarked body sherd is decorated with two slightly arcing parallel lines spaced 6 mm apart (Figure 64C). Two short sections of straight incised lines intersect one of the arcing lines near the sherd edge. The incised lines are shallow and measure 1 mm wide.

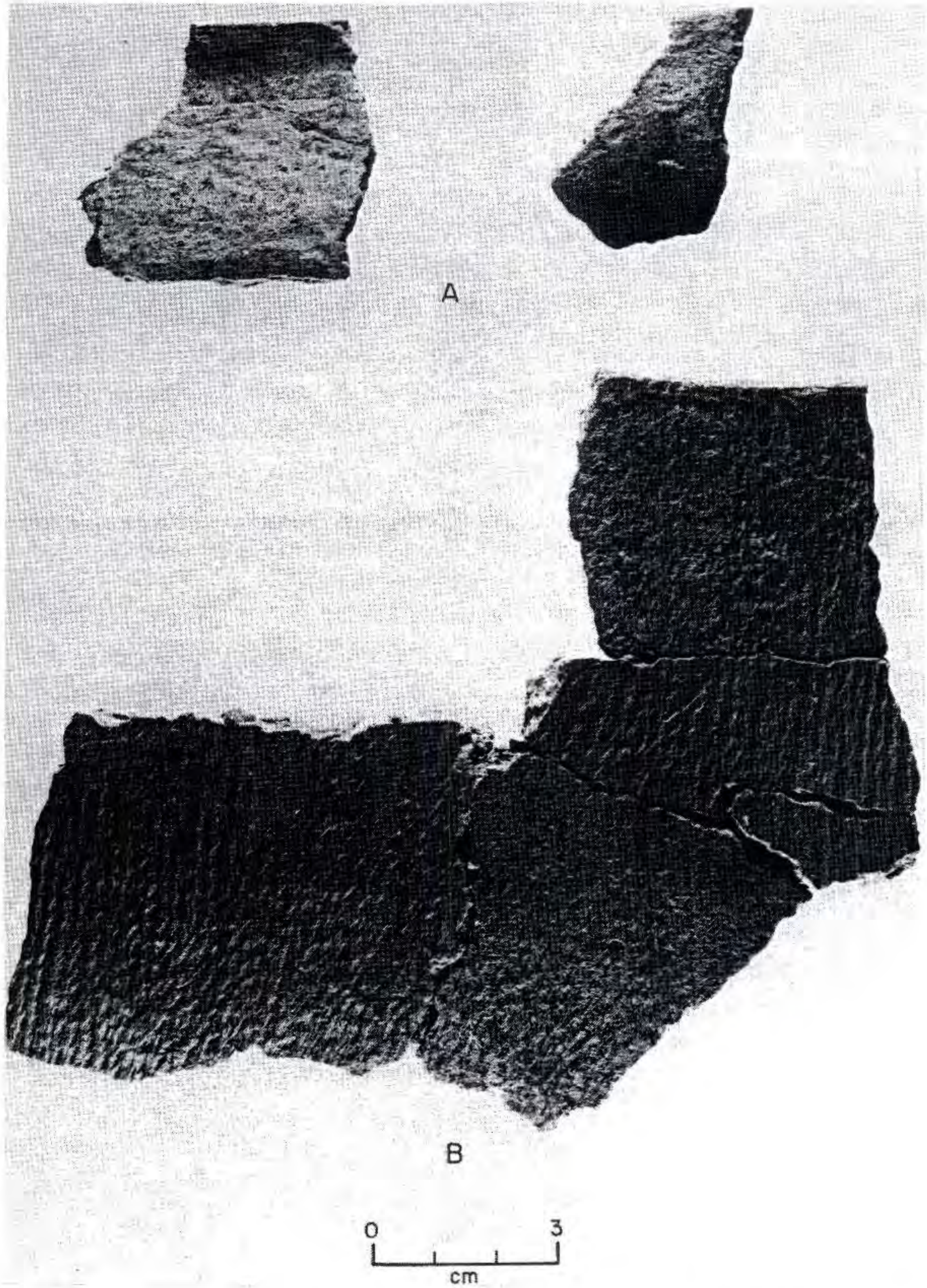


Figure 63. Grog Tempered Plain and Cordmarked Ceramics. A-McKelvey Plain; B-Mulberry Creek Cordmarked.

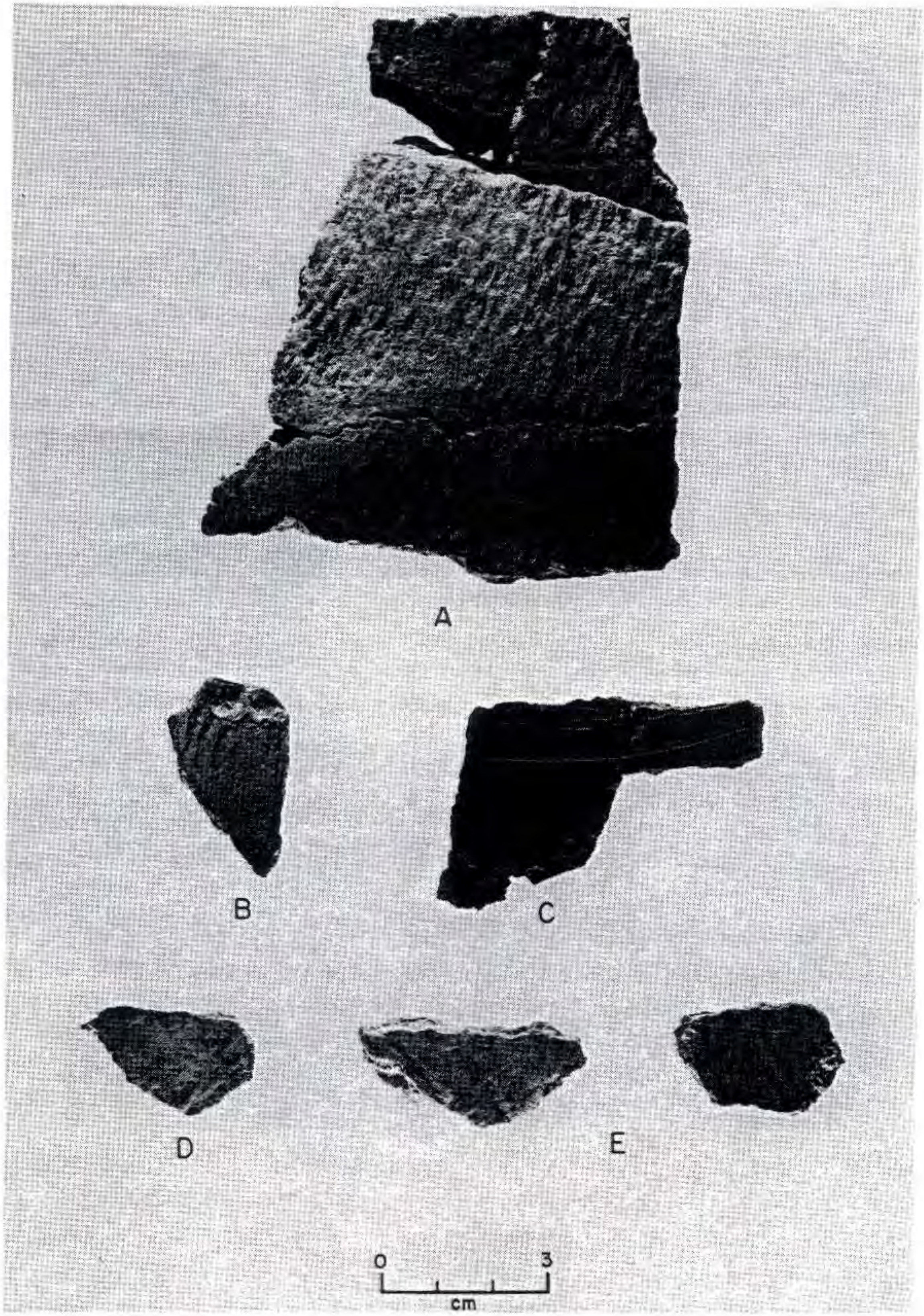


Figure 64. Grog Tempered Cordmarked, Check Stamped, and Net Impressed Ceramics. A-Mulberry Creek Cordmarked; B-Mulberry Creek Cordmarked with Exterior Lip Punctates; C-Mulberry Creek Cordmarked with Incised Lines; D-Wheeler Check Stamped; E-Net Impressed.

Four body sherds are impressed with rhomboid/diamond-shape check patterns (Wheeler Check Stamped) (Figure 64D). The checks measure 5.0-6.0 mm x 3.5-5.0 mm. The surface treatment was smoothed and nearly obliterated during vessel manufacture.

Three body sherds are impressed with a net or loosely woven openwork fabric (Figure 64E). The material applied to the vessel exteriors was woven or twisted but does not appear to have been knotted. The openings between the threads are rhomboid/diamond-shape and measure 3.5-5.5 mm on each side.

QUARTZ TEMPERED CERAMICS

The quartz tempered ceramics contain angular to slightly rounded fragments of clear to translucent quartz. The temper particles measure 1.0-3.5 mm in diameter. Typical sherds in cross-section exhibit approximately five or ten temper particles per cm^2 of surface area. The sherd thickness ranges from 5-8 mm. The exterior and interior sherd surfaces are brown, pink, reddish-yellow, reddish-brown, and reddish-gray in color. The sherd cores are grayish-brown and pinkish-gray in color.

A small amount (6.8%) of the pottery found at the Bailey site has quartz fragments as the added tempering material. These sherds were further divided on the basis of surface treatment (Table 14). The quartz tempered ceramic types represented are:

Ceramic Type	n	Weight (g)
Unclassified Plain	73	165.8
Unclassified Cordmarked	6	73.6
Indeterminate	42	27.1
Total	121	266.5

Over two-thirds (69.3%) of the quartz tempered pottery with identifiable surface treatments, including one rim sherd, has plain exterior surfaces (Figure 65A). The rim sherd has an inslanting neck and rim and a flattened lip.

Nearly one-third (30.7%) of the quartz tempered pottery, including one rim sherd, has exterior surfaces marked by a cordwrapped paddle. The rim sherd is from a jar with a slightly curved to the interior tapering neck and rim and a rounded

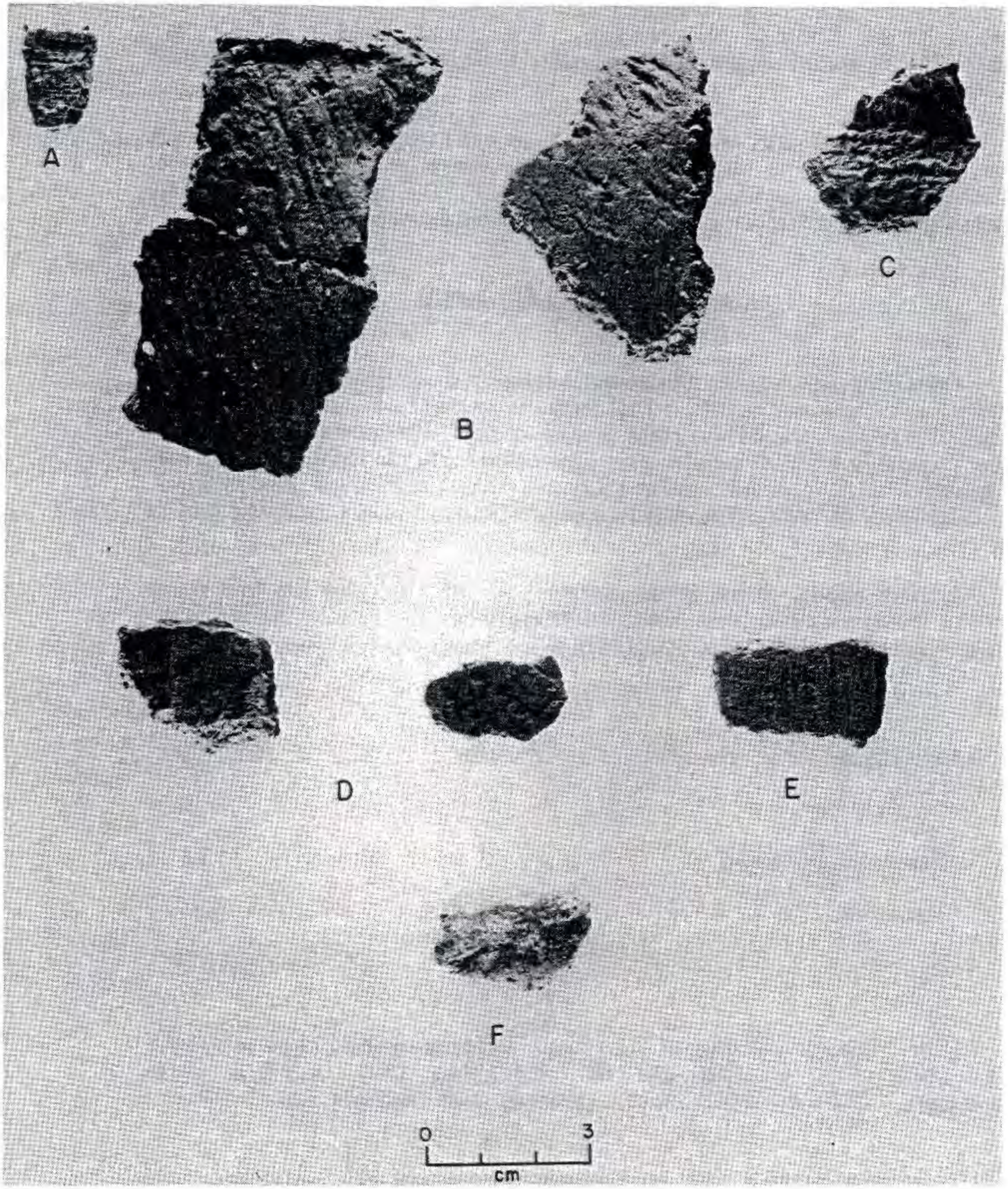


Figure 65. Quartz Tempered, Chert Tempered, Fiber Tempered, and Untempered Ceramics. A-Plain Quartz Tempered; B-Elk River Cordmarked; C-Elk River Fabric Impressed; D-Wheeler Punctated; E-Wheeler Dentate Stamped; F-Plain Untempered.

lip. The vessel wall thickness is 6.5 mm at the lip and 10 mm toward the shoulder. The S-twist cordmarks are diagonal and smoothed near the lip. The cord impressions are 1-2 mm in diameter and spaced 2.0-3.5 mm apart.

CHERT TEMPERED CERAMICS

The chert tempered ceramics contain blocky angular fragments of white to light gray fossiliferous chert and a few angular pieces of clear to translucent quartz. The temper particles measure 1-5 mm in diameter. A typical sherd in cross-section exhibits approximately six temper particles per cm^2 of surface area. The sherd thickness ranges from 6-10 mm. The exterior and interior sherd surfaces and the sherd cores are mostly gray in color and occasionally reddish-brown, reddish-yellow, and grayish-brown.

A small amount (2.1%) of the pottery from the site has chert fragments as the added tempering material. These sherds were further divided on the basis of surface treatment (Table 14). The chert tempered ceramic types represented are:

Ceramic Type	n	Weight (g)
Elk River Plain	1	4.0
Elk River Cordmarked	2	24.1
Elk River Fabric Impressed	7	38.5
Indeterminate	16	16.0
Total	26	82.6

One body sherd has a plain exterior surface (Elk River Plain).

Two body sherds have exterior surfaces marked by a cordwrapped paddle (Elk River Cordmarked) (Figure 65B). The cordage was Z-twist and measured 1.5-2.5 mm in diameter. The cord impressions on one large sherd are spaced 3 mm apart and were smoothed and nearly obliterated during vessel manufacture.

Seven body sherds, including a neck section, are impressed with a plain weave fabric consisting of closely spaced warp and weft elements (Elk River Fabric Impressed) (Figure 65C). The neck section is incurving or inslanting and the rim of the vessel was probably everted. The fabric markings on the exterior surface of the neck section are prominent. The fabric cordage is Z-twist and the warp and weft elements are 1-2 mm in diameter and spaced 1.0-2.5 mm apart. The fabric impressions on the remaining body sherds are eroded and were apparently smoothed during vessel manufacture. Four of these body sherds are probably from the same vessel.

SAND TEMPERED CERAMICS

The sand tempered ceramics contain either very fine sand and mica with occasional angular pieces of quartz or coarse sand and mica. The sand temper particles measure less than 0.5 mm in diameter and the angular quartz fragments are approximately 2 mm in size. Sherds tempered with fine sand have a slightly coarse texture while sherds with a coarse sand tempering have a rough texture. The sherd thickness ranges from 4-8 mm. The exterior sherd surfaces are mostly brown in color and occasionally reddish-brown and reddish-yellow. The interior sherd surfaces and sherd cores are mostly gray in color and occasionally brown and grayish-brown.

A small amount (1.0%) of the pottery found at the site has sand particles as the added tempering material. These sherds were further divided on the basis of surface treatment (Table 14). The sand tempered ceramic types represented are:

Ceramic Type	n	Weight (g)
Unclassified Plain	7	31.4
Unclassified Cordmarked	2	3.9
Indeterminate	3	2.3
Total	12	37.6

Seven body sherds have plain exterior surfaces.

Two body sherds have exterior surfaces marked by a cordwrapped paddle. These sherds are small and the cordage twist is indeterminate.

FIBER TEMPERED CERAMICS

The fiber tempered ceramics are marked by occasional strands of fiber on the interior and exterior surfaces. One sherd has a coarse texture from the addition of fine sand to the paste. The sherd thickness ranges from 7-8 mm. The exterior sherd surfaces are brown, reddish-brown, and reddish-yellow in color. The interior sherd surfaces are brown, pink, and gray in color. The sherd cores are gray in color.

A small amount (0.4%) of the pottery from the site has strands of fiber as the added tempering material. These sherds were further divided on the basis of surface treatment (Table 14). The fiber tempered ceramic types represented are:

Ceramic Type	n	Weight (g)
Wheeler Punctate	2	9.3
Wheeler Dentate Stamped	1	5.8
Indeterminate	1	0.3
Total	4	15.4

Two body sherds have exterior surfaces impressed with punctates (Wheeler Punctate) (Figure 65D). One sherd is covered with overlapping oval punctates measuring about 6.5 mm x 5.0 mm. The second sherd has two parallel rows of small continuous punctates on the exterior surface. The rows are 6 mm apart and the punctates measure approximately 1.5 mm in diameter.

One body sherd is impressed with parallel and converging rows of small closely spaced rectangular checks (Wheeler Dentate Stamped) (Figure 65E). The checks measure 2-3 mm x 1 mm and are spaced 1 mm apart in the rows. The rows are spaced 1.5-3.5 mm apart.

UNTEMPERED CERAMICS

A single untempered rim sherd (0.2% of the ceramic assemblage) was recovered from the Bailey site (Figure 65F). The paste is soft and friable and contains a few very small (less than 1 mm in diameter) rounded quartz grains that probably occurred naturally in the clay source used in vessel manufacturing. The sherd thickness ranges from 10-13 mm. The exterior sherd surface is pink in color. The interior sherd surface and sherd core are pinkish-white in color.

The rim sherd is probably from a thick plain handmolded miniature vessel (Table 14). It has a vertical rim with a rounded lip and an inner orifice diameter of approximately 6 cm.

CERAMIC CHRONOLOGY AND DISTRIBUTION

The prehistoric ceramics from the Bailey site were separated into seven distinct groups based on the temper materials; fiber, limestone, grog, chert, quartz, sand, and untempered. The Late Woodland ceramic types in the limestone and grog tempered groups predominate in the assemblage while only minor amounts of the other five groups are represented.

The Middle Gulf Formational period marks the appearance of the fiber tempered Wheeler ceramic series in the western section of the Coastal Plain Physiographic Province and the Middle Tennessee River Valley. Two Wheeler Punctate sherds, one Wheeler Dentate Stamped sherd, and one indeterminate fiber tempered sherd were found on the Bailey site. The relative thinness of these sherds, the sandy paste of the stamped sherd, and the sparsity of temper material are indicative of a late variety of the Wheeler ceramics (Futato 1983:146). The four fiber tempered sherds were recovered from scattered locations around the site; one large deep (Class 1) pit (F 48), two shallow (Class 3) pits (F 121 and 145), and Midden 4. These sherds were apparently redeposited in Late Archaic and Late Woodland features.

A thick indeterminate limestone tempered sherd from a shallow (Class 3) pit (F 127) situated just inside the west wall of Structure 2 may be a basal remnant of an Early Woodland Longbranch Fabric Marked vessel. The exterior surface is impressed with strands of fiber but the strands do not appear to be woven into a fabric or twisted into individual cords.

Plain and paddle stamped limestone tempered ceramic types typical of the Middle Woodland period were codominant with the Late Woodland grog tempered McKelvey series in the Sugar Creek Drainage. Minor amounts of the Late Woodland chert tempered Elk River series ceramics and late Middle Woodland plain and cordmarked quartz tempered pottery types were introduced from the Middle and Upper Duck and Elk River valleys along with a few sand tempered sherds from the Tombigbee River Valley. A thick untempered rim sherd indicates miniature handmolded vessels were also included in this Late Woodland ceramic complex. Approximately three-fourths (78.9%) of the Bailey site ceramic assemblage is comprised of these Late Woodland types. The pottery was mostly contained in five features (F 32, 48, 60, 149, and Midden 4). Feature 149 was a shallow (Class 3) earth oven overlain by Midden 4. Features 48 and 60 were storage pits located about 30 m east of Midden 4. Feature 32 was a shallow (Class 3) pit situated approximately 20 m northeast of Midden 4.

CHAPTER VIII

HUMAN SKELETAL REMAINS

Susan Thruston Myster

Ten human burials were recovered during the Bailey site investigations. Seven burials were located in Feature Cluster I and five of these were interred in the Midden 2 area; two within the midden and three below the midden. The remaining three burials were equally distributed across the site in Feature Clusters II, III, and IV. In addition to the ten burials, eight single skeletal elements were recovered from five nonburial pit features. Four of these features were located in Feature Cluster I and one in Feature Cluster II (Table 15).

Table 15. Human Skeletal Elements Recovered From Nonburial Features.

Feature Number	Feature Cluster	Skeletal Element
22	I	Incomplete phalange
67	I	Incomplete permanent maxillary molar
70	II	Crown of deciduous left maxillary second molar Crown of deciduous right maxillary second molar Crown of deciduous left mandibular second molar
72	I	Adult individual. Small fragment of frontal bone, including a portion of the coronal suture
144	I	Incomplete permanent premolar, exhibits severe attrition Permanent maxillary canine

The temporal relationships among the 10 burials are tentative. There were no culturally diagnostic artifacts associated with any of the burials. However, spatial association with reliably dated features and similar modes of interment and body arrangement suggest a probable Late Archaic Ledbetter phase cultural affiliation for seven of the ten burials. The cultural affiliation of the remaining three burials is indeterminate.

Six of the burials consisted of flexed individuals, three were indeterminate as to body position, and one (Burial 6) was a secondary bundle burial. Flexed and semiflexed interments are characteristic of the Late Archaic in Middle Tennessee and the western section of the Tennessee River Valley. Higgins (1982) reported that of the 11 burials recovered during the first investigation of the Ledbetter Landing site (9BN25) in the Western Tennessee Valley, 10 were tightly flexed or semiflexed. Late Archaic mortuary samples from other sites located in the Western Tennessee River Valley were composed of predominantly flexed burials (Magennis 1977:136), as were those from sites in the Nashville Basin (Brown 1982a:212). Five of the flexed individuals and two of the burials of indeterminate body position recovered from the Bailey site are attributed to the Late Archaic Ledbetter phase. An indeterminate burial (Burial 3) situated along the exterior wall of Structure 2, a secondary bundle burial (Burial 6), and an indeterminate individual (Burial 11) interred in a limestone-filled pit are most likely indicative of cultural affiliations other than Late Archaic.

BURIAL EXCAVATION

Nine of the ten burials were identified in the field. The tenth burial (Burial 11, Feature 37) was not recognized as a burial until laboratory analysis of the collected fill from Feature 37 took place following the field season. The presence of an infant skeleton within the feature fill was then immediately recognized.

Eleven burial numbers were assigned in the field. A disarticulated dog skeleton in Midden 2 was temporarily designated Burial 2 prior to excavation and later redesignated Dog Skeleton 2. The Burial 2 number was subsequently not reassigned.

Preservation of the human skeletal material varied greatly across the site, ranging from poor to moderate and in a few instances certain elements were well preserved. In those burials where preservation was especially poor individual elements were removed, encased in the original soil matrix, and brought back to the laboratory where special tools allowed for a more painstaking and careful excavation. Photographs were taken and plan maps were drawn of each burial at the time of excavation. All of the burials, except Burial 1, were located in oval or circular shallow (Class 3) pits. Burial 1 was recovered from Midden 2; no burial pit was discernible in the midden.

Each of the ten individuals was incompletely represented and the majority of the skeletal elements present were fragmentary. Nine of the ten burials were disturbed by plow and/or backhoe damage. Extensive reconstruction of the skeletal material was necessary in most cases.

LABORATORY PROCESSING OF SKELETAL REMAINS

Initial preparation of the skeletal material for analysis consisted of cleaning, labeling, and inventorying all of the burials. Differential preservation within the entire sample necessitated special preparation in some cases. The skeletal material was cleaned using water and a soft-bristled toothbrush; more specialized brushes and implements were used to expose small foramina and other delicate difficult to clean areas. Poorly preserved skeletal material was cleaned as thoroughly as possible using a dry brush and/or light sprays of water. If further fragmentation occurred this procedure was halted.

The labeling system implemented consisted of the site number, the artifact bag number, the burial number, and the piece plot number. A piece plot number was arbitrarily assigned to each element in a burial during excavation and corresponds to the plan map of the burial and a list of the skeletal elements present. Small miscellaneous bone fragments were counted but not labeled.

Inventorying of the skeletal material followed the system outlined in Owsley et.al. (1985). All skeletal elements, except the long bones, were scored as complete (n=1) or incomplete (n=2, less than 50% of the bone present). A description of each incomplete element accompanied the score. Long bones were scored according to the portion of the bone present. A written description was given in those cases where Owsley's long bone categories were not applicable.

Following the initial preparation of the skeletal material, reconstruction of the individual elements was undertaken. A standard adhesive cement was used in all reconstructions. Reconstruction focused on the crania, mandibles, and long bones due to their importance in age, sex, and stature determination.

SKELETAL ANALYSIS

In this section, the composition of the Bailey site skeletal sample, the limitations of this sample, and a description of each burial, including the demographic data inferred from the skeletal material, will be discussed.

Mayr (1963:136) defines a biological population as "a group of potentially inbreeding individuals at a given locality." Cadien et.al. (1974) warn about the unreliability of applying a population approach to archaeologically derived skeletal samples. They emphasize that the population approach, including the investigation of demographic variables, microevolutionary trends, and cross-population comparisons, cannot be reliably applied to skeletal samples that do not approximate biological populations. The tentative temporal relationships and small sample size from the Bailey site prevent the legitimate application of a population approach; therefore, the description and analysis of the skeletal sample will proceed without reference to specific population or cultural phase membership.

The specific morphological observations and comparisons will reflect intrasite differences only.

The description of each individual burial will include a brief report of the burial pit, the position and articulation of the skeleton, an inventory of skeletal material recovered, and age, sex, stature, and pathology (skeletal and dental) descriptions when possible. The body position and articulation discussion follows the guidelines proposed by Sprague (1968). Sprague outlines three aspects of body position: degree of flexure (concerned only with the legs and trunk), position of the arms, and the rotation of the head. "Semiflexed" describes the body position in which the legs are at a right angle, or greater, to the trunk. "Flexed" describes the body position in which the legs are at less than a right angle to the trunk. In the flexed and semiflexed positions the legs are assumed to be together (Sprague 1968:481).

Sex and Age Determinations

Accurate sex and age determinations of individuals in a skeletal sample are vital to all areas of analysis. These determinations aid in the interpretation of patterns of morphological variation between individuals and ultimately populations, thus furthering the illumination of an individual's or population's lifestyle, health status, and general quality of life.

The burials recovered from the Bailey site are generally quite fragmentary and demonstrate varying degrees of post-depositional deterioration. The majority of the long bones lack the proximal and distal articular ends. Other postcranial remains are also fragmentary and incomplete. Nevertheless, vertebrae, ribs, and bones of the hands and feet are moderately represented. The cranial remains are in all cases fragmentary (natural fragmentation was often exacerbated by plow or backhoe damage), though often relatively well-preserved. Overall, the crania exhibit better preservation than do the corresponding post-cranial material. In all but two burials, the jaws and teeth are minimally represented. Overall, teeth show unusually poor preservation and in some instances consist of the roots only. This state of incompleteness, along with the poor preservation in some cases, severely restricted the reliable determination of sex and age.

Subadult sex determination. One subadult was recovered. Numerous attempts have been made to develop an accurate method to determine the sex of immature skeletal remains; however, there has been little success. Thus, skeletal determination of subadult skeletal material is inaccurate and unreliable at this time (Bass 1971; Krogman and Iscan 1986; Ubelaker 1978).

Adult sex determination. The adult sex determination techniques applied today have been remarkably accurate in the assessment of sex for skeletal material from individuals of known gender. It is with confidence then, that these techniques are applied to prehistoric skeletal remains in order to determine the sex of an individual.

Sex determination of the skeletal material in this sample was difficult. The most reliable skeletal indicators of sex are the innominates and pelvic girdle as a unit. Unfortunately, the innominates were minimally preserved in the majority of the burials recovered. In those fortuitous instances where a reliable estimation of gender was possible, the determinations were based on characteristics of the innominate, cranial morphology, and post-cranial robusticity (Bass 1971; Black 1978; Krogman and Iscan 1986; Stewart 1979).

Subadult age determination. The age of the one subadult represented is based on dental calcification and maturation as outlined by Moorrees et.al. (1963) and Ubelaker (1978). The deciduous teeth identified are all loose, thus enabling a more accurate determination of stage of development. Ubelaker's (1978) stages have been adjusted to reflect the earlier dental development observed in Mongoloid groups. Previous studies indicate that this system provides reasonably accurate age-estimates for prehistoric North American subadults. The dental age assessment is supported by the morphological development of the mandible (Gray 1973).

Adult age determination. There are a variety of techniques available for age determination of adult individuals (Bass 1971; Krogman and Iscan 1986; Stewart 1979; Ubelaker 1978). The poor condition and fragmentary nature of the Bailey site burials preclude the application of the most reliable of these techniques, observation of the pubic symphysis morphology. Epiphyseal union was used to broadly distinguish adult and subadult material but this technique is of little use after 25-28 years of age. Less precise methods such as degenerative changes in the joints and vertebrae, third molar eruption, and dental attrition were applied where possible. It must be stated from the outset, however, that these techniques are not very precise and that age estimations based on these are population specific. Age of onset, tempo of development, and severity of degenerative changes and dental attrition are determined by the lifestyle and cultural practices of the population. Due to the small sample size, fragmentary nature of the skeletal material, and absence of more precise age indicators, a specific age estimate cannot be made. Therefore, only a general determination of adult is possible.

Osteometrics

Cranial metrics were inobtainable; however, the postcranial remains of a small number of individuals were sufficiently well-preserved to permit selected measurements to be taken. All measurements were recorded to the nearest millimeter and taken using a standard osteometric board, a pair of sliding calipers, and a metric tape. Measurements were taken as defined in Bass (1971). Individual postcranial measurements are:

Burial Number	Feature Number	Humerus Maximum Length (cm)	Humerus Maximum Diameter of head (cm)	Humerus Midshaft Circum-ference (cm)	Ulna Maximum Length (cm)	Femur Maximum Diameter of head (cm)	Femur Midshaft Circum-ference (cm)
1	Midden 2			6.05	25.91		8.59
3	132			6.50			7.91
7	69	29.30	3.91	5.50			
8	161			5.40			7.60
9	159						6.85

The estimation of stature was possible on only two individuals (Burials 1 and 7). The stature estimates are based on Trotter's (1970) regression formulae for estimating height from intact long bones. Separate formulae have been developed for the major racial groups. The stature of the male individual (Burial 1) was estimated using the appropriate formula for Mongoloid males. The stature of the female (Burial 7) was estimated using the formula for white females, a necessary substitute since no formulae exist for the estimation of stature of Mongoloid females. No adjustment for individuals older than 30 years of age was made because of the imprecision of age assessment in this sample. Stature estimates and corresponding measurements are:

Burial Number	Feature Number	Sex	Element Utilized	Maximum Length (cm)	Estimated Height (cm)	Estimated Height (ft, in)
1	Midden 2	M	Ulna	25.91[a]	167.62±4.66	5'5"±1 3/4
7	69	F	Humerus	29.30	156.42±4.45	5'1"±1 3/4

[a] 1.2 cm were added to the actual length to compensate for the absence of a small portion of the distal end.

Paleopathology

A number of skeletal abnormalities were observed in the Bailey site sample. These pathological conditions were classified into three broad categories: arthritic changes, nonspecific infections, and pathologies of unknown origin. A brief discussion of the bony changes that are indicative of arthritis and nonspecific infection will follow directly. Skeletal anomalies classified as pathologies of unknown origin will be described as observed per burial. A description of all skeletal abnormalities observed on each individual will be included in the respective burial summary.

Arthritis is a general classificatory term which describes those diseases which involve the destruction and deterioration of one or more of the joints (Morse 1969; Ortner and Putschar 1981; Steinbock 1976). Morse (1969) and Steinbock (1976) discuss seven and eight arthritic disorders identifiable in dry bone, respectively. Two of these diseases were observed in the Bailey site skeletal sample; degenerative joint disease and vertebral osteophytosis.

Degenerative joint disease is the most common articular disorder identified in archaeologically derived skeletal samples. It affects the diarthroidal joints (e.g., knee, hip, elbow, and shoulder) and is characterized by the degeneration of the articular cartilage and subsequent bone reaction.

Vertebral osteophytosis is the name given to degenerative joint disease of the vertebrae. The distinction between degenerative joint disease of the diarthroidal joints and vertebral osteophytosis is that the intervertebral joints are not true joint but rather are "secondary cartilagenous joints without a synovial membrane" (Steinbock 1976:287). The arthritic changes observed in the vertebrae are thus regarded by many paleopathologists as a distinct process from those observed in the diarthroidal joints. In the remainder of this report degenerative arthritis of the diarthroidal joints will be referred to as degenerative joint disease and that of the intervertebral joints will be referred to as vertebral osteophytosis.

Degenerative arthritis, including both degenerative joint disease and vertebral osteophytosis, may be expressed skeletally by bone destruction and bone hypertrophy. The former is characterized by erosion, porosity, and/or eburnation of the articular surface and the latter is expressed as abnormal and irregular thickening of the joint surface (Ortner and Putschar 1981:422). In the intervertebral joints, bone hypertrophy is expressed as osteophytes or bony finger-like projections from the margins of the centrum. In severe cases, the inferior and superior articular processes are affected. While several factors may contribute to the development of degenerative arthritis, aging and the stress of daily life are the most significant (Morse 1969; Steinbock 1976; Stewart 1958).

The majority of the lesions classified as nonspecific infections observed in the Bailey site sample were expressed as periosteal bone reaction or periostitis. The periosteum covers all exterior surfaces of the bones except where cartilage is attached. Periostitis is simply the response of the periosteum to any number of insults. It can result from soft tissue infection, a specific disease process (e.g., syphilis and yaws), or pathologic changes in the underlying bone. Consequently, periostitis may be a specific or nonspecific response reaction to pathologic conditions. Periosteal abnormalities are quite common in archaeological skeletal samples and are characterized by porous woven bone unevenly distributed on the element (Morse 1969:17-19; Ortner and Putschar 1981:129-137; Steinbock 1976:60-85).

Dental Pathologies and Anomalies

Overall, jaws and teeth are poorly represented at the Bailey site. In over half of the burials two or fewer teeth were recovered. Only two burials possessed a sufficient number of teeth to reliably assess the dental health of the individuals. Burial 9 was recovered with 29 of 32 teeth, as well as a virtually complete maxilla and mandible, and Burial 11, a subadult, possessed 15 of 20 deciduous teeth. Despite the poor dental representation, all of the teeth present were scored, if possible, for the presence of caries, abscesses, and attrition.

Caries were scored by location (occlusal, cervical, interproximal, and buccolingual) and severity. The significance of the identification of caries in skeletal samples is based on the use of caries frequency and location as an indicator of varying food resource availability and dietary practices of different populations. For example, hunters and gatherers generally exhibit a low caries frequency (2-3 lesions/individual). The frequency of caries is more than twice as high in agricultural-based populations (Brothwell 1981:151-154; Ortner and Putschar 1981:439). The reliability of caries observation is often hindered by two major problems which often affect archaeological skeltal samples. First, postmortem loss or damage, as well as antemortem loss, may preclude an accurate enumeration of the total number of caries present and the pattern of distribution. Secondly, a high incidence of dental attrition may wear away the occlusal surfaces beofre caries develop (Otner and Putschar 1981:439). Both of these problems are encountered in the Bailey site sample.

Abscesses were scored by type: 1) active due to caries or attrition and 2) healed or in process of healing. Turner (1979) reports that abscessing is predominantly the result of pulp exposure due to either caries or attrition. Subsequent exfoliation of the infected tooth may occur followed by alveolar healing involving resorption and partial refilling of the alveolus (Brothwell 1981:156-157; Ortner and Putschar 1981:439). All of the abscesses observed in the Bailey site burials are periapical and are located around the affected tooth root.

Dental attrition was scored according to the 8-stage system devised by Smith (1984). This system is based on the amount of surface enamel destroyed and dentin exposed. Several factors may contribute to dental attrition. These include abrasives in the diet, enamel thickness and strength of the teeth, occlusion of the opposing teeth, and cultural practices which use teeth for activities other than chewing (Brothwell 1981:71-72; Ortner and Putschar 1981:454-455). The pattern of wear was also noted. Smith (1984) has observed with respect to molar wear that a more flat wear plane is characteristic of hunters and gatherers while an oblique wear pattern results from more mechanically refined foods as characteristic of agriculturalists. Due to the limitations of the Bailey site skeletal sample, dietary and subsistence practice implications cannot be made. Therefore, the observation of dental pathologies will be undertaken on a descriptive level only.

Burial Descriptions

Burial 1. Burial 1 was interred in Midden 2 located in Feature Cluster I. There was no visible burial pit. This suggests that the individual was placed on the midden surface and covered with surrounding midden fill. The skeleton was flexed with the trunk in a supine position. The arms were at the sides and the legs were flexed and oriented to the northeast (Figure 66). The Midden 2 fill excavated around the burial contained three pieces of hematite. The cultural affiliation of Burial 1 is probable Late Archaic.

Burial 1 consists of the fairly complete, though fragmentary, remains of a single individual. Preservation is moderate. The skull is represented by the incomplete occipital and left temporal bones. The mandible is comprised of approximately one-fourth of the left quadrant. Tooth recovery was poor; the left mandibular second premolar is the only complete tooth present. The poorly preserved roots of the mandibular left first and second molars are visible in the sockets, the crowns having been broken off postmortem. The right clavicle and innominate are present though incomplete. The right innominate consists of the inferior one-fourth of the pubic symphysis, the subpubic ramus, and the ischial tuberosity. The right and left scapulae, humeri, radii, ulnae, femora, tibiae, and fibulae are present but incomplete. Less than one-half of the proximal and distal articular surfaces of the long bones are present. The vertebral column is moderately represented with a minimum of 15 of 24 vertebrae present (3 cervical, 10 thoracic, and 2 lumbar). The distal portions of the sacrum and coccyx are also present. The ribs are very fragmentary but represent virtually complete bone recovery with 22 of 24 proximal articular ends present. Hand and foot bone recovery is moderate with 4 carpals, 8 tarsals, 7 metacarpal/metatarsal shaft fragments, and 24 phalanges present (43 bones of 106).

The sex of Burial 1 was determined to be male by visual observation of the morphological characteristics of the fragmentary cranium and innominate, the midshaft circumference of the femur, and the general musculature of the post-cranial skeleton. The cranium exhibits a well-developed external occipital protuberance, a robust mastoid process, and a square mental eminence. The right innominate exhibits an acute sub-pubic angle and the ventral arc is absent. Additional indicators of gender include a femoral midshaft circumference of 85.9 mm (n>81.0 mm=male) and moderate development of the post-cranial muscle attachment areas. This complex of characteristics indicates a sex determination of male.

A general age classification of adult was determined by the developmental maturity and degenerative changes exhibited by the skeletal remains. All epiphyses present are completely fused and obliterated suggesting an age greater than 25-28 years. The majority of the pubic symphysis, the most reliable indicator

[redacted]

Figure 66. Burials 1 and 3. General Views of Both Burials and Close-Up View of Burial 3.

of age in adult skeletons, was missing; however, the small inferior portion present exhibits a dorsal margin which extends along the entire dorsal border. This suggests an age of at least 18-21 years (McKern and Stewart 1957). Degenerative changes observed in the vertebral column (vertebral osteophytosis) and on the joint surfaces (degenerative joint disease) are moderate to severe. These changes also support an age assessment of adult and suggest the individual had a rigorous lifestyle. The aging criteria applied support a determination of adult (older than 25-28 years of age).

As stated previously, Burial 1 exhibits moderate to severe degenerative joint disease and vertebral osteophytosis. Virtually all of the bones and joints are involved to some degree. Affected joints of the appendicular skeleton include the elbow, wrist, knee, ankle, toe, and shoulder. In most cases , the corresponding right and left joints exhibit degenerative lesions. The degenerative changes observed consist of marginal lipping, exostoses, and/or hypertrophic bone formation (Figure 67A). The most severely affected area is the ankle joint. Both the right and left distal articular surfaces of the tibia exhibit marginal lipping. The medial malleoluses exhibit small lesions measuring 8.1 mm x 7.0 mm on the right side and 9.9 mm x 6.0 mm on the left side (the left lesion is incomplete due to bone fragmentation). The lesions are characterized by porosity and eburnation (a polished appearance). A similar corresponding lesion was observed on the right talus (9.5 mm x 9.0 mm). Postdepositional destruction prevents the observation of a corresponding lesion on the left talus (Figure 67B and C).

The vertebral column also exhibits moderate osteoarthritic changes. Slight erosion and osteophyte development characterize a majority of the centra (cervical and thoracic); two lumbar fragments exhibit severe osteophyte development. The articular facets are only slightly affected. The costovertebral joints (rib-vertebra articulation areas) are moderately affected and exhibit marginal lipping and porosity.

Additional pathological conditions observed include a small deep lesion (5.5 mm in length) on the anteriodistal shaft of the femur. This lesion is characterized by swelling and periostitis. The smooth edges suggest that the lesion had begun to heal.

Burial 1 also exhibits two periapical abscesses. These are associated with the first and second left mandibular molars. The primary cause(s) of the abscesses observed on the mandible of Burial 1 are unknown due to the absence of the corresponding teeth. The mandibular premolar exhibits severe dental attrition with little occlusal enamel present. No additional dental pathologies or anomalies were observed.

Burial 3. Burial 3 was interred in a shallow (Class 3) pit (F 132) that measured 70 cm x 62 cm in plan view and 11 cm in depth. The burial pit was located within the west wall of Structure 2 in Feature Cluster IV. The skeleton was flexed with the trunk in a supine position. No curvature or "arching" of the

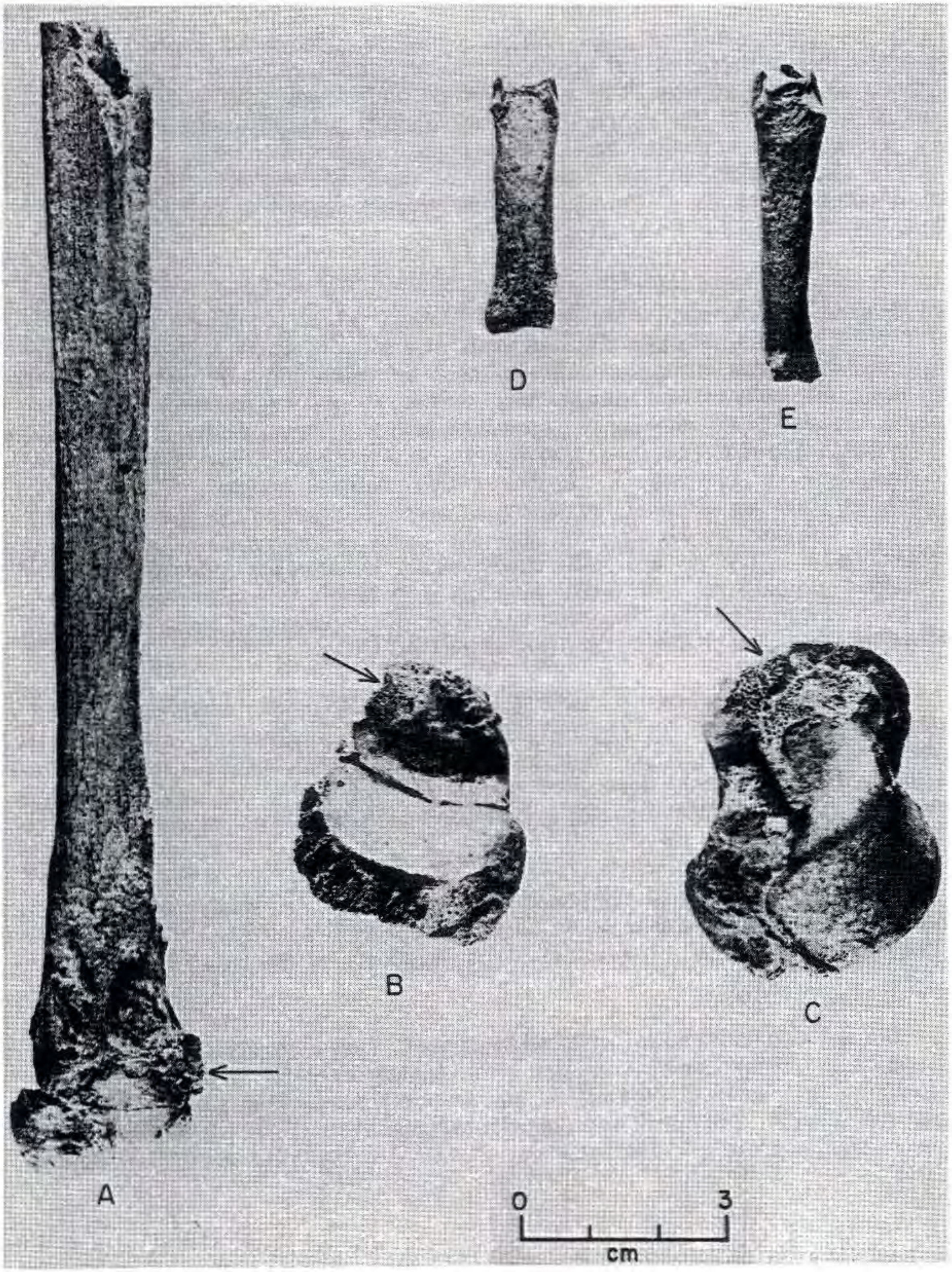


Figure 67. Degenerative Joint Disease (Burial 1) and Active Periostitis (Burial 9). A-Burial 1: Articular Surface of the Distal Fibula; B-Burial 1: Articular Surface of the Distal Tibia; C-Burial 1: Medial Articular Surface of the Talus; D-Burial 9: Volar Surface of the Proximal Phalange; E-Burial 9: Volar Surface of the Fourth Right Metacarpal; Arrows Point to Areas of Porosity and Eburnation.

vertebral column was observed. The legs were flexed and oriented to the right. The position of the arms and skull were indeterminate (Figure 66). The cultural affiliation of Burial 3 is indeterminate.

Burial 3 represents the incomplete remains of a single individual. Overall preservation is poor and the recovered skeletal material is very fragmentary; of the long bones present (n=6), only two articular ends have been preserved. The cranium is comprised primarily of one vault fragment, an incomplete right maxilla, and the mandible. The anterior portion of the right quadrant of the maxilla is present. The right central and lateral incisors, canine, and first premolar tooth sockets are present; however, all teeth except for the root of the first premolar were lost postmortem. Three-fourths of the mandible is present but the right ascending ramus and gonial angle are broken off. The anterior portion of the left quadrant of the mandible is present while the portion posterior to the first molar socket is missing. Active alveolar resorption was observed in the right and left molar regions, the incisor area, and the right canine socket. The stage of resorption noted in the anterior portion of the mandible may suggest antemortem tooth loss; however, the teeth in question may have been present prior to death and on the verge of exfoliation. Six loose teeth recovered with Burial 3 consist of the left first premolar, four single root teeth, and one incomplete molar. Five of the six teeth are unidentifiable as to precise position. Right and left scapulae are present but very fragmentary. The left innominate is represented by fragments of the ilium only. The left and right ulnae, the left humerus and radius, and the right femur and fibula are present. All are incomplete and fragmentary. The proximal articular surfaces of the left radius and ulna are present . The veterbral column is poorly represented with 9 of 24 vertebrae present (1 cervical, 7 thoracic, and 1 thoracic or lumbar). The ribs are moderately represented but very fragmentary with the recovery of 18 of 24 proximal articular ends. The hand and foot bones consist of only one phalange.

The sex assessment of Burial 3 is tentative due to the fragmentary nature of the remains and the absence of the most sexually-diagnostic skeletal elements (e.g., cranium and innominates); however, certain characteristics suggest a determination of male. The mental eminence is very square and robust and the post-crania are large with well-developed muscle attachment areas. The midshaft circumference of the femur (79.1 mm) is in the female range (n<81.0 mm=female) but lies near the sectioning point between males and females.

The age determination of Burial 3 was difficult; however, a general determination of adult was made. All epiphyses present are fused and the third molars have erupted (25-28 years). There was severe antemortem tooth loss observed on the mandible; eight of the 12-13 sockets present showed active resorption. There was also severe dental attrition observed on three of the six loose teeth present; only three of the teeth had crowns. There was also slight to moderate degenerative arthritis observed on the skeletal remains. These morphological characteristics suggest an adult older than 25-28 years of age.

Burial 3 exhibits slight to moderate degenerative joint disease. The elbow joint appears to be the most severely affected with slight to moderate lipping on the proximal articular surfaces of the ulna and radius, as well as an area of porosity and eburnation on the articular surface of the radius. Other affected areas include some of the costovertebral and intervertebral joints. The degenerative changes noted in the vertebral bodies are characterized by slight erosion of the inferior and superior centra surfaces and marginal osteophyte development. One of the affected thoracic vertebrae also exhibits a single well-defined Schmorl's node (intervertebral disk herniation). Ortner and Putschar (1981) note that Schmorl's nodes often accompany the characteristic lesions of vertebral osteophytosis.

Burial 4. Burial 4 was interred in a shallow (Class 3) pit (F 81) that measured 89 cm X 68 cm in plan view and 14.5 cm in depth. Feature 81 was in Midden 2 located in Feature Cluster I. The burial pit was intrusive into the midden but did not extend into the underlying subsoil. A posthole was superimposed on the west edge of the pit and Midden 2. The skeleton was laid on its right side in a tightly flexed fetal position. The arms and legs were drawn up tightly to the trunk and the chin was tucked in close to the body (Figure 68). A small piece of hematite was found at the east edge of the burial pit. The cultural affiliation of Burial 4 is probable Late Archaic.

Burial 4 represents the incomplete remains of a single individual. Preservation is generally poor, although the cranium is well-preserved. The cranium is fragmented and consists of the frontal, occipital, parietal, and temporal bones. The mandible is approximately three-fourths complete; the right and left ascending rami and gonial angles are broken off. The right quadrant of the mandible is fairly well-preserved. The molars, second premolar, and incisors were lost antemortem. Resorbtion is complete in the molar area and was active at the time of death in the incisor region. It is possible the canine was present antemortem. There is a small fragment of the first premolar root present. The left quadrant of the mandible is poorly preserved and tooth socket identification was difficult. What appeared to be the roots of the canine and first premolar are still present in the corresponding sockets. The left mandible is broken off posterior to the second premolar. One unidentified crushed loose tooth was recovered. The right scapula is incomplete and fragmentary. The majority of the long bones are present though very fragmentary and incomplete (right and left radii and ulnae and unsided humerus, femora, tibia, and fibula). The vertebral column is poorly represented by the recovery of three or possibly four cervical vertebrae. The ribs consist of small body fragments only. The number of ribs represented is indeterminate. Hand and foot bone recovery is minimal with only two phalanges present.

The sex of Burial 4 is indeterminate; however, the cranial fragments recovered are moderately robust. The postcranial remains are too incomplete to assess robusticity.

[redacted]

Figure 68. Burials 4 and 5. General and Close-Up Views.

The determination of age at death was difficult; however, the general morphology of the remains are consistent with an assessment of adult. The third molars appear to have erupted (18+ years of age) and there is considerable antemortem tooth loss in the mandible. In addition, severe osteophytosis was observed on the cervical vertebrae. No additional degenerative changes were noted. The degenerative changes observed suggest an older adult, possibly over 40 years of age.

Few pathologies were observed on Burial 4. All of the vertebrae recovered (four cervical) exhibit severe osteophyte development and centra surface erosion. Stewart (1958) suggests that extensive and severe osteophyte development, especially when accompanied by affected articular facets, is indicative of an older adult.

An additional pathological lesion noted was an expanded area of microporosity on the occipital and parietal bones. The location and morphology of the lesions are suggestive of porotic hypertosis. This condition is often associated with different forms of anemia (Ortner and Putschar 1981:258-263; Steinbock 1976:213-219); however, a definitive diagnosis is not possible due to the incompleteness of this burial.

No dental pathologies or anomalies were observed.

Burial 5. Burial 5 was interred in a shallow (Class 3) pit (F 102) that measured 96 cm x 66 cm in plan view and 9 cm in depth. Feature 102 was in Midden 2 located in Feature Cluster I. The burial pit was intrusive into the midden and extended into the underlying subsoil. The skeleton appeared to have been lying on its left side, as indicated by the orientation of the innominates and vertebrae fragments. Degree of flexure, position of the arms, and rotation of the skull are indeterminate (Figure 68). The cultural affiliation of Burial 5 is probable Late Archaic.

Burial 5 consists of the incomplete and very fragmentary remains of a single individual. Preservation is moderate and less than 50% of the skeleton was recovered. The cranium and mandible are represented by a few fragments. One large canine root was also recovered. The right and left innominates are present but incomplete and fragmentary. Long bones are virtually absent except for a possible femur head. The vertebral column is represented by one cervical, five thoracic, and three lumbar vertebrae. The sacrum is also present though incomplete. Ribs are poorly represented by six proximal articular ends. Postdepositional disturbance apparently altered the positions of the cervical and thoracic vertebrae and ribs.

The sex and age of Burial 5 are indeterminate; however, the general morphology of the skeletal material is consistent with that of an adult.

Few pathologies were observed on Burial 5. The vertebral fragments exhibit slight marginal lipping and porous degeneration and erosion of the centra surfaces.

No dental pathologies or anomalies were observed.

Burial 6. Burial 6 was interred in a shallow (Class 3) pit (F 147) that measured 68 cm x 42 cm in plan view and 24 cm in depth. Feature 147 was located just south of Midden 1 in Feature Cluster III. The burial pit contained a secondary bundle burial. The skull is present along with a cluster of ostcranial material (Figure 69). The cultural affiliation of Burial 6 is indeterminate.

Burial 6 represents the incomplete remains of a single individual. This bundle burial consisted of a long bone cluster, miscellaneous postcranial material, and the remains of the cranium. All of the skeletal material is very fragile, poorly preserved, and fragmentary. The cranium is incomplete and very fragmentary. Very little of the vault is represented. The right mastoid process and additional pieces of the temporal bones are present. Small portions of the sphenoid, occipital, and frontal bones were also identified. The mandible is represented by the right quadrant only. A small portion of the mental eminence is present. The third molar root is visible in the socket; however, all other teeth were lost postmortem. There was partial alveolar resorption observed in the incisor area (right and left quadrant). A very fragmentary unsided humerus and an indeterminate long bone, possibly fragments of a radius, were located near the cranium. The cluster of long bones and the miscellaneous postcranial skeletal material were excavated in three sections. Each was removed in a soil matrix to minimize breakage of the bones. The first section consisted of an incomplete left tibia, left fibula, and an unsided femur. The tibia is the best preserved and the most complete bone of the bundle. It consists of about two-thirds of the shaft and the distal articular end. The fibula is comprised of approximately one-third of the distal shaft and the distal articular end. The femur is the most fragmentary long bone present and consists of only a small portion of the shaft. Four small bones were also recovered from the soil matrix. These bones were very poorly preserved and precise identification was impossible; however, the four bones may represent metacarpals, metatarsals, and/or phalanges. The second section was lying under the first section of bones. It consisted of two incomplete long bones; a fibula and a somewhat larger long bone, possibly a humerus. Both of these bones are represented by less than one-third of each shaft. The third section of bones consisted of an incomplete right femur and what appears to be a very fragmentary radius or ulna. Miscellaneous fragments recovered during flotation of the burial pit fill include two carpals (a lunate and triquetral), fragments of the first and a lower cervical vertebrae, a small portion of the maxilla, and a left third mandibular molar.

The sex of this individual is indeterminate; however, the diameter of the incomplete eroded femoral head is 45.5 mm. Ubelaker (1978) reports that femoral head diameters greater than 45.0 mm are generally attributable to males. In addition, the post-cranial robusticity of Burial 6 is moderate.

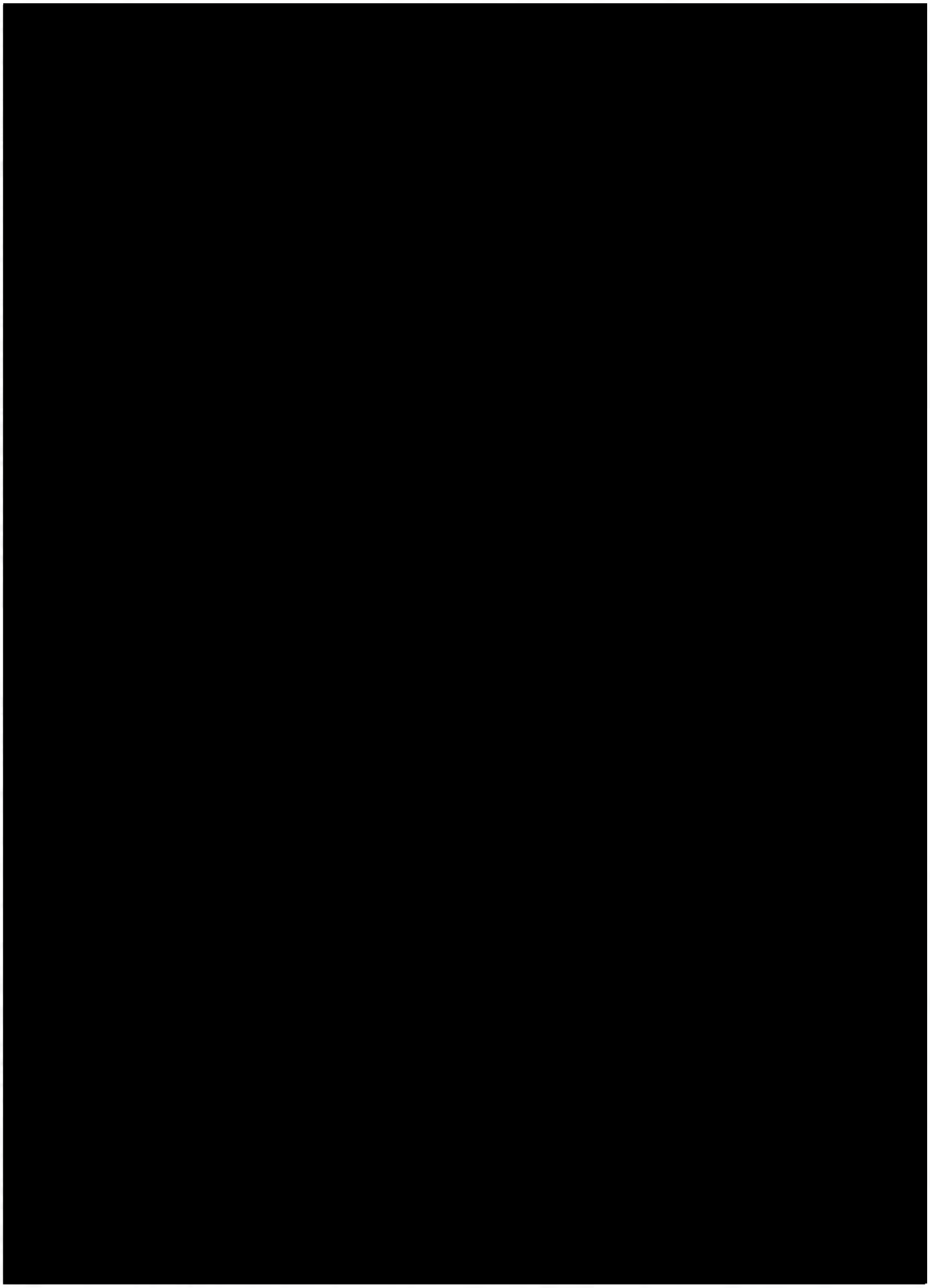


Figure 69. Burials 6 and 7. General and Close-Up Views.

A reliable estimate of age at death was also impossible. Nevertheless, the general morphology is consistent with that of an adult. In addition, the left mandibular third molar had erupted thus indicating that the individual was older than 18 years of age.

The observation of pathological conditions in Burial 6 was limited due to the poor preservation and mode of interment. The vertebrae recovered exhibit slight to moderate vertebral osteophytosis characterized by marginal lipping as well as erosion and porosity of the centra surfaces.

No dental pathologies or anomalies were observed on the single tooth recovered.

Burial 7. Burial 7 was interred in a shallow (Class 3) pit (F 69) that measured 60 cm x 52 cm in plan view and 7 cm in depth. Feature 69 was located south of Midden 2 in Feature Cluster I. The southwest section of the burial pit was superimposed by another shallow (Class 3) pit (F 68). Burial 7 is very incomplete and appears to be comprised of the left half of the torso only (Figure 69). As a result of this, no inferences on body position can be made. The cultural affiliation of Burial 7 is probable Late Archaic.

Burial 7 represents the incomplete remains of a single individual. Less than 50% of the individual is represented; nevertheless, preservation of the skeletal material is good. The skull is absent; however, the mandible is present and is approximately three-fourths complete. The left quadrant of the mandible is incomplete, the alveolar border from the lateral incisor to the third molar is broken off. The corresponding teeth are also missing. The right quadrant is missing the portion posterior to the second premolar socket. The right and left scapulae and left clavicle are present though incomplete. Long bones are minimally represented by a complete left humerus, an incomplete right ulna, and an incomplete left femur and fibula. Additional unsided long bone fragments consist of the tibia and radius. The gladiolus is present though incomplete. The vertebral column is represented by eight thoracic vertebrae. Fragments of the coccyx are present. Over 50% of the ribs are represented with 14 of 22 proximal articular ends present. Hand bone recovery is virtually complete on the right side with 12 of the 13 carpals and metacarpals present. Seventeen indeterminate phalanges (e.g., hand or foot) were also recovered. No tarsals or metatarsals were recovered.

Burial 7 was determined to be female by the gracile appearance of the mandible, the more pointed shape of the mental eminence, the presence of an olecranon fossa in the humerus, a humeral head diameter of 39.1 mm ($n<44.0$ mm=female), and the generally gracile muscle markings of the postcrania.

An age determination of adult was determined for Burial 7 by the general morphology of the skeletal material recovered. The incomplete nature of Burial 7 precludes a more precise assessment of age.

Few pathologies were observed on the skeletal elements present. Slight degenerative joint disease and vertebral osteophytosis were noted. Bones affected were characterized by marginal lipping on the proximal left humerus, proximal right ulna, some of the costovertebral joints, the right carpals, second through fifth metacarpals, phalanges, and the articular facets of the thoracic vertebrae. Small areas of porosity and erosion, also characteristic of arthritic change, were apparent on the left humerus head, one left proximal rib fragment, and one right proximal rib fragment. Well-developed bony spurs were observed on the first right metacarpal and two phalanges.

The dentition of Burial 7 is represented by seven teeth and nine tooth sockets. Of the seven teeth present, no caries were observed. Three periapical abscesses were observed and are associated with the right lateral incisor, canine, and first premolar, respectively. Periapical abscesses are the most common type of abscesses observed in archaeologically derived skeletal samples. In many instances the cause of abscesses cannot be determined . Due to the presence of extreme wear and absence of any carious lesions, it is unlikely that the abscesses observed in Burial 7 are due to attrition.

Burial 7 exhibits moderate to severe tooth wear. Secondary dentin is exposed in all teeth present. The posterior teeth exhibit a more flat wear plane. As stated earlier, Smith (1984) suggests that, with regard to molar wear, a more flat wear plane is characteristic of hunters and gatherers while the consumption of more mechanically refined foods by agriculturalists resulted in more oblique wear planes. The small number of teeth recovered from Burial 7 preclude reaching a dietary conclusion from the tooth wear patterns.

Burial 8. Burial 8 was interred in a shallow (Class 3) pit (F 161) that measured 114 cm x 79 cm in plan view and 14 cm in depth. Feature 161 was exposed beneath Midden 2 in Feature Cluster I. There was no evidence that the burial pit was intrusive into the midden. The skeleton was laid on its right side in a flexed position with the cranium facing west. The arms were also flexed with the hands positioned under the right side of the skull (Figure 70). The cultural affiliation of Burial 8 is probable Late Archaic.

Burial 8 represents the incomplete remains of a single adult individual. Preservation is good although the skeletal material recovered was very fragmented and required extensive reconstruction. Approximately 50% of the cranium is represented; the frontal, occipital, right and left parietals, and right temporal and maxilla bones are all present. The mandible is present but incomplete. It consists of the right ascending ramus and the anterior portions of the right and left quadrants. The alveolar surface is missing on most of the right quadrant. The first premolar and lateral and central incisor sockets of both the right and left quadrants exhibit active resorption. The left first premolar socket is also present and in a state of active resorption. The angle of the first premolar sockets and the condition of the alveolar surface suggest that both the right and left canines were lost antemortem. Alveolar resorption is virtually complete posterior to the left first premolar socket. The

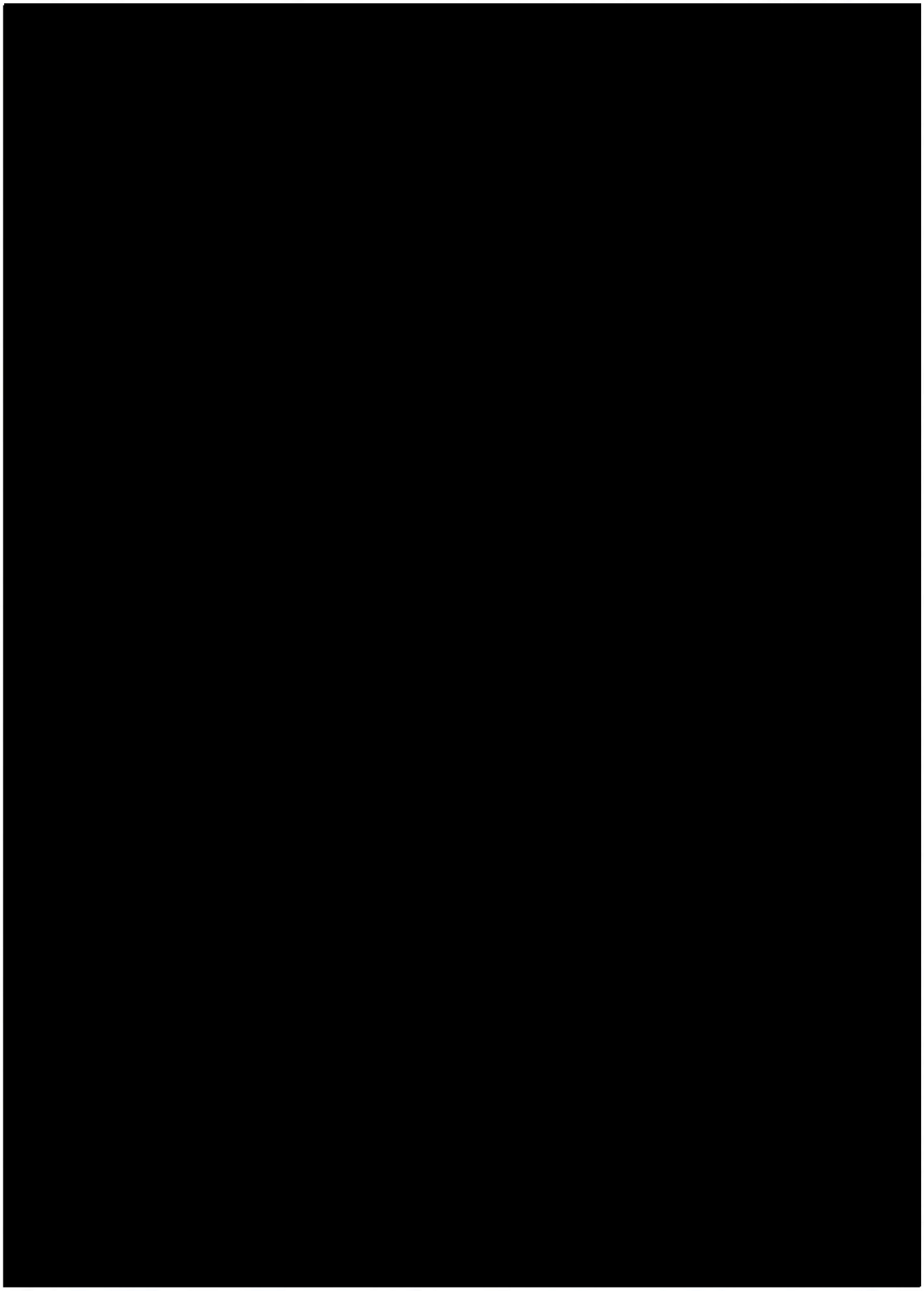


Figure 70. Burials 8 and 9. General and Close-Up Views.

left quadrant of the mandible is broken off in what appears to be the second molar area. The left mandibular first premolar was recovered. The right and left clavicles, patellae, humeri, radii, ulnae, femora, and surfaces were lacking. An additional unsided fibula fragment was recovered. The right scapula is present though incomplete. The vertebral column exhibits minimal recovery with six cervical vertebrae (including the atlas and axis) present. Ribs are also poorly represented with only five proximal articular ends present. Hand and foot bone recovery is moderate overall; 20 of 56 phalanges, 1 of 24 metatarsal/tarsals, and 3 of 26 metacarpal/carpals were recovered.

The sex of Burial 8 is questionable due to the absence of the most sexually diagnostic skeletal elements. The cranium exhibits moderately developed supraorbital ridges and small gracile mastoid processes. The postcrania is somewhat gracile in development and the femoral midshaft circumference is 76.0 mm (n<81.0 mm=female). This complex of characteristics tentatively suggests a determination of female.

The estimation of age at death of this individual is indeterminate. The general morphology of the bones, however, is consistent with those of an adult. The amount of antemortem tooth loss observed in the mandible and the presence of moderate degenerative arthritis in the vertebral column, radius, ribs, right scapula, and phalanges may be suggestive of a middle-aged adult.

Burial 8 exhibits evidence of moderate degenerative joint disease and vertebral osteophytosis. The vertebral column has moderate to severe osteophyte development and centra compression. The centra surfaces are also eroded and porous. The inferior and superior articular facets are slightly to moderately affected; the lesions observed are characterized by small areas of erosion and porosity. Marginal lipping was also observed on the radial tuberosity of the right radius, right glenoid fossa, and phalanges. Other pathological lesions consist of the two sites of active periostitis on shaft fragments of the right tibia and left humerus.

Poor tooth recovery precludes the observation of dental pathologies and anomalies; however, the left mandibular first premolar evidences severe attrition with secondary dentin formation and an oblique wear pattern. The tooth is also worn on the distal side, apparently suffering this additional wear as a result of the antemortem loss of at least the first and second premolars.

Burial 9. Burial 9 was interred in a shallow (Class 3) pit (F 159) that measured 107 cm x 76 cm in plan view and 10 cm in depth. Feature 159 was exposed beneath Midden 2 in Feature Cluster 1. There was no evidence that the burial pit was intrusive into the midden. The skeleton was laid on its right side in a flexed position with the knees drawn up close to the trunk. The arms were also flexed and drawn up to the body with the hands placed under the right side of the skull. The skull is not tucked in or bowed and faces straight north (Figure 70). The cultural affiliation of Burial 9 is probable Late Archaic.

Burial 9 represents the incomplete remains of a single individual. Preservation is generally good; however, the skeletal material is fragmentary and incomplete. The cranium is present but incomplete. It is represented primarily by bones from the right side. The right parietal, temporal, zygomatic, sphenoid and occipital, and right and left maxilla are present; only the left maxilla and right zygomatic are complete. The mandible is present and virtually complete. Twenty-nine teeth of a total of 32 are present and in excellent condition. Postcranial recovery is poor and the skeletal material is fragmentary. Small pieces of the gladiolus and an unsided scapula were recovered. Long bones are poorly represented by shaft fragments of the left humerus and right femur and an unsided femur, tibia, and fibula. The left patella is present and complete. The vertebral column is moderately represented with a minimum number of 15 of 24 vertebrae present (5 cervical, 7 thoracic, and 3 lumbar). Ribs are minimally represented by one proximal articular end and several body fragments. Hand and foot bone recovery is poor with two metacarpals and five phalanges present.

The sex of this individual was determined by observation of the morphological characteristics of the cranium and the robusticity of the postcranial elements. The cranium generally exhibits small slightly developed characteristics: the mastoid process is of moderate size, the external occipital protuberance is only slightly pronounced, and the mandible is small and exhibits a more pointed mental eminence. The postcranial material is gracile in appearance and the femoral midshaft circumference is 68.5 mm (n<81.0 mm=female). The complex of characteristics observed suggests a determination of female.

Assessment of age in Burial 9 is difficult; however, a general age determination of adult was made based on the general morphology of the bones and the eruption and complete development of the third molars (18+ years of age). Tooth wear is moderate and degenerative changes observed are slight suggesting a young to middle-aged adult.

Pathologies observed on Burial 9 include lesions characteristic of degenerative joint disease, vertebral osteophytosis, and nonspecific infections. Slight marginal lipping was noted on the distal articular surface of one phalange. The left patella exhibits more pronounced degenerative change in the form of bony spicules on the anteriodistal surface and erosion of the articular surface. The lateral border is also malformed with an anomalous facet located along this same border. All of the vertebrae exhibit slight marginal lipping and porous degeneration of the centra surfaces. In addition, a small Schmorl's node (intervertebral disk herniation) was noted on the superior surface of a lumbar centrum.

Other lesions observed include areas of healed periostitis on one phalange and on unsided shaft fragments of the tibia and fibula. Active periostitis was observed on three-fourths of the surface of the fourth right metacarpal and two phalanges (Figure 67D and E). An incomplete right parietal bone exhibits an area of healed porotic hypertosis. The affected area involves the outer table only; the diploe and inner table are not involved. The full extent of the area of porosity is unknown due to the fragmentary nature of the cranium. The cause of this particular lesion is unknown; however, several diseases including infection and metabolic diseases, as well as many types of anemias, have been implicated in porotic hypertosis (Ortner and Putschar 1981).

The dentition of Burial 9 is virtually complete with 29 of 32 teeth present. Both the maxilla and mandible are present and nearly complete. Caries incidence is moderate with 5 of the 29 teeth exhibiting a total of 6 carious lesions. Two of the caries are located interproximally on the mesial crown surfaces. The remaining four defects are located on the occlusal surfaces. Calculus build-up is present on only one-third or less of the tooth surfaces.

Dental attrition is moderate. Two teeth exhibit "severe" wear (cf. Smith 1984). The wear pattern can be summarized as a flat-plane pattern.

Burial 10. Burial 10 was interred in a shallow (Class 3) pit (F 64) that measured 69 cm x 68 cm in plan view and 24 cm in depth. Feature 64 was located near the south end of Feature Cluster I. The skeleton was laid on its right side in a tightly flexed position. The knees were drawn up tightly toward the trunk and the vertebral column was arched. The arms were also flexed. The cranium was facing north (Figure 71). The cultural affiliation of Burial 10 is probable Late Archaic.

Burial 10 consists of the incomplete remains of a single individual. Preservation is moderate although the skeletal material is fragmentary. The cranium is incomplete though well-represented by the frontal, occipital, right and left parietals, temporals, and left zygomatic bones. In addition, one unsided ear ossicle, an incus, was recovered. The mandible is represented by one-fourth of the left quadrant. The roots of the left central and lateral incisors and canine are still present in the corresponding sockets. Two loose unidentifiable tooth fragments are present. The right and left clavicles are present though incomplete. The long bones are well-represented, though fragmentary, by the right humerus and right and left radii, ulnae, femora, and tibiae. Unsided fibula(e) fragments were also recovered. Vertebrae, rib, hand and foot bone recovery was minimal. The vertebrae are incomplete and consist of fragments only. The exact number of ribs present are indeterminate due to their fragmentary nature; however, the burial photographs suggest the majority of the ribs are present. Three proximal articular ends were recovered. Hand and foot bones consist of 1 carpal, 2 metatarsals, and 10 phalanges.

The sex determination of Burial 10 was questionable due to the fragmentary nature of the remains and the absence of the majority of the most reliable sexually dimorphic elements (e.g., innominate and cranium). The mastoid process is of medium robusticity, the nuchal line and external occipital protuberance are well-developed, and a small fragment of the superior border of the right orbit is rounded and dull. The postcranial material is too fragmentary to observe robusticity or relevant midshaft circumference. These few characteristics tentatively suggest a male determination.

[redacted]

Figure 71. Burial 10. General and Close-Up Views, Photographic Board Should Read Burial 10.

Age determination of this individual was difficult; however, the morphology of the bones present is consistent with that of an adult.

Burial 10 exhibits evidence of degenerative arthritis. Affected elements include phalanges, vertebrae fragments, and the radial facet of the right ulna. All of these elements exhibit slight marginal lipping. Two distal phalanges exhibit small areas of porosity and eburnation on the proximal articular surfaces. Additionally, evidence of healed periostitis was observed on the proximal shaft of the left humerus, unsided femora fragments, and unidentified long bone fragments. An area of healed porotic hypertosis was observed on the occipital bone near the nuchal crest. The inner table and diploe are unaffected. The cause of this lesion is unknown.

No dental pathologies or anomalies were observed.

Burial 11. Burial 11 was deposited in a shallow (Class 3) pit (F 37) that measured 77 cm x 63 cm in plan view and 10 cm in depth. Feature 37 was located at the north end of Feature Cluster II and overlapped a Late Woodland pit (F6). The wall of Feature 37 in the west half was lined with pieces of burned limestone while the east half contained only scattered pieces of burned limestone. Burial 11 was recovered in the lab during the sorting of flotation and waterscreen fractions from Feature 37. The position of the skeleton and the cultural affiliation of Burial 11 are indeterminate.

Burial 11 represents the incomplete remains of a single infant individual. The skeletal material is well-preserved but fragmentary and the bones exhibit mineral staining. The skull consists of an incomplete left lateral portion of the occipital, a right temporal and maxilla, fragments of the sphenoid, and many small unidentifiable pieces. An unsided incus ear ossicle was also recovered. The mandible is represented by the incomplete right quadrant only. Tooth recovery was excellent with 15 of 20 deciduous teeth. Identifiable postcranial bones are minimally represented by an unsided ilium fragment, four metacarpal/metatarsal fragments, and eight long bone shaft fragments, including two unsided femoral shafts. The vertebral column is moderately represented by neural arches only; 20 unfused/broken neural arches are present along with 3 fused thoracic arches. Only 14 rib fragments were recovered.

The sex of Burial 11 was indeterminate due to the young age of this individual.

Age determination of Burial 11 is based on dental calcification and eruption (Moorrees et al. 1963; Ubelaker 1978) and development of the mandible (Gray 1973). The dental aging techniques applied gave an age estimate of approximately 6 months +/- 3 months. This age range is supported by the morphological stage of development in the right quadrant of the mandible. The mandible is incompletely fused at the symphysis and exhibits imperfectly partitioned tooth sockets for the deciduous teeth. According to Gray (1973), the mandibular symphysis fuses during the first year of life.

No skeletal or dental pathologies were observed on this individual.

BURIAL SUMMARY

The Bailey site skeletal sample consists of ten fragmentary and incomplete burials. Despite the obvious limitations of such a sample, significant biological data was recovered. As reported earlier, the Late Archaic in Middle Tennessee and the western section of the Tennessee River Valley is characterized by flexed and semi-flexed burials. Seven of the Bailey site burials were defined as probable Late Archaic and five of these burials were flexed; the body positions of the two remaining Late Archaic individuals were indeterminate (Tables 16 and 17). The body positions of the culturally indeterminate burials consisted of one flexed, one indeterminate, and one bundle. Eight of the burials were placed in shallow (Class 3) pits excavated for the interment of the dead. The mean dimensions of the burial pits are 84 cm x 14 cm (Table 17). One burial was found in a midden and another skeleton was recovered from a shallow (Class 3) limestone-filled pit. Three of the adults were determined to be males or probable males and three were determined to be females or probable females. Nine individuals were adults and one was an infant approximately 6 months +/- 3 months old. A number of skeletal and dental pathologies were also identified. The most prevalent disease observed in the Bailey site sample is degenerative arthritis. All adult individuals exhibited some degree of osteoarthritis. Other pathologies observed included periostitis, dental caries, dental abscesses, and pathologies of unknown origins.

Table 16. Skeletal Attributes.

Burial Number	Feature Number	Body Postition	Sex[a]	Age	Skeletal and Dental Pathologies[b]				
					Degerative Arthritis	Non-specific Infection	Miscellaneous[c] Pathologies	Caries	Abscesses
1	Midden 2	Flexed	M	Adult (>25-28 years)	+	-	+	-	+
3	132	Flexed	PM	Adult (>25-28 years)	+	-	+	-	-
4	81	Flexed	ID	Adult	+	-	+	-	-
5	102	Indeterminate	ID	Adult	+	-	-	-	-
6	147	Bundle	ID	Adult	+	-	-	-	-
7	69	Indeterminate	F	Adult	+	-	-	-	+
8	161	Flexed	PF	Adult (middle age)	+	+	-	-	-
9	159	Flexed	F	Adult (young to middle age)	+	+	+	+	-
10	64	Flexed	PM	Adult	+	+	+	-	-
11	37	Indeterminate	ID	6 months +/- 3 months	-	-	-	-	-

a M-male, PM-probable male, F-female, PF-probable female, ID-indeterminate.

b + =present, - =absent.

c Dental and/or skeletal pathologies of unknown origin.

Table 17. Burial Pit Feature Attributes.

Burial Number	Feature Number	Length (cm)	Width (cm)	Depth (cm)	Feature Cluster	In or Beneath Midden 2	Cultural Affiliation[a]
1	Midden 2				I	Yes	PLA
3	132	70	62	11	IV	No	ID
4	81	89	68	14.5	I	Yes	PLA
5	102	96	66	9	I	Yes	PLA
6	147	68	42	24	III	No	ID
7	69	60	52	7	I	No	PLA
8	161	114	79	14	I	Yes	PLA
9	159	107	76	10	I	Yes	PLA
10	64	69	68	24	I	No	PLA
11	37				II	No	ID

[a] PLA-probable Late Archaic, ID-Indeterminate.

CHAPTER IX

VERTEBRATE FAUNAL REMAINS

Lynn M. Snyder and William C. Dickinson

A total of 19,586.3 grams of unmodified bone and antler was recovered during the Bailey site investigations. Over three-fourths (76.6%) of this material occurred in 39 large deep (Class 1) or medium (Class 2) storage pits, which were subsequently filled with refuse. In addition, 6.6% of this material came from 51 shallow (Class 3) pits and 7.9% from 4 large shallow (Class 4) pits (Table 18). An additional 8.4% was recovered from the testing of two middens (Midden 2 and Midden 4) and 0.5% came from excavations in the area of Burial 1, a tree fall disturbance later utilized as an earth oven (F 120), and a single posthole (PH 78). Modified bone and antler (121 specimens) are discussed below.

LABORATORY PROCEDURES

All faunal materials greater than 6.4 mm (1/4 inch) in size were sorted from other material classes, divided into burned and unburned portions by sample, counted, and weighed. Because of the great quantity of 1.6 mm (1/16 inch) materials, this fraction was only partially sorted. Five minutes per kilogram of fraction were spent separating only botanical and faunal materials. Faunal materials were then separated into burned and unburned portions and weighed but not counted. Following sorting and weighing, all faunal materials were again examined and modified specimens and potentially identifiable materials were separated for further analysis. For the purposes of this analysis, a specimen was considered identifiable if a meaningful taxonomic classification (species, family, or class), element, and usually side or portion could be determined. Because of the high volume of 1.6 mm (1/16 inch) faunal debris, these materials were inspected to separate fish remains and modified specimens only. The remainder of the identifiable specimens from this fraction, consisting primarily of the remains of probable site intruders such as small rodents, insectivores, and amphibians, were not considered further.

All identifications were completed using the modern comparative collection housed in the Department of Anthropology, University of Tennessee, Knoxville. William Dickinson provided identifications of fish remains and information on distribution of modern fish taxa. Lynn Snyder completed all other identifications and analysis. All identified specimens were inspected for evidence of butchering (cut or chop marks), burning, gnawing by carnivores or rodents, and erosion due to partial digestion.

Recovery of the majority of the faunal sample from a large number of discrete

Table 18. Bone Counts and Weights.

Feature Number	Feature Cluster	Cultural Affiliation[a]	Unburned Bone		Burned Bone		Total	
			Large Deep (Class 1) Pits					
17	I	LA	1,012	(817.4)[b]	528	(240.2)	1,540	(1,057.6)
18	I	LA	153	(230.4)	16	(6.6)	169	(237.0)
22	I	LA	950	(678.7)	184	(95.5)	1,134	(774.2)
26	I	LA	503	(373.5)	243	(112.3)	746	(485.8)
27	I	LA	1,154	(910.6)	564	(301.9)	1,718	(1,212.5)
35	II	LA	107	(71.2)	197	(93.2)	304	(164.4)
40	II	LA	394	(347.5)	266	(147.4)	660	(494.9)
48	II	LW	190	(131.4)	550	(216.7)	740	(348.1)
51	II	LA	52	(37.8)	24	(14.6)	76	(52.4)
52	II	LA	37	(30.5)	26	(10.6)	63	(41.1)
67	I	LA	561	(426.1)	255	(137.5)	816	(563.6)
71	II	LA	385	(238.8)	230	(108.4)	615	(347.2)
77	I	LA	80	(63.1)	82	(39.0)	162	(102.1)
79	I	LA	475	(385.9)	329	(209.3)	804	(595.2)
84	I	LA	463	(294.9)	383	(183.1)	846	(478.0)
87	I	LA	709	(564.0)	476	(233.9)	1,185	(797.9)
101	I	LA	428	(240.4)	261	(121.6)	689	(362.0)
144	I	LA	1,694	(1,061.8)	876	(408.0)	2,570	(1,469.8)
Subtotal			9,347	(6,904.0)	5,490	(2,679.8)	14,837	(9,583.8)
			Medium (Class 2) Pits					
28	I	LA	215	(131.8)	118	(64.4)	333	(196.2)
33	II	LA	346	(286.5)	244	(134.5)	590	(421.0)
34	II	LA	71	(32.2)	98	(52.2)	169	(84.4)
42	II	LA	8	(2.2)	22	(9.4)	30	(11.6)
43	II	PLA	13	(3.8)	21	(6.6)	34	(10.4)
44	II	LA	5	(2.6)	6	(2.9)	11	(5.5)
49	II	PLA	1	(0.9)	7	(2.5)	8	(3.4)
50	II	LA	17	(5.9)	15	(5.8)	32	(11.7)
55	II	LA	88	(132.1)	68	(34.0)	156	(166.1)
56	II	LA	49	(69.6)	35	(17.2)	84	(86.8)
60	II	LW	311	(398.3)	313	(136.9)	624	(535.2)
70	II	LA	366	(320.1)	296	(109.1)	662	(429.2)
73	I	LA	594	(921.5)	94	(52.8)	688	(974.3)
76	I	LA	498	(627.0)	165	(118.9)	663	(745.9)
83	I	LA	219	(170.5)	124	(60.3)	343	(230.8)
86	I	LA	309	(309.4)	146	(78.3)	455	(387.7)
105	II	LA	141	(86.9)	69	(31.2)	210	(118.1)
106	II	LA	44	(48.4)	42	(23.7)	86	(72.1)
108	II	LA	239	(188.1)	70	(30.8)	309	(218.9)
143	I	LA	221	(365.8)	117	(45.1)	338	(410.9)
146	I	ID	278	(255.6)	81	(41.6)	359	(297.2)
Subtotal			4,033	(4,359.2)	2,151	(1,058.2)	6,184	(5,417.4)
			Shallow (Class 3) Pits					
13	III	ID	39	(14.2)	3	(1.1)	42	(15.3)
14	I	PLA	62	(18.7)	29	(9.7)	91	(28.4)
16	I	PLA	123	(28.6)	70	(37.6)	193	(66.2)
32	I	LW	8	(3.2)	26	(18.9)	34	(22.1)
36	II	PLA			2	(0.2)	2	(0.2)
37	II	PW	1	(0.7)			1	(0.7)
39	II	PLA	83	(85.4)	94	(41.4)	177	(126.8)
41	II	PLA	4	(1.4)	4	(1.0)	8	(2.4)
63	I	PLA			42	(27.2)	42	(27.2)
68	I	PLA	2	(0.3)	3	(0.7)	5	(1.0)
69	I	PLA	36	(48.5)	5	(2.5)	41	(51.0)
80	I	PLA	5	(1.7)	6	(2.1)	11	(3.8)
82	I	PLA	3	(2.6)	9	(3.4)	12	(6.0)
94	I	PLA	4	(1.6)	2	(1.0)	6	(2.6)
95	I	PLA	43	(20.9)	17	(6.3)	60	(25.2)
96	I	LA	95	(100.2)	11	(6.4)	106	(106.6)
98	I	PLA	1	(0)	2	(0.4)	3	(0.4)
100	I	LA	21	(7.9)	33	(9.9)	54	(17.8)
104	II	LA	215	(178.9)	55	(11.1)	270	(190.0)
107	II	PLA			14	(5.9)	14	(5.9)
110	IV	ID			1	(0.1)	1	(0.1)
112	IV	ID	18	(33.0)	5	(1.6)	23	(34.6)
116	IV	ID			2	(1.7)	2	(1.7)
118	IV	ID	2	(0.4)	11	(4.1)	13	(4.5)
121	IV	ID	40	(47.4)	14	(4.0)	54	(51.4)
124	IV	ID	3	(3.5)	5	(2.0)	8	(5.5)
126	IV	ID			1	(0.2)	1	(0.2)
127	IV	PW	96	(42.3)	72	(39.0)	168	(82.2)
128	IV	ID	43	(54.2)	8	(6.3)	51	(60.5)
131	IV	ID	1	(0.1)	3	(0.6)	4	(0.7)
133	IV	ID			1	(0.1)	1	(0.1)
138	IV	ID			2	(0.2)	2	(0.2)
139	I	LA	3	(2.4)	34	(7.1)	37	(9.5)
140	I	PLA	17	(6.7)	18	(10.7)	35	(17.4)
141	I	PLA	24	(35.1)	232	(54.6)	256	(89.7)
145	I	PLA	174	(96.1)	61	(32.4)	235	(128.5)
146	III	PW			34	(9.9)	34	(9.9)
149	III	LW	59	(12.8)	148	(58.8)	207	(71.6)
150	I	PLA	67	(20.2)	12	(2.9)	79	(23.1)
161	I	PLA	3	(2.7)	2	(1.3)	5	(4.0)
Subtotal			1,295	(871.7)	1,093	(427.3)	2,388	(1,299.0)
			Large Shallow (Class 4) Pits					
10	III	LA/TA	746	(632.1)	389	(297.2)	1,135	(929.3)
11	III	ID	7	(4.4)	34	(15.1)	41	(19.5)
25	I	H	399	(340.3)	200	(81.7)	599	(422.0)
72	I	LA	149	(107.6)	129	(63.9)	278	(171.5)
Subtotal			1,301	(1,084.4)	752	(457.9)	2,053	(1,542.3)
Pit Total			16,976	(13,219.3)	9,486	(4,623.2)	25,462	(17,842.5)
			Middens					
Midden 2	I	LA	419	(263.6)	221	(78.8)	640	(342.4)
Midden 4	III	LW	934	(617.1)	1,862	(683.0)	2,796	(1,300.1)
			Miscellaneous					
M 2,B 1[c]	I	PLA	14	(20.6)	1	(0.6)	15	(21.2)
120[d]	IV		87	(36.0)	67	(33.7)	154	(69.7)
PH 78	II	LA	1	(10.4)			1	(10.4)
Site Total			17,431	(14,167.0)	11,637	(5,419.3)	29,068	(19,586.3)

[a] LA-Late Archaic; PLA-Probable Late Archaic; LA/TA-Late Archaic/Terminal Archaic; PW-Probable Woodland; LW-Late Woodland; H-Historic; ID-Indeterminate.

[b] Number of pieces (weight in grams).

[c] Midden 2 (M 2) fill excavated around Burial 1 (B 1).

[d] Tree disturbance.

pit features makes the determination of appropriate units of analysis for minimum number of individual calculation difficult (Grayson 1984:68-92). Therefore, comparison of classes or taxa represented at the site is done as simple percentages based on number of identified specimens (NISP). Where used, minimum number calculations are presented on a site wide basis, although this likely results in an underestimation of animals actually represented.

GENERAL SAMPLE CHARACTERISTICS

Of the nearly 30,000 pieces of bone larger than 6.4 mm (1/4 inch) recovered from the site, 11,637 specimens or 38.8% of the sample is burned. Including the 1.6 mm (1/16 inch) sample, which was weighed but not counted, 5,419.3 grams or 27.7% of the total assemblage is burned. The discrepancy in percentage burned between weight and number is due to the large number of relatively small burned bone fragments which contributed little to the combined weight of the assemblage. The percentages of burned bone vary throughout the features from a low of 19.5% (by weight) for medium (Class 2) storage pits to 52.3% of the faunal debris from Midden 4, a general refuse area associated with a shallow (Class 3) earth oven (F 149). Preservation of identified specimens is generally good to excellent, although many specimens became dry and somewhat crumbly after excavation and cleaning.

IDENTIFIED MATERIALS

Identified materials (4,150 specimens) in the 6.4 mm fraction include 209 fish, 23 amphibian, 2,314 reptile, 69 bird, and 1,535 mammal bones or bone fragments (Table 19). From the 1.6 mm fraction, 1,147 additional fish specimens were identified (Table 20). Four Late Woodland pit features (F 32, 48, 60, and 149) and a Late Woodland midden area (Midden 4) produced 474 identified specimens. Late Archaic contexts, including 52 pit features and one midden (Midden 2), produced 3,403 identifiable specimens. A total of 75 identifiable specimens was recovered from the historic feature (F 25). The remaining identified specimens came from features which could not be reliably assigned to a particular cultural component.

Burning was noted on 1,168 identified specimens. These include 9 fish elements, 856 turtle shell or element fragments, 37 snake vertebrae, 2 frog or toad elements, 14 bird elements, and 250 mammal elements (Table 21). Fifty elements exhibit cut or chop marks indicative of skinning, carcass dismemberment, or food preparation. Cut or chop marks were noted on 1 turtle shell segment, 5 turkey elements, 1 opossum element, 3 rabbit elements, 1 raccoon element, and 33 deer elements. Six domestic pig elements from the historic feature (Feature 25) also exhibit cut marks. Fifteen specimens, including 7 domestic dog and 8 deer elements were

Table 19. Distribution of 6.4 mm Identified Vertebrate Faunal Materials.

Taxon	Large Deep (Class 1) Pits 17	18	22	26	27	35	40	48	51	52	67	71	77	79	84	87	101	144	Sub-total
Fishes																			
Lepisosteus sp. (gars)	1		8												2				11
Anguilla rostrata (freshwater eel)																			
Notropis chrysocephalus (common shiner)															1				1
Hypentelium nigricans (northern hogsucker)			1																1
Lagochila lacera (harelip sucker)		1																	1
Moxostoma carinatum (river redhorse)			1																1
Moxostoma anisurum (silver redhorse)			2																2
Moxostoma sp. (redhorses)			3		2														5
Catostomidae (suckers)			9				1	1						1					12
Ictalurus cf. natalis (yellow bullhead)			1																1
Ictalurus cf. punctatus (channel catfish)														1					1
Ictalurus sp. (catfishes)			7																7
Ictaluridae (catfishes)	1																		1
Lepomis sp. (sunfishes)											1								1
Micropterus sp. (black basses)																			
Centrarchidae (sunfishes)			1																1
Aplodinotus grunniens (freshwater drum)		2	1								4					1			8
Indeterminate Osteichthyes (bony fishes)	7	5	7	1							2				2	1			25
Total Fishes	9	8	41	1	2		1	1			7			2	5	2			79

Taxon	Medium (Class 2) Pits 28	33	34	42	44	50	55	56	60	70	73	76	83	86	105	106	108	143	148	Sub-total
Fishes																				
Lepisosteus sp. (gars)										1										1
Anguilla rostrata (freshwater eel)																	31			31
Notropis chrysocephalus (common shiner)																				
Hypentelium nigricans (northern hogsucker)																				
Lagochila lacera (harelip sucker)																				
Moxostoma carinatum (river redhorse)																				
Moxostoma anisurum (silver redhorse)																				
Moxostoma sp. (redhorses)																			1	1
Catostomidae (suckers)									5	1	9								3	18
Ictalurus cf. natalis (yellow bullhead)																				
Ictalurus cf. punctatus (channel catfish)																			1	1
Ictalurus sp. (catfishes)																			1	1
Ictaluridae (catfishes)											1									1
Lepomis sp. (sunfishes)																				
Micropterus sp. (black basses)												2								2
Centrarchidae (sunfishes)										1	1		1						1	4
Aplodinotus grunniens (freshwater drum)																	22		11	33
Indeterminate Osteichthyes (bony fishes)									2	2	2			1					1	8
Total Fishes									7	5	13	2	1	1			53		19	101

Taxon	Shallow (Class 3) Pits 13	32	39	63	68	75	82	95	96	98	104	110	112	118	121	124	127	128	139	141	145	149	150	159	161	Sub-total
Fishes																										
Lepisosteus sp. (gars)																										
Anguilla rostrata (freshwater eel)																										
Notropis chrysocephalus (common shiner)																										
Hypentelium nigricans (northern hogsucker)																										
Lagochila lacera (harelip sucker)																										
Moxostoma carinatum (river redhorse)																										
Moxostoma anisorum (silver redhorse)																										
Moxostoma sp. (redhorses)																										
Catostomidae (suckers)																	2									2
Ictalurus cf. natalis (yellow bullhead)																										
Ictalurus cf. punctatus (channel catfish)																										
Ictalurus sp. (catfishes)											1															1
Ictaluridae (catfishes)																										
Lepomis sp. (sunfishes)																										
Micropterus sp. (black basses)																										
Centrarchidae (sunfishes)																							1			1
Aplodinotus grunniens (freshwater drum)											5															5
Indeterminate Osteichthyes (bony fishes)											1					1			1							3
Total Fishes											7					1	2		1				1			12

Taxon	Large Shallow (Class 4) Pits 10	11	25	72	Sub-total	Pit Total	Middens M 2	M 4	M 2,[a] D 2	Miscellaneous M 2,[a] B 1	120[b]	PH 78	Site Total
Fishes													
Lepisosteus sp. (gars)						12							12
Anguilla rostrata (freshwater eel)	1				1	32							32
Notropis chrysocephalus (common shiner)						1							1
Hypentelium nigricans (northern hogsucker)						1							1
Lagochila lacera (harelip sucker)	2				2	3							3
Moxostoma carinatum (river redhorse)						1							1
Moxostoma anisorum (silver redhorse)						2							2
Moxostoma sp. (redhorses)						6							6
Catostomidae (suckers)	1		1	1	3	35							35
Ictalurus cf. natalis (yellow bullhead)						1							1
Ictalurus cf. punctatus (channel catfish)						2							2
Ictalurus sp. (catfishes)						9							9
Ictaluridae (catfishes)	1				1	3							3
Lepomis sp. (sunfishes)						1							1
Micropterus sp. (black basses)			2		2	4							4
Centrarchidae (sunfishes)						6							6
Aplodinotus grunniens (freshwater drum)						46							46
Indeterminate Osteichthyes (bony fishes)	3		1		4	40	3				1		44
Total Fishes	8		4	1	13	205	3				1		209

Taxon	Large Deep (Class 1) Pits 17	18	22	26	27	35	40	48	51	52	67	71	77	79	84	87	101	144	Sub-total
Amphibians																			
Cryptobranchus alleganiensis (hellbender)	7																		7
Scaphiopus cf. holbrooki (spadefoot)					1														1
Bufo americanus/woodhousei (american/woodhouse's toad)													4					1	5
Bufo sp. (toads)	2																	1	3
Rana catesbeiana (bullfrog)			1																1
Rana sp. (ranid frog)	1																		1
Bufo/Rana (toad/frog)						1													1
Total Amphibians	10		1		1	1							4					2	19
Reptiles																			
Kinosternon subrubrum (eastern mud turtle)			1												2				3
Sternotherus odoratus (stink pot)											1			3				1	5
Kinosternidae (musk, mud turtles)				7	15	1		1							2	4			30
Chelydra sp. (snapping turtle)																			
Terrapene carolina (eastern box turtle)	305		19	2	1		7	12				1	4	19	2	63	3	3	441
cf. Chrysemys scripta (red-eared turtle)			1		2														3
Chrysemys sp. (cooters, sliders)																			
Graptemys/Chrysemys (map/slider turtles)																			
Trionyx sp. (softshell turtle)														2	2	5		1	10
Testudines	365		63	6	56	6	10	39			49	25	10	113	26	85	4	12	869
Serpentes (snakes)	2		1	4	4			1			4	2	1	3	3	15		2	42
Total Reptiles	672		85	19	78	7	17	53			54	28	15	140	37	172	7	19	1,403

Taxon	Medium (Class 2) Pits 28	33	34	42	44	50	55	56	60	70	73	76	83	86	105	106	108	143	148	Sub-total
Amphibians																				
Cryptobranchus alleganiensis (hellbender)																				
Scaphiopus cf. holbrooki (spadefoot)																				
Bufo americanus/woodhousei (american/woodhouse's toad)																				
Bufo sp. (toads)																				
Rana catesbeiana (bullfrog)								1												1
Rana sp. (ranid frog)									2											2
Bufo/Rana (toad/frog)																				
Total Amphibians								1	2											3
Reptiles																				
Kinosternon subrubrum (eastern mud turtle)																				
Sternotherus odoratus (stink pot)										2		2								4
Kinosternidae (musk, mud turtles)		8						1		4	4	1		7	2					27
Chelydra sp. (snapping turtle)													2							2
Terrapene carolina (eastern box turtle)		3	1				3	4	9	3	88	2		6	1			5	1	124
cf. Chrysemys scripta (red-eared turtle)																				
Chrysemys sp. (cooters, sliders)		1																		1
Graptemys/Chrysemys (map/slider turtles)																				
Trionyx sp. (softshell turtle)	3										1	2		1						7
Testudines	2	42		2	3	1	24	1	69	19	25	39	17	12	3	2	9	19	2	291
Serpentes (snakes)	3		2						2	1		5	1	1		1	1	1	1	19
Total Reptiles	8	54	3	2	3	1	25	6	80	29	118	51	20	27	6	3	10	25	4	475

Taxon	Shallow (Class 3) Pits 13	32	39	63	68	75	82	95	96	98	104	110	112	118	121	124	127	128	139	141	145	149	150	159	161	Sub-total
Amphibians																										
Cryptobranchus alleganiensis (hellbender)																										
Scaphiopus cf. holbrooki (eastern spadefoot)																										
Bufo americanus/woodhousei (american/woodhouse's toad)																										
Bufo sp. (toads)																										
Rana catesbeiana (bullfrog)																										
Rana sp. (ranid frog)																										
Bufo/Rana (toad/frog)					1																					1
Total Amphibians					1																					1
Reptiles																										
Kinosternon subrubrum (eastern mud turtle)																										
Sternotherus odoratus (stink pot)																										
Kinosternidae (musk, mud turtles)						1					1															2
Chelydra sp. (snapping turtle)																										
Terrapene carolina (eastern box turtle)			2		1				4				6		25	1	19		2			2				62
cf. Chrysemys scripta (red-eared turtle)																										
Chrysemys sp. (cooters, sliders)																										
Graptemys/Chrysemys (map/slider turtles)									2																	2
Trionyx sp. (softshell turtle)	3		1																		1				1	6
Testudines		4	5	2				4	3		4			3			17			3	7	5	35	1		93
Serpentes (snakes)															1						1	2				4
Total Reptiles	3	4	8	2	1	1		4	9		5		6	3	26	1	36		2	3	9	9	35	1	1	169

Taxon	Large Shallow (Class 4) Pits 10	11	25	72	Sub-total	Pit Total	Middens M 2	M 4	Miscellaneous M 2, D 2	M 2, B 1	120	PH 78	Site Total
Amphibians													
Cryptobranchus alleganiensis (hellbender)						7							7
Scaphiopus cf. holbrooki (eastern spadefoot)						1							1
Bufo americanus/woodhousei (american/woodhouse's toad)						5							5
Bufo sp. (toads)						3							3
Rana catesbeiana (bullfrog)						2							2
Rana sp. (ranid frog)						3							3
Bufo/Rana (toad/frog)						2							2
Total Amphibians						23							23
Reptiles													
Kinosternon subrubrum (eastern mud turtle)						3							3
Sternotherus odoratus (stink pot)				1	1	10	1						11
Kinosternidae (musk, mud turtles)	2			3	5	64		2			3		69
Chelydra sp. (snapping turtle)	1				1	3							3
Terrapene carolina (eastern box turtle)	1				1	628		47					675
cf. Chrysemys scripta (red-eared turtle)						3							3
Chrysemys sp. (cooters, sliders)	1				1	2							2
Graptemys/Chrysemys (map/slider turtles)						2							2
Trionyx sp. (softshell turtle)	3			1	4	27		7			1		35
Testudines	13	3	6	17	39	1,292	12	119		1	6		1,430
Serpentes (snakes)	1		1	6	8	73	2	6					81
Total Reptiles	22	3	7	28	60	2,107	15	181		1	10		2,314

Table 19. (continued).

Taxon	Large Deep (Class 1) Pits 17	18	22	26	27	35	40	48	51	52	67	71	77	79	84	87	101	144	Sub-total
Birds																			
Podilymbus podiceps (pied-billed grebe)																1			1
Phalacrocorax auritus (double-crested cormorant)					1														1
Branta canadensis (Canada goose)	1										1								2
Anas discors/crecca (blue-winged/green-winged teal)												1							1
cf. Circus cyaneus (marsh hawk)														1					1
Colinus virginianus (bobwhite)				1															1
Gallus gallus (domestic chicken)																			
Meleagris gallopavo (wild turkey)	4	3	3		4		1				1			1	6	3	1	1	28
Ectopistes migratorius (passenger pigeon)			2																2
Passeriformes (perching birds)			1																1
Total Birds	5	3	6	1	5		1				2	1		2	6	4	1	1	38

Taxon	Medium (Class 2) Pits 28	33	34	35	42	44	50	55	56	60	70	73	76	83	86	105	106	108	143	148	Sub-total
Birds																					
Podilymbus podiceps (pied-billed grebe)																					
Phalacrocorax auritus (double-crested cormorant)																					
Branta canadensis (Canada goose)																					
Anas discors/crecca (blue-winged/green-winged teal)																					
cf. Circus cyaneus (marsh hawk)																					
Colinus virginianus (bobwhite)																					
Gallus gallus (domestic chicken)																					
Meleagris gallopavo (wild turkey)	1	2						1	1	3		3		2	1					4	18
Ectopistes migratorius (passenger pigeon)												1									1
Passeriformes (perching birds)													1								1
Total Birds	1	2						1	1	3		4	1	2	1					4	20

Taxon	Shallow (Class 3) Pits 13	32	39	63	68	75	82	95	96	98	104	110	112	118	121	124	127	128	139	141	145	149	150	155	161	Sub-total
Birds																										
Podilymbus podiceps (pied-billed grebe)																										
Phalacrocorax auritus (double-crested cormorant)																										
Branta canadensis (Canada goose)																										
Anas discors/crecca (blue-winged/green-winged teal)																										
cf. Circus cyaneus (marsh hawk)																										
Colinus virginianus (bobwhite)																										
Gallus gallus (domestic chicken)																										
Meleagris gallopavo (wild turkey)												1					1					3				5
Ectopistes migratorius (passenger pigeon)																										
Passeriformes (perching birds)																										
Total Birds												1					1					3				5

Taxon	Large Shallow (Class 4) Pits 10	11	25	72	Sub-total	Pit Total	Middens M 2	M 4	Miscellaneous M 2, D 2	M 2, B 1	120	PH 78	Site Total
Birds													
Podilymbus podiceps (pied-billed grebe)						1							1
Phalacrocorax auritus (double-crested cormorant)						1							1
Branta canadensis (Canada goose)						2							2
Anas discors/crecca (blue-winged/green-winged teal)						1							1
cf. Circus cyaneus (marsh hawk)						1							1
Colinus virginianus (bobwhite)						1							1
Gallus gallus (domestic chicken)			2		2	2							2
Meleagris gallopavo (wild turkey)	2	1		1	4	55							55
Ectopistes migratorius (passenger pigeon)						3							3
Passeriformes (perching birds)						2							2
Total Birds	2	1	2	1	6	69							69

Taxon	17	18	22	26	27	35	40	48	51	52	67	71	77	79	84	87	101	144	Sub-total
Mammals																			
Didelphis marsupialis (opossum)																2	1		3
Scalopus aquaticus (eastern mole)				1															1
Sylvilagus floridanus (eastern cottontail)	4	3	5	3	1						58			2		3		4	83
cf. Sylvilagus aquaticus (swamp rabbit)					1														1
Sciurus niger (fox squirrel)							1												1
Sciurus carolinensis (eastern gray squirrel)																			
Sciurus sp. (tree squirrel)	3		4			1						1	1	1	2	3	1	2	19
Marmota monax (wood chuck)			1		1							1			1	1			5
Castor canadensis (beaver)	1						1								1	1		1	5
Peromyscus sp. (mouse)											1								1
Oryzomys palustris (marshrice rat)											7								7
Sigmodon hispidus (hispid cotton rat)																			
Microtus sp. (vole)	7		1										1						9
Small rodent (mouse/vole)	3						1	1			1								6
Ondatra zibethicus (muskrat)															1				1
Canis cf. familiaris (domestic dog)				1												8			9
Vulpes vulpes/ Urocyon cinereoargenteus (red/gray fox)					1		3				3						1		8
Procyon lotor (raccoon)		1	2	2	5			1		2				4	4	4		5	30
Mephitis mephitis (striped skunk)	1		1														1		3
Sus scrofa (domestic pig)																			
Odocoileus virginianus (white-tailed deer)	54	6	48	21	55	13	28	17	3	3	39	15	9	23	36	24	18	53	465
Total Mammals	73	10	62	28	64	14	34	19	3	5	109	17	11	30	45	46	22	65	657
Site Total	769	21	195	49	150	22	53	73	3	5	172	46	30	174	93	224	30	87	2,196

Taxon	28	33	36	42	44	50	55	56	60	70	73	76	83	86	105	106	108	143	148	Sub-total
Mammals																				
Didelphis marsupialis (opossum)									1			1			1					3
Scalopus aquaticus (eastern mole)										1										1
Sylvilagus floridanus (eastern cottontail)	1	9						1	1		1	1	3	2					4	23
cf. Sylvilagus aquaticus (swamp rabbit)																		1		1
Sciurus niger (fox squirrel)													3							3
Sciurus carolinensis (eastern gray squirrel)																			2	2
Sciurus sp. (tree squirrel)								1											2	3
Marmota monax (wood chuck)											1							1		2
Castor canadensis (beaver)																				
Peromyscus sp. (mouse)								1												1
Oryzomys palustris (marshrice rat)								1							1					2
Sigmodon hispidus (hispid cotton rat)		3																		3
Microtus sp. (vole)																				
Small rodent (mouse/vole)																		1		1
Ondatra zibethicus (muskrat)	1																			1
Canis cf. familiaris (domestic dog)												147								147
Vulpes vulpes/ Urocyon cinereoargenteus (red/gray fox)	1								2				1				4	1		9
Procyon lotor (raccoon)	2	1					1		1				1	1		1	1		1	10
Mephitis mephitis (striped skunk)																				
Sus scrofa (domestic pig)																				
Odocoileus virginianus (white-tailed deer)	10	42	6	3	3		9	4	28	29	49	13	15	23	4	4	14	10	24	302
Total Mammals	15	55	8	3	3		10	8	33	30	51	172	23	26	6	5	19	14	33	514
Site Total	24	111	11	5	6	1	36	16	125	64	186	226	46	55	12	8	82	39	60	1,113

Taxon	Shallow (Class 3) Pits 13	32	39	63	68	75	82	95	96	98	104	110	112	118	121	124	127	128	139	141	145	149	150	159	161	Sub-total
Mammals																										
Didelphis marsupialis (opossum)																										
Scalopus aquaticus (eastern mole)																										
Sylvilagus floridanus (eastern cottontail)																	3				2	1				6
cf. Sylvilagus aquaticus (swamp rabbit)																										
Sciurus niger (fox squirrel)																										
Sciurus carolinensis (eastern gray squirrel)																										
Sciurus sp. (tree squirrel)														1			2	1								4
Marmota monax (wood chuck)																										
Castor canadensis (beaver)																					1					1
Peromyscus sp. (mouse)																										
Oryzomys palustris (marshrice rat)																								[b]		
Sigmodon hispidus (hispid cotton rat)																										
Microtus sp. (vole)																										
Small rodent (mouse/vole)																										
Ondatra zibethicus (muskrat)																										
Canis cf. familiaris (domestic dog)																										
Vulpes vulpes/ Urocyon cinereoargenteus (red/gray fox)																									1	1
Procyon lotor (raccoon)																										
Mephitis mephitis (striped skunk)																										
Sus scrofa (domestic pig)																										
Odocoileus virginianus (white-tailed deer)	1	3	10	2		6	1	3	9	1	15		1		1		4	2	1	1	7	4	2			74
Total Mammals	1	3	10	2		6	1	3	9	1	15		1	1	1		9	3	1	1	10	5	2		1	86
Site Total	4	7	18	4	2	7	1	7	18	1	27	1	7	4	27	2	48	3	4	4	19	17	38	1	2	273

Taxon	Large Shallow (Class 4) Pits 10	11	25	72	Sub-total	Pit Total	Middens M 2	M 4	Miscellaneous M 2, D 2	M 2, B 1	120	PH 78	Site Total
Mammals													
Didelphis marsupialis (opossum)						6							6
Scalopus aquaticus (eastern mole)						2							2
Sylvilagus floridanus (eastern cottontail)	1				1	113		2			1		116
cf. Sylvilagus aquaticus (swamp rabbit)	1				1	3							3
Sciurus niger (fox squirrel)	1			1	2	6							6
Sciurus carolinensis (eastern gray squirrel)						2							2
Sciurus sp. (tree squirrel)	1		2		3	29		1		1	1		32
Marmota monax (wood chuck)						7							7
Castor canadensis (beaver)						6							6
Peromyscus sp. (mouse)						2							2
Oryzomys palustris (marshrice rat)						9					5		14
Sigmodon hispidus (hispid cotton rat)						3							3
Microtus sp. (vole)						9							9
Small rodent (mouse/vole)						7		2					9
Ondatra zibethicus (muskrat)						2							2
Canis cf. familiaris (domestic dog)	1				1	157			45				202
Vulpes vulpes/ Urocyon cinereoargenteus (red/gray fox)	1				1	19							19
Procyon lotor (raccoon)	1			3	4	44	4	3			1		52
Mephitis mephitis (striped skunk)						3							3
Sus scrofa (domestic pig)			55		55	55							55
Odocoileus virginianus (white-tailed deer)	39	2	5	9	55	896	22	63		1	2	1	985
Total Mammals	46	2	62	13	123	1,380	26	71	45	2	10	1	1,535
Site Total	76	6	75	43	202	3,784	44	252	45	3	21	1	4,150

[a] Midden 2 (M 2) fill excavated around burial (B) and dog skeleton (D).

[b] Tree disturbance.

Table 20. Distribution of 1.6 mm Identified Fish Remains.

	Large Deep (Class 1) Pits																		Medium (Class 2) Pits										
	17	18	22	26	27	35	40	48	52	67	71	77	79	84	87	101	144	Sub-total	28	33	34	42	44	55	56	60	70	73	76
Lepisosteus sp. (gars)					4					1				3				8											1
Anguilla rostrata (freshwater eel)																													
Esox sp. (pikes, pickerels)																													
Campostoma sp. (stoneroller minnow)														2				2											
cf. _Clinostomus funduloides_ (rosyside dace)													1					1											
Nocomis sp. (chub)				1			1			1			1				1	5									1		
Notropis chrysocephalus (common shiner)																													
Notropis sp. (shiners)															1			1											
Cyprinidae (minnows)	5				1									1			1	8		1							1		
Hypentelium nigricans (northern hogsucker)																										2			
Moxostoma carinatum (river redhorse)																													
Moxostoma sp. (redhorse suckers)					1									1			1	3											
Catostomidae (suckers)	1	1	9		1					3	1	1		3		1	2	23	3							5	2	3	2
Ictalurus cf. _melas_ (black bullhead)			1															1											
Ictalurus sp. (bullhead)	1		2		3					1							1	8		2									1
Noturus (_Rabida_) sp. (madtom catfishes)														1				1											
Ictalurus sp. (catfishes)			3		1							2	1			1		8		1									1
Ictaluridae (catfishes)	2		1		1					1				2	2			9		1			1						
Pylodictis olivaris (flathead catfish)												1						1		1									
Ambloplites rupestris (rock bass)	4	1	2						1									8											
Lepomis sp. (sunfishes)																	1	1								2			
Micropterus salmoides (largemouth bass)														1				1											
Micropterus sp. (black basses)			1											1				2											1
Centrarchidae (sunfishes)	7	2	17		1								2	1		2		32						1	1	2	3		2
Aplodinotus grunniens (freshwater drum)	2		1			1												4					1				2		
Indeterminate Osteichthyes (bony fishes)	146		158	5	15	4	8	2		21	3	11	6	12	8	10	13	422	1	13	5	1	1	2	4	28	57	29	19
Site Total	168	4	195	6	20	5	9	2	1	28	4	15	11	28	11	14	20	549	4	19	5	1	3	3	5	39	66	32	27

Table 20. (continued).

	Medium (Class 2) Pits								Shallow (Class 3) Pits								Large Shallow (Class 4) Pits					Middens		Miscellaneous	
	83	86	105	106	108	143	148	Sub-total	75	94	96	104	127	145	149	Sub-total	10	25	72	Sub-total	Pit Total	M 2	M 4	120[a]	Site Total
Lepisosteus sp. (gars)							1	2							1	1					11			1	12
Anguilla rostrata (freshwater eel)					15			15													15				15
Esox sp. (pikes, pickerels)					2			2													2				2
Campostoma sp. (stoneroller minnow)																					2				2
cf. *Clinostomus funduloides* (rosyside dace)																					1				1
Nocomis sp. (chub)	1						1	3													8				8
Notropis chrysocephalus (common shiner)							1	1													1				1
Notropis sp. (shiners)																					1				1
Cyprinidae (minnows)					1			3						1		1					12				12
Hypentelium nigricans (northern hogsucker)						1		3													3				3
Moxostoma carinatum (river redhorse)		1						1													1				1
Moxostoma sp. (redhorse suckers)	1		1				1	3			2			1		3					9			1	10
Catostomidae (suckers)	1	2					9	27			1		3			4	14	3		17	71		1	3	75
Ictalurus cf. *melas* (black bullhead)																					1				1
Ictalurus sp. (bullhead)			1				1	5													13				13
Noturus (*Rabida*) sp. (madtom catfishes)																					1				1
Ictalurus sp. (catfishes)	1	1		2	1	1		8		1		1				2	1			1	19				19
Ictaluridae (catfishes)								2									1		1	2	13				13
Pylodictis olivaris (flathead catfish)								1													2				2
Ambloplites rupestris (rock bass)		3						3													11				11
Lepomis sp. (sunfishes)					1			3													4				4
Micropterus salmoides (largemouth bass)																					1				1
Micropterus sp. (black basses)	1		1			1		4													6				6
Centrarchidae (sunfishes)	9	10	1			2	6	37				1				1					70			2	72
Aplodinotus grunniens (freshwater drum)			1		2		1	7				13				13	1			1	25	1			26
Indeterminate Osteichthyes (bony fishes)	27	30	13	3	35	11	46	325	1		8	4	2	8	3	26	34	6	4	44	817		15	3	835
Site Total	41	47	18	5	57	16	67	455	1	1	11	19	5	10	4	51	51	9	5	65	1,120	1	16	10	1,147

[a] Tree disturbance.

Table 21. Alterations to Identified Skeletal Elements.

Taxon	Burning	Cut Marks	Rodent Gnawing	Carnivore Gnawing	Partially Digested	Eroded
Osteichthyes (bony fishes)	9					
Sternotherus odoratus (stinkpot turtle)	2					
Kinosternidae (mud/musk turtle)	25					
Chelydra sp. (snapping turtle)	1					
Terrapene carolina (carolina box turtle)	109					
Chrysemys sp. (slider turtle)	1					
Chrysemys cf. *scripta* (red-eared turtle)		1				
Trionyx sp. (softshell turtle)	15					
Testudines (box/water turtle)	703					
Serpentes (snakes)	37					
Rana cf. *catesbeiana* (bullfrog)	1					
Rana/Bufo (frog/toad)	1					
Podilymbus podiceps (pied-billed grebe)	1					

Table 21. (continued).

Taxon	Burning	Cut Marks	Rodent Gnawing	Carnivore Gnawing	Partially Digested	Eroded
Anas discors/crecca (teal)	1					
Meleagris gallopavo (wild turkey)	11	5		3		
Gallus gallus (domestic chicken)	1					
Didelphis marsupialis (opossum)	1	1				
Sylvilagus floridanus (eastern cottontail)	11	3		5		
Sciurus niger (fox squirrel)	1					
Sciurus sp. (tree squirrel)	8					1
Marmota monax (woodchuck)	2					
Castor canadensis (beaver)	1					
Small rodent (mouse/vole)	1					
Canis cf. *familiaris* (domestic dog)			7			
Vulpes/Urocyon (fox)	3					1
Procyon lotor (raccoon)	16	1		1		

Table 21. (continued).

Taxon	Burning	Cut Marks	Rodent Gnawing	Carnivore Gnawing	Partially Digested	Eroded
Sus scrofa (domestic pig)	6	6		9	1	
Odocoileus virginianus (white-tailed deer)	200	33	8	44	21	8
Total	1,168	50	12	62	22	10

gnawed by rodents, and 62 elements (3 turkey, 5 rabbit, 1 raccoon, 9 pig, and 44 deer) were gnawed by carnivores. Further evidence of carnivore activity includes 32 elements (1 squirrel, 1 fox, 1 pig, and 29 deer) which appear to have been partially digested or eroded by stomach acids. The distribution of these elements is summarized in Table 22.

Fish

In the combined 6.4 mm and 1.6 mm fractions, 477 fish elements or element fragments were identified to the level of family or below and 879 specimens were identified simply as Indeterminate Osteichthyes or bony fishes. The majority of fish elements were recovered from the 1.6 mm (1/16 inch) fraction. Over three-fourths (87.3%) of the fish elements were found in the large deep (Class 1) and medium (Class 2) storage pits while 4.7% of the elements were in shallow (Class 3) pits, 5.8% were in large shallow (Class 4) pits, and 2.3% were in middens and a tree root disturbance. The number of identified elements per family ranged from 2 to 132 specimens (Tables 19 and 20). Estimated sizes of individual fishes represented by these specimens range from approximately 7.5-90.0 cm in standard length. The majority of fishes were determined to have been less than 30 cm in standard length. Size estimates are based on element comparisons with modern specimens of known length.

Lepisosteidae (gars). Gars are represented by 24 specimens from 9 pit features. The specimens consist primarily of vertebral and scute fragments. Most of the fragments appear to represent relatively small individuals (less than 50 cm in total length), although several vertebrae from a large deep storage pit (F 22) in Structure 4 probably came from an individual with a total length of approximately 85-90 cm. One gar scute from Feature 149 and a vertebra from Feature 27 are burned. Gars are typically found in lakes and sluggish waters of medium to large streams. The group ranges throughout much of the eastern half of the United States from the Great Lakes to the Gulf of Mexico.

Anguillidae (eels). Freshwater eel (*Anguilla rostrata*) is represented by 47 vertebrae, all but one of which were recovered from a medium storage pit (F 108). These vertebrae vary greatly in size but probably represent remnants of a series from one individual which was approximately 70-75 cm in total length. While occurring in various stream habitats, eels are usually most abundant in moderate to large streams with permanent flow (Pflieger 1975).

Esocidae (pikes, pickerels). Two small vertebrae recovered from Feature 108 were assigned to the genus *Esox*. Although there are four species of this genus in North America, the vertebrae are most likely referable to *Esox americanus*, the redfin pickerel, or *Esox niger*, the chain pickerel, based on modern distribution and habitat. While these two species are not reported from the Elk River Drainage (Jandebeur 1972), records of the species are available from the Tennessee River

Table 22. Distribution of Altered Unmodified Vertebrate Faunal Remains.

Feature Number	Burning	Cut Marks	Rodent Gnawing	Carnivore Gnawing	Partially Digested	Eroded
			Large Deep (Class 1) Pits			
17	307	1		5		
18	1					
22	14	2		1	1	
26	13			4		1
27	18	3		1	3	2
35	14					
40	18					
48	57			1		
52	3	1				
67	29	1		7		
71	18	2			1	1
77	2				1	
79	44			1	1	
84	30	2		3	2	
87	40	2			2	
101	3					
144	15	1	1	4		
Subtotal	626	15	1	27	11	4
			Medium (Class 2) Pits			
28	8					
33	31					
34	8					1
42	4					
44	5					
55	15	2		1	1	
56	3			2		
60	48	1		3	1	1
70	12	3	1		2	
73	9	6	3	1		1
76	22		2			
83	14	2		2	1	
86	21	1		1		
105	4	1				
106	1					
108	10					
143	10	2		1		
148	4	3	2	1		
Subtotal	229	21	8	12	5	3

Table 22. (continued).

Feature Number	Burning	Cut Marks		Rodent Gnawing	Carnivore Gnawing	Partially Digested	Eroded
			Shallow (Class 3) Pits				
32	7						
39	11			1			
63	4						
68	1						
95	5						
96	2			1			
98	2			1			
104	1	3					
110	1						
112				1			
118	3						
124	1						
127	40			1			
128	1						
139	3						
141	4						
145	5				2		
149	8						
150		1					
Subtotal	99	4		5	2		
			Large Shallow (Class 4) Pits				
10	61	1	1	4	1	3	
11	5						
25	13	6		9	1		
72	20	1					
Subtotal	99	8	1	13	2	3	
Pit Total	1,053	48	10	57	20	10	
			Middens				
Midden 2	15			1			
Midden 4	94	2		4	2		

Table 22. (continued).

Feature Number	Burning	Cut Marks	Rodent Gnawing	Carnivore Gnawing	Partially Digested	Eroded
			Miscellaneous			
M 2, B 1[a]	1					
M 2, D 2[a]			5			
120[b]	4					
Site Total	1,167	50	15	62	22	10

[a] Midden 2 (M 2) fill excavated around burial (B) and dog skeleton (D).

[b] Tree disturbance.

Drainage in northwestern Alabama near the mouth of the Elk River (Crossman 1978, 1980).

Cyprinidae (minnows). Twenty-six minnow elements were identified from 16 pit features. Identified taxa include stonerollers (*Campostoma* sp., two specimens), probable rosyside dace (*Clinostomus funduloides*, one specimen), chubs (*Nocomis* sp., eight specimens), shiners (*Notropis* sp., one specimen), and striped shiner (*Notropis chrysocephalus*, two specimens). Five minnow elements from four pit features are burned. With the exception of the chubs (*Nocomis* sp.) for which only two recent records from the Elk River Drainage (Feeman 1987; Jandebeur 1972) are available, all the identified cyprinids are known to occur throughout much of the Elk River Drainage today (Jandebeur 1972). All typically prefer relatively clear flowing waters with alternating riffles and pools over gravel to boulder substrates. Although some species of stoneroller and chub are known to attain standard lengths of up to 23 and 27 cm respectively (Burr 1980; Jenkins and Lachner 1980), most of the Bailey site specimens appear to be from smaller individuals (10-15 cm standard length).

Catostomidae (suckers). Sucker elements (137 specimens) were recovered from 29 pit features and Midden 4. Nine sucker elements from six pit features are burned. Sixteen elements were identified as redhorse sucker (*Moxostoma* sp.). Two elements were identified as silver redhorse (*Moxostoma anisurum*) and two as river redhorse (*Moxostoma carinatum*). Although both these species may attain a large size, identified Bailey site elements probably represent individuals no more than 30 cm in standard length. Redhorses are most abundant in large clear rivers but migrate into smaller tributaries such as Sugar Creek during spring spawning runs (Etnier 1973). Four elements of the northern hogsucker (*Hypentelium nigricans*) were recovered. These elements probably represent individuals 25-35 cm in standard length. This species is widespread in the Elk River Drainage (Jandebeur 1972) and is usually found in clear streams with riffles or pools over clean gravel or rocks.

Three elements of the harelip sucker (*Lagochila lacera*) were recovered from the Bailey site. Two right dentary fragments were recovered from Feature 10 and a third right dentary fragment came from a large deep storage pit (F 18) in Structure 4. Formerly widespread from Arkansas to Ohio and south well into the Tennessee River Drainage, this species is now considered extinct (Jenkins 1970; 1980). Jandebeur (1972) notes records of single specimens from two localities in the Elk River System (Jordan and Brayton 1877; Gilbert 1891). Specimens from archaeological contexts have also been reported from Eastman Rockshelter (40SL34) in Sullivan County, Tennessee (Manzano 1986) and the Hayes site (40ML139) in Marshall County, Tennessee (Dickinson 1986).

Ictaluridae (catfishes). Sixty-four catfish elements were recovered from 25 pit features. Nineteen elements from 13 pit features are burned. Thirteen elements were identified as bullhead (*Ictalurus* sp.), one specimen is from a probable yellow bullhead (*Ictalurus* cf. *natalis*) and one specimen was identified as a probable black bullhead (*Ictalurus* cf. *melas*). It is likely that 28 additional elements identified simply as catfish (*Ictalurus* sp.) were also from bullheads. Two specimens were tentatively identified as channel catfish (*Ictalurus* cf. *punctatus*) based on general morphology and large size. Bullheads are common in smaller streams such as Sugar Creek while channel catfish are less likely to occur in small streams but are known to occur in a variety of aquatic habitats (Pflieger 1975).

The much smaller madtom catfishes (*Noturus*) are represented by a single pectoral spine fragment recovered from Feature 84. This element is from the subgenus *Rabida*, a group generally associated with swifter riffle areas of streams (Taylor 1969). Two flathead catfish (*Pylodictis olivaris*) elements were recovered, one from Feature 33 and one from Feature 77. Although this species may attain large size, the identified elements are estimated to have come from specimens smaller than 35 cm in standard length. While flathead catfish are generally found in large sluggish bodies of water, they may also occur in smaller streams where the young are often associated with rocky riffle areas (Pflieger 1975).

Centrarchidae (sunfishes). A total of 105 identified sunfish elements recovered from 26 pit features includes rock bass (*Ambloplites rupestris*, 11 specimens), sunfishes (*Lepomis* sp., 5 specimens), largemouth bass (*Micropterus salmoides*, 1 specimen), and black basses (*Micropterus* sp., 10 specimens). Seventy-eight specimens were identified generally as sunfishes (Centrarchidae). Fourteen elements from ten pit features are burned. All identified species from the Bailey site reportedly occur in the Elk River Drainage (Jandebeur 1972). Estimated standard lengths of individuals represented by identified specimens were generally less than 20 cm. A few elements probably came from individuals 30-35 cm in standard length. Many of the small rib and spine fragments, identified simply as Osteichthyes (bony fishes), are likely from small sunfishes and at least some are undoubtedly associated with the sunfish specimens noted above.

Sciaenidae (drum). Seventy-two elements were identified as freshwater drum (*Aplodinotus grunniens*). These specimens, which were recovered from 12 pit features and Midden 2, consist of pharyngeal teeth, fragments of infrapharyngeal and suprapharyngeal bones, and vertebral fragments. Two drum teeth from separate features are burned. Elements recovered from four large deep and medium storage pits (F 18, 67, 87, and 108) and one shallow pit (F 104) indicate animals ranging in size from approximately 50-90 cm in standard length. While usually inhabiting lakes and large rivers, avoiding areas of swift current, freshwater drum are known to migrate into smaller tributary streams such as Sugar Creek prior to spawning (Pflieger 1975).

Osteichthyes (bony fishes). Miscellaneous fish element fragments (879 specimens) were recovered from 45 pit features, Midden 2, and Midden 4. This group of fragments consists primarily of ribs, fin spines and rays, pterygiophores, and vertebral elements. Burning was noted on at least 175 of these specimens.

In summary, excepting the extinct harelip sucker, all identified fish taxa from the Bailey site probably occur today in various habitats of Sugar Creek in the site vicinity or in other proximal streams in the Elk River Drainage. A few of the larger taxa such as gar, silver redhorse, and freshwater drum would more likely inhabit the larger more sluggish portions of Sugar Creek. Spawning migration may account for the presence of certain species such as redhorse and drum in areas farther upstream.

Amphibians

Twenty-three amphibian elements were identified. With the exception of one element from a shallow pit (F 68), these elements were found in nine large deep and medium storage pits. Two of the specimens are burned.

Cryptobranchidae (hellbenders). Seven probable hellbender (*Cryptobranchus alleganiensis*) elements were recovered from Feature 17, a large deep storage pit in Structure 4. These elements include four cranial elements, a pelvic element, one long bone, and one vertebra and almost certainly represent a single animal. Scattered elements of this totally aquatic and nocturnal animal have also been reported at the Terminal Archaic Chapman site (40JK102) in the Middle Cumberland River Drainage (Snyder 1986).

Pelobatidae/Bufonidae (spadefoot/American toad). At least two species of toad are present in the vertebrate assemblage. The larger American or Woodhouse's toad (*Bufo americanus/woodhousei*) is represented by four elements recovered from Feature 77 and one found in Feature 144; these two pits were superimposed on Midden 2. At least two animals are indicated by two right ilia found in Feature 77 and a third is likely represented from Feature 144. The somewhat smaller eastern spadefoot (*Scaphiopus holbrooki*) is represented by a left ilium recovered from Feature 27. An additional toad (*Bufo* sp.) is indicated by another left ilium found in Feature 144.

Ranidae (frogs). Frog (*Rana* sp.) elements recovered include a right ilium from Feature 17 and a left ilium and a humerus from Feature 60. Single bullfrog (*Rana* cf. *catesbeiana*) elements were found in Feature 22 and Feature 56. The element from Feature 56 is burned.

Bufo/Rana (toad/frog). Single amphibian elements identified as toad or frog (*Bufo/Rana*) were found in Features 35 and 68. The element from Feature 35 is burned. At least five animals are represented by toad or frog remains based on five left and five right ilia.

Reptiles

A total of 2,314 reptile specimens, including 2,233 turtle shell or element fragments and 81 snake vertebrae, constitutes over one-half (55.6%) of the identified

6.4 mm vertebrate remains. Over three-fourths (81.1%) of the reptile specimens were recovered from large deep (Class 1) and medium (Class 2) storage pits while 7.3% of the specimens were in shallow (Class 3) pits, 2.6% were in large shallow (Class 4) pits, and 9.0% were in middens and a tree root disturbance. The apparent predominance of turtle in the vertebrate assemblage is caused by the presence in nearly all feature samples of box turtle (*Terrapene carolina*) or musk, mud turtle (Kinosternidae) shell fragments. While complete turtle shells were noted in several features during excavation these shells fragmented into multiple individual carapace and plastron segments and fragments upon removal from the soil matrix. This is well illustrated by Feature 17. Field notes indicate that there were "many whole turtle shells" in Zone A while 672 shell fragments were counted in the recovered faunal sample. Four complete carapaces were noted in Feature 73 during excavation but these shells also became disarticulated when removed from the feature matrix. The number of turtles actually represented can, however, be more realistically estimated by diagnostic carapace marginal or plastron segments and recovered limb elements. Non-diagnostic shell fragments were identified simply as box or water turtle (Testudines).

Kinosternidae (musk, mud turtles). The remains of two species of small water turtles were recovered. At least two mud turtles (*Kinosternon subrubrum*) are indicated by two right hypoplastrons, one from Feature 22 and one from Feature 84. Diagnostic plastron elements (11 specimens) of the musk turtle (*Sternotherus odoratus*) were found in six pit features and Midden 2. At least five animals are represented by left hypoplastrons. The two elements from Feature 76, representing two animals, are burned. Additional fragmented plastron segments and carapace marginal segments (66 specimens), identified more generally as Kinosternidae, were scattered through 18 pit features and Midden 4. Twenty-five of these elements are burned. While these small turtles may have been taken as food, no skeletal elements were recovered and no cut marks were noted on recovered shell segments.

Chelydridae (snapping turtles). Three snapping turtle (*Chelydra* sp.) carapace fragments were recovered from Feature 10 (one specimen) and Feature 83 (two specimens). The fragment from Feature 10 is burned. Although the presence of these fragments in feature contexts is probably due to actions of the site inhabitants, there is no clear evidence of their use as a food resource at the site.

Emydidae (box or water turtles). Box turtle (*Terrapene carolina*) shell fragments (661 specimens) and limb elements (14 specimens) were recovered from 35 pit features and Midden 4. One-hundred-nine of these specimens are burned. In addition to limb elements, diagnostic carapace segments including nuchals, marginals, and plastron hinge or bridge segments could be positively identified as box turtle. However, virtually all of the 1,430 shell fragments identified more generally as Testudines include parts of box or water turtle shells deposited in pit features. At least four individual animals are indicated by diagnostic shell segments from Feature 17, which produced 305 identified box turtle shell fragments and 365 fragments identified simply as turtle. Over one-half of the shell fragments (345 specimens) from Feature 17 are burned. At least one complete carapace and 78 additional fragments were identified from a medium storage pit (F 60) reused as an earth oven. Complete carapaces were also indicated by materials found in Midden 4 and a medium storage pit (F 86) near Midden 2. Although field notes indicate four complete carapaces were in a medium storage pit (F 73) near Midden 2, no diagnostic marginal segments were noted among the 88 carapace marginal segments and 25 shell fragments identified from this feature during laboratory analysis.

Of the 109 box turtle and 703 turtle (Testudines) shell fragments which were burned, many were completely blackened, charred, or calcined. Other fragments, however, were only partially burned or reddened without charring. In addition, some of the more complete carapace segments exhibit variability in the degree of burning across the segments, from complete blackening or charring to entirely unburned segments. Carapace marginal segments from several features were blackened or reddened along the outside edge but were unburned on the thicker portion of the segment. Many of these marginals were also broken along the extreme lateral edge of the segment. The cause of this partial burning is unknown but such edge damage suggests either weakening due to partial burning after discard or perhaps partial burning and edge damage due to use of the shell to scrape hot materials such as ashes from hearths or earth ovens prior to discard.

In addition to shell fragments, 14 box turtle limb elements were recovered indicating that post-cranial limb elements of some animals, as well as the shells, were deposited in pit features. The presence of at least two animals in a large deep storage pit (F 87) is indicated by a left distal humerus and left ulna of different sizes and degree of development.

Sliders or map turtles (Chrysemys/Graptemys) are represented by three plastron segments identified as probable red-eared turtle (*Chrysemys scripta*) found in Feature 22 (one specimen) and Feature 27 (two specimens). A burned femur from Feature 10 and a scapula from Feature 33 were identified as *Chrysemys* sp., cooter or slider. Two marginal segments from Feature 96 were referred to simply as slider or map turtle (*Chrysemys/Graptemys*).

Trionchidae (softshell turtles). Softshell turtles (*Trionyx* sp.) are represented in the assemblage by 27 carapace or plastron fragments, 7 limb elements or element fragments, and 1 cranial element found in 14 pit features and Midden 4. All skeletal elements appear to be from relatively large individuals, although no more than one individual can be documented by recovered elements. Sixteen softshell specimens are burned.

Testudines (turtle). Plastron and carapace fragments (1,430 specimens) of box or water turtles (eastern box turtle, sliders) or musk or mud turtles were recovered from 51 pit features, Midden 2, and Midden 4. Nearly half of these fragments (703 specimens) are burned.

Colubridae/Viperidae (snakes). Eighty-one snake (Serpentes) vertebrae were recovered from 29 pit features, Midden 2, and Midden 4. With the exception of Feature 87 which produced 15 vertebrae, most features contained 1 to 6 vertebrae, far fewer than the hundred or more contained in a single snake vertebral column. These vertebrae vary in size and when complete they do not exhibit the pronounced haemal spine characteristic of poisonous snakes (Viperidae) and are therefore probably from non-poisonous snakes (Colubridae). Thirty-seven vertebrae are burned.

Birds

Sixty-nine identified bird elements or element fragments were found in 29 pit features. Over three-fourths (84.1%) of the bird elements were recovered from large deep (Class 1) and medium (Class 2) storage pits while 7.3% of the elements were in shallow (Class 3) pits and 8.7% were in large shallow (Class 4) pits. With the exception of wild turkey, most bird species are represented by isolated elements.

Podicipedidae (grebes). A grebe (*Podilymbus podiceps*) humerus element was recovered from Feature 87. The element is burned. This diving aquatic bird is common throughout the Southeast and is a local breeder through its southern range (R.T. Peterson 1980:34).

Phalacrocoracidae (cormorants). One probable double-crested cormorant (*Phalacrocorax auritus*) element was found in Feature 27. The element is the distal portion of a right humerus. Cormorants are common along the Mississippi and Atlantic coastal flyways and occur occasionally throughout much of the Southeast, including Middle Tennessee.

Anatidae (swans, ducks). Migratory waterfowl are represented by two Canada goose (*Branta canadensis*) wing elements, one from Feature 17 and one from Feature 67, and a heavily burned distal femur identified as teal (*Anas discors/ crecca*) from Feature 71. Canada goose and teal are common along the Atlantic coastal and Mississippi River flyways and their range extends generally across much of Tennessee. Both birds would most likely be present in the area during spring or fall migrations.

Accipitridae (bird hawks). An incomplete tibiotarsus, probably from a marsh hawk (cf. *Circus cyaneus*), was found in Feature 79.

Phasianidae (turkeys, chickens, quail). Wild turkey (*Meleagris gallopavo*) elements make up nearly 80% (55 specimens) of all identified bird remains. These elements (Table 23) were scattered in 23 pit features. Most features produced only one to three turkey elements. An exception is Feature 84 which contained two wing elements and four leg element fragments. The two wing elements in this feature were burned and two of the leg elements, a proximal tarsometatarsus and distal tibiotarsus, had cut marks on their medial surfaces near the articular condyles. Two humeri found in Features 27 and 83 and the proximal portion of a scapula from Feature 86, also exhibit cut marks. Single elements recovered from Features 18, 60, 72, 110, and 127 are burned, as are three wing elements from Feature 149. At least three males or toms are represented by a tarsometatarsus diaphysis segment with spur from Feature 87 and two spurs found with a distal tarsometatarsus fragment in Feature 18. The spurs in Feature 18 were broken from tarsometatarsus diaphyses and may have been manufacturing debris removed in preparation for tool making. At least four animals are represented in the scattered turkey remains by four left wing elements (PI-DII), four left proximal tarsometatarsi, and four right proximal humeri.

Two probable domestic chicken (*Gallus gallus*) elements were recovered from the large shallow historic pit (F 25). One of the elements is burned. Numerous egg shell fragments were also recovered from this feature and appear to be from chicken eggs.

A single bobwhite quail (*Colinus virginianus*) element, a coracoid, was recovered from Feature 26.

Columbidae (pigeons, doves). Three passenger pigeon (*Ectopistes migratorius*) elements were recovered, a humerus and coracoid from Feature 22 and an anterior sterum fragment from Feature 73. This bird, extinct since 1914, was abundant throughout eastern North America and was commonly taken while roosting by Native Americans (Swanton 1946:298). The Bailey site is probably within the winter range of the passenger pigeon. Flocks of these birds were reported in Middle Tennessee in the late fall and early winter during the last half of the nineteenth century (Schorger 1973:280).

Passeriformes (perching birds). Two small element fragments, a pelvis fragment from Feature 22 and a portion of a coracoid from Feature 76, were identified simply as small perching bird (Passeriformes).

Mammals

Twenty mammal taxa, represented by 1,535 identified specimens, were identified. Over three-fourths (76.3%) of the mammal bone specimens were recovered from the large deep (Class 1) and medium (Class 2) storage pits while 5.6% of the specimens were in shallow (Class 3) pits, 8.0% were in large shallow (Class 4) pits, and 10.1% were in middens and miscellaneous contexts. These materials came from 62 pit features, 2 midden areas, 1 posthole, and 1 tree disturbance utilized as an earth oven. Mammal remains constitute 37.7% of the

Table 23. Identified Wild Turkey (*Meleagris gallopavo*) Elements.

Element	Portion (Description)
Occipital	Supraorbital portion
Quadrate	2 right
Mandible	Right articular
Scapula	Left proximal (cut marks)
Coracoid	Right posterior fragment, right posterior (carnivore gnawed)
Sternum	2 anterior
Humerus	2 left proximal diaphysis segments, left distal, left distal (cut marks, carnivore gnawed), right (carnivore gnawed), 2 right proximal, right proximal (cut marks), right distal, right distal fragment
Radius	2 left proximal, left distal (burned)
Ulna	Left distal (burned), left diaphysis segment, right distal diaphysis
Ulnar carpal	2 right (burned)
Carpometacarpus	Left diaphysis
Phalanx I-Digit II	Left, 2 left (burned), left fragment (burned), right proximal fragment (burned)
Pelvis	Left acetabular portion
Femur	Left lateral diaphysis
Tibiotarsus	Right distal (cut marks), right distal (burned)

Table 23. (continued).

Element	Portion (Description)
Tarsometatarsus	4 left proximal, left distal diaphysis segment, left distal (trochlea missing), left distal/lateral trochlea (burned), right proximal (cut marks), right distal, right distal/lateral trochlea, right distal/medial trochlea, unsided diaphysis fragment with spur, 2 spurs, unsided distal trochlea (burned), 2 unsided distal trochlea
3rd Phalange	Pes

unmodified 6.4 mm sample. Elements of the white-tailed deer make up 64.2% of the mammal assemblage. The skeletons of two domestic dogs, one complete and one fragmentary, plus several isolated dog bones constitute an additional 13.2% of the recovered mammal remains.

Didelphidae (opossum). Single opossum (*Didelphis marsupialis*) elements were recovered from Features 60, 76, 101, and 106 and portions of left and right mandibles were recovered from Feature 87. The right mandible segment from Feature 87 is burned while the left has cut marks on the exterior edge of the coranoid crest.

Talpidae (moles). Two broken mole (cf. *Scalopus aquaticus*) humeri were recovered. One was found in Feature 26 and the other was found in Feature 70.

Leporidae (rabbits, hares). Eastern cottontail (*Sylvilagus floridanus*) remains represent the third most abundant mammal taxa recovered. Of 116 identified specimens, 58 are from a complete skeleton which was recovered from a large deep storage pit (F 67). Cut marks on the right fibular tarsal of this skeleton indicate that the animal was deposited in the pit as a result of human activity. The right metatarsals of the skeleton were carnivore gnawed. Nineteen other pit features produced from one to nine elements each. One or more elements in Features 17, 28, 60, 87, 127, 144, 145, and 149 were burned. A fibular tarsal in Feature 87 exhibits cut marks. One complete innominate and one partial innominate recovered from Feature 148 had cut marks on the inferior surfaces.

Three pit features (F 17, 18 and 33) contained elements of immature animals. Three elements from Feature 18 are very small and poorly developed and compare in size to a modern comparative specimen from Knox County, Tennessee which died in June. However, because rabbits may produce young throughout spring, summer, and fall in the Southeast, only a late winter time of death can be excluded for this individual. Nine elements from a somewhat older subadult animal were found in Feature 33.

A minimum of eight animals are represented at the site by seven left fibular tarsals from separate pit features and an eighth element from Midden 4. Three rabbit elements, a left ulna from Feature 10, a right proximal ulna from Feature 27, and a right ilium from Feature 143, were identified due to their large size as probable swamp rabbit (*Sylvilagus aquaticus*).

Sciuridae (squirrels). Tree squirrel (*Sciurus* sp.) remains were fairly common at the Bailey site. Thirty-two squirrel elements were recovered from 18 pit features, Midden 2, and Midden 4. Many of the features contained single squirrel elements while none produced more than four. At least four animals are represented by left fibular tarsals. Eight squirrel elements are burned and one element from Feature 71 appears to be eroded or partially digested. Two right squirrel maxillae from Feature 148 were identified as gray squirrel (*Sciurus carolinensis*) on the basis of sockets for an additional upper premolar, which is not present in fox squirrels. Likewise, two right maxillae, one from Feature 40 and one from Feature 83, were identified as fox squirrel (*Sciurus niger*) by the absence of this extra premolar. An innominate in Feature 72, an ulna in Feature 10, and a premaxilla and humerus in Feature 83 were also identified as fox squirrel on the basis of size. The innominate from Feature 72 is burned.

Seven woodchuck (*Marmota monax*) elements were recovered from seven pit features. At least two animals are indicated by portions of left distal humeri and right fibular tarsals. Two elements, one from Feature 84 and one from Feature 143, are burned.

Castoridae (beaver). Six beaver (*Castor canadensis*) elements were recovered from six different pit features. Three of the specimens are cranial elements, one is an isolated tooth, and two are metatarsals. At least two individuals are represented by one complete and one partial right premaxilla. The metatarsal from Feature 84 is burned.

Cricetidae (New World rats and mice). Two New World rats are present in the assemblage. Three hispid cotton rat (*Sigmodon hispidus*) elements, a left maxilla and mandible and a left tibia, were recovered from Feature 33. Fourteen marsh rice rat (*Oryzomys palustris*) elements were found in Feature 56 (one specimen), Feature 67 (seven specimens), Feature 105 (one specimen), and Feature 120 (five specimens). At least three animals are represented by three left and three right mandibles.

Several small rodents are represented in the 6.4 mm faunal material and their remains no doubt are also present in greater numbers in the 1.6 mm fraction. Both white-footed or deer mice (*Peromyscus* sp.) and voles (*Microtus* sp.) are represented by cranial elements. Two deer or white-footed mouse mandibles were found in Features 56 and 67. Vole elements recovered consist of two left mandibles and five isolated teeth from Feature 17, a right mandible from Feature 22, and a left mandible from Feature 77. At least three animals are represented by left mandibles. Nine small rodent postcranial elements were also recovered from five pit features and Midden 4. An innominate from Midden 4 is burned.

Two muskrat (*Ondatra zibethicus*) elements, a caudal vertebra and the right proximal portion of an ulna, were recovered from Features 28 and 84, respectively.

Canidae (dogs, foxes). The remains of at least three domestic dogs (*Canis familiaris*) were recovered. An articulated skeleton (Dog Skeleton 1) was located to the south of Midden 2 in Feature 76, a medium (Class 2) Late Archaic storage pit. The pit was circular and had inslanting sides with a flat bottom. It measured 141 cm x 137 cm in plan view and 61 cm in depth. This feature also contained 1 opossum element, 1 cottontail rabbit element, and 23 white-tailed deer elements. The dog skeleton laid in a naturally extended horizontal position approximately 6 cm below the top of the pit. Although a large limestone slab was nearby, there is no indication that it was associated with the dog (Figure 72). One-hundred-forty-seven skeletal elements or element fragments of this individual were recovered. The remains were those of a medium-sized dog about the size of a modern terrier or small beagle. All skeletal elements appear to have been complete and articulated when the carcass was originally deposited in the feature. The skull was fragmented, probably by postdepositional forces, and had to be reconstructed in the laboratory. Extreme wear on the dentition indicates the animal was an adult and had probably reached an advanced age. With the exception of rodent gnawing on the left and right distal tibiae, which lay close to each other, no alteration to the skeleton was noted.

In contrast, the highly fragmented and somewhat eroded partial skeleton of a second dog (Dog Skeleton 2) was recovered from the northern portion of Midden 2 just below the plow zone. This skeleton was not surrounded by a discernible pit outline but appears to have been deposited on the ground surface of the midden area and subsequently covered with soil (Figure 72). Forty-five identifiable elements plus unidentifiable fragments were recovered. Cranial material was limited to an occipital fragment and left maxilla and mandible fragments. This animal appears to be generally comparable in size to the animal in Feature 76. At least five of the recovered elements were gnawed by rodents and the skeletal material had a generally eroded appearance. No other alterations to the bones were noted and the cause of this skeleton's fragmented condition, whether due to predepositional or postdepositional taphonomic processes, is unknown.

Eight elements representing a third animal were found in Feature 87, a large deep (Class 1) Late Archaic storage pit located west of Midden 2. These specimens include a left maxilla fragment, a lumbar vertebra, left and right proximal ulnae, a 3rd metatarsal and an articulating distal metapodial and first and second phalanges. Two isolated tarsals, one from Feature 10 and one from Feature 26, compare in size and morphology with modern canids and are also tentatively identified as domestic dog.

Nineteen fox (*Vulpes vulpes*/*Urocyon cinereoargenteus*) elements were scattered in 11 pit features. Nine of these elements were cranial fragments or isolated teeth. All cranial materials were too fragmented to distinguish red from gray fox. One element each, from Features 10, 40, and 83 is burned and a tibial tarsal from Feature 60 appears to be eroded or partially digested. As many as three animals may be represented by left mandible fragments in three separate pit features.

Procyonidae (raccoon). Fifty-two raccoon (*Procyon lotor*) elements were recovered from 21 pit features (45 specimens), Midden 2 (4 specimens), and Midden 4 (3 specimens). Over one-half of these specimens are cranial fragments or

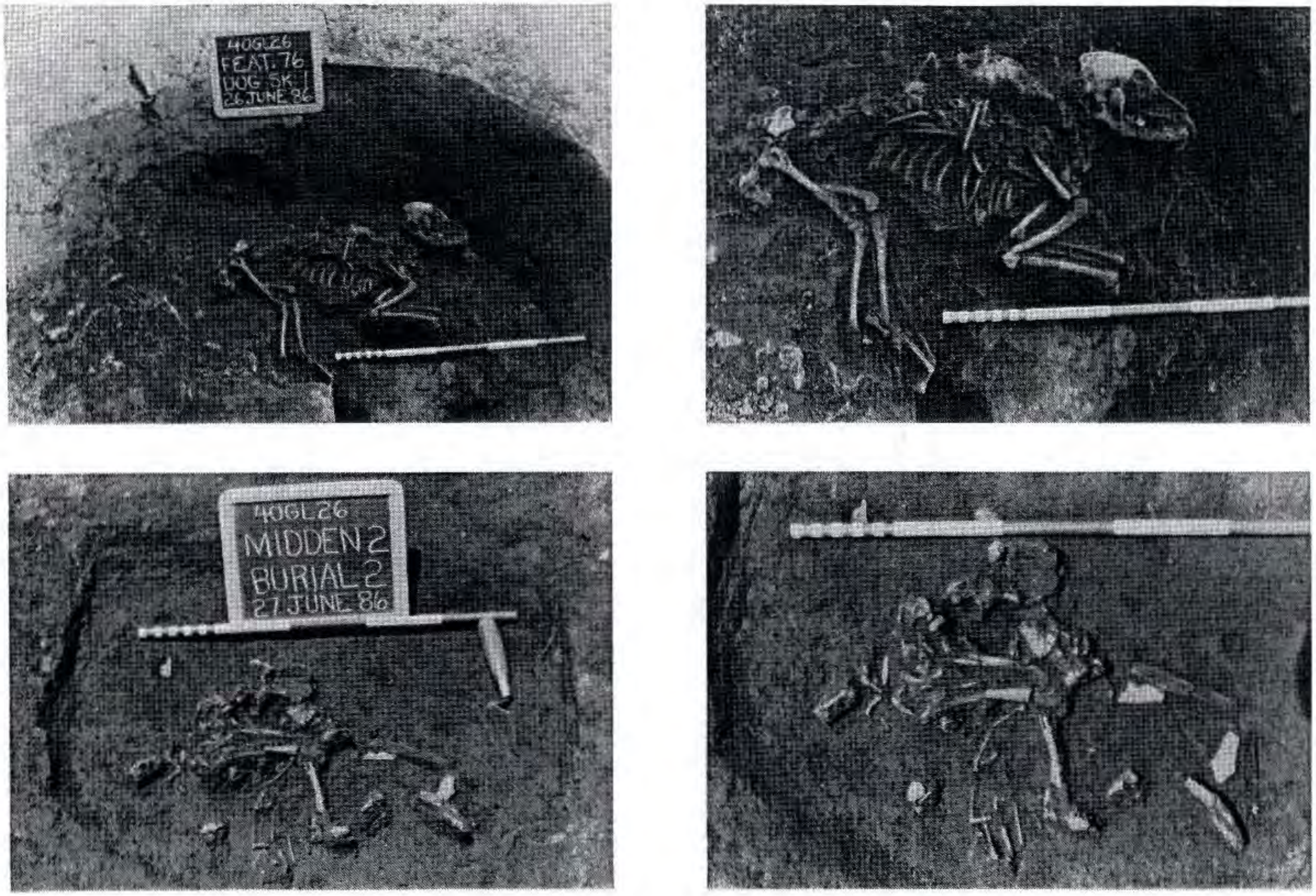


Figure 72. Dog Skeletons 1 and 2. General and Close-Up Views, Bottom Photographic Board Should Read Dog Sk. 2.

isolated teeth. One very old individual is represented by five elements from Feature 27, which include left and right maxilla with dentition worn nearly to the aveolar border. A second younger animal is represented by a left maxilla with an unerupted 1st molar found in Feature 22. As many as two additional animals appear to be represented by isolated left upper 1st molars in Features 10 and 72. Three individuals can be documented on the basis of postcranial remains by left tibial tarsals recovered from three separate features. Sixteen raccoon elements are burned and one element from Feature 72, the distal portion of a right fibula, is cut above the distal epiphysis.

Mustelidae (skunk). Single striped skunk (*Mephitis mephitis*) elements were recovered from three large deep pits (F 17, 22, and 101), two of which were in Structure 4. These elements include a fibular tarsal, a right distal tibia, and one isolated tooth. Modified right and left skunk mandibles were also found in Midden 4 (q.v. Modified Bone and Antler).

Suidae (domestic pig). Domestic pig (*Sus scrofa*) elements are present only in the historic pit (F 25). The 55 recovered specimens include 1 isolated tooth fragment, 16 vertebra fragments, 2 nearly complete lumbar vertebrae, 1 sternebra fragment, 5 proximal ribs and 9 rib shaft segments, and 10 metapodials and phalanges. Major limb elements are represented by 4 humerus fragments, 2 fibula and 3 tibia fragments, 1 carpal, and 1 patella. Several of the broken rib segments and the two lumbar vertebra had been cut or chopped. One humerus fragment also has a cut mark on the distal/lateral diaphysis. Six elements were burned, nine had been gnawed by carnivores, and one element, a thoracic vertebra fragment, appears eroded or partially digested.

Cervidae (deer). A total of 985 white-tailed deer (*Odocoileus virginianus*) elements was recovered and comprises 64.2% of all identified mammal remains and 23.7% of the unmodified assemblage. These specimens were found in 62 pit features, Midden 2, Midden 4, and one posthole (PH 78). All parts of the deer skeleton are represented in the sample (Table 24), although few whole elements were recovered. Two-hundred deer specimens (20.3%) are burned.

Thirty-three specimens exhibit cut marks or appear to have been chopped (Table 25). Two mandibles show cut marks on the vertical ramus and one mandible has cut marks on the buccal surface of the horizontal ramus, probably associated with disarticulation of the mandible from the skull and removal of the tongue. One axis vertebra has cut marks on the anterior edge of the dens, probably produced during separation of the head from the vertebral column. One thoracic vertebra exhibits cut marks on the ventral surface of the centrum and cut marks were also noted on the ventral surfaces of four rib shaft segments and the dorsal surface of one rib shaft segment, possibly associated with removal of internal organs or separation of ribs from vertebrae (Binford 1981:113).

Cut marks occurring on the distal humeri (nine specimens), proximal ulnae (three specimens), distal radius (two specimens), and proximal metacarpal (one

Table 24. Identified White-Tailed Deer (*Odocoileus virginianus*) Remains.

Element	Proximal	Distal	Diaphysis	Complete	Axial	Fragments	Total
Isolated Teeth							
Maxillary				19R, 14L[a]		3	36
Mandibular				22R, 12L		1	35
Indet. Fragments						3	3
Crania							
Premaxilla				2R, 2L			4
Maxilla				3R, 3L			6
Occipital				7R, 7L			14
Basioccipital					3		3
Antler				2R, 1L		23	26
Misc. Fragments						11	11
Mandible	1R, 6L		9R, 11L				27
Hyoid	1R, 2L						3
Vertebrae							
Atlas					4	5	9
Axis					3		3
Cervical					4	13	17
Thoracic					7	17	24
Lumbar						6	6
Caudal					7		7
Indeterminate						9	9
Rib	3R, 3U		1R, 8L, 18U				33

Table 24. (continued).

Element	Proximal	Distal	Diaphysis	Complete	Axial	Fragments	Total
Sternebrae						3	3
Forelimb							
Scapula	3R	7R, 6L		2L		1U	19
Humerus	1L	8R, 12L	6R, 6L			1U	34
Radius	7R, 10L	4R, 5L	5R, 1L			6U	38
Ulna	12R, 10L	5R, 3L	1R, 4L	1R, 1L			37
Metacarpal	4R, 6L	1R, 1L	1L	1L		3U	17
Carpals							
Ulnar				3R, 5L			8
Radial				3R, 6L			9
Intermediate				4R, 7L			11
2nd and 3rd				10R, 8L			18
4th				3R, 4L			7
Hindlimb							
Innominate	8R, 5L	3R, 5L	1L	2R		1U	25
Femur	1R, 1L	6R, 2L	1R, 5L			4U	20
Patella				2R, 5L			7
Tibia	2R, 2L	11R, 3L	12R, 9L			6U	45
Lateral Malleolus				4R, 4L			8
Metatarsal	8R, 8L	2R	5R, 6L			25U	54
Tarsals							
Fibular	2R, 3L	4R, 7L		11R, 16L		2R, 4L	49
Tibial	3L	1R		4R, 4L		5R, 2L, 1U	20
2nd and 3rd				2R, 3L		1R	6

Table 24. (continued).

Element	Proximal	Distal	Diaphysis	Complete	Axial	Fragments	Total
Central and 4th				2R, 5L		1R, 1L, 1U	10
1st				1R, 2U			3
Metapodial		34U	13U				47
Foot							
1st Phalange	20	31		3		23	77
2nd Phalange	17	17		7		10	51
3rd Phalange	5	5		16			26
Indet. Phalange						3	3
Proximal Sesamoid				31			31
Vestigial Metacarpal						6	6
Vestigial 1st Phalange				7			7
Vestigial 2nd Phalange				4			4
Vestigial 3rd Phalange				9			9
Total	154	183	123	296	28	201	985

[a] R-Right side.
L-Left side.
U-Unsided.

Table 25. Cut Marks on Identified White-Tailed Deer (*Odocoileus virginianus*) Bone.

Element	Description
Frontal	Unsided fragment with attached antler, tines chopped off
Mandible	Left vertical ramus with cut marks on anterior margin
Mandible	Left vertical ramus with cut marks on lingual surface of condyloid process
Mandible	Left horizontal ramus with p2-4, m1-2, cut marks on buccal surface
Axis	Cut marks on anterior edge of dens
Thoracic Vertebra	Centrum, cut marks on ventral surface
Rib	2 left shaft segments, cut marks on ventral surfaces
Rib	Right shaft segment, cut marks on ventral surface
Rib	Unsided shaft segment, cut marks on ventral and dorsal surfaces
Rib	Unsided proximal shaft segment, cut mark on dorsal surface
Humerus	Left distal, cut marks on posterior epicondyles
Humerus	Left distal, cut marks on anterior diaphysis and lateral condyle
Humerus	Left distal, cut marks on anterior/medial face of condyle
Humerus	Left distal/posterior diaphysis fragment, cut marks on lateral epicondyle
Humerus	Right distal/anterior diaphysis fragment, cut marks on diaphysis
Humerus	Right distal, cut marks on medial, lateral, and anterior faces of epiphysis
Humerus	Right distal, cut marks on medial face of medial condyle, chop mark on anterior diaphysis
Humerus	Right distal, cut mark on lateral diaphysis

Table 25. (continued).

Element	Description
Humerus	Right distal, cut mark on lateral diaphysis and medial epicondyles
Radius	Right distal, cut marks on medial epicondyle
Radius	Right distal epiphysis, cut marks on medial and lateral faces
Ulna	Left proximal, cut marks on anterior surface
Ulna	Left proximal, cut marks on medial/anterior surface
Ulna	Right proximal/anterior fragment, cut marks on lateral margin of semilunar notch
Innominate	Left ilial portion, cut marks on inferior surface
Innominate	Right ischial portion, cut marks on superior surface
Innominate	Right acetabular portion of ilium, cut marks on superior and inferior surfaces
Fibular Tarsal	Left, cut marks on posterior/lateral margin
Fibular Tarsal	Left, cut marks on anterior surface
Tibial Tarsal	Right distal/lateral fragment, cut mark on lateral surface
Central and 4th Tarsal	Right, cut marks on superior/medial projection

specimen) indicate disarticulation of the front limbs at these two joints. Indicators of disjointing of the hind limbs include three partial innominates which show cut marks on or near the acetabulum, probably produced during disarticulation of the femur from the pelvis. Cut marks on two fibular tarsals, one tibial tarsal, and one central and 4th tarsal indicate disarticulation of the lower limb below the tibia.

Non-subsistence uses of the deer skeleton are indicated by modified antler and bone and manufacturing debris (q.v. Modified Bone and Antler).

A minimum of 19 animals is represented by fibular tarsals. Most recovered mandible segments were fragmented and in several cases little was left of the mandible itself, although articulating tooth rows were recovered. However, one partial right mandible had a deciduous 3rd premolar in place, one left mandible fragment had a deciduous 2nd premolar in place, and a second left mandible segment had deciduous 2nd and 3rd premolars present. No appreciable tooth wear was noted on any of these specimens and they probably represent animals from 2-4 months of age at death. A fourth mandible had an unerupted deciduous 3rd premolar, indicating that it came from an animal less than two to three weeks old at death (Severinghaus 1949:203-205). These specimens were recovered from Features 104, 67, 86 and 73, respectively. Three post-cranial elements also appear to be from extremely young animals. A left radius found in Feature 70 compares in size and degree of development to a modern comparative specimen approximately two weeks of age. Two elements found in Feature 148, a right ulna and a left femur diaphysis, appear to be from an animal around the same age. Older animals are indicated by mandible segments with fully erupted and worn teeth recovered from a number of features. No mandibles with complete tooth rows were recovered, so estimations of age at death of adult animals were not possible.

Carnivore gnawing was noted on 44 deer elements. In addition, 30 elements appear to have been partially digested or eroded by stomach acids (Table 26). Eroded elements include 13 carpals and tarsals, 13 phalanges and sesamoids, 2 metapodial distal condyles, 1 proximal rib fragment, and 1 proximal ulna fragment. These elements correspond closely in relative percentages to those most commonly recovered from scats of modern canids allowed to feed freely on carcasses of white-tailed deer (Snyder and Klippel 1986; Klippel et al. 1987).

LATE ARCHAIC COMPONENT

A total of 15,304.4 g of faunal debris consisting of 22,008 specimens was recovered from 61 Late Archaic or probable Late Archaic pit features, 1 Late Archaic midden area (Midden 2), and 1 posthole (PH 78) associated with a Late Archaic shelter. Approximately 25% of this material by weight (3,774.7 g) is burned. Identifiable 6.4 mm materials (3,382 specimens) (Table 27) include fish (185 specimens), amphibian (21 specimens), reptile (1,878 specimens), bird (52 specimens), and mammal (1,246 specimens). In addition, 953 1.6 mm fish specimens were identified from this component.

Table 26. Partially Digested and Eroded White-Tailed Deer (*Odocoileus virginianus*) Bone.

Feature Number	Element (Description)
	Large Deep (Class 1) Pits
22	1st phalange (distal portion, partially digested)
26	Tibial tarsal (right, heavily eroded)
27	Rib (unsided proximal, partially digested) Fibular tarsal (right articular fragment, eroded) 4th tarsal (right, partially digested) 4th tarsal (unsided fragment, eroded) 2nd phalange (proximal portion, partially digested)
71	Metapodial (unsided distal condyle fragment, partially digested)
77	2nd phalange (distal portion, partially digested)
79	1st phalange (distal fragment, partially digested)
84	Ulna (right proximal, articular fragment, partially digested) Intermediate carpal (left, partially digested)
87	2nd and 3rd carpal (right, partially digested) 2nd phalange (distal portion, partially digested)
	Medium (Class 2) Pits
34	Metapodial (unsided distal condyle, eroded)
55	2nd phalange (proximal fragment, partially digested)
60	1st phalange (distal fragment, partially digested)
70	3rd phalange (partially digested) 3rd phalange (proximal fragment, partially digested)
73	Central & 4th tarsal (left, heavily eroded)
83	4th carpal (left anterior fragment, partially digested)

Table 26. (continued).

Feature Number	Element (Description)
	Shallow (Class 3) Pit
145	2 proximal sesamoids (partially digested)
	Large Shallow (Class 4) Pit
10	Ulnar carpal (left, heavily eroded) Radial carpal (left, eroded) Central and 4th tarsal (left fragment, partially digested) 2nd phalange (proximal epiphysis, eroded)
	Midden
Midden 4	Radial carpal (left, partially digested) Fibular tarsal (left proximal epiphysis, partially digested) 1st phalange (partially digested)

Table 27. Summary of Identified Vertebrate Materials by Cultural Component.

Taxon	Late Archaic		Late Woodland		Historic		Indeterminate		Total	
Fishes										
Lepisosteus sp. (gars)	11	(11)[a]					1	(1)	12	(12)
Anguila rostrata (feshwater eel)	31	(15)					1		32	(15)
Esox sp. (pikes, pickerels)		(2)								(2)
Campostoma sp. (stoneroller minnow)		(2)								(2)
cf. *Clinostumus funduloides* (rosyside dace)		(1)								(1)
Nocomis sp. (chub)		(7)						(1)		(8)
Notropis chrysocephalus (common shiner)	1							(1)	1	(1)
Notropis sp. (shiners)		(1)								(1)
Cyprinidae (minnows)		(12)								(12)
Hypentelium nigricans (northern hogsucker)	1	(1)		(2)					1	(3)
Lagochila lacera (harelip sucker)	1						2		3	
Moxostoma carinatum (river redhorse)	1	(1)							1	(1)

Table 27. (continued).

Taxon	Late Archaic		Late Woodland		Historic		Indeterminate		Total	
Moxostoma anisurum (silver redhorse)	2								2	
Moxostoma sp. (redhorse suckers)	6	(9)						(1)	6	(10)
Catostomidae (suckers)	25	(40)	6	(6)	1	(3)	3	(26)	35	(75)
Ictalurus cf. *natalis* (yellow bullhead)	1								1	
Ictalurus cf. *punctatus* (channel catfish)	2								2	
Ictalurus cf. *melas* (black bullhead)		(1)								(1)
Ictalurus sp. (bullhead)		(12)						(1)		(13)
Noturus (*Rabida*) sp. (madtom catfishes)		(1)								(1)
Ictalurus sp. (catfishes)	9	(18)						(1)	9	(19)
Pylodictus olivaris (flathead catfish)		(2)								(2)
Ictaluridae sp. (catfishes)	2	(12)					1	(1)	3	(13)
Ambloplites rupestris (rockbass)		(11)								(11)
Lepomis sp. (sunfishes)	1	(2)		(2)					1	(4)
Micropterus salmoides (largemouth bass)		(1)								(1)

Table 27. (continued).

Taxon	Late Archaic	Late Woodland	Historic	Indeterminate	Total
Micropterus sp. (black basses)	2 (6)		2		4 (6)
Centrarchidae (sunfishes)	6 (62)	(2)		(8)	6 (72)
Aplodinotus grunniens (freshwater drum)	46 (24)			(2)	46 (26)
Indet. Osteichthyes (bony fishes)	37 (699)	2 (45)	1 (6)	4 (85)	44 (835)
Total Fishes	185 (953)	8 (57)	4 (9)	12 (128)	209 (1,147)
Amphibians					
Cryptobranchus alleganenesis (hellbender)	7				7
Scaphiopus cf. *holbrooki* (spadefoot)	1				1
Bufo americana/woodhousi	5				5
Bufo sp. (toads)	3				3
Rana catesbeiana (bullfrog)	2				2
Rana sp. (ranid frog)	1	2			3

Table 27. (continued).

Taxon	Late Archaic	Late Woodland	Historic	Indeterminate	Total
Bufo/Rana sp. (toad/frog)	2				2
Total Amphibians	21	2			23
Reptiles					
Kinosternon subrubrum (eastern mudturtle)	3				3
Sternotherus odoratus (stinkpot)	11				11
Kinosternidae (musk, mud turtles)	64	3		2	69
Chelydra sp. (snapping turtle)	2			1	3
Terrapene carolina (eastern box turtle)	552	70		53	675
cf. *Chrysemys scripta* (red-eared turtle)	3				3
Chrysemys sp. (cooters, sliders)	1			1	2
Graptemys/Chrysemys (map/slider turtle)	2				2
Trionyx sp. (softshell turtle)	24	7		4	35
Testudines (box/water turtles)	1,150	236	6	38	1,430

Table 27. (continued).

Taxon	Late Archaic	Late Woodland	Historic	Indeterminate	Total
Serpentes (snakes)	66	11	1	3	81
Total Reptiles	1,878	327	7	102	2,314
Birds					
Podilymbus podiceps (pied-billed grebe)	1				1
Phalacrocorax auritus (double-crested cormorant)	1				1
Branta canadensis (Canada goose)	2				2
Anas discors/crecca (blue-winged/green-winged teal)	1				1
cf. *Circus cyaneus* (marsh hawk)	1				1
Colinus virginianus (bobwhite)	1				1
Gallus gallus (domestic chicken)			2		2
Meleagris gallopavo (wild turkey)	40	6		9	55
Ectopistes migratorius (passenger pigeon)	3				3

Table 27. (continued).

Taxon	Late Archaic	Late Woodland	Historic	Indeterminate	Total
Passeriformes (perching birds)	2				2
Total Birds	52	6	2	9	69
Mammals					
Didelphis marsupialis (opossum)	5	1			6
Scalopus aquaticus (eastern mole)	2				2
Sylvilagus floridanus (eastern cottontail)	104	4		8	116
cf. *Sylvilagus aquaticus* (swamp rabbit)	2			1	3
Sciurus niger (fox squirrel)	5			1	6
Sciurus carolinensis (eastern gray squirrel)				2	2
Sciurus sp. (tree squirrel)	22	1	2	7	32
Marmota monax (woodchuck)	7				7
Castor canadensis (beaver)	6				6
Peromyscus sp. (mouse)	2				2

Table 27. (continued).

Taxon	Late Archaic	Late Woodland	Historic	Indeterminate	Total
Oryzomys palustris (marsh rice rat)	14				14
Sigmodon hispidis (hispid cotton rat)	3				3
Microtus sp. (vole)	9				9
Small rodent (mouse/vole)	6	3			9
Ondatra zibethicus (muskrat)	2				2
Canis familiaris (domestic dog)	201			1	202
Vulpes vulpes/Urocyon cinereoargenteus (red/gray fox)	16	2		1	19
Procyon lotor (raccoon)	45	5		2	52
Mephitis mephitis (striped skunk)	3				3
Sus scrofa (domestic pig)			55		55
Odocoileus virginianus (white-tailed deer)	792	115	5	73	985

Table 27. (continued).

Taxon	Late Archaic	Late Woodland	Historic	Indeterminate	Total
Total Mammals	1,246	131	62	96	1,535
Total ID Fauna	3,382 (953)	474 (57)	75 (9)	218 (128)	4,150 (1,147)

[a] Number of 6.4 mm pieces (Number of 1.6 mm pieces).

Twenty-nine fish taxa or groupings are represented in the Late Archaic component. These include small stream or creek fish present today in the Elk River Drainage and one of three recovered elements of the extinct harelip sucker. Most of these remains represent fishes less than 30 cm in length and it is possible that the presence of small taxa such as minnows and madtom represent capture by some method of netting or trapping rather than hook and line fishing. Thirty-one freshwater eel vertebrae, probably from one individual approximately 70-75 cm in length, were recovered from Feature 108. Burning was noted on 216 fish elements from this component. With the possible exceptions of gar, small minnows, and madtom, all fish remains, including suckers, catfishes, sunfishes, and drum, are probably food debris of the site inhabitants.

Twenty-one amphibian elements were recovered from Late Archaic contexts. These include seven hellbender elements, apparently from one individual, recovered from Feature 17. Nine toad elements were found in four pit features. These represent spadefooted (one specimen), the somewhat larger American or Woodhouse's toad (five specimens), and three partial elements identified simply as toad. Two probable bullfrog elements and one indeterminate frog element were distributed in three pit features and two toad or frog element fragments came from two additional features. Two amphibian elements, one from Feature 35 and one from Feature 56, are burned. With the exception of one element from Feature 68, a shallow (Class 3) pit 13 cm deep, all recovered amphibian remains are from large deep (Class 1) or medium (Class 2) storage pits ranging in depth from 56-88 cm. It is quite possible that most or all of the amphibian remains, except hellbender, represent animals which fell into these deeper pits and were unable to escape.

Turtle shell or element fragments (1,812 specimens) were recovered from 47 Late Archaic pit features and Midden 2. Nearly 91% of these materials (1,702 specimens) are eastern box turtle or box/water turtle shell fragments. At least 2 mud turtles, 5 stinkpots, and 2 additional mud or musk turtles are represented by Kinosternidae carapace or plastron fragments found in 19 pit features and Midden 2. Two soft-shell turtle carapace fragments were recovered from Feature 83. Five probable slider elements, including three plastron segments tentatively identified as red-eared turtle, were recovered from four features. A plastron segment in Feature 27 has a cut mark on the bridge of the right hypoplastron. Sixteen snapping turtle shell fragments were found in 12 features. Feature 87 contained three snapping turtle limb elements, as well as three shell fragments. Eleven of these fragments are burned.

Box turtle shell fragments (539 specimens) and limb elements (12 specimens) were recovered from Late Archaic pit features. Feature 17 contained at least 4 partial or whole carapaces represented by 4 nuchal scutes and 301 carapace and plastron fragments. Features 73 and 86 also produced complete but fragmented carapaces. Considering limb elements only, at least five animals are represented by left humeri found in five pit features. At least two animals are represented in Feature 87 by a left humerus and a left ulna from individuals of different sizes. The presence of limb elements as well as shell debris indicates box turtles were returned to the site area whole. Aside from burning and their deposition in pit features, their use as either a food resource or tools is uncertain. Modified shell fragments and one partial shell bowl or scoop were, however, recovered (q.v. Modified Bone and Antler). The 1,150 additional turtle shell fragments from this component are also parts of box or mud/musk turtle carapaces and plastrons.

Snake vertebrae (66 specimens) were found scattered throughout 22 pit features and Midden 2. Thirty of the vertebrae are burned but it is probable that these elements represent debris unrelated to subsistence activities.

With the exception of 40 wild turkey elements, 9 bird taxa are represented in the Late Archaic component by only 1-3 elements each. Single elements of grebe, cormorant, and teal plus two Canada goose elements were recovered from five features. The grebe and teal elements are burned. While no cut marks were observed on these elements, it is likely that they represent food debris of site inhabitants. Three passenger pigeon elements from Features 22 and 73 and a single bobwhite element from Feature 26 also probably represent birds taken for food.

Wild turkey remains clearly dominate the bird assemblage from the Bailey site and from the Late Archaic component. Forty identified elements or element fragments were recovered from 19 pit features. At least three birds are indicated by left proximal tarsometatarsals and right proximal humeri. Four turkey elements are burned and one scapula, two humeri, one proximal tarsometatarsus, and one distal tibiotarsus exhibit cut marks. The number of elements recovered and the presence of cut marks and burning on these elements clearly indicate that this commonly utilized large game bird was an important component of Archaic subsistence at the Bailey site. Numerous tarsometatarsus fragments, including spurs broken from the element diaphysis, isolated distal trochlea, and modified turkey elements recovered (q.v. Modified Bone and Antler) indicate that the bones of this animal were used for the manufacturing of tools and implements.

Although white-tailed deer remains (792 specimens) clearly dominate the mammal remains from this component, other taxa, representing both subsistence and non-subsistence debris are present. Several small rodents and insectivores are probably commensal pests attracted to the site as a consequence of the human occupation. Two mole elements and 22 mouse and vole elements were identified from 9 pit features. Remains of the New World rat (2 specimens), the marsh rice rat (14 specimens), and the hispid cotton rat (3 specimens) may also represent pests drawn to the site by human activity.

Several small or medium sized mammals represented in the Archaic component by scattered elements probably contributed meat and hides utilized by site inhabitants. Five opossum elements were recovered from four pit features. A right mandible segment from Feature 87 is burned and a left mandible segment from the same feature has a cut mark on its posterior margin. Seven woodchuck elements were scattered through seven pit features. Two of these elements are burned. Six beaver elements also occurred in six pit features. Four of these elements are isolated teeth and two are metatarsals, of which one is burned. Two muskrat elements came from Features 28 and 84 and three striped skunk elements were found in Features 17, 22, and 101.

Sixteen fox elements were recovered from nine Late Archaic pit features. These remains are limited to cranial fragments and isolated teeth (nine specimens) or lower leg and foot elements (seven specimens).

Forty-five raccoon elements were found in 19 Late Archaic pit features and Midden 2. Although half of these remains (26 specimens) are cranial fragments or isolated teeth and foot bones (9 specimens), major limb bones (9 specimens) and 1 vertebra were also recovered. This suggests that raccoons were utilized for their flesh as well as their pelts. One element, a fibula, has cut marks above the distal epiphysis and 12 raccoon elements are burned.

Eastern cottontail or swamp rabbit and tree squirrels are represented in the Late Archaic assemblage by relatively abundant, primarily post-cranial remains and clearly contributed to human subsistence at the site. Elements of cottontail rabbit (104 specimens) and probable swamp rabbit (2 specimens) were recovered from 19 pit features. Only 19 cranial fragments or isolated teeth were recovered. One cranium with left and right mandibles is associated with a nearly complete rabbit skeleton found in Feature 67. The right fibular tarsal of this skeleton exhibits a cut mark and it may be the remains of an animal partially or completely skinned and then discarded whole in the feature. Other recovered rabbit specimens include vertebrae and front and hind limb elements. One additional fibular tarsal from Feature 87 exhibits cut marks and six elements are burned. At least six animals are represented in this component by left fibular tarsals.

Twenty-seven tree squirrel elements came from 16 Late Archaic pit features. Both cranial (4 specimens) and postcranial (23 specimens) elements were recovered although the smaller vertebrae and foot bones were not present in the 6.4 mm fraction. At least three animals are represented by left fibular tarsals and right humeri. Eight squirrel elements are burned.

Two dog skeletons, one articulated and one disarticulated and fragmented, plus fragmentary dog remains in Feature 87 (eight specimens) and Feature 10 (1 specimen), and a single tarsal in Feature 26 represent at least three animals. The two individuals deposited in or near Midden 2 appear to be rather small animals, larger than a fox and perhaps about the size of a modern small terrier or beagle. No evidence of alteration was found on the articulated skeleton from Feature 76 but the partial skeleton in the northern portion of Midden 2 appears to have been disarticulated before it came to rest in the midden. No evidence of deliberate skinning or dismemberment was noted on recovered elements. The tarsal from Feature 26, tentatively identified as domestic dog, is burned.

The 792 white-tailed deer elements recovered from 48 pit features and Midden 2 constitute 63.6% of the Late Archaic faunal assemblage. Given the minimum of 13 adult animals represented in this component, it is clear that deer were the major vertebrate subsistence resource of the Archaic site inhabitants. All parts of the deer carcass are represented and numerous elements are burned or exhibit cut marks. Use of deer elements to produce bone and antler tools is documented by discarded manufacturing debris and modified deer specimens (q.v. Modified Bone and Antler).

LATE ARCHAIC SEASONAL INDICATORS

Remains of migratory birds (goose, duck, and passenger pigeon), animals whose movements are restricted to warmer portions of the year (amphibians and woodchuck), and newborn or very young individuals (rabbit and deer) associated with the Late Archaic component are potential indicators of materials deposited or coming to rest in features during the warmer months of spring, summer, or fall.

Migratory bird remains occur in three site areas. Passenger pigeon and Canada goose elements were recovered from Features 22 and 17, two large deep storage pits in the center of Structure 4 within Feature Cluster I. A duck element was found in Feature 71, within Feature Cluster II, and a second Canada goose element and one passenger pigeon element were recovered from Features 67 and 73, two storage pits near Midden 2 within Feature Cluster 1. The goose and duck were probably taken during spring or fall migration. Passenger pigeons may have been taken in the late fall or early winter (Schorger 1973:280).

Amphibian remains occur in Features 17 and 22 of Structure 4, Feature 35 in Feature Cluster II, and three pit features (F 68, 77, and 144) in or near Midden 2 within Feature Cluster I. These remains probably do not represent purposeful disposal of debris by site inhabitants but do indicate animals which became entrapped in open pit features during warmer periods of the year.

Woodchuck elements were present in Feature 22 of Structure 4, Feature 71 of Feature Cluster II, and Features 27, 73, 84, 87, and 143 of Feature Cluster I. Very young rabbit remains were found in Features 17 and 18 of Structure 4 and Feature 33 in Feature Cluster II.

Mandible segments or limb elements indicating deer fawns or young of the year were located in Features 70 and 104 of Feature Cluster II and Features 67, 73, and 86 of Feature Cluster I.

It appears, therefore, that vertebrate materials indicative of warm season occupation and/or accidental entrapment of warm season animals (i.e. amphibians) were present in all areas of the site which contained Late Archaic materials. Excluding passenger pigeon, no definitive indicators of winter occupation were noted. However, with the exceptions noted above, most of the mammals present in the Late Archaic assemblage would have been available in the site area year-round.

LATE WOODLAND COMPONENT

Four Late Woodland pit features and one midden area (Midden 4) contained 4,401 (2,271.1 g) bone specimens. Well over half of this material by count (2,899 specimens) and 65.9% by weight is burned. A shallow (Class 3) earth oven (Feature 149) and the overlying midden area (Midden 4), which contains a probable discharge area from the cooking pit, produced over one-half of the Late Woodland assemblage (3,003 specimens, 1,371.7 g). This contributes to the high percentage of burned materials from this component.

The Late Woodland component produced only 474 identifiable elements including fish (8 specimens), reptile (327 specimens), amphibian (2 specimens), bird (6 specimens), and mammal (131 specimens). In addition, 57 1.6 mm fish elements or element fragments were identified from these features.

Fish specimens from the Woodland component are limited to 2 hogsucker, 4 sunfish, 12 sucker, and 47 elements or fragments identified simply as fish. The majority of fish elements (46 specimens) are from Feature 60, the medium (Class 2) storage pit later used as an earth oven. A single sucker element and 2 element fragments were found in Feature 48 and one sucker element and 15 fragments were recovered from Midden 4. These specimens represent fishes common to streams such as Sugar Creek and are presumed to be present in the Woodland features as a result of procurement by site inhabitants.

Reptile remains from this component, as with the site as a whole, constitute over half (69.0%) of the identified faunal materials. Eleven snake vertebrae are scattered throughout the pits and midden areas; however, the bulk of reptile remains are box turtle shell fragments. Seventy eastern box turtle carapace or plastron fragments and 236 turtle shell fragments were scattered in the pit features (140 specimens) and in the midden areas (166 specimens). At least one complete animal is represented in Feature 48 and all but four of the specimens from this feature are burned. Feature 60 contained at least one complete carapace and plastron plus three box turtle limb elements. Thirty-seven shell fragments from this feature are burned. Only seven shell fragments were recovered from Feature 149, the earth oven; however, one complete carapace and plastron was noted in the field in the midden area overlying this feature. Plastron segments representing an additional animal or shell were recovered from the midden. It is likely therefore, that no more than 4 or 5 individuals are represented by box turtle remains in the Woodland component.

Isolated fragments of mud or musk turtle were found in Feature 48 (one specimen) and the midden area (two specimens); all three specimens are burned. Six shell fragments and one limb element of softshell turtle were recovered from the midden area; five of the shell fragments are burned. None of the turtle limb elements recovered from this component are cut and the possible subsistence use of these animals is uncertain.

Bird remains found in the Late Woodland component are limited to two turkey wing elements and a proximal tarsometatarsus from Feature 60 and three wing elements from Feature 149. At least two birds are represented. One element from Feature 60 and all three from Feature 149 are burned. It is presumed, despite the absence of cut marks on recovered elements, that turkey remains are present in the Woodland component as a result of procurement by site inhabitants as a food resource.

Mammal remains from this component are clearly dominated by a single taxa, the white-tailed deer. Of the 131 identified mammal specimens, 115 (87.8%) are deer. Other taxa present include opossum (one specimen), cottontail rabbit (four specimens), tree squirrel (one specimen), mouse or vole (three specimens), fox (two specimens), and raccoon (five specimens). The mouse or vole elements are from Midden 4 and probably represent commensal pests. The single opossum element is from the midden. The two fox elements, articulating foot bones, were recovered from Feature 60. Raccoon bones from this component consist of three isolated teeth from the midden area and two front leg bones, one from Feature 48 which is burned and one from Feature 60.

White-tailed deer bones were about evenly divided between pit contexts (52 specimens) and the midden areas (63 specimens). At least six animals are represented in the Woodland component by left fibular tarsals recovered from Feature 48 (one specimen), Feature 60 (two specimens), Feature 149 (one specimen), and the midden area (two specimens). Forty-two deer elements are burned and 4 exhibit cut marks.

Disregarding turtle shell fragments, the majority of which may not represent subsistence debris, white-tailed deer clearly dominate subsistence remains from the Woodland component. Other animals at least minimally represented are fish, wild turkey, opossum, cottontail, squirrel, fox, and raccoon. These animals undoubtedly also contributed to Late Woodland subsistence.

HISTORIC COMPONENT

The historic pit feature (F 25) contained 599 (422.0 g) bone fragments. Two-hundred (81.7 g) fragments or 13.3% of the bone from the feature was burned. The 75 identified specimens from this feature include fish (4 specimens), turtle (6 specimens), snake (1 specimen), bird (2 specimens), and mammal (62 specimens). Approximately 5.8 g of eggshell was also recovered from the feature. In addition, 9 l.6 mm fish specimens were identified from this feature.

One sucker (Catostomidae) element, two black bass (*Micropterus* sp.) vertebrae, and one fish scale indicate that fish were apparently taken by the historic site inhabitants but the importance of this resource in their diet cannot be estimated from these few specimens. None of the fish elements are burned.

Six turtle shell fragments were recovered from the matrix of the historic feature, three of these fragments are burned. While these shell fragments may have entered the feature during the historic occupation, it is more likely, given the large number of turtle shell fragments found throughout the prehistoric components, that the specimens were incorporated into the historic component by general surface disturbance or wash or when the original excavation of the historic feature intruded into a prehistoric pit feature (F 148). One burned snake vertebra is also a probable non-subsistence contaminant.

The two bird elements recovered from Feature 25, a cervical vertebra and a humerus, were identified as domestic chicken (*Gallus gallus*). The humerus segment is burned. Numerous eggshell fragments, which appear to be from chicken eggs, were also recovered. Field notes indicate that these fragments were not scattered randomly through the pit fill but occurred in small clusters, probably representing discard of whole eggs or broken shells.

Remains of native mammals in Feature 25 are limited to two squirrel elements and five white-tailed deer elements. The squirrel elements, a radius and a portion of an innominate, could represent a single animal. The deer elements include an ulna segment, a partial scapula, a partial fibular tarsal, and two metatarsal fragments. The ulna fragment and one metatarsal fragment are burned. These elements could have been deposited in the feature as a result of hunting by historic occupants; however, the deer remains may also represent prehistoric debris incorporated into the historic matrix. A burned prehistoric deer bone awl fragment recovered from the Feature 25 matrix suggests the latter may be the case.

The majority of the identified faunal materials (55 specimens, 73.3%) from Feature 25 was bone debris of domestic pig (*Sus scrofa*). These remains include 1 isolated tooth, 19 cervical, thoracic, and lumbar vertebra fragments, and 14 rib shaft segments or fragments. Front limb elements include four humerus fragments and one carpal. Hind limb elements include two distal and one proximal tibia, two fibula fragments, and one patella. The remainder of the sample was made up of foot elements; metapodials, phalanges, and one sesamoid (10 specimens). With the exception of cranial debris, all portions of the hog carcass are represented, although no more than two animals can be documented by two right proximal tibia. At least two animals are also indicated by metatarsals of different sizes, one with fused and one with unfused distal epiphyses.

Six pig elements are burned and six exhibit cut marks on at least one margin. One lumbar vertebra has been cut or chopped vertically through the centrum, possibly representing separation of the hindquarters from the carcass. Two lumbar vertebra have also been cut or chopped through the transverse processes. One rib shaft segment and one proximal rib have cut marks on their ventral surfaces. Several other rib segments appear to have been cut or chopped at one or both ends; however, subsequent breakage or erosion make this observation uncertain. Finally, a humerus diaphysis fragment has a cut mark on its lateral face. Such a mark might have resulted from the cutting of meat from a shoulder ham.

Humerus and tibia fragments may represent forequarter and hindquarter hams. Foot elements may be the remains of pickled or boiled pigs feet; however, these elements plus vertebral fragments may also be butchering debris. In general, the fragmentary pig bone, a few fish bones, two squirrel bones, and two chicken bones suggest that this area was used a a dump for historic food debris and possibly some butchering debris as well. It does not, however, appear to represent a major deposit of kitchen debris.

MODIFIED BONE AND ANTLER

One-hundred-nineteen pieces of modified bone and antler were recovered. These specimens were distributed throughout 38 pit features, Midden 2, and Midden 4 (Table 28). Ninety-four specimens are from Late Archaic features, eight are from Late Woodland features, and four are from the historic feature. Five specimens are from a Late Archaic/Terminal Archaic feature and eight are from features which lacked diagnostic artifacts.

With the exception of 3 complete or nearly complete antler tools, 1 partial turtle shell bowl, and 1 perforated tooth, modified specimens consist of awl tips, shaft segments, or preforms (47 specimens), fishhook fragments and manufacturing debris (3 specimens), turtle shell fragments (31 specimens), antler tine, tip segments, and manufacturing debris (21 specimens), cut mammal jaws (2 specimens), historic comb fragments (3 specimens), and miscellaneous modified fragments or manufacturing debris (7 specimens). An additional 17 unmodified whole antlers and beam, tine, or tip segments are considered here since they quite possibly represent raw materials brought to the site for tool manufacture.

Identified taxa represented in the modified bone assemblage are limited to turtle (32 specimens), wild turkey (3 specimens), striped skunk (2 specimens), canid (1 specimen), and white-tailed deer (6 specimens). Modified antler appears to be from deer, although many of the tine and tip segments are burned and/or so modified that other cervids (i.e. elk) cannot be ruled out. One piece of manufacturing debris is a fragment of an unidentified bird bone diaphysis. All other modified specimens appear to be split large mammal bone or possibly antler but are too fragmentary or altered to allow more specific identification.

Modified materials were not concentrated in particular features or portions of the site. Large deep (Class 1) storage pits produced 48 specimens, medium (Class 2) storage pits contained 33 specimens, and shallow and large shallow (Class 3 and Class 4) pits produced 47 specimens. Three modified specimens are from Midden 2 and five are from Midden 4. The majority of pits which produced modified materials contained 1-5 specimens. Only 2 pits contained more than 10 specimens. Feature 27

Table 28. Modified Bone and Antler.

	Large Deep (Class 1) Pits															Medium (Class 2) Pits										
	17	18	22	26	27	40	48	51	67	71	84	87	101	144	Sub-total	33	56	60	70	73	76	83	86	143	148	Sub-total
Bone Awl																										
Point	1		1	1	1			1	1	1	1		1		9			1			1	1		1	1	5
Segment			1	2	5		1		2	1		1			13				1		1	1			1	4
Proximal End												1			1											
Preform																			1				1			2
Fishhook																										
Shank	1														1											
Point																							1			1
Manufacturing Debris																				1						1
Drilled Tooth																									1	1
Turtle Shell																										
Fragment																1						1		2	1	5
Bowl																										
Manufacturing Debris																										
Antler																										
Tip					2	1									3						2			1		3
Tine Segment	1		1		2										4											
Tool		2												1	3											
Manufacturing Debris																								1		1
Miscellaneous Fragment																								1		1
(Unmodified)		1	1		2	1			1	2				2	10		1			2	4					7
Cut Mammal Jaw																										
Bone Comb																										
Manufacturing Debris					1	1									2										1	1
Miscellaneous										1				1	2							1				1
Site Total	3	3	4	3	13	3	1	1	4	5	1	2	1	4	48	1	1	1	2	3	8	4	2	6	5	33

Table 28. (continued).

	Shallow (Class 3) Pits											Large Shallow (Class 4) Pits					Middens		
	32	39	63	80	100	104	126	128	141	145	Sub-total	10	11	25	72	Sub-total	M 2	M 4	Site Total
Bone Awl																			
Point		1								1	2	1		1		2	1	2	21
Segment	1			1							2		1		1	2			21
Proximal End										1	1								2
Preform																		1	3
Fishhook																			
Shank																			1
Point																			1
Manufacturing Debris																			1
Drilled Tooth																			1
Turtle Shell																			
Fragment			1		7				12	1	21						1		27
Bowl								1			1								1
Manufacturing Debris												4				4			4
Antler																			
Tip						1			2		3						1		10
Tine segment																			4
Tool																			3
Manufacturing Debris																			1
Miscellaneous Fragment									5		5								6
(Unmodified)																			17
Cut Mammal Jaw																		2	2
Bone Comb														3		3			3
Manufacturing Debris							1				1								4
Miscellaneous																			3
Site Total	1	1	1	1	7	1	1	1	19	3	36	5	1	4	1	11	3	5	136

contained six awl fragments, four antler tine or tip segments, and three pieces of unmodified antler or manufacturing debris. Feature 141 produced 19 modified specimens, 12 of which were turtle shell fragments and 7 of which were antler.

Split Bone/Splinter Awls (44 Specimens)

While no complete pointed bone tools were recovered, 44 awl fragments and 3 probable awl preforms were recovered from 26 pit features, Midden 2, and Midden 4. Thirty-six of these specimens came from Late Archaic pit features, six are from Late Woodland pit features and Midden 4, and one specimen is from the historic pit feature. One specimen is from a Late Archaic/Terminal Archaic feature and three specimens are from pits which produced no diagnostic artifacts.

Twenty-one awl tips were recovered. Thirteen of these are from the 1.6 mm sample. All appear to be made of split bone or thick walled compact bone tissue from a large mammal, probably deer. Many of the fragments are burned or calcined (11 specimens) making the material from which they were manufactured, whether bone or antler, difficult to determine. The broken proximal edges of these tips range from subrectangular to nearly circular in cross section and most exhibit polish and longitudinal striations on intact surfaces.

Four specimens recovered from Features 10, 25, 51, and 143 have uneven edges tapering to uneven sided points and appear to have been worked on otherwise unmodified or shaped long bone splinters. One of these specimens has been ground to an extremely thin sharp point (Figure 73E). Five specimens have thin sharp finely pointed tips which are circular to oval or subrectangular in cross section. Nine points were somewhat blunted or dulled and show slight flaking or battering of their tips. Six specimens were broken at the tip but are round to subrectangular in cross section.

The specimen from Feature 25, the historic pit, is a burned and somewhat eroded distal awl shaft segment with the point broken away. It appears to have been manufactured from a split mammal long bone and is V-shape in cross section.

Twenty-one broken awl shaft segments were recovered. Eleven of these specimens are burned. Cross sections vary from V-shape or triangular to subrectangular and appear to be formed of large mammal long bone compact tissue or antler. Several of the segments are extremely flat with nearly parallel lateral edges while other segments have gradually tapering sides. All segments show some degree of rounding and smoothing of the outer edges and many are highly polished and smoothed. Several segments have light parallel striations on one or more sides, running parallel to the long axis of the segment. One specimen, from Feature 67, appears to be a left proximal/anterior diaphysis fragment of a turkey tarsometatarsus. The specimen is very small (ca. 13 mm long) and burned. However, the anterior groove of the element and the pronounced ridge on the lateral edge of the groove are still clearly visible. The broken lateral edges of this segment appear rounded and smoothed and the specimen exhibits a high overall polish.

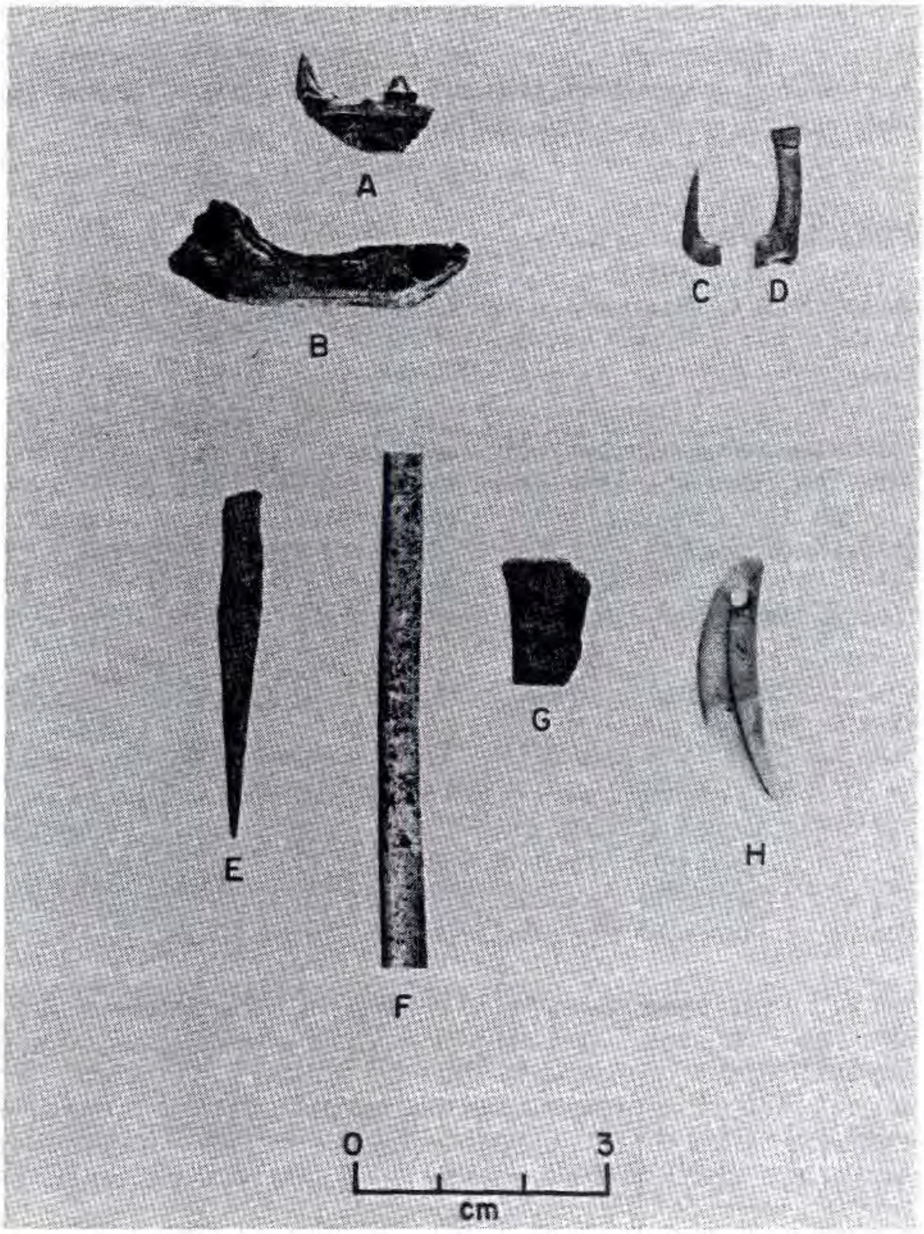


Figure 73. Modified Antler and Bone. A-Cut and Ground Skunk Jaw; B-Polished and Striated Skunk Jaw; C-Fishhook Point; D-Fishhook Shank; E-Long Bone Splinter Awl; F-Antler Pin Segment or Narrow Antler Awl; G-Butt-End of Split Mammal Long Bone Awl; H-Drilled Canine Tooth.

Two broken proximal or butt-end awl segments were recovered. One, from Feature 87, is manufactured from a flat segment of split mammal long bone. The remnants of heavily reduced and smoothed cancellous tissue can be seen on one face of the specimen. The segment is roughly rectangular in cross section and all intact faces and margins are extremely smooth, rounded, and highly polished (Figure 73G). A second possible proximal segment is from Feature 145, a shallow Late Archaic earth oven in the northern half of Midden 2. This specimen is manufactured from a thick-walled (ca. 6-8 mm) splinter of long bone compact tissue and is roughly oval in cross section. Although the specimen is broken and slightly eroded, one unbroken end appears to be rounded and slightly flattened on one side.

Awl Preforms (3 Specimens)

Three elements which appear to be awl preforms were recovered from two Late Archaic pit features and the Late Woodland midden.

A heavy-walled split metatarsal diaphysis segment was recovered from Feature 70, a Late Archaic storage pit located in Feature Cluster II. The segment (Figure 74E) appears to be the posterior medial or lateral diaphysis edge. It is approximately 105 mm in length and about 8-10 mm in diameter at mid-point. No modification is apparent on the proximal half of the element but the distal or point end has been repeatedly scraped or carved to form a blunted rounded point. This rough point does not appear to have been ground or sharpened.

The left tarsometatarsus of a turkey (Figure 74D) was found in Feature 86, a Late Archaic storage pit located near Midden 2 in Feature Cluster I. The element is unaltered on the proximal end and has been broken at approximately mid-diaphysis. There are multiple long parallel striations on the diaphysis above the break and the posterior face of the diaphysis has been thinned by scraping above the broken edge. Whole unsplit turkey tarsometatarsal awls, with a sharpened angled point ground on the distal end of the diaphysis, are a commonly reported artifact from Archaic sites in the Southeast (Lewis and Lewis 1961; Webb and DeJarnette 1942).

A deer metatarsal preform was found in Midden 4. The specimen (Figure 74F) consists of the posterior/lateral one-fourth of a proximal left metatarsal. The element has been broken about midway between the proximal and distal epiphyses (length=33.2 mm). The remaining portion of the proximal epiphysis is unmodified and the broken edges of the bone have not been shaped or ground. However, the original lateral and posterior surfaces of the diaphysis are covered with light parallel striations which run the entire length of the diaphysis segment.

Bone Fishhooks (2 Specimens)

Two fishhook fragments, a shank and a point, were recovered from Late Archaic pit features. The shank was found in Feature 17, one of the large deep storage pits in

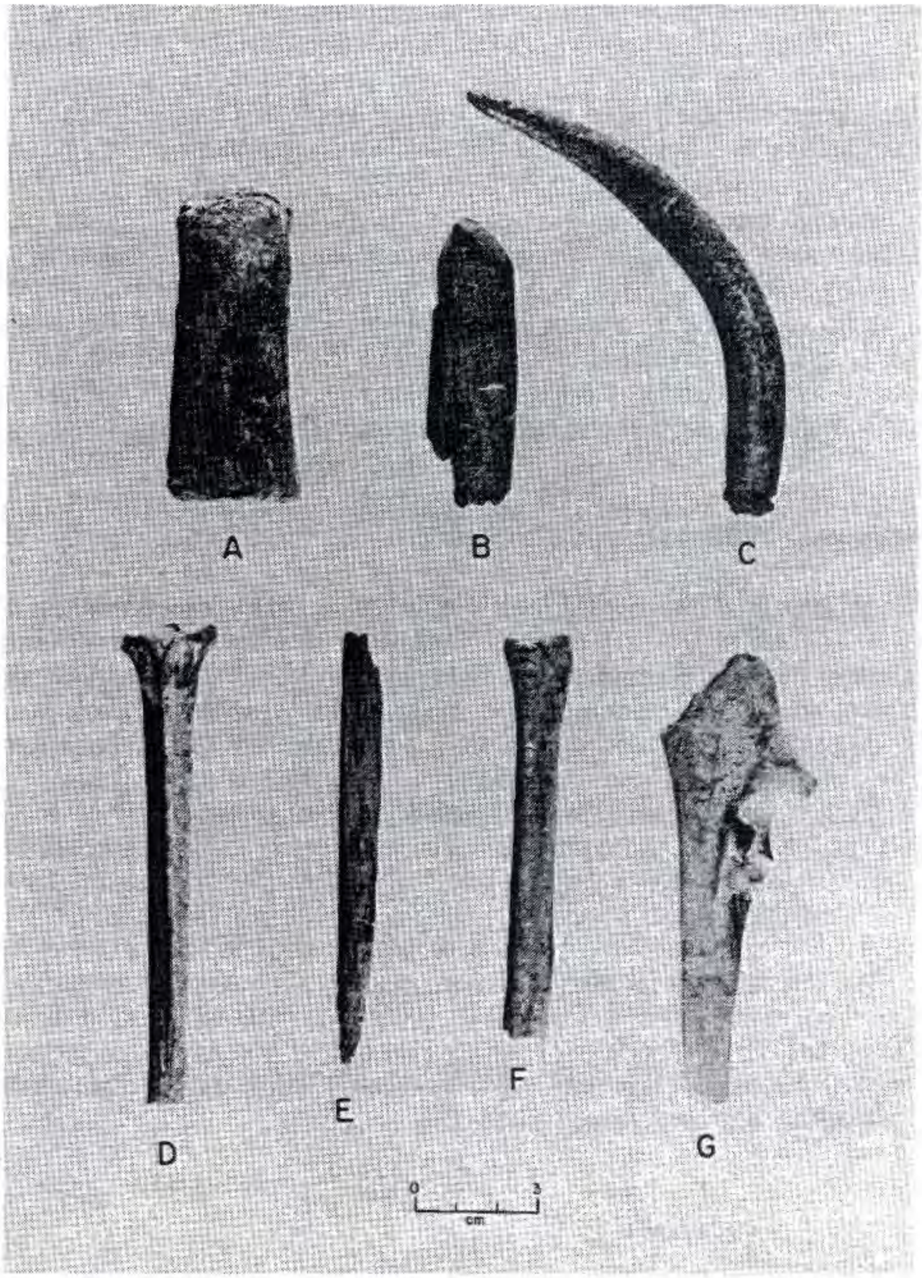


Figure 74. Modified Antler and Turkey Bone and Deer Bone Preforms and Manufacturing Debris. A-Antler Beam Segment Similar to a Drift or Punch; B-Antler Beam Segment for Scraping or Rubbing; C-Antler Tine Tip; D-Turkey Tarsometatarsus Awl Preform; E-Split Metatarsal Awl Preform; F-Deer Metatarsal Awl Preform; G-Deer Ulna Fishhook Manufacturing Debris.

the center of Structure 4. The specimen (Figure 73D) is complete at the proximal end but the point is broken at the bottom of the distal curve. It is manufactured of compact mammal long bone and has been grooved and snapped at the proximal end of the shank and at the distal end below the hook. The shank is 29.0 mm in total length and has been grooved around three-fourths of its circumference 2.6 mm below the proximal end. The shank is subrectangular in cross section and all intact faces are polished and striated. The proximal and distal grooved and snapped margins have not, however, been smoothed or rounded. It is possible that the point was broken from this specimen during manufacture and the unfinished fishhook was discarded.

A thin extremely sharp fishhook point (Figure 73C) was recovered from Feature 86, a medium storage pit near Midden 2, which also contained the turkey bone awl preform. This hook fragment has been broken at the approximate midpoint of the distal curve. The hook is 1.8 mm in total length, 2-3 mm in width at the base of the curve, and subrectangular in cross section. The base of the curve is concavo-convex in side view, perhaps due to heavier grinding or grooving on one side of the fishhook preform to produce the original central oval cutout from which the hook element was formed.

Fishhook Manufacturing Debris (1 Specimen)

A right proximal deer ulna from Feature 73, a Late Archaic medium storage pit just south of Midden 2, appears to have been used to produce a bone fishhook. The proximal half of the ulna (Figure 74G) is complete and unmodified except for cutmarks on the medial face of the olecranon above and just behind the articular surface. The cutmarks are probably from dismemberment or defleshing of the skeletal element. The element has been grooved and snapped approximately one-third of the way down the diaphysis shaft. The grooving is still visible on the anterior half of the remaining diaphysis edge. However, the central portion of the diaphysis was thinned and an oval opening was ground or broken away prior to breaking off the distal portion of the diaphysis. While the anterior edge of the ulna apparently remained intact, the posterior margin of the ulna diaphysis was chipped or ground back to form the thin hook of the element. The thicker anterior shank portion was then grooved and snapped from the proximal portion of the ulna. Similar ulna fishhook manufacturing debris has been noted at southeastern Archaic sites such as Eva (Lewis and Lewis 1961:81) and Indian Knoll (Webb 1946) and at the later Woodland site (LI^{V}36) on the Tennessee River in Limestone County, Alabama (Webb 1939:77).

Drilled Canine (1 Specimen)

The only bone artifact of personal ornament is a drilled canine tooth (Figure 73H) recovered from Feature 148, a medium storage pit superimposed by the historic pit (F 25). The tooth is from a large canid, probably a domestic dog. The enameled upper portion of the tooth is essentially unaltered, although the point of the tooth is highly polished and rounded. The root portion is also unaltered in shape, however the entire surface has been smoothed and exhibits a dull lustrous polish. A biconical circular hole, approximately 1.9 mm in diameter, has been drilled approximately 2.5 mm above the tip of the root.

Modified Turtle Shell (32 Specimens)

Fragments of modified turtle shell were recovered from seven Late Archaic pit features (25 specimens) and the Late Archaic midden (1 specimen). An additional fragment is from Feature 148. These carapace fragments, many of which are burned, all show striations and/or polish on their inner surfaces. On neural or pleural segments vertebral attachments have been cut or ground away to produce a flat surface. Several of the fragments have random striations or slight polish on their outer surfaces as well. All fragments appear to be from eastern box turtle shells.

A broken segment of a finely finished turtle shell bowl was recovered from Feature 128, a shallow pit of unknown function and cultural affiliation possibly associated with Structure 2. The bowl is formed of an eastern box turtle carapace. The thickened portions of marginal segments have been removed from the carapace and the resultant edges are smoothed, rounded, and polished. Vertebral attachments on the inner surfaces of the neurals and pleurals have also been cut or ground away and the entire inner surface of the shell is smooth, highly polished, and covered with short randomly oriented striations. The outer surface of the shell, while still showing the basic segmental morphology and ridges of the neural segments, is also smoothed and polished.

Four fragments of turtle shell manufacturing debris were recovered from Feature 10, a large shallow (Class 4) pit located at the edge of Feature Cluster III, which contained Late Archaic and Terminal Archaic artifacts. These specimens are box turtle carapace marginal segments which have been cut and snapped above the thickened shell edge. Removal of this thickened edge would be a step in the manufacturing of a shell bowl such as that found in Feature 128.

Modified Antler (24 Specimens)

Ten antler tine tips, 4 tine segments, 3 whole or partial beam or tine tools, and 7 modified fragments or fragments of manufacturing debris were recovered from 14 Late Archaic pits (23 specimens) and Midden 2 (1 specimen).

Broken tine tips are generally burned and appear to be rounded and polished. Although some of these fragments may have been shaped naturally by deer rubbing and scraping their antlers, several of the tip fragments show striations and slight battering or chipping and may have been part of antler flakers (Lewis and Lewis 1961:96, Plates 46 and 47; Winters 1969:47). Three tine segments were grooved and snapped at their distal ends, probably in preparation for use as flakers. One complete segment from Feature 104, a shallow pit associated with Structure 1, is approximately 121.9 mm in length (Figure 74C). The surface of this tine segment near the tip is striated and polished and the tip is slightly battered or chipped. Another tine segment from Feature 17, associated with Structure 4, is burned but shows heavy, parallel, and overlapping striations covering the entire surface of the specimen. The tip of this segment has been broken away.

A thick (25.6 mm) beam segment (Figure 74A) from Feature 18, associated with Structure 4, has been grooved and snapped at one end. The opposite end of this short (75.8 mm) segment has been scraped and/or ground to form a rounded blunt surface. Although this specimen shows little evidence of use, it is similar in morphology to antler beam "drifts" or "punches" (Lewis and Lewis 1961:96, Plate 99; Webb 1939:32, Plate 13; Winters 1969:47) presumably used in the pressure flaking of stone tools.

A second beam segment (Figure 74B), from Feature 144 in Midden 2, is partially burned and broken but appears to be a tool used for scraping or rubbing rather than pressure flaking (Lewis and Kneberg 1959; Lewis and Lewis 1961:91). Where still intact, the beam surfaces are smoothed, rounded, and polished and the working surface of the specimen is flattened, smooth, and also highly polished. This broad working surface has been worked or worn at an angle to the long axis of the beam segment and exhibits light parallel striations but no chipping or pitting.

A segment of a possible antler pin or narrow awl was recovered from Feature 141, a shallow (Class 3) pit located in the northern portion of Midden 2. This carefully shaped straight cylindrical segment (Figure 73F) is heavily calcined but appears to have been manufactured from compact antler tissue and is approximately 5 mm in diameter.

Manufacturing debris or potential raw material is represented by antler found in 11 Late Archaic pit features. Some of these antler specimens are brittle and completely fragmented, others show no clear evidence of human modification and may actually be broken from discarded butchering debris. Several of the specimens are antler bases still attached to frontal fragments while others are shed antler beams with burrs. A complete right antler with attached frontal fragment from Feature 143 is clearly manufacturing debris, with two tines cut or chopped from the antler beams. A beam or tine segment, also from Feature 143, appears to have been deliberately split. Although the outer surfaces of this segment are smoothed and polished, the broken edges and face show no further modification.

Modified Animal Jaws (2 Specimens)

Two striped skunk (*Mephitis mephitis*) right mandibles were recovered from the Late Woodland midden (Midden 4). One specimen, a broken anterior fragment (Figure 73A), has been cut and ground through the lingual surface, cutting through the root of the canine tooth. The second mandible is complete (Figure 73B) except for breakage of the superior edge of the coronoid process. It is polished and striated on both its buccal and lingual surfaces. Cut mammal jaws, probably parts of ceremonial bundles or ornaments, are often found in Archaic assemblages in the Southeast including Ledbetter sites or components (Lewis and Kneberg 1959:169, 172, Figure 4).

Bone Comb Fragments (3 Specimens)

Two bone or ivory comb teeth were recovered from the historic pit (F 25). These specimens are narrow and flat and taper to a round point at one end. A third small fragment of the same material is slightly thicker and may represent part of the spine or thicker end teeth of a comb.

Manufacturing Debris and Miscellaneous Modified Fragments (7 Specimens)

Manufacturing debris includes two split deer metapodial fragments and two bird bone (one is a turkey ulna) fragments which have been grooved and snapped at one end. The metapodial fragments are probably residue from the manufacture of bone awls. The bird bone fragments may be from the manufacture of bone tubes or beads.

Miscellaneous modified specimens include a deer rib shaft segment which has numerous small horizontal cut marks along its dorsal face and a burned and highly polished fragment of small mammal or bird bone diaphysis with randomly oriented light striations on its outer surface. Finally, the distal portion of a deer humerus is highly polished on all diaphysis faces but is otherwise unmodified.

CHAPTER X

INVERTEBRATE FAUNAL REMAINS

Charles Bentz, Jr.

A total of 566 (113.4 g) complete or nearly complete identifiable mollusks and 850 (45.2 g) fragments of mollusks was recovered through the excavation, waterscreening, and flotation of feature fill (Table 29). The mollusk remains were initially separated from other cultural and noncultural items according to previously outlined procedures (q.v. Field and Laboratory Methods). The complete or nearly complete mollusks consist of freshwater mussels (13 specimens), freshwater aquatic gastropods (547 specimens), and terrestrial gastropods (6 specimens).

Nearly all (99.3%) of the complete or nearly complete aquatic gastropods and about two-thirds (61.5%) of the mussel valves were recovered from two Late Woodland pits (F 60 and 149). Approximately one-half (48.3%) of these aquatic gastropods are burned. Feature 60 was a medium (Class 2) storage pit reused as an earth oven and Feature 149 was an earth oven found beneath Midden 4. A pocket of fill measuring 30 cm in diameter and 20 cm in depth near the base of Feature 60 contained aquatic gastropods and numerous mussel valves and valve fragments. The mollusk remains in Feature 149 were found between and above the limestone blocks near the bottom of the pit and consisted of mussel valve fragments and numerous aquatic gastropods. A large shallow (Class 4) historic pit (F 25) contained five mussel valves, an aquatic gastropod, and fragments of a large terrestrial gastropod. Six Late Archaic large deep (Class 1) and medium (Class 2) storage pits (F 22, 27, 52, 67, 70, and 73) contained occasional mollusk remains. A medium (Class 2) storage pit (F 148) of indeterminate cultural affiliation and a tree disturbance utilized as an earth oven (F 120) also contained a few mollusk fragments.

Freshwater mollusks were gathered in substantial quantities during the Late Archaic and to a lesser extent during the Late Woodland along major rivers in the Interior Low Plateau Physiographic Province (Faulkner ed. 1968; Klippel and Morey 1986; Webb and DeJarnette 1942). Freshwater mussels and gastropods were previously identified as a food and nutrient source that was most likely procured in the summer and/or fall (Klippel and Morey 1986:799-800; Parmalee and Klippel 1974:421). Freshwater mollusks, although not procured in large amounts by the prehistoric and historic inhabitants of the Bailey site, probably represented such a food and nutrient supplement that was available during warm weather.

Table 29. Invertebrate Faunal Remains.

			Mussel Valves			Aquatic Gastropods				Terrestial Gastropods	
Feature Number	Feature Cluster	Cultural Affiliation[a]	Unburned Complete	Unburned Fragments	Burned Fragments	Unburned Complete	Burned Complete	Unburned Fragments	Burned Fragments	Unburned Complete	Unburned Fragments
					Large Deep (Class 1) Pits[c]						
22	I	LA		1 (0.1)[b]							
27	I	LA				1 (0.3)					
67	I	LA		2 (0.1)		2 (2.2)					
					Medium (Class 2) Pits[c]						
60	II	LW	8 (26.2)	122 (15.2)	4 (1.8)	38 (5.3)	43 (8.3)	93 (2.9)	50 (1.7)		
73	I	LA						6 (0.1)			
148	I	ID		9 (1.4)							
					Shallow (Class 3) Pit[c]						
149	III	LW		7 (1.5)	11 (0.4)	116 (19.0)	90 (14.6)	116 (5.7)	117 (3.7)	2 (0.1)	
					Large Shallow (Class 4) Pit[c]						
25	I	H	5 (24.0)			1 (0.3)					7 (0.2)
Subtotal			13 (50.2)	141 (18.3)	15 (2.2)	158 (27.1)	133 (22.9)	215 (8.7)	167 (5.4)	2 (0.1)	7 (0.2)
					Large Deep (Class 1) Pit[d]						
52	II	LA		2 (0.1)				1 (0.1)			
					Medium (Class 2) Pits[d]						
60	II	LW		7 (0.4)	4 (0.3)	2 (0.1)	5 (0.4)	11 (0.7)	9 (0.4)		
70	II	LA								2 (0.1)	
					Shallow (Class 3) Pit[d]						
149	III	LW		4 (0.3)	2 (0.1)	125 (5.1)	124 (7.3)	156 (4.1)	108 (3.8)	2 (0.1)	
					Miscellaneous[d]						
120[e]	IV							1 (0.1)			
Subtotal				13 (0.8)	6 (0.4)	127 (5.2)	129 (7.7)	169 (5.0)	117 (4.2)	4 (0.2)	
Total			13 (50.2)	154 (19.1)	21 (2.6)	285 (32.3)	262 (30.6)	384 (13.7)	284 (9.6)	6 (0.3)	7 (0.2)

[a] LA-Late Archaic; LW-Late Woodland; H-Historic; ID-Indeterminate.

[b] Number of pieces (weight in grams).

[c] All shell from trowel sorted context, 6.4 mm waterscreened residue, and selected 6.4 mm floated residue.

[d] Shell samples from 1.6 mm waterscreened residue.

[e] Tree disturbance.

CHAPTER XI

PLANT REMAINS

Gary D. Crites

LABORATORY METHODS

Thirty-two pit features and two middens were selected for analysis. Most of the pit features were situated in or near structures and middens. Three medium (Class 2) storage pits (F 105, 106, and 108) and two shallow (Class 3) pits (F 104 and 107), including a hearth (F 107), were located in a Late Archaic shelter (Structure 1). Five shallow (Class 3) pits (F 124, 126, 127, 128, and 131) were within or adjacent to a probable Woodland structure (Structure 2). Three large deep (Class 1) and medium (Class 2) storage pits (F 43, 52, and 55) and two shallow (Class 3) pits (F 53 and 54), including a hearth (F 53), were located in and adjacent to a Late Archaic shelter (Structure 3). Three large deep (Class 1) storage pits (F 17, 18, and 22) and two shallow (Class 3) hearths (F 14 and 16) were within an enclosed Late Archaic structure (Structure 4). Three large deep (Class 1) storage pits (F 79, 101, and 144) and five shallow (Class 3) hearths and earth ovens (F 75, 82, 96, 140, and 145) were situated in and around a series of superimposed Late Archaic shelters (Structure 5) and the Late Archaic midden (Midden 2). Three Late Woodland pits, a medium (Class 2) storage pit (F 60) reused as an earth oven or stone-lined hearth and two shallow (Class 3) pits (F 32 and 149), including an earth oven (F 149), were scattered across the site. Samples from the Late Archaic midden (Midden 2), a Late Woodland midden (Midden 4), and the large shallow (Class 4) historic pit were also analyzed.

One-hundred percent of the light fraction plant remains recovered from water flotation of the selected pit feature and midden samples was examined. All botanical samples were placed in a nested series of geologic screens (2 mm, 1 mm, and 500 um) and gently shaken. Material retained in the 2 mm screen was sorted into constituent categories (nut/acorn, wood charcoal, seeds, and residue). Each class of material was weighed, as was each family/genus of nuts identified in the 2 mm screen. Percentage representation of various nuts was also calculated. Where possible, 30 fragments of wood charcoal from each sample were identified and the percentage representation of each genus/species was calculated. The amount of plant remains per liter of floated fill from each feature was determined.

Material in the 1 mm and 500 um screens, as well as material in the catch basin under the screens, was scanned for seeds, fleshy fruit fragments, etc. All seeds and seed fragments were removed and counted. Material remaining in the 1 mm and 500 um screens and the catch basin after removal of seeds, etc. was weighed as a single sample constituent (sample residue). Sample residue consisted primarily of very small nut fragments, some wood charcoal, and "dust" from the sample matrix.

The extensive modern and archaeological comparative collections of the University of Tennessee Ethnobotany Laboratory formed the primary source for identifications of the materials. Secondary sources included standard published seed, nut, and wood identification keys (Core et al. 1973; Martin and Barkley 1973; Panshin and deZeeuw 1970; Schopmeyer 1974). All examinations were made with a stereozoom microscope at 10X-70X.

RESULTS

A total of 684.39 grams of light fraction carbonized plant material was recovered from 1,520 liters of fill taken from pit features and middens. A Late Woodland medium storage pit (F 60) and the historic large shallow pit (F 25) yielded 77.8% of the total weight of plant remains and represent 7.8% of the total analyzed flotation volume. Approximately three-fourths (76.5%) of the 34 features analyzed contained less than 0.20 grams of plant remains per liter of floated fill. Four shallow hearths (F 14, 16, 82, and 107) associated with three Late Archaic structures (Structures 1, 4, and 5) contained 0.40-2.02 grams of plant remains per liter of floated fill.

The predominant material from the pit feature and midden samples was wood charcoal (Table 30). Almost all plant food remains were shell fragments of the family Juglandaceae (hickory, walnut, and fragments identifiable only as from the family Juglandaceae). Hickory (no thin-shelled), walnut, and Juglandaceae shell fragments accounted for 97.4% of the total plant foods by weight. Only one prehistoric seed fragment, a honey locust seed fragment in a large deep storage pit (F 22) in Structure 4, was recovered. One peach pit and nine maize cupule fragments were recovered from the historic large shallow pit (F 25). The maize cupule fragments were too badly broken to yield useful measurements of length, width, wing angle, angle, etc.

A minimum of seven genera of plant foods was represented in the pit feature and midden samples. The most common plant food in the samples was hickory shell, occurring in 24 of 34 sample contexts. No plant food remains were recovered from pit features in the Structure 2 area. In fact, almost no carbonized plant material was recovered from these pit features (Table 30).

Wood charcoal representing a minimum of 12 genera and 13 species (including cane) was identified in the samples. The greatest diversity of wood taxa (13) was recovered from the pit features in Structure 4. No wood was recovered from the 2 mm fraction in the Structure 2 area (Table 31). The most commonly occurring woods were hickory (from 23 samples), ash (11 samples), and red oak group (9 samples).

Plant remains from the various sizes and types of features and spatial/temporal contexts are consistent in the lack of any evidence for prehistoric food production efforts. Only the plant remains from the historic pit feature

Table 30. Plant Remains.

				Plant Remains					Plant Foods					
Feature Number	Feature Cluster	Cultural Affiliation[a]	Floated Fill Volume (liters)	Total Plant Remains (g)	Plant Foods	Wood Charcoal	Residue	Plant Remains in Fill Grams/liter	Hickory Shell	Walnut Shell	Juglandaceae Shell	Acorn Shell	Hazelnut Shell	Seeds
								Large Deep (Class 1) Pits						
17	I	LA	75	9.92	1.64 (16.5)[b]	2.25 (22.7)	6.03 (60.8)	0.13	1.64 (100.0)					
18	I	LA	70	5.31	0.23 (4.3)	2.05 (38.6)	3.03 (57.1)	0.08	0.23 (100.0)					
22	I	LA	152	27.49	1.93 (7.0)	9.21 (33.6)	16.35 (59.6)	0.18	1.87 (96.9)			0.01 (0.5)		0.05[c] (7.6)
52	II	LA	80	3.55	1.09 (30.7)	0.63 (17.8)	1.83 (51.5)	0.04	0.87 (79.8)	0.16 (14.7)		0.06 (5.5)		
79	I	LA	90	8.57	4.81 (56.1)	0.95 (11.1)	2.81 (32.8)	0.10	4.81 (100.0)					
101	I	LA	80	5.06	3.43 (67.8)	0.65 (12.8)	0.98 (19.4)	0.06	2.81 (81.9)		0.62 (18.1)			
144	I	LA	70	9.92	5.88 (59.3)	0.43 (4.3)	3.61 (36.4)	0.14	4.89 (79.8)		1.10 (18.7)	0.09 (1.5)		
Subtotal			617	69.82	19.01 (27.2)	16.17 (23.2)	34.64 (49.6)		16.92 (89.0)	0.16 (0.8)	1.72 (9.1)	0.16 (0.8)		0.05 (0.3)
								Medium (Class 2) Pits						
43	II	PLA	60	2.27	0.70 (30.8)	0.51 (22.5)	1.06 (46.7)	0.04	0.61 (87.1)	0.09 (12.9)				
55	II	LA	50	2.74	0.42 (15.3)	0.84 (30.7)	1.48 (54.0)	0.06	0.31 (73.8)		0.11 (26.2)			
60	II	LW	80	308.99	96.67 (31.3)	74.14 (24.0)	138.18 (44.7)	3.86	79.91 (82.7)	2.11 (2.2)	13.63 (14.1)	0.84 (0.9)	0.18 (0.2)	
105	II	LA	60	0.20	0.12 (60.0)	0.07 (35.0)	0.01 (5.0)	0.20	0.12 (100.0)					
106	II	LA	36	0.20		0.12 (60.0)	0.08 (40.0)	0.01						
108	II	LA	49	0.41			0.41 (100.0)	0.01						
Subtotal			335	314.81	97.91 (31.1)	75.68 (24.0)	141.22 (44.9)		80.95 (82.7)	2.20 (2.3)	13.74 (14.0)	0.84 (0.9)	0.18 (0.2)	
								Shallow (Class 3) Pits						
14	I	PLA	15	11.55	2.05 (17.7)	2.99 (25.9)	6.51 (56.4)	0.77	1.99 (97.1)			0.06 (2.9)		
16	I	PLA	16	16.15	3.67 (22.7)	1.04 (6.4)	11.44 (70.8)	1.01	3.67 (100.0)					
32	I	LW	10	0.22		0.13 (59.1)	0.09 (40.9)	0.02						
53	II	PLA	20	3.53	1.37 (38.8)	0.92 (26.1)	1.24 (35.1)	0.18	0.95 (67.9)	0.44 (32.1)				
54	II	PLA	20	0.27	0.11 (40.7)	0.08 (29.6)	0.08 (29.6)	0.01	0.11 (100.0)					
75	I	LA	10	1.98	0.98 (49.5)	0.09 (4.5)	0.91 (46.0)	0.20	0.98 (100.0)					
82	I	PLA	6	12.13	8.08 (66.6)	0.88 (7.3)	3.17 (26.1)	2.02	7.21 (89.2)		0.81 (10.0)	0.06 (0.7)		
96	I	LA	20	0.54	0.24 (44.4)	0.01 (1.9)	0.29 (53.7)	0.05	0.24 (100.0)					
104	II	LA	27	1.84	1.03 (56.0)	0.09 (4.9)	0.72 (39.1)	0.07	0.08 (7.8)	0.61 (59.2)		0.08 (7.8)	0.26 (25.2)	
107	II	PLA	20	7.87	1.43 (18.2)	4.28 (54.4)	2.16 (27.4)	0.40	0.96 (67.1)		0.40 (28.0)	0.07 (4.9)		
124	IV	ID	10	0.01			0.01 (100.0)							
126	IV	ID	10											
127	IV	PW	16											
128	IV	ID	10	0.01			0.01 (100.0)							
131	IV	ID	20	0.06			0.06 (100.0)							
140	I	PLA	20	0.07	0.06 (85.7)		0.01 (14.3)		0.06 (100.0)					
145	I	PLA	20	0.06	0.02 (33.3)	0.01 (16.7)	0.03 (50.0)		0.07 (100.0)					
149	III	LW	40	0.15		0.09 (60.0)	0.06 (40.0)							
Subtotal			310	56.44	19.04 (33.7)	10.61 (18.8)	26.79 (47.5)		16.25 (85.4)	1.05 (5.5)	1.21 (6.4)	0.27 (1.4)	0.26 (1.4)	
								Large Shallow (Class 4) Pit						
25	I	H	38	223.53	1.94 (0.9)	190.46 (85.2)	31.13 (13.9)	5.88						1.94[d] (100.0)
Pit Total			1,300	664.60	137.90 (20.8)	292.92 (44.1)	233.78 (35.2)		114.92 (82.8)	3.41 (2.5)	16.67 (12.1)	1.27 (0.9)	0.44 (0.3)	1.99 (1.4)
								Middens						
Midden 2	I	LA	60	9.17	0.13 (1.4)	7.61 (83.0)	1.43 (15.6)	0.15	0.13 (100.0)					
Midden 4	III	LW	160	10.62	6.57 (61.9)	3.14 (29.6)	0.91 (8.6)	0.07	6.16 (93.8)		0.41 (6.2)			
Site Total			1,520	684.39	144.60 (21.1)	303.67 (44.4)	236.12 (34.5)		120.41 (83.3)	3.41 (2.4)	17.08 (11.8)	1.27 (0.9)	0.44 (0.3)	1.99 (1.4)

[a] LA-Late Archaic; PLA-Probable Late Archaic; PW-Probable Woodland; LW-Late Woodland; H-Historic; ID-Indeterminate.

[b] Weight in grams (Percentage representation).

[c] Honey locust seed fragments.

[d] Peach pit (1.82 g) and nine maize cupule fragments (0.17 g).

Table 31. Wood Charcoal.

Feature Number	Maple	Hickory	Hackberry	Ash	Honey Locust	Walnut	Red Cedar	Red Oak Group	White Oak Group	Oak	Black Locust	Red Mulberry	Elm	Cane	Total
Large Deep (Class 1) Pits															
17		26 (86.7)[a]				4 (13.3)									30
18	6 (20.0)	8 (26.7)		4 (13.3)		4 (13.3)		4 (13.3)					4 (13.3)		30
22		10 (33.3)			8 (26.7)				8 (26.7)					4 (13.3)	30
52		4 (25.0)			4 (25.0)		3 (18.8)			5 (31.2)					16
79		5 (27.8)		4 (22.2)			6 (33.3)			3 (16.7)					18
101		9 (40.9)		3 (13.6)				4 (18.2)		6 (27.3)					22
144	3 (27.3)	8 (72.7)													11
Subtotal	9 (5.7)	70 (44.6)		11 (7.0)	12 (7.6)	8 (5.1)	9 (5.7)	8 (5.1)	6 (5.1)	14 (8.9)			4 (2.6)	4 (2.6)	157
Medium (Class 2) Pits															
43		6 (75.0)						2 (25.0)							8
55	5 (22.7)	9 (40.9)		4 (18.2)						4 (18.2)					22
60		10 (33.3)		4 (13.3)		4 (13.3)		5 (16.7)		3 (10.0)	4 (13.3)				30
105															
106		4 (100.0)													4
108															
Subtotal	5 (7.8)	29 (45.3)		8 (12.5)		4 (6.3)		7 (10.9)		7 (10.9)	4 (6.3)				64
Shallow (Class 3) Pits															
14		7 (23.3)	2 (6.7)			3 (10.0)	6 (20.0)	4 (13.3)			4 (13.3)	4 (13.3)			30
16	8 (26.7)	8 (26.7)		5 (16.7)		4 (13.3)				3 (10.0)				2 (6.7)	30
32		3 (100.0)													3
53		13 (44.8)		5 (17.2)	4 (13.8)					3 (10.4)				4 (13.8)	29
54		2 (40.0)					3 (60.0)								5
75		4 (100.0)													4
82	5 (21.7)	8 (34.8)		3 (13.0)			3 (13.0)			4 (17.4)					23
96		2 (100.0)													2
104					2 (100.0)										2
107	2 (6.7)	11 (36.7)		3 (10.0)		6 (20.0)		8 (26.7)							30
124															
126															
127															
128															
131															
140															
145															
149		3 (100.0)													3
Subtotal	15 (9.3)	61 (37.9)	2 (1.2)	16 (9.9)	6 (3.7)	13 (8.1)	12 (7.5)	12 (7.5)		10 (6.2)	4 (2.5)	4 (2.5)		6 (3.7)	161
Large Shallow (Class 4) Pit															
25	8 (26.7)							15 (50.0)	7 (23.3)						30
Pit Total	37 (9.0)	160 (38.8)	2 (0.5)	35 (8.5)	18 (4.4)	25 (6.1)	21 (5.1)	42 (10.2)	15 (3.6)	31 (7.5)	8 (1.9)	4 (1.0)	4 (1.0)	10 (2.4)	412
Middens															
Midden 2		8 (26.7)	3 (10.0)	3 (10.0)		5 (16.7)	6 (20.0)	5 (16.7)							30
Midden 4		11 (36.7)		5 (16.7)		5 (16.7)	4 (13.3)	5 (16.7)							30
Site Total	37 (7.8)	179 (37.9)	5 (1.1)	43 (9.1)	18 (3.8)	35 (7.4)	31 (6.6)	52 (11.0)	15 (3.2)	31 (6.6)	8 (1.7)	4 (0.8)	4 (0.8)	10 (2.1)	472

[a] Number of pieces (percentage representation).

(F 25) offer any indication of cultivation. The wood charcoals do not suggest any trend toward discernible landscape disturbance. In sum, plant remains from the Bailey site most probably reflect seasonal (late summer to winter) use of arboreal and shrub fruits with little or no effort directed at food production.

CHAPTER XII

HISTORIC COMPONENT

Charles H. Faulkner

A historic component on the Bailey site is represented by 39 artifacts recovered from the Memphis State University test units and 233 artifacts from the University of Tennessee excavations. The former collection includes 19 ceramic sherds, 7 glass fragments, 1 nail fragment, and 12 pieces of plastic (Reed and Dye 1985:46-60). The plastic is obviously modern and is probably the result of trash disposal along the gravel road or State Route 11. Some of the clear glass is also within the "toss zone" of the modern roads. However, the majority of the ceramics, especially the pearlware, is probably associated with the nineteenth century occupation on the site that produced Feature 25, a large shallow refuse filled pit excavated by the University of Tennessee field crew.

Historic artifacts recovered during the Phase III excavations include 2 sherds from the surface/backdirt, 227 artifacts from Feature 25, a glass fragment from Feature 51, a piece of metal from Feature 71, and a sherd and a bead from Feature 148 (Table 32). The three sherds and bead can probably be attributed to the Feature 25 component.

FEATURE 25

Excavation and Morphology

Feature 25 was a large shallow (Class 4) pit with dark humus-laden fill exposed at the base of the plow zone at the northwest corner of Power Unit 1 in Feature Cluster I (Figures 75 and 76). Artifacts exposed on the feature surface immediately indicated this was a historic feature. The excavation strategy was to remove the fill in the south half by 10 cm levels or by natural strata if discernible and to expose the fill in profile. Any natural strata could then be removed in the north half. The feature was much shallower than expected and the fill consisted of only two discernible soil zones. Zone B was the initial fill of the pit and consisted of three substrata. When the pit began to be filled, a very dark grayish-brown silt loam began to form or wash into the empty pit. That the surrounding humus was washed or swept into the pit is indicated by the large amount of prehistoric ceramics and lithics in the fill. There was no concentration of artifacts on the floor of the pit, the only marked accumulation being on the northeast slope where partial vessels and lenses of soil indicated loads of refuse had been dumped in from this direction. It is possible that such substrata were once present on the other side of the feature as well but the southwest side was considerably more truncated by plowing.

Table 32. Historic Artifacts.

Artifact	Surface/ Backdirt	F 25 Surface	F 25 Zone A	F 25 Zone B	F 51	F 71	F 148	Total
Creamware, Undecorated		1	1	24				26
Pearlware, Undecorated	1	1	4	62				68
Pearlware, Polychrome		1	1	24				26
Pearlware, Blue Shell-Edge				8				8
Pearlware, Green Shell-Edge				8				8
Pearlware, Mocha	1							1
Pearlware, Transfer-Printed			1	9				10
Pearlware, Blue Hand-Painted				8				8
Pearlware, Banded				2			1	3
Indeterminate Burned Ceramics		1	1	1				3
Wine Glass				1				1
Glass Stopper				2				2
Container Glass		1	1	18	1			21
Two-Tined Fork		1						1
Teapot Handle			1					1
Teapot Spout				1				1
T-Head Nails				3				3
Indeterminate Nails				5				5
Gunflint				1				1
Spherical Shot				1				1
Straight Pins				22				22
Needle				1				1
Thimble				1				1
Buttons				3				3
Beads				1			1	2
Silver Band				1				1
Horseshoe				1				1
Horseshoe Nails				2				2
Rolled Lead				1				1
Indeterminate Metal						1		1
Total	2	6	10	211	1	1	2	233

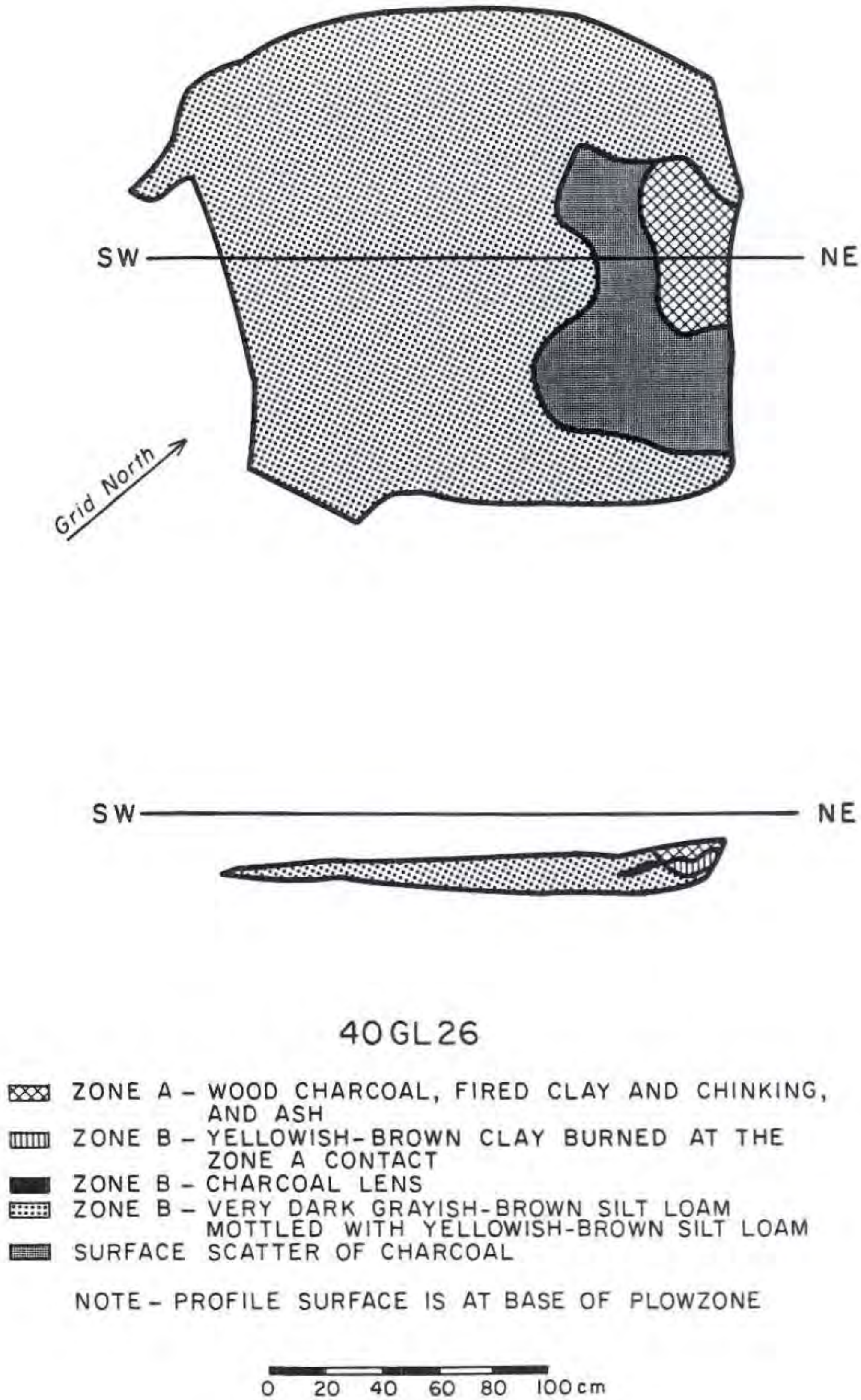


Figure 75. Plan and Profile of Feature 25.

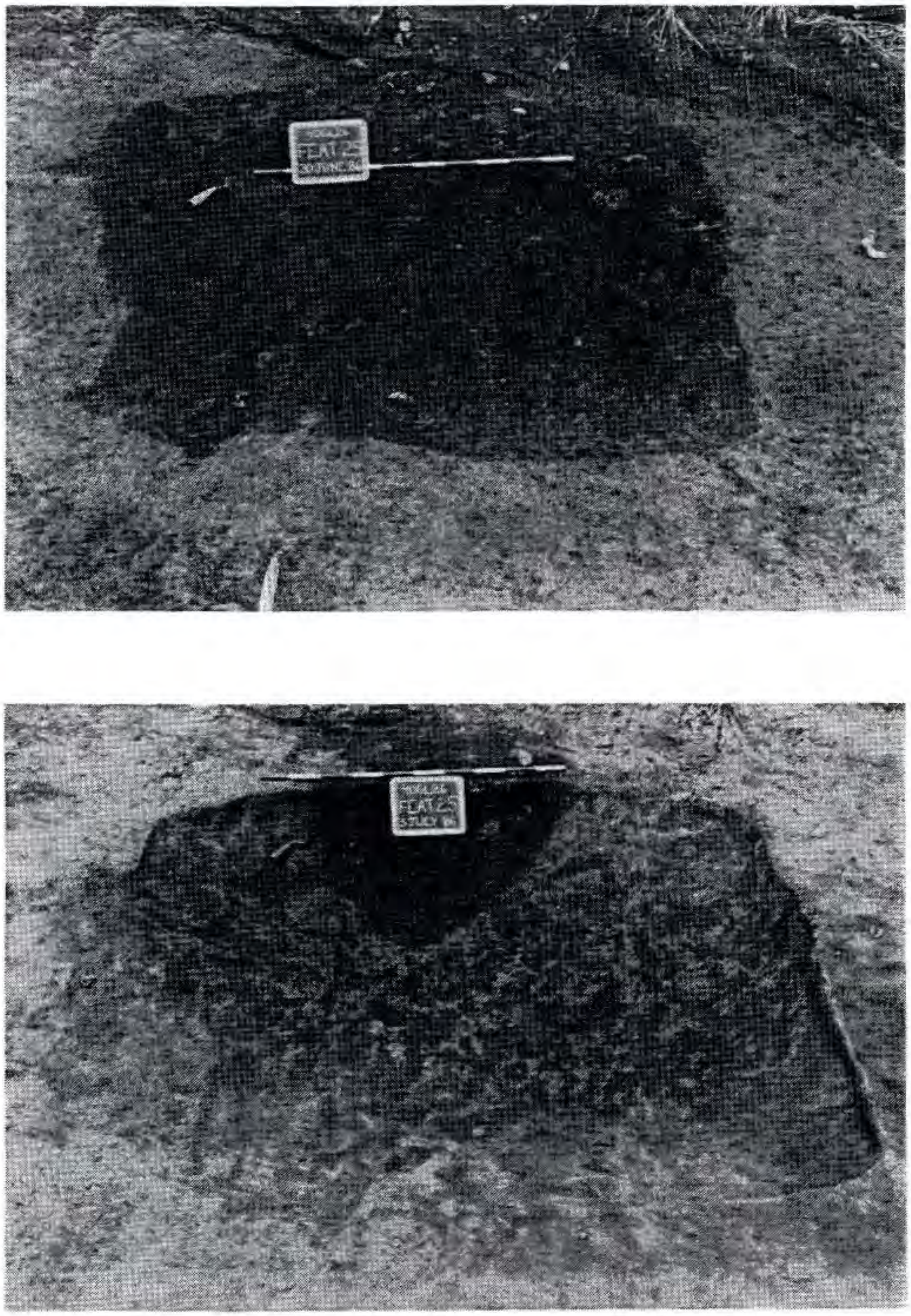


Figure 76. Feature 25 Before and After Excavation. Looking Northwest (Top and Bottom).

As the pit continued to fill, distinct soil and debris lenses were deposited in Zone B on the southeast side of the pit. A lens of yellowish-brown clay was apparently dumped in to cap off a lower debris layer. Zone B also included a charcoal lens that was deposited on and adjacent to the yellow clay lens.

Zone A was a pocket or stratum of burned earth, charcoal, and fired chinking on the northeast edge of the pit. The clay chinking bears impressions of large poles or small logs and slightly fired soil under the chinking indicates it was burning when this material collapsed into the pit. Since the southwest side of the feature was truncated deeper than the northeast side, it is not known if this stratum extended over the remainder of the feature. Considerable charcoal observed in the plowzone as it was being stripped off indicates this might have been the case.

The shape of Feature 25 was roughly square, measuring 194 cm NE/SW x 188 cm NW/SE. The base of the feature had intruded into prehistoric Feature 148, a pit that probably contributed to some of the bone refuse and other prehistoric materials in the fill of Zone B. Conversely, a small sherd and tiny bead found their way into the fill of the superimposed feature. The floor of Feature 25 did not contain any intrusions nor did it appear to be particularly compact as though intensively trod upon when the pit was open. An extension or what appeared to be a shallow entrance or ramp was at the south corner of the feature. Two postholes were at the east and west corners of the pit. The compact fills and lack of historic material indicated that these postholes were of prehistoric origin.

Artifacts

The artifacts found in Feature 25 are grouped according to the South scheme (1977:92-102) into the Kitchen, Architecture, Arms, Clothing, Personal, and Activities groups. These groups are further subdivided into artifact classes and types. The historic artifacts are quantified by piece counts only and weights are not considered.

Kitchen Group (n=185). The majority of artifacts are in the Kitchen Group (81%). These are artifacts associated with the preparation, storage, and consumption of food and beverages. Included in this group are the ceramic (n=158), glass (n=24), tableware (n=1), and kitchen ware (n=2) classes.

Ceramics. The ceramic assemblage includes 26 creamware and 129 pearlware sherds. Three sherds are so badly burned that they can not be identified as to ware. All of the creamware sherds are undecorated. The majority of pearlware sherds are also undecorated (n=67), although almost as many are decorated. These include underglaze polychrome (n=26), edge decorated (blue and green shell edge) (n=16), blue transfer-printed (n=10), underglaze blue hand-painted (n=8), and banded (n=2). The banded sherds are rims and are probably from underglaze polychrome vessels. The mean ceramic date of the ceramic assemblage is A.D. 1803 (South 1972).

These sherds are significant for dating this archaeological feature but the identification of the specific vessels they represent is even more crucial for establishing such cultural patterns as food preparation, food and beverage service, and the socio-economic level of the historic inhabitants of the Bailey site. The 158 sherds represent a minimum of 24 vessels. These can be grouped into three major categories: serving, eating, and drinking. No storage or food preparation vessels were represented in Feature 25. Considering the number of vessels represented in this pit, the absence of coarse earthenware or stoneware food storage or preparation vessels is surprising.

Ten serving vessels are in the ceramic assemblage. Forty-two percent of the total vessel count is a high figure for such a domestic assemblage. Four of these vessels are from a set of green shell-edge serving pieces (Figure 77A). They include large and small bowls, a tureen, and a platter. Another pearlware serving vessel is represented by a plain rim sherd. The other serving vessels are hollow ware pieces; three pitchers and two teapots. The pitchers include a creamware form and two underglaze polychrome pearlware examples (Figure 77B). There is a lid of an underglaze polychrome teapot (Figure 77C) and a partial creamware teapot.

The eating vessels include dinner plates and a soup plate. The four plates are a creamware example of the royal pattern and three pearlware vessels. One is a partial blue shell-edge plate 24 cm in diameter. Another blue shell-edge plate is represented by a single sherd (Figure 77D). There is also a single sherd of a green shell-edge plate in the collection. A sherd from a blue shell-edge pearlware soup plate was also found.

The drinking vessels are elements of tea sets and a tankard. A minimum of three pearlware tea sets is represented by the sherds of slop bowls, tea bowls, and saucers. Slop bowls include blue transfer-printed, underglaze polychrome, and underglaze blue hand-painted. Two tea bowls were found; a partial underglaze polychrome vessel 9 cm in diameter (Figure 77E), and small fragments of an underglaze blue hand-painted bowl. Saucers include a blue transfer-printed (Figure 77F) and two underglaze polychrome examples (Figure 77G). The ceramic tankard is an undecorated vessel sometimes referred to as a "can" because of its elongated cylindrical shape.

The number of ceramic sets represented by the fragmentary vessels in Feature 25 is striking. Although no high-status porcelain is in the collection, the variety of vessels, especially the high percentage of serving pieces and hollow ware, indicate access to imported ceramics and that the historic occupants of this site were persons of some means. At least one full set of green shell-edge table service is represented with a variety of serving pieces plus there are the remains of at least three flatware sets; one creamware and the others blue and green shell-edge. A minimum of three tea sets are in the collection. In addition, there is a minimum of two teapots, three pitchers, and a tankard.

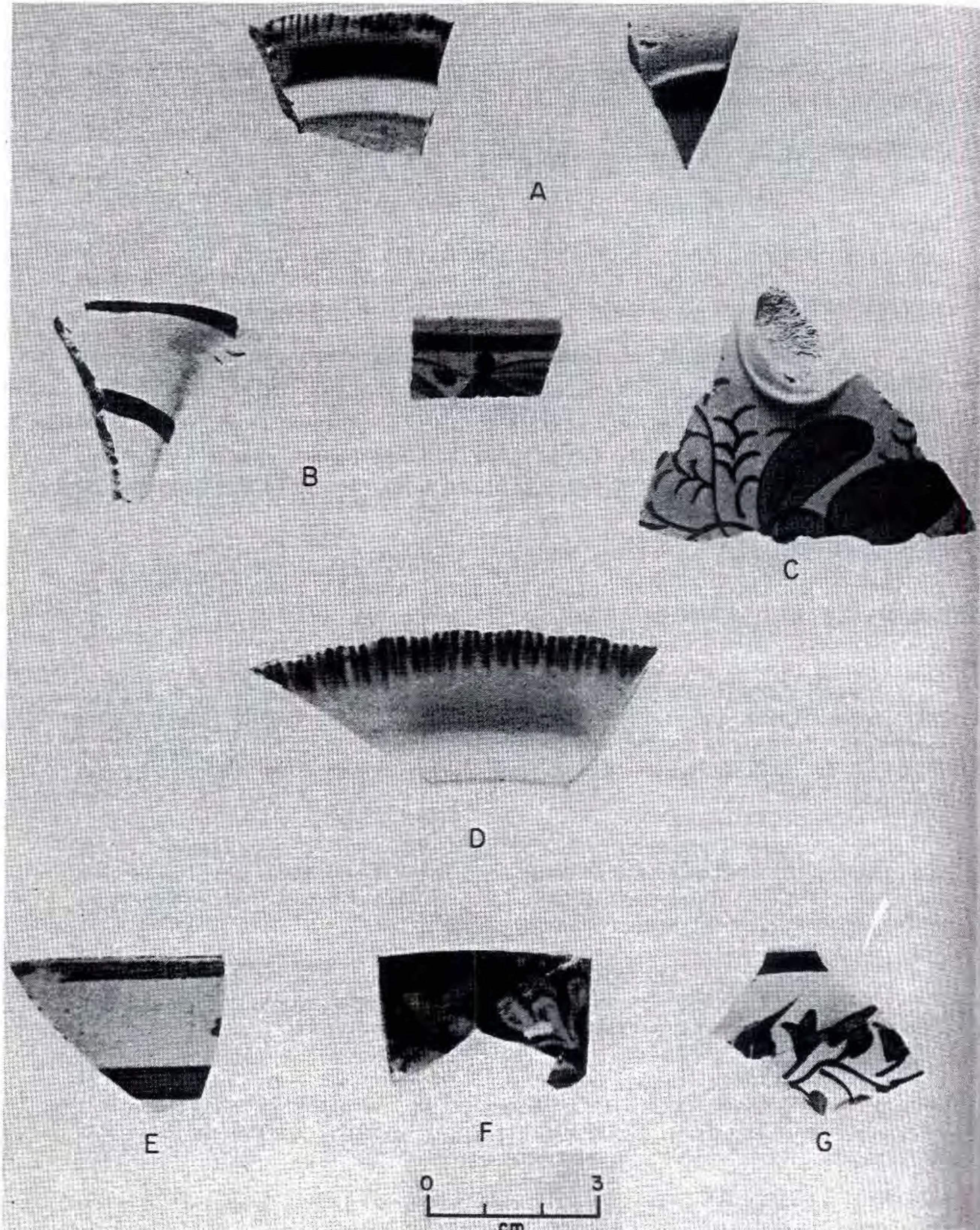


Figure 77. Kitchen Group Artifacts: Pearlware Ceramics. A-Green Shell-Edge Serving Pieces; B-Underglaze Polychrome Pitchers; C-Underglaze Polychrome Teapot Lid; D-Blue Shell-Edge Plate; E-Underglaze Polychrome Tea Bowl; F-Blue Transfer-Printed Saucer; G-Underglaze Polychrome Saucer.

To confirm the mean ceramic date for the ceramic sherds from this feature, a mean ceramic date was obtained for the 24 vessels identified from the sherd assemblage (South 1972). The date is A.D. 1802.8. All of the ceramic vessel types are consistent with the 1802-1803 date for this feature.

Container glass. Twenty sherds from glass containers, probably bottles or flasks, were found. Only two could be definitely identified as distinctive container types. One large sherd is from a light green colored flask. An olive green colored sherd is from a wine bottle. The remaining sherds could only be classified by color; clear (n=3), light green (n=14), and blue-green (n=1).

Glassware. Four sherds were identifiable as glassware types. These include a rim sherd from a clear wine glass, another rim fragment from a clear glass vessel, and two pieces of a clear glass stopper from a decanter.

Tableware. This artifact class includes eating utensils. The only tableware item is a two-tined fork (Figure 78A). This implement is 14.1 cm long and the bone handle is undecorated.

Kitchenware. Metal utensils used in food and beverage preservation, preparation, and service are included in this class. A handle and a spout from a tin teapot are in the collection (Figure 78B).

Architecture Group (n=8). This group includes construction materials such as nails, window glass, and various types of metal hardware, as well as heavy building materials such as bricks and hammer-dressed stone. No heavy building materials were found in the feature but the impressions on the chinking are evidence of log construction.

Nails. Three wrought T-head nails were recovered in the feature. These are modified rose-head nails and were used for finishing work, possibly for the fastening of flooring. Two additional nail fragments were in the pit fill as well as three unidentifiable fragments that are believed to be nails.

Arms Group (n=2). The Arms Group includes firearms supplies and equipment. Two classes in this group are represented: shot and a gunflint.

Spherical shot. A single lead shot was in the feature fill (Figure 78E). A diameter of 9.3 mm indicates that the lead shot was made for a weapon of about 38 caliber. The shot still exhibits crisp mold lines from the hand-held bullet mold.

Gunflint. The gunflint is a dark grey color and is probably of English origin (Figure 78C). It was broken or worn down to a diminutive size before it was discarded.

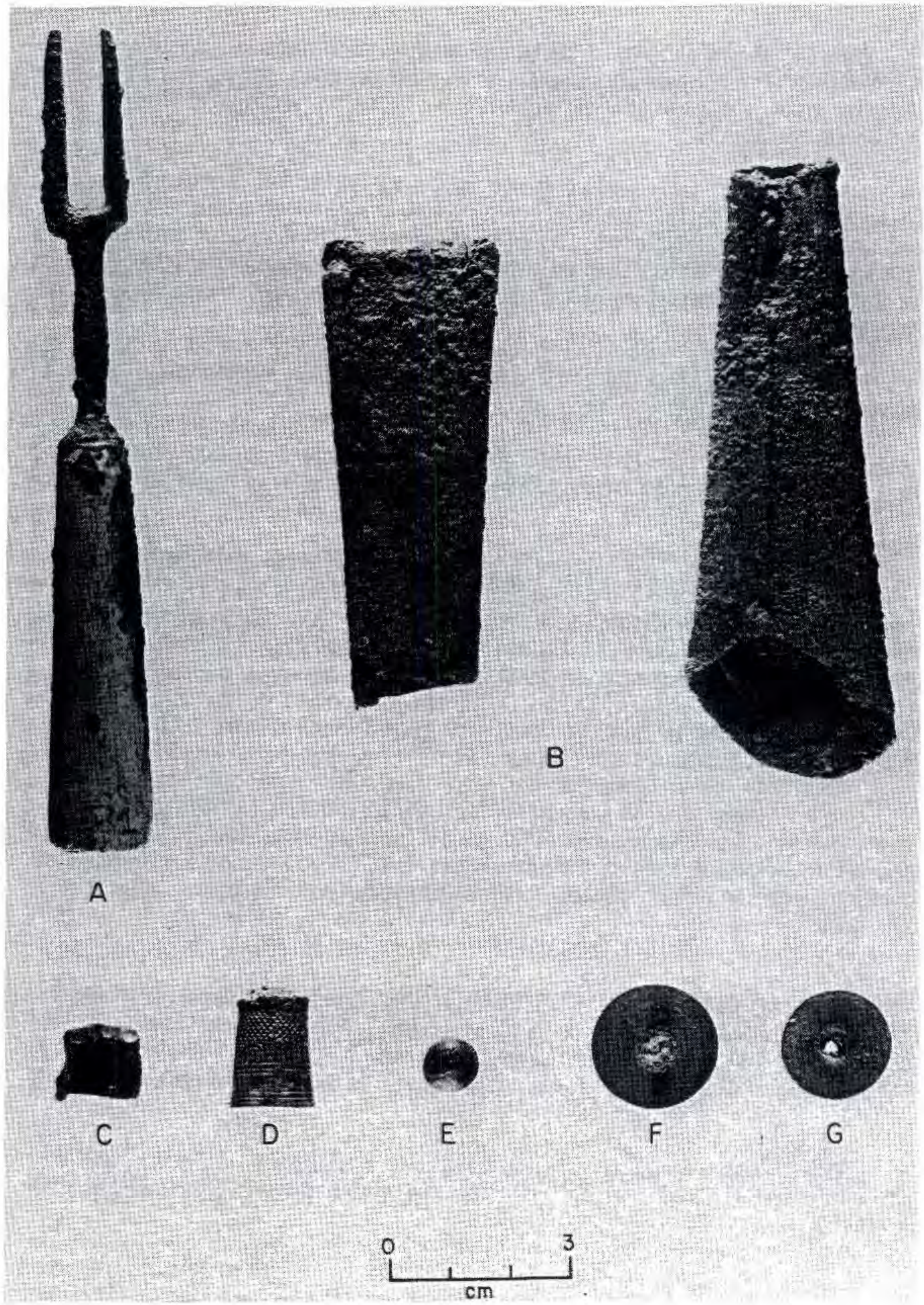


Figure 78. Kitchen Group, Arms Group, and Clothing Group Artifacts. A-Tableware, Fork; B-Kitchenware, Tin Teapot Handle and Spout; C-Gunflint; D-Thimble; E-Spherical Shot; F and G-Buttons.

Clothing Group (n=28). This group consists of artifacts associated with the manufacture of, or use of wearing apparel. The most common clothing item recovered in Feature 25 was the straight pin, followed by buttons. A single bead was also recovered in this feature.

Straight pins. Twenty-two pins are made of tinned brass with wire-wound heads. Measurable specimens range from 26.5-30.8 mm in length with the spun heads ranging from 1.5-1.9 mm in diameter. Two shanks of the same type of pin were also recovered. Pins with wire wound heads date before 1824. At that time this type began to be replaced by straight pins with solid heads (Noel-Hume 1969:254).

Needle. A single iron needle was recovered in the feature. The tip of this rusted artifact had been snapped off.

Thimble. Made of brass, this thimble measures ca. 20.8 mm long and about 14.5 mm in diameter (Figure 78D). It is a typical type used in the early nineteenth century.

Buttons. Two buttons and the wire eye from another were found in Feature 25. One yellow metal button is stamped "BEST" on the back and is similar to South's Type 9 (South 1964:118) (Figure 78F). A similar button is illustrated from the Tellico Blockhouse excavation (Polhemus 1977:Plate XXVIII, F.). The Tellico Blockhouse dates from 1794-1807. The term yellow metal is used to describe those buttons manufactured of brass, copper, bronze, or a combination of these metals. The other button is cast with a spun back (Figure 78G). The wire eye is missing. This is also a late eighteenth-early nineteenth century type.

Beads. A small glass bead ca. 3 mm x 3 mm was recovered by flotation. It is amethyst in color with faceted surfaces. An identical bead was found in Feature 148 and undoubtedly derives from the fill of Feature 25. This bead type is found in late eighteenth-early nineteenth century context (personal communication with Richard Polhemus).

Personal Group (n=1). Artifacts in this group are items that have a primary personal association with an individual. There is only one artifact in the assemblage that might be considered personal in nature. A thin folded silver band with a delicate embossed design might have been an item of personal jewelry.

Activities Group (n=4). This group includes artifacts in the stable and barn class and a miscellaneous artifact that might be associated with the repair of other implements.

Horseshoe. A complete example was found in the feature. It has a rounded or oval shape with an inward curve of the heels and squared calkins. The shape of this artifact and the four nail holes in each branch indicate that it is a late eighteenth-early nineteenth century type (Chappell 1973:Figure 5). It is very similar to an example illustrated in Noel-Hume (1969:Figure 74, 6) dated ca. 1800.

Horseshoe nails. Two nails with large square heads have been identified as horseshoe nails. They are hand-wrought examples, typical for the period of this feature.

Rolled lead. The function of a strip of rolled lead is unclear. It may have functioned as a soldering strip for patching and repairs. It appears to be too thin to have been used as stock for the manufacture of lead shot.

Interpretation of Feature Morphology and Contents

The morphology of Feature 25 and the percentages of the artifact groups and types in the fill suggest the function of this feature on the Bailey site. The shape of this feature, i.e., essentially square with rounded corners, the smooth floor, and what appeared to be an entrance ramp on one side suggest that this was not a simple refuse pit, but had been dug as a shallow storage pit or pit cellar beneath a structure. This interpretation is supported by the stratum of charred wood and large pieces of clay chinking just beneath the plow zone that may have been the remains of a collapsed burned log wall or "cats and clay" chimney. Such shallow pits have been found under nineteenth century log dwellings in Tennessee, most notably the Stonecypher house in Greene County (Smith 1980). However, Feature 25 may not have been beneath the main house at the Bailey site. This is suggested by the complete absence of window glass, the virtual absence of nails, and the fact that it served as a peripheral secondary refuse dump, probably from the main house. The conclusion, then, is that this feature was under an outbuilding or earlier temporary cabin that was abandoned, used as a dump for a period of time, and finally burned.

The artifact frequencies in this feature also suggest a structure separated from the main dwelling. Percentages by artifact group include Kitchen, 81%; Architecture, 3.5%; Arms, 0.9%; Clothing, 11.9%; Personal, 0.9%; and Activities, 1.8%. This pattern most closely fits the Open Refuse Pattern on Ohio Valley historic sites, which reflects intensive kitchen-related activities (Ball 1984). It is surprising that it does not fit Ball's Sealed Refuse Pattern (1984:29), which might be expected in such a refuse-filled pit. This could be due to the nature of the structure that stood over this feature or the special activities that contributed to the artifact assemblage within it. A recent study of artifact distribution in pit cellars indicated that none of the percentages for the kitchen and architectural groups fell within the ranges of the Sealed Refuse Pattern (Faulkner 1987:54-65). The large amount of kitchen artifacts and animal bone (q.v. Vertebrate Faunal Remains) indicates that this was peripheral secondary refuse from the dwelling kitchen. That special activities might be represented is indicated by the relatively high Clothing Group percentage, the predominance of female-related artifacts, and the high frequency of hollow ware in the ceramic assemblage. All in all, this seems to be a somewhat unusual artifact assemblage for this historic time and place.

THE HISTORIC OCCUPATION OF THE BAILEY SITE

Giles County was created in 1810 out of Maury County and was named after General William B. Giles, one of the governors of Virginia. In 1805, the Chickasaw Indians ceded their land north of the Duck River and east of the Natchez Road which included the eastern and southeastern portions of the future county. The site of Pulaski was settled a year later and in 1810 a group of commissioners selected this place known as the "Shoals" on Richland Creek for the county seat, named in honor of the Polish nobleman who lost his life in Savannah, Georgia while fighting for American independence. The site was within the Indian territory but the location was approved and a deed for the land was issued by President James Madison. Pulaski was incorporated in 1820 (Goodspeed Publishing Company 1886).

Until a second treaty with the Chickasaw Indians in September, 1816, the southwestern part of Giles County including the area of the Bailey site was Indian territory. However, McCallum (1876:45) reports that white settlers were squatting in this territory before 1790 and nearby Minor Hill was settled at an early date by one Kallet Nail. An Indian trail led from Nail's Hill (now Minor Hill) towards Huntsville; it was said to be two or three feet wide and used by the earliest settlers to drive hogs (McCallum 1876:46). This trail possibly followed State Route 11 and forded Sugar Creek at or near the Bailey site. It appears on Map No. 402, 7th Surveyor's District dated 1806 and might be the Lamb's Ferry Road on Map No. 1049 of Giles County dated ca. 1836 (Tennessee State Library and Archives). If this is the same trail and road shown on these maps, the Bailey site would have been an ideal location for a homestead at the Sugar Creek crossing.

If the Bailey site was settled ca. 1800, this occupation may have been very short-lived. Goodspeed's history of Giles County (1886) recounts what happened to many of these squatter's on Indian land.

> A number of the early settlers located on the Indian lands, cleared away the cane and undergrowth, built log cabins and began cultivating the soil. Complaints being made to the Government, the United States soldiers stationed at Fort Hampton, on Elk River, about four miles above its mouth, were sent to drive out the settlers. The soldiers burned the settlers' houses, threw down their fences and destroyed their crops, and succeeded in driving the people across the reservation line. After the soldiers returned to the fort, the settlers returned to their ruined homes, rebuilt their houses and fences, and planted their crops, only to be again driven out as soon as word was received at the fort of their presence on the forbidden territory. This destruction of property and crops by the Government soldiers occurred during the years 1809-11, and was a great hardship to the settlers, many of whom held grants for the disputed lands they occupied [Goodspeed 1886:751].

That such destruction of homesteads took place in the vicinity of the Bailey site is indicated by the statement of historian James McCallum that "Kallett Nail and others lived over the line, were visited by the soldiers, and the crops and improvements of most of them were destroyed" (1876:60).

The first recorded owner of the Bailey site was James Appleton, who acquired Grant No. 16064 for 100 acres on Sugar Creek from the State of Tennessee in 1821 (Tennessee State Library and Archives). On the same day that he acquired this grant, Appleton obtained two additional grants for 290 acres in Giles County and adjacent Lawrence County (letter from Ann Evans Alley, Tennessee State Library and Archives). Appleton did not live on the Bailey site property but apparently resided just over the county line in Lawrence County where a rural community still bears the family name (United States Census for 1820 and 1830). In July, 1821, he was appointed overseer of the road from Pulaski to Florence, Alabama, and in January, 1822, he was appointed overseer of Lamb's Ferry Road, the original route running very close to the Bailey site (letter from Ann Evans Alley, Tennessee State Library and Archives). He died sometime before December, 1833 (Tennessee Records of Lawrence County 1938).

James Appleton had several children, including an older daughter, Aurora Borealis Appleton (1812-1870) who married Parmenus P. Cox (1805-1857). Aurora Borealis Appleton Cox appears to have inherited the Bailey site property from her father, which in turn was inherited in 1860 by her daughter, Louisa J. Cox. The transfer of the property, described on the north side of Sugar Creek, was complicated by litigation (Giles County Deed Records 1860). In 1862, Louisa J. Cox sold 180 acres of this land to Anderson Hogan which was described as being on the Pulaski and Lamb's Ferry Road (Giles County Deed Records 1862). Hogan sold the 180 acres to Louisa J. Hill who in turn sold it to Mary Francis Appleton in 1881 (Giles County Deed Records 1881). The 1878 map of Giles County shows a Mrs. Hill living near the Bailey site. In 1912, 80 acres or the western part of the 180 Appleton tract was acquired by Cora Appleton Coffman Abernathy and Onus Boyd (Giles County Deed Records 1912). Cora A. Abernathy and Onus Boyd sold the property to Richard and Olna Boyd; when Richard Boyd died in 1933 it was inherited by his wife. In 1956, Olna Boyd sold the 80 acres to Earl Bailey, Jr. who still resides on the property (Giles County Deed Records 1956).

INTERPRETATION OF THE HISTORIC COMPONENT

The above land transfers indicate that James Appleton was the first legal owner of the Bailey site, acquiring the property in 1821. However, there is no historical or archaeological evidence that anyone lived on the excavated portion of the site after the tract was acquired by the State of Tennessee from the Indians in 1817. This means that there are only two possible historic occupants that could account for Feature 25 which is firmly dated in the first decade of the nineteenth century.

One possibility is that Feature 25 represents a historic Indian occupation of the site. This was Indian territory in 1803 and the shape of the feature is not inconsistent with pits found on historic Cherokee sites (Schroedl 1986:62-63). Federal period Cherokee sites in the Little Tennessee Valley produce an array of Euro-American artifacts, especially ceramics, like those recovered in Feature 25 (Ford 1982). However, it is concluded that this was probably not an aboriginal feature. This conclusion is based on the absence of historic aboriginal ceramics in the feature, the virtual absence of beads, and especially the Euro-American ceramic vessel forms represented; e.g., tea sets and an array of serving pieces that would not be expected in an aboriginal household. If this is an Indian feature, it would represent a very acculturated family. Unfortunately, time and funds did not allow an intensive search of the national or state archives for documentation of an Indian reserve on Sugar Creek.

Based on the available historic and archaeological evidence, it is concluded that Feature 25 was the remains of a log outbuilding or perhaps a temporary "pole-shack" dwelling that was later replaced by a more permanent and substantial house on a Euro-American squatter's homestead, established ca. 1800 on the trail from what later became Pulaski to the Tennessee River. The burned stratum in the top of this feature could be evidence of the destruction of this building by Federal troops sometime between 1809-1811. The site was abandoned after this, later becoming Appleton property but never again being the location of a dwelling.

If this interpretation is correct, the assemblage in Feature 25 is significant in our understanding of life in a Middle Tennessee frontier homestead. The variety of table service pieces, tea sets, and glassware including a wine glass and decanter, suggest that these homesteaders, despite the precarious existence in Indian territory, had many of the amenities that might only be expected in well-established centers of commerce and industry in the early nineteenth century. This further suggests that the Tennessee frontier of the late eighteenth-early nineteenth centuries was well integrated in the mainstream of American culture.

CHAPTER XIII

PREHISTORIC HUMAN ADAPTATION IN SELECTED AREAS OF THE INTERIOR LOW PLATEAU PHYSIOGRAPHIC PROVINCE

Charles Bentz, Jr.

The results of archaeological investigations undertaken in the Interior Low Plateau Physiographic Province and adjacent areas offer the opportunity to study human adaptation and cultural change from Late Archaic through Late Woodland times. Culture is interpreted as a dynamic and adaptive system that is comprised of structurally different but articulated parts (Binford 1965:205; Struever 1971:10). The interrelationship of these parts is such that change in one aspect results in change in other aspects through time. The basic attributes of such an adaptive system are technology, subsistence economy, settlement patterns, and mortuary practices.

The major emphasis of archaeological research in recent years has been placed upon adaptation and cultural change. The objective of such research is to isolate each attribute of adaptation and "study it as a separate variable or complex of variables, with the ultimate goal being the reconstruction of the entire pattern of articulation" (Flannery 1967:119-122). The data available from excavations in the Middle Tennessee River Valley and Bear Creek Drainage in northern Alabama, the Middle and Upper Duck and Elk River drainages in Middle Tennessee, and the Bailey site on Sugar Creek in southern Middle Tennessee will be used to study human adaptation and cultural change through the reconstruction of the pattern of articulation between the constituent attributes of the system.

MIDDLE TENNESSEE RIVER VALLEY, BEAR CREEK DRAINAGE

The Middle Tennessee River Valley in northern Alabama serves as the approximate boundary between the Interior Low Plateau to the north and the terminus of the Appalachian Plateaus Physiographic Province to the south. The Bear Creek Drainage is situated in an upland area between the valleys of the Middle Tennessee and Upper Tombigbee rivers in northern Alabama and adjacent Mississippi. The Bear Creek Watershed flows through the Fall Line Hills district of the Coastal Plain Physiographic Province and also portions of the Warrior Basin and Moulton Valley districts of the Appalachian Plateaus Physiographic Province and the Highland Rim section of the Interior Low Plateau (Futato 1983:1-5, 432; Oakley 1975a:1-3). The headwaters of the watershed are positioned in the gently rolling limestone hills of the Moulton Valley and the deeply dissected sandstone valleys in the Warrior Basin. These upstream areas are in the Mixed Mesophytic Forest region while the adjacent Fall Line Hills portion of the watershed is in the Gulf Slope section of the Oak-Pine Forest region. The Gulf Slope is a floristically transitional area in which the central hardwood forest of the north and the evergreen forest in the Southeast meet and overlap. Mixed Mesophytic Forest communities may extend along the valley slopes and in ravines while oak and pine forests occur in the local uplands (Braun 1950:271-278). The Lower Bear Creek Drainage flows into the western Middle Tennessee River Valley in the Highland Rim section of the Interior Low Plateau and the southern extent of the Western Mesophytic Forest region. The eastern Middle Tennessee River Valley is in the Interior Low Plateau and Appalachian Plateaus provinces and the southern terminus of the Mixed Mesophytic Forest region (Braun 1950:cover map).

Shell Mound Archaic (4000-1200 B.C.)

During the Middle through Late Archaic periods warm season semipermanent settlements were established near mussel beds in the major rivers of the Interior Low Plateau Physiographic Province. Walthall (1980) explains that

> the long temporal span and internal diversity represented within these shell mounds indicate that future researchers may subdivide these occupations into a number of discrete classificatory units probably based upon changes in projectile-point themes... Until such work is conducted, we can only continue to lump these preceramic occupations into a single unit [Walthall 1980:69].

Shell middens along the western Middle Tennessee River are mostly the result of intensive Late Archaic period occupations. These middens are

> mixtures of cultural debris containing mussel shells, rock, earth, bone, debitage, artifacts, and other cultural debris. Some measure up to 200 m in diameter and 5 m thick. Also included in the mounds are clay floors, fire basins, pits, burials, flint workshops, and other features [Futato 1980:120].

Cold season transient camps were located in the uplands adjacent to the Tennessee Valley (Walthall 1980:73).

The Late Archaic shell middens in the western Middle Tennessee River Valley contained numerous hearths and earth ovens while large numbers of deep storage pits were rare. The later Terminal Archaic levels of the middens often contained many storage pits measuring up to 90 cm in depth. Evidence of structures in the shell middens consisted of prepared clay floors measuring up to 5 m across with central hearth areas and sometimes bordered by irregularly spaced postholes (Webb 1939:25, 38-39; Webb and DeJarnette 1942:61, 105, 135, 238, 1948a:18-21, 1948b:16, 1948c:16-21).

Subsistence was based on the exploitation of various aquatic and terrestrial faunal resources (mussel, gastropod, fish, turtle, waterfowl, turkey, deer, raccoon, opossum, and squirrel) and the gathering of arboreal seed crops at upland site locations.

Burials were flexed or sitting in small pits excavated for the interment of the dead. Cremation occasionally also took place on the sites (Webb and DeJarnette 1942:81, 137, 238, 1948a:23).

The material assemblage includes Ledbetter cluster and Little Bear Creek cluster projectile points/knives, bifaces, pestles, mortars, hammerstones, limestone hoes, bone fishhooks, and bone awls. Stone bowls are associated with the Terminal Archaic and later levels of the shell middens. Lithic workshop areas in the middens measured up to 5 m across and 23 cm in depth and contained hundreds of tools and chert cores and 100,000-500,000 pieces of chipping debris (Webb and DeJarnette 1942:317, 1948a:56, 1948c:39, 47).

Bluff Creek and Hardin Phases (1200-100 B.C.)

During the middle Gulf Formational Bluff Creek phase and late Gulf Formational Hardin phase the warm season occupation of Archaic shell middens continued in the western Middle Tennessee River Valley. Gulf Formational shell mound occupations were less intensive and sporadic in comparison to the Late Archaic shell mound habitations. Cold season transient camps were located in the adjacent uplands south of the river at open-air sites and rockshelters (Walthall 1980:87, 89, 100-102; Webb and DeJarnette 1942:58-82, 93-131).

Subsistence was based on the seasonal gathering of arboreal seed crops and the exploitation of various faunal resources including deer, mussel, fish, and turtle. This was supplemented by simple horticulture (Dye 1977:70-74; Jenkins and Krause 1986:33; Walthall 1980:87, 89, 100-102).

Mortuary practices consisted of flexed and sitting burials placed in pits excavated for the interment of the dead.

The ceramics of the middle Gulf Formational Bluff Creek phase are fiber tempered plain (Wheeler Plain), punctate (Wheeler Punctate), dentate stamped (Wheeler Dentate Stamped), and occasionally simple stamped (Wheeler Simple Stamped). The lithic assemblage includes Wade cluster (Wade, Motley, and Cotaco Creek) and Little Bear Creek cluster (Little Bear Creek) projectile points/knives and steatite and sandstone vessels. The ceramics of the late Gulf Formational Hardin phase are sand tempered plain (O'Neal Plain), incised (Alexander Incised), pinched (Alexander Pinched), zone stamped and zone punctated (Smithonia Zone Stamped), rocker stamped, and dentate stamped. Rim bosses, tetrapodal supports, and ring bases occur on vessels. The lithic assemblage includes Flint Creek cluster (Flint Creek) projectile points/knives (Futato 1983:146, 181; Walthall 1980:102; Walthall and Jenkins 1976:47).

Colbert Phase (200 B.C.-A.D. 100)

During the early Middle Woodland Colbert phase large semipermanent base camps were established in the Tennessee River Valley and on the adjacent bluff edge. Transient camps were located in upland rockshelters and occasionally at open sites. These transient camps were occupied during the fall and winter by nuclear families. Family groups moved in a restricted area around the valley base camps. These groups temporarily gathered at the base camp to engage in social activities, trade, and mortuary activities. A segment of the population may have remained in residence year-round at the base camp (Futato 1980:123-124; Walthall 1980:115).

Colbert villages contained large middens with storage pits, earth ovens, hearths, shallow basins, and scattered postholes. Colbert phase villages often occurred on large multicomponent sites with earlier prepottery deposits, including shell middens, and later Copena burial mounds and intrusive Mississippian and historic burials. The transient upland bluff shelter camps contained hearths, burned areas, and shallow pits (Clayton 1965:1-98, 1967:1-41; Nielson 1972:67-136; Walthall 1973a:323-390, 439-489, 1980:116; Webb and DeJarnette 1948b:14-40; Webb and Wilder 1951:26-51, 86-101, 118-134, 160-168, 190-193, 222-234).

Subsistence was based on hunting, fishing, and gathering (Futato 1980:123).

Burials were usually flexed and placed in small pits excavated for the interment of the dead or abandoned storage pits. Mortuary offerings consist of occasional steatite vessels and vessel fragments, projectile points/knives, and bone tools (Walthall 1973a:390, 1980:116).

The ceramics are limestone tempered fabric marked (Longbranch Fabric Marked) and plain (Mulberry Creek Plain). The lithic assemblage includes medium triangular Greeneville/McFarland cluster projectile points/knives (Greeneville/McFarland and Copena). Steatite and sandstone vessels occurred along with ceramic vessels (Futato 1983:148-149, 225, 230-235; Walthall 1973a:489).

Lick Creek Phase (A.D. 1-300)

The Middle Woodland Lick Creek phase was only delineated in the Bear Creek Watershed. Lick Creek phase occupations were investigated on two multicomponent habitation sites and four stone mound sites. The habitation sites were comprised of 3-9 pits. The stone mounds were constructed of limestone slabs and contained multiple interments. One of the habitation sites is situated on the valley edge above Little Bear Creek and the other is on the first terrace of Cedar Creek. The stone mound sites are located on the valley edge and bluff edge above Little Bear Creek and Cedar Creek. The habitation sites were probably temporary base camps or transient camps.

The Dam Axis site (1FR524) Lick Creek component consisted of three ovoid shallow basins. The Lick Creek component on the Ricker site (1FR310) was comprised of nine pits in a linear arrangement. Six of the pits were shallow basins and one was a deep cylindrical feature with vertical sides (Futato 1975a:75-110, 1983:12-24).

Subsistence was based on the gathering of arboreal seed crops and occasionally herbaceous seeds and the exploitation of deer, turtle, opossum, squirrel, rabbit, raccoon, fox, and fish (Caddell 1983:340-341; Hale 1983:315-316).

Mortuary practices consisted of partially articulated primary interments beneath stone mounds in subfloor pits or on the cleared mound floor and disarticulated and cremated individuals in the mound fill. The mounds measured 8-13 m in diameter and 0.5-1.5 m high. A low rock wall consisting of vertically placed limestone slabs in a shallow trench was occasionally erected around the stone mound. Grave goods associated with the stone mound burials include complete or partial local and nonlocal ceramic vessels, ceramic platform and elbow pipes, a copper awl, marine shell artifacts, stone gorgets, and lanceolate blades (Futato 1983:84-97, 424-425; Oakley 1975b:175-288).

The ceramics are limestone tempered and predominantly cordmarked (Flint River Cordmarked) and plain (Mulberry Creek Plain). Additional ceramic types include limestone tempered fabric marked (Longbranch Fabric Marked), check stamped (Wright Check Stamped), simple stamped (Bluff Creek Simple Stamped), and complicated stamped (Pickwick Complicated Stamped). Ceramic platform and elbow pipes were also manufactured. The lithic assemblage includes medium triangular Greeneville/McFarland cluster projectile points/knives (Greeneville/ McFarland and Copena), occasional Lanceolate Spike cluster projectile points/knives (Bradley Spike, New Market, Flint River Spike, and Ebenezer), microlith tools, a blade industry on local cherts, and stone gorgets (Futato 1983:130-137, 149, 225-240, 181, 423-425).

Nonlocal ceramics on habitation and mortuary sites were obtained from Middle Woodland groups in the Upper Tombigbee River Valley and the Mississippi River Valley. The Tombigbee Valley ceramics in the Bear Creek area are sand tempered cordmarked (Furrs Cordmarked), incised (Basin Bayou Incised), fabric marked (Saltillo Fabric Impressed), and plain (Baldwin Plain) and the Mississippi Valley types are grog tempered punctated/incised (Twin Lakes Punctated) and rocker stamped (Indian Bay Stamped) and grog/limestone tempered cordmarked/punctated/plain (Cormorant Cord Impressed). In addition, limestone tempered rocker stamped and punctated/cordmarked ceramics on Lick Creek phase sites are either nonlocal types or local imitations of trade wares. Additional nonlocal artifacts obtained include greenstone implements, Flint Ridge prismatic blades, marine shell items (beads, bowls, dippers, and gorgets), and a copper awl (Futato 1983:149, 423-424).

Copena Phase/Mortuary Complex (A.D. 100-500)

During the Middle Woodland Copena phase semipermanent to permanent villages were established in the Tennessee River Valley. These habitation sites were located on older alluvial terraces away from the river bank. The Copena villages contained multiple structures and numerous pits. Seasonal transient camps were found in upland rockshelters. Burial mounds were also situated in the valley and adjacent uplands, including the Bear Creek Watershed late in the phase (A.D. 300-500) (Futato 1983:79-83, 426-428; Walthall 1973a:100, 141, 149; 1973b:74, 102, 1979:204, 1980:128-129).

The Copena phase Wright Village (LU^{v}65) covered approximately 0.6 ha near the edge of the Middle Tennessee Valley and the confluence with Bear Creek. A 30 cm deep midden deposit, a circular single post structure, and 68 pits were investigated in the areas exposed on this Copena habitation site. The structure measured 3.7 m x 3.7 m (floor area-5.7 m^2) and had a central hearth and two shallow basins near the south wall. The village area pits were circular and usually basin-shape (Walthall 1973a:101, 1973b:74).

Subsistence was based on the gathering of arboreal seed crops (hickory and acorn), the exploitation of deer, other game animals, and mussels, and possibly simple horticulture (Caddell 1983:340; Walthall 1973a:591-596, 1979:204, 1980:128-129).

Mortuary practices consisted of extended or occasionally flexed burials placed in elongated ovoid to rectangular pits in the floor or in the fill of an accretional earthen mound. Puddled clay was used in burial pits for floors, covers, and rests in the Tennessee Valley mounds while stone slabs served the same functions in the Bear Creek Watershed mounds. Cremations and mortuary processing facilities were located near the mounds. Two Copena burial mounds (LU°63 and LU°64) affiliated with the Wright Village were ovoid in shape and measured 20-27 m across and 3-5 m high. These mounds contained a total of 53 burials. Some of the burial pits were lined with bark or wood. A group of three heavily plow disturbed Copena burial mounds on the Hester site (1FR311) in the Bear Creek Watershed were investigated. Twenty-eight burials were excavated in the three mound loci. Grave goods associated with the burials consist of Copena projectile points/knives, steatite pipes, greenstone implements, galena, copper and marine shell artifacts, mica, and a cannel coal disc. Copena mortuary practices in the Tennessee Valley also included burial caves and occasional flexed burials in village areas. The caves were used for cremation of the dead and as repositories for primary inhumations wrapped in bark or cane matting and placed in wood troughs (Futato 1983:79-83, 426-428; Walthall 1973a:591-596, 1979:200-202; Webb and DeJarnette 1942:146-173).

The ceramics are limestone tempered and predominantly plain (Mulberry Creek Plain) and check stamped (Wright Check Stamped). Additional ceramic types are limestone tempered simple stamped (Bluff Creek Simple Stamped) and complicated stamped (Pickwick Complicated Stamped). The lithic assemblage includes medium triangular Greeneville/McFarland cluster (Greeneville/McFarland and Copena) and Lanceolate Spike cluster (Bradley Spike, New Market, Flint River

Spike, and Ebenezer) projectile points/knives, stone gorgets, and possibly microlith tools (Futato 1983:150, 230-240, 426; Walthall 1973a:128-133, 1973b:76, 90-103, 1979:204).

Nonlocal ceramics obtained from the Upper Tombigbee River Valley include sand tempered cordmarked (Furrs Cordmarked), fabric marked (Saltillo Fabric Impressed), and plain (Baldwin Plain). Other artifacts and raw materials obtained through trade consist of greenstone celts and spades, galena, copper beads and earspools, marine shell bowls and spoons, steatite pipes, mica, and cannel coal discs (Futato 1983:79, 428-430; Walthall 1973b:88-91, 1979:204).

Lost Creek Phase (A.D. 500-700)

The late Middle Woodland Lost Creek phase was only delineated in the Bear Creek Watershed. Lost Creek phase occupations were investigated on four large multicomponent sites. The late Middle Woodland components were comprised of 3-12 pits. These sites were probably temporary base camps or transient camps affiliated with larger villages in other areas.

The Dam Axis site (1FR524) Lost Creek component was comprised of seven basin-shape, cylindrical, and cone-shape pits. One of the cone-shape pits was a deep earth oven with a heavily fired bottom. The late Middle Woodland component on the Hendrix site (1FR562) was comprised of a dense cluster of 12 superimposed pits and two additional isolated pits. The majority of these features were shallow basins, although one was a deep rectangular earth oven with heavily fired sides (Futato 1975a:75, 110, 1983:30-41).

Subsistence was partly based on the gathering of arboreal seed crops (hickory, acorn, and black walnut) and simple horticulture (sunflower and maize) (Caddell 1983:340-341).

The ceramics are limestone tempered and nearly all plain (Mulberry Creek Plain). The lithic assemblage includes Lanceolate Expanded Stem cluster projectile points/knives (Swan Lake and Bakers Creek) (Futato 1983:150, 235-239, 431).

McKelvey Phase (A.D. 400-1000)

During the Late Woodland McKelvey phase villages were established in the western half of the Middle Tennessee River Drainage. These sites were located in the Tennessee River Valley early in the phase and in upland tributaries south of the river late in the phase. Upland rockshelters and possibly open sites were utilized as transient camps for hunting and gathering (Walthall 1980:138-139).

The McKelvey Village (HN°1) in the Tennessee Valley was comprised of a midden with considerable shell deposits, prepared clay areas that probably served as structure floors, hearths, a few pits, and scattered postholes (Webb and DeJarnette

1942:9-11). In the Bear Creek Watershed Late Woodland sites were situated on the older alluvial terraces and bluff edges of Cedar Creek and Little Bear Creek. The Champion site (1FR318) was an upland McKelvey phase habitation area that consisted of a midden (14.0 m x 12.5 m x 20 cm deep), eight pits, two material concentrations, and six scattered postholes (Futato 1975c:11-31).

Subsistence was based on collecting mussels, fishing, simple horticulture, and hunting and gathering in the adjacent uplands (Walthall 1980:140).

Burials were flexed and placed in shallow pits excavated for the interment of the dead or abandoned pits in the habitation area (Futato 1983:81; Walthall 1980:140).

The ceramics are grog tempered and predominantly plain (McKelvey Plain), cordmarked (Mulberry Creek Cordmarked), and check stamped (Wheeler Check Stamped). Minority types include grog tempered incised (Alligator Incised) and complicated stamped (Gainesville Complicated Stamped). The lithic assemblage includes Small Triangular cluster projectile points/knives (Hamilton) (Futato 1983:151, 240-242, 434-436; Walthall 1980:138-139).

Nonlocal sand tempered and incised Weeden Island ceramics (Carrabelle Incised) were recovered from a McKelvey phase site in the Bear Creek Watershed (Futato 1983:127-130).

Flint River Phase (A.D. 500-1000)

During the Late Woodland Flint River phase semipermanent settlements were established in the eastern half of the Middle Tennessee River Valley on islands and at creek confluences with the river. These sites were usually shell middens or less often earth middens containing burned areas, postholes, and occasional storage pits. Smaller habitations occurred in caves at the valley edge and transient camps were located in the adjacent uplands (Walthall 1980:134, 136; Webb and Wilder 1951:8-9, 23, 56-64, 102-118, 136-255, 271).

The Harris site (MS°80) was a Flint River phase shell midden (76 m x 61 m x 60 cm deep) on the bank of the Tennessee River. The midden contained hearths, fired areas, earth ovens, pits, and arcs of postholes forming possible structure walls. The Deposit Landing site (MS^{v}14) was a Late Woodland midden (137 m x 37 m) with shell deposits. The midden contained a few pits and burned areas. A large burned area (7.6 m in diameter) with a central stone concentration was probably a structure floor (Webb and Wilder 1951:8-9, 102-105).

Subsistence was based on collecting mussels, fishing, simple horticulture, and hunting and gathering in the adjacent uplands (Walthall 1980:134).

Burials were flexed and placed in pits or on the midden surface and covered with shell (Walthall 1980:136; Webb and Wilder 1951:154).

The ceramics are limestone tempered and predominantly plain (Mulberry Creek Plain) and brushed (Flint River Brushed). Ceramic elbow pipes were also manufactured. The lithic assemblage includes Small Triangular cluster projectile points/knives (Hamilton), limestone celts, and slate and shale gorgets (Walthall 1980:132; Webb and Wilder 1951:271).

MIDDLE AND UPPER DUCK AND ELK RIVER DRAINAGES

The Duck and Elk rivers drain the southern half of the Nashville Basin and adjacent portions of the Highland Rim in the Interior Low Plateau Physiographic Province. The Elk River flows to the southwest and joins the Middle Tennessee River while the Duck River flows to the west and meets the Lower Tennessee River.

Extensive archaeological investigations conducted in the Normandy Reservoir, Columbia Reservoir, and Shelby Bend Archaeological District on the Duck River and the Tims Ford Reservoir on the Elk River form the basis for the cultural chronology of the region.

The Upper Duck River (Normandy Reservoir) is located in a transitional zone between the Highland Rim and Nashville Basin. The valley floor (Nashville Basin) is narrow in the upper reaches of the drainage but widens and has extensive floodplain and terrace formations downstream. The uplands (Highland Rim) in upstream portions of the Normandy Reservoir are flat barrens with prairie areas while downstream the uplands are deeply dissected with long narrow sloping ridgetops separated by narrow steep sided valleys. The Upper Duck River Drainage is also an ecotone that is formed by the overlapping of the Western Mesophytic and Mixed Mesophytic forests (Faulkner and McCollough 1973:408; 1974:1-2). The Middle Duck River (Columbia Reservoir and Shelby Bend Archaeological District) is located in the Nashville Basin. The Basin is separated into inner and outer sections because of differences in the physiography and flora. Much of the uplands in the Inner Basin is marked by Cedar Glades and open patches in areas with little or no soil formation while the deep soil of the Duck River Valley floor, Outer Basin, and portions of the Inner Basin uplands support a typical Western Mesophytic forest (Braun 1950:131-132). The Tims Ford Reservoir is located on the Upper Elk River approximately 30 km south of the Normandy Reservoir. As with the Normandy Reservoir, Tims Ford is situated in a Nashville Basin-Highland Rim and Western-Mixed Mesophytic Forest transitional zone. The Upper Elk River Valley floor is relatively narrow throughout the Tims Ford Reservoir and does not have extensive floodplains as in the lower portion of the Normandy Reservoir.

Shell Mound Archaic (5000-2500 B.C.)

During the Middle through Late Archaic periods settlements were established near mussel beds in the major rivers of the Interior Low Plateau Physiographic Province. Shell middens excavated along the Middle Duck River are the result of intensive Middle Archaic and early Late Archaic habitations. Transient camps were located in rockshelters (Entorf 1985; Hall 1985; Herbert 1986b; Hofman 1986:125; Klippel and Morey 1986:800).

The Middle Archaic and early Late Archaic shell middens in the Middle Duck River Valley are mixtures of shell, bone, charcoal, and lithic artifacts and debris. Hearths, earth ovens, and storage pits were generally rare. Later Terminal Archaic shell middens in the Cumberland River Drainage to the north of the Duck River contained cooking and storage facilities as well as evidence of structures indicated by occasional arcs of postholes (Cridlebaugh 1983:22-38; Morey 1988:28; Morse 1967:13-17, 144).

Subsistence was based on the gathering of arboreal seed crops and the exploitation of various faunal resources including deer, mollusk, rabbit, squirrel, raccoon, turkey, turtle, and fish (Crites 1987:8; Morey 1988:65-66, 94-96).

Burials were flexed and placed in pits excavated for the interment of the dead. Cremation also took place on shell midden sites. Mortuary offerings included with burials consist of stemmed and unstemmed bifacial tools, bannerstones, abraders, shell and bone beads, and bone tools (Hofman 1986:141).

The material assemblage includes late Middle Archaic White Springs/Sykes cluster and early Late Archaic Benton cluster projectile points/knives (Hofman 1986:125-147; Morey 1988:20, 28, 35).

Ledbetter Phase (3000-1000 B.C.)

During the Late Archaic Ledbetter phase seasonal hunting and gathering encampments occupied by single family units were comprised of pit clusters. Each cluster contained storage facilities, hearths, shallow basins, and occasional burials and postholes. Larger multifamily occupations contained groups of storage pits. Shelters were sometimes erected on Ledbetter phase sites.

The Aaron Shelton site (40CF69) in the Upper Duck River Valley contained four separate family unit pit clusters. Each cluster was comprised of at least one large flat bottom storage pit along with hearths and shallow basins. The Jernigan II site (40CF37) in the Upper Duck River Valley contained a group of eight storage pits that probably served as a central location for the caching of foodstuffs by multiple families (Faulkner and McCollough 1982a:169, 182, 283; Wagner 1982:418-419, 429-433, 439, 515-517).

Subsistence was based on the intensive gathering and storage of arboreal seed crops (hickory and walnut) and the exploitation of various faunal resources. This was possibly supplemented by simple horticulture (squash and gourd) (Faulkner and McCollough 1982a:225, 285-286).

Mortuary practices included the cremation of articulated skeletons in shallow pits (Wagner 1982:493). The burial pattern probably also included primary inhumations in pits.

The material assemblage includes Ledbetter cluster (Ledbetter, Pickwick, Mulberry Creek, and Maples) projectile points/knives, thick bifaces, and unifacial tools (Faulkner and McCollough 1974:575, 1982a:286-289). Nonlocal artifacts and materials derived through interregional exchange were lacking.

Wade Phase (1200-450 B.C.)

During the Terminal Archaic Wade phase most sites were seasonally occupied hunting and gathering encampments comprised of storage pits, limestone-filled earth ovens, and burial facilities. Clusters of deep vertical wall pits on some sites indicated that food storage was an important activity. A greater degree of sedentism occurred on the few fall/winter sites with enclosed dwellings.

An enclosed structure on the Ewell III site (40CF118) in the Upper Duck River Valley measured 4.6 m in diameter (floor area-16.6 m^2) and contained a central posthole, a hearth, and a large refuse pit. Lightly built warm weather shelters were also constructed. The Aaron Shelton site (40CF69) in the Upper Duck River Valley had a Wade component that included a storage pit and a large oval basin surrounded by a cluster of eight postholes that probably supported a shelter or windbreak (Davis 1978:336-337; DuVall 1982:37-39, 61, 146; Faulkner 1977:269; Faulkner and McCollough 1974:233-234, 317-324, 1982a:290; Keel 1978:13, 112, 117-120, 130; Wagner 1982:517-518).

Subsistence was based on the gathering of arboreal seed crops and possibly herbaceous seeds and the exploitation of various faunal resources (deer, turkey, squirrel, raccoon and occasionally fish, mussel, and aquatic turtle). This was supplemented by simple horticulture (squash and gourd). Sunflower seeds were recovered from a Terminal Archaic site in the Middle Cumberland River Drainage to the north of the Duck River (Bentz ed. 1986; Faulkner 1977:269; Faulkner and McCollough 1982a:290-291; Herbert 1986a:161).

Burials were flexed and on the side or occasionally sitting in pits excavated for the interment of the dead. Domestic facilities were generally not reused as burial chambers. Burials were located at the margins of large occupation areas, occasional burials were found on small habitations, and at the Oldroy site (40HI131) in the Middle Duck River Valley a large cemetery area was associated with a small occupation area consisting of a few domestic facilities. Mortuary offerings recovered with individual burials varied from few, if any, artifacts to an abundance of bone tools and local and nonlocal stone artifacts (Davis 1978:336; Faulkner and McCollough 1982a:290; Herbert 1986a:151, 166, 169-171; Keel 1978:160).

The material assemblage includes Wade cluster (Wade, Motley, McIntire, and Cotaco Creek) and Little Bear Creek cluster projectile points/knives, stone digging implements, sandstone bowls, stone gorgets, turkey bone awls, and deer bone tools. Nonlocal artifacts derived through interregional exchange consist of steatite and micaceous schist bowls and occasionally late Gulf Formational Alexander series ceramics (Herbert 1986a:161; Keel 1978:65, 130, 153-155).

Watts Bar and Longbranch Phases (700-200 B.C.)

In the Upper Duck River Drainage during the Early Woodland Watts Bar and Longbranch phases occupation consisted of pit clusters or scattered pits on large multicomponent sites. The Jernigan II site (40CF37) Longbranch phase component included three clusters of 4-8 pit features. These clusters consisted mostly of basins, storage pits, earth ovens, and burials. One pit cluster may have been associated with a group of four burials (Faulkner and McCollough 1974:325, 1982a:293; Keel 1978:136).

Subsistence was virtually identical to that of the preceding Terminal Archaic Wade phase. Herbaceous seeds may have been exploited more intensively during the Early Woodland period (Faulkner and McCollough 1982a:294-295, 300; Keel 1978:160-163).

Burials occurred singly or in small groups among clusters of domestic facilities. The burials were flexed and placed in shallow oval graves. Mortuary offerings were not found in association with the burials, which differs from the burial practices of the earlier Wade phase (Faulkner and McCollough 1982a:300).

The ceramics of the early Early Woodland Watts Bar phase are quartz tempered fabric marked (Watts Bar Fabric Marked) while the late Early Woodland Longbranch phase ceramics are limestone tempered fabric marked (Longbranch Fabric Marked). Ceramic vessels replaced stone vessels during the Early Woodland period in the Upper Duck River Drainage. The Terminal Archaic Wade cluster projectile points/knives were replaced by Rounded Base cluster types during the Watts Bar phase (Faulkner and McCollough 1973:117, 1982a:297, 299; Keel 1978:160).

McFarland Phase (200 B.C.-A.D. 200)

During the early Middle Woodland McFarland phase short-term encampments and multiseasonal or possibly year-round habitations were established on the first and second terraces of the Upper Duck River. Sites were occasionally located on the floodplain and in the uplands of the Upper Duck River and in the valley of the Upper Elk River (Kline et al. 1982:4). Family groups moved in a restricted area around seasonal or multiseasonal base camps and villages. These groups temporarily gathered at a mortuary/habitation site or ceremonial center to engage in social activities, trade, and mortuary activities. Permanent year-round villages probably developed late in the McFarland phase and intensified during the late Middle Woodland Owl Hollow phase.

McFarland phase villages contained circular and oval enclosed structures and semicircular and semisquare open cabana-type shelters. The enclosed structures measured 6.1-9.4 m x 5.0-7.3 m (floor areas=28.6-53.9 m²) and contained interior basins, storage pits, processing pits, and occasionally hearths. Some structures probably had pitched conical roofs while others were dome-like constructions formed by tensioning and tying saplings set in the wall postholes. The shelters measured 4.4-7.6 m x 2.7-5.0 m (floor areas=7.3-33.9 m²) and usually lacked interior pits and postholes. These shelters were probably utilized during the warm season while the substantially constructed enclosed structures with interior pits were cold season dwellings. Domestic activity zones consisting of cooking, processing, and storage pits may have functioned as either outdoor work areas associated with structures or as separate warm weather occupations utilized by individual families (DuVall 1982:20-28, 39-79; Faulkner 1977:69-274, 1982:303-388; Faulkner and McCollough 1974:87-89, 1982b:314-445; Kline et al. 1982:22-31; McCollough and DuVall 1976:116-134). Temporary base camps consisted of a single structure and associated pits. Transient camps contained 1-13 pits but lacked structures (Bacon 1982:177; Bacon and Merryman 1973:10-20; Cobb 1978:198-199; Faulkner and McCollough 1974:109-116, 125-129; Keel 1978:20, 163-168; McCollough 1978:33-51; McCollough and DuVall 1976:29-57, 81).

Subsistence was based on the gathering of arboreal seed crops (hickory, butternut, and acorn), simple horticulture (sunflower, squash, gourd, and maize), and the exploitation of deer, turkey, and small animals. Wild and cultivated plant foods may have been kept in the storage facilities within enclosed structures for winter use (Brown 1982b:528-529; Crites 1982:538-539; Faulkner 1977:156-157; Kline et al. 1982:55-64).

Mortuary practices consisted of flexed primary inhumations (early) and cremations (late). Flesh burials were placed in shallow and deep basins and pits and cremations were redeposited in small shallow basins (Brown 1982a:84-90; Wagner 1982:494).

The material assemblage includes limestone tempered plain (Mulberry Creek Plain), check stamped (Wright Check Stamped), and fabric marked (Longbranch Fabric Marked) ceramics. The lithics include medium triangular McFarland cluster (McFarland) and a few Lanceolate Expanded Stem cluster (Bakers Creek and Swan Lake) projectile points/knives, sandstone elbow pipes, gorgets, and shale digging implements. Nonlocal lithic artifacts and raw materials derived through interregional exchange consist of greenstone celts and occasional scraps of unworked mica (Faulkner 1977:157-159; Faulkner and McCollough 1974:330-331; Kline et al. 1982:4).

Neel Phase/Mortuary Complex (250 B.C.-A.D. 150)

The early Middle Woodland Neel phase represents either a mortuary complex that McFarland people participated in or a distinct local early Middle Woodland manifestation, possibly centered in the Elk River Valley, that consisted of mortuary/habitation sites for social intensification and small seasonal or multiseasonal encampments occupied by nuclear or extended families.

Neel phase mortuary/habitation sites contained subrectangular, rectangular, and square enclosed structures. A single semicircular open cabana-type shelter was also represented. The enclosed structures measured 6.0-13.0 m x 3.1-12.0 m (floor areas=17.7-156.0 m^2) and the open shelter measured 7.7 m x 4.7 m (floor area-28.4 m^2). Cooking, heating, and storage facilities were often found within or in close proximity to the small lightly built enclosed dwellings. Larger more substantial structures may have been associated with mortuary activities on the sites. Seasonal to multiseasonal base camps contained a single structure and associated pits and transient camps were comprised of a few pits (Bacon 1982:178-179; Butler 1968:202, 1977:1-4, 7-10, 1979:151-153; Faulkner 1977:163-164).

The subsistence pattern was probably similar to that of the McFarland phase.

Mortuary practices consisted of cremation of the dead in pits located near mortuary/habitation sites. The cremated remains were redeposited in small pits clustered adjacent to structures. Occasional primary and secondary flesh inhumations, including extended burials, were interred in the burial areas along with the redeposited cremations. Exotic materials were sometimes recovered from mortuary contexts (Bacon 1982:180-182; Butler 1977:4, 1979:152).

The material assemblage includes limestone tempered plain (Mulberry Creek Plain), cordmarked (Flint River Cordmarked), check stamped (Wright Check Stamped), simple stamped (Bluff Creek Simple Stamped), and complicated stamped (Pickwick Complicated Stamped) ceramics. Nonlocal ceramics include sand tempered plain, incised, punctated, simple stamped, and rocker stamped over cordmarked, grog tempered oval rocker-dentate stamped and diamond and dot check stamped, and grit-grog tempered rocker stamped. The lithic assemblage includes McFarland cluster (McFarland and Copena) and Lanceolate Expanded Stem cluster (Bakers Creek and Swan Lake) projectile points/knives, rectanguloid siltstone elbow pipes, two hole shale gorgets, and a core and blade industry on local cherts. Nonlocal lithic artifacts and raw materials derived through interregional exchange consist of greenstone celts, copper earspools, mica, galena, quartz crystals, serpentine, and Flint Ridge prismatic blades (Bacon 1982:178-182; Butler 1968:163, 177, 202-204, 1977:4, 7-8, 12, 1979:153-155; Faulkner 1977:165).

Owl Hollow Phase (A.D. 200-700)

During the late Middle Woodland Owl Hollow phase permanent and semipermanent villages were established in the Upper Duck and Elk River drainages. The number of sites decreased as individual settlements became more intensively occupied by larger groups of people. Additional habitations consisting of ancillary base camps and transient camps were affiliated with the larger more permanent villages (Cobb 1978:170, 199-200, 1985:413-419; Faulkner and McCollough 1974:578).

Owl Hollow phase villages contained mostly circular and oval enclosed structures. Occasional examples of square enclosed structures and semicircular open cabana-type shelters were also represented. The enclosed structures measured 5.3-13.7 m x 4.7-11.4 m (floor areas=19.6-139.4 m^2) and the single semicircular shelter measured 5.3 m x 2.7 m (floor area-11.2 m^2). Large substantially constructed double earth oven houses were multi-family winter dwellings with spatially distinct interior activity areas. These structures seldom contained interior facilities other than centrally located paired cooking/heating pits. The smaller lightly built enclosed structures and the open cabana-type shelter were single family warm weather dwellings. These structures occasionally contained a centrally located hearth or a shallow storage or processing pit. The double earth oven houses probably had pitched conical roofs while the lightly built enclosed structures were dome-like constructions formed by tensioning and tying saplings set in the wall postholes (Cobb 1978:105-170, 199-200, 1982:159-169, 232-234, 289-300, 1985:417-419; Cobb and Faulkner 1978:3, 10-130; Faulkner and McCollough 1974:125-129, 138-139, 263-292, 547, 578).

Subsistence was based on the intensive gathering of arboreal seed crops (hickory, acorn, and chestnut) and herbaceous seeds (lambsquarter, knotweed, and maygrass), the exploitation of various faunal resources (deer, turkey, small mammal, mussel, fish, and reptile), and an increasing amount of simple horticulture (sunflower, squash, gourd, and maize) (Cobb 1978:199-200, 1982:232-234, 1985:414-418; Cobb and Faulkner 1978:3, 128-130; Faulkner 1978:187; Faulkner et al. 1976:235-236; Faulkner and McCollough 1974:574, 578; Robison 1986:341-343; Shea 1978:617).

Mortuary practices consisted of redeposited cremations in shallow pits or basins and occasional semiflexed or flexed primary flesh inhumations placed in shallow pits or midden deposits (Brown 1982a:130-135).

The ceramics are predominantly limestone tempered plain (Mulberry Creek Plain) and simple stamped (Bluff Creek Simple Stamped). Nonlocal ceramics are represented by a limestone/grit tempered zoned rocker stamped vessel. The lithic assemblage includes Lanceolate Expanded Stem cluster (Bakers Creek and Swan Lake) and Lanceolate Spike cluster (Bradley Spike and Flint River Spike) projectile points/knives, microlith tools, stone elbow pipes, stone gorgets, and a rudimentary blade technology on local cherts (Cobb 1985:417-420; Cobb and Faulkner 1978:3, 128-130; Faulkner and McCollough 1974:334, 578-579).

The Edmondson Bridge site (40MU423), a late Middle Woodland village on a tributary of the Middle Duck River, was contemporary to the Owl Hollow phase in the Upper Duck and Elk River drainages. The site contained a complex of at least three single post structures, a few midden areas, and numerous shallow pits. The structures were oval and subrectangular in shape and measured 8.0-14.0 m x 5.0-10.5 m (floor areas=35.7-115.4 m^2). A large oval house with six interior pits, including two earth ovens, was probably a cold season dwelling and a lightly built subrectangular structure with one interior pit was a warm weather dwelling. A small subrectangular structure to the east of the dwellings may have been used in ceremonial activities on the site (Bentz 1986a:215-223).

Subsistence was based on the gathering of arboreal seed crops and the exploitation of various terrestrial and aquatic animals (deer, mussel, and fish). This was supplemented by simple horticulture (squash and sunflower) (Bentz 1986a:227).

The ceramics from the Edmondson Bridge site are predominantly quartz tempered plain and limestone tempered plain (Mulberry Creek Plain). The lithic assemblage includes Lanceolate Expanded Stem cluster (Bakers Creek and Swan Lake) and occasional Lanceolate Spike cluster (Bradley Spike and Flint River Spike) projectile points/knives. Nonlocal lithic raw materials derived through interregional exchange consist of copper, mica, and micaceous schist (Bentz 1986a:218-220).

Mason Phase (A.D. 600-1000)

During the Late Woodland Mason phase permanent and semipermanent villages were established on the first and second terraces of the Upper Duck and Elk rivers. Additional habitations consisted of ancillary base camps and transient camps. The villages usually contained midden accumulations, numerous pits, and multiple structures. Ancillary base camps were comprised of one or two structures and up to 11 associated pits. Transient camps contained up to eight pits and lacked structures.

The Mason phase structures were lightly built circular, oval, and square enclosed dwellings and semicircular and semisquare open cabana-type shelters. The enclosed structures measured 4.3-15.2 m x 3.1-10.7 m (floor areas=10.5-127.7 m^2) and often included interior basins, storage pits, and cooking pits that were sometimes centrally located. The largest of the enclosed structures had a centrally located roof support while the smaller structures lacked integral roof supports. The structures were probably relatively flimsy dome-like constructions formed by tensioning and tying saplings set in widely spaced wall postholes. The semisquare and semicircular shelters measured 7.0-10.3 m x 4.9-7.0 m deep (floor areas=23.7-49.0 m^2). The shelters contained central roof supports and occasionally a central earth oven. Pits were usually scattered across Late Woodland sites but sometimes clustered near structures or formed domestic activity zones utilized in cooking, processing, and storage (Brown 1982b:478-483, 532-536; Davis 1978:329-341; Duggan 1982:3, 4, 22, 104, 133-141; DuVall 1982:72, 79; Faulkner 1968:35-38, 1977:169; Faulkner and McCollough 1974:82-86, 117-119, 189-208, 1982a:168-169, 206; McCollough and DuVall 1976:43, 65-67, 99-107; Prescott 1978:366; Wagner 1982:419).

Subsistence was based on the intensive gathering of wild plant foods, especially arboreal seeds crops (hickory, butternut, and acorn), and the exploitation of various faunal resources (deer, raccoon, squirrel, rabbit and occasionally fish, turkey, reptile, and gastropod). This was supplemented by simple horticulture (squash, gourd, sunflower, and maize) (Brown 1982b: 532-533; Duggan 1982:39-106; Faulkner 1968:128; Faulkner and McCollough 1982a:303; MacMahan 1983:10, 137-139).

Mortuary practices were represented by flexed and semiflexed primary flesh inhumations mostly in deep pits and basins and less often in shallow basins. The mortuary facilities included occasional shaft and chamber pits with a clay plug separating a burial in a lateral chamber from the shaft of the pit. A Mason phase cemetery on the Parks site (40CF5) in the Upper Duck River Valley was comprised of 15 burials interred in a cluster of reused domestic facilities. A smaller cemetery area at the Mason site (40FR8) on the Upper Elk River was centered around a deep pit with a shallow basin-shape mortuary facility in the bottom. The burial was covered with limestone slabs, filling most of the larger pit, and a fire was built on top. This central burial pit intruded upon two additional burial facilities. An alignment of 12 postholes adjacent to the burial pits may have been associated with the cemetery. Grave goods found with a Mason phase burial consist of bone fish hooks and marine shell snail beads (Brown 1982a:168-176; Duggan 1982:104; Faulkner 1968:35-38; McCollough and DuVall 1976:43).

The ceramics are predominantly chert tempered cordmarked (Elk River Cordmarked), plain (Elk River Plain), knot roughened/net impressed (Elk River Knot Roughened/Net Impressed), and check stamped (Elk River Check Stamped). Nonlocal ceramics may be represented by sand, grit-grog, and grog tempered plain ceramics. The lithic assemblage includes Small Triangular cluster (Hamilton and Madison) arrowpoints, occasional Jacks Reef Corner Notched and Jacks Reef Pentagonal projectile points/knives, and sandstone digging implements (Davis 1978:424-425; Duggan 1982:3-4, 39-107, 133, 137; Faulkner 1968:58-83).

SUGAR CREEK, THE BAILEY SITE

Sugar Creek flows through the Highland Rim and Nashville Basin sections of the Interior Low Plateau Physiographic Province and joins the Lower Elk River in northern Alabama. At the Bailey site, the Sugar Creek Valley exposes Ordovician limestone formations of the Nashville Basin while the adjacent uplands are in the Mississippian Fort Payne Formation of the Highland Rim (q.v. Environmental Setting). This area is situated in the Western Mesophytic Forest region and in close proximity to the Mixed Mesophytic and Oak-Pine Forest regions of northern Alabama (Braun 1950:cover map).

Ledbetter Phase (3000-1000 B.C.)

During the early Ledbetter phase (3000-2500 B.C.) warm weather and probably also cold weather habitations were established on a Pleistocene terrace of Sugar Creek at the Bailey site location. These settlements were comprised of structures, storage pits, occasional limestone-filled earth ovens, and burials. The intensive occupation of this area resulted in the formation of midden deposits, the accumulation of large quantities of refuse in open pits, and the superpositioning of features. The likely occurrence of both warm and cold season encampments along with the intensity of occupation at this location suggests that the site inhabitants were probably forest oriented on a year-round basis in this upland area between the Duck and Tennessee rivers. In contrast, the contemporary Late Archaic inhabitants of the nearby Middle Tennessee River Valley were riverine and forest oriented on a seasonal basis, occupying the shell mounds in the river valley for the warm season and the uplands to the south for the cold season.

Warm season single family shelters on the Bailey site consisted of three sided rectangular structures with at least one interior hearth and also usually a shallow basin and two medium storage pits. A cold weather multifamily dwelling consisted of a much larger oval structure with a central hearth and cluster of three large deep storage pits. A second interior hearth was found near the structure wall and additional large deep storage pits were located just outside the north structure wall.

Subsistence was based on the gathering of arboreal seed crops (hickory and walnut) and the exploitation of various faunal resources (fish, bird, mammal, and probably amphibian and reptile). The fish included sucker, catfish, sunfish, and drum. These were probably taken by hook and line, netting, and trapping. The birds included turkey and occasional grebe, teal, passenger pigeon, cormorant, Canada goose, and bobwhite. The mammals included deer, fox, raccoon, rabbit, squirrel and occasional opossum, beaver, muskrat, and striped skunk. The only amphibian that may have been utilized as a food resource was the hellbender. Among the reptiles, turtle was probably eaten but the shells were also extensively used as tools and containers.

Burials were flexed and placed in shallow pits excavated for the interment of the dead. A single individual was interred in a midden deposit. The only possible mortuary offering found with the burials was hematite.

The material assemblage includes projectile points/knives (Benton, Ledbetter, Big Sandy II, and Little Bear Creek clusters), unstemmed bifaces, unifacial tools, pecked and ground stone tools (flake tools, drills, gravers, denticulates, digging tools, grinding stones, nutting stones, and hammerstones), and a large quantity of chert debris in various stages of reduction. Modified bone and antler in the assemblage includes awls, fishhooks, turtle shell, and antler beam and tine tools as well as the manufacturing debris resulting from the production of these tools. Site activities inferred from the tools and debris are primary lithic reduction, tool manufacturing and maintenance, hunting, fishing, butchering, wood and hide working, and plant food processing.

Three radiocarbon age determinations from the Late Archaic component at the Bailey site overlap the upper end of the time range for the Ledbetter phase and projectile point/knife cluster and the lower end of the time range for the Benton projectile point/knife cluster (q.v. Radiocarbon Dates). Typical attributes of the Ledbetter phase found at the site included large deep storage pits, shelter/windbreak form structures, and Ledbetter cluster projectile points/knives. The Benton, Ledbetter, and Little Bear Creek clusters frequently occurred together in feature context along with fewer Big Sandy II cluster projectile points/knives. The chronological placement and Ledbetter phase traits indicated that this component represents an early manifestation of the phase with the manufacture and/or procurement of Benton projectile points/knives continuing at least until about 2500 B.C. at the Bailey site.

McKelvey Phase (A.D. 400-1000)

During the early McKelvey phase (A.D. 400-500) a warm weather habitation was established at the Bailey site location. This settlement was comprised of midden accumulations, a few pits, and isolated postholes. The similarity of this site form to other McKelvey phase localities in the western Middle Tennessee River Valley and Bear Creek Drainage suggests that these people were both forest and riverine oriented, possibly occupying the Tennessee Valley for part of the year and the uplands to the north and south of the main valley for the remainder of the year.

Structural evidence was lacking and only five pits were found at the Bailey site; however, the occupation was intensive enough to form midden deposits. A portion of one midden deposit probably accumulated during the repeated use and cleaning of an earth oven underlying the midden.

Subsistence was based on the gathering of arboreal seed crops (hickory and walnut) and the exploitation of various faunal resources (fish, bird, mammal, and probably reptile and mollusk). The fish included sucker and sunfish, the birds included turkey, and the mammals consisted mostly of deer and occasional opossum, rabbit, squirrel, fox, and raccoon. Among the reptiles, turtle was probably eaten but the shells were also used as tools and containers. Mollusks consisted of freshwater bivalves and gastropods.

Burials were lacking in the Bailey site McKelvey phase component.

The ceramics are predominately limestone tempered plain (Mulberry Creek Plain) and grog tempered plain (McKelvey Plain) and cordmarked (Mulberry Creek Cordmarked). Additional types include limestone tempered cordmarked (Flint River Cordmarked), check stamped (Wright Check Stamped), simple stamped (Bluff Creek Simple Stamped), and complicated stamped (Pickwick Complicated Stamped), grog tempered check stamped (Wheeler Check Stamped) and net impressed, and untempered plain. Minor amounts of ceramics from the Middle and Upper Duck River Drainage consist of quartz tempered plain and cordmarked and chert tempered plain (Elk River Plain), cordmarked (Elk River Cordmarked), and fabric impressed (Elk River Fabric Impressed). The lithic assemblage includes projectile points/knives (Lanceolate Expanded Stem, Lanceolate Spike, and Small Triangular clusters), unstemmed bifaces, unifacial flake tools, a few pecked and ground stone tools (hammerstones and digging tools), and a large quantity of chert debris in various stages of reduction. Site activities inferred from the tools and debris are primary lithic reduction, lithic tool manufacturing and maintenance, hunting, and plant food processing.

Two radiocarbon age determinations from the Late Woodland component at the Bailey site are within the time range for the late Middle Woodland Owl Hollow phase of the Duck River Drainage and at or near the upper ends of the time ranges for the late Middle Woodland Lost Creek phase of the Bear Creek Drainage, the Late Woodland McKelvey phase of the Middle Tennessee River Valley and Bear Creek Drainage, and the Late Woodland Mason phase of the Upper Duck River Drainage. The dates also overlap the lower end of the time range for the Middle Woodland Copena phase/mortuary complex (q.v. Radiocarbon Dates). Typical attributes of the McKelvey phase found at the site included midden accumulations, few pits, little or no structural evidence, plain and cordmarked grog tempered pottery, and Small Triangular cluster projectile points/knives. The grog tempered ceramics were codominant with limestone tempered ceramics typical of the Middle Woodland Copena, Lost Creek, and Owl

Hollow phases and the Small Triangular cluster projectile points/knives were codominant with Lanceolate Expanded Stem and Lanceolate Spike cluster projectile points/knives typical of the Middle Woodland Lick Creek, Copena, Lost Creek, and Owl Hollow phases. Minor amounts of quartz tempered ceramics typical of the late Middle Woodland at the Edmondson Bridge site in the Middle Duck River Valley and chert tempered ceramics typical of the Late Woodland Mason phase in the Upper Duck and Elk River valleys were found in the same feature contexts along with the grog and limestone tempered ceramics. The chronological placement and McKelvey phase traits indicated that this component represents an early manifestation of the phase with the manufacture and/or procurement of Middle Woodland ceramics and projectile points/knives continuing at least until about A.D. 500 at the Bailey site.

Probable Woodland

A probable Woodland component at the Bailey site, earlier than the McKelvey phase, consisted of a large circular to oval structure with at least seven shallow interior pits located just inside the west wall. A thick sherd that was impressed with unmodified fibers and tempered with limestone was recovered from one of the pits. Another interior pit contained a flexed burial.

Other possible prehistoric occupations at the Bailey site are represented by occasional material remains but lack subsurface features.

HUMAN ADAPTATION FROM LATE ARCHAIC THROUGH LATE WOODLAND TIMES

During the Late and Terminal Archaic and Gulf Formational, warm season semipermanent settlements were established near mussel beds in the major rivers of the Interior Low Plateau Physiographic Province. The shell mound dwellers also occupied transient camps in the adjacent uplands during the cold season. Separate groups apparently established hunting and gathering encampments in the forested upland areas between the major rivers during the Late and Terminal Archaic. These forest habitations contained storage pits, shelters, enclosed structures, burials, and midden deposits. The upland forest sites contained numerous deep storage pits as early as 3000 B.C. while riverine shell mound sites generally lacked deep storage facilities until after about 1200 B.C. During the Early Woodland period in the Upper Duck River Drainage settlements consisted of clusters of storage, cooking, and processing pits. Early Middle Woodland semipermanent base camps and villages were established in the main river valleys and adjacent uplands. These sites were articulated with smaller transient camps. Family groups occupying the transient encampments moved in a restricted area around the base camps and large habitation sites and mortuary/habitation sites. Multiple family groups temporarily gathered at the base camps to exploit seasonally available food resources and at the large sites to participate in social functions, trade, and mortuary activities. The pattern of articulation between base camps and transitory camps continued through the late Middle Woodland; however, the mortuary/habitation sites were absent by about A.D. 500 and replaced by intensively occupied and more permanent villages. Villages were comprised of multiple structures, numerous pits, and often substantial midden deposits. Paired warm and cold season dwellings were evident on sites in the Duck River Drainage. During the Late Woodland period base camps and villages were articulated with transient camps in a settlement pattern similar to that of the early Middle Woodland. McKelvey phase villages in the western Middle Tennessee River Drainage consisted of middens, hearths, a few pits, and scattered postholes. Flint River phase settlements in the eastern Middle Tennessee River Valley were comprised of shell mound accumulations, hearths, earth ovens, pits, and posthole arcs. Mason phase villages in the Upper Duck and Elk River valleys contained middens, numerous pits, and multiple structures.

Subsistence during the Late Archaic through Late Woodland was based on the gathering of wild plant foods and the exploitation of various faunal resources. Arboreal seed crops were gathered from Late Archaic through Late Woodland times. Herbaceous seeds were gathered in increasing quantities and varieties from the Terminal Archaic to the late Middle Woodland. Simple horticulture (squash, gourd, and sunflower) began during the Archaic and intensified during the Middle Woodland with the appearance of maize. Deer was a major food resource from Late Archaic through Late Woodland times. Other smaller animals that were consistently utilized included rabbit, squirrel, raccoon, opossum, turkey, turtle, and fish. Mollusks were intensively collected during the Shell Mound Archaic, Gulf Formational Bluff Creek and Hardin phases, and Late Woodland Flint River phase along the Middle Tennessee River and during the Shell Mound Archaic along the Middle Duck River. Mollusks were also generally utilized, to some degree, during other times when this resource was available.

Mortuary practices during the Shell Mound Archaic through Early Woodland and Middle Woodland Colbert phase consisted mostly of flexed burials placed in pits excavated for the interment of the dead. Sitting burials and cremation occurred less often on Archaic sites. Colbert phase interments were sometimes placed in abandoned storage pits. Burials were found singly or in small groups on habitation sites. Local and nonlocal mortuary offerings with early Shell Mound Archaic and Terminal Archaic Wade phase burials in the Duck River Drainage and Middle Woodland Colbert phase burials in the Middle Tennessee River Valley consisted of projectile points/knives, bifaces, pecked and ground stone tools, stone bowls, beads, and bone tools. Burial objects were generally absent during the late Shell Mound Archaic, Late Archaic Ledbetter phase, Gulf Formational Bluff Creek and Hardin phases, and Early Woodland Watts Bar and Longbranch phases. During the Middle Woodland period in many areas groups temporarily gathered at large mortuary/habitation sites to participate in social activities, which often included the preparation and burial of the dead. Village areas were often located adjacent to mortuary zones comprised of burial mounds or redeposited cremations in pit clusters. Occasional flesh inhumations were found in village pits and middens. Low stone mounds were raised over partially articulated interments in the Bear Creek Watershed. In the Tennessee River Valley and later in the Bear Creek area accretional earthen mounds contained primary inhumations in elongated pits. Burial objects included nonlocal artifacts and raw materials acquired through exchange with groups in other areas. In the Duck and Elk River Valleys early Middle Woodland mortuary/habitation sites were comprised of flimsy shelters, pits, and mortuary zones. The mortuary zones consisted of redeposited cremations and occasional primary inhumations, crematory pits, and structures that may have been utilized in preparation of the dead. Similar mortuary zones may have also occurred on more permanent late Middle Woodland villages in the Middle Duck River Drainage. During the Late Woodland period flexed inhumations in pits or middens were included in village areas. The early and middle Middle Woodland is distinguished, in part, by the number and variety of nonlocal ceramic and lithic items that were obtained through trade for inclusion as mortuary offerings. These burial objects included ceramics from other regions, greenstone implements, serpentine, galena, quartz crystals, Flint Ridge chert prismatic blades, mica, copper, silver-plated artifacts, and marine shell. During late Middle Woodland times the apparent increased sedentism and intensity of site occupation was paralleled by decreasing participation in interregional exchange networks. Mortuary offerings included occasional nonlocal lithics, ceramics, and marine shell. The decline of trade and interaction continued into the Late Woodland period. Mortuary items included occasional nonlocal ceramics and marine shell.

During the Gulf Formational stage through Late Woodland period a variety of tempering agents and surface treatments were used in the manufacture of ceramic vessels. Middle Gulf Formational pottery in the Middle Tennessee River Valley was tempered with fiber and plain, punctate, and stamped. Late Gulf Formational pottery in the Middle Tennessee River Valley was tempered with sand and plain, incised, pinched, punctate, and stamped. The Early Woodland pottery in the Middle and Upper Duck and Elk River drainages was tempered with quartz or limestone and fabric marked. Middle Woodland pottery was tempered with quartz or limestone in the Duck and Elk River drainages while only limestone was utilized in the Tennessee River and Bear Creek areas. The dominant surface treatments during the early Middle Woodland were initially cordmarked, fabric impressed, and plain. Check stamped and plain ceramics were codominant in the Duck River Valley by the end of the early Middle Woodland (A.D. 1-200) and in the Middle Tennessee Valley and Bear Creek Drainage by the middle Middle Woodland (A.D. 100-300). Late Middle Woodland ceramics were predominantly plain and occasionally paddle stamped in all areas. Late Woodland ceramics were tempered with grog in the Tennessee Valley, Bear Creek Drainage, and Lower Elk River Drainage while chert and chert/quartz tempering was utilized in the Middle and Upper Duck and Elk River Drainages. Cordmarked, plain, and fabric impressed surface treatments occurred in most areas. Check stamped pottery was generally restricted to the Tennessee Valley, Lower Elk River, and Bear Creek areas and knot roughened/net impressed ceramics were only found in the Middle and Upper Duck and Elk River drainages. Interregional exchange during the Middle Woodland period brought a variety of nonlocal ceramic wares into all areas.

Late Archaic through Late Woodland lithic assemblages included projectile points/knives, bifaces, flake tools, and a variety of pecked and ground stone tools. During Woodland times microlith tools and a blade industry were also included in the assemblage. Benton, Ledbetter, Little Bear Creek, Wade, and Flint Creek cluster projectile points/knives occurred during the Late and Terminal Archaic and Gulf Formational on shell mound and nonshell mound sites. Pestles, mortars, hammerstones, limestone digging implements, and stone gorgets occurred in varying frequencies. Earlier Middle Archaic shell mound occupations included Eva/Morrow Mountain and White Springs/Sykes cluster projectile points/knives. Early Woodland lithic assemblages in the Middle and Upper Duck and Elk River Drainages contained Wade cluster and Rounded Base cluster projectile points/knives. Stone bowls manufactured from local and nonlocal materials occurred from Terminal Archaic to Gulf Formational and Early Woodland times in all areas and into the early Middle Woodland Colbert phase in the Tennessee Valley. The medium-large triangular McFarland cluster projectile points/knives were prevalent during early Middle Woodland times in the Duck River and Elk River drainages and the Tennessee Valley and Bear Creek areas. Lanceolate Expanded Stem cluster and Lanceolate Spike cluster projectile points/knives appeared during the early Middle Woodland and continued into the late Middle Woodland in the Bear Creek area and the Duck River and Elk River drainages. Blade industries on local cherts occurred during early Middle Woodland times in the Duck River and Elk River drainages and the Bear Creek Watershed. Microlith tools and stone gorgets occurred in the Bear Creek area during the early Middle Woodland and continued into late Middle Woodland times. Stone gorgets, microlith tools, and elbow pipes were also found in the Duck River and Elk River drainages during the late Middle Woodland. Small triangular projectile points/knives were found throughout the Midsouth in the Late Woodland period. Stone gorgets and limestone celts occurred on Late Woodland Flint River phase sites in the Tennessee Valley.

CHAPTER XIV

SUMMARY

Charles Bentz, Jr.

A program of Phase III archaeological data recovery was conducted at the Bailey site (40GL26) by the University of Tennessee-Knoxville for the Tennessee Department of Transportation in conjunction with a road relocation and bridge replacement project on State Route 11 in Giles County, Tennessee. The site is located on Sugar Creek approximately 20 km from the Elk River in northern Alabama.

Excavations revealed an intensive Late Archaic Ledbetter phase occupation(s) comprised of shelters, an enclosed structure, a midden area, numerous large deep storage pits, burials, and dog skeletons. A wide variety of site related activities were indicated by the remains of this habitation(s). The site was one of the earliest and most intensively occupied nonshell mound Late Archaic period habitation areas in Middle Tennessee. The remains of multiple structures represent one of the earliest examples of prehistoric dwellings in the Southeast. Cultural continuity from early in the Late Archaic (3600-3000 B.C.) to the Ledbetter phase at the Bailey site (3000-2500 B.C.) was indicated by the occurrence of numerous early Late Archaic Benton cluster projectile points/knives along with the typically later Ledbetter cluster projectile points/knives.

The site investigations also revealed a Late Woodland McKelvey phase occupation consisting of midden deposits, a few pits, and scattered postholes. Site related activities similar to those of the Late Archaic period were also indicated for the Late Woodland settlement. This habitation was one of the earliest and most northerly identified for the McKelvey phase. The occurrence of Small Triangular cluster projectile points/knives represents one of the earliest dated examples of arrowpoints in the Southeast. Cultural continuity from the middle and late Middle Woodland (A.D. 100-700) to the Late Woodland McKelvey phase at the Bailey site (A.D. 400-500) was indicated by the codominance of limestone tempered plain and stamped ceramics with grog tempered plain, cordmarked, and stamped ceramics and the codominance of Lanceolate Expanded Stem and Lanceolate Spike cluster projectile points/knives along with Small Triangular cluster projectile points/knives.

An additional Woodland component, possibly Early Woodland, was represented by a structure containing several interior pits. An early nineteenth century historic component consisted of a square storage pit or pit cellar.

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