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To the Graduate Council:

I am submitting herewith a thesis written by Charles Bentz, Jr. entitled "Middle and Late Woodland Settlements in Selected Areas of the Midsouth: A View from the Middle Duck River Drainage in Maury County, Tennessee." I have examined the final copy of this thesis for form and content and recommend that it be accepted in the partial fulfillment of the requirements for the degree of Master of Arts, with a major in Anthropology.

Walter E. Klippel,
Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

Vice Provost
and Dean of The Graduate School

MIDDLE AND LATE WOODLAND SETTLEMENTS IN SELECTED AREAS OF THE MIDSOUTH: A VIEW FROM THE MIDDLE DUCK RIVER DRAINAGE IN MAURY COUNTY, TENNESSEE

A Thesis

Presented for the

Master of Arts

Degree

The University of Tennessee, Knoxville

Charles Bentz, Jr.

June 1986

ACKNOWLEDGEMENTS

A number of individuals have contributed to the completion of this thesis. I am indebted to my committee members, Drs. Walter E. Klippel, Charles H. Faulkner, and Jefferson Chapman. Although most of the individuals who participated in the field and laboratory work are not mentioned, their assistance is deeply appreciated. Lynn Snyder, William Dickerson, and Dr. Paul Parmalee identified the vertebrate faunal remains, Dr. Walter Klippel identified the freshwater mollusks, and Dr. Gary Crites conducted a preliminary analysis of selected botanical remains. Terry Faulkner prepared the final drawings and maps in this thesis. Kim Johnson and Pam Poe typed the manuscript. Technical aid was provided through the University of Tennessee Photographic and Graphic Arts services. Most of all, I would like to thank Cora Bentz for lending moral support, as well as skilled assistance, during this study.

This research represents part of the Columbia Archaeological Project. The present study has been conducted under Tennessee Valley Authority Contract TV-60066A. Dr. Walter Klippel has served as Principle Investigator and Project Director. Special thanks are extended to Tennessee Valley Authority archaeologists J. Bennett Graham and Jill Elmendorf.

ABSTRACT

Archaeological remains in the Middle Duck River Drainage of Middle Tennessee and other selected areas of the Midsouth offer the opportunity to study human adaptation in Middle and Late Woodland cultures. The basic attributes of such an adaptive system are the elements of technology, subsistence economy, and settlement patterns with other ancillary attributes consisting of mortuary activities, ceremonialism, and interregional exchange.

During the early Middle Woodland in the Midsouth semipermanent villages were established in the main river valleys and adjacent uplands. In late Middle Woodland and Late Woodland times, these villages became larger and more intensively occupied in many areas. Subsistence practices were based on the gathering of wild plant foods, simple horticulture, and the exploitation of various faunal resources. Food procurement and production practices were notably influenced by horticulture (maize, squash, beans, and sunflower) in the Late Woodland period or possibly as early as the early Middle Woodland. Mortuary practices in the Midsouth included the establishment of large mortuary/habitation sites and, in certain areas, the construction of burial mounds. The early Middle Woodland is distinguished, in part, by the number and variety of nonlocal ceramic and lithic items included with burials. Interregional exchange decreased through late Middle Woodland and Late Woodland times as populations became more sedentary. A variety of tempering agents and surface treatments were used in the manufacture of ceramic vessels during the Middle and Late

Woodland periods. Lithic assemblages include projectile points/ knives, elbow pipes, gorgets, microlith tools, and a blade industry on local cherts. These attributes of human adaptation articulate in a cyclical system in which each element affects the other and is crucial for the maintenance of the whole system.

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INTRODUCTION

The proposed Columbia Reservoir and study area is located on the Middle Duck River and its tributaries in Middle Tennessee. Fenneman (1938) distinguished five physiographic provinces that occur in Tennessee. These are from east to west: 1) Blue Ridge, 2) Ridge and Valley, 3) Appalachian Plateaus, 4) Interior Low Plateau, and 5) Coastal Plain (Figure 1). The Interior Low Plateau in Middle Tennessee is comprised of the Highland Rim and the Nashville Basin. The southern half of the Basin is drained to the west and southwest by the Duck and Elk rivers respectively, while the northern half is drained to the northwest by the Cumberland River (Figure 2).

The Basin is separated into inner and outer portions on the basis of physiographic and floristic variability. The study area is located in the inner portion of the Nashville Basin and a transitional area between the inner and outer sections.

The general archaeological knowledge of Middle Tennessee during the Middle and Late Woodland periods has only recently 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 Tims Ford and Normandy reservoirs (Faulkner ed. 1968; Faulkner and McCollough 1973, 1974; Faulkner and McCollough ed. 1977, 1978, 1982a, 1982b) and subsequent research funded by grants from the National Science Foundation (Cobb and Faulkner 1978; Kline et al. 1982) have led to the formulation of

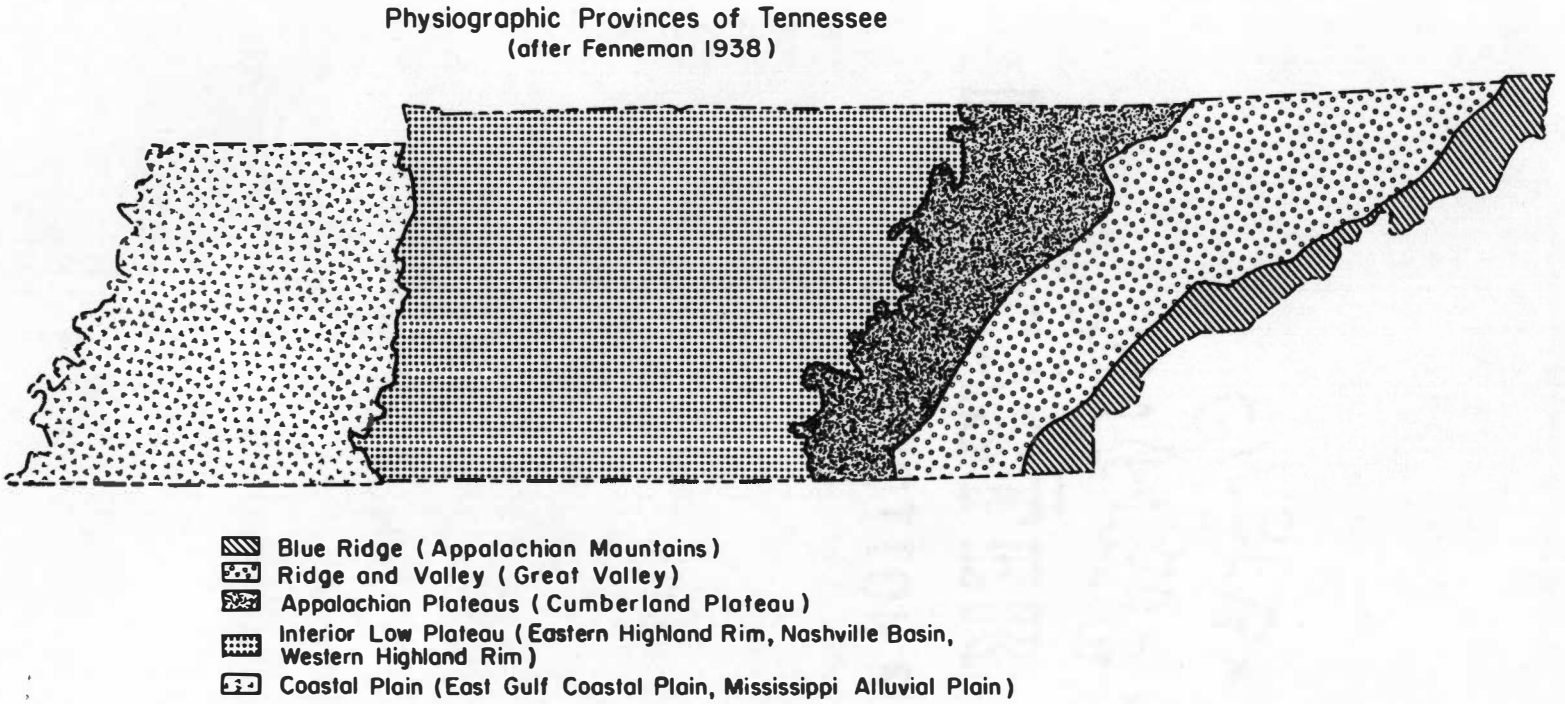


Figure 1. Physiographic Provinces of Tennessee; after Fenneman (1938).

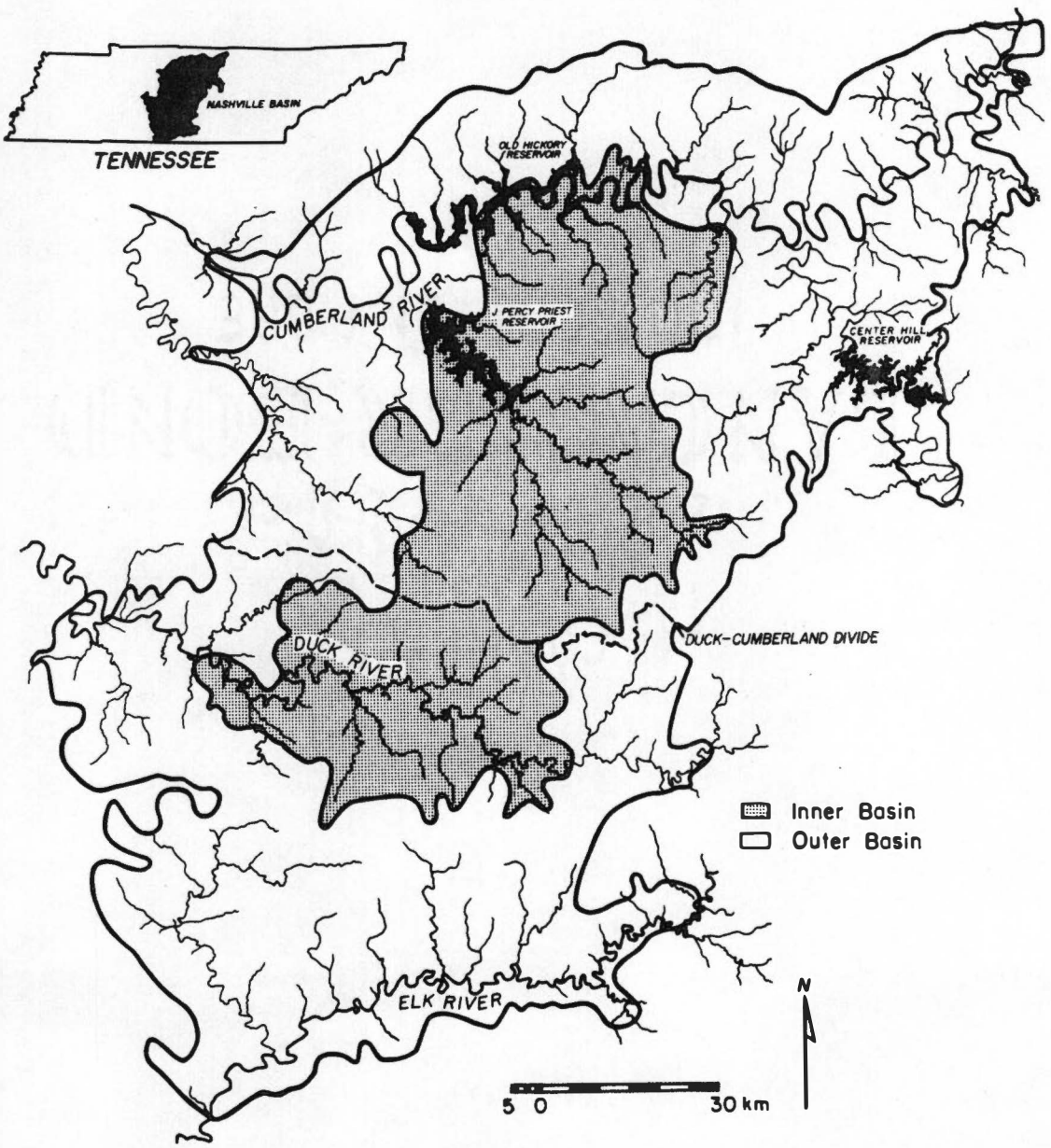


Figure 2. Nashville Basin.

models concerning prehistoric lifeways in the Eastern Highland Rim during the Middle and Late Woodland periods.

The Woodland research conducted in the Interior Low Plateau has revealed a subsistence system utilizing weed species, arboreal seed crops, and native and tropical domesticated plants. It is theorized that this subsistence system intensified from early to late Middle Woodland with maize playing an increasingly important role. Intensification in the cultivation of exotic domesticated plants may have resulted in a shift of the settlement pattern to locations of extensive arable lands and led to the increasing storage of foodstuffs and permanence of habitations (Cobb and Faulkner 1978:128-132; Kline et al. 1982:62-71). During the Late Woodland period sites became more transitory and the importance of cultigens as a food source may have diminished (Duggan 1982:4; Faulkner and McCollough 1982a:560).

CHAPTER I

THE COLUMBIA RESERVOIR STUDY AREA

Archaeological remains in the Columbia Reservoir research area offer the opportunity to study human subsistence, settlement, and chronological systems in the Nashville Basin during the Middle and Late Woodland periods. As part of this research, two bends of the Duck River (Cannon and Cheek) were subjected to intensive controlled surface reconnaissance. These areas were selected for intensive coverage because of the geologic and floristic variability between the two localities. The uplands adjacent to Cheek Bend (Inner Basin) are marked by cedar glades and open patches in areas with little or no soil formation while the deep soil of Cannon Bend (Inner-Outer Basin) and the rest of Cheek Bend supports a typical Western Mesophytic forest (Braun 1950:131-132). The floristic patchiness of the Inner Basin may have influenced the human exploitation of various faunal resources, especially deer (Turner 1982:4), while the increased dependence on simple horticulture during the Woodland period may have led to expanded use of more arable lands in the Outer Basin.

The relative intensity of prehistoric occupation through time in Cheek Bend and Cannon Bend is measured here by the number of projectile points/knives (PPKs) that are assigned to each temporal period (Paleoindian through Late Woodland/Early Mississippian). Individual sites are not subjected to analysis because each bend contains a continuous scatter of cultural material. Sites are

delimited by material concentrations within the areas. The number of PPKs per km² of area surveyed is corrected for the varying lengths of the temporal periods by dividing the point frequency into a factor determined by the period duration, in thousands of years.

The corrected projectile point/knife frequencies (f) indicate that the intensity of habitation in Cannon Bend generally increased from Paleoindian (f = 0.34) through Middle Woodland times (f = 26.67) and then decreased abruptly during the Late Woodland and Mississippian periods (f = 17.14) (Table 1 and Figure 3). Cheek Bend was generally a favorable occupation area from Middle Archaic (f = 15.02) through Middle Woodland times (f = 14.50) with a decrease in intensity during the Late Archaic period (f = 10.82). The data suggest that the Inner Basin was utilized for deer hunting during both Archaic and Woodland times while the habitation of the Inner-Outer Basin transitional area increased dramatically by Woodland times as the use of simple horticulture developed and expanded. The combined data from Cheek Bend and Cannon Bend indicate a general population growth and intensified site occupation from Paleoindian through Middle Woodland times (f = 1.47-17.86) along the Middle Duck River (Figure 4). This pattern was reversed during the Late Woodland and Mississippian periods (f = 10.79) in the Middle Duck River area.

In addition to Cheek Bend and Cannon Bend, certain areas scattered along creeks which flow into the Duck River were also subjected to intensive controlled surface reconnaissance. The selection of these areas for coverage was based on the fortuitous

Table 1. Chronological Distribution of Projectile Points/Knives in Cannon and Cheek Bends.

Temporal Period	Correction Factor (Length in Years/1000)	Points Recovered; Cannon Bend	Density/ km²	Density/km² Divided by Correction Factor (f)	Points Recovered; Cheek Bend	Density/ km²	Density/km² Divided by Correction Factor (f)	Points Recovered; Cannon + Cheek Bends	Density/ km²	Density/km² Divided by Correction Factor (f)
Paleoindian	2	1	0.67	0.34	15	3.82	1.91	16	2.95	1.47
Early Archaic	2	18	12.00	6.00	67	17.05	8.53	85	15.65	7.83
Middle Archaic	2	7	4.67	2.34	118	30.03	15.02	125	23.02	11.51
Late Archaic	2	48	32.00	16.00	85	21.63	10.82	135	24.86	12.43
Terminal Archaic/ Early Woodland	1.8	53	35.33	19.63	107	27.23	15.13	160	29.47	16.37
Middle Woodland	1	40	26.67	26.67	57	14.50	14.50	97	17.86	17.86
Late Woodland/ Early Mississippian	0.7	18	12.00	17.14	23	5.85	8.36	41	7.55	10.79
Undifferentiated		1	0.67		5	1.27		6	1.11	
Total		186			477			663		

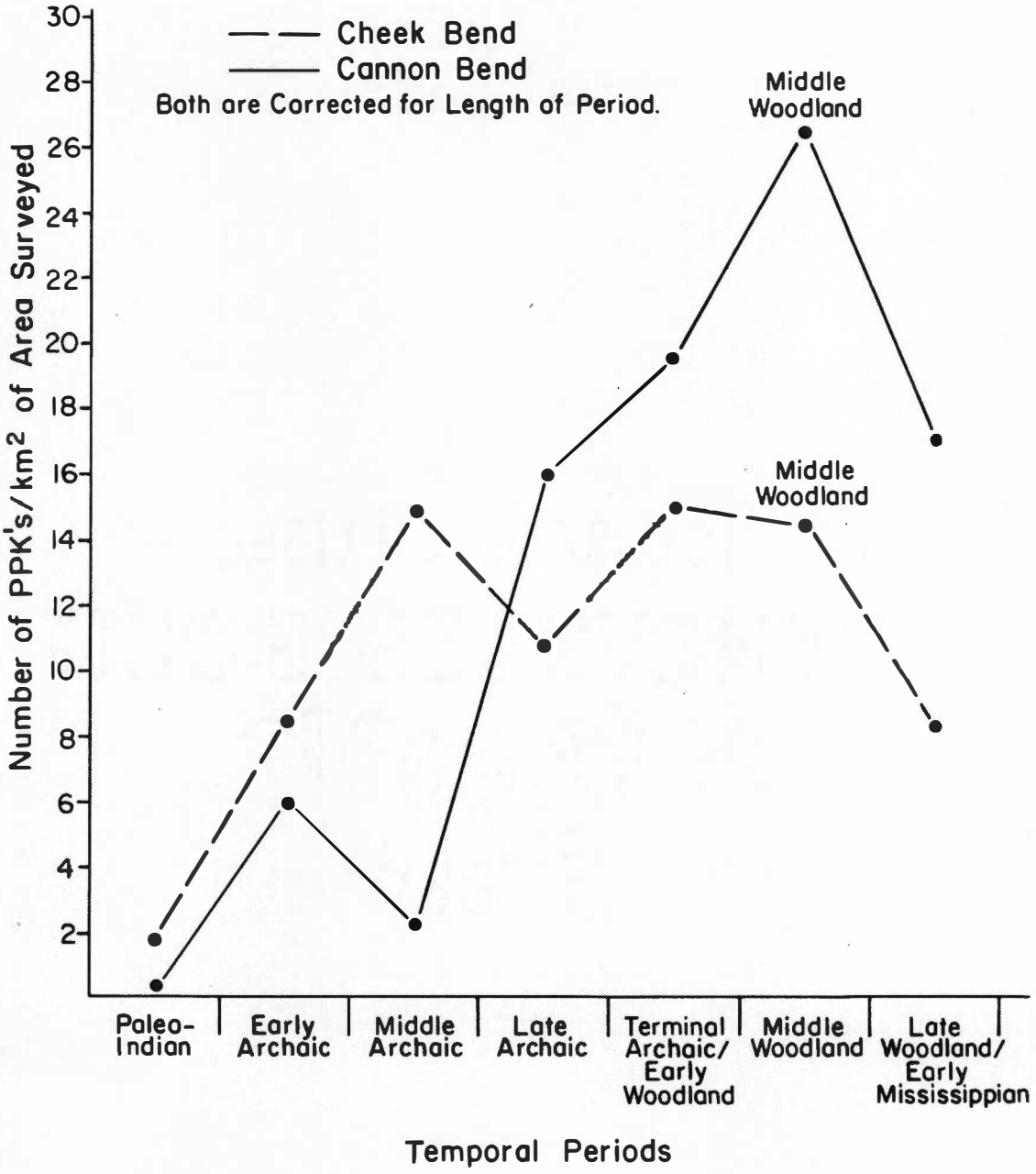


Figure 3. Relative Intensity of Prehistoric Occupation in Cheek Bend and Cannon Bend.

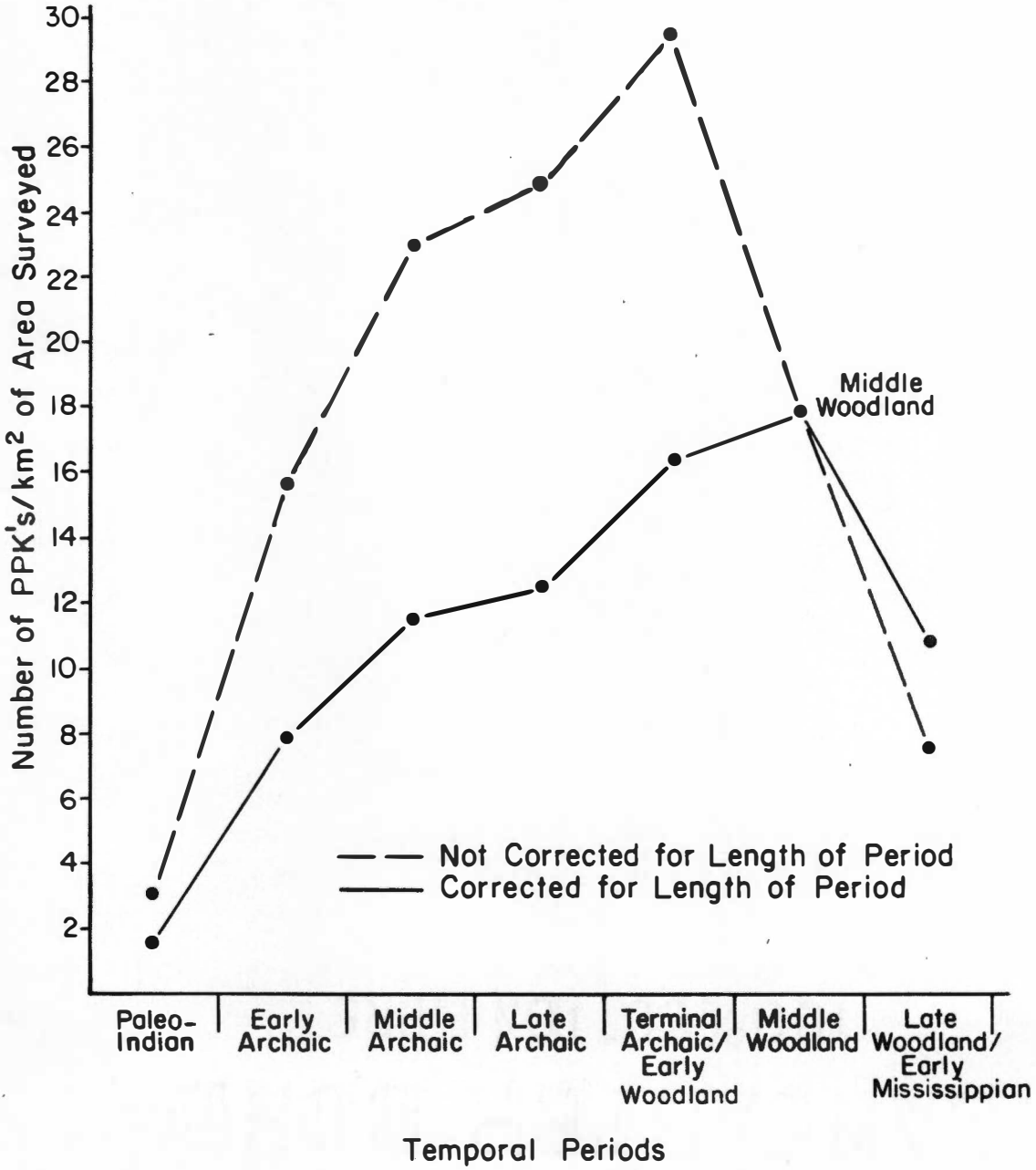


Figure 4. Relative Intensity of Prehistoric Occupation in the Combined Areas of Cheek Bend and Cannon Bend.

accessibility of the land. An extensive Middle Woodland habitation, the Edmondson Bridge site (40MU423), was located along Fountain Creek. A testing program and subsequent block excavations were undertaken at the site because of the relatively isolated nature of the late Middle Woodland component and the high surface densities of Middle Woodland diagnostics. Additional Middle and Late Woodland sites (Fountain Creek-40MU424, Leftwich-40MU262, and Liggett-40MU312) located along Fountain Creek and the Duck River were also tested (Figure 5).

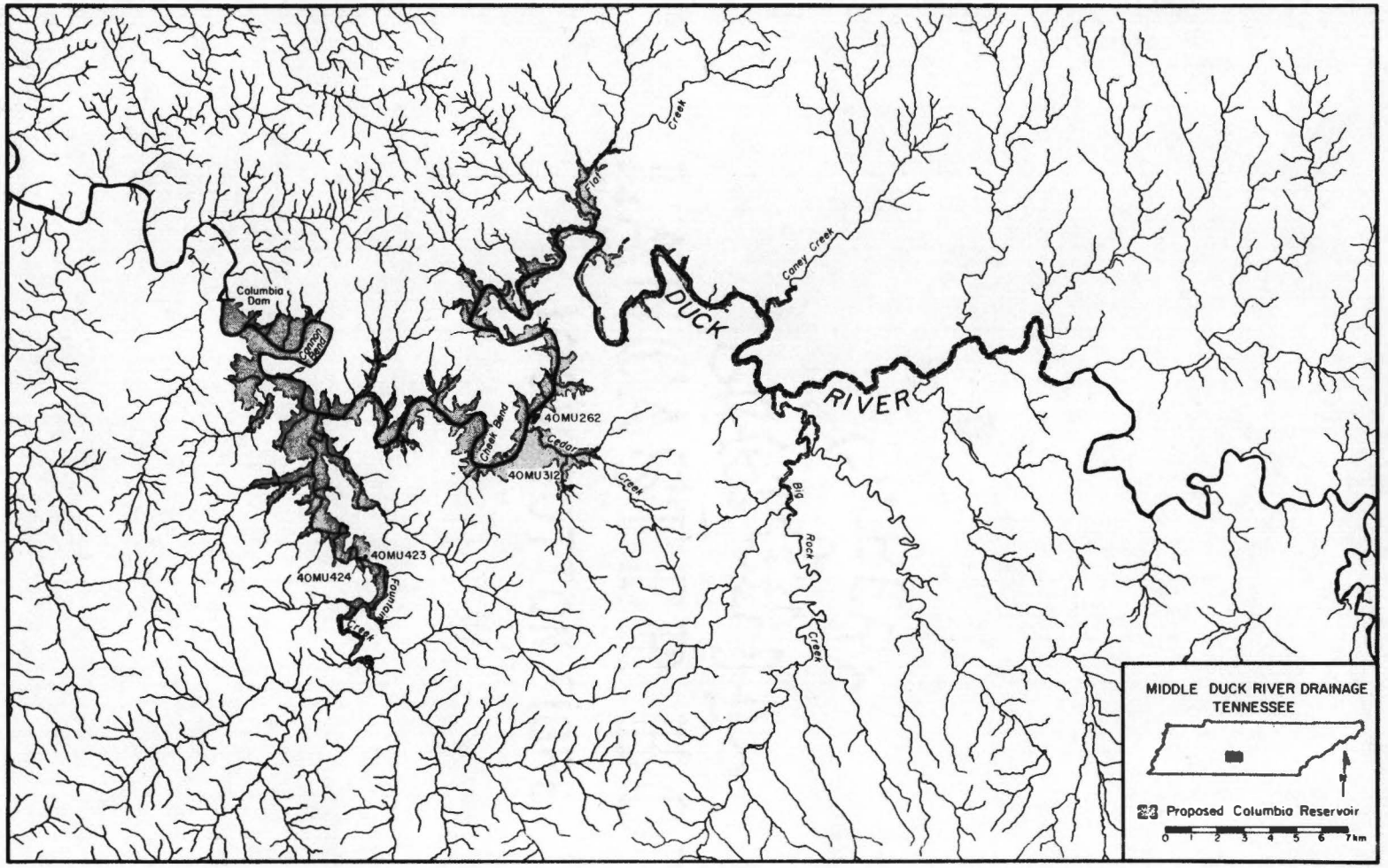


Figure 5. Middle Duck River Drainage and the Proposed Columbia Reservoir.

CHAPTER II

THE EDMONDSON BRIDGE SITE

1. HISTORY OF INVESTIGATIONS

The Edmondson Bridge site is situated on the second terrace of Fountain Creek approximately 10 km upstream from the Duck River. The site was initially located by a University of Tennessee field crew during the month of May, 1980. A controlled surface collection was subsequently conducted over the entire agricultural field in which the site is situated. A concentration of surface material encompassing an area of 1.9 ha was delimited through the controlled collection. An additional scatter of Middle Woodland ceramics and PPKs bordering the concentration brought the total site area to 2.8 ha (Figures 6 and 7). An area of 4.8 ha nominated to the National Register of Historic Places for the Edmondson Bridge site includes those areas between the concentration and isolated pockets of scattered cultural material as well as most of the topographic feature on which the site is situated. Excavations at the site were conducted during 44 days of the period from July 20 to September 15, 1982 and 39 days of the period from October 18 to December 6, 1983. A total of 2,553.5 man-hours was expended at the site during the two seasons of fieldwork.

The archaeological examination of the site was initiated with a controlled surface collection. The field in which the site is located was divided into 20 m x 20 m units. Surface visibility was excellent at the time of collection with less than 10% ground cover. In

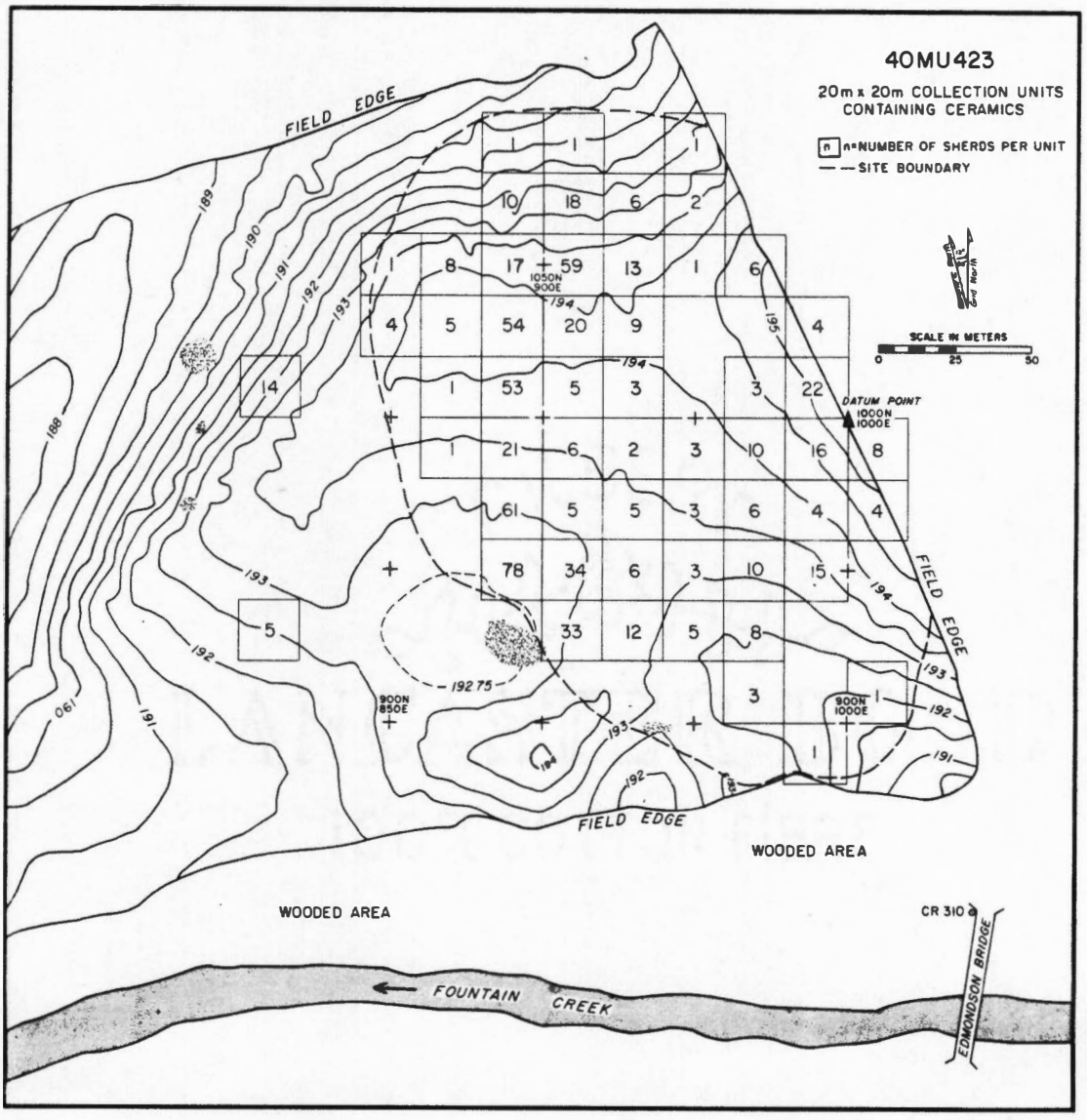


Figure 6. Surface Distribution of Middle Woodland Ceramics on the Edmondson Bridge Site.

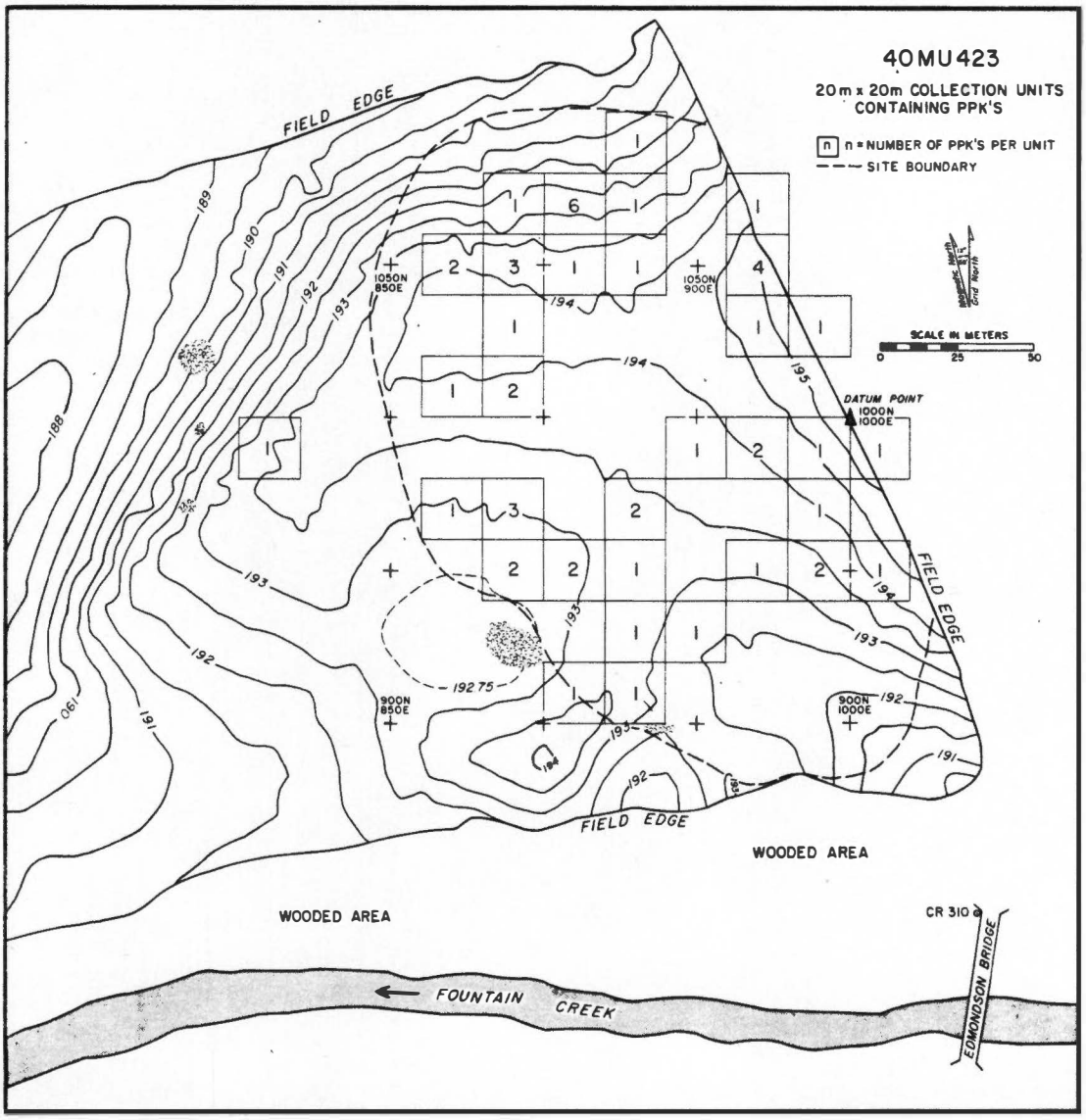


Figure 7. Surface Distribution of Middle Woodland Projectile Points/Knives on the Edmondson Bridge Site.

addition to the Edmondson Bridge site, two other sites (40MU424 and 40MU425) were located in the same field approximately 130 m and 180 m to the southwest and west. Three burned limestone and dark soil concentrations were noted during the controlled surface collection and their limits mapped in. Two of these concentrations are located on the Edmondson Bridge site and the third is situated to the west on the Fountain Creek site. Six machine-excavated units comprising a total area of 4,246 m^2 were opened in order to locate and investigate subsurface prehistoric features. A total of 52 pits, 3 fill areas, 7 trench segments, and 4 structures was defined, mapped, and excavated at the Edmondson Bridge site.

2. EXCAVATION PROCEDURES

Excavation procedures at the site first involved re-establishing the grid utilized during the controlled surface collection. A contour map of the site area was constructed. Heavy machinery was employed in removing the plowzone from six excavation units. Dark stains in the soil thought to be prehistoric features were flagged and subsequently shovel or hoe scraped for definition. The limits of the potential pits, fill areas, trench segments, and postmolds were marked on the ground and mapped in plan view. Hand excavation of these possible prehistoric features was then initiated.

The term "feature" is used to refer to pits, hearths, fill areas, trench segments, postmolds, and structures. The rather arbitrary division between postmolds and pits is based on plan view dimensions

and profile shape. Dimensions greater than 30 cm are usually given pit numbers (F) while those of 30 cm and less are given postmold numbers (PM). When viewed in vertical cross-section, postmolds generally have vertical or tapering sides and a rounded or pointed bottom. A "fill area" is a large shallow accumulation of dark soil and material that is the result of human activity. The term "trench segment" is used to refer to those narrow elongated features having roughly parallel to slightly convex sides and rounded ends. The designation of trench segment is abbreviated TS.

Mapping

An arbitrary grid system was established in 1980 for the controlled surface collection. A datum point (1000 N, 1000 E) was set at the east edge of the field in which the site is located. A grid North-South baseline was oriented at 13 degrees 58 minutes east of magnetic north. The grid was expanded from the baseline and the 20 m x 20 m units for the controlled surface collection were established.

In 1982, the datum point was located and the grid was re-established. A Tennessee Valley Authority (TVA) Columbia Reservoir elevation point was utilized in determining an absolute elevation for the datum. Twelve hubs were set at 50 m intervals across the site. These hubs were employed in constructing a contour map of the site and in establishing grid North-South mapping lines in the excavation units. Points were set at 5 m intervals along the mapping lines and additional points were triangulated in with tapes. The pits,

postmolds, trench segments, and fill areas were then mapped in the 1:20 scale.

Excavation Units

Approximately 10% of the contiguous area defined by the surface distribution of Middle Woodland ceramics and PPKs was selected for study during the 1982 test excavations at the Edmondson Bridge site. Excavation transects were established along a grid North-South alignment so that various topographic features including ridges, slopes, and depressions would be bisected. In addition, those areas that yielded the highest concentrations of Middle Woodland diagnostics per 20 m x 20 m collection unit were also examined. It was decided that the minimum unit width necessary to observe partial structure patterns, if present, was 2-3 m. A width of 3 m was chosen for the excavation transects. The lengths of the excavation transects were determined by the surface distribution of Middle Woodland diagnostics. Five transects were spaced 50 m apart and varied in length from 40-180 m. The extent of these excavation transects and expansions on these units brought the total area investigated during the test excavations to 2,196 m^2 or 7.9% of the site locale. As part of the 1983 block excavations, a 50 m x 40 m unit with an eastward expansion was opened around the portion of a transect (Excavation Unit 2) that contained clusters of postmolds and five pits. The extent of this block and the expansion totalled 2,050 m^2 bringing the total area

examined during two seasons of fieldwork to 4,246 m² or 15.3% of the site locale (Figure 8).

Machine Stripping

A backhoe was employed to remove the plowzone from those areas of the site to be investigated. Six excavation units and five unit expansions comprising a total area of 4,246 m² were opened. Postmold configurations delimited four structures in these units. Fifty-five potential pits were defined, 52 of which were of prehistoric origin. Seven trench segments were examined and three fill areas were partially excavated.

The use of the backhoe facilitated the investigation of large areas of the site in a relatively short period of time. The exposure of large areas of the site subjected a variety of topographic features to analysis; these included ridges, slopes, depressions, and a rise between two depressions.

Features

Pits. The pits were excavated in halves by either 10 cm levels within natural strata (1982) or by only natural strata (1983). 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 then excavated and relevant data recorded. All of the pit fill was retained for flotation in order to maximize the recovery of microfloral and microfaunal materials.

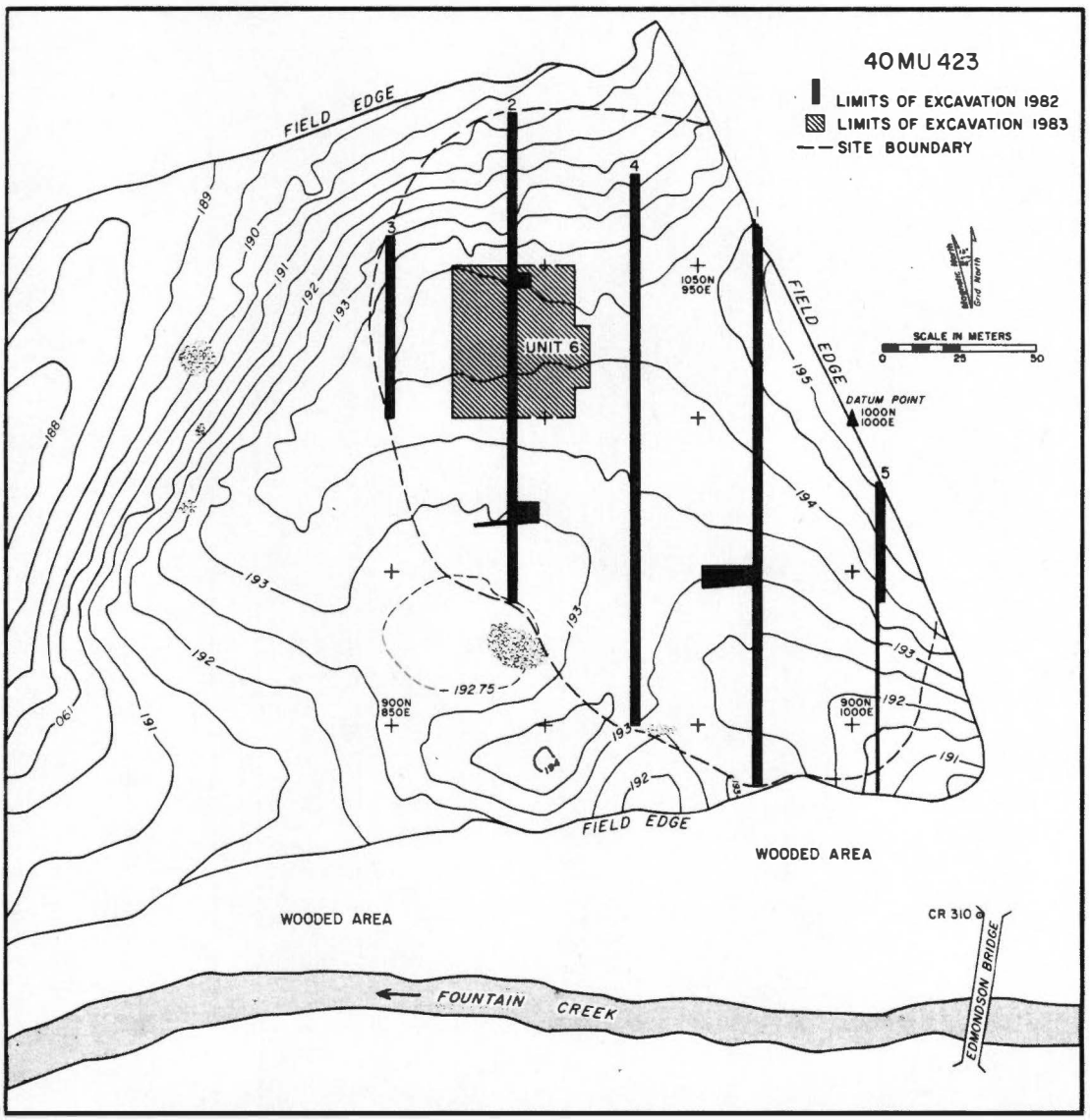


Figure 8. Excavation Units on the Edmondson Bridge Site.

Fill areas. Three large fill areas were investigated during the excavations at the Edmondson Bridge site. Two of the fill areas were shallow sheet middens situated adjacent to structures. The third fill area consisted of a dense concentration of burned limestone in a matrix of soft granular fill.

A 1 m wide trench divided into 1 m x 1 m units was established across each of the fill areas. The trench in one of the fill areas was situated along the south wall of the excavation unit so as to include the plowzone in the profile. Either alternate or continuous units within each 1 m wide trench were excavated in 10 cm levels. One of the profile walls along the length of each trench was then selected for mapping. The profile wall was photographed and mapped in the 1:10 scale. All of the excavated fill was retained for flotation.

Trench segments. The trench segments were cross-sectioned with a shovel and trowel. The profile was viewed with approximately 10 cm of subsoil bordering the trench segment fill. The exposed profile wall was mapped in the 1:10 scale and photographed. Trench segment fill was not retained for flotation and the second halves were not excavated. Cultural material was thus only recovered from one-half of each trench segment.

Postmolds. The postmolds were cross-sectioned with a shovel and trowel. The profile was viewed with approximately 10 cm of subsoil bordering the postmold fill. Dimensions and elevations of the

postmolds along with a sketch of the profile were recorded. A number of the postmold profiles were photographed. The fill of a few postmolds were retained for flotation and the second halves were not excavated. Cultural material was thus only recovered from one-half of each postmold.

Flotation and Sorting

A primary objective of the research conducted at the Edmondson Bridge site was to maximize the recovery of microfloral and microfaunal material in order to reconstruct the subsistence patterns of the site inhabitants. The total amount of soil excavated from the pits and fill areas was subjected to water flotation. The fill from only a few postmolds was floated because of the excavation procedures pursued in the investigation of these features.

The measured fill (7,410 liters) was processed through a water flotation system consisting of two nested metal drums that were filled with water. Agitation and filling of the system was provided through a hose fitted to the bottom (1.6 mm mesh) of the outer drum. The inner drum has a screened bottom through which soil passes during the flotation process. Cultural 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 for later analysis.

The floated heavy fractions were usually placed in a 710 micrometer (Number 25) geologic sieve. Material that passed through the screen was not sorted but the residue was refloated to separate any charcoal. Material larger than 710 micrometers was separated into several general categories (i.e. ceramics, burned clay, chert, siltstone, limestone, charcoal, bone, and shell). The heavy fractions from Feature 17 and Fill Areas 1 and 2 were an exception to this size-grading/sorting procedure. The Feature 17 and Fill Areas 1 and 2 heavy fractions were size-graded in nested 2.83 mm (Number 7) and 710 micrometer geologic sieves. All material larger than 2.83 mm was sorted into the general material categories while only charcoal, bone, and shell were recovered from the residue in the 710 micrometer-2.83 mm particle size range. The sorted cultural material from the heavy fractions, excluding chert, was then analyzed along with the trowel sorted material.

The methods employed in the archaeological investigation of the Edmondson Bridge site were effective for maximizing the recovery of data. The use of heavy machinery for plowzone removal was an efficient strategy for investigating large areas of the site and a variety of topographic features in a relatively short period of time. The recovery of microfloral and microfaunal material through the processing of feature fill by water flotation will aid in the reconstruction of the subsistence patterns practiced by the site inhabitants during the Middle Woodland period.

3. EXCAVATION RESULTS

Investigations at the Edmondson Bridge site revealed the occurrence of subsurface features in six areas. A total of 52 pits, 3 fill areas, 7 trench segments, and 4 structures was examined. These do not include the numerous tree and animal disturbances that were excavated. The discussion of the excavation results is initiated with a consideration of the pits, fill areas, trench segments, postmolds, and structures. The material assemblage recovered through these investigations is then described; i.e. ceramics, chipped stone artifacts, ground stone artifacts, lithic debris, burned clay, faunal remains, and floral remains.

Analysis of the subsurface features is first presented in the form of locational and general descriptive data. Secondly, the various feature categories are described in detail through a consideration of morphological attributes and material content.

Distribution of Features

Test excavations-1982. The five excavation transects traverse the crest and slopes of an east-west ridge that forms the second terrace of Fountain Creek. Subsurface features were found in four of these units; only Excavation Unit 3 did not contain any features (Figure 9).

Prehistoric subsurface features in Excavation Unit 1 consisted of a fill area and two pits (Figure 10). Fill Area 1 measured approximately 12 m x 8 m in plan view and 10 cm in depth. It was

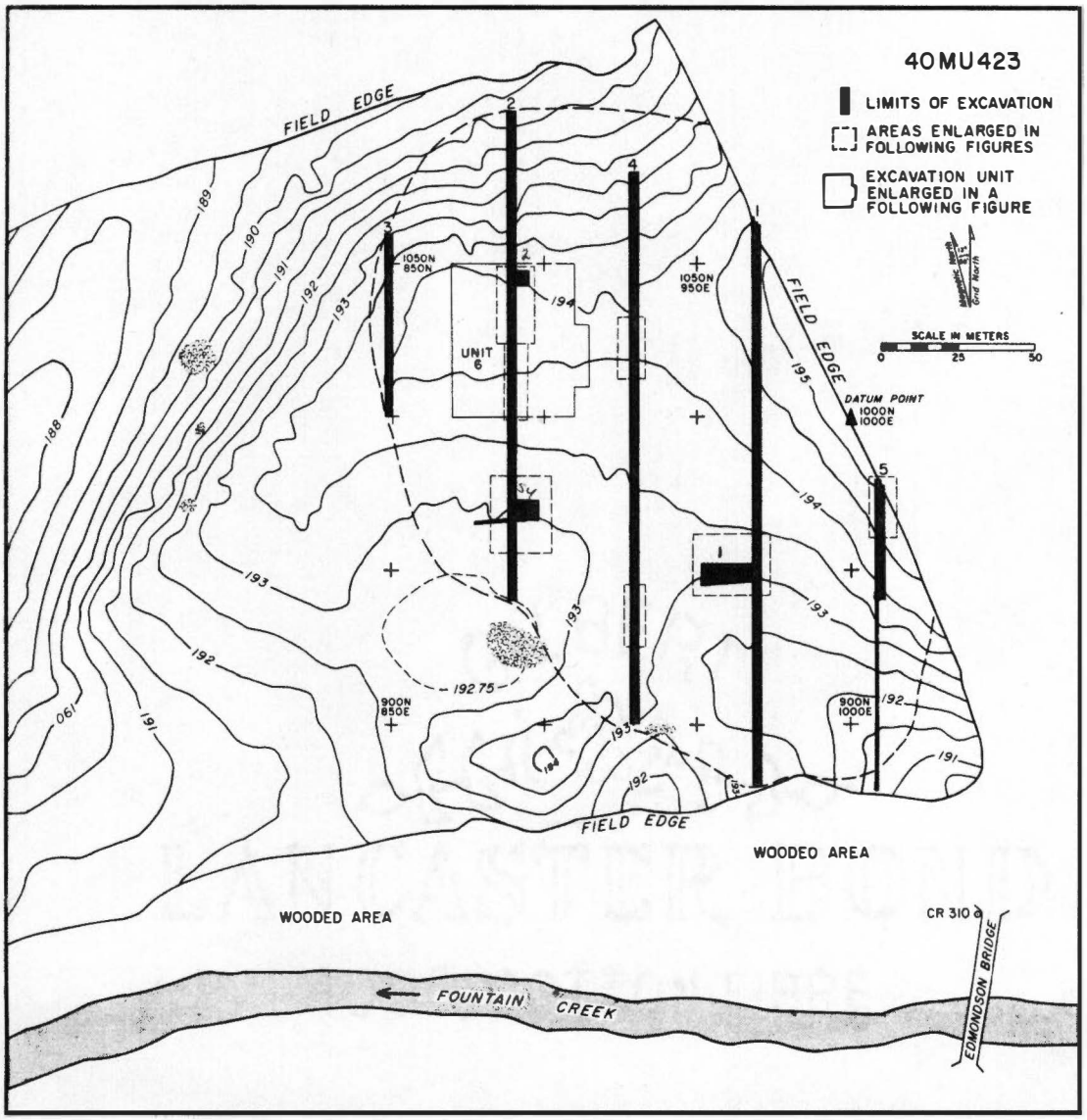


Figure 9. Excavation Unit Areas That Contained Subsurface Features on the Edmondson Bridge Site.

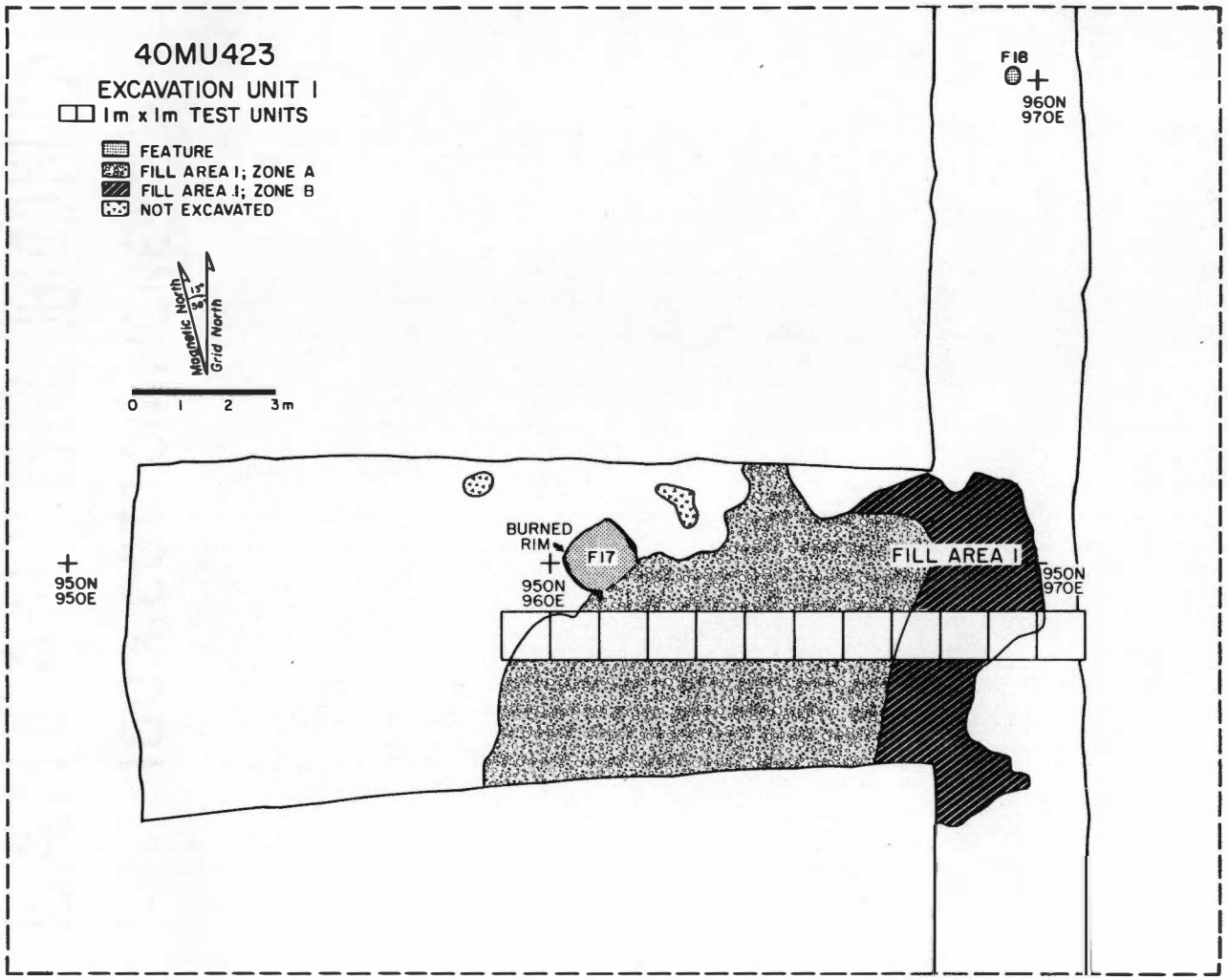


Figure 10. 1982 Test Excavations at 40MU423-Excavation Unit 1.

mainly comprised of a large quantity of burned limestone in a dark granular soil matrix that was underlain in many areas by a thin lens of charred organic debris. A square pit (F 17) was situated to the northwest of and adjacent to Fill Area 1. Evidence of fire in the pit was suggested by lenses of ash in the fill and the reddened subsoil that formed the sides and bottom of the pit. A small pit (F 18) was located approximately 8 m to the north of Fill Area 1. This pit was similar to a large postmold in plan view and profile shapes, as well as dimensions, and contained a large quantity of burned limestone. These prehistoric features were located on the north edge of a topographic depression that was probably circular at one time and measured approximately 50-60 m in diameter. In recent times, however, a southeast trending drainage cut through the depression.

Excavation Unit 2 contained evidence of prehistoric activity in two spatially and topographically distinct areas that were separated by a minimum distance of 30 m. Five pits (F 1, 2, 3, 6, and 7) were located in the north half of the unit (Figure 11). These features were situated on the crest of the second terrace of Fountain Creek. Some of the highest densities of ceramics on the site occurred on this east-west ridge. A fill area (Fill Area 2) that measured approximately 8 m x 7 m in plan view and 10 cm in depth was located in the south half of Excavation Unit 2 (Figure 12).

This sheet midden was positioned adjacent to a group of postmolds which formed part of a structure (Structure 4). Two pits (F 8 and 11) were located adjacent to Fill Area 2 and a third pit (F 12) was

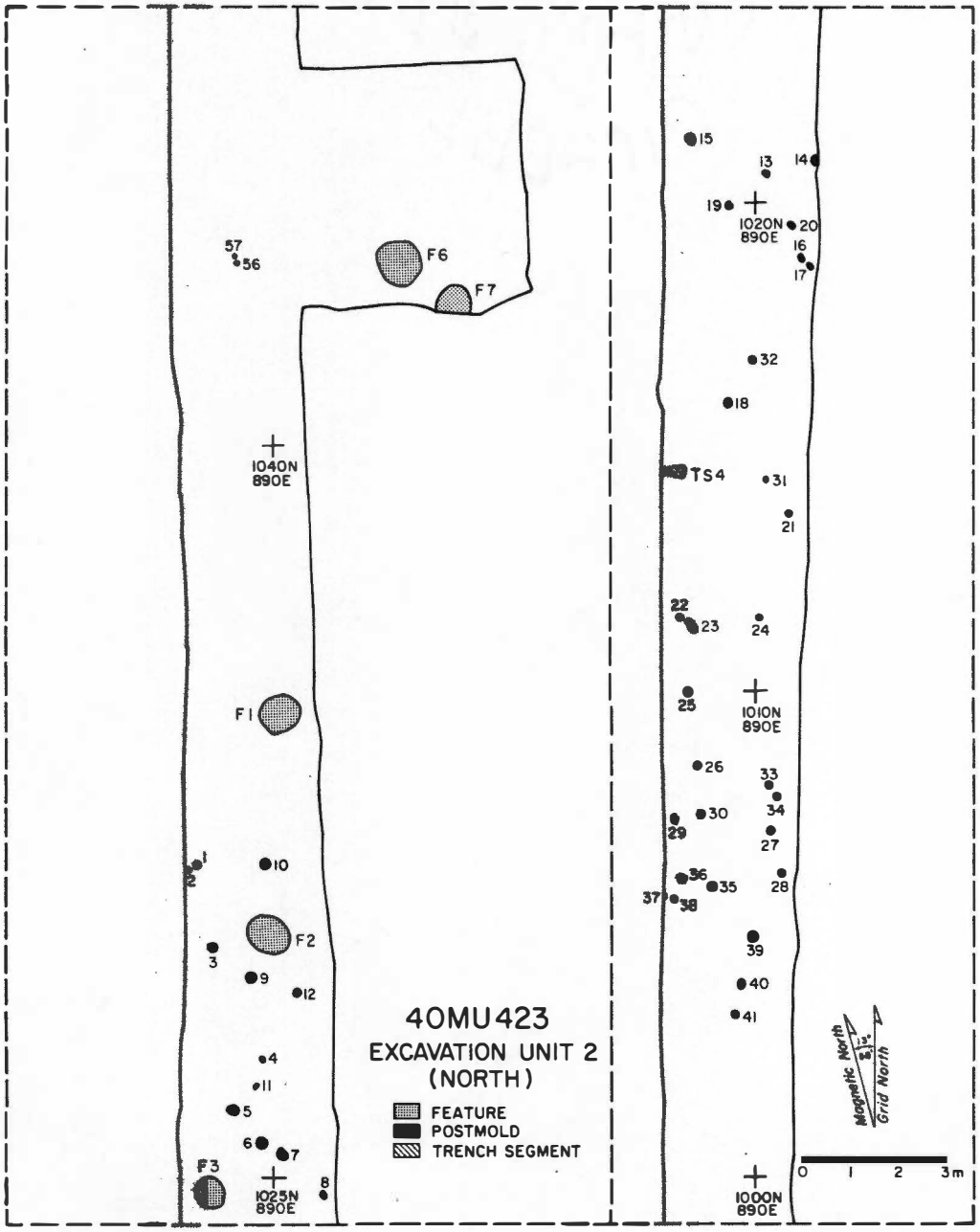


Figure 11. 1982 Test Excavations at 40MU423-Excavation Unit 2 (North).

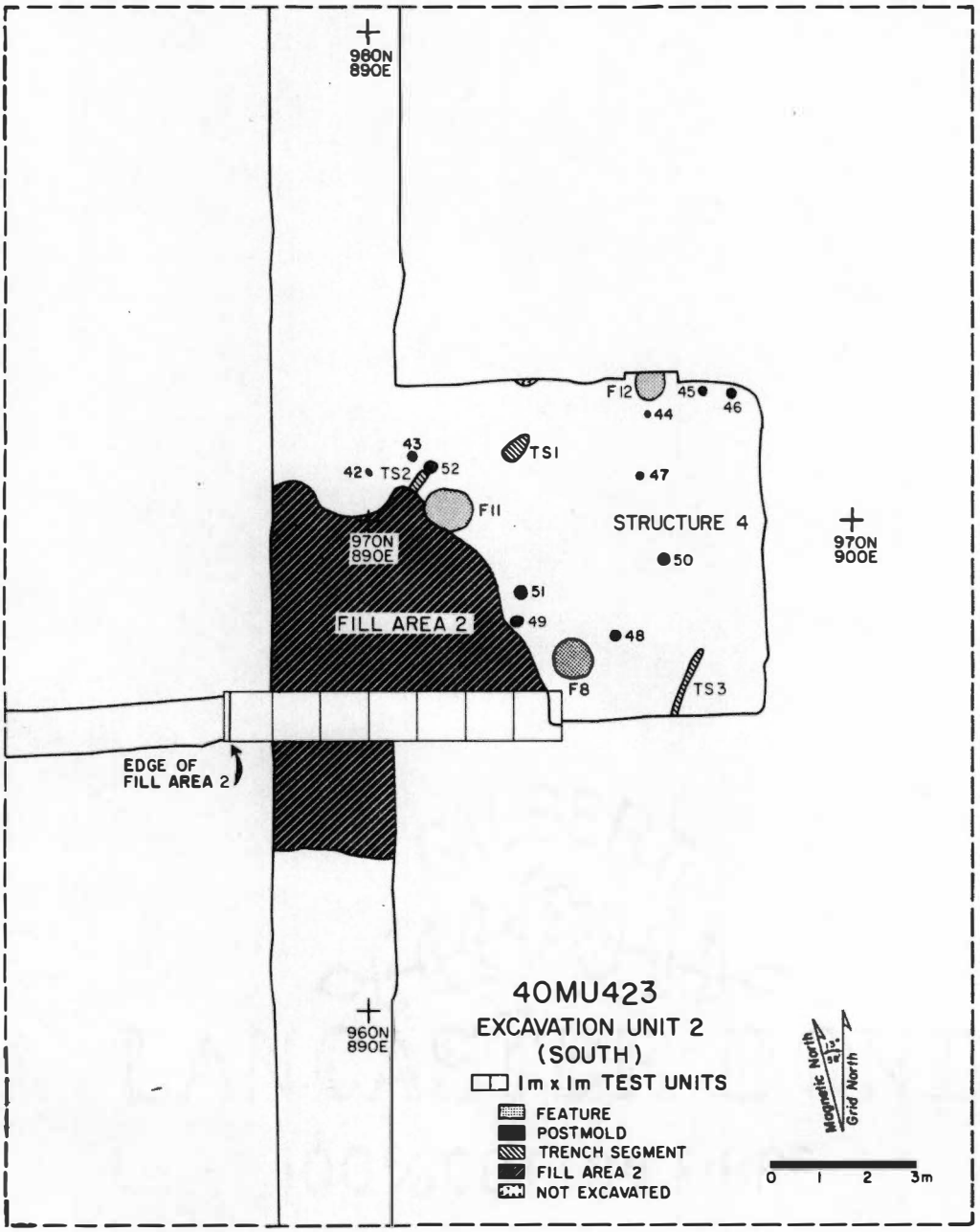


Figure 12. 1982 Test Excavations at 40MU423-Excavation Unit 2 (South).

situated approximately 5 m northeast of the fill area. Fill Area 2 and the spatially associated pits were positioned along the north edge of a circular topographic depression that measured approximately 70 m in diameter. The highest densities of surface ceramics on the site occurred along the north edge of this depression. All but three of the postmolds on the site were located in Excavation Unit 2. In addition, four trench segments were found in Excavation Unit 2; three were in close proximity to Fill Area 2 and the fourth was in the north half of the unit.

Excavation Unit 3 was devoid of subsurface prehistoric features. The location of this unit on the heavily eroded terrace slope at the west edge of the site and the paucity of surface material in the area suggest that features, if ever present, were destroyed by erosion and subsequent deflation of the ground surface.

Excavation Unit 4 contained subsurface features in two spatially and topographically distinct areas that were separated by a minimum distance of approximately 80 m. Two pits (F 13 and 14) were situated on the terrace crest (Figure 13). Two pits (F 9 and 10) and a single postmold were located in the south part of Excavation Unit 4 on a northeast-southwest trending rise between two large topographic depressions.

Excavation Unit 5 contained three pits (F 15, 16, and 20) and two postmolds. These prehistoric features were positioned at the southern extremity of a broad topographic area which constricts to the west and forms the east-west ridge of the second terrace. The features were

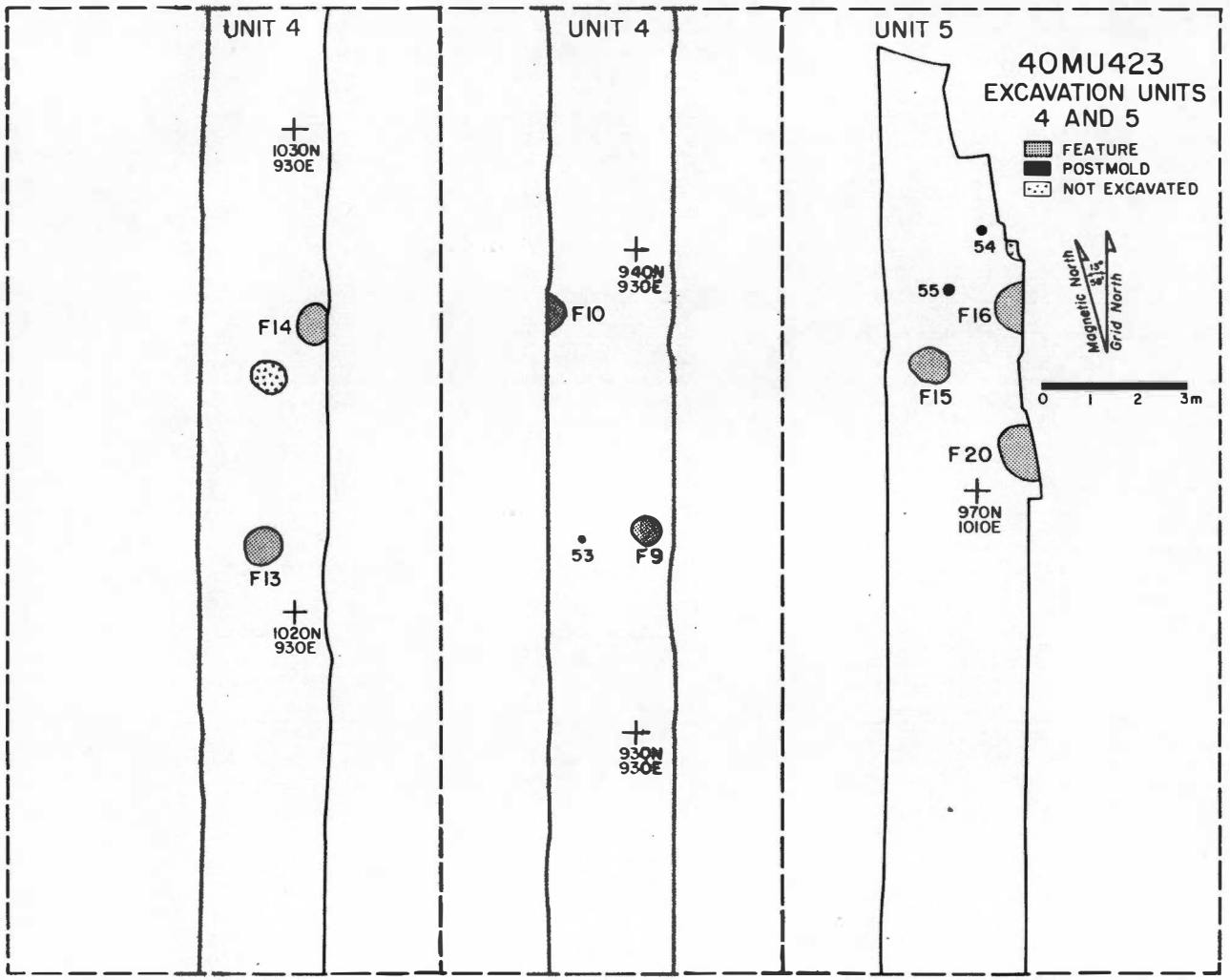


Figure 13. 1982 Test Excavations at 40MU423-Excavation Units 4 and 5.

located approximately 25 m north of a dark soil and limestone concentration that was noted and mapped during the controlled surface collection. Two of the pits contained a strong brown color fill that was devoid of cultural material. The fill may have been burned, either recently or prehistorically. Pits having similar characteristics were found upon excavation to be tree disturbances. Excavation Unit 5 was extended to the south, as a 1 m wide unit, in order to delimit a dark grayish-brown to reddish-brown subsoil that was observed in Excavation Unit 1.

Three possible pits were not investigated during the course of the test excavations at the Edmondson Bridge site. Two of the disturbances were only partially, less than one-half, exposed in the excavation units. Two additional small features located in close proximity to Fill Area 1 were not examined because they appeared to be remnants of the fill area.

Block excavations-1983. A 50 m x 40 m block with an eastward expansion was opened on the crest of the second terrace of Fountain Creek around the section of Excavation Unit 2 that contained five pits, one trench segment, and numerous postmolds. An additional 35 pits, 1 fill area, 3 trench segments, and 145 postmolds were exposed and examined in the block (Figure 14).

Three structures, each situated at the apex of a triangle, were the most notable evidence of past human occupation in the block (Excavation Unit 6). The contemporaneity of the structures was

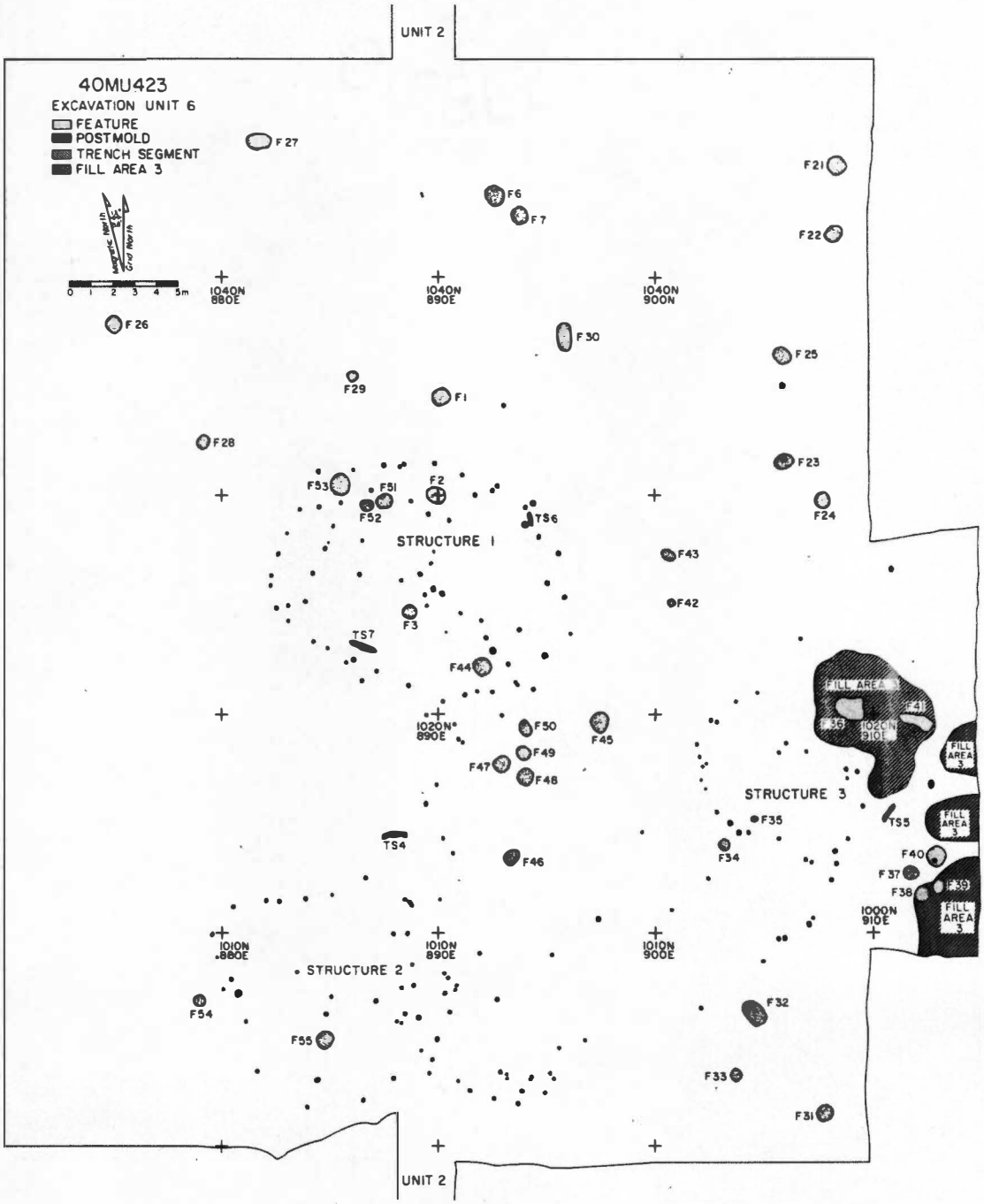


Figure 14. 1983 Block Excavations at 40MU423-Excavation Unit 6.

indicated by the irregular lines and arcs of postmolds that extended from one structure to another (Figure 15). The most substantial structure (Structure 1) measured 14.0 m x 10.5 m in plan view and had numerous deep wall postmolds (Figures 16 and 17). Structure 2 measured 9.8 m x 8.5 m and had an ancillary construction, in the form of a semicircle of postmolds, along the east wall (Figures 18 and 19). The semicircle of postmolds opened to the northeast and measured 7 m in diameter. The smallest structure (Structure 3) measured 8.0 m x 5.0 m and had generally shallow wall postmolds (Figures 20 and 21). These structure patterns were oval or subrectangular in shape and lacked evidence of substantial interior roof supports. Partitions and benches were indicated by the presence of trench segments (four) and shallow interior postmolds. More than two-thirds of the pit features (n = 27) in Excavation Unit 6 were either inside or within 5 m of a structure. Six pits were located inside of Structure 1 and an additional 10 pits were found within 5 m of the structure. One pit was positioned in the south half of Structure 2 and two pits were found within 5 m of the structure. A postmold-size pit was located inside of Structure 3 and seven additional pits were found within 5 m of the structure. Thirteen more pits were positioned to the north and south of the structures, outside of the 5 m wide catchment area defined around each structure. A fill area (Fill Area 3) situated adjacent to Structure 3 was comprised of four patches of dark soil. The largest patch of this discontinuous sheet midden measured approximately 7 m x 6 m in plan view and 10 cm in depth. All of the



Figure 15. Distribution of Structures in Excavation Unit 6-40MU423. Facing Northwest; Structure 1-Background Center, Structure 2-Middle Left, Structure 3-Middle Right; Stadia Rod is 4 m in Length.

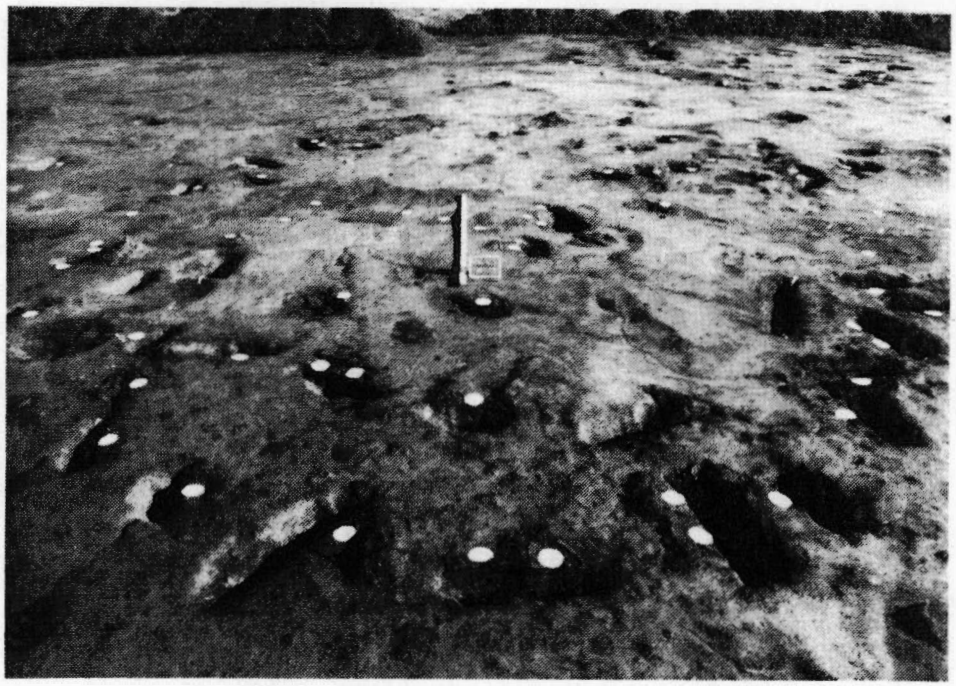


Figure 16. Structure 1 Postmold Pattern-40MU423. Facing East; Stadia Rod is 4m in Length.

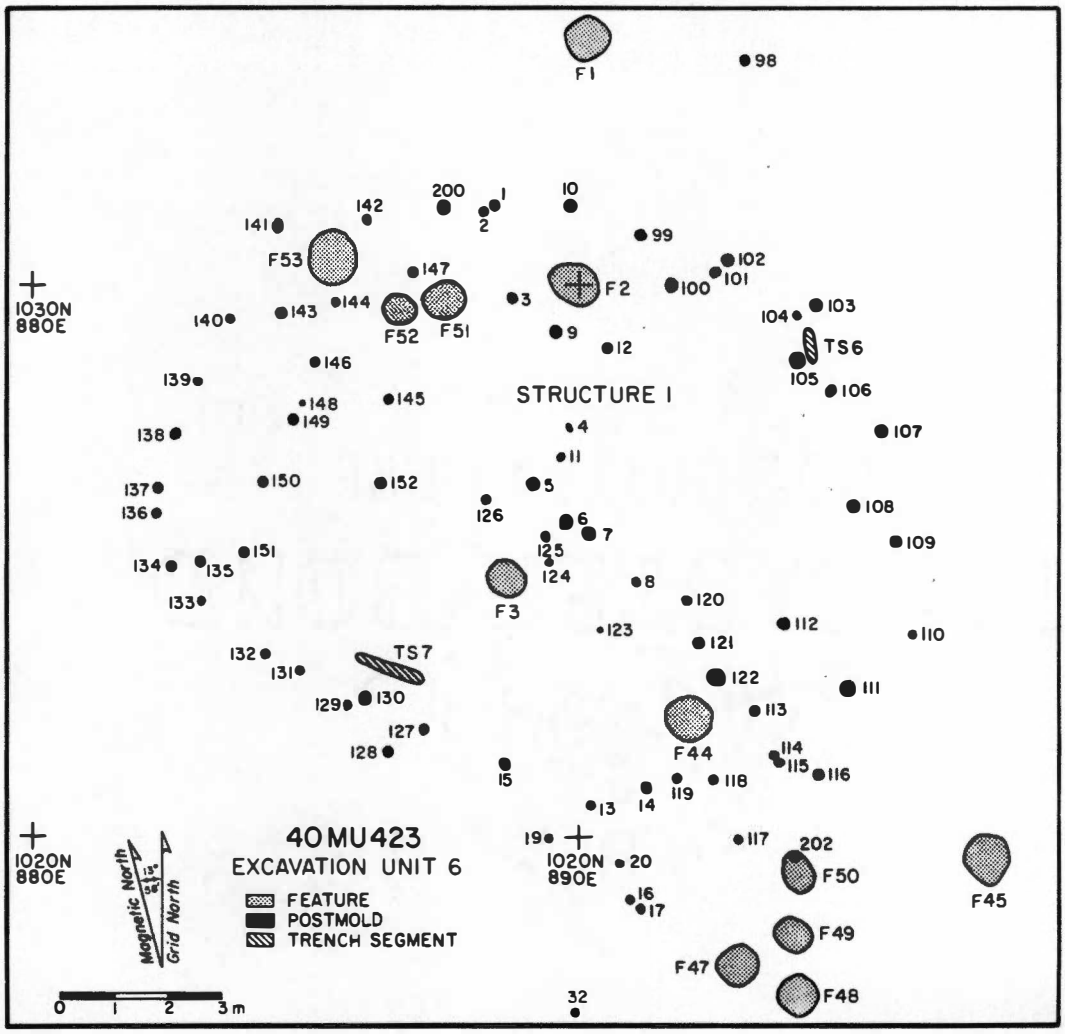


Figure 17. Structure 1 Plan View-40MU423.

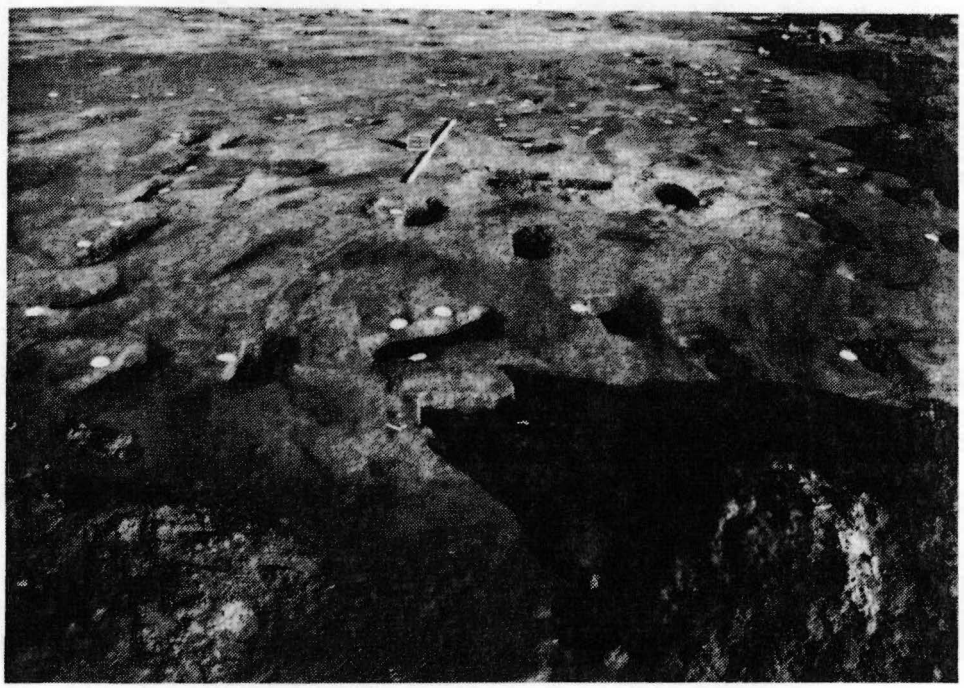


Figure 18. Structure 2 Postmold Pattern-40MU423. Facing East; Stadia Rod is 4 m in Length.

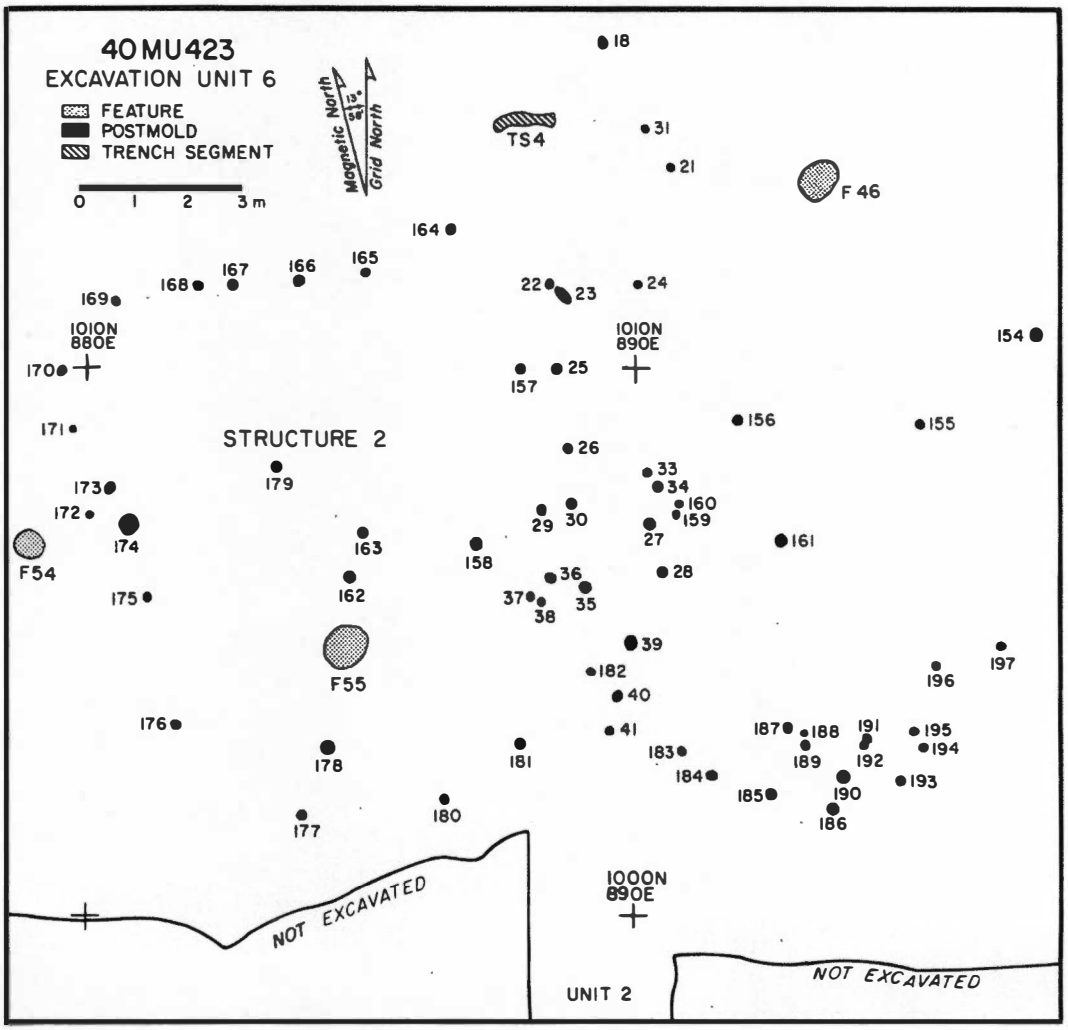


Figure 19. Structure 2 Plan View-40MU423.



Figure 20. Structure 3 Postmold Pattern-40MU423. Facing Northwest; Stadia Rod is 4 m in Length.

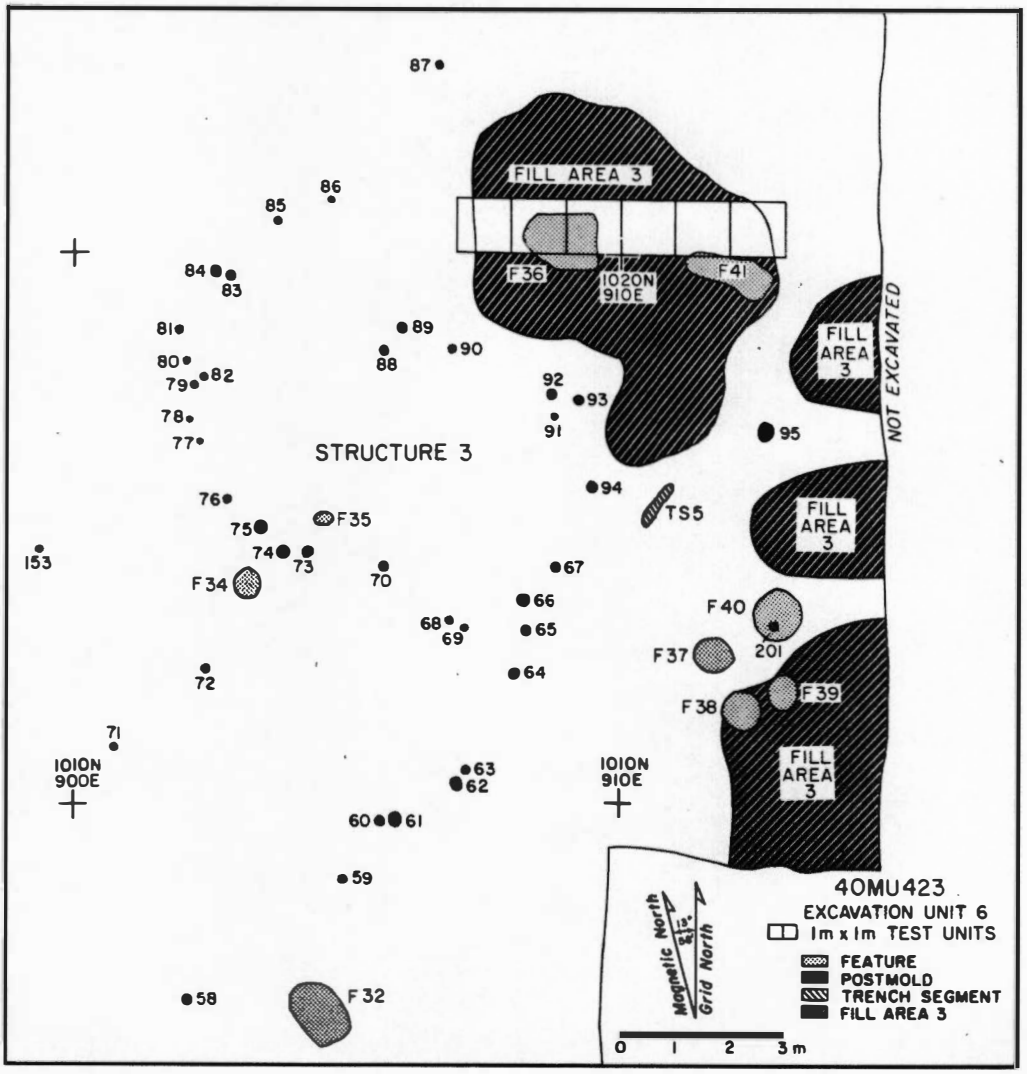


Figure 21. Structure 3 Plan View-40MU423.

features in Excavation Unit 6 were located on or near the crest of the east-west ridge which forms the second terrace of Fountain Creek.

A total of 52 pits, 3 fill areas, 7 trench segments, and 4 structures was defined, mapped, and excavated in five of the six excavation units on the Edmondson Bridge site. Forty-two pits, one fill area, four trench segments, and three structures were situated on the east-west trending ridge. Three pits and two postmolds were found at the south edge of a broad topographically high area that constricts to the west and forms the east-west ridge. A partially exposed structure located adjacent to a fill area, three pits, and three trench segments was found on the north edge of circular topographic depression. A third fill area and two pits were positioned on the north edge of another topographic depression. Two pits and a single postmold were found on a northeast- southwest trending rise between the two topographic depressions.

The following descriptions of the prehistoric features investigated during two seasons of fieldwork at the Edmondson Bridge site provide the basic metric, morphological, and cultural material content information used in subsequent comparisons. Zone designations are noted only in features with a complex stratigraphy. Feature fills are silt loams unless otherwise noted and all soil color designations were derived from the Munsell Soil Color Charts (1973). Faunal material is listed by feature in the Appendix. Pits, fill areas, trench segments, and structures will be described individually.

Postmolds will be combined for analysis and then described as to their structural or nonstructural contexts on the site.

Morphology and Material Contents of Features

Pits. Feature 1 was a circular basin-shape pit that measured 84 cm x 81 cm in plan view and 12.5 cm in depth. The fill was medium brown in color and contained little cultural material. This pit was located on the east-west ridge in Excavation Unit 2 and the northwest quadrant of Excavation Unit 6 approximately 3 m north of Structure 1.

Contents:

1 ceramic sherd	1.5 g
1 chert flake	1.9 g
270 burned clay pieces	47.6 g

Feature 2 was an oval pit that had insloping sides and a flat bottom. It measured 95 cm x 76 cm in plan view and 22 cm in depth. The fill was medium brown in color and slightly darker towards the bottom of the feature. It contained mostly pottery, lithic tools, and lithic debris. The ceramics included the basal portion of a plain limestone tempered subconoidal vessel, a plain quartz tempered rim having a rounded lip, and a smoothed over simple stamped limestone/quartz tempered rim that has a flattened lip with plain notching. This pit was located on the east-west ridge in Excavation Unit 2 and the northwest quadrant of Excavation Unit 6. It was within Structure 1 approximately 1 m from the north wall.

Contents:

4	ceramic rims	15.6 g
1	ceramic basal segment	25.5 g
27	ceramic sherds	69.6 g
	residual ceramics	1.4 g
1	chert pecking stone	125.5 g
1	siltstone grinding/pitted stone	124.6 g
1	chert blocky debris	15.6 g
10	siltstone pieces	5.4 g
14	burned limestone pieces	481.1 g
1	burned mud dauber's nest	12.7 g
12	burned clay pieces	30.3 g

Feature 3 was a circular basin-shape pit that measured 67 cm x 64 cm in plan view and 16 cm in depth. The fill was divided into two zones which contained little cultural material; both zones were dark brown in color but one was mixed with yellowish-brown fill. This pit was located on the east-west ridge in Excavation Unit 2 and the southwest quadrant of Excavation Unit 6. It was within Structure 1 approximately 3 m from the south wall.

Contents:

2	ceramic sherds	0.6 g
	residual ceramics	0.1 g
1	chert flake	1.4 g
4	siltstone pieces	2.0 g
1	burned limestone piece	44.8 g

1 nonlocal mineral piece	<0.1 g
104 burned clay pieces	26.3 g

Features 4 and 5 were found upon investigation to be large tree disturbances. These disturbances were located on the east-west ridge in Excavation Unit 2 and the northeast quadrant of Excavation Unit 6 approximately 10 m north of Feature 1.

Feature 6 was a circular pit that had insloping sides and a flat bottom. It measured 96 cm x 92 cm in plan view and 15 cm in depth. The fill was divided into two zones which contained mostly siltstone; one zone was very dark grayish-brown in color and the other zone was dark yellowish-brown. This pit was positioned approximately 13 m north of Structure 1 on the east-west ridge. Feature 6 was located in an eastward extension of Excavation Unit 2 that was opened to more completely expose two possible pits (F 4 and 5) prior to excavation.

Contents:

2 ceramic sherds	0.5 g
1 chert flake	0.3 g
35 siltstone pieces	78.8 g
3 burned limestone pieces	13.0 g
85 burned clay pieces	11.1 g

Feature 7 was a circular basin-shape pit that was only partially excavated because a portion of the pit was outside of the excavation unit. It measured 76 cm in one plan view dimension and 18 cm in depth. The fill was divided into two zones which contained mostly silstone and burned limestone; the upper zone was very dark grayish-

brown in color and lower zone was dark brown. This pit was located on the east-west ridge in an eastward extension of Excavation Unit 2 and the northeast quadrant of Excavation Unit 6 approximately 1 m southeast of Feature 6.

Contents:

2 ceramic sherds	2.0 g
1 chert core	68.6 g
1 chert flake	7.7 g
64 siltstone pieces	158.7 g
6 burned limestone pieces	150.2 g
18 burned clay pieces	3.5 g

Feature 8 was a circular basin-shape pit that measured 82 cm x 80 cm in plan view and 17 cm in depth. The fill was very dark grayish-brown in color and contained a large amount of burned limestone and a variety of lithic tools. A shallow side-notched projectile point/knife was included among these tools. This pit was positioned adjacent to Structure 4 and Fill Area 2 on the north edge of a large circular topographic depression. Feature 8 was located in an eastward extension of Excavation Unit 2 that was opened to more completely expose Fill Area 2 prior to excavation.

Contents:

11 ceramic sherds	50.0 g
residual ceramics	1.1 g
1 chert projectile point/knife	4.5 g
1 chert biface	7.5 g

1	siltstone grinding stone	137.2 g
1	quartzite knapping hammer	405.3 g
1	tested chert cobble	272.5 g
1	chert blocky debris	23.3 g
15	siltstone pieces	84.6 g
101	burned limestone pieces	1,657.2 g
55	burned clay pieces	5.6 g

Feature 9 was a circular basin-shape pit that measured 57 cm x 55 cm in plan view and 7.5 cm in depth. The fill was dark brown in color and contained little cultural material. This pit was located on a northeast-southwest trending rise situated between two large topographic depressions in Excavation Unit 4 approximately 45 m southeast of Structure 4.

Contents:

4	ceramic sherds	2.4 g
	residual ceramics	0.2 g
1	burned limestone piece	5.9 g
9	burned clay pieces	0.8 g

Feature 10 was a circular basin-shape pit that was only partially excavated because a portion of the pit was outside of the excavation unit. It measured 76 cm in one plan view dimension and 19.5 cm in depth. The fill was dark brown in color and contained little cultural material. This pit was located on a northeast-southwest trending rise between two large topographic depressions in Excavation Unit 4 approximately 5 m northwest of Feature 9.

Contents:

7	ceramic sherds	10.9 g
	residual ceramics	0.7 g
99	burned clay pieces	25.0 g

Feature 11 was an oval basin-shape pit that measured 97 cm x 86 cm in plan view and 16 cm in depth. The fill was dark grayish-brown in color and contained a large amount of burned limestone. This pit was situated adjacent to Structure 4 and Fill Area 2 on the north edge of a large circular topographic depression. It was located in an eastward expansion of Excavation Unit 2 approximately 4 m northwest of Feature 8.

Contents:

23	ceramic sherds	121.4 g
	residual ceramics	7.7 g
29	siltstone pieces	24.6 g
44	burned limestone pieces	2,580.7 g
2	nonlocal mineral pieces	<0.1 g
108	burned clay pieces	16.2 g

Feature 12 was a circular basin-shape pit that was only partially excavated because a portion of the pit was outside of the excavation unit. It measured 63 cm in one plan view dimension and 9 cm in depth. The fill was dark brown in color and contained little cultural material. This pit was located on the north edge of a large circular topographic depression in an eastward extension of Excavation Unit 2 approximately 5 m north of Structure 4 and Fill Area 2.

Contents:

2	ceramic sherds	1.0 g
	residual ceramics	0.1 g
	siltstone	0.2 g
	burned limestone	0.1 g
8	burned clay pieces	0.4 g

Feature 13 was a circular basin-shape pit that measured 87 cm x 83 cm in plan view and 16 cm in depth. The fill was dark yellowish-brown in color and contained mostly ceramics. This pit was located on the east-west ridge in Excavation Unit 4 approximately 82 m north of Feature 10.

Contents:

14	ceramic sherds	20.5 g
	residual ceramics	1.7 g
1	chert flake	1.2 g
10	siltstone pieces	4.9 g
	burned limestone	0.6 g
10	burned clay pieces	0.7 g

Feature 14 was a circular basin-shape pit that was only partially excavated because a portion of the pit was outside of the excavation unit. It measured 80 cm in one plan view dimension and 20 cm in depth. The fill was dark brown in color and contained little cultural material. This pit was located on the east-west ridge in Excavation Unit 4 approximately 5 m north of Feature 13.

Contents:

2	ceramic sherds	1.3 g
	residual ceramics	0.2 g
1	chert flake	0.1 g
	siltstone	0.1 g
	burned limestone	0.3 g
12	burned clay pieces	2.2 g

Feature 15 was an oval basin-shape pit that measured 86 cm x 71 cm in plan view and 15 cm in depth. The fill was strong brown in color and contained little cultural material. The coloration of the fill was indicative of burning. This pit was situated at the south edge of a broad topographic area which constricts to the west and forms the east-west ridge. It was located in Excavation Unit 5 approximately 50 m northeast of Fill Area 1.

Contents:

	burned limestone	0.5 g

Feature 16 was a circular basin-shape pit that was only partially excavated because a portion of the pit was outside of the excavation unit. It measured 107 cm in one plan view dimension and 29.5 cm in depth. The fill was strong brown in color and contained little cultural material. The coloration of the fill was indicative of burning. This pit was situated at the south edge of a broad topographic area which constricts to the west and forms the east-west ridge. It was located in Excavation Unit 5 approximately 2 m northeast of Feature 15.

Contents:

burned limestone	0.3 g

Feature 17 was a square pit that had insloping sides and a flat bottom. It measured 144 cm x 126 cm in plan view and 20 cm in depth. Three zones were defined in the pit (A-C), two were fills and the third was burned subsoil which formed the sides and bottom of the feature (Figure 22). The major fill zone (A) was very dark grayish-brown in color and contained a large amount of burned limestone, burned clay, and pockets of dark yellowish-brown to brown ash. A thin layer of ash at the bottom of the feature was designated as a separate fill zone (B). The third zone (C) was burned subsoil that was fired into hard masses in certain areas. The burned subsoil was reddish-brown to reddish-yellow in color. Feature 17 was located adjacent to the limestone concentration portion of Fill Area 1 in Excavation Unit 1. The fills within the pit and the fill area were similar and formed a continuous layer of soil and limestone. The fill area did not, however, contain any pockets of ash. Feature 17 was situated on the north edge of a large topographic depression in a westward extension of Excavation Unit 1 that was opened to more completely expose Fill Area 1 prior to excavation.

Contents:

34 ceramic sherds	28.2 g
1 ceramic coil fragment	5.9 g
residual ceramics	7.5 g
1 siltstone piece	0.3 g

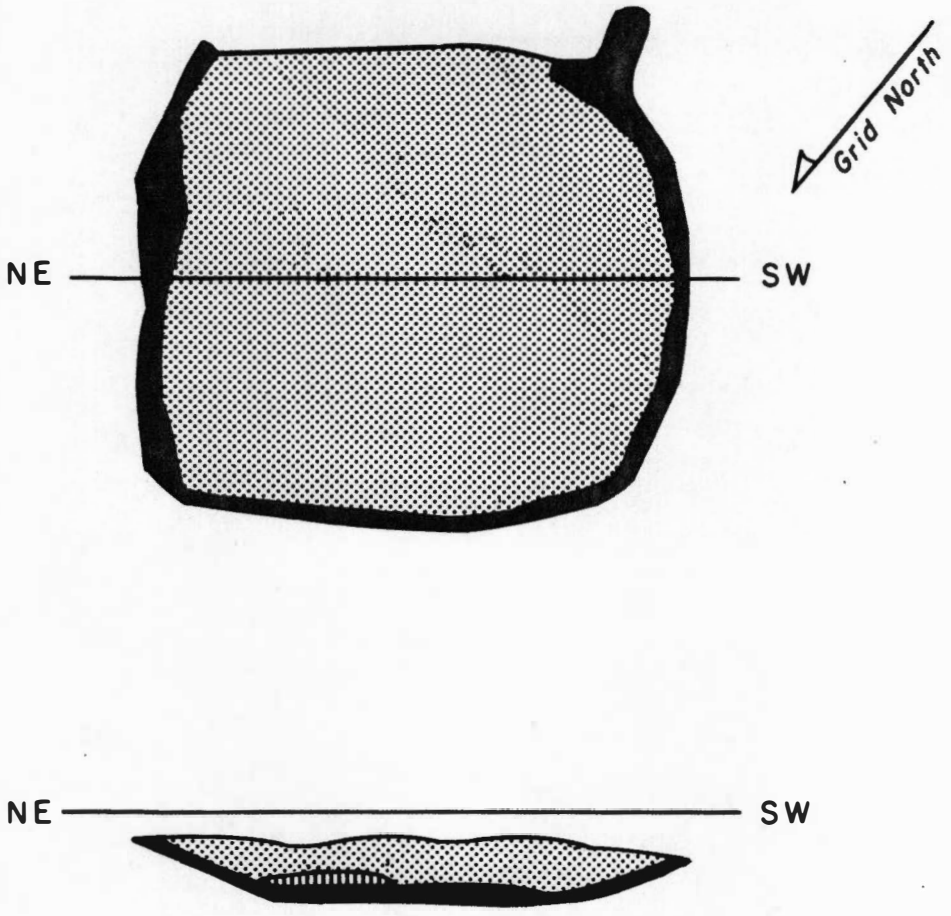


Figure 22. Plan and Profile Views of Feature 17-40MU423.

1,466	burned limestone pieces	9,054.0 g
5	nonlocal mineral pieces	<0.1 g
5,773	burned clay pieces	1,056.8 g

Feature 18 was a circular pit that had vertical sides and a rounded bottom. It measured 30 cm x 28 cm in plan view and 27 cm in depth. The fill was dark brown in color and contained a large amount of burned limestone. This pit was located on the north edge of a large topographic depression in Excavation Unit 1 approximately 8 m north of Fill Area 1.

Contents:

79	burned limestone pieces	5,544.5 g
3	nonlocal mineral pieces	<0.1 g

Feature 19 was found upon excavation to be a tree disturbance. This disturbance was situated at the south edge of a broad topographic area which constricts to the west and forms the east-west ridge. It was located in Excavation Unit 5 approximately 3 m south of Feature 16.

Feature 20 was a circular basin-shape pit that was only partially excavated because a portion of the pit was outside of the excavation unit. It measured 114 cm in one plan view dimension and 35.5 cm in depth. The fill was dark yellowish-brown in color and contained mostly lithic debris. This pit was situated at the south edge of a broad topographic area which constricts to the west and forms the east-west ridge. It was located in Excavation Unit 5 approximately 3 m south of Feature 16.

Contents:

4	ceramic sherds	6.3 g
	residual ceramics	0.5 g
2	chert cores	217.9 g
4	chert blocky debris	35.4 g
6	chert flakes	11.8 g
17	siltstone pieces	3.0 g
	burned limestone	1.0 g
4	burned clay pieces	0.6 g

Feature 21 was a circular basin-shape pit that measured 90 cm x 83 cm in plan view and 27 cm in depth. The fill was dark yellowish-brown in color and contained mostly chert and siltstone. This pit was located on the east-west ridge in the northeast corner of Excavation Unit 6 approximately 22 m north of Structure 3.

Contents:

1	chert projectile point/knife	19.0 g
1	chert biface	3.0 g
1	chert blocky debris	0.9 g
2	chert flakes	2.6 g
117	siltstone pieces	1,030.1 g
	burned limestone	0.3 g
1	limestone piece	2.5 g
89	burned clay pieces	11.9 g

Feature 22 was an oval basin-shape pit that measured 87 cm x 73 cm in plan view and 20 cm in depth. The fill was dark yellowish-

brown in color and contained little cultural material. This pit was located on the east-west ridge in the northeast corner of Excavation Unit 6 approximately 3 m south of Feature 21.

Contents:

11	siltstone pieces	157.3 g
	burned limestone	0.1 g
8	burned clay pieces	1.4 g

Feature 23 was an oval pit that had insloping sides and a flat bottom. It measured 89 cm x 65 cm in plan view and 9.5 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. A postmold (PM 198), which measured 27 cm x 25 cm in plan view and 13 cm in depth, was found extending down into the subsoil beneath the feature. The postmold was not intrusive into the pit fill. Feature 23 was located on the east-west ridge in the northeast quadrant of Excavation Unit 6 approximately 11 m south of Feature 22.

Contents:

1	ceramic sherd	0.3 g
	residual ceramics	0.7 g
2	chert flakes	10.0 g
4	siltstone pieces	0.5 g
22	burned clay pieces	4.3 g

Feature 24 was a circular basin-shape pit that measured 74 cm x 73 cm in plan view and 17.5 cm in depth. The fill was dark brown in color and contained little cultural material. This pit was located on

the east-west ridge in the northeast quadrant of Excavation Unit 6 approximately 7 m north of Fill Area 3.

Contents:

residual ceramics	0.2 g
9 siltstone pieces	13.3 g
74 burned clay pieces	9.5 g

Feature 25 was an oval basin-shape pit that measured 88 cm x 71 cm in plan view and 15 cm in depth. The fill was very dark grayish-brown in color and contained a large amount of cultural material; including pottery, calcined antler, burned clay, and charred nutshell (q.v. Appendix). The ceramics include a plain limestone tempered rim with a flattened lip. This pit was located on the east-west ridge in the northeast quadrant of Excavation Unit 6 approximately 5 m north of Feature 23.

Contents:

1 ceramic rim	1.9 g
43 ceramic sherds	374.4 g
residual ceramics	6.9 g
1 chert projectile point/knife	4.1 g
3 chert blocky debris	86.8 g
1 chert flake	0.1 g
56 siltstone pieces	100.6 g
1 burned limestone piece	24.7 g
7,215 burned clay pieces	1,181.6 g

Feature 26 was a circular basin-shape pit that measured 81 cm x 74 cm in plan view and 23 cm in depth. The fill was black in color and contained blocks of burned limestone and a large amount of charred organic material. This pit was located on the east-west ridge in the northwest quadrant of Excavation Unit 6 approximately 11 m northwest of Structure 1.

Contents:

11 ceramic sherds	23.3 g
residual ceramics	2.3 g
1 chert flake	0.1 g
3 siltstone pieces	1.9 g
120 burned limestone pieces	19,196.3 g
513 burned clay pieces	93.9 g

Feature 27 was an oval pit that had insloping sides and a flat bottom. It measured 114 cm x 72 cm in plan view and 22 cm in depth. The fill was divided into two distinct zones; the upper zone was reddish-brown in color and contained many pieces of burned clay and the lower zone was yellowish-brown in color. A postmold (PM 199), which measured 23 cm in diameter and 13 cm in depth, was found extending down into the subsoil beneath the feature. The postmold was not intrusive into the pit fill. Feature 27 was located on the east-west ridge in the northwest quadrant of Excavation Unit 6 approximately 11 m northeast of Feature 26.

Contents:

6 siltstone pieces	41.4 g
burned limestone	0.3 g
1,558 burned clay pieces	357.0 g

Feature 28 was a circular basin-shape pit that measured 64 cm x 60 cm in plan view and 15.5 cm in depth. The fill was dark yellowish-brown in color and contained chert debris, a utilized flake, and burned clay. This pit was located on the east-west ridge in the northwest quadrant of Excavation Unit 6 approximately 5 m northwest of Structure 1.

Contents:

1 utilized chert flake	3.2 g
7 chert flakes	8.6 g
7 burned clay pieces	1.3 g

Feature 29 was a circular basin-shape pit that measured 48 cm x 47 cm in plan view and 12 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the northwest quadrant of Excavation Unit 6 approximately 4 m north of Structure 1.

Contents:

3 siltstone pieces	0.8 g
1 nonlocal mineral piece	<0.1 g
51 burned clay pieces	7.7 g

Feature 30 was an oval pit that had insloping sides and a flat bottom. It measured 127 cm x 65 cm in plan view and 26 cm in depth.

The fill was dark yellowish-brown in color and contained a large amount of plain pottery, a few pieces of lithic debris, and burned clay. This pit was located on the east-west ridge in the northeast quadrant of Excavation Unit 6 approximately 7 m northeast of Structure 1.

Contents:

38	ceramic sherds	260.2 g
	residual ceramics	1.4 g
1	chert blocky debris	9.6 g
2	chert flakes	4.4 g
18	siltstone pieces	2.3 g
11	burned clay pieces	1.8 g

Feature 31 was a circular pit that had insloping sides and a flat bottom. It measured 76 cm x 75 cm in plan view and 16 cm in depth. The fill was dark brown in color and contained mostly siltstone. This pit was located on the east-west ridge in the southeast corner of Excavation Unit 6 approximately 10 m south of Structure 3.

Contents:

	residual ceramics	0.1 g
1	chert flake	10.5 g
55	siltstone pieces	591.2 g
23	burned clay pieces	2.7 g

Feature 32 was an oval basin-shape pit that measured 129 cm x 83 cm in plan view and 18 cm in depth. .The fill was divided into two zones which contained little cultural material; both of these zones

were dark brown in color but the lower zone was also mixed with dark yellowish-brown subsoil. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 5 m northwest of Feature 31.

Contents:

residual ceramics	0.1 g
5 siltstone pieces	2.6 g
22 burned clay pieces	4.2 g

Feature 33 was an oval basin-shape pit that measured 61 cm x 50 cm in plan view and 23 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 3 m southwest of Feature 32.

Contents:

6 siltstone pieces	0.8 g
3 burned clay pieces	0.5 g

Feature 34 was a circular basin-shape pit that measured 55 cm x 51 cm in plan view and 9 cm in depth. The fill was divided into two zones; the upper zone was dark brown in color and the lower zone was yellowish-brown in color. The feature contained a nearly complete chert biface. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 1 m southwest of Structure 3.

Contents:

residual ceramics	0.1 g
1 chert biface	12.0 g
1 burned clay piece	0.7 g

Feature 35 was an oval pit that had vertical sides and a rounded bottom. It measured 36 cm x 23 cm in plan view and 34.5 cm in depth. The fill was divided into two zones which contained mostly lithic debris; the inner zone was dark yellowish-brown in color and the outer zone was a lighter chroma and value of yellowish-brown in color. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6. It was within Structure 3 approximately 0.5 m from the southwest wall.

Contents:

2 ceramic sherds	5.9 g
residual ceramics	0.6 g
1 chert blocky debris	0.1 g
1 chert flake	0.1 g
3 fossiliferous coral cobbles	794.6 g
7 burned limestone pieces	292.0 g
3 burned clay pieces	0.6 g

Feature 36 was a subrectangular pit that had one vertical side, one inslanting side, and a flat bottom. It measured 136 cm x 108 cm in plan view and 54 cm in depth. The fill was divided into five zones (A-E) and two of these zones were further divided into subzones (A_1,

A_2, and A_3; B_1 and B_2) (Figure 23). The prehistoric preparation and subsequent filling of the pit occurred in the following sequence:

Zone D-the majority of the pit wall was lined with a 10-25 cm thick layer of yellowish-brown silty clay which was similar to the subsoil noted at the bottom of the feature. This layer of silty clay formed an inner pit that was oval in plan view and measured 110 cm x 74 cm.

Zone B-the sides and bottom of the pit were lined with a 1-10 cm thick layer of dark gray to very dark gray clay (Zone B_2). This clay layer dipped 3-5 cm into a possible post impression at the bottom of the pit. The post impression was bordered on the east side by a ridge of gray clay (Zone B_1) that overlaid Zone B_2.

Zone C-the gray clay lining (Zone B_2) along the upper portion of the pit wall was altered either purposely or by erosion. This modification was represented by a ring of dark brown to brown fill which intruded a maximum depth of 16 cm into the gray clay lining.

Zone E-the inner surface of Zone C was burned to a reddish-brown color along the north edge of the upper pit wall.

Zone A-the inner pit was filled with a very dark grayish-brown granular soil (Zone A_2), a layer of charred logs, and a compact brown soil (Zone A_1). During the latest episode of deposition, portions of the fired pit rim (Zone E) collapsed into the feature and became mixed with the fill (Zone A_3).

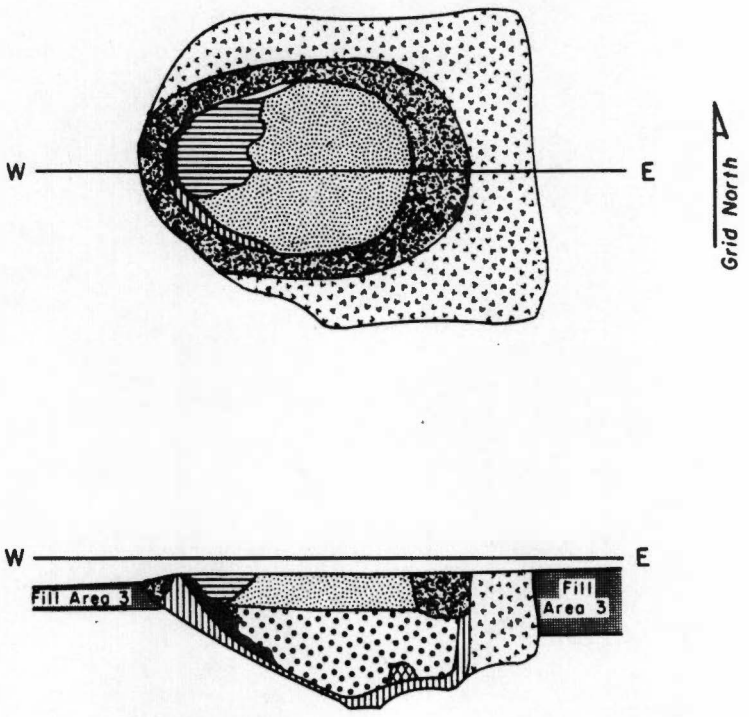


Figure 23. Plan and Profile Views of Feature 36-40MU423.

Feature 36 contained pottery, lithic debris, burned clay, charred logs, and bone (q.v. Appendix). The ceramics include simple stamped, complicated stamped, slipped, and polished limestone tempered sherds and a smoothed over cordmarked grog tempered sherd. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 3 m northeast of Structure 3. Feature 36 was intrusive into Fill Area 3.

Contents:

2	ceramic rims	1.3 g
99	ceramic sherds	135.5 g
	residual ceramics	19.2 g
5	burned limestone pieces	25.2 g
93	siltstone pieces	63.4 g
1,038	burned clay pieces	204.8 g

Feature 37 was an oval basin-shape pit that measured 75 cm x 61 cm in plan view and 13.5 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was positioned approximately 3 m southeast of Structure 3 on the east-west ridge. Feature 37 was located in an eastward extension of Excavation Unit 6 that was opened to more completely expose Fill Area 3 prior to excavation.

Contents:

	residual ceramics	0.6 g
5	chert flakes	8.6 g

5	siltstone pieces	77.1 g
14	burned clay pieces	3.7 g

Feature 38 was a circular basin-shape pit that measured 72 cm x 71 cm in plan view and 14 cm in depth. The fill was dark yellowish-brown in color and contained ceramics, lithic debris, and burned clay. This pit was located on the east-west ridge in an eastward extension of Excavation Unit 6 approximately 4 m southeast of Structure 3. Feature 38 was intrusive into Fill Area 3.

Contents:

1	ceramic sherd	1.3 g
	residual ceramics	0.6 g
1	chert blocky debris	39.4 g
2	chert flakes	3.5 g
9	siltstone pieces	97.5 g
1	limestone piece	39.3 g
1	burned limestone piece	4.3 g
21	burned clay pieces	3.6 g

Feature 39 was an oval basin-shape pit that measured 68 cm x 60 cm in plan view and 13.5 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in an eastward extension of Excavation Unit 6 approximately 5 m southeast of Structure 3. Feature 39 was intrusive into Fill Area 3.

Contents:

	residual ceramics	0.3 g
3	chert flakes	2.2 g

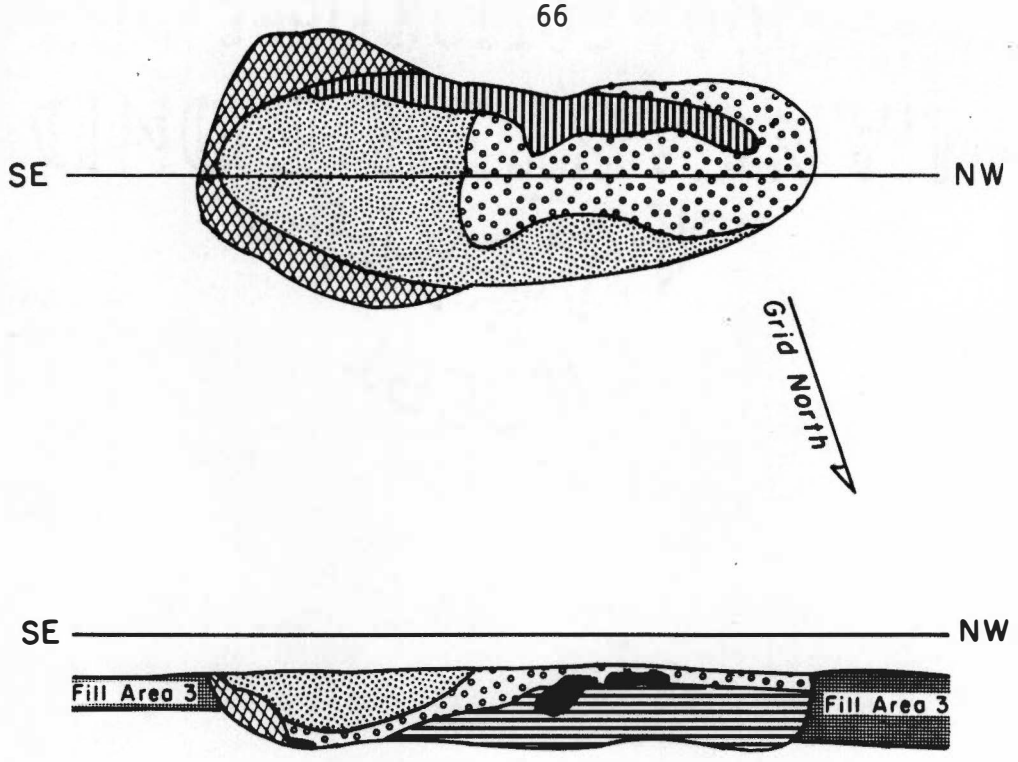
3	siltstone pieces	3.2 g
	burned limestone	1.4 g
66	burned clay pieces	12.3 g

Feature 40 was a circular basin-shape pit that measured 94 cm x 91 cm in plan view and 16.5 cm in depth. The fill was very dark grayish-brown in color and contained little cultural material. A postmold (PM 201), which measured 19 cm x 18 cm in plan view and 16 cm in depth, was found extending down into the subsoil beneath the feature. The postmold was not intrusive into the pit fill. Feature 40 was located on the east-west ridge in an eastward extension of Excavation Unit 6 approximately 4 m southeast of Structure 3.

Contents:

3	ceramic sherds	5.9 g
	residual ceramics	0.1 g
1	chert flake	1.1 g
11	siltstone pieces	4.5 g
1	burned limestone piece	10.0 g
152	burned clay pieces	21.0 g

Feature 41 was an elongated oval pit that had insloping sides and a flat bottom. It measured 160 cm x 49-71 cm in plan view and 22 cm in depth. The fill was divided into two zones (A and B) which contained ceramics, lithics, and a large amount of burned clay; both of these zones were further subdivided into subzones (A_1, A_2, and A_3; B_1 and B_2) (Figure 24). The prehistoric preparation and subsequent filling of the pit occurred in the following sequence:



ZONE A_1 — DARK BROWN SILT LOAM (10YR3/3) WITH NUMEROUS BURNED CLAY PIECES.

ZONE A_2 — BROWN SILT LOAM (7.5YR4/4) WITH A LARGE AMOUNT OF BURNED CLAY PIECES AND OCCASIONAL CHARRED LOGS.

ZONE A_3 — VERY DARK GRAYISH-BROWN TO DARK BROWN SILT LOAM (10YR3/2-3/3); NOT SHOWN IN PLAN VIEW.

ZONE B_1 — COMPACT YELLOWISH-BROWN SILT CLAY (10YR5/4).

ZONE B_2 — COMPACT REDDISH-YELLOW BURNED SILT CLAY (5YR6/6), NOT SHOWN IN PROFILE.

CHARRED LOGS

FILL AREA 3 — DARK BROWN TO DARK YELLOWISH-BROWN SILT LOAM (10YR5/3-4/4).

NOTE: PROFILE SURFACE IS AT BASE OF PLOWZONE.

0 20 40 60 80 100cm

Figure 24. Plan and Profile Views of Feature 41-40MU423.

Zone B-the majority of the pit wall was lined with a 4-14 cm thick layer of yellowish-brown silty clay (Zone B_1) which was similar to the subsoil noted at the bottom of the feature. Intense burning along the southwest side of the pit altered the color of the silty clay layer to reddish-yellow (Zone B_2).

Zone A-the first depositional episode was represented by a very dark grayish-brown to dark brown fill (Zone A_3) that was not visible on the surface of the feature. The east half of the feature was apparently reused after the deposition of Zone A_3. A basin-shape area was excavated into the previously deposited fill and a layer of burned brown soil, burned clay, and charred logs (Zone A_2) was deposited over Zone A_3. A dark brown soil (Zone A_1) subsequently filled the basin-shape depression.

This pit was located on the east-west ridge in an eastward extension of Excavation Unit 6 approximately 3 m northeast of Structure 3. Feature 41 was intrusive into Fill Area 3.

Contents:

1	ceramic rim	2.4 g
30	ceramic sherds	20.0 g
	residual ceramics	6.9 g
1	chert projectile point/knife	5.3 g
4	chert blocky debris	13.4 g
3	chert flakes	2.9 g

50	siltstone pieces	64.7 g
5	burned limestone pieces	120.2 g
1,198	burned clay pieces	215.3 g

Feature 42 was a circular basin-shape pit that measured 38 cm x 35 cm in plan view and 12 cm in depth. The fill was dark yellowish-brown in color and contained a large amount of burned limestone. This pit was located on the east-west ridge in the northeast quadrant of Excavation Unit 6 approximately 5 m east of Structure 1 and 6 m northwest of Structure 3.

Contents:

	residual ceramics	0.2 g
54	burned limestone pieces	6,643.4 g
2	siltstone pieces	1.2 g
1	nonlocal mineral piece	<0.1 g
2	burned clay pieces	0.4 g

Feature 43 was an oval basin-shape pit that measured 71 cm x 43 cm in plan view and 12.5 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the northeast quadrant of Excavation Unit 6 approximately 5 m east of Structure 1.

Contents:

7	ceramic sherds	16.6 g
	residual ceramics	1.6 g
4	siltstone pieces	1.4 g

	burned limestone	2.1 g
34	burned clay pieces	6.1 g

Feature 44 was a circular pit that had insloping sides and a flat bottom. It measured 85 cm x 81 cm in plan view and 11 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6. It was within Structure 1 approximately 1 m from the south wall.

Contents:

11	ceramic sherds	11.8 g
	residual ceramics	2.0 g
1	chert flake	2.4 g
9	siltstone pieces	203.8 g
4	burned limestone pieces	171.3 g
2	nonlocal mineral pieces	<0.1 g
10	burned clay pieces	1.4 g

Feature 45 was a circular basin-shape pit that measured 92 cm x 85 cm in plan view and 17 cm in depth. The fill was dark brown in color and contained mostly lithic debris. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 4 m south of Structure 1.

Contents:

	residual ceramics	0.3 g
1	chert projectile point/knife	8.1 g
4	chert flakes	5.5 g
42	siltstone pieces	25.1 g

9	burned limestone pieces	159.7 g
128	burned clay pieces	17.2 g

Feature 46 was an oval basin-shape pit that measured 77 cm x 60 cm in plan view and 13 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 5 m northeast of Structure 2.

Contents:

2	ceramic sherds	1.4 g
	residual ceramics	0.6 g
1	chert knapping hammer	138.1 g
2	siltstone pieces	0.5 g
18	burned clay pieces	2.7 g

Feature 47 was a circular basin-shape pit that measured 77 cm x 72 cm in plan view and 16 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 4 m south of Structure 1.

Contents:

2	ceramic sherds	0.5 g
1	chert flake	2.1 g
14	siltstone pieces	2.8 g
5	burned limestone pieces	6.1 g
57	burned clay pieces	11.2 g

Feature 48 was a circular basin-shape pit that measured 76 cm x 72 cm in plan view and 18 cm in depth. The fill was divided into two zones which contained mostly lithic debris; the upper zone was dark yellowish-brown in color and the lower zone was a higher value and chroma of dark yellowish-brown. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 5 m south of Structure 1.

Contents:

1 chert blocky debris	2.0 g
5 chert flakes	9.8 g
37 siltstone pieces	108.3 g
1 burned limestone piece	2.2 g
92 burned clay pieces	13.3 g

Feature 49 was an oval pit that had insloping sides and a flat bottom. It measured 69 cm x 61 cm in plan view and 6.5 cm in depth. The fill was dark yellowish-brown in color and contained little cultural material. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 4 m south of Structure 1.

Contents:

1 siltstone piece	17.0 g
2 burned limestone pieces	9.5 g
1 burned clay piece	0.3 g

Feature 50 was an oval pit that had insloping sides and a flat bottom. It measured 74 cm x 51 cm in plan view and 10.5 cm in depth.

The fill was dark yellowish-brown in color and contained little cultural material. A postmold (PM 202), which measured 15 cm x 14 cm in plan view and 21 cm in depth, was intrusive into the feature fill and extended down into the subsoil beneath the feature. This pit was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 3 m south of Structure 1.

Contents:

3	siltstone pieces	3.5 g
15	burned clay pieces	2.9 g

Feature 51 was a circular pit that had insloping sides and a flat bottom. It measured 76 cm x 73 cm in plan view and 21 cm in depth. The fill was dark yellowish-brown in color and contained ceramics, lithic debris, and burned clay. This pit was located on the east-west ridge in the northwest quadrant of Excavation Unit 6. It was within Structure 1 approximately 2 m from the north wall.

Contents:

3	ceramic sherds	0.8 g
	residual ceramics	0.3 g
1	chert blocky debris	10.3 g
1	chert flake	6.3 g
4	siltstone pieces	15.0 g
	burned limestone	0.1 g
201	burned clay pieces	55.1 g

Feature 52 was an oval basin-shape pit that measured 62 cm x 52 cm in plan view and 7.5 cm in depth. The fill was dark yellowish-

brown in color and contained little cultural material. This pit was located on the east-west ridge in the northwest quadrant of Excavation Unit 6. It was within Structure 1 approximately 2 m from the north wall.

Contents:

2	ceramic sherds	4.6 g
	residual ceramics	0.3 g
59	burned clay pieces	8.7 g

Feature 53 was a circular basin-shape pit that measured 100 cm x 92 cm in plan view and 18.5 cm in depth. The fill was dark yellowish-brown in color and contained mostly ceramics and lithic debris. This pit was located on the east-west ridge in the northwest quadrant of Excavation Unit 6. It was within Structure 1 adjacent to the west wall.

Contents:

31	ceramic sherds	60.2 g
	residual ceramics	4.4 g
1	chert biface fragment	6.0 g
1	chert blocky debris	23.4 g
3	chert flakes	6.8 g
11	siltstone pieces	4.4 g
17	burned limestone pieces	384.8 g
184	nonlocal mineral pieces	0.9 g
24	burned clay pieces	7.7 g

Feature 54 was a circular pit that had vertical sides and a flat bottom. It measured 56 cm x 53 cm in plan view and 24 cm in depth. The fill was dark yellowish-brown in color and contained pottery, lithic debris, and burned clay. This pit was located on the east-west ridge in the southwest quadrant of Excavation Unit 6 approximately 2 m west of Structure 2.

Contents:

1	ceramic rim	0.2 g
71	ceramic sherds	125.1 g
	residual ceramics	5.2 g
1	chert blocky debris	27.4 g
2	chert flakes	15.6 g
33	siltstone pieces	28.2 g
	burned limestone	0.3 g
15	burned clay pieces	5.5 g

Feature 55 was a circular basin-shape pit that measured 84 cm x 80 cm in plan view and 15.5 in depth. The fill was dark yellowish-brown in color and contained a large amount of cultural material. This pit was located on the east-west ridge in the southwest quadrant of Excavation Unit 6. It was within Structure 2 approximately 3 m from the south wall.

Contents:

75	ceramic sherds	298.3 g
	residual ceramics	8.8 g
1	fired potter's clay piece	21.1 g

2	chert projectile points/knives	15.8 g
1	chert biface	3.3 g
2	chert blocky debris	49.9 g
4	chert flakes	7.4 g
46	siltstone pieces	201.1 g
3	burned limestone pieces	26.2 g
1	nonlocal mineral piece	<0.1 g
114	burned clay pieces	25.8 g

The morphological attributes of the pits exhibit relatively little variability. Plan view shapes were most often circular or oval and in profile the pits usually were basin-shape or had insloping sides and flat bottoms (Figure 25). The mean dimensions of the pits are 83 cm x 69 cm in plan view and 18 cm in depth. The standard deviations from these mean dimensions are 26 cm and 19 cm for the length and width respectively and 8 cm for the depth. The fills were generally brown to dark grayish-brown or dark yellowish-brown in color and uniform throughout. A dark fill zone was occasionally noted in the lower portion of a pit. Four pits contained reddish-yellow to reddish-brown or strong brown fills. These colors were indicative of burning in the pits. The material contents of the features were generally sparse; however, a few (F 2, 8, 25, and 55) contained a moderate to large amount of cultural debris. These features were mostly found within or in close proximity to the structures.

Five pits that were spatially associated with Fill Areas 1 and 3 differed from the remaining features investigated at the Edmondson

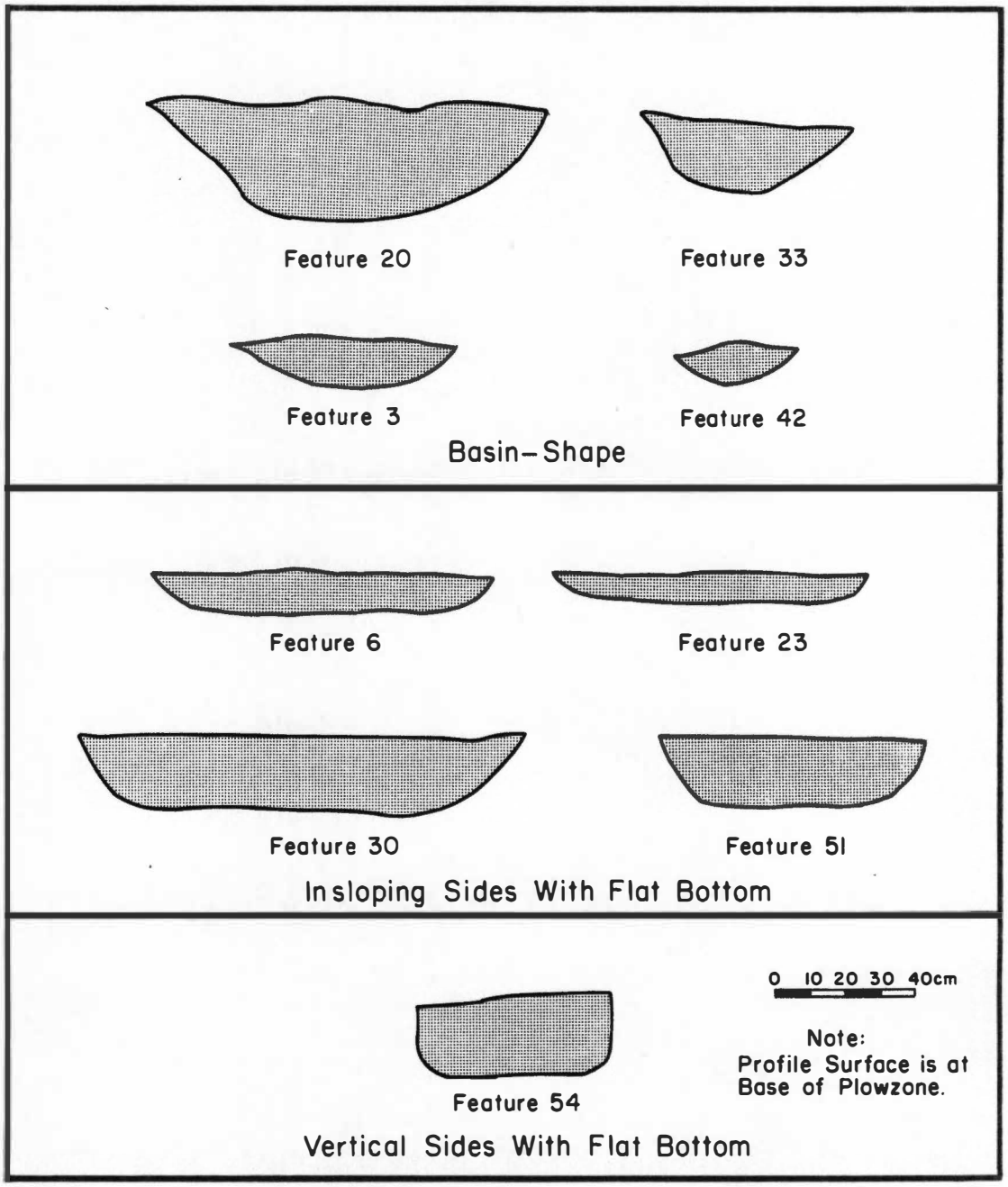


Figure 25. Profile Shapes of Selected Pits-40MU423.

Bridge site. Two prepared features located adjacent to Structure 3 were also intrusive into Fill Area 3. The walls of these pits were lined with subsoil that was probably excavated from below the fill area. One of these features (F 36) also had a gray clay lining over the subsoil lining and the fill contained a layer of charred logs and lenses of sand. The prepared area of this feature was large (130 cm x 108 cm) and rectangular in plan view and the inner area of fill was much smaller (80 cm x 60 cm) and oval. The second prepared feature (F 41) was an elongated oval in plan view (160 cm x 60 cm) and had roughly parallel sides. A pit (F 35) located within Structure 3 was morphologically similar to a large postmold and contained cobbles of burned limestone and fossilized coral. An earth oven (F 17) situated adjacent to Fill Area 1 was the largest pit on the site and one of two square to rectangular pits. A pit (F 18) located to the north of Fill Area 1 was morphologically similar to a large postmold and contained a large quantity of burned limestone. This feature was similar to the postmold-size pit (F 35) that was found in Structure 3.

Fill areas. Two dark soil and limestone concentrations were noted and mapped during the controlled surface collection of the Edmondson Bridge site. One of these dark soil/limestone concentrations was investigated during the test excavations. Two additional fill areas were exposed and examined during the test and block excavations; these fill areas did not exhibit any precise limits on the surface of the site (Figure 26).

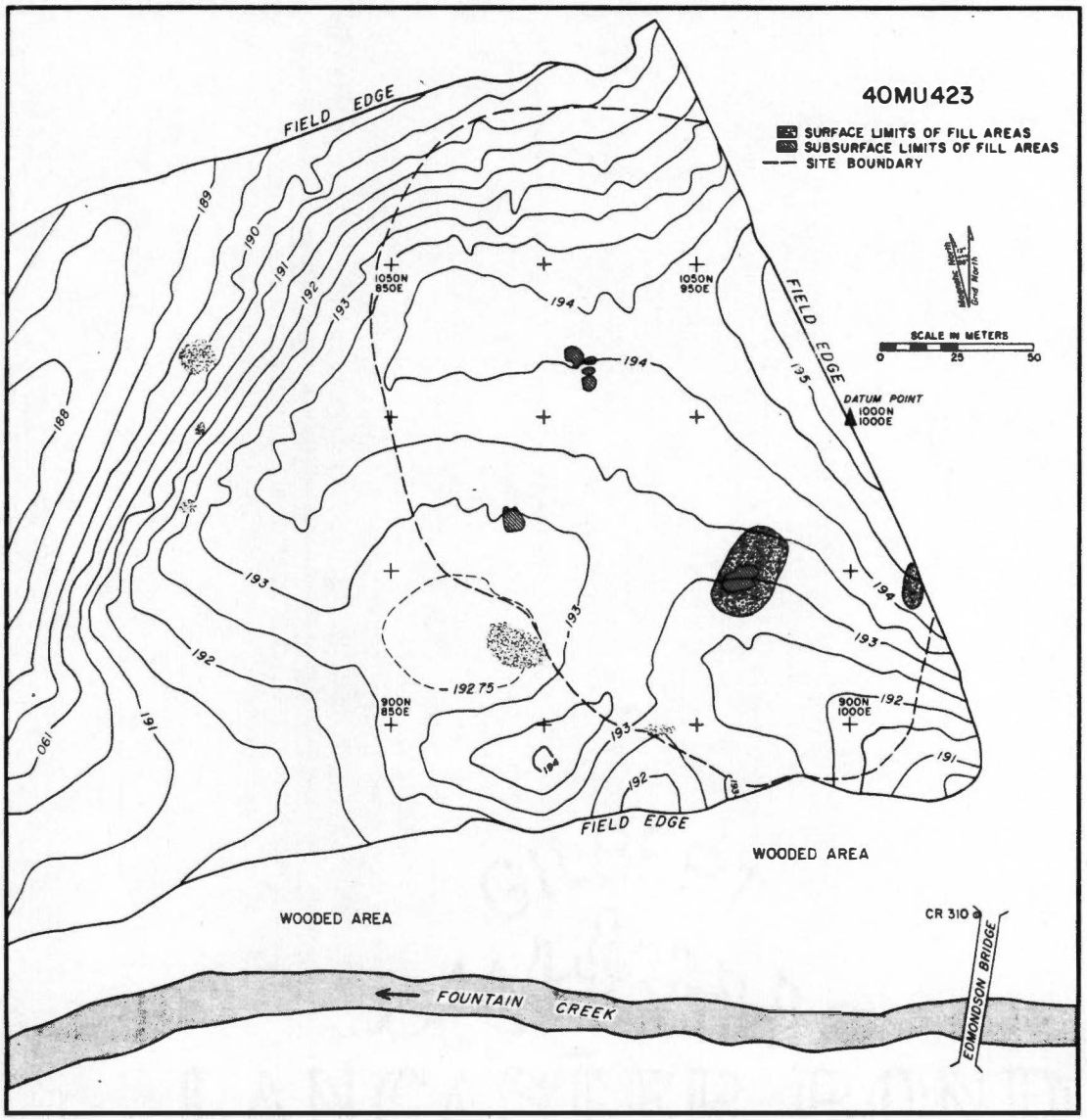


Figure 26. Horizontal Limits of Fill Areas on the Edmondson Bridge Site.

Fill Area 1 was defined on the surface of the site by a dark soil and limestone concentration that measured 33 m x 18 m in horizontal extent. The portion of this fill area which remained undisturbed below the plowzone measured 11.5 m x 7.5 m in plan view and 4-14 cm in depth (Figure 10, page 25 and Figures 27 and 28). The southward extent of the fill area was estimated because a section of this feature was outside of the excavation unit. Fill Area 1 was divided into two zones; Zone A was a loose granular black fill that contained a large amount of burned limestone and Zone B was a compact black fill that was devoid of limestone. This fill area was situated on the north edge of a large topographic depression in Excavation Unit 1 and a westward expansion of the unit. Feature 17 was located adjacent to Fill Area 1 and Feature 18 was found approximately 8 m to the north of the fill area.

Contents (6-1 m x 1 m units):

1	ceramic rim	2.7 g
89	ceramic sherds	119.3 g
	residual ceramics	10.2 g
140	siltstone pieces	509.1 g
5,735	burned limestone pieces	206,017.1 g
340	burned clay pieces	59.3 g

Fill Area 2 was an oval area of dark soil that remained undisturbed below the plowzone. It measured 7.7 m x 6.9 m in plan view and 6-20 cm in depth (Figure 12, page 28 and Figure 29). The fill was brown in color and contained mostly pottery, lithic debris,

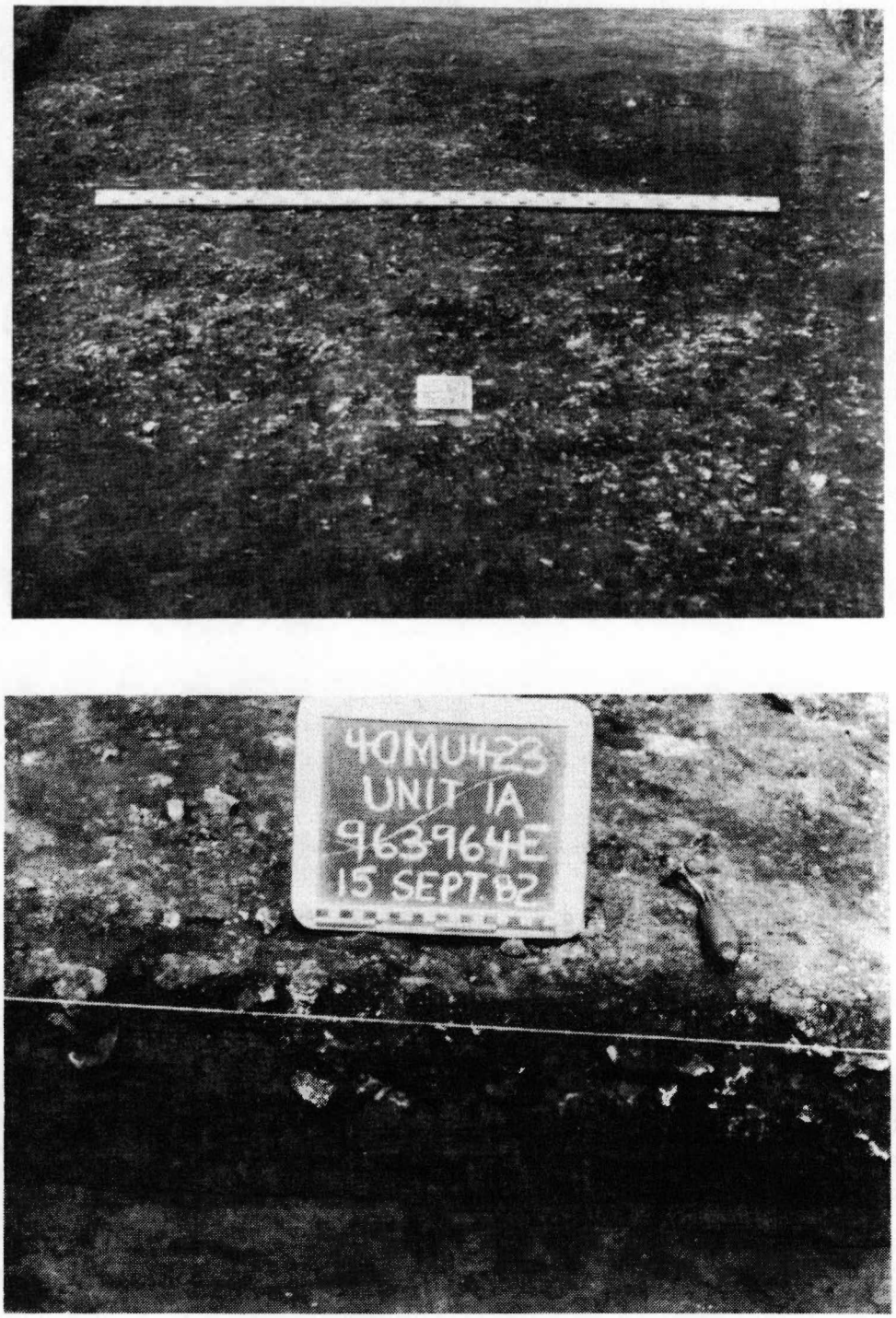
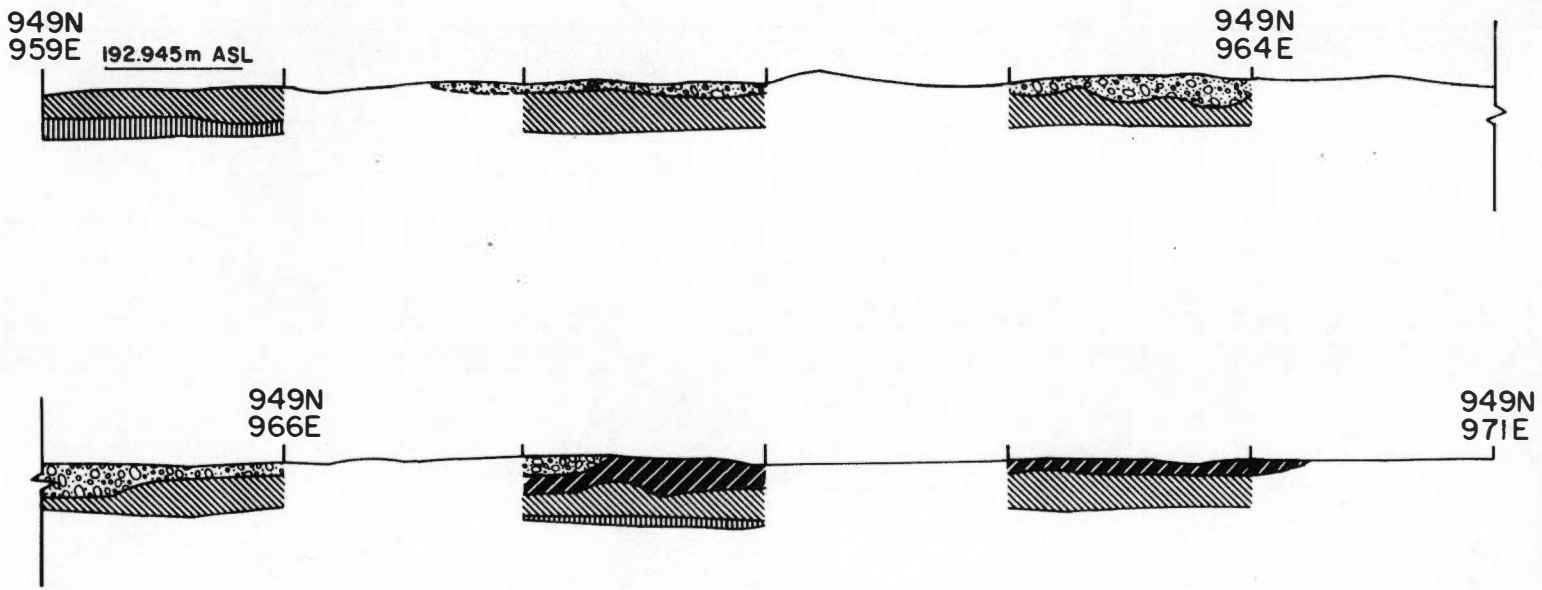


Figure 27. Plan and Profile Views of Fill Area 1-40MU423. Facing West-Plan View, Facing North-Profile View; Stadia Rod is 4 m in Length.



40MU423

NORTH PROFILE OF FILL AREA 1

ZONE A – LIMESTONE CONCENTRATION IN AN ORGANICALLY ENRICHED BLACK SILT LOAM SOIL MATRIX (10YR2/1)

ZONE B – ORGANICALLY ENRICHED BLACK SILT LOAM (10YR2/1)

SUBSOIL – DARK YELLOWISH-BROWN SILT LOAM (10YR4/4)

SUBSOIL – YELLOWISH-BROWN SILT CLAY TO SILT LOAM (10YR5/4)

NOTE – PROFILE SURFACE IS AT BASE OF PLOWZONE

0 1 METER

Figure 28. North Profile of Fill Area 1-40MU423.

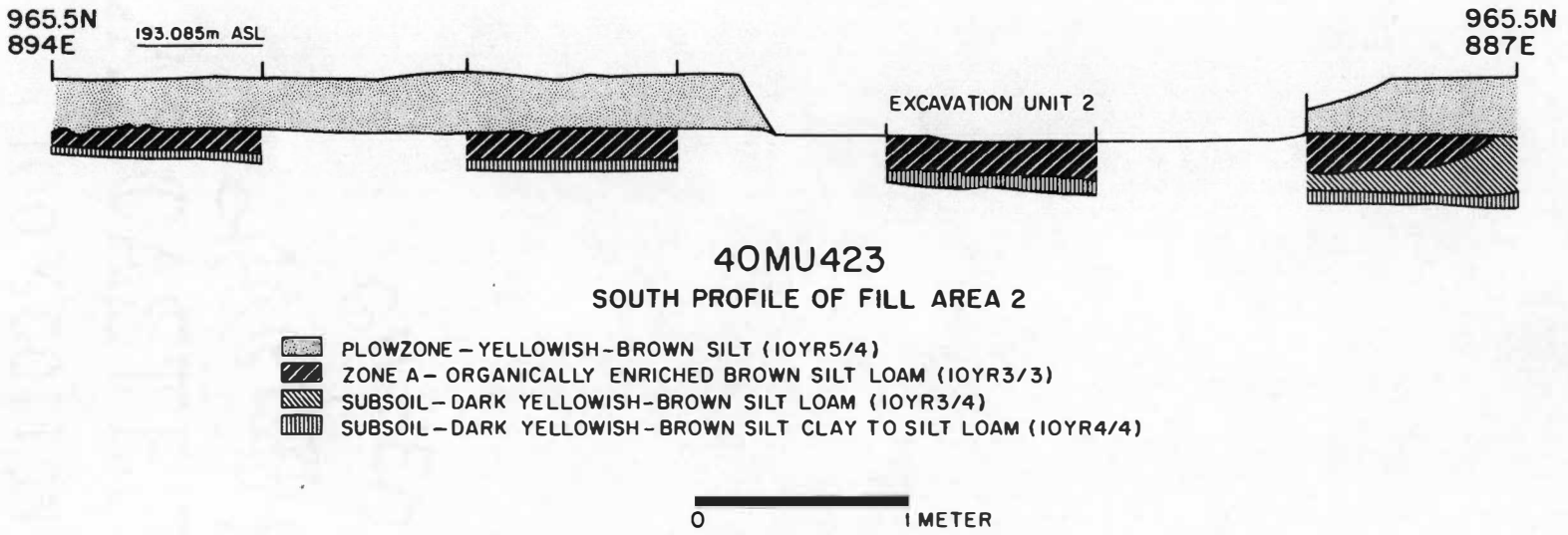


Figure 29. South Profile of Fill Area 2-40MU423.

and small fragments of calcined bone (q.v. Appendix). The highest surface densities of ceramics on the site were found in the collection units that overlaid Fill Area 2 and Structure 4. This fill area was situated on the north edge of a large circular topographic depression in Excavation Unit 2 and two expansions of the unit. It was adjacent to the portion of Structure 4 which was exposed in the east extension of Excavation Unit 2.

Contents (4-1 m x 1 m units):

2	ceramic rims	1.6 g
223	ceramic sherds	165.6 g
	residual ceramics	27.2 g
1	chert projectile point/knife	2.6 g
1	chert biface	11.6 g
2	chert flakes	11.8 g
79	siltstone pieces	210.7 g
7	burned limestone pieces	57.6 g
1	nonlocal mineral piece	<0.1 g
457	burned clay pieces	67.3 g

Fill Area 3 was comprised of four irregular patches of dark soil that remained undisturbed below the plowzone. The largest of these patches of fill measured 6.8 m x 5.6 m in plan view and 7-14 cm in depth (Figure 21, page 40 and Figure 30). The fill was divided into two zones which contained pottery, lithic debris, burned clay, and calcined bone (q.v. Appendix); the inner zone (Zone A_1) was dark brown in color and the outer zone (Zone A_2) was dark brown to dark

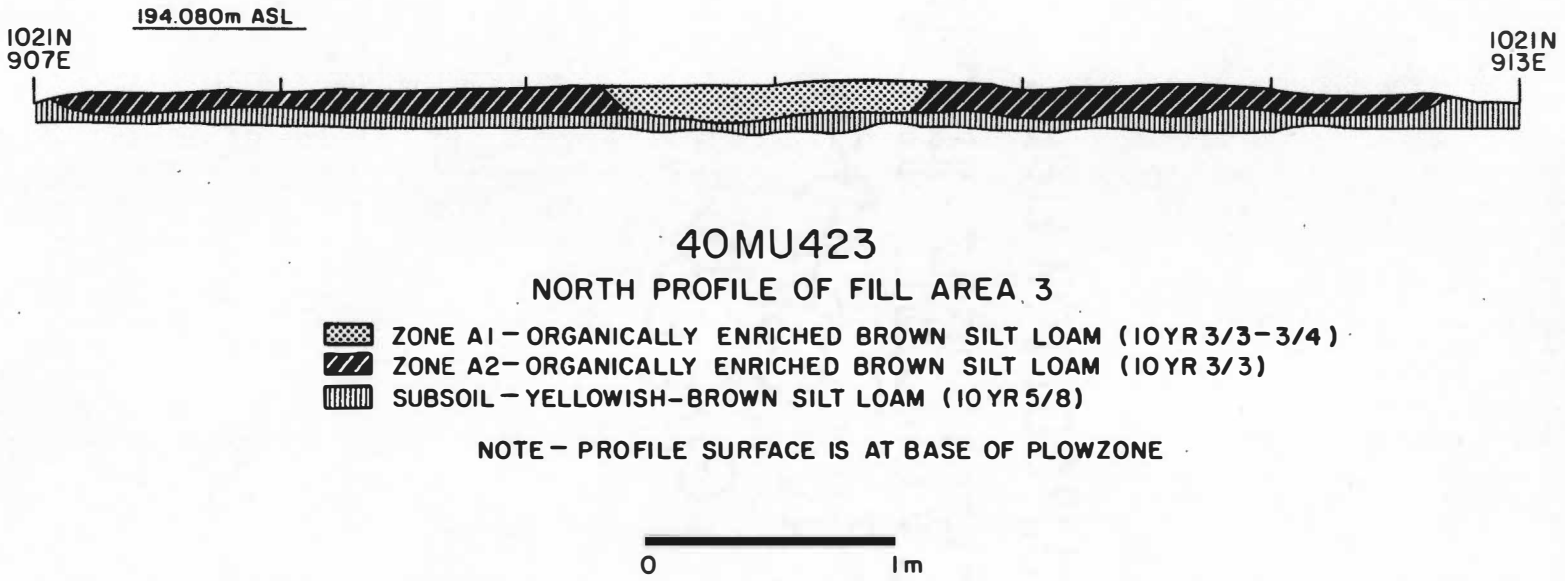


Figure 30. North Profile of Fill Area 3-40MU423.

yellowish-brown in color. This fill area was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 1 m northeast of Structure 3.

Contents (6-1 m x 1 m units):

2	ceramic rims	3.7 g
116	ceramic sherds	123.4 g
	residual ceramics	50.3 g
1	chert blocky debris	13.7 g
2	chert flakes	8.2 g
128	siltstone pieces	82.3 g
5	burned limestone pieces	388.2 g
1	nonlocal mineral piece	<0.1 g
289	burned clay pieces	36.5 g

The two fill areas investigated during the test excavations (Fill Areas 1 and 2) were located along the margins of large topographic depressions. These depressions are situated downslope from the east-west ridge and separated by a northeast-southwest trending rise. The fill area examined during the block excavations (Fill Area 3) was situated on the east-west ridge which forms the second terrace of Fountain Creek. Two of the fill areas (Fill Areas 2 and 3) were located adjacent to structures (Structures 3 and 4). These sheet midden accumulations were each comprised of a dark layer of soil that measured approximately 10 cm in depth and contained pottery, chert debris, and calcined bone. The third fill area (Fill Area 1) consisted of a dense concentration of burned limestone in a matrix of

soft granular dark soil that measured approximately 10 cm in depth and contained chert debris, bone, and pottery in addition to the burned limestone. Fill Areas 2 and 3 were probably house midden accumulations and Fill Area 1 may have been a communal food processing area in which an earth oven (F17) was utilized many times and cleaned of limestone and other debris.

Trench segments. Seven prehistoric features at the Edmondson Bridge site were designated as trench segments. The trench segments were generally elongated shallow features that had parallel sides and rounded ends in plan view and insloping sides and flat bottoms in profile. There was no evidence of postmolds within or below the fills of the trench segments.

Trench Segment 1 was oval in plan view and somewhat conical-shape in profile. It measured 56 cm x 30 cm in plan view and 27 cm in depth. The fill was divided into three zones which contained little cultural material; two of these zones were dark yellowish-brown in color and the third zone was very dark grayish-brown in color. This trench segment was located on the north edge of a large circular topographic depression in an eastward extension of Excavation Unit 2. It was situated approximately 2 m northeast of Fill Area 2 and 3 m west of Structure 4.

Contents:

1 chert flake	11.7 g

Trench Segment 2 had parallel sides and a rounded end in plan view. In profile the sides were insloping and the bottom was flat. This trench segment was only partially excavated because a portion of it was superimposed by Fill Area 2. It measured 22 cm in width, 3-4 cm in depth, and extended 53 cm to the northeast from Fill Area 2. The fill was dark yellowish-brown in color and did not contain any cultural material. Postmold 52 was adjacent to the northeast end of Trench Segment 2. This trench segment was located on the north edge of a large circular topographic depression in an eastward extension of Excavation Unit 2.

Trench Segment 3 had parallel sides and a rounded end in plan view. In profile the sides were insloping and the bottom was flat. This trench segment was only partially excavated because a portion of it was outside of the excavation unit. It measured 12 cm in width, 4-9 cm in depth, and extended 143 cm to the northeast from the edge of the excavation unit. The fill was dark yellowish-brown in color and did not contain any cultural material. This trench segment was located on the north edge of a large circular topographic depression in an eastward extension of Excavation Unit 2 approximately 2 m east of Structure 4 and Feature 8.

Trench Segment 4 had parallel sides and rounded ends in plan view. In profile the sides were insloping and the bottom was flat. It measured 112 cm in length, 15-22 cm in width, and 10-13 cm in depth. The fill was dark yellowish-brown in color and did not contain any cultural material. This trench segment was located on the east-

west ridge in Excavation Unit 2 and the southwest quadrant of Excavation Unit 6 approximately 2 m north of Structure 2.

Trench Segment 5 had parallel sides and rounded ends in plan view. In profile the sides were insloping and the bottom was flat. It measured 64 cm in length, 17-19 cm in width, and 5-8 cm in depth. The fill was yellowish-brown in color and did not contain any cultural material. This trench segment was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 1 m southeast of Structure 3.

Contents:

1 burned limestone piece	3.3 g

Trench Segment 6 had parallel sides and rounded ends in plan view. In profile the sides were insloping and the bottom was flat. It measured 132 cm in length, 19-23 cm in width, and 6 cm in depth. The fill was dark brown in color and contained little cultural material. This trench segment was located on the east-west ridge in the southwest quadrant of Excavation Unit 6. It was within Structure 1 approximately 1 m from the south wall.

Contents:

1 ceramic sherd	2.2 g

The trench segments were usually elongated shallow features which had parallel sides and rounded ends with insloping sides and flat bottoms. The location of the trench segments within or in close proximity to the structures indicates that these features served as ancillary architectural members. The trench segments may have

supported partitions which acted as wind baffles. These baffles may have been situated both near entryways into the structures and in close proximity to cooking areas within the structures. Trench segments found among the wall postmolds of the structures may have supported small posts used to repair wall sections.

Postmolds. A total of 202 postmolds was investigated at the Edmondson Bridge site during the test and block excavations. Additional postmold-size disturbances were examined and found to be the result of tree or animal activity. These recent disturbances usually contained a soft granular fill and the tree disturbances were often deep (50 cm+) and gradually tapered to a point in profile.

The three structures located on the east-west ridge in Excavation Unit 6 were formed by approximately two-thirds (n = 133) of the postmolds examined on the site. An irregular line of seven postmolds connected Structures 1 and 2. Structures 2 and 3 were connected by 10 postmolds in two parallel arcs spaced 4-5 m apart. An additional 12 postmolds were scattered around Excavation Unit 6; four of these postmolds were associated with pits (F 23, 27, 40, and 50). The portion of Structure 4 exposed in Excavation Unit 2 was comprised of 11 postmolds situated on the north edge of a large circular topographic depression. A single postmold was found on a northeast-southwest trending rise between the two large topographic depressions. The postmold was located in Excavation Unit 4 approximately 1 m west of Feature 9. Two postmolds separated by a distance of approximately

2 m were positioned at the south edge of a broad topographic area which constricts to the west and forms the east-west ridge. These two postmolds were found in Excavation Unit 5 approximately 1 m northwest of Feature 16.

The postmolds were circular to slightly oval in plan view and had vertical to insloping sides and rounded to flattened bottoms in profile. The mean dimensions of the postmolds are 19 cm x 17 cm in plan view and 17.5 cm in depth. The standard deviations from these mean dimensions are 4.5 cm for the length and width and 9.5 cm for the depth. The fills were generally brown to dark grayish-brown or dark yellowish-brown in color and uniform throughout. Occasional examples of post impressions within the postmold fills were noted. Among the 202 postmolds investigated only 22 contained any cultural material. It should be restated that only one-half of each postmold was examined during the test and block excavations and only a sample (n = 6) was selected for water flotation.

Contents:

PM 4	1 burned limestone piece	6.5 g
PM 5	1 ceramic sherd	8.5 g
PM 10	1 burned clay piece	1.8 g
PM 11	2 burned limestone pieces	18.3 g
PM 13	1 ceramic sherd	9.2 g
PM 58	1 ceramic sherd	7.3 g
PM 59	1 siltstone pipe fragment	238.6 g
	1 siltstone piece	2.3 g

	9 burned limestone pieces	174.6 g
PM 64	1 chert flake	1.5 g
PM 69	2 chert flakes	1.9 g
PM 78	1 ceramic sherd	3.3 g
PM 92	2 ceramic sherds	4.1 g
	1 chert flake	0.5 g
PM 95	1 chert flake	5.0 g
PM 102	residual ceramics	0.5 g
	burned limestone	0.1 g
	3 burned clay pieces	0.6 g
PM 130	3 siltstone pieces	0.3 g
	burned limestone	0.1 g
PM 143	1 ceramic sherd	4.7 g
PM 147	1 chert biface	8.8 g
PM 169	1 chert core	57.3 g
PM 173	1 ceramic sherd	2.7 g
	1 chert tested cobble	33.2 g
PM 182	1 ceramic sherd	1.2 g
PM 183	residual ceramics	0.5 g
	burned clay	0.1 g
PM 184	residual ceramics	0.1 g
PM 185	residual ceramics	0.1 g

Structures. Four structures were investigated during the test and block excavations at the Edmondson Bridge site. The possible contemporaneity of the three structures in Excavation Unit 6 was

indicated by the lines and arcs of postmolds that connected them (Figures 14 and 15, pages 32 and 34). The fourth structure was only partially exposed in the south half of Excavation Unit 2. The structures varied in size, shape, postmold depth, and possibly function. The high densities of ceramics in the surface collection units that overlaid Structures 1, 2, and 4 indicate that these features were probably dwellings. The low density of surface ceramics in the area that overlaid Structure 3 and the occurrence of two prepared pits and nonlocal artifacts and raw materials in close proximity to the structure are indicative of specialized activities.

Structure 1 was located on the east-west ridge in the center of Excavation Unit 6. An oval pattern (14.0 m x 10.5 m) of 42 single postmolds spaced 1-2 m apart formed the exterior wall of the structure (Figures 16 and 17, pages 35 and 36). One-third of these postmolds (n = 14) were shallow (1-20 cm), one-third (n = 14) were of moderate depth (21-30 cm), and one-third (n = 14) were deep (31-50 cm). The interior postmolds (n = 30) probably supported partitions and benches; less than one-fourth of these postmolds (n = 7) were deep and the remaining 23 postmolds were shallow to moderate depth. The lack of substantial interior support postmolds and the occurrence of numerous deep wall postmolds indicate that the structure was formed by tensioning and tying posts from opposite walls. Two parallel rows of exterior postmolds in the southeast quadrant of the structure are indicative of rebuilding in this area. A trench segment (TS 7) positioned near the structure wall may have supported a wind baffle

and a short trench segment (TS 6) among the postmolds that formed the north wall of the structure may have supported a series of small posts that braced a section of the wall. Six pits were located inside of Structure 1 and an additional 10 pits were found within 5 m of the structure. Four of the interior pits were situated along the north wall of the structure and two of these (F 2 and 53) contained burned limestone, lithic tools, and stamped and cordmarked limestone/quartz tempered pottery. A Middle Woodland projectile point/knife was found at the plowzone/subsoil interface in Structure 1. A small limestone-filled pit (F 42) was found to the west of the structure.

Structure 2 was located on the east-west ridge in the south half of Excavation Unit 6 approximately 7.5 m south of Structure 1. A subrectangular pattern (9.8 m x 8.5 m) of 28 postmolds spaced 1-3 m apart formed the exterior wall of the main structure area (Figures 18 and 19, pages 37 and 38). A semicircle (7 m in diameter and 5 m deep) of 25 additional postmolds spaced 1-2 m apart formed the exterior wall of an ancillary construction positioned at the southeast corner of the structure. Nearly two-thirds of the wall postmolds (n = 17) in the main structure were shallow, almost one-third (n = 9) were of moderate depth, and only two were deep. The interior postmolds (n = 5) were shallow and probably functioned as minor interior support members. The lack of substantial interior support postmolds indicates that the structure was formed by tensioning and tying posts from opposite walls. Numerous deep wall postmolds may not have been necessary to form a tensioned roof in Structure 2 because it was smaller than

Structure 1. A trench segment (TS 4) positioned 2 m north of the structure may have supported a wind baffle near an entryway. The majority of the wall postmolds (n = 24) in the ancillary construction were shallow. The walls were probably formed by tensioning and tying the posts at a single support (PM 161) set in a shallow postmold along the open side. This semicircular construction may have functioned as a sheltered activity area. One pit was located inside of Structure 2 and an additional two pits were found within 5 m of the structure. The pit (F 55) inside of Structure 2 contained a large amount of pottery (72 sherds), two Middle Woodland projectile points/knives, and a biface fragment and a pit (F 54) situated to the west of the structure also contained a large amount of pottery (75 sherds).

Structure 3 was located on the east-west ridge in the southeast quadrant of Excavation Unit 6 approximately 7.5 m southeast of Structure 1. An oval to rectangular pattern (8.0 m x 4.5 m) of 28 postmolds spaced 0.5-2.0 m apart formed the exterior wall of the structure (Figures 20 and 21, pages 39 and 40). The majority of these postmolds (n = 24) were shallow. The east half of the structure was rectangular in plan view and an arc of postmolds in the west half circled to the north leaving a gap of 2.5 m between the two halves. This gap opened to the east at a sheet midden accumulation (Fill Area 3). The lack of interior support postmolds indicates that the structure was formed by tensioning and tying posts from opposite walls. A trench segment (TS 5) situated approximately 1 m from the southeast wall of the structure may have supported a wind baffle near

an entryway. One pit was located inside of Structure 3 and an additional seven pits and the fill area were found within 5 m of the structure. The exterior pits included the two prepared features (F 36 and 41) which may have functioned in ceremonial activities along with Structure 3. Feature 36 contained stamped, slipped, and polished limestone tempered pottery and a smoothed over cordmarked grog tempered sherd. A small fragment of copper was found in Fill Area 3 and one-half of an effigy form elbow pipe was recovered from a postmold (PM 59) near the structure.

Structure 4 was located on the north edge of a large circular topographic depression in an eastward extension of Excavation Unit 2 approximately 30-60 m south of Structures 1-3. The shape of the structure could not be determined because only a small portion of it was exposed during the test excavations (Figure 12, page 28). This section of Structure 4 was comprised of 11 postmolds and three trench segments (TS 1-3) that were situated immediately to the north and east of Fill Area 2. The majority of the postmolds (n = 10) were shallow. Three pits were found among the structure postmolds. Two of these pits (F 8 and 11) contained burned limestone, lithic tools, and pottery. Middle Woodland projectile points/knives were recovered from Fill Area 2 and Feature 8.

Test and block excavations conducted at the Edmondson Bridge site revealed the occurrence of features on the crest of the second terrace of Fountain Creek as well as in adjacent downslope areas. Three pits were located at the south edge of a broad section of the terrace crest

and 42 pits, 1 fill area, 4 trench segments, and 3 structures were situated on a constriction of the crest which forms an east-west ridge. Two additional fill areas, five pits, three trench segments, and part of a fourth structure were positioned along the northern margins of two large topographic depressions. These depressions are found 1-2 m downslope in elevation from the terrace crest and separated by a northeast-southwest trending rise on which two pits were located.

The structures were oval to subrectangular in shape and varied in size from 8.5-14.0 m in length and 5.0-10.0 m in width. The three structures in Excavation Unit 6 were probably contemporary, as indicated by connecting lines and arcs of postmolds. A fourth structure was partially exposed during the test excavations. It was situated approximately 50 m to the south of the structures in Unit 6. The trench segments were within or near the structures and probably supported partitions, wind baffles, and wall bracings. The majority of the pits investigated at the site exhibited relatively little morphological and metric variability. The material contents of the features was generally sparse; however, a few pits in or near the structures contained the majority of the cultural debris recovered during the excavations. Ceremonial activities at the site may have centered around Structure 3 and two prepared features located adjacent to the structure. Two of the three fill areas were sheet midden accumulations situated adjacent to structures and the third fill area

was probably a communal food processing area in which an earth oven was utilized many times and cleaned of limestone and other debris.

The following discussion, while focusing primarily on the excavated material (trowel and flotation sorted), also includes the Middle Woodland ceramics and projectile points/knives that were recovered from the controlled surface collection and various disturbed contexts.

Material Assemblage-Ceramics

Excavations were initially undertaken at the Edmondson Bridge site because an extensive and relatively isolated late Middle Woodland component was present. A total of 722 sherds was recovered from the surface of the site. The controlled surface collections conducted in Cheek and Cannon bends of the Duck River yielded only 78 sherds on 9 Middle and Late Woodland sites. In addition 54 Middle and Late Woodland sites located during the preliminary reconnaissance of the study area yielded only 12 sherds (Dickson 1976).

In the following analysis the ceramics are initially classified and quantified according to the tempering agent. Surface treatments, sherd thicknesses, and temper characteristics are then described. The Munsell Soil Color Charts (1973) are utilized in color coding the surfaces and cores of the sherds. The numerical designations in the Munsell Charts are not recorded here because the various hues, values, and chromas of a color are combined. The ceramic descriptions, counts, and weights are derived from the excavated material unless otherwise noted.

Quartz tempered ceramics. This form of tempering was probably derived from quartz bearing sources such as the fossilized corals that occur in the Carters Limestone Formation underlying the site area. Cobbles and fragments of these fossilized corals were recovered from pit features. The ceramics contain finely crushed angular to slightly rounded particles of quartz (less than 0.5 mm) with occasional large inclusions of quartz crystals (1-5 mm). The tempering is abundant and evenly distributed in the paste giving the sherds a coarse texture. The sherd thicknesses mostly vary from 5-8 mm. The sherd surfaces are predominantly pink, pinkish-gray, reddish-gray and gray and reddish-brown, brown, and grayish-brown in color. White and brownish-gray colors are occasionally represented. The sherd cores are mostly gray and pink in color with occasional examples of other surface colors also being noted. The quartz tempered pottery fragments are predominantly plain (98.8%). Two quartz tempered sherds from pits (F 54 and 55) in the Structure 2 area have a light red slip on the exterior surface. A pit (F 40) near Structure 3 and a pit (F 53) in Structure 1 each contained a quartz tempered simple stamped sherd (Figure 31A).

Nine quartz tempered rim sherds were recovered from various contexts on the site. Three rims from Feature 2 have plain exterior surfaces. The vessel necks are inslanting to slightly outcurving and taper slightly towards the lips. Two of the rims have plain notches on top of the lip. A small plain rim with a rounded lip was found in Feature 36. A small plain rim from Fill Area 1 has a slightly

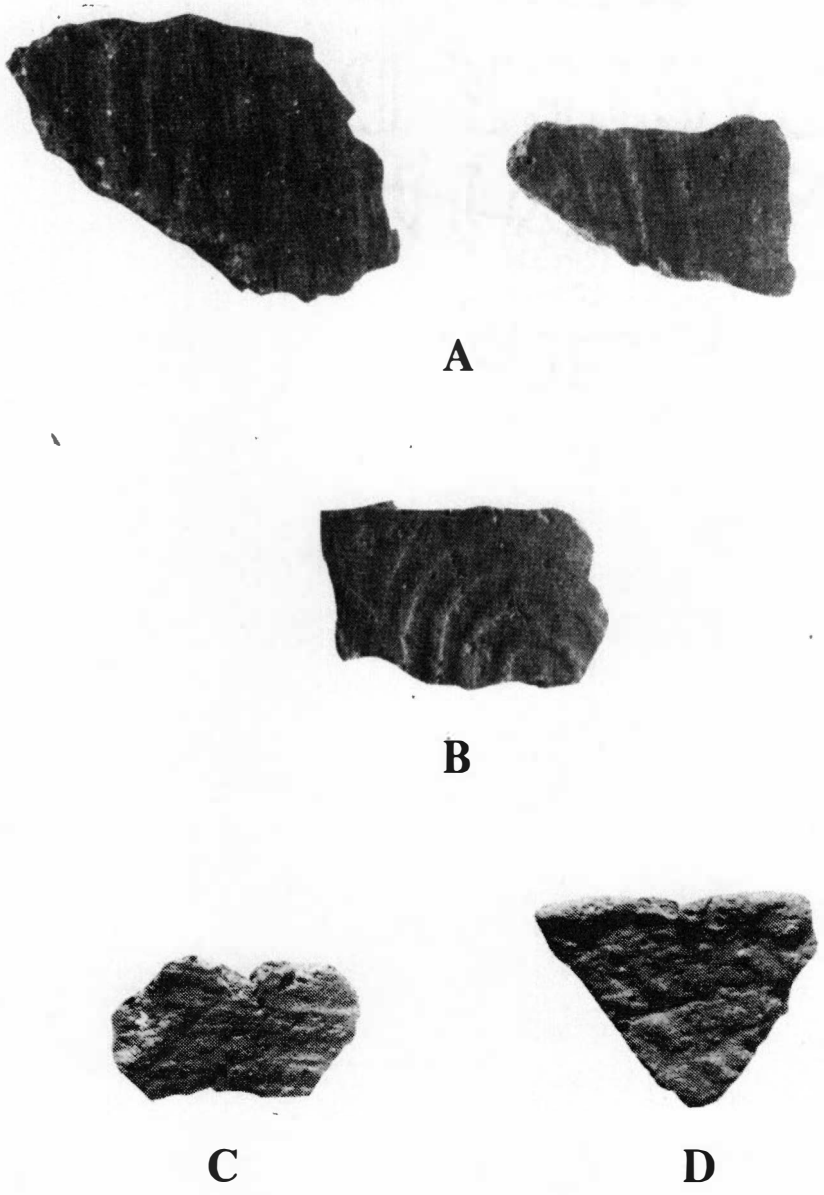


Figure 31. Ceramics from 40MU423. A-Quartz Tempered, Simple Stamped; B-Limestone Tempered, Complicated Stamped; C-Limestone/Quartz Tempered, Cordmarked; D-Limestone/Quartz Tempered, Simple Stamped (Scale: Full Size).

outcurving neck and a rounded lip. Three rims were recovered during the machine stripping of two test units and one rim was found during the controlled surface collection of the site. These four rims have inslanting to slightly outcurving necks with rounded to slightly flattened lips. One rim has plain dowel impressions on top of the lip that are spaced 6-10 mm apart.

A total of 373 (1,482.4 g) quartz tempered ceramic fragments was recovered from the features. The controlled surface collection yielded 328 (585.8 g) quartz tempered sherds. By weight, over two-thirds (68.3%) of the ceramics recovered from the features and over one-half (56.4%) of the pottery found during the controlled surface collection are tempered with quartz.

Limestone tempered ceramics. The limestone tempered sherds all contain a uniformly distributed moderate amount of holes resulting from the leaching of this carbonate form of tempering. These holes generally measure 1-3 mm in diameter. The sherd thicknesses mostly vary from 4-6 mm. The sherd surfaces are red, reddish-yellow, reddish-brown, brown, and gray in color. Pinkish-gray, reddish-gray, and black colors are occasionally represented. The sherd cores are mostly gray with a few examples of each surface color also being noted. The limestone tempered pottery fragments are predominantly plain (98.9%). A polished limestone tempered sherd was found in a wall postmold (PM 92) of Structure 3. A sherd with three narrow (1 mm) parallel incised lines spaced 4 mm apart was recovered from Fill Area 3 and a pit (F 36) intrusive into Fill Area 3 contained

limestone tempered pottery that included two polished sherds, a red slipped sherd, a complicated stamped sherd (Figure 31B), and a small sherd with a single wide simple stamped or incised line. A limestone tempered coil fragment measuring 16 mm in diameter and 31 mm in length was found in Feature 17.

Ten rims and a vessel base tempered with limestone were recovered from various contexts on the site. The base of a subconoidal vessel was recovered from a pit (F 1) near Structure 1. Feature 25 contained a plain rim section that has a flattened lip. A plain rim with a tapering neck, rounded lip, and plain dowel impressions on top of the lip was found in Feature 36 near Structure 3. Five small plain rims with flattened to rounded lips were recovered from Feature 53 (n = 1), Fill Area 2 (n = 2), and Fill Area 3 (n = 2). Three small plain rims were found during the controlled surface collection. Two of these rims have rounded lips and one has a flattened lip.

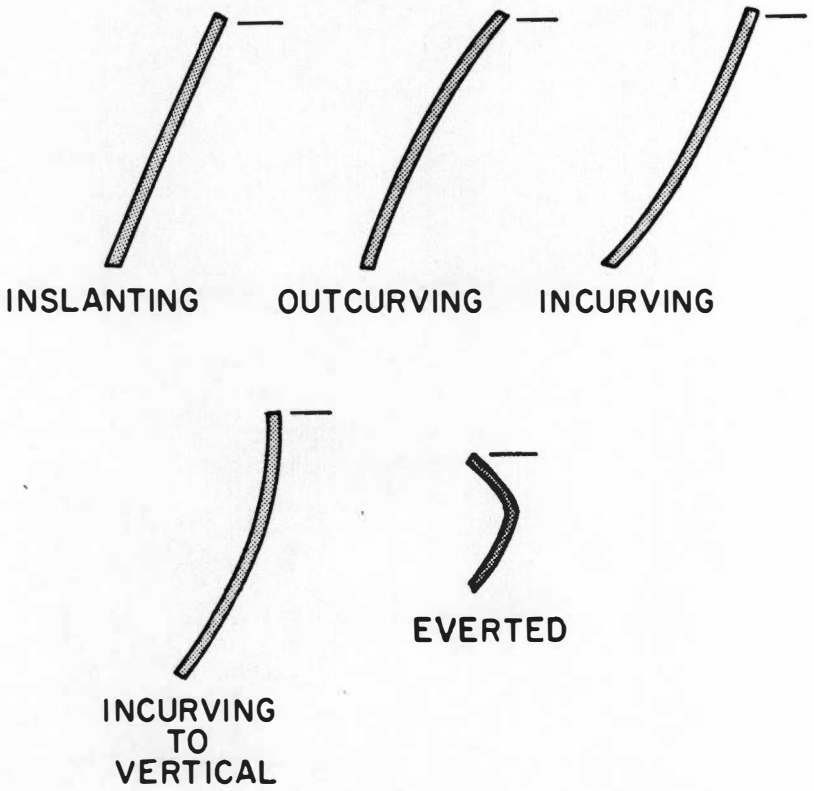
A total of 611 (634.0 g) limestone tempered ceramic fragments was recovered from the features. The controlled surface collection yielded 326 (342.7 g) limestone tempered sherds. By weight, approximately one-third (29.2%) of the ceramics recovered from the features and about one-third (33.0%) of the pottery found during the controlled surface collection are tempered with limestone.

Limestone/quartz tempered ceramics. The limestone/quartz tempered sherds usually contain a light to moderate amount of limestone tempering and a moderate amount of quartz. The limestone tempering is comprised of particles that are 1-3 mm in diameter. The

quartz tempering consists of either a moderate amount of finely crushed quartz (less than 0.5 mm) and occasional large inclusions (1-4 mm) or a moderate amount of the large inclusions. The sherd thicknesses mostly vary from 5-7 mm (five sherds). The sherd surfaces are red, pink, brown, reddish-brown, and gray in color and the sherd cores are red, reddish-brown, and gray in color. The limestone/quartz tempered pottery fragments are simple stamped (n = 4), plain (n = 4), and cordmarked (n = 1). Two pits (F 2 and 53) in Structure 1 contained six of the nine mixed temper ceramic fragments; three of these are simple stamped, two are plain, and one is cordmarked (Figure 31C). A pit (F 11) near Structure 4 contained a limestone/quartz tempered sherd with a single wide simple stamped or incised line. Fill Area 2 and Fill Area 3 each contained a single plain limestone/quartz tempered sherd.

A limestone/quartz tempered rim from Feature 2 has a smoothed over crisscross simple stamped exterior surface treatment (Figure 31D). This vessel section has an incurving neck and a vertical rim with a flattened lip (Figure 32). Plain dowel impressions occur on top of the lip and are spaced 5 mm apart. A small limestone/quartz tempered rim sherd recovered during the controlled surface collection appears to have an everted and rounded lip.

A total of 9 (50.5 g) limestone/quartz tempered ceramic fragments was recovered from the features. The controlled surface collection yielded 66 (106.2 g) mixed temper sherds. By weight, only 2.5% of the ceramics recovered from the features and 10.2% of the pottery found



40MU423
NO SCALE

Figure 32. Morphology of Ceramic Vessel Necks and Rims from 40MU423.

during the controlled surface collection are tempered with limestone and quartz.

Grog tempered ceramics. This form of tempering is comprised of rounded fragments of crushed pottery or possibly burned clay (less than 3 mm) and occasional large (1-4 mm) angular fragments of quartz. The sherd thicknesses vary from 5-7 mm. The sherd surfaces are light gray to white in color and the sherd cores are reddish-yellow and gray in color. A smoothed over cordmarked grog tempered sherd was found in a pit (F 41) adjacent to Structure 3. A plain grog tempered sherd and a plain grog tempered rim were recovered during the controlled surface collection. The rim has an incurving neck and a flattened lip.

One (2.3 g) grog tempered ceramic fragment was recovered from the features. The controlled surface collection yielded 2 (3.7 g) grog tempered sherds. By weight, only 0.1% of the ceramics recovered from the features and 0.4% of the pottery found during the controlled surface collection are tempered with grog.

Pebble tempered ceramics. This form of tempering is comprised of a moderate to large amount of waterworn pebbles (1-3 mm). The thickness of the single sherd recovered is 3-4 mm and the sherd surface and core are brown in color. This plain pebble tempered rim sherd is everted with a rounded lip. It was recovered from a pit (F 41) adjacent to Structure 3.

A single (2.4 g) pebble tempered ceramic fragment was recovered from the features. By weight, only 0.1% of the feature ceramics are tempered with pebbles.

Residual ceramics. A total of 174.2 g of residual ceramics was recovered from the flotation heavy fractions. These ceramic fragments are extremely small (<2.83 mm) and eroded and were not weighed or categorized by temper type or surface treatment.

The ceramics recovered from the features on the Edmondson Bridge site consist mostly of plain vessel fragments (98.3%). The simple stamped, complicated stamped, polished, slipped, and incised ceramics (1.7%) may represent trade wares. The majority of the ceramics are tempered with quartz (68.3%) or limestone (29.2%) while limestone/quartz (2.5%), grog (0.1%), and pebble tempered (0.1%) pottery constitute minor amounts in the assemblage. The paste coloration of the limestone tempered ceramics are predominantly brown and gray and the quartz tempered ceramics are gray, brown, red, pink, and reddish-brown. Polished and complicated stamped ceramics are tempered with limestone, slipped pottery is tempered with limestone or quartz, and simple stamped and cordmarked ceramics are frequently tempered with limestone/quartz. Vessels are subconoidal and usually have incurving to inslanting necks. The vessel lips are rounded or flattened and were often impressed with a plain dowel. A maximum of 22 vessels are represented by the rim sherds recovered during the excavations and controlled surface collection; of these only 14 rims were found in the features.

Material Assemblage-Lithics

A total of 24 lithic tools, 105 pieces of chert debris, 1,208 pieces of burned and unburned siltstone, 3 pieces of fossiliferous

coral, a large amount of limestone, and 202 small fragments of nonlocal minerals was recovered during the test and block excavations at the Edmondson Bridge site. Limestone altered by burning was relatively abundant in a few subsurface features but the vast majority was concentrated in Fill Area 1.

Lithic tools and debris were found in large quantities during the controlled surface collection of the site. Additional projectile points/knives were recovered during the machine stripping of the test units. The multi-component nature of the site makes it impossible to separate non-diagnostic plowzone remains according to period. For this reason, the only lithic items described here from non-feature context are those diagnostic of the Middle Woodland period.

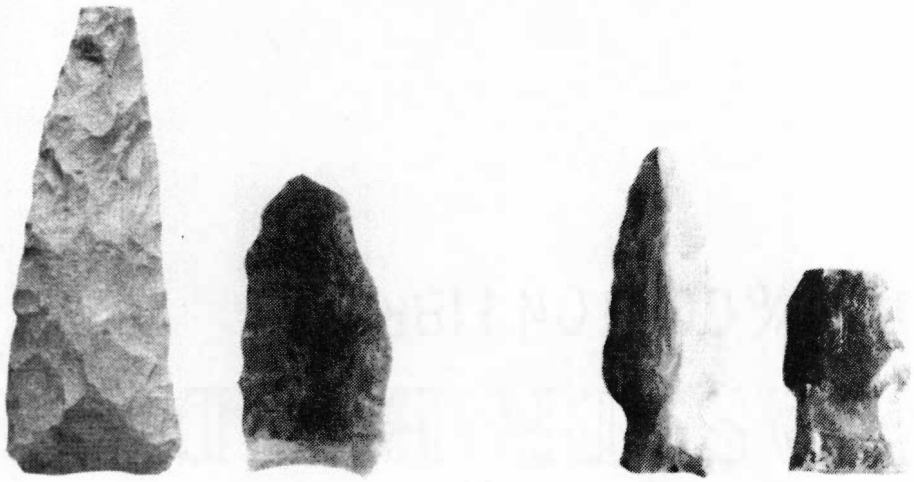
The following discussion includes the lithic tools and debris from the features and the Middle Woodland projectile points/knives from the surface collection and disturbed context. Lithic tools will be separated into the categories of projectile points/knives (PPKs), bifaces, and miscellaneous tools and artifacts. Chert, siltstone, fossilized coral, limestone, and nonlocal minerals are the categories of lithic debris. Certain categories will be further subdivided when appropriate.

Chert debris is separated into the following groups: tested cobble, core, blocky debris, firecracked chert, primary decortication flake, secondary decortication flake, tertiary flake, broken flake, and biface thinning flake. Tested chert cobbles exhibit platforms and one to three negative flake scars. Cores and blocky debris are

angular pieces of chert with numerous negative flake scars. The cores have platforms while blocky debris lack platforms. Firecracked chert was spalled and crazed by heat and lacks negative flake scars. A primary decortication flake has cortex covering the entire dorsal surface while a secondary decortication flake has cortex on only a portion of the dorsal surface. Dorsal cortex is lacking on tertiary flakes but cortex may occur on the platform. Cortex and platforms are absent on broken flakes. Biface thinning flakes are the result of finishing or retouching the faces and edges of bifaces. These flakes may have small platforms with expanding margins or wide lipped platforms that exhibit part of the trimmed biface edge (Amick 1982:14-15; Hofman and Turner 1979:6-11; White 1963:5-9). An attribute list formulated by Binford (1963:193-221) was utilized in describing morphological characteristics of the bifaces and projectile points/knives.

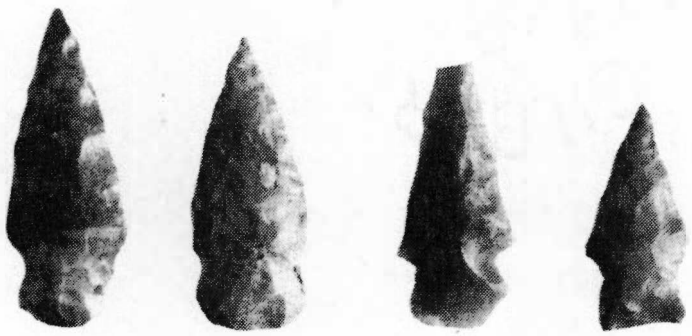
Projectile points/knives.

McFarland Cluster. The McFarland Cluster is represented by medium to large stemless triangular projectile points/knives that are associated with early Middle Woodland occupations in Middle Tennessee (Faulkner and McCollough 1973:148; Kline et al. 1982:43-46). The blade is triangular, incurvate-excurvate, or parallel-ovate and the base is usually straight and sometimes unfinished (Figure 33A). A similar Middle Woodland point form is the Copena Triangular (Cambron 1958:10).

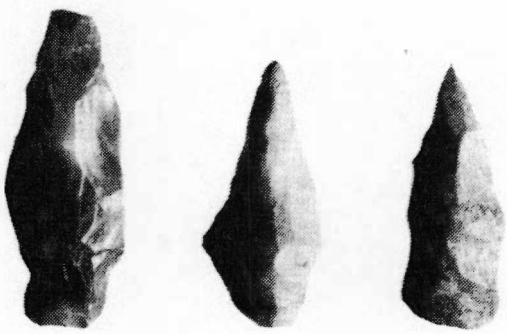


A

B



C



D

Figure 33. Projectile Points/Knives from 40MU423. A-McFarland Cluster; B-Expanded Stem Cluster, Corner-Removed; C-Expanded Stem Cluster, Side-Notched; D-Lanceolate Spike Cluster (Scale: Full Size).

Seven McFarland Cluster projectile points/knives were recovered at the Edmondson Bridge site; four during the controlled surface collection, two from the plowzone backdirt piles of the test units, and one from a feature. Three of the McFarland Cluster PPKs have straight blade margins and bases with somewhat thick blades and two of the PPKs have blade margins that are straight and parallel in the hafting area and then taper towards the tip; one of these has a straight base and the other a concave base. One McFarland Cluster PPK has blade margins that are incurvate in the hafting area and then taper towards the tip and one of the PPKs has recurvate blade margins with a straight base that expands at the lateral extremities. The McFarland Cluster PPK recovered from subsurface context was in a pit (F 55) within Structure 2.

Five of the McFarland Cluster projectile points/knives were manufactured from Fort Payne chert, one from Ridley chert, and one from gray Bigby-Cannon chert. One of these exhibits evidence of thermal alteration.

Expanded Stem Cluster. This cluster is represented by medium to large expanded stem and notched projectile points/knives. The Expanded Stem Cluster gradually replaced the McFarland Cluster and is the prevalent point form during the late Middle Woodland in Middle Tennessee (Faulkner and McCollough 1974:579). The blade is triangular to ovate or occasionally excurvate and the stems were formed either by corner removal (Figure 33B), notching directed laterally (side-notched) (Figure 33C), or notching directed from the intersection

points of the base and the blade margins (corner-notched). The bases are straight to rounded and often unfinished. This cluster is similar to the Bakers Creek and Swan Lake types in the Southeast (Cambron and Hulse 1960:21, DeJarnette et al. 1962:47) and the Steuben and Lowe expanded stem point types in the Midwest (Morse 1963:30-32, Winters 1967:90-92).

Fifty Expanded Stem Cluster projectile points/knives were recovered at the Edmondson Bridge site; forty during the controlled surface collection, six from the plowzone backdirt piles of test units, and four from features. The stems of nearly three-fourths of the Expanded Stem Cluster PPKs (n = 37) were formed by notching while the remainder (n = 13) were formed by corner removal. Eight of the notched PPKs have expanded stems produced by corner-notching and the remaining 29 PPKs have flared or rounded stems created by shallow side-notching. The four Expanded Stem Cluster PPKs that were recovered from features are shallow side-notched; one was found in Fill Area 2 near Structure 4, one was in a pit (F 8) adjacent to Fill Area 2, one was found at the plowzone-subsoil interface in Structure 1, and one was in a pit (F 55) within Structure 2.

Fort Payne chert was utilized in the manufacture of 43 PPKs in the Expanded Stem Cluster, St. Louis chert for five, Ridley chert for one, and Brassfield chert for one. The results of thermal alteration are evident on 10 of the PPKs.

Spike Cluster. The Spike Cluster is represented by medium-size stemmed projectile points/knives. This cluster is temporally

associated with the late Middle Woodland in Middle Tennessee (Faulkner and McCollough 1973:145). The blade is triangular to ovate and very thick. In cross-section the blade may approach circular to bitriangular. The stems are straight to contracting and the shoulders are weak. The bases are straight or convex and may be unfinished (Figure 33D). This cluster is similar to the Bradley and Flint River Spike types in the Southeast (DeJarnette et al. 1962:56, Kneberg 1956:27).

Four Spike Cluster projectile points/knives were recovered at the Edmondson Bridge site; three during the controlled surface collection and one from the plowzone backdirt pile of a test unit. Two of the PPKs have ovate blades, straight stems, and unfinished bases. One of the PPKs has a triangular blade, straight stem, and straight base and the fourth PPK has a triangular blade, contracting stem, and unfinished base.

The four Spike Cluster projectile points/knives were manufactured from Fort Payne chert. Two of the PPKs exhibit the results of thermal alteration.

Additional projectile points/knives and fragments. A single Terminal Archaic/Early Woodland projectile point/knife that has a triangular blade and a narrow straight stem with a rounded base was recovered from a pit (F 45) near Structure 1. This PPK was manufactured from Fort Payne chert. Unidentifiable PPK fragments found in various features (F 21, 25, and 41 and PM 147) include a blade, a mid-section with shoulders, a tip and mid-section, and one

mid-section. These four PPK fragments were derived from complete tools that were manufactured from Fort Payne chert (n = 3) and gray Bigby-Cannon chert (n = 1). Two of the PPK fragments exhibit evidence of thermal alteration.

Bifaces. Six biface fragments and a single complete biface were recovered from subsurface features (F 8, 13, 21, 34, 53, and 55 and Fill Area 2) at the Edmondson Bridge site. The biface fragments consist of a base and mid-section, a base, and four mid-sections that were probably derived from late stage ovate bifaces. The complete biface has an excurvate blade and a convex base. This late stage biface has cortex at one lateral extremity of the basal margin. The biface fragments were derived from complete tools that were manufactured from Fort Payne chert. Two of these exhibit evidence of thermal alteration. Ridley chert was utilized in the manufacture of the complete biface.

Miscellaneous tools and artifacts. Two tabular fragments of utilized siltstone were probably derived from larger grinding stones. Both have a single smooth face and one also has the remnant of a circular depression (3 cm in diameter) on the smooth face. One grinding stone fragment was recovered from a pit (F 2) in Structure 1 and the other tool was found in a pit (F 8) adjacent to Fill Area 2 and Structure 4.

A quartzite cobble recovered from Feature 8 was utilized as an anvil stone and knapping hammer. Opposite ends of the cobble were

extensively battered and areas of superficial marring and slight depressions are evident in the central areas of opposite faces on the cobble.

A core of Carters chert recovered from Feature 2 in Structure 1 and a core of Fort Payne chert found in Feature 46 were utilized as pecking stones. Sharp ridges formed in the reduction of these cores were used for battering and the ridges were extensively rounded and worn.

A secondary flake of Fort Payne chert recovered from a pit (F 28) near Structure 1 exhibits unifacial use retouch along both lateral margins. A projection on one of the lateral margins also shows evidence of unifacial use retouch on the tip.

A section of a large siltstone elbow pipe was found on the surface of a postmold (PM 59) near Structure 3. The pipe was split longitudinally in prehistoric times and only one of the halves was recovered during the excavations (Figure 34). The rims of the bowl and stem are also lacking. The pipe was shaped and engraved to represent an effigy form that cannot be determined due to the fragmentary nature of the artifact. The maximum inner diameter of the pipe bowl is 27.8 mm and the maximum outer diameter is 53.0 mm. The maximum inner diameter of the pipe stem is 19.8 mm and the maximum outer diameter is 51.5 mm.

Lithic debris.

Chert. The chert debris recovered from subsurface features at the Edmondson Bridge site represents various stages of lithic

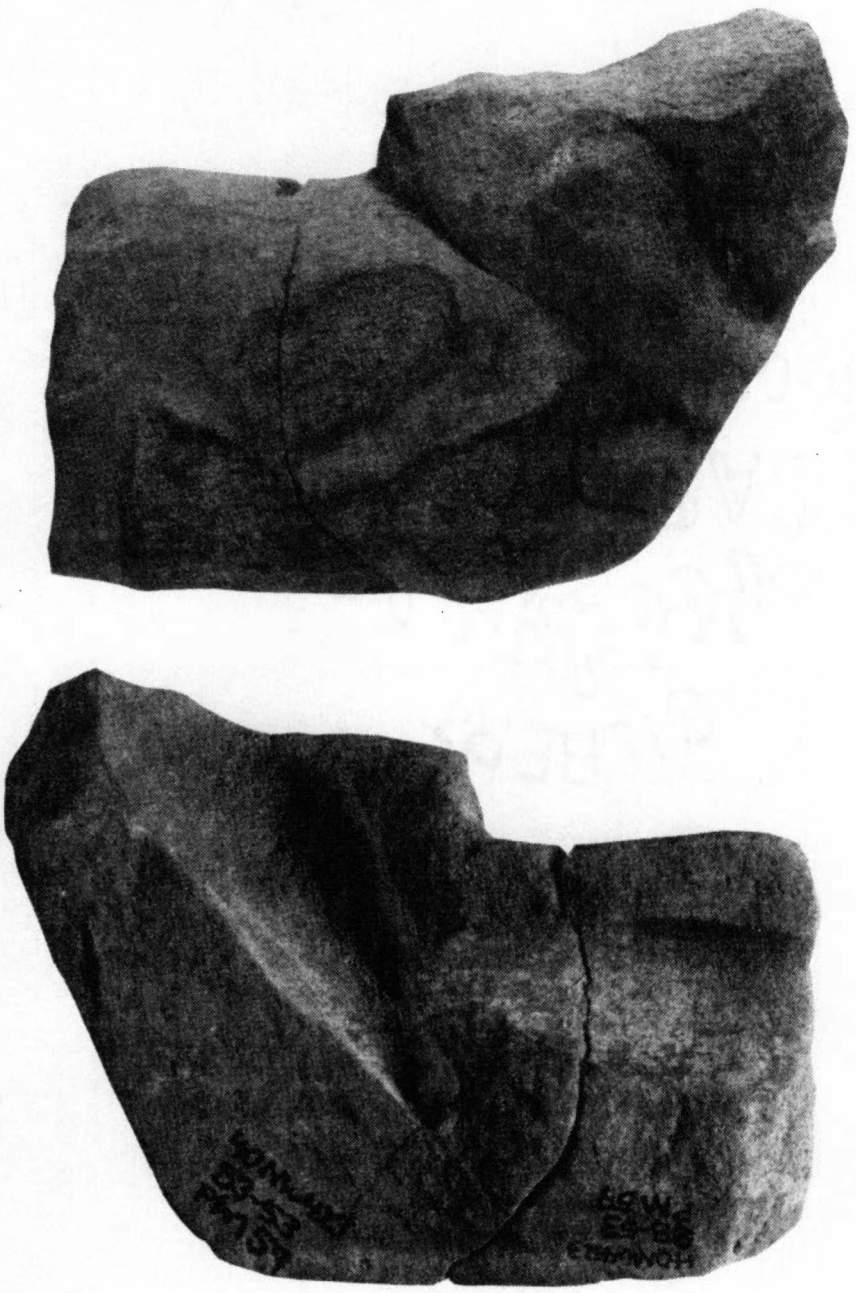


Figure 34. Siltstone Elbow Pipe from 40MU423. Exterior View-Top, Interior View-Bottom; Scale: Full Size.

reduction. The 106 pieces of chert include 2 tested cobbles, 2 cores, 2 core fragments, 24 blocky debris, 1 primary flake, 10 secondary flakes, 12 tertiary flakes, 27 broken flakes, and 16 biface thinning flakes. The majority of these lithic items (n = 96) are Fort Payne chert. The chert debris also includes two pieces of blocky debris and six flakes of Carters chert, one piece of blocky debris and two flakes of St. Louis chert, and a single flake of Brassfield chert. Less than one-fourth of the chert items exhibit definite evidence of thermal alteration.

Siltstone. A total of 1,208 unworked fragments of siltstone was recovered from approximately three-fourths of the pits (n = 41), Fill Areas 2 and 3, and two postmolds (PM 59 and 130). One-half of the siltstone fragments (n = 603) appear to have been thermally altered, as indicated by their red to reddish-yellow color.

Fossiliferous coral. Three cobbles of fossiliferous coral were recovered from two pits (F 35 and 55). Feature 35 was located in Structure 3 and Feature 55 was near Structure 2. Fossiliferous coral, probably derived from the Carters Limestone Formation, was previously described as a constituent in the quartz tempered ceramics (q.v. Material Assemblage-Ceramics). In addition a piece of fired clay tempered with fossiliferous coral derived quartz (potter's clay) was also recovered from Feature 55.

Limestone. Limestone was the most abundant lithic resource recovered at the Edmondson Bridge site. The 3 fill areas, 37 pits, 1 trench segment, and 5 postmolds contained varying quantities of

limestone. Only three pieces of limestone did not appear to have been thermally altered. The burned limestone is often soft, friable, and subject to breakage after collection. For this reason it is quantified here by both piece count and weight.

A total of 7,709 pieces (278,233.9 g) of burned limestone was found in the features. Over three-fourths (86%) of this amount by weight was contained in Fill Area 1 and the adjacent earth oven (F 17). A 1 m x 1 m unit excavated to a depth of 14 cm in the fill area contained 2,598 pieces (109,564.7 g) of burned limestone. It is estimated that the total amount of burned limestone in Fill Area 1 weighs approximately 2,630 kg.

Earth ovens were lined with blocks of limestone heated in a wood fire and the pits were then filled with food to be baked or steamed. Fill Area 1 and Feature 17 represent an area that was intensively utilized over time for such activities. Other pits that contained burned limestone may have only served a single time as earth ovens (F 2, 8, 11, 18, 26, 35, 42, and 53). Five of these cooking facilities were within Structures 1, 3, and 4 and two additional limestone-filled pits were in close proximity to Structure 1. A small postmold-size pit (F 18) containing burned limestone was spatially associated with Fill Area 1 and Feature 17. Small quantities of burned limestone cleaned from these processing pits may have been deposited in other features by natural actions or purposeful dumping.

Nonlocal minerals. Nonlocal minerals derived from the Southern Appalachian Mountain region were found on the Edmondson

Bridge site. These minerals consist of micaceous schist, mica, black mica, and copper. A total of 202 pieces of nonlocal minerals measuring only 1-7 mm in diameter was recovered from heavy fractions of the flotation samples. Micaceous schist was found in seven pits (F 3, 11, 17, 18, 29, 44, and 53) and Fill Area 1, mica occurred in Feature 42 and black mica in Feature 17, and single copper fragments were recovered from Feature 55 and Fill Area 3. These materials were probably utilized within or in close proximity to the structures, especially Structure 1, and Fill Area 1.

The lithics recovered during the test and block excavations at the Edmondson Bridge site consist of tools, a siltstone pipe, and debris. The tools include projectile points/knives, bifaces, a utilized flake, grinding stones, and hammerstones. The lithic debris consists of chert, siltstone, fossiliferous coral, limestone, and small fragments of nonlocal minerals. Over three-fourths (n = 20) of the tools were recovered from various contexts in or near the structures. Tool assemblages consisting of projectile points/knives, bifaces, hammerstones, and grinding stones were found in the areas of Structures 1 and 4. Bifacial tools were found in the areas of Structures 2 and 3 and the Structure 3 area also contained a hammerstone.

The large number of Middle Woodland projectile points/knives recovered from surface and disturbed contexts suggests that the site was a locus of hunting and butchering activities during the period. The inability to isolate other Middle Woodland artifacts among the

surface remains has probably resulted in underestimation of the magnitude of other activities that were conducted in the habitation area during the period.

Material Assemblage-Burned Clay

Burned clay particles are fragments of oxidized and hardened subsoil or pit fill that were initially formed when the walls and bottom of a pit or a ground surface area were thermally altered by an open fire. Subsequent erosion of the fired areas resulted in the formation of spherical burned clay particles. These particles are soft, friable, and subject to breakage during the flotation process. Since the majority of the burned clay was recovered from the flotation heavy fractions it is quantified here by both piece count and weight.

A total of 20,626 pieces (3,690.5 g) of burned clay was found in the features. Most of the pits (n = 49), the three fill areas, and three postmolds (PM 10, 102, and 183) contained burned clay particles. Approximately two-thirds (59.6%) of the burned clay by weight was recovered from two pits (F 17 and 25). Other features that contained large quantities of burned clay particles include the two possible ceremonial facilities (F 36 and 41). Intact burned areas were evident on the walls and/or bottoms of three of these four pits. Other features (F 1, 2, 3, 10, 11, 21, 39, 40, 45, 48, 51, and 55) contained moderate amounts of burned clay particles and may have served as fire receptacles (hearths) a single time or surface fires may have been located in close proximity to the pits. Ten of the twelve features that contained moderate amounts of burned clay particles were located

within or adjacent to the structures. This indicates that either small fires were kindled in or near these pits or embers were brought to the pits from other localities.

Material Assemblage-Fauna and Flora

A total of 23,545 pieces (447.7 g) of bone was found in most of the pits (n = 49), the three fill areas, and three postmolds (Table A-1). Over three-fourths (78.9%) of the bone fragments are small (<2.83 mm) and burned. By weight, over three-fourths (84.2%) of the bone was recovered from the three fill areas and three pits (F 11, 17, and 25). The three pits were used as hearths and earth ovens. The identifiable vertebrate fauna consist of turtle, snake, frog, fish, turkey, other bird, shrew, mole, rabbit, squirrel, other small mammal, small rodent, vole, fox, skunk, and deer (Table A-2). Probable prehistoric food resources among these animals are turtle, fish, turkey, other bird, rabbit, squirrel, other small mammal, fox, and deer. The other vertebrate fauna were probably intrusive into the features either in prehistoric or more recent times. Turtle remains were found in over one-half (57.1%) of the features that contained identifiable vertebrate elements while virtually all (96.4%) of the fish remains were in an earth oven (F 17) and the adjacent fill area (Fill Area 1). These two features contained the remains of at least 15 different species of fish representing numerous individuals less than 8 cm in length. The mammalian remains consist mostly of rabbit, squirrel, and deer with the latter representing nearly one-half (42.2%) of the identifiable elements in this class. Approximately

two-thirds (64.8%) of the mammal elements were found in a hearth (F 25) and Fill Area 1. The hearth contained a large number of calcined deer antler fragments. While much of the food processing on the site took place away from the main occupation locality in the earth oven (F 17)/fill area (Fill Area 1) complex, it is apparent that the same kinds of fauna were also being processed in and around the structures but in fewer numbers.

A total of 900 identifiable snails and mussels and 3.8 g of prehistoric unidentifiable shell fragments was recovered from the site (Table A-3). The mollusks consist of aquatic snails, terrestial snails, and freshwater mussels. Nearly all (92.6%) of the identified mollusks were found in the earth oven (F 17)/fill area (Fill Area 1) complex. These include numerous terrestial snails that were probably intrusive into the features either in prehistoric or more recent times and aquatic snails that may have been adhering to limestone slabs brought to the site from the creek for use in earth ovens. The identified mussel fragments may be the remains of a minor food resource or portions of tools.

Floral remains from the Edmondson Bridge site have only been partially analyzed. Analysis of the flotation light fraction material from 10 pits (F 2, 3, 8, 11, 35, 44, 51, 52, 53, and 55) located within the structures revealed the scattered remains of nutshell (acorn, black walnut, and hickory), squash rind, grape seeds, and starchy seeds (goosefoot and maygrass). A preliminary examination of the charred botanical remains from the earth oven (F 17)/fill area

(Fill Area 1) complex revealed a large quantity of nutshell, a sunflower achene, and a knotweed seed. The analysis of the floral remains indicates the Middle Woodland inhabitants of the area were practicing limited simple horticulture in addition to intensively utilizing naturally occurring plants.

4. SUMMARY OF THE EDMONDSON BRIDGE SITE INVESTIGATIONS

The proposed Columbia Reservoir and study area is located along the Middle Duck River and its tributaries in the Nashville Basin of Middle Tennessee. An intensive late Middle Woodland occupation area, the Edmondson Bridge site (40MU423), was found on Fountain Creek during site reconnaissance of the study area. A controlled surface collection indicated that the highest densities of Middle Woodland diagnostics occurred along the crest of the second terrace of the creek and an adjacent topographic depression. Test excavations involved the machine removal of plowzone in five 3 m wide transects that were spaced 50 m apart. A 50 m x 40 m block was subsequently opened around the section of a transect that contained a concentration of postmolds and pits. A total of 52 pits, 3 fill areas, 7 trench segments, and 4 structures was defined, mapped, and excavated during two seasons of fieldwork at the site.

The structures were comprised of large oval to subrectangular single postmold patterns. Three of the structures were clustered in the block excavation on the crest of the terrace and a fourth structure was partially exposed to the south on the edge of a

topographic depression. Midden accumulations (fill areas) were found adjacent to two structures. A second type of fill area consisted of a dense concentration of burned limestone and other debris in a granular soil matrix. This form of fill area was a food processing locality associated with a nearby earth oven. Pits were generally circular, shallow, and basin-shape. Approximately one-third of the pits were utilized as hearths or earth ovens. Ceramics are mostly plain and tempered with finely crushed quartz or limestone. Vessel rims are often notched on top of the lip. The most frequently represented projectile point/knife forms are in the Middle Woodland Expanded Stem Cluster.

This chapter described the results of two seasons of excavations at the Edmondson Bridge site. The following chapters will discuss the results of a testing program that was undertaken at three additional Middle and Late Woodland sites, in part to investigate smaller habitation areas that contained only a few Woodland sherds and projectile points/knives. Test excavations were also conducted at two of these sites because limestone fill areas, similar to Fill Area 1 on the Edmondson Bridge site, were noted during controlled surface collections.

CHAPTER III

THE FOUNTAIN CREEK SITE

1. HISTORY OF INVESTIGATIONS

The Fountain Creek site is situated on the first terrace of Fountain Creek approximately 10 km upstream from the Duck River and 150 m southwest of the Edmondson Bridge site. The site was initially located by a University of Tennessee field crew during the month of May, 1980. A controlled surface collection was subsequently conducted over the entire agricultural field in which the site is located. The site was delimited by a concentration of surface material, including Middle Woodland ceramics and projectile points/knives, encompassing an area of 0.5 ha. An additional scatter of Middle Woodland diagnostics was found in collection units near the site area (Figures 35 and 36). Test excavations at the site were conducted during 14 days of the period from June 8 to October 17, 1983. A total of 328 man-hours was expended at the site during the 1983 field season.

The archaeological examination of the site was initiated with a controlled surface collection. The field in which the site is located was divided into 20 m x 20 m units. Surface visibility was excellent at the time of collection with less than 10% ground cover. In addition to the Fountain Creek site two other sites (40MU423 and 40MU425) were located in the same field approximately 70 m and 130 m to the north and northeast. Three burned limestone and dark soil concentrations were noted during the controlled surface collection and

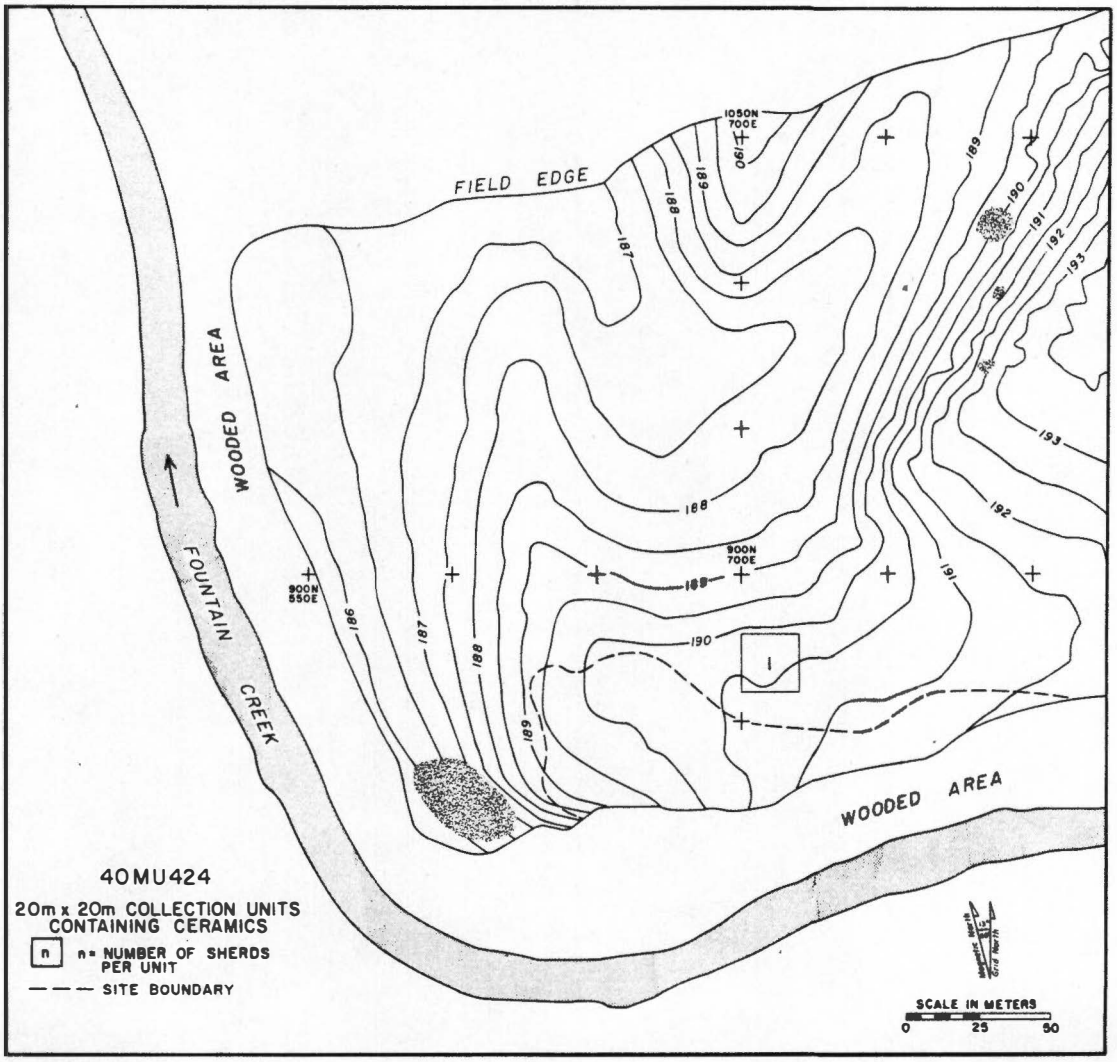


Figure 35. Surface Distribution of Middle Woodland Ceramics on the Fountain Creek Site.

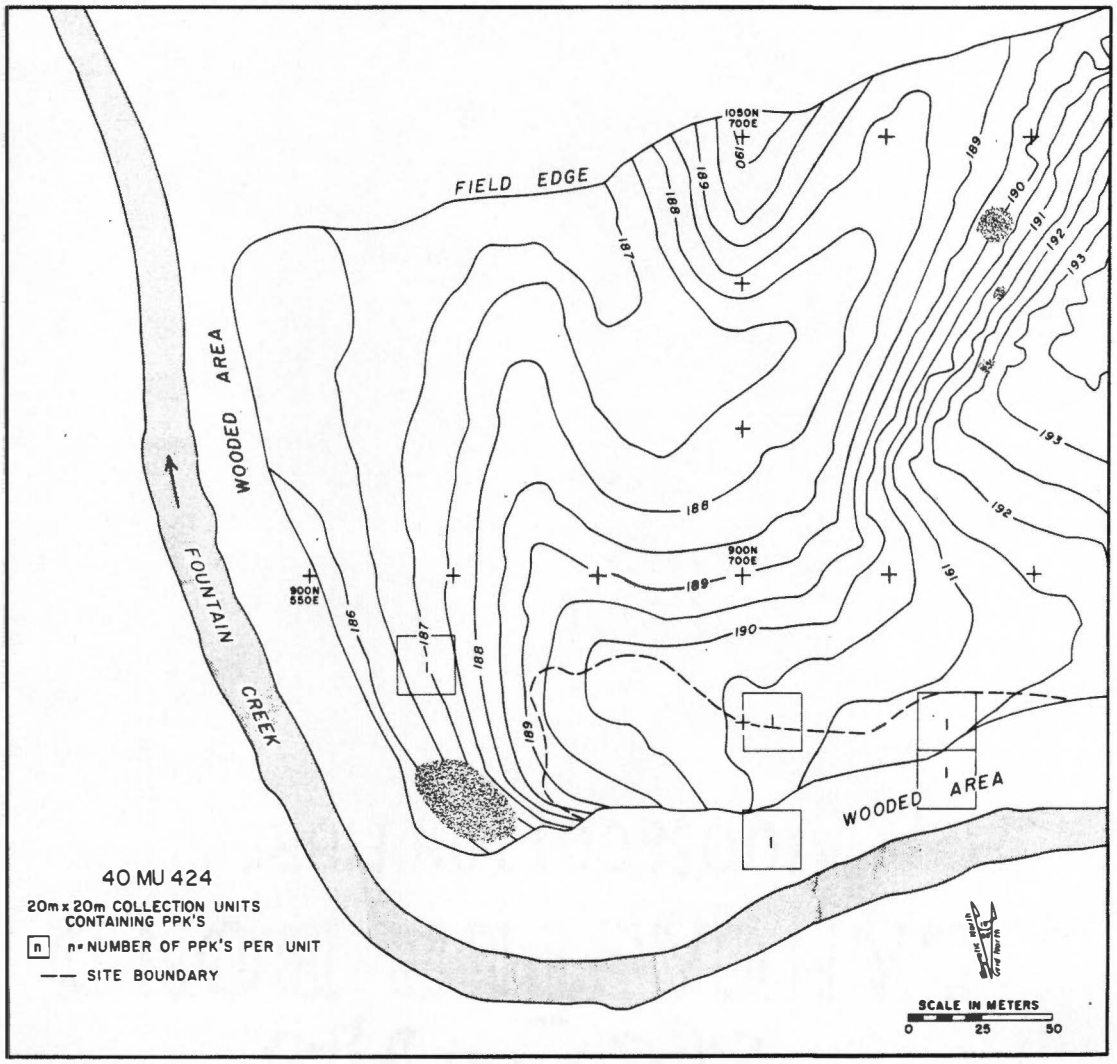


Figure 36. Surface Distribution of Middle Woodland Projectile Points/Knives on the Fountain Creek Site.

their limits mapped in. One of these concentrations is located on the Fountain Creek site and the remaining two are situated to the northeast on the Edmondson Bridge site. Three machine-excavated units comprising a total area of 608 m^2 were opened in order to locate and investigate subsurface prehistoric features. Four pits and one fill area were defined, mapped, and excavated at the Fountain Creek site.

2. EXCAVATION PROCEDURES

Excavation procedures at the site first involved extending the grid established on the Edmondson Bridge site to the west. A contour map of the site area was constructed. Heavy machinery was employed in removing the plowzone from three excavation transects. Dark stains in the soil thought to be prehistoric features were flagged and subsequently shovel scraped for definition. The limits of the potential pits and fill area were marked on the ground and mapped in plan view. Hand excavation of these possible prehistoric features was then initiated. The terminology used in describing features from the Edmondson Bridge site is also employed here when applicable.

Approximately 10% of the area defined by the surface concentration of cultural material was selected for study during the 1983 testing at the Fountain Creek site. Excavation units were established along a grid East-West alignment so that various topographic features including ridges and slopes would be bisected. A width of 2 m was chosen for the excavation transects. It was decided that the minimum unit width necessary to observe partial structure

patterns, if present, was 2-3 m. The lengths of the excavation transects were determined by the surface distribution of cultural material. Three transects were spaced 20 m apart and varied in length from 21-152 m. The area of these excavation transects and extensions on these units brought the total area investigated during the test excavations to 608 m^2 or 12.2% of the site area (Figure 37).

The methods employed in machine stripping, mapping, excavating features, and processing feature fill on the Edmondson Bridge site were also used on the Fountain Creek site when applicable. These excavation strategies proved effective for investigating large areas of the Fountain Creek site in a relatively short period of time. The recovery of microfloral and microfaunal material through the processing of feature fill (845.5 liters) will aid in the reconstruction of the subsistence patterns practiced by the site inhabitants during the Middle Woodland period.

3. EXCAVATION RESULTS

Investigations at the Fountain Creek site revealed the occurrence of subsurface features in three areas. Four pits and one fill area were examined. The discussion of the excavation results is initiated with a consideration of the pits and fill area. The material assemblage recovered through these investigations is then described; i.e. ceramics, chipped stone artifacts, lithic debris, burned clay, faunal remains, and floral remains.

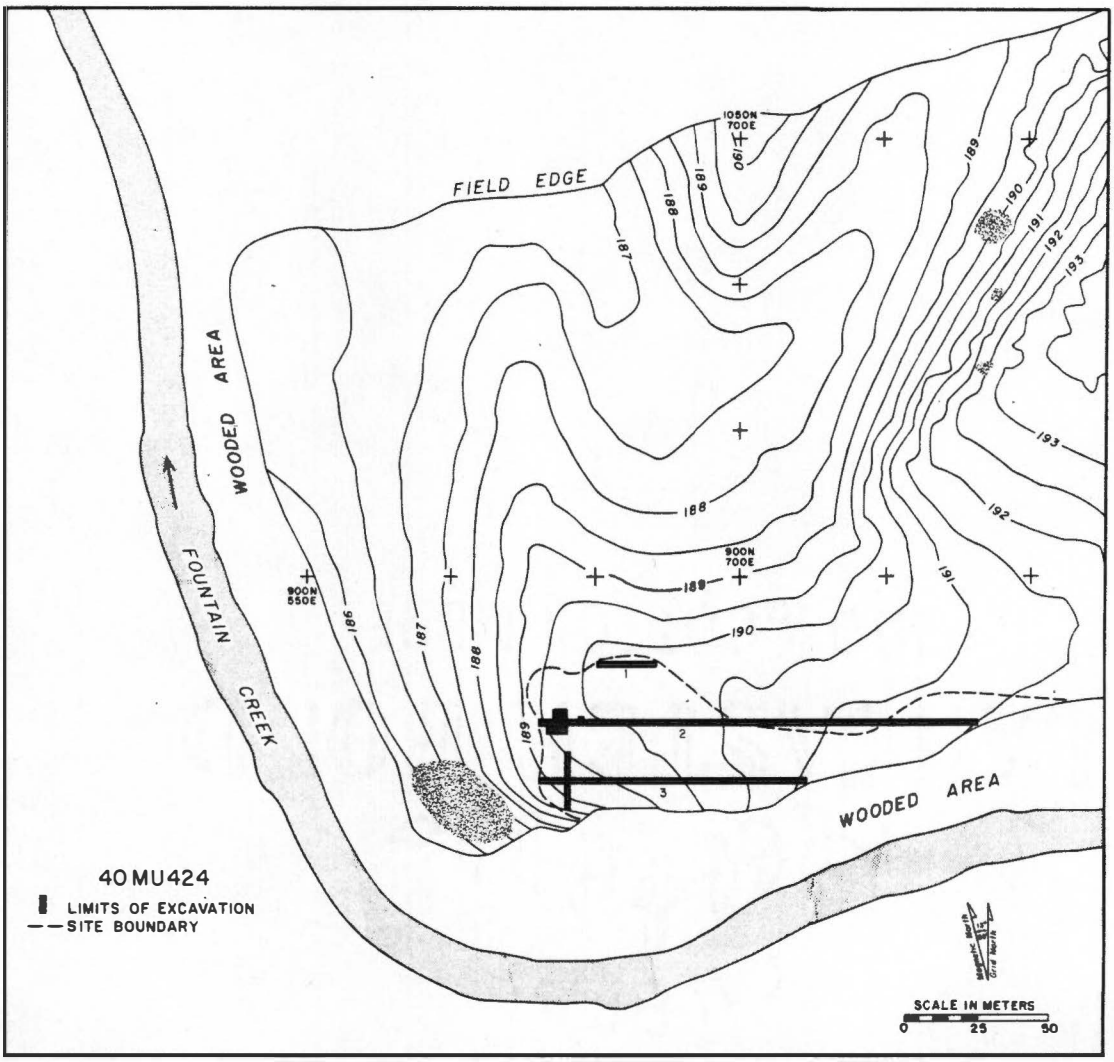


Figure 37. Excavation Units on the Fountain Creek Site.

Analysis of the subsurface features is first presented in the form of locational and general descriptive data. Secondly, the two categories of features are described in detail through a consideration of morphological attributes and material content.

Distribution of Features

The three excavation units traverse the crest and slopes of an east-west ridge that forms the first terrace of Fountain Creek. Excavation Units 1 and 3 did not contain any subsurface evidence of prehistoric activity. The five features on the site were located in Excavation Unit 2 (Figure 38).

An oval basin-shape pit (F 1) that contained little cultural material was situated at the east end of the crest of the first terrace of Fountain Creek and Excavation Unit 2 (Figure 39). A large limestone-filled pit (F 2) was positioned in the central portion of the terrace crest and Excavation Unit 2. Fill Area 1 and two pits (F 3 and 4) were found at the west end of the terrace crest and Excavation Unit 2. Fill Area 1 was an extensively deflated limestone fill area. Only two small patches of fill that measured approximately 2 m x 2 m each in plan view and 10 cm in depth remained undisturbed below the plowzone. Two large pits (F 3 and 4) were found in close proximity to Fill Area 1. These features may represent the basal remnants of processing facilities that were associated with the fill area.

The following descriptions of the prehistoric features investigated at the Fountain Creek site provide the basic metric,

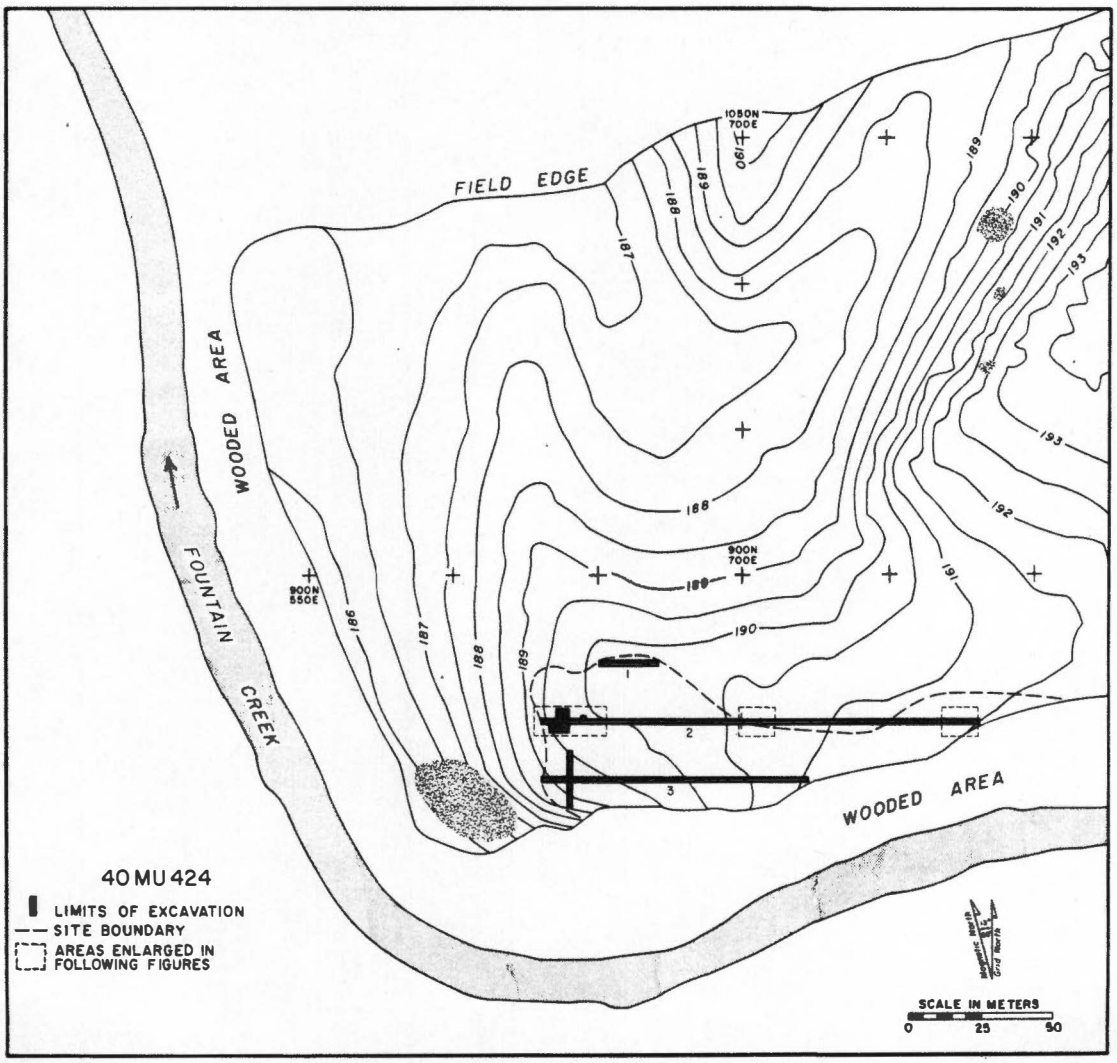


Figure 38. Excavation Unit Areas That Contained Subsurface Features on the Fountain Creek Site.

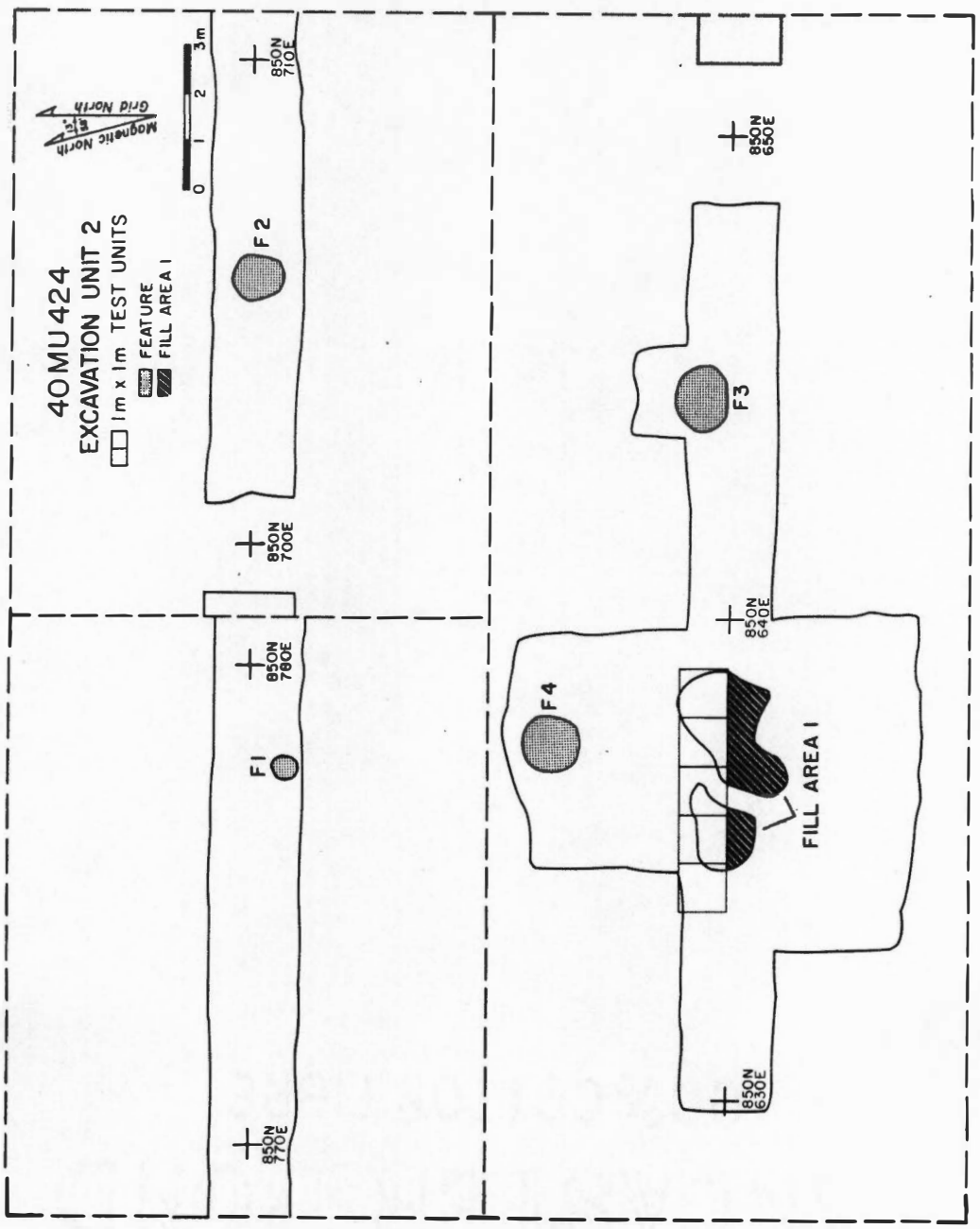


Figure 39. 1983 Test Excavations at 40MU424-Excavation Unit 2.

morphological, and cultural material content information used in subsequent comparisons. Feature fills are silt loams unless otherwise noted and all soil color designations were derived from the Munsell Soil Color Charts (1973). Faunal material is listed by feature in the Appendix.

Morphology and Material Contents of Features

Pits. Feature 1 was an oval basin-shape pit that measured 55 cm x 48 cm in plan view and 22 cm in depth. The fill was divided into two zones which contained little cultural material; the upper zone was dark yellowish-brown in color and the lower zone was dark brown in color. This pit was located on the east-west ridge in Excavation Unit 2.

Contents:

1 chert flake	16.7 g
2 burned clay pieces	0.6 g

Feature 2 was an oval pit that had insloping sides and a flat bottom. It measured 110 cm x 97 cm in plan view and 22 cm in depth. The fill was divided into two zones; the inner zone was very dark grayish-brown in color and contained a dense concentration of burned limestone and the outer zone was dark yellowish-brown in color. This pit was located on the east-west ridge in Excavation Unit 2 approximately 70 m west of Feature 1.

Contents:

50 siltstone pieces	40.2 g
502 burned limestone pieces	32,679.3 g
499 burned clay pieces	124.4 g

Feature 3 was an oval basin-shape pit that measured 136 cm x 109 cm in plan view and 26 cm in depth. The fill was divided into three zones which contained little cultural material; the inner zone was dark brown in color and the upper and lower zones were both dark yellowish-brown in color. The lower zone was also mottled with a lighter color dark yellowish-brown fill. This pit was located on the east-west ridge in Excavation Unit 2 approximately 6 m east of Fill Area 1.

Contents:

1 siltstone piece	0.4 g
2 burned limestone pieces	57.8 g
3 burned clay pieces	0.7 g

Feature 4 was a circular pit that had vertical to slightly insloping sides and a flat bottom. It measured 121 cm x 116 cm in plan view and 16 cm in depth. The fill was dark brown in color and contained little cultural material. This pit was positioned approximately 4 m north of Fill Area 1 on the east-west ridge. Feature 4 was located in a northward extension of Excavation Unit 2 that was opened to more completely expose the fill area prior to excavation.

Contents:

1 siltstone piece	0.1 g
burned limestone	0.5 g
6 burned clay pieces	0.7 g

The pits on the Fountain Creek site were circular or oval in plan view and the profiles were either basin-shape or had insloping sides and a flat bottom. The mean dimensions of the pits are 106 cm x 93 cm in plan view and 21.5 cm in depth. The fills were brown, dark grayish-brown, or dark yellowish-brown in color and uniform throughout. A dark fill zone was often noted in the central or lower portion of the pit. The material contents of the features were generally sparse; however, one pit (F 2) contained a large amount of burned limestone. Two of the pits (F 1 and 2) were spatially isolated on the east half of the east-west ridge while the remaining two pits (F 3 and 4) and Fill Area 1 were situated at the west end of the east-west ridge.

Fill area. A dark soil and limestone concentration was noted and mapped during the controlled surface collection of the Fountain Creek site. The surface indications of Fill Area 1 measured 16 m x 14 m in horizontal extent (Figure 40). The portion of this fill area that remained undisturbed below the plowzone was comprised of two irregular patches of fill that measured 1.7 m x 1.2 m and 2.5 m x 2.1 m in plan view and 3-13 cm in depth (Figures 39 and 41). The fill was dark brown in color and contained little cultural material. The patchy subsurface remains of the fill area and the virtual lack of burned

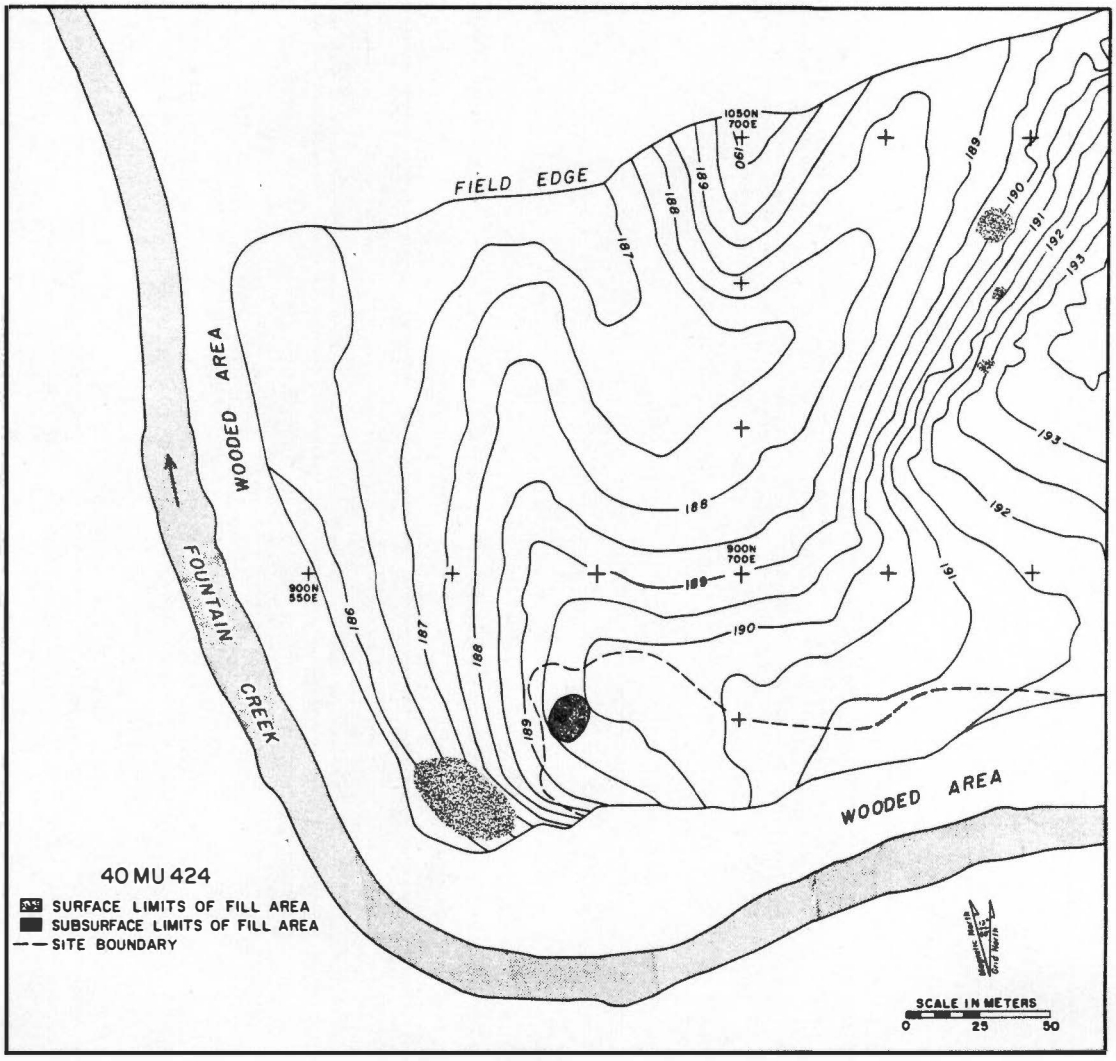


Figure 40. Horizontal Limits of the Fill Area on the Fountain Creek Site.

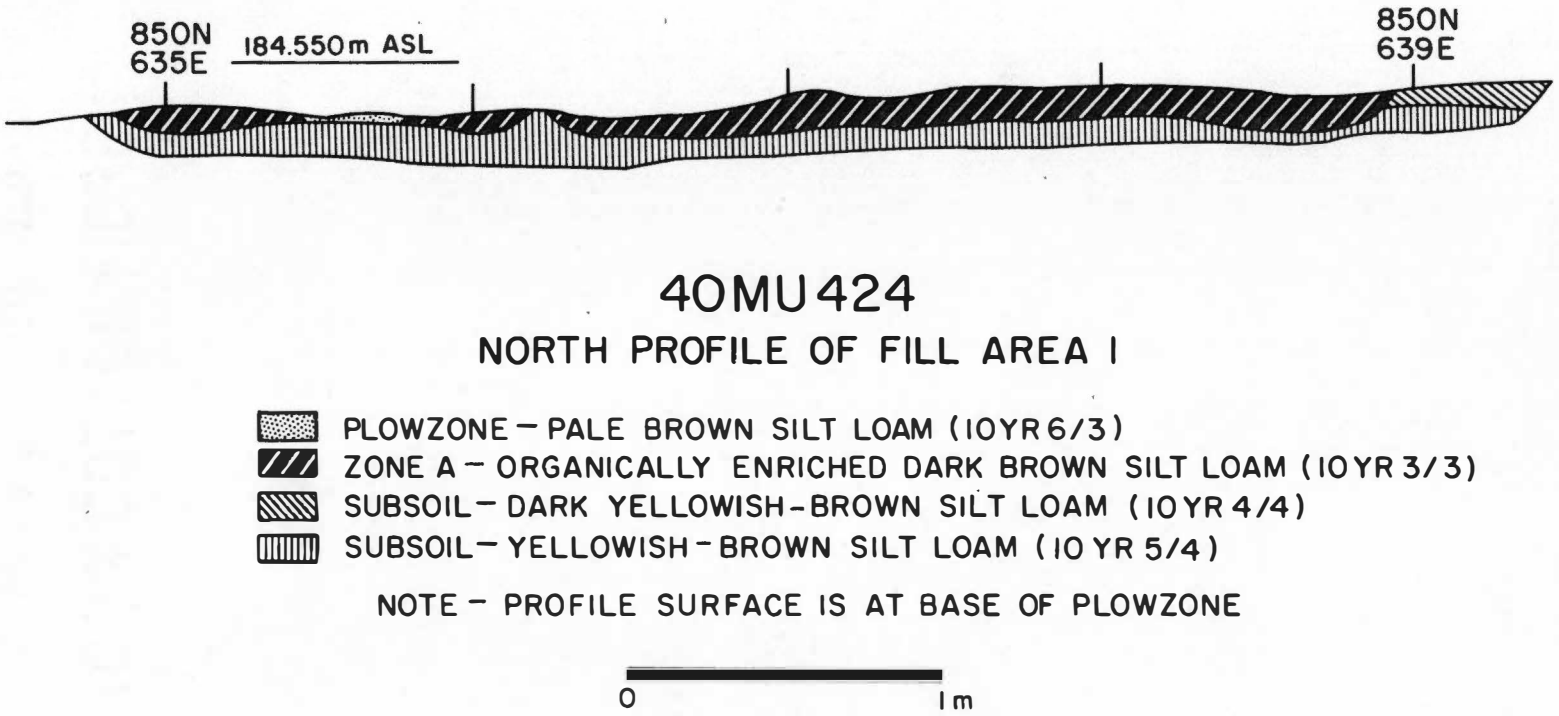


Figure 41. North Profile of Fill Area 1-40MU424.

limestone were in distinct contrast to the surface remains of the fill area. This suggests that the fill area was extensively eroded and deflated through time. Fill Area 1 was located on the east-west ridge in Excavation Unit 2 approximately 6 m west of Feature 3 and 4 m south of Feature 4.

Contents (5-1 m x 1 m units):

1 siltstone piece	0.1 g
5 burned limestone pieces	82.0 g
9 burned clay pieces	1.3 g

Fill Area 1 was probably a communal food processing area in which earth ovens were used repeatedly and cleaned of limestone and other debris. Features 3 and 4 may have been the basal remnants of large earth ovens that were associated with the fill area. Fill Area 1 on the Edmondson Bridge site was markedly different from Fill Area 1 on the Fountain Creek site in that the latter was extensively deflated through time leaving virtually all of the fill and burned limestone in the plowzone.

The following discussion focuses on the excavated material (trowel and flotation sorted) as well as the ceramics and Middle Woodland projectile points/knives that were recovered during the controlled surface collection. The methods employed and categories formulated in the analysis of the material assemblage from the Edmondson Bridge site are also used here when applicable.

Material Assemblage-Ceramics

A single quartz tempered sherd having plain surfaces was recovered from a controlled collection unit located approximately 10 m north of the site boundary. There were no ceramics found in the features on the Fountain Creek site.

Material Assemblage-Lithics

The lithics recovered from the test excavations are comprised of 1 chert flake, 64 pieces of siltstone, and a large amount of burned limestone. Additional lithic tools and debris were found during the controlled surface collection of the site. The multi-component nature of the surface material makes it impossible to separate non-diagnostic plowzone remains according to period. For this reason, the only lithic items described here from non-feature context are those diagnostic of the Middle Woodland period. The lithic tools discussed below consist of five projectile points/knives that were recovered from the surface of the site.

Projectile points/knives.

McFarland Cluster. Three McFarland Cluster projectile points/knives were recovered from the site during the controlled surface collection. Two of these PPKs have blade margins that are straight and parallel in the hafting area and then taper towards the tip; one has a straight base and the other has a slightly concave base. One of these two PPKs was extensively resharpened above the hafting area. The third McFarland Cluster PPK has a convex base and

straight to slightly excurvate blade margins. The three projectile points/knives were manufactured from Fort Payne chert and one exhibits evidence of thermal alteration.

Expanded Stem Cluster. A single Expanded Stem Cluster projectile point/knife was recovered from the site during the controlled surface collection. The blade of this PPK is lacking and the stem was formed by corner removal. The stem margins are straight to slightly flared and the base is straight and unfinished. This PPK was manufactured from Fort Payne chert and exhibits evidence of thermal alteration.

Spike Cluster. A single Spike Cluster projectile point/knife was recovered from a controlled collection unit located approximately 30 m west of the site boundary. This PPK was included with the Fountain Creek site analysis because it may have washed downslope from the ridge on which the site is located. This Spike Cluster PPK has a thick narrow blade with straight margins that were beveled to form a transverse section that is almost bitriangular. The stem of the PPK was formed by shallow side-notching and the base is straight and unfinished. This PPK was manufactured from St. Louis chert.

Lithic debris.

Chert. A single flake of Ridley chert was recovered from a pit (F 1) on the Fountain Creek site.

Siltstone. A total of 64 unworked fragments of siltstone was recovered from the pits and fill area. Over three-fourths of the

siltstone (50 pieces) was recovered from Feature 2. Less than one fourth of the siltstone fragments (n = 8) appear to have been thermally altered, as indicated by their red to reddish-yellow color.

Limestone. Limestone was the most abundant lithic resource recovered during the excavations. It was probably used as a heat source in earth ovens at the site. All of the limestone appears to have been thermally altered. The burned limestone was often soft, friable, and subject to breakage after collection, so it is quantified here by both piece count and weight.

A total of 509 pieces (32,819.6 g) of burned limestone was found in two features. All but seven pieces of burned limestone was contained in Feature 2. This pit may have served a single time as an earth oven. A large quantity of burned limestone was noted in the plowzone overlying the intact remnants of Fill Area 1. This fill area may have been a dumping area for expended limestone that was cleaned from nearby earth ovens.

Material Assemblage-Burned Clay

A total of 469 pieces (127.7 g) of burned clay was found in the features. Nearly all (97.4%) of the burned clay particles by weight was recovered from a limestone-filled pit (F 2) that probably functioned as an earth oven.

Material Assemblage-Fauna and Flora

A total of 650 pieces (13.2 g) of bone was found in the features (Table A-4). Over three-fourths (82%) of the bone fragments are small

(<2.83 mm) and burned. Fragments were recovered from each of the four pits and fill area. By weight, over two-thirds (68.2%) of the bone was contained in an earth oven (F 2). The few identifiable vertebrate fauna consist of snake, squirrel, small rodent, and other small mammal (Table A-5). The squirrel elements, which were recovered from Feature 2, represent the remains of an animal that was most likely utilized as a food resource by the prehistoric inhabitants of the site, whereas the reptiles and other mammals were probably intrusive into the features either in prehistoric or more recent times.

Two identifiable snails and mussels and less than 0.1 g of unidentifiable prehistoric shell fragments were recovered from Fill Area 1 (Table A-6). The mollusks consist of an aquatic snail and the right side of a freshwater mussel. The snail was probably included in the fill area because it was adhering to limestone slabs brought to the site from Fountain Creek for use in earth ovens. The identified mussel fragment may represent the remains of a food resource or a tool.

Floral remains from the Fountain Creek site have not been analyzed. A preliminary assessment of the charred botanical material indicates Feature 2 contained wood and nutshell while little, if any, floral remains were recovered from the other features.

The cultural material recovered from the Fountain Creek site consists of a sherd, projectile points/knives, siltstone, limestone, a chert flake, burned clay, faunal remains, and floral remains. The lack of diagnostics in subsurface context precludes identifying the

cultural affiliation of the features. It can only be conjectured here that the subsurface constructs were associated with the Middle Woodland diagnostics recovered during the controlled surface collection. The projectile points/knives suggest that the site was a locus of limited hunting and butchering activities during the period. The inability to isolate other Middle Woodland artifacts among the surface remains has probably resulted in the underestimation of the magnitude of other activities that were conducted in the habitation area during the period.

4. SUMMARY OF THE FOUNTAIN CREEK SITE INVESTIGATIONS

The Fountain Creek site (40MU424), a late Middle Woodland occupation area, was found on Fountain Creek during site reconnaissance of the proposed Columbia Reservoir study area. Middle Woodland projectile points/knives and a sherd recovered during the controlled surface collection of the site area were from the first terrace of the creek. Test excavations involved the machine removal of plowzone in three 2 m wide transects that were spaced 20 m apart. Four pits and one fill area were defined, mapped, and excavated.

Pits were generally circular, shallow, and either basin-shape or had insloping sides and flat bottoms. The fill area consisted of the deflated remnants of a limestone concentration in a dark soil matrix that may have been associated with earth ovens in food processing activities. A sherd recovered during the controlled surface collection is plain and tempered with finely crushed quartz.

Projectile point/knife forms represented in the controlled collection material are in the Middle Woodland McFarland, Expanded Stem, and Spike clusters.

CHAPTER IV

THE LEFTWICH SITE

1. HISTORY OF INVESTIGATIONS

The Leftwich Site is situated on the first and second terraces of the Duck River approximately 335 m upstream from the confluence of Cedar Creek and the Duck River. The site was initially located by a University of Tennessee field crew during the month of June, 1978. The site is separated into north and south sections by a fenceline. The initial investigations at the Leftwich site took place in the north section while later work, including the present study, was conducted in the south section.

North Section

1978. The majority of the north section of the site was used for fill in construction of the Leftwich Bridge. This bridge raised a road above the proposed pool level of the Columbia Reservoir. University of Tennessee archaeologists collected cultural material exposed during the earth borrowing activities and defined an approximate site area of 0.8 ha north of the fenceline. A circular limestone-filled basin (F 1 a-1978) was defined in the center of the borrow area and subsequently excavated by a University of Tennessee field crew. Six 2 m x 2 m test squares were hand excavated in close proximity to Feature 1 a (538-542 N, 421-425 E and 545-549 N, 427-429 E). A single postmold was found in one of these test units

(538 N, 421 E). Four additional 2 m x 2 m units were excavated in an undisturbed portion of the site bordering the fenceline that divides the site into north and south sections (Figure 42). A possible hearth (F 1 b-1978) was partially exposed and excavated in one of these test units (500 N, 458 E). Four sherds (one quartz tempered and three limestone tempered) were recovered during the excavation of a 2 m x 2 m test unit (500 N, 439 E).

1980, 1981. Three deep backhoe trenches and a 2 m x 3 m block were excavated near the site to study the formation sequence of the Duck River terraces and search for buried archaeological deposits. A few sherds (n = 9) were found in the upper levels of the block (20-60 cm below surface) while deeper deposits contained only Archaic material. These buried archaeological deposits were designated as part of the Leftwich site.

South Section

1978. A controlled surface collection was conducted over the entire agricultural field south of the fenceline that divides the site into north and south sections. A concentration of surface material encompassing an area of 2.4 ha, including Middle Woodland diagnostics, delimited the south section of the site (Figures 43 and 44). The field in which the south section of the site is located was gridded into 50 m x 50 m collection units by using a compass and pacing. Surface visibility was excellent at the time of collection with less than 10% ground cover. In addition to the Leftwich site, two other

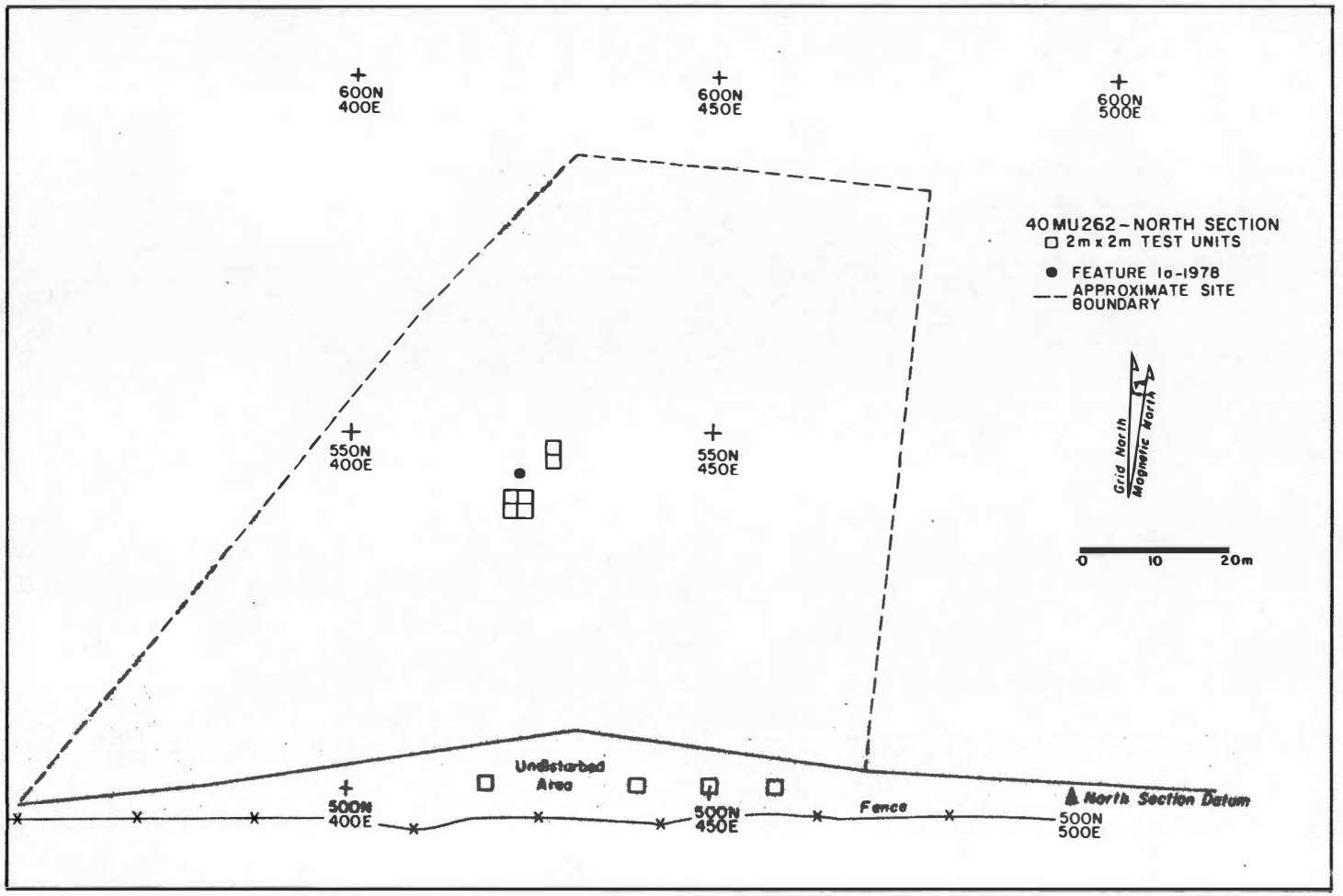


Figure 42. 1978 Test Excavations at the Leftwich Site Borrow Area.

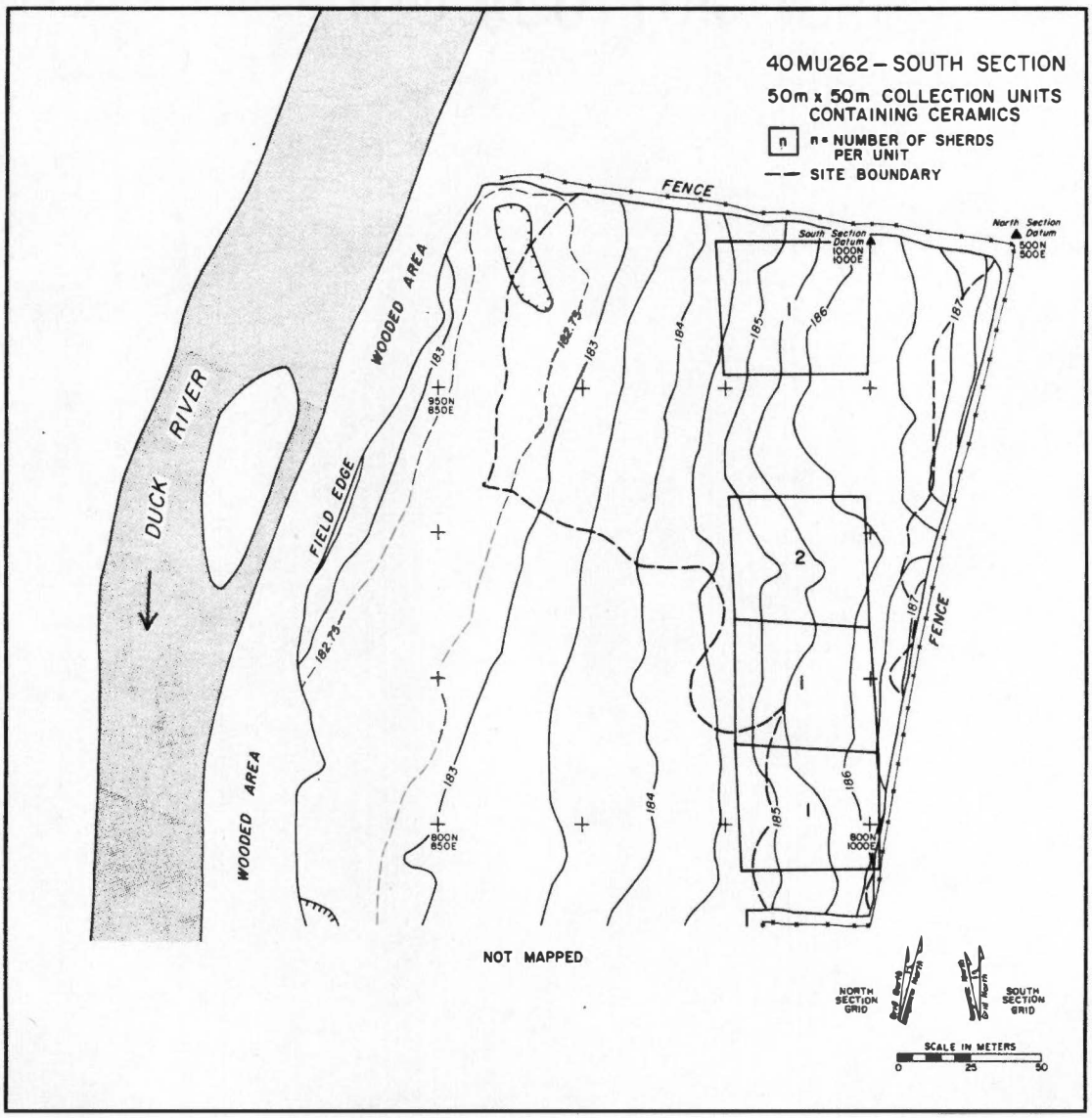


Figure 43. Surface Distribution of Middle Woodland Ceramics on the Leftwich Site.

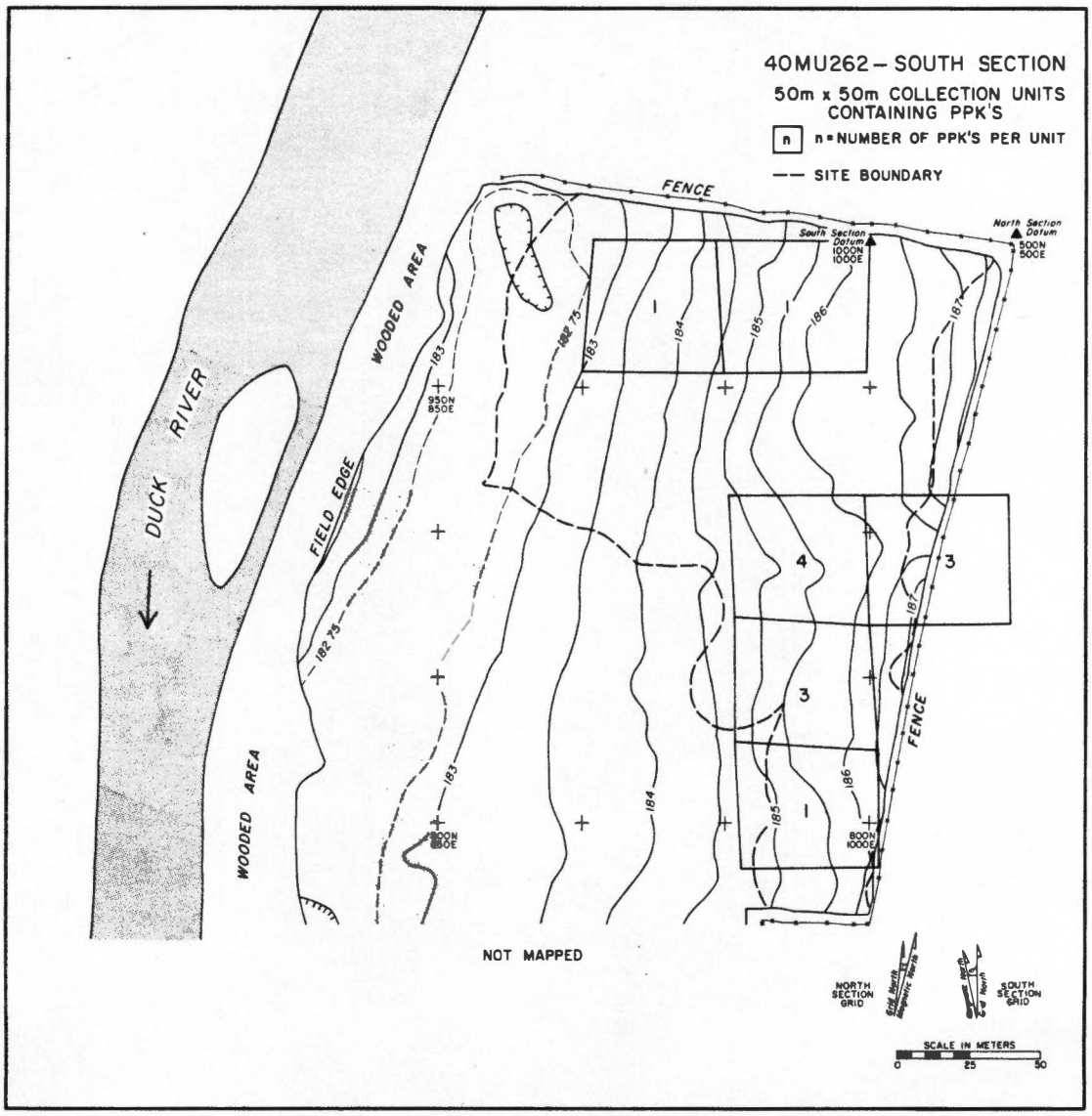


Figure 44. Surface Distribution of Middle Woodland Projectile Points/Knives on the Leftwich Site.

sites (40MU101 and 40MU278) were located in the same field approximately 160 m and 50 m to the west and southwest. One burned limestone and dark soil concentration and two small limestone scatters were noted during the controlled surface collection and their limits mapped in.

1983. Test excavations in the south section of the Leftwich site were conducted during 43 days of the period from June 2 to October 7, 1983. A total of 1,033.5 man-hours was expended at the site during the 1983 field season. Seven machine-excavated transects comprising a total area of 2,479 m^2 were opened in order to locate and investigate subsurface prehistoric features. Five pits and one fill area were defined, mapped, and excavated in the south section of the site.

2. EXCAVATION PROCEDURES

Excavation procedures at the site first involved re-establishing the grid utilized during the controlled surface collection. A contour map of the south section of the site area was then constructed. Heavy machinery was employed in removing the plowzone from seven excavation units. Dark stains in the soil thought to be prehistoric features were flagged and subsequently shovel scraped for definition. The limits of the potential pits and fill area were marked on the ground and mapped in plan view. Hand excavation of these possible prehistoric features was then initiated. The terminology used in describing features from the Edmondson Bridge site is also employed here when applicable.

Mapping

1978. An arbitrary grid system was established in the north section of the site for the borrow area investigations. A datum point (500 N, 500 E) was placed at the south edge of the field near the fenceline that divides the site into north and south sections. A grid North-South baseline was oriented at seven degrees west of magnetic north. The grid was expanded from the baseline and the 2 m x 2 m test units were set in and subsequently plan mapped.

A second arbitrary grid system was established in 1978 for the controlled surface collection of the south section of the site. A datum point (1000 N, 1000 E) was set at the north edge of the field near the fenceline that divides the site into north and south sections. A grid North-South baseline was oriented at 10 degrees east of magnetic north. The grid was expanded from the baseline by using a compass and pacing and the 50 m x 50 m units for the controlled surface collection were established.

1983. The datum point and grid for the south section of the site were re-established with a transit in 1983. The surface collection units set in by using a compass and pacing were found to be smaller than 50 m x 50 m (i.e. 40-50 m x 40-50 m) and not perfectly square when mapped onto the grid that was re-established with a transit. A TVA Columbia Reservoir elevation point was utilized in determining an absolute elevation for the south section datum. Nineteen hubs were placed at 50 m or occasionally 25 m intervals across the south section

of the site. These hubs were employed in constructing a contour map of the south section of the site and in establishing grid North-South mapping lines in the excavation units. Points were set at 5 m intervals along the mapping lines and additional points were triangulated in with tapes. The pits and fill area were then plan mapped in the 1:20 scale.

Excavation Units

Approximately 10% of the area defined by the surface concentration of cultural material south of the fenceline was selected for study during the 1983 test excavations at the Leftwich site. Excavation transects were established along a grid North-South alignment so that various topographic features including ridges, slopes, and depressions would be bisected. It was decided that the minimum unit width necessary to observe partial structure patterns, if present, was 2-3 m. A width of 2 m was chosen for the excavation transects. The lengths of the excavation transects were determined by the surface distribution of cultural material in the south section of the site. Seven transects were spaced 25 m apart and varied in length from 101-233 m. The extent of these excavation transects and expansions on these units brought the total area investigated during the test excavations to 2,479 m^2 or 10.5% of the site locale south of the fenceline (Figure 45).

The methods employed in machine stripping, excavating features, and processing feature fill on the Edmondson Bridge site were also used on the Leftwich site when applicable. These excavation

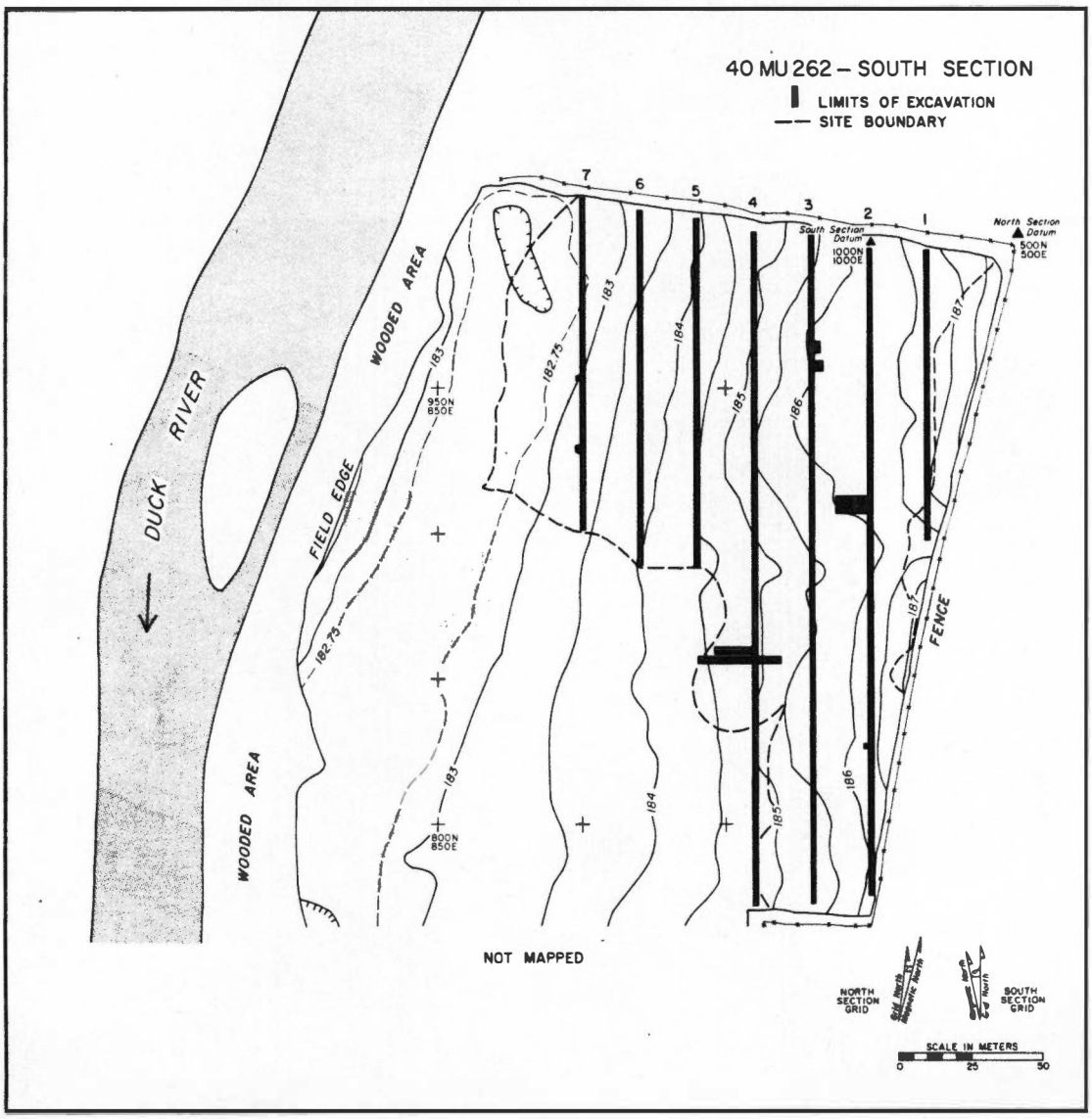


Figure 45. Excavation Units on the Leftwich Site.

strategies proved effective for investigating large areas of the Leftwich site in a relatively short period of time. The recovery of microfloral and microfaunal material through the processing of feature fill (5,400.5 liters) will aid in the reconstruction of the subsistence patterns practiced by the site inhabitants during the Middle Woodland period.

In processing feature fill from the Leftwich site, the procedure for size-grading/sorting the heavy fractions was somewhat different then on the Edmondson Bridge site. The heavy fractions were size-graded in only a 2.83 mm geologic sieve. Material that passed through the screen was not sorted but the residue was refloated to separate any charcoal. Material larger than 2.83 mm was separated into the general material categories and analyzed as described in Chapter II.

3. EXCAVATION RESULTS

Investigations at the Leftwich site revealed the occurrence of features in four areas south of the fenceline. Five pits and one fill area were investigated. These do not include two tree disturbances that were excavated. The discussion of the excavation results is initiated with a consideration of the pits and fill area. The material assemblage recovered through these investigations is then described; i.e. ceramics, chipped stone artifacts, ground stone artifacts, lithic debris, burned clay, faunal remains, and floral remains.

Analysis of the subsurface features is first presented in the form of locational and general descriptive data. Secondly, the various categories of features are described in detail though a consideration of morphological attributes and material content.

Distribution of Features

The seven excavation transects traverse the crest and slopes of a north-south ridge that forms the second terrace of the Duck River. Excavation Units 1, 5, and 6 did not contain any subsurface evidence of prehistoric activity. The five pits and one fill area in the south section of the site were located in four spatially separated areas of Excavation Units 2, 3, 4, and 7 (Figure 46).

A basin-shape pit (F 4) that contained a large amount of calcined bone, burned clay, and burned limestone was found in the south half of Excavation Unit 2 near the crest of the second terrace (Figure 47). Two pits were situated at the north end of Excavation Unit 3 on the terrace slope. One pit (F 2) was large and deep and the other pit (F 1) was shallow and basin-shape. Both of these features contained mostly lithic debris. Fill Area 1 was located in the south half of Excavation Unit 4 on the terrace slope (Figure 48). The central portion of Fill Area 1 was oval in plan view and measured approximately 10 m x 5 m in plan view and 10 cm in depth. It was mainly comprised of a large quantity of burned limestone in a dark granular soil matrix. The outer portion of Fill Area 1 measured approximately 16 m x 10 m in plan view and 6 cm in depth. The outer zone was probably formed by deflation of the inner portion of the fill

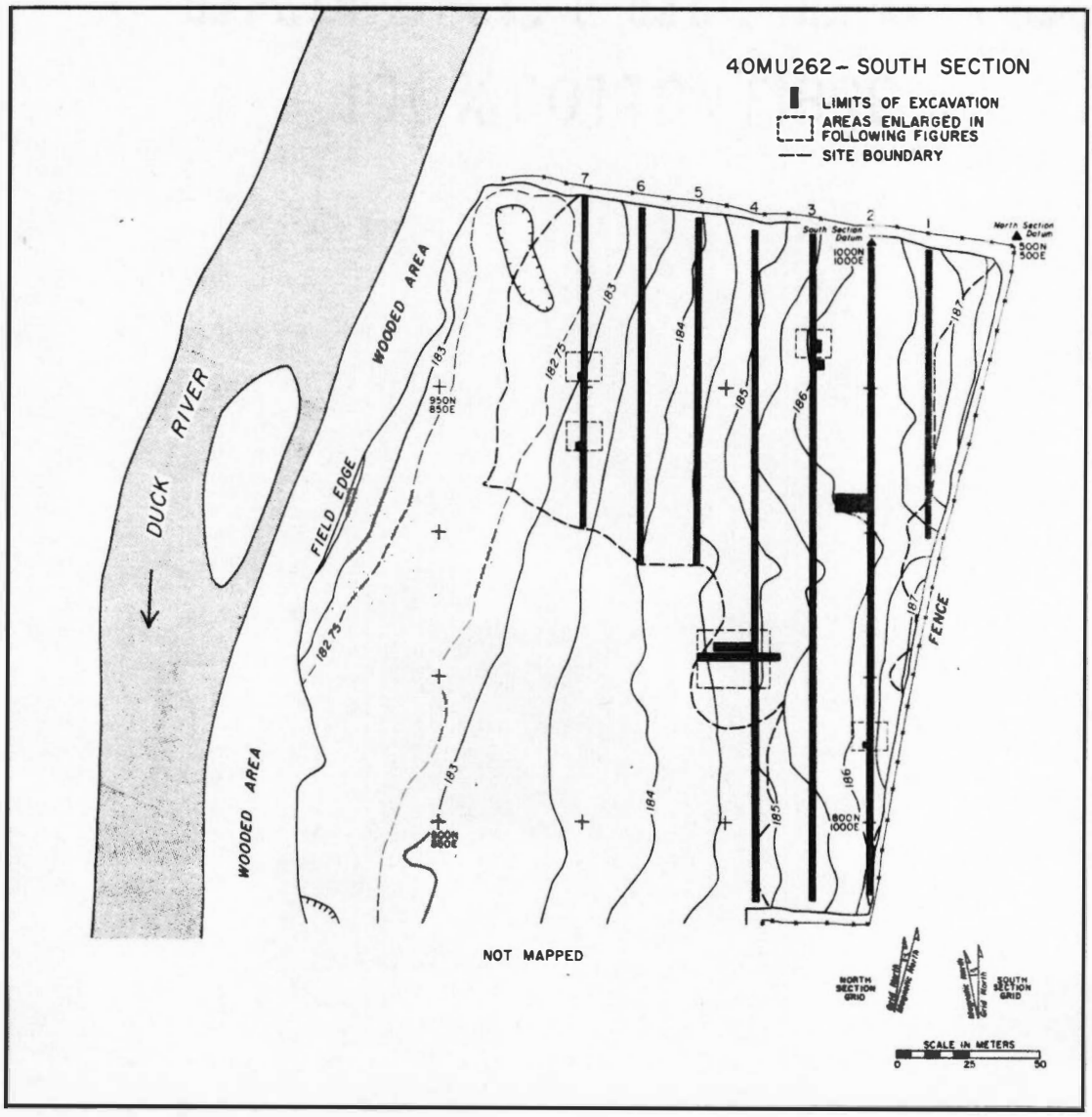


Figure 46. Excavation Unit Areas That Contained Subsurface Features on the Leftwich Site.

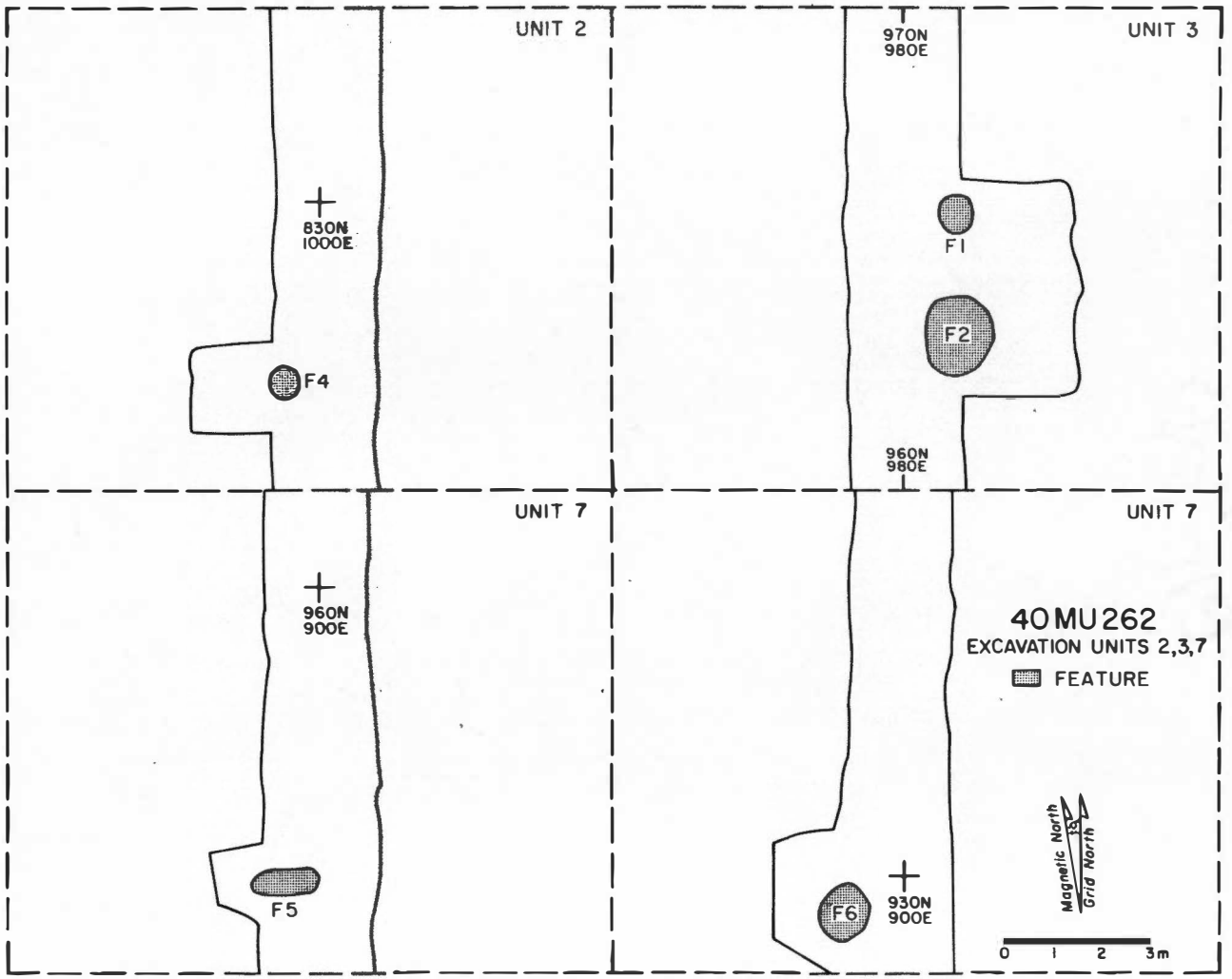


Figure 47. 1983 Test Excavations at 40MU262-Excavation Units 2, 3, and 7.

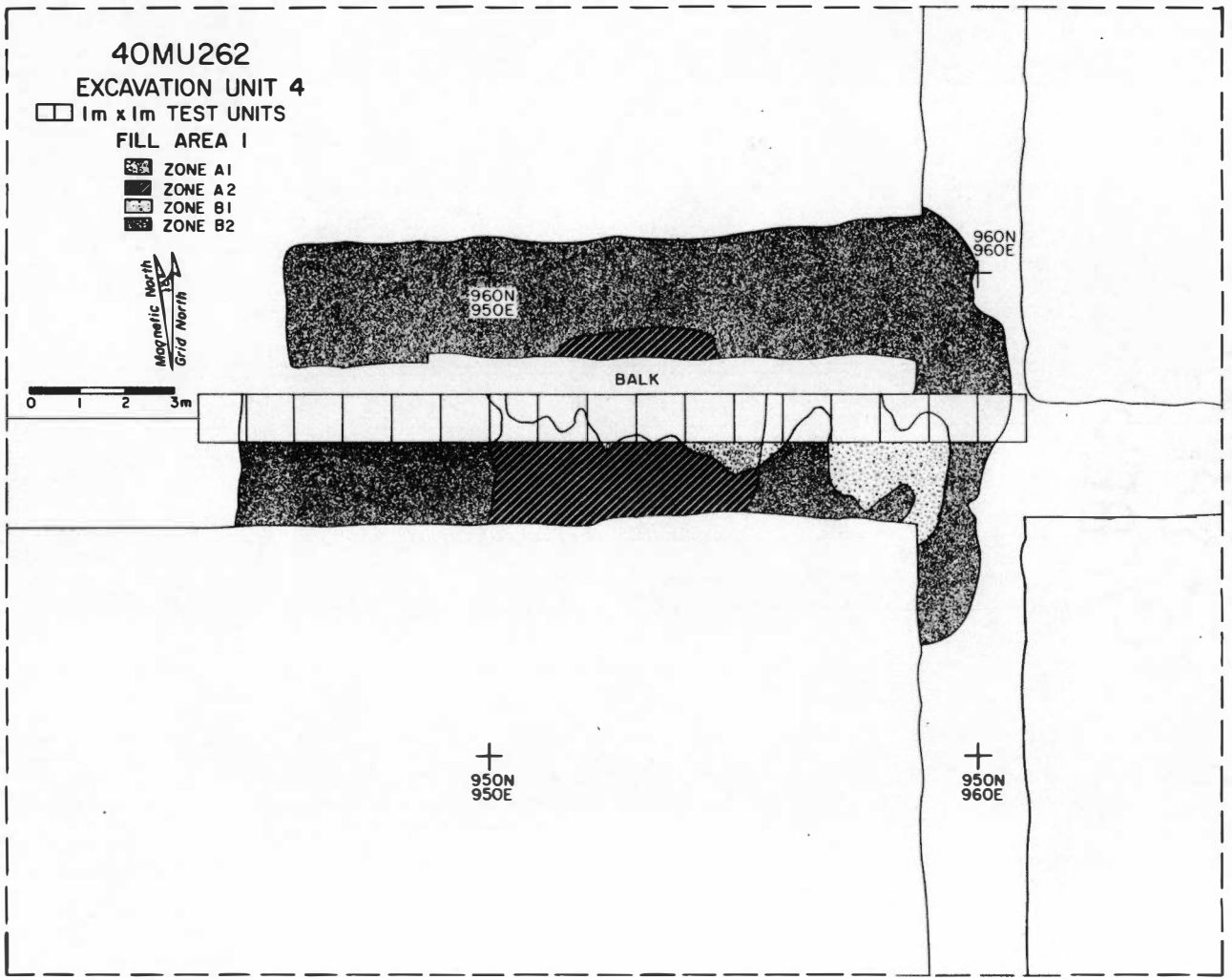


Figure 48. 1983 Test Excavations at 40MU262-Excavation Unit 4.

area. Two pits were situated in the central area of Excavation Unit 7 near the base of the terrace slope. One feature (F 5), a possible burial pit, contained dark stains in the fill that may have been the decomposed remains of an extended or semi-flexed skeleton. The second feature (F 6) was an oval flat-bottom pit that contained chert debris.

The following descriptions of the prehistoric features investigated in the south section of the Leftwich site provide the basic metric, morphological, and cultural material content information used in subsequent comparisons. Zone designations are noted only in features with a complex stratigraphy. Feature fills are silt loams unless otherwise noted and all soil color designations were derived from the Munsell Soil Color Charts (1973). Faunal material is listed by feature in the Appendix.

Morphology and Material Contents of Features

Pits. Feature 1 was an oval basin-shape pit that measured 79 cm x 70 cm in plan view and 20 cm in depth. The fill was dark brown in color and contained mostly chert debris. This pit was located on the slope of the north-south ridge in Excavation Unit 3 approximately 104 m north of Fill Area 1.

Contents:

1 chert biface	4.4 g
1 chert blocky debris	2.1 g
18 chert flakes	14.9 g
90 burned clay pieces	24.3 g

Feature 2 was an oval pit that had insloping sides and a flat bottom. It measured 164 cm x 139 cm in plan view and 69 cm in depth. The fill was divided into two zones; the upper zone was a dark brown to dark yellowish-brown compact soil which contained mostly lithic debris and tools and the lower zone was a very dark grayish-brown granular soil that contained three large tabular pieces of limestone. This pit was located on the slope of the north-south ridge in Excavation Unit 3 approximately 1 m north of Feature 1.

Contents:

	residual ceramics	0.2 g
1	chert projectile point/knife	8.3 g
1	chert biface	9.4 g
1	chert tested cobble	20.8 g
10	siltstone pieces	13.8 g
3	limestone pieces	3,333.7 g
9	burned limestone pieces	406.7 g
179	burned clay pieces	42.3 g

Feature 3 was found upon investigation to be a large tree disturbance. This disturbance was located on the slope of the north-south ridge in Excavation Unit 3 approximately 25 m south of Feature 2.

Feature 4 was an oval basin-shape pit that measured 69 cm x 61 cm in plan view and 39 cm in depth. The fill was divided into three major zones (A-C) and one of these was further divided into two subzones (B_1 and B_2). The upper zone (A) was dark brown in color and

contained little cultural material. The central zone (B) was a loose granular very dark grayish-brown fill which was divided into two subzones; the upper subzone (B_1) contained a large amount of burned and calcined bone and the lower subzone (B_2) contained charred plant material. The lower zone (C) was brown in color and devoid of cultural material. Large rounded and flattened chunks of burned clay contained in the fill were probably the remains of a fired rim that had collapsed into the pit. This feature was located near the crest of the north-south ridge in Excavation Unit 2 approximately 48 m southeast of Fill Area 1.

Contents:

	residual ceramics	0.4 g
1	siltstone grinding stone	89.9 g
1	chert flake	1.8 g
34	burned limestone pieces	973.3 g
836	burned clay pieces	317.9 g

Feature 5 was an elongated oval pit that had inslanting sides and a rounded to slightly flattened bottom. It measured 141 cm x 56 cm in plan view and 74 cm in depth. The shape of the pit and the occurrence of possible decomposed human skeletal elements in the lower levels of the fill indicate that Feature 5 was probably a burial facility. The fill was divided into four subzones of a single major zone (A) which contained little cultural material; the upper subzone (A_1) was dark brown in color, the central subzone (A_2) was a yellowish-brown compact silty clay, the lower subzone (A_3) was a loose dark yellowish-brown

fill which contained the possible skeletal elements, and the fourth subzone (A_4) was a very silty brownish-yellow to olive-yellow fill that extended down the sides of the feature. This pit was located near the base of the north-south ridge in Excavation Unit 7 approximately 81 m west of Features 1 and 2.

Contents:

1 utilized chert blocky debris	23.4 g
1 chert blocky debris	25.8 g

Feature 6 was a circular pit that had insloping sides and a flat bottom. It measured 115 cm x 105 cm in plan view and 12 cm in depth. The fill was dark grayish-brown in color and contained mostly lithic debris. This pit was located near the base of the north-south ridge in Excavation Unit 7 approximately 24 m south of Feature 5.

Contents:

4 chert cores	107.2 g
17 chert blocky debris	471.5 g
26 chert flakes	99.0 g
2 siltstone pieces	6.0 g
16 burned limestone pieces	171.5 g
4 burned clay pieces	0.6 g

Feature 7 was found upon investigation to be a large tree disturbance. This disturbance was located on the slope of the north-south ridge in Excavation Unit 2 approximately 35 m northwest of Feature 1.

The pits in the south section of the Leftwich site were oval or circular in plan view and the profiles were either basin-shape or had inslanting to insloping sides and a flat bottom. The mean dimensions of the pits are 114 cm x 86 cm in plan view and 43 cm in depth. The fills were brown, grayish-brown, or yellowish-brown in color and uniform throughout. A dark fill zone was often noted in the central or lower portion of the pit. The material contents of the features were generally sparse; however, one pit (F 4) contained a large amount of burned limestone and burned and calcined bone and another pit (F 6) contained a large amount of chert debris. The pits were mostly scattered around the site; however, two of the features (F 1 and 2) were adjacent to each other.

Fill area. A dark soil and limestone concentration was noted and mapped during the controlled surface collection in the south section of the Leftwich site. The surface indications of Fill Area 1 measured 26 m x 18 m in horizontal extent (Figure 49). The portion of this fill area that remained undisturbed below the plowzone measured 15.8 m x 9.5 m in plan view and 2-20 cm in depth (Figure 48, page 154 and Figures 50 and 51). The width of the fill area was estimated because sections of this feature were outside of the excavation unit. Fill Area 1 was divided into two zones (A and B) and each of these was further divided into two subzones (A_1 and A_2; B_1 and B_2). The inner zone (A) was an oval area of loose granular dark gray to black fill which contained a large amount of burned limestone in one subzone (A_1) and little burned limestone in the other subzone (A_2). It measured

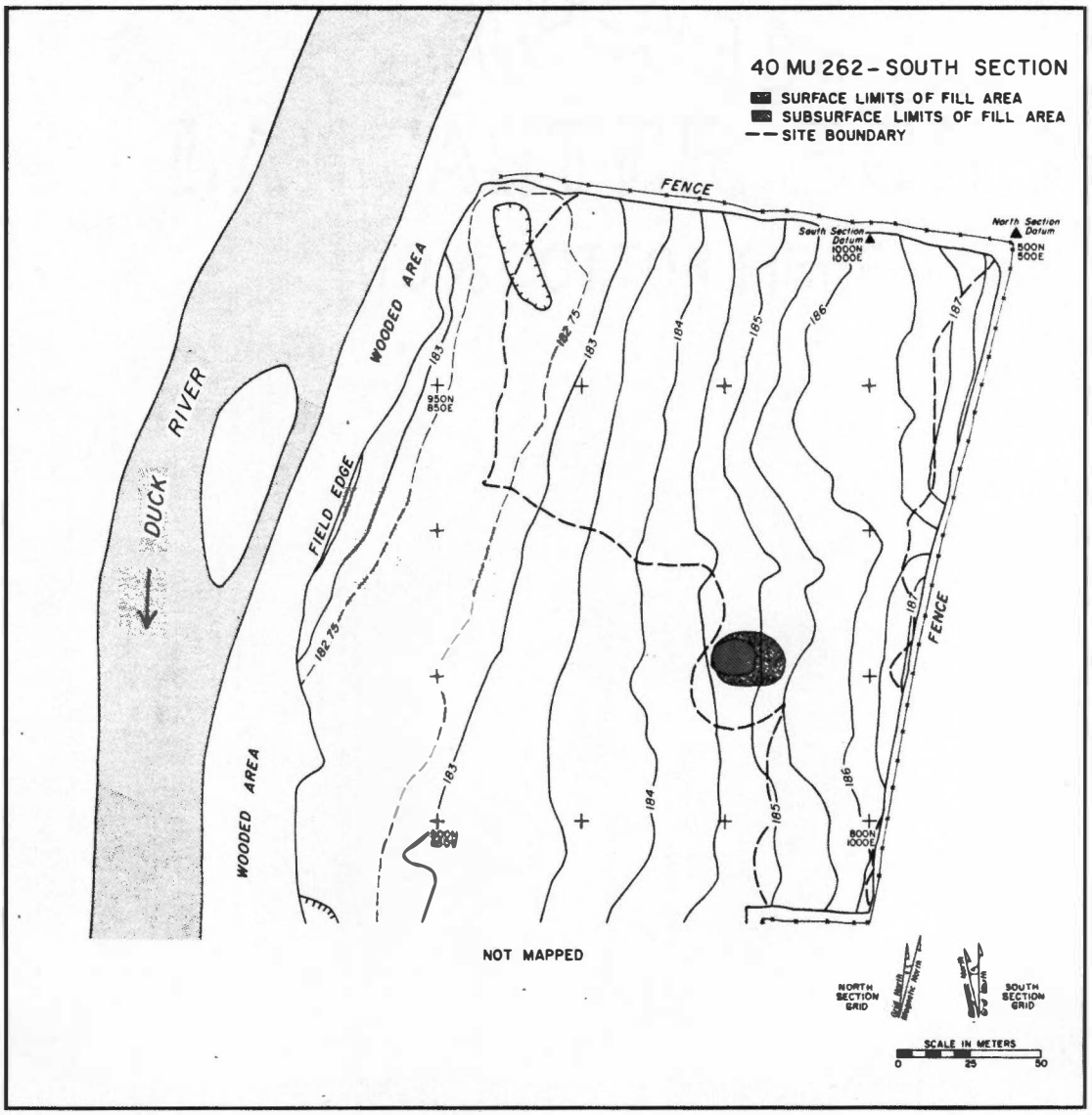


Figure 49. Horizontal Limits of the Fill Area on the Leftwich Site.

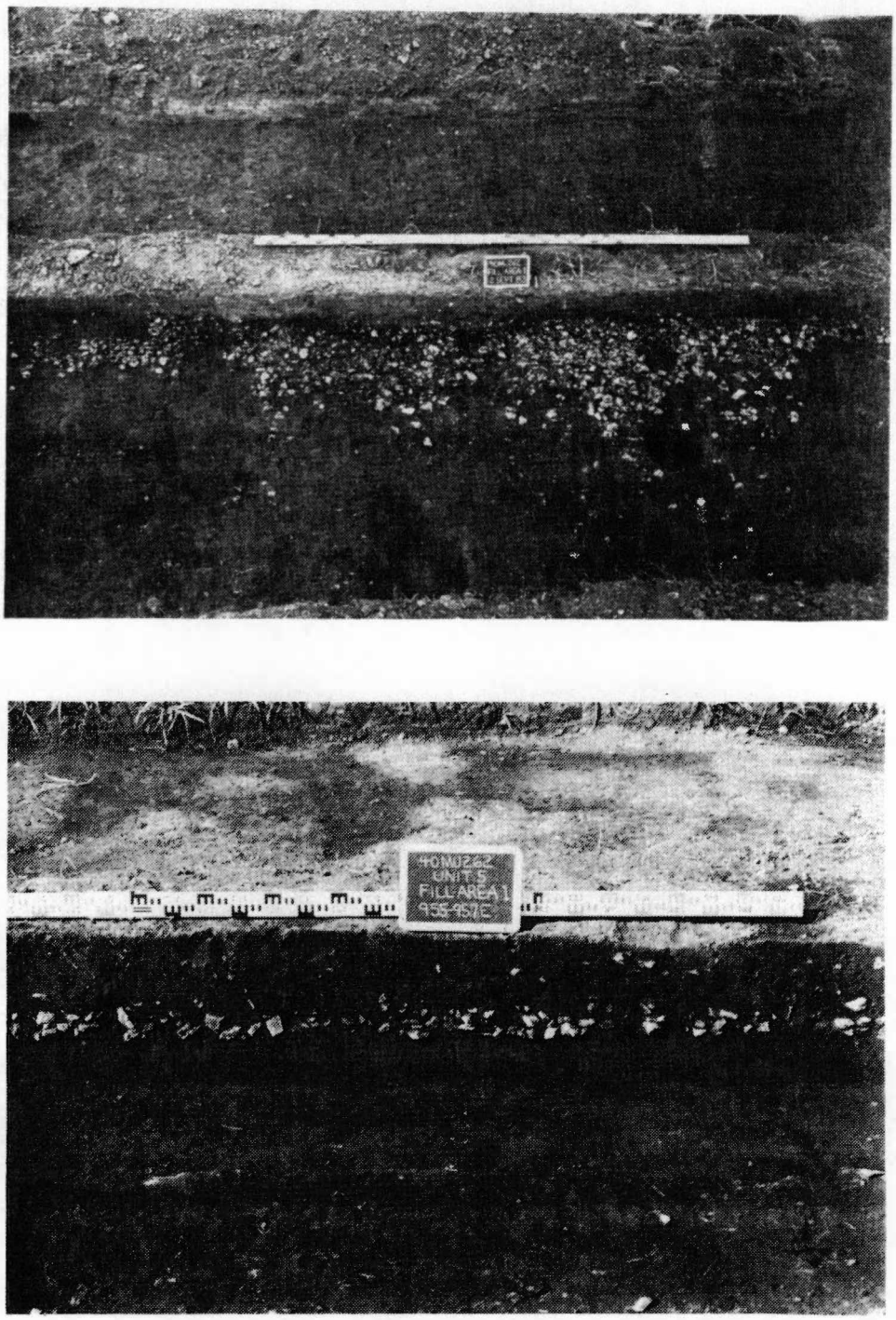
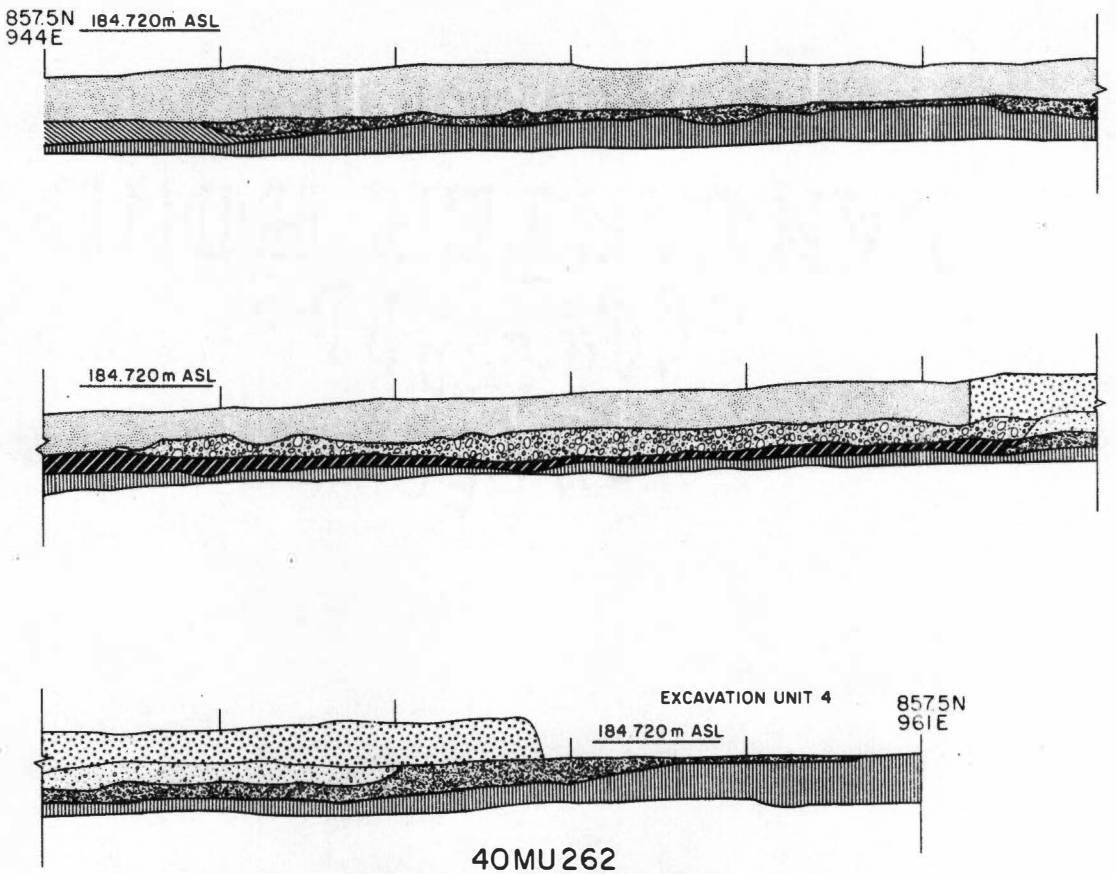


Figure 50. Plan and Profile Views of Fill Area 1-40MU262. Facing North; Stadia Rod is 4 m in Length.



40MU262
NORTH PROFILE OF FILL AREA I

PLOWZONE 1 — BROWN SILT-SILT LOAM (10YR 5/3)
PLOWZONE 2— BROWN-DARK BROWN SILT LOAM (10YR 4/3)
ZONE A1 — LIMESTONE CONCENTRATION IN AN ORGANICALLY ENRICHED BLACK TO VERY DARK GRAY SILT LOAM SOIL MATRIX (10YR 2/1.5)
ZONE A2 — ORGANICALLY ENRICHED BLACK TO VERY DARK GRAY SILT LOAM (10YR 2/1.5)
ZONE B1 LIMESTONE CONCENTRATION IN AN ORGANICALLY ENRICHED DARK BROWN SILT LOAM SOIL MATRIX (10YR 3/3)
ZONE B2 — ORGANICALLY ENRICHED DARK BROWN SILT LOAM (10YR 3/3) HAVING BANDS AND PATCHES OF VERY PALE BROWN SILT (10YR 7/4) BETWEEN 944-948E
SUBSOIL — DARK YELLOWISH-BROWN SILT LOAM (10YR 4/4) HAVING BANDS OF VERY PALE BROWN SILT (10YR 7/4) THROUGHOUT
SUBSOIL — YELLOWISH-BROWN COMPACT SILT LOAM (10YR 5/4)

0 1 METER

Figure 51. North Profile of Fill Area 1-40MU262.

5.8 m x 5.0 m in plan view and 2-18 cm in depth. The outer zone encircled the inner zone as an elongated oval area of dark brown fill which contained bands and patches of pale brown silt. A concentration of burned limestone in one subzone (B_1) extended approximately 4 m to the east from the inner zone and the other subzone (B_2) contained little burned limestone. The outer zone measured 15.8 m x 9.5 m in plan view and 2-20 cm in depth. In addition to burned limestone, the fill area contained pottery, chert debris, bone, and shell (q.v. Appendix). This fill area was positioned approximately 48 m northwest of Feature 4 on the slope of the north-south ridge. Fill Area 1 was located in Excavation Unit 4 and a westward expansion of the unit that was opened to more completely expose the fill area prior to excavation.

Contents (17-1 m x 1 m units):

37	ceramic sherds	114.8 g
1	chert projectile point/knife	9.0 g
1	siltstone anvil stone	135.0 g
1	chert core	12.2 g
1	chert blocky debris	47.2 g
10	chert flakes	13.3 g
6,522	burned limestone pieces	358,998.4 g
343	burned clay pieces	35.2 g

Fill Area 1 was probably a food processing area in which an earth oven was used repeatedly and cleaned of limestone and other debris; however, an associated earth oven was not located near the section of

the fill area exposed during the test excavations. The inner zone of Fill Area 1 on the Leftwich site was similar to Fill Area 1 on the Edmondson Bridge site. The outer zone was probably the result of prehistoric erosion and deflation of the feature.

The following discussion, while focusing primarily on the excavated material (trowel and flotation sorted), also includes the Middle Woodland ceramics and projectile points/knives that were recovered from the controlled surface collection and various disturbed contexts. The methods employed and categories formulated in the analysis of the material assemblage from the Edmondson Bridge site are also used here when applicable.

Material Assemblage-Ceramics

Quartz tempered ceramics. This form of tempering consists of either a light to moderate amount of large (1-4 mm) quartz inclusions or an abundant amount of finely crushed angular to slightly rounded particles of quartz (less than 0.5 mm) with occasional large inclusions. The sherd thicknesses vary from 6-10 mm. The sherd surfaces are brown, gray, or occasionally red in color and the sherd cores are reddish-yellow and gray in color. The quartz tempered sherds are predominantly smoothed over simple stamped (93.8%) (Figures 52A and 52B). One of the simple stamped sherds is a vessel base section with a portion of a podal support (Figure 52B). A single quartz tempered sherd is either fabric impressed or knot roughened (Figure 52C). The surface treatment could not be identified on ten sherds.

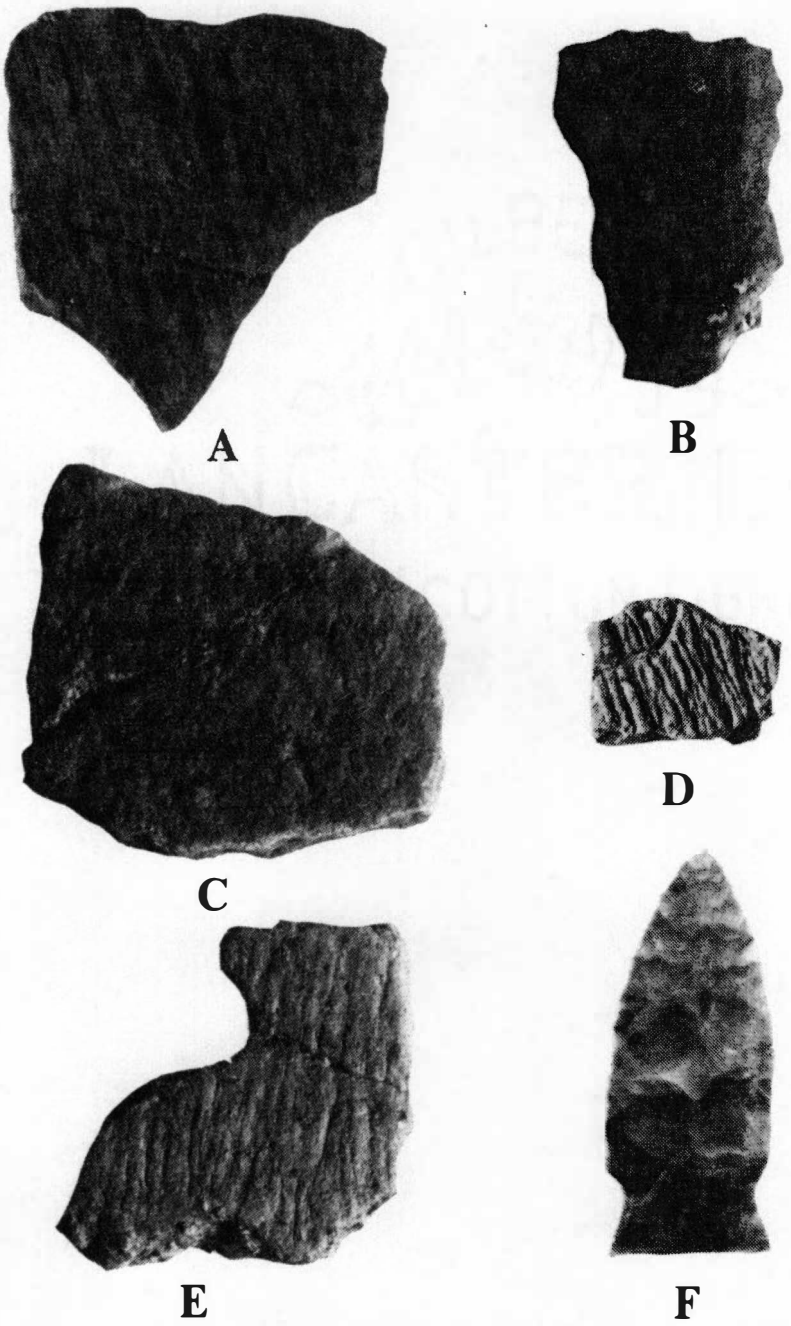


Figure 52. Ceramics and Projectile Point/Knife from 40MU262. Ceramics; A-Quartz Tempered, Smoothed over Simple Stamped, B-Quartz Tempered, Smoothed over Simple Stamped with Podal Support Remnant, C-Quartz Tempered, Fabric Impressed or Knot Roughened, D-Limestone Tempered, Incised over Cordmarked, E-Chert/Quartz Tempered, Cordmarked; Projectile Point/Knife; F-Expanded Stem Cluster, Corner-Removed (Scale: Full Size).

The quartz tempered sherds (n = 28) from the excavations were recovered from Fill Area 1. Three additional quartz tempered sherds were recovered during the controlled surface collection; one is either fabric impressed or knot roughened, one is cordmarked (indeterminate twist), and the third is plain. A quartz tempered sherd having an indeterminate surface treatment was found in the plowzone backdirt pile of an excavation transect.

Limestone tempered ceramics. This form of tempering consists of a moderate amount of limestone fragments and casts of these fragments measuring 1-4 mm in diameter. The sherd thicknesses vary from 6-8 mm. The sherd surfaces and cores are red, reddish-yellow, or brown in color. The identifiable limestone tempered sherds are cordmarked (one S-twist, one Z-twist, and three indeterminate twist) and one of these has a portion of a circular incised line over the cordmarking (Figure 52D). The surface treatment of one sherd was indeterminate.

The limestone tempered sherds (n = 6) were found in 1 m x 1 m test units excavated in Fill Area 1. Two additional plain limestone tempered sherds were recovered during the controlled surface collection of the site.

Chert/quartz tempered ceramics. This form of tempering consists of a moderate amount of large quartz inclusions (0.5-3 mm) and abundant large to very large (4-11 mm) angular fragments of chert. The sherd thicknesses vary from 9-10 mm. The sherd surfaces and cores are brown and red in color. This description of the chert/quartz

tempered ceramics was derived from two cordmarked sherds (S-twist) that were recovered from the plowzone backdirt pile of an excavation unit (Figure 52E).

Quartz/grog/chert tempered ceramics. Five sherds recovered from a 1 m x 1 m test unit excavated in Fill Area 1 are tempered with abundant finely crushed quartz (less than 1 mm), a moderate amount of large fragments of grog (2-6 mm), and a few angular inclusions of chert that are 1-3 mm in diameter. The sherd thicknesses vary from 8-11 mm and the sherd surfaces and cores are brown and reddish-gray in color. Four sherds are plain and the surface treatment of one sherd is indeterminate. One plain sherd has four straight parallel incised lines that are 0.5 mm wide and spaced 3 mm apart.

Residual ceramics. A total of 8.3 g of residual ceramics was recovered from the flotation heavy fractions. These ceramic fragments are extremely small and eroded and cannot be categoried by temper type or surface treatment. Residual ceramics were found in Features 2 and 4.

Material Assemblage-Lithics

A total of 8 lithic tools, 81 pieces of chert debris, 12 pieces of siltstone, and a large amount of limestone was recovered during the test excavations at the Leftwich site. Nearly two-thirds of the chert debris (47 pieces) was contained in one pit (F 6). Limestone altered by burning was abundant but the vast majority was concentrated in Fill Area 1.

Lithic tools and debris were found in large quantities during the controlled surface collection of the site. Additional projectile points/knives were collected during machine stripping of the test units. The multi-component nature of the site makes it impossible to separate non-diagnostic plowzone remains according to period. For this reason, the only lithic items described here from non-feature context are those diagnostic of the Middle Woodland period. The following discussion includes the trowel sorted lithic tools and debris from the features and the Middle Woodland projectile points/knives from the surface collection and disturbed contexts.

Projectile points/knives.

McFarland Cluster. Four McFarland Cluster projectile points/knives were recovered at the Leftwich site; two during the controlled surface collection and two from the plowzone backdirt piles of the excavation units. Two of these PPKs have blade margins that are straight and parallel in the hafting area and then taper towards the tip; one has a straight unfinished base and the other has a thinned concave base. The remaining two McFarland Cluster PPKs have blade margins that are slightly incurvate in the hafting area and then taper towards the tip; one has a straight thinned base and the other has a concave base. Fort Payne chert was utilized in the manufacture of the four PPKs in the McFarland Cluster.

Expanded Stem Cluster. Eighteen Expanded Stem Cluster projectile points/knives were recovered at the Leftwich site; 11 during the controlled surface collection, six from the plowzone backdirt

piles of the excavation units, and one from feature context. The stems of nearly two-thirds of the Expanded Stem Cluster PPKs (n = 11) were formed by corner removal, including a PPK that was recovered from a 1 m x 1 m test unit excavated in Fill Area 1 (Figure 52D). The stems of the remainder (n = 7) were formed by shallow side-notching. Two of the PPKs have unfinished bases. Among the 12 complete or nearly complete PPKs in this cluster, the blades of three-fourths (n = 9) are ovate and one-fourth (n = 3) are excurvate. Fort Payne chert was utilized in the manufacture of the 18 PPKs in the Expanded Stem Cluster and four exhibit evidence of thermal alteration.

Additional projectile points/knives and fragments. An unidentifiable projectile point/knife blade mid-section was recovered from Feature 2. This PPK fragment was derived from a complete tool that was manufactured from Carters chert and it exhibits evidence of thermal alteration.

Bifaces. Three biface fragments were recovered from feature context (F 1-3) during the test excavations. These biface fragments are comprised of mid-sections and portions of mid-sections that were probably derived from late stage ovate bifaces or possibly projectile points/knives of Fort Payne chert.

Miscellaneous tools and artifacts. A piece of Carters chert blocky debris recovered from Feature 5 was utilized as a tool but not purposely modified to produce a tool. Use wear along the working edge formed a crushed and blunted area measuring 26.2 mm wide.

A tabular fragment of utilized siltstone recovered from Feature 4 has a smooth face and was probably broken from a larger grinding stone. A second tabular fragment of utilized siltstone found in Fill Area 1 has a shallow circular depression measuring 2.5 cm in diameter on one face. This tool may have functioned as an anvil stone.

Lithic debris.

Chert. The chert debris recovered from subsurface features at the Leftwich site represents various stages of lithic reduction. The 81 pieces of chert include 1 tested cobble, 5 cores and core fragments, 20 blocky debris, 28 secondary flakes, 6 tertiary flakes, 20 broken flakes, and 1 biface thinning flake. Approximately two-thirds of these pieces of lithic debris (n = 53) are Fort Payne chert and the remainder are Ridley (n = 24), gray Bigby-Cannon (n = 2), and Brassfield (n = 2) cherts. One-third of these pieces of chert (n = 27) exhibit evidence of thermal alteration.

Nearly two-thirds of the chert debris (n = 47) was recovered from Feature 6. A preponderance of blocky debris and secondary flakes indicates that prehistoric activities in the vicinity of the pit included the initial reduction of chert cores. The remainder of the chert debris was found in Fill Area 1 and Features 1, 2, 4, and 5.

Siltstone. Twelve unworked fragments of siltstone were recovered from two pits (F 2 and 6). Three-fourths of the siltstone fragments (n = 9) appear to have been thermally altered, as indicated by their red to reddish-yellow color.

Limestone. Limestone was the most abundant lithic resource recovered during the excavations. Fill Area 1 and three pits (F 2, 4, and 6) contained limestone but the vast majority was found in the fill area. Only three large tabular pieces of limestone, from near the bottom of Feature 2, did not appear to have been thermally altered. The burned limestone is often soft, friable, and subject to breakage after collection. For this reason it is quantified here by both piece count and weight.

Features 2, 4, and 6 contained a total of 59 pieces (1,552.4 g) of burned limestone and Fill Area 1 contained an additional 9,701 pieces (358,998.4 g) of burned limestone. A 1 m x 1 m unit excavated to a depth of 11 cm in the inner zone of Fill Area 1 contained 2,134 pieces (76,878.3 g) of burned limestone. Earth ovens were lined with blocks of limestone heated in a wood fire and the pits were then filled with food to be baked or steamed. Feature 2, 4, and 6 may have only served a single time as earth ovens. Fill Area 1 was a dumping area for expended burned limestone and other debris cleaned from an earth oven that was utilized repeatedly. Such an earth oven was not located during the test excavations but the entire fill area was not exposed.

Material Assemblage-Burned Clay

A total of 1,452 pieces (420.3 g) of burned clay was found in the features. Four of the pits (F 1, 2, 4, and 6) and Fill Area 1 contained varying quantities of burned clay. Approximately three-fourths (75.6%) of the burned clay by weight was recovered from

an earth oven (F 4) that once had an intensively fired rim. A fire was probably kindled in this pit to heat limestone rocks for cooking food or the pit may have served as both a hearth and an earth oven. Other pits (F 1 and 2) contained moderate amounts of burned clay particles and may have served a single time as hearths or surface fires may have been located in close proximity to the features.

Material Assemblage-Fauna and Flora

A total of 4,604 pieces (489.9 g) of bone was found in the features (Table A-4). Nearly two-thirds (61.8%) of the bone fragments are large (>2.83 mm) and burned. Fragments were recovered from each of the four prehistoric pits and fill area. By weight, over two-thirds (67.5%) of the bone was contained in an earth oven/hearth (F 4) and nearly one-third (32.2%) of the bone was recovered from Fill Area 1. The identifiable vertebrate fauna consist of turtle, snake, fish, turkey, large bird, shrew, mole, small rodent, vole, and deer (Table A-5). The remains of prehistoric food resources recovered from Feature 4 and Fill Area 1 consist of turtle, fish, turkey, large bird, and deer. Approximately two-thirds (65.9%) of the identifiable vertebrate elements are deer and most of the elements are burned.

Forty-nine identifiable snails and mussels and 9.0 g of unidentifiable shell fragments were recovered from three pits (F 1, 4, and 5) and Fill Area 1 (Table A-6). The mollusks consist of aquatic snails, terrestial snails, and the right side of a freshwater mussel. Approximately two-thirds (63.3%) of the identifiable mollusks are aquatic snails from a hearth (Feature 1) and over one-half (51.1%) of

the unidentifiable shell fragments were also recovered from this feature. Fill Area 1 and an earth oven/hearth (Feature 4) contained a few aquatic snails and a freshwater mussel fragment was also found in the fill area. The aquatic snails and shell fragments from Feature 1 may represent the remains of minor food resources obtained from the Duck River. The aquatic snails included in Feature 4 and Fill Area 1 were probably adhering to limestone slabs brought to the site from the river for use in earth ovens. The identified mussel fragment may be the remains of another minor food resource or a portion of a tool.

Floral remains from the Leftwich site have not been analyzed. A preliminary assessment of the charred botanical material indicates Feature 4 contained wood and nutshell while few, if any, floral remains were recovered from the other features.

The cultural material recovered during the test excavations at the Leftwich site consists of ceramics, lithic tools and debris, burned clay, faunal remains, and floral remains. Fill Area 1 was the only prehistoric subsurface feature on the site that contained identifiable pottery. The ceramic assemblage from this feature is comprised of simple stamped and fabric impressed or knot roughened quartz tempered sherds, cordmarked limestone tempered sherds, and plain mixed temper sherds. The sherd surfaces and cores are brown, gray, reddish-gray, red, and reddish-yellow in color. Vessel morphology cannot be determined because rim sections are lacking; however, a simple stamped base section includes a portion of a podal support. Ceramics recovered from plowzone context include two thick

cordmarked chert/quartz tempered sherds. The lithics recovered during the test excavations include a projectile point/knife, bifaces, a utilized piece of chert, a grinding stone, an anvil stone, chert debris, and limestone. Fill Area 1 contained a Middle Woodland Expanded Stem Cluster PPK.

The lack of diagnostics in the five subsurface pits precludes identifying the specific cultural affiliation of these features. It can only be conjectured here that some or all of the pits were associated with the Middle Woodland diagnostics recovered from the controlled surface collection and plowzone backdirt piles of excavation units. The residual ceramics from Features 2 and 4 indicate a Woodland affiliation for these pits. The presence of Middle Woodland PPKs in feature and plowzone contexts indicate that the site was a locus of limited hunting and butchering activities during the period. The inability to isolate other Middle Woodland artifacts among the surface remains has probably resulted in the underestimation of the magnitude of other activities that were conducted in the habitation area during the period.

4. SUMMARY OF THE LEFTWICH SITE INVESTIGATIONS

The Leftwich site (40MU262), an early Middle Woodland occupation area, was found on the Duck River during site reconnaissance of the proposed Columbia Reservoir study area. Middle Woodland projectile points/knives and a few sherds found during the controlled surface collection of the south section of the site were situated on the

second terrace of the river. Test excavations involved the machine removal of plowzone in seven 2 m wide transects that were spaced 25 m apart. Five pits and one fill area were defined, mapped, and excavated.

Pits were generally oval, shallow to moderate depth, and either basin-shape or had insloping sides and a flat bottom. One pit probably served as a burial facility and four pits probably were used as earth ovens and hearths. The fill area was a large oval concentration of burned limestone and other debris in a granular soil matrix. This feature was probably associated with an earth oven in food processing activities. The ceramics include a variety of tempering agents and surface treatments. Quartz tempered simple stamped and limestone tempered cordmarked are the predominant types. The most frequently represented projectile point/knife forms are in the Middle Woodland Expanded Stem Cluster.

CHAPTER V

THE LIGGETT SITE

1. HISTORY OF INVESTIGATIONS

The Liggett site is located in Cheek Bend on the second terrace of the Duck River and the adjacent valley slope. The site was initially found by a University of Tennessee field crew during the month of August, 1978. The site is separated into east and west sections by a fenceline. The initial investigations at the Liggett site took place in the east and west sections while the present study was conducted in the east section.

East Section

1978. A controlled surface collection was conducted over the entire agricultural field east of the fenceline that divides the site into east and west sections. A concentration of surface material encompassing an area of 2.1 ha, including Middle and Late Woodland diagnostics, delimited the east section of the site (Figures 53 and 54). The field in which the east section of the site is located was gridded into 20 m x 20 m collection units. Surface visibility was excellent at the time of collection with less than 10% ground cover. In addition to the Liggett site, two other sites (40MU310 and 40MU313) were found in the same field approximately 31 m and 107 m to the north and east.

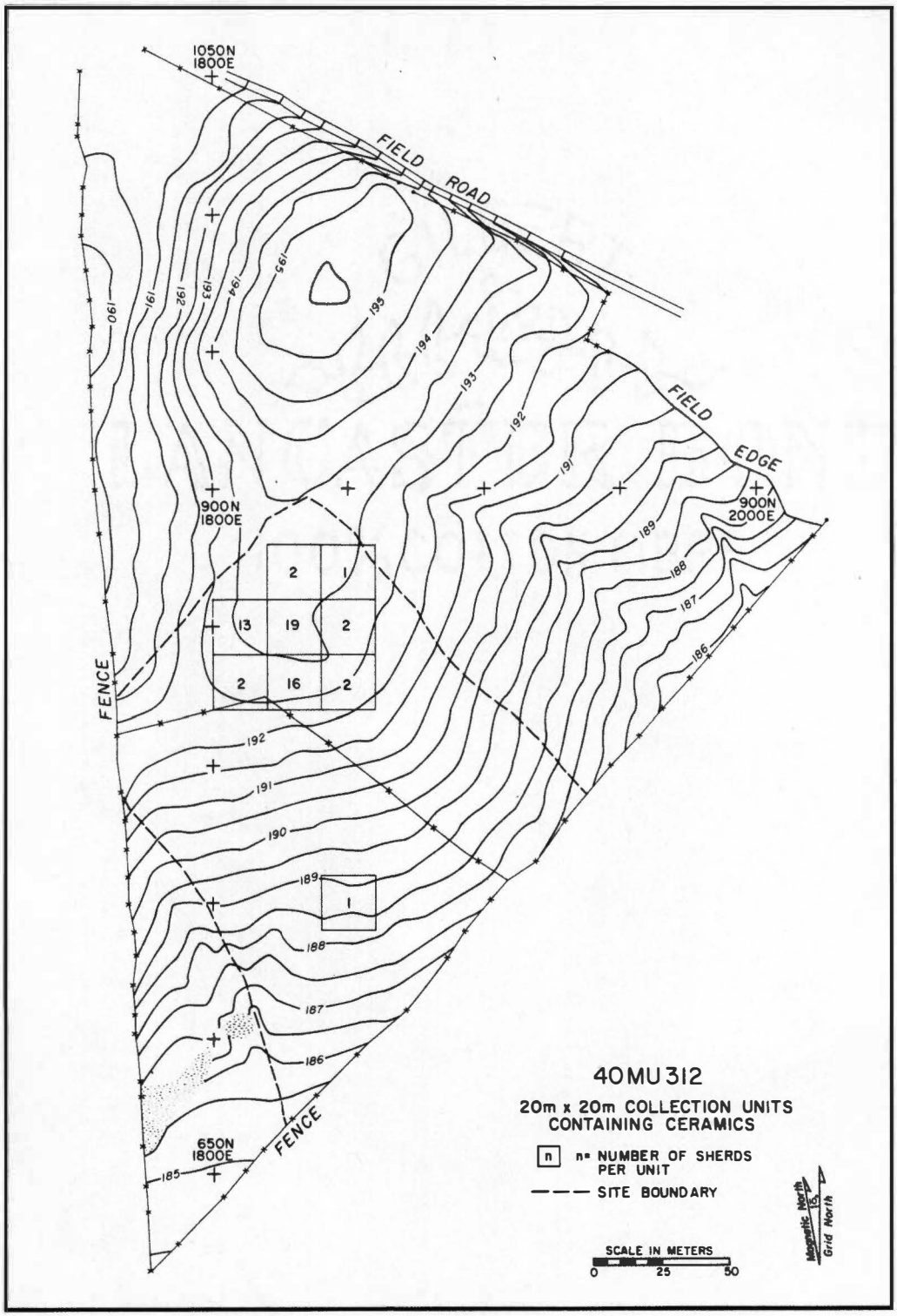


Figure 53. Surface Distribution of Late Woodland Ceramics on the Liggett Site.

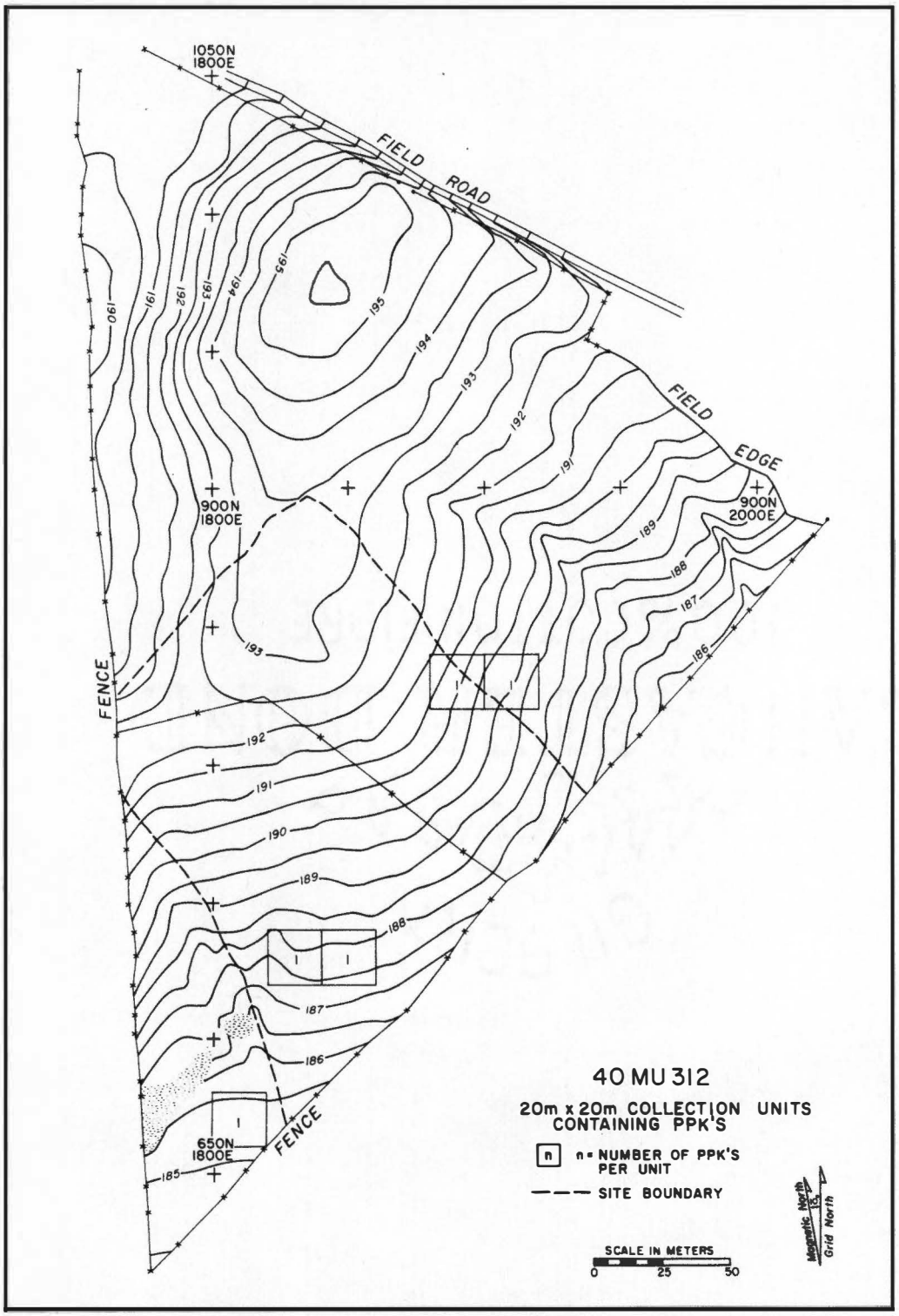


Figure 54. Surface Distribution of Middle Woodland Projectile Points/Knives on the Liggett Site.

1983. Test excavations in the east section of the site were conducted during 28 days of the period from June 3 to July 29, 1983. A total of 991 man-hours was expended at the site during the 1983 field season. Eleven machine-excavated transects comprising a total area of 2,413 m^2 were opened in order to locate and investigate subsurface prehistoric features. Four pits were defined, mapped, and excavated in the east section of the site.

West Section

1978. A controlled surface collection was conducted over the entire agricultural field west of the fenceline that divides the site into east and west sections. A concentration of surface material encompassing an area of 2.1 ha delimited the west section of the site. The field in which this section of the site is located was gridded into 20 m x 20 m collection units. Surface visibility was excellent at the time of collection with less than 10% ground cover. In addition to the Liggett site, one other site (40MU483) was found in the same field apprxoimately 50 m to the west.

2. EXCAVATION PROCEDURES

Excavation procedures at the site first involved re-establishing the grid utilized during the controlled surface collection. A contour map of the east section of the site area was then constructed. Heavy machinery was employed in removing the plowzone from 11 excavation units. Dark stains in the soil thought to be prehistoric features

were flagged and subsequently shovel or hoe scraped for definition. The limits of the potential pits were marked on the ground and mapped in plan view. Hand excavation of these possible prehistoric features was then initiated. The terminology used in describing features from the Edmondson Bridge site is also employed here when applicable.

Mapping

1978. An arbitrary grid system was established in Cheek Bend to facilitate the controlled surface collection of this area. A datum point (1000 N, 1000 E) was set on 40MU141 approximately 150 m north and 830 m west of the Liggett site. A grid North-South baseline was established at 11 degrees east of magnetic north. The grid was expanded to include the Liggett site and the 20 m x 20 m units for the controlled surface collection were established. Grid points were subsequently left on the edges of the field in which the site is located.

1983. The grid points on the site were found and the grid was re-established in 1983. Eighteen hubs were set at 50 m or occasionally 25 m intervals across the east section of the site. A TVA Columbia Reservoir elevation point was utilized in determining absolute elevations for the hubs. These hubs were employed in constructing a contour map of the east section of the site and in establishing grid North-South mapping lines in the excavation units. Points were set at 5 m intervals along the mapping lines and

additional points were triangulated in with tapes. The pits were then plan mapped in the 1:20 scale.

Excavation Units

Approximately 10% of the area defined by the surface concentration of cultural material was selected for study during the 1983 test excavations at the Liggett site. Excavation transects were established along a grid North-South alignment so that various topographic features including ridges and slopes would be bisected. It was decided that the minimum unit width necessary to observe partial structure patterns, if present, was 2-3 m. A width of 2 m was chosen for the excavation transects. The lengths of the excavation transects were determined by the surface distribution of cultural material. Seven transects extended across the entire east section of the site. These units were spaced 20 m apart and varied in length from 58-217 m. An additional four intermediate transects extended across the area of a surface concentration of ceramics. These units varied in length from 45-84 m. The total area investigated in the 11 excavation transects during the test excavations was 2,413 m^2 or 11.7% of the site area east of the fenceline (Figure 55).

The methods employed in machine stripping, excavating features, and processing feature fill on the Edmondson Bridge site were also used on the Liggett site when applicable. These excavation strategies proved effective for investigating large areas of the Liggett site in a relatively short period of time. The recovery of microfloral and microfaunal material through the processing of feature fill

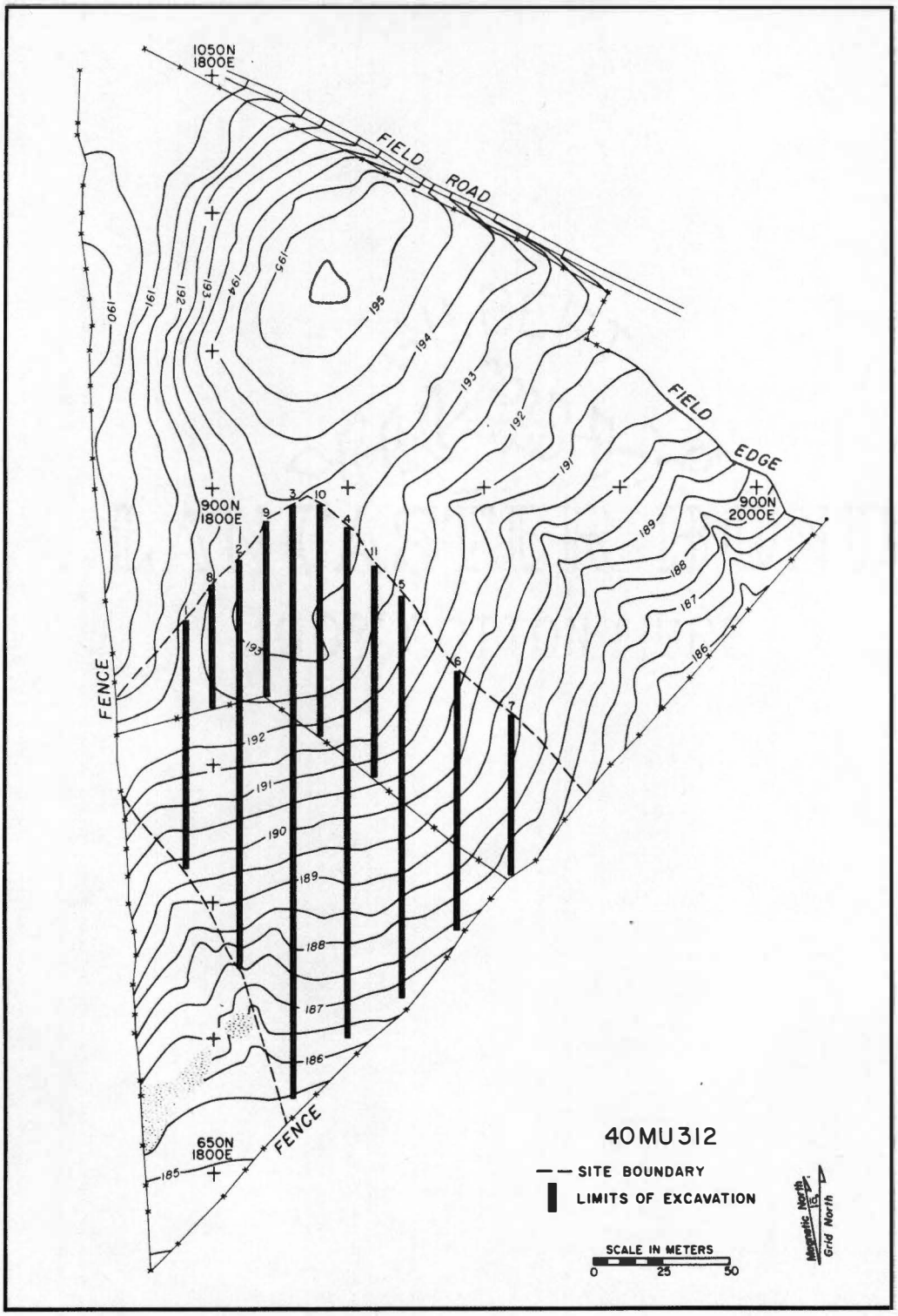


Figure 55. Excavation Units on the Liggett Site.

(2,605 liters) will aid in the reconstruction of the subsistence patterns practiced by the site inhabitants during the Late Woodland period.

3. EXCAVATION RESULTS

Investigations at the Liggett site revealed the occurrence of features in two areas east of the fenceline. Four pits were investigated and these do not include four tree disturbances that were excavated. The discussion of the excavation results is initiated with a consideration of the pits. The material assemblage recovered through these investigations is then described; i.e. ceramics, chipped stone artifacts, ground stone artifacts, lithic debris, burned clay, faunal remains, and floral remains.

Analysis of the subsurface features is first presented in the form of locational and general descriptive data. Secondly, the features are described in detail through a consideration of morphological attributes and material content.

Distribution of Features

The 11 excavation transects traverse a northeast-southwest trending ridge of the dissected valley slope and the seven major transects extend down the slope of the ridge onto the second terrace of the Duck River. Excavation Units 1, 2, 4, 6, 7, 8, 10, and 11 did not contain any evidence of prehistoric activity. The four pits were located in Excavation Units 3, 5, and 9 (Figure 56).

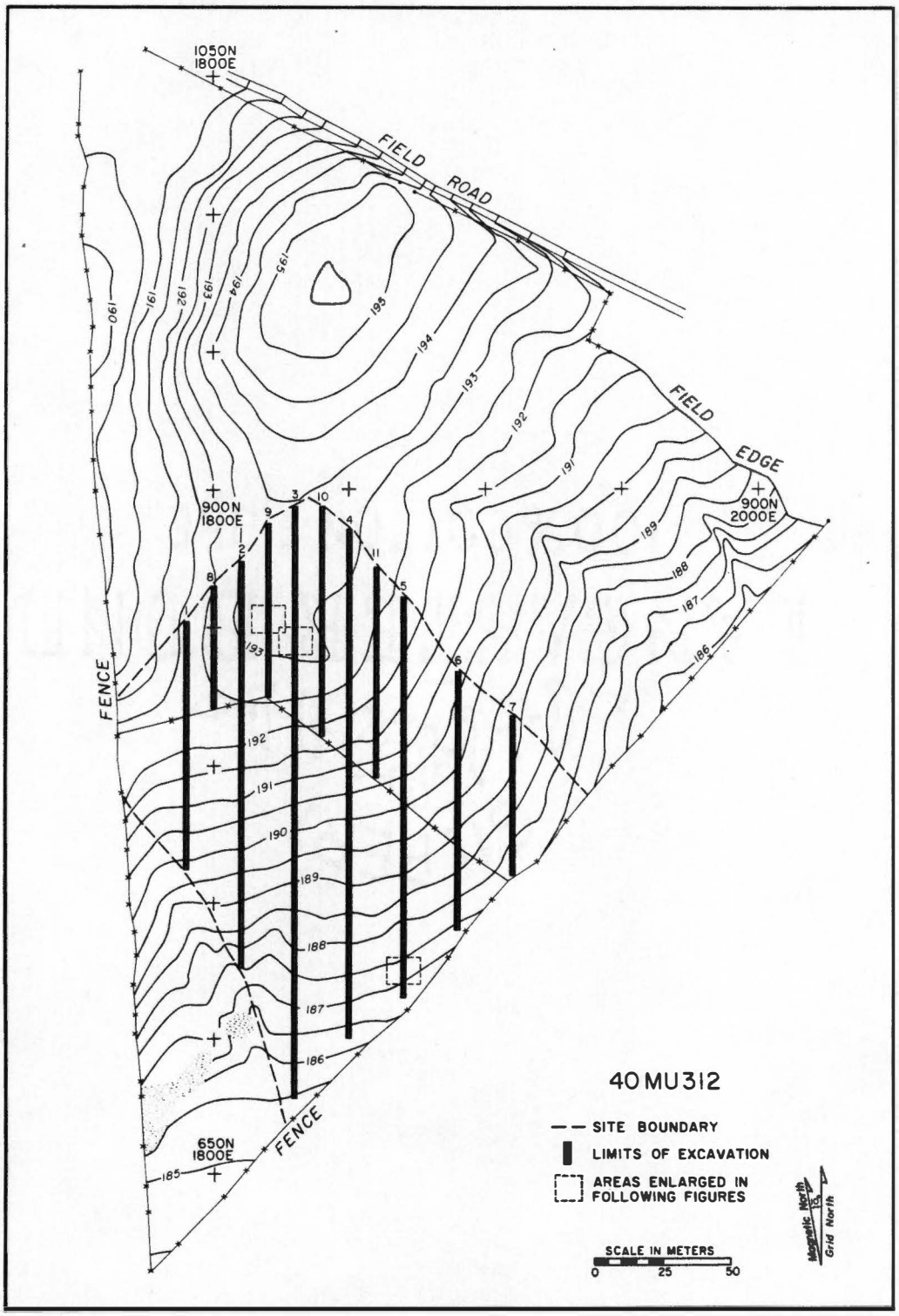


Figure 56. Excavation Unit Areas That Contained Subsurface Features on the Liggett Site.

Three pits (F 1, 2, and 4) were found on the crest of the valley slope ridge in the area of a surface ceramic concentration. A deep bell-shape pit (F 2) and a shallow basin-shape pit (F 1) that contained two sherds were situated approximately 5 m apart in the central portion of Excavation Unit 9 (Figure 57). A second deep bell-shape pit (F 4) was located at the north end of Excavation Unit 3 approximately 11 m northwest of Feature 2. A shallow limestone-filled pit (F 8) was found at the south end of Excavation Unit 5 on the second terrace of the Duck River approximately 125 m southeast of the three pits on the crest of the valley slope ridge.

The following descriptions of the prehistoric features investigated in the east section of the Liggett site provide the basic metric, morphological, and cultural material content information used in subsequent comparisons. Zone designations are noted only in features with a complex stratigraphy. Feature fills are silt loams unless otherwise noted and all soil color designations were derived from the Munsell Soil Color Charts (1973). Faunal material is listed by feature in the Appendix.

Morphology and Material Contents of Features

Pits. Feature 1 was an oval basin-shape pit that measured 72 cm x 56 cm in plan view and 25 cm in depth. The fill was dark brown in color and contained mostly pottery and lithic debris. This pit was located on the crest of the northeast-southwest ridge in Excavation Unit 9.

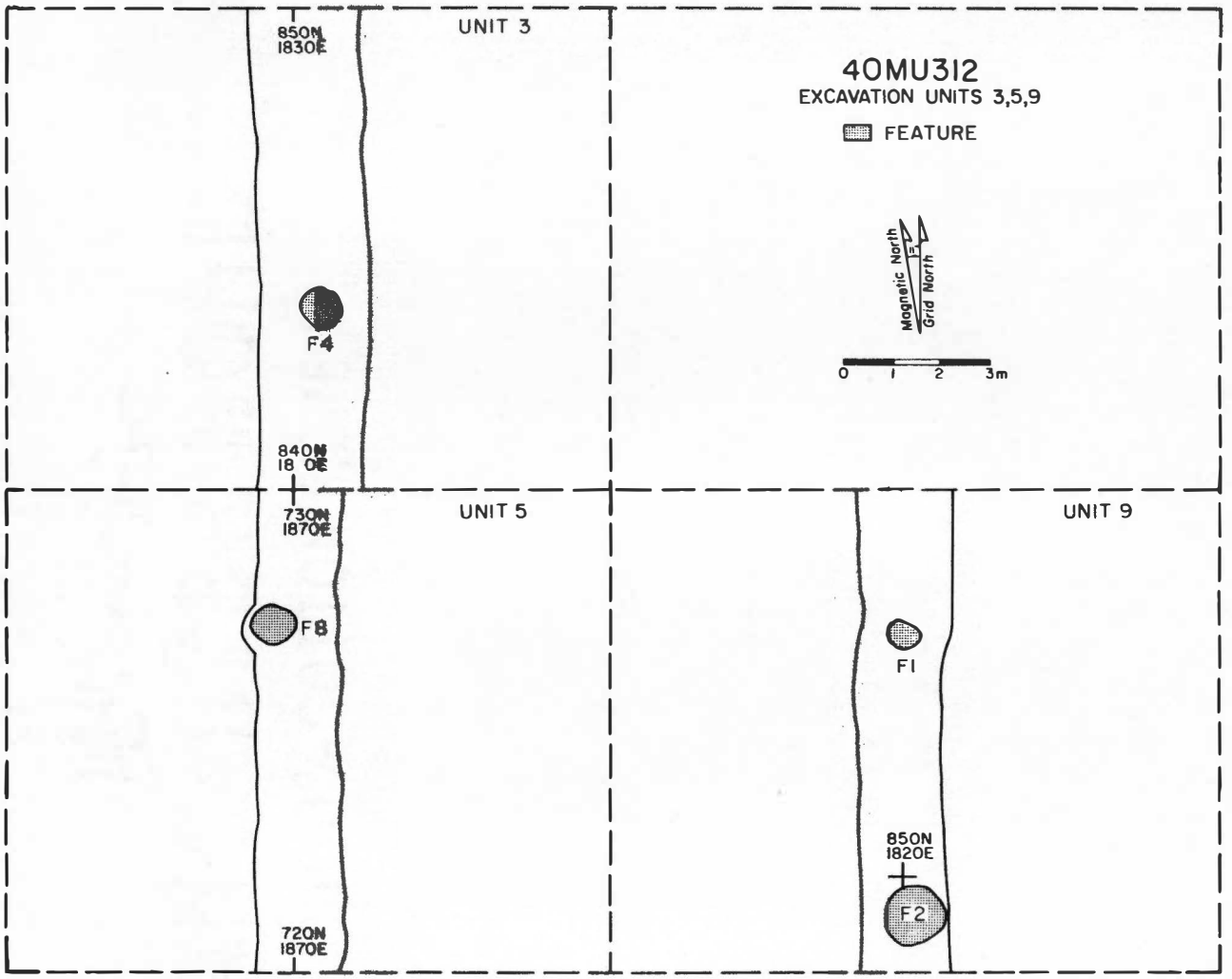


Figure 57. 1983 Test Excavations at 40MU312-Excavation Units 3, 5, and 9.

Contents:

2 ceramic sherds	21.3 g
4 chert blocky debris	97.8 g
9 chert flakes	5.2 g
7 burned limestone pieces	784.7 g
1 burned clay piece	0.1 g

Feature 2 was a circular pit that had one vertical side and one bell-shape side and a rounded bottom in profile. It measured 126 cm x 122 cm in plan view and 100 cm in depth. The lower pit wall expanded only 5 cm beyond the surface limits of the feature. The fill was divided into two major zones (A and B) which contained little cultural material. The upper zone (A) occupied most of the volume of the pit and was divided into two subzones (A_1 and A_2); the upper subzone (A_1) was a compact dark yellowish-brown fill and the lower subzone (A_2) was a loose brown to dark yellowish-brown fill. The lower zone (B) was a loose very dark grayish-brown fill that extended across the bottom of the pit as a lens which measured 6-14 cm thick. This pit was located on the crest of the northeast-southwest ridge in Excavation Unit 9 approximately 5 m south of Feature 1.

Contents:

1 siltstone slot abrader	109.0 g
1 chert tested cobble	40.0 g
1 chert blocky debris	73.7 g
3 siltstone pieces	4.0 g

1	burned limestone piece	0.1 g
9	burned clay pieces	2.2 g

Feature 3 was found upon investigation to be a tree disturbance. This disturbance was located on the crest of the northeast-southwest ridge in Excavation Unit 10 approximately 21 m east of Feature 2.

Feature 4 was a circular bell-shape pit that had a flat bottom. It measured 84 cm x 81 cm in plan view and 93 cm in depth. The lower pit wall expanded 16 cm beyond the surface limits of the feature. The fill was divided into two subzones of a single major zone which contained lithic tools and debris and burned clay. The upper subzone was a compact dark yellowish-brown fill and the lower subzone was a loose dark brown fill. This pit was located on the crest of the northeast-southwest ridge in Excavation Unit 3 approximately 12 m southeast of Feature 2.

Contents:

2	chert bifaces	2.9 g
1	retouched chert flake	49.0 g
1	chert tested cobble	395.7 g
1	chert core	12.6 g
14	chert blocky debris	267.9 g
54	chert flakes	197.7 g
5	siltstone pieces	2.6 g
137	burned limestone pieces	1,818.4 g
302	burned clay pieces	48.1 g

Feature 5 was found upon investigation to be a tree disturbance. This disturbance was located on the crest of the northeast-southwest ridge in Excavation Unit 3 approximately 10 m south of Feature 4.

Feature 6 was found upon investigation to be a tree disturbance. This disturbance was located on the crest of the northeast-southwest ridge in Excavation Unit 9 approximately 11 m south of Feature 2.

Feature 7 was found upon investigation to be a tree disturbance. This disturbance was located on the crest of the northeast-southwest ridge in Excavation Unit 3 approximately 5 m south of Feature 5.

Feature 8 was an oval pit that had insloping sides and a flat bottom. It measured 93 cm x 82 cm in plan view and 16 cm in depth. The fill was black in color and contained a large amount of burned limestone. This pit was located at the base of the northeast-southwest ridge on the second terrace of the Duck River in Excavation Unit 5 approximately 123 m southeast of Feature 4.

Contents:

2 chert blocky debris	2.9 g
115 burned limestone pieces	4,054.4 g
128 burned clay pieces	27.1 g

The pits in the east section of the Liggett site were oval or circular in plan view and bell-shape, basin-shape, or had insloping sides and a flat bottom in profile (Figure 58). The mean dimensions of the pits are 94 cm x 85 cm in plan view and 59 cm in depth. The fills were brown, grayish-brown, yellowish-brown, and black in color. The fills in the lower portions of the bell-shape pits were darker and

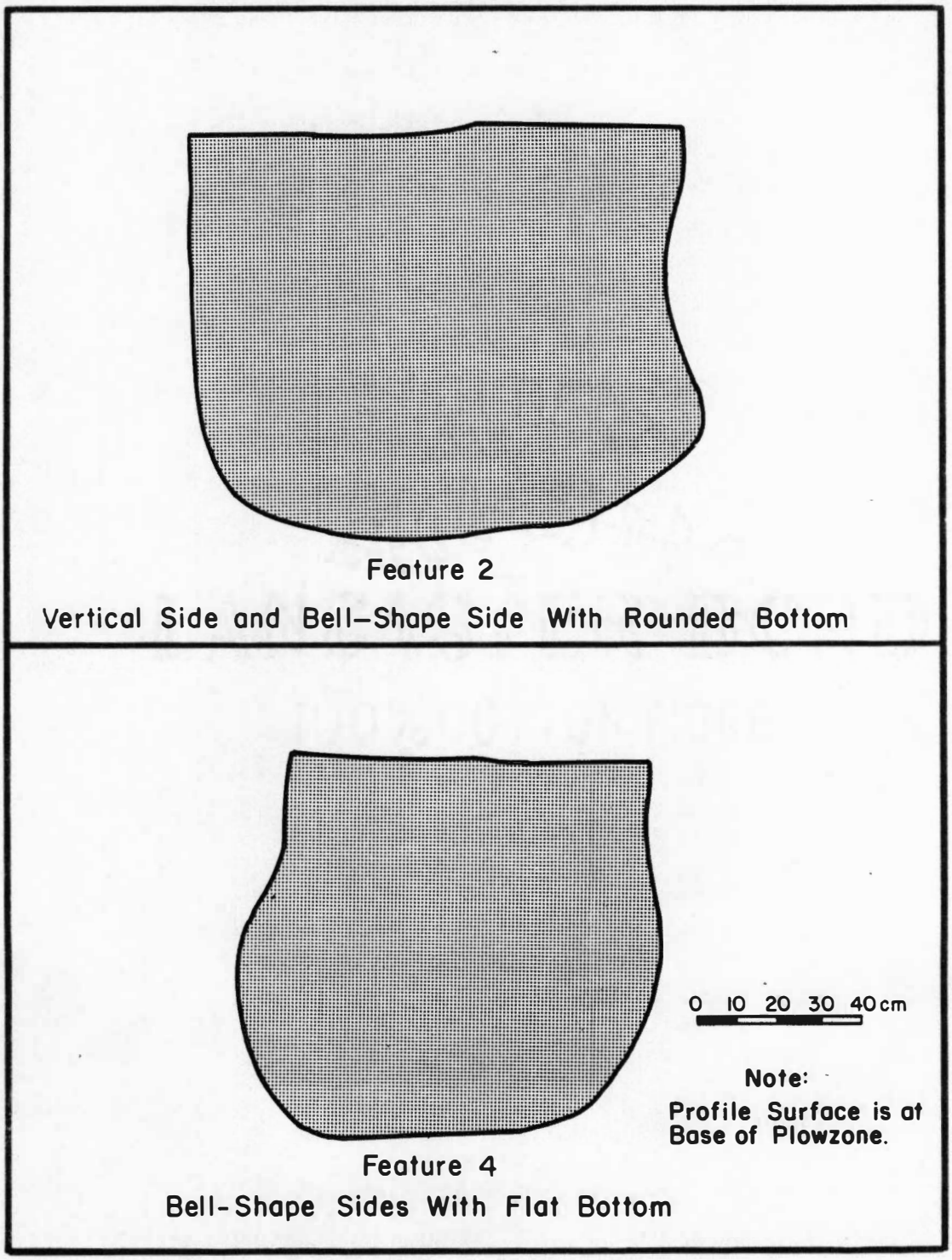


Figure 58. Profile Shapes of Selected Pits-40MU312.

looser than the fills in the upper portions. The features contained a sparse to moderate amount of cultural material, including a large quantity of burned limestone in one pit. Three of the features were clustered on the crest of the valley slope ridge and the fourth feature was situated downslope at the base of the ridge on the second terrace of the Duck River.

The following discussion, while focusing primarily on the excavated material (trowel and flotation sorted), also includes the Late Woodland ceramics and Middle Woodland projectile points/knives that were recovered from the controlled surface collection and various disturbed contexts. The methods employed and categories formulated in the analysis of the material assemblage from the Edmondson Bridge site are also used here when applicable.

Material Assemblage-Ceramics

Quartz/chert tempered ceramics. This form of tempering consists of an abundant amount or a light to moderate amount of finely crushed angular to slightly rounded particles of quartz and chert (less than 0.5 mm) and a light to moderate amount of large (1.6 mm and occasionally 4-6 mm) inclusions of quartz and chert. The sherd thicknesses mostly vary from 6-7 mm. The sherd surfaces are gray, brown, pink, or occasionally reddish-brown in color and the sherd cores are brown, gray, pinkish-gray, and combinations of these colors. This description is based on the analysis of ceramics from feature, surface, and disturbed contexts.

A total of 58 quartz/chert tempered sherds, including five rims, was recovered during the controlled surface collection of the east section of the Liggett site. These sherds are predominantly fabric impressed (43.1%) and plain (31.0%). A single knot roughened/net impressed sherd and 14 eroded sherds were also recovered. The rim sherds are fabric impressed (n = 2) or plain (n = 3). The rims have rounded to slightly flattened lips and three of these are everted. Two fabric impressed quartz/chert tempered sherds were found in Feature 1. Five quartz/chert tempered sherds were collected from the surface of a tree disturbance that was not excavated. Four of these sherds are fabric impressed and one is plain (Figure 59A).

Limestone/quartz tempered ceramics. This description of the limestone/quartz tempered pottery is based on the analysis of a single cordmarked (Z-twist) sherd which was collected from the surface of an unexcavated tree disturbance (Figure 59B). The limestone tempering consists of a moderate amount of particles that are 1-5 mm in diameter and the quartz tempering consists of a light amount of large (1-3 mm) angular to slightly rounded inclusions. The sherd thickness varies from 5-7 mm. The sherd surfaces are red and brown in color and the sherd core is gray in color.

Material Assemblage-Lithics

A total of 4 lithic tools, 87 pieces of chert debris, 8 pieces of siltstone, and a large amount of limestone was recovered during the test excavations at the Liggett site. Over three-fourths of the chert

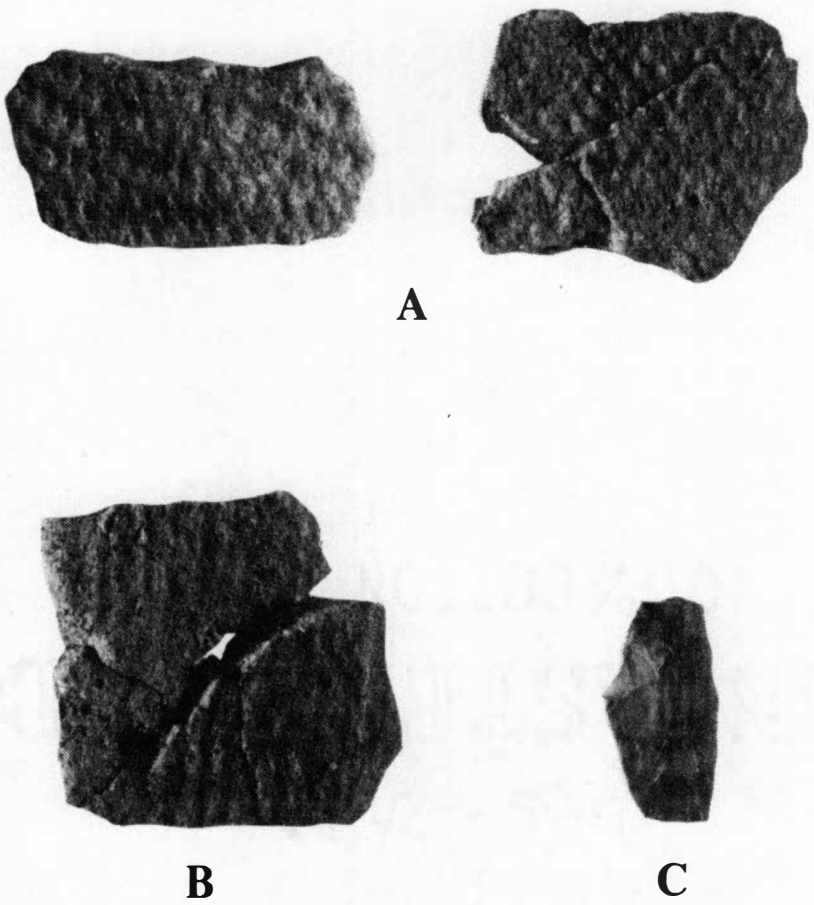


Figure 59. Ceramics and Projectile Point/Knife from 40MU312. Ceramics; A-Quartz/Chert Tempered, Fabric Impressed, B-Limestone/Quartz Tempered, Cordmarked; Projectile Point/Knife; C-Medium Triangular (Scale: Full Size).

debris (70 pieces) was contained in one pit (F 4). Limestone altered by burning was abundant but the majority was concentrated in Feature 8.

Lithic tools and debris were found in large quantities during the controlled surface collection of the site. An additional projectile point/knife was collected during the machine stripping of the test units. The multi-component nature of the site makes it impossible to separate non-diagnostic plowzone remains according to period. For this reason, the only lithic items described here from non-feature context are those diagnostic of the Middle Woodland and Late Woodland periods. The following discussion includes the lithic tools and debris from the excavations and the Middle Woodland and Late Woodland projectile points/knives from the surface collection and disturbed context.

Projectile points/knives.

Expanded Stem Cluster. Five Expanded Stem Cluster projectile points/knives were recovered during the controlled surface collection of the east section of the Liggett site. The stems of four of these PPKs were formed by shallow side-notching and the stem of one was formed by corner removal. The side-notched PPKs have slightly flaring to flaring stems and straight bases. Two of these have unfinished bases. The blades of four Expanded Stem Cluster PPKs are ovate and one has an excurvate-incurvate blade that was formed by extensive reworking of the margins. Fort Payne chert was utilized in

the manufacture of four PPKs in the Expanded Stem Cluster and thermally altered Ridley chert was utilized in the manufacture of one PPK.

Additional projectile points/knives and fragments. A single medium triangular projectile point/knife was recovered from a plowzone backdirt pile during machine stripping of the site (Figure 59C). The blade margins of the PPK are straight and parallel in the hafting area and then taper towards the tip. The base is straight and unfinished. Fort Payne chert was utilized in the manufacture of this PPK. This projectile point/knife is distinguished from the medium-large triangular McFarland Cluster PPKs by its smaller size and narrower and thinner blade. This medium triangular PPK may represent a large variant of the Late Woodland-Mississippian Madison (Scully 1951:14) or Late Woodland Hamilton (Lewis and Kneberg 1946:110-111) triangular point forms or a transitional type between the Middle Woodland triangular and Late Woodland triangular PPKs.

Bifaces. Two biface fragments were recovered from a bell-shape pit (F 4) during the test excavations. One of these biface fragments consists of a heat crazed and potlidded mid-section that was probably derived from a late stage ovate biface or possibly a projectile point/knife that was manufactured from Fort Payne chert. The second biface fragment consists of the base and mid-section of a late stage ovate biface that was manufactured from thermally altered Ridley chert. One blade margin of the latter biface fragment was utilized as a tool but the edge was not purposely modified again to produce

another tool. Use-wear along the working edge formed steep unifacial retouch on one face and crushing on the opposite face in an area that measures 17 mm wide.

Miscellaneous tools and artifacts. The distal margin of a large secondary flake recovered from Feature 4 was bifacially retouched to produce a tool with a slightly convex working edge that measures 58.9 mm wide. The modified edge was formed by steep bifacial retouch on the dorsal and ventral flake surfaces. Use-wear along the working edge formed areas of fine secondary retouch on the ventral flake surface and crushing along the dorsal surface. The area of use-wear extends 9 mm beyond the purposely retouched edge of the flake.

A tabular fragment of sandstone utilized as a slot abrader was recovered from Feature 2. It has single V-shape grooves (4-6 mm wide) on two faces.

Lithic debris.

Chert. The chert debris recovered from subsurface features at the Liggett site represents various stages of lithic reduction. The 87 pieces of chert debris consist of 2 tested cobbles, 1 core, 21 blocky debris, 28 secondary flakes, 14 tertiary flakes, 16 broken flakes, and 5 biface thinning flakes. Nearly one-half of these lithic items are Ridley chert (n = 38) and nearly one-fourth are Fort Payne chert (n = 20); the remainder are comprised of gray Bigby-Cannon (n = 6), brown Bigby-Cannon (n = 1), and Carters (n = 3) cherts.

Nearly one-fourth of the pieces of chert debris (n = 19) exhibit evidence of thermal alteration.

Over three-fourths of the pieces of chert debris (n = 70) was recovered from a bell-shape pit (F 4). The presence of a large amount of blocky debris and secondary flakes in addition to numerous tertiary and broken flakes, a core, and a tested cobble suggests that prehistoric activities in the vicinity of the Feature 4 included the initial reduction of chert nodules as well as the subsequent reduction of the prepared cores. The remainder of the chert debris was found in Features 1, 2, and 8.

Siltstone. Eight unworked fragments of siltstone were recovered from two pits (F 2 and 4). Three of the siltstone fragments appear to have been thermally altered, as indicated by their red to reddish-yellow color.

Limestone. Limestone was the most abundant lithic resource recovered during the excavations. The four pits contained varying amounts of limestone but the majority was found in Feature 8. All of the limestone appears to have been thermally altered. The burned limestone is often soft, friable, and subject to breakage after collection, so it is quantified here by both piece count and weight.

Feature 1 contained 7 pieces (784.7 g) of burned limestone in the central portion of the pit. One bell-shape pit (F 4) contained 138 pieces (1,818.4 g) of burned limestone scattered throughout the fill while the other bell-shape pit (F 2) contained only one small piece (0.1 g) of burned limestone. Feature 8 contained 115 pieces

(4,054.4 g) of burned limestone in a layer situated approximately 5 cm above the bottom of the pit. Earth ovens were lined with blocks of limestone heated in a wood fire and the pits were then filled with food to be baked or steamed. Features 1 and 8 may have only served a single time as earth ovens. Limestone cleaned from processing pits may have been deposited in the two bell-shape pits pits (F 2 and 4) by natural action or purposeful dumping.

Material Assemblage-Burned Clay

A total of 440 pieces (68.8 g) of burned clay was found in the features. Nearly three-fourths (73.0%) of the buned clay particles by weight was recovered from a bell-shape pit (F 4) that was probably utilized as a hearth after its initial use as a storage facility. A moderate amount of burned clay particles occurred in Feature 8 indicating that a fire was probably kindled in the pit to heat limestone rocks prior to food processing activities.

Material Assemblage-Fauna and Flora

A total of 101 pieces (1.3 g) of bone was found in the features (Table A-4). Approximately three-fourths (74.3%) of the bone fragments are small (<2.83 mm) and burned. Fragments of bone were recovered from each of the four prehistoric pits on the site. By weight, most of the bone (1.1 g) was recovered from a storage facility (F 4) that was probably located in close proximity to an earth oven and reused as a hearth. The few identifiable vertebrate fauna consist of fish and small mammal elements from a storage facility (F 2) and an

adjacent shallow pit (F 1) (Table A-6). These elements may represent the remains of animals that were utilized as food resources by the prehistoric inhabitants of the site.

Identifiable snails and mussels were lacking in the features. A total of 0.2 g of unidentifiable shell fragments was recovered from three pits (F 1, 2, and 4) (Table A-6). Two of the pits (F 2 and 4) contained less than 0.1 g of shell fragments.

Floral remains from the Liggett site have not been analyzed. A preliminary assessment of the charred botanical material indicates the features all contain charred wood and nutshell, especially the two storage facilities (F 2 and 4).

The cultural material recovered during the test excavations at the Liggett site consists of ceramics, lithic tools and debris, burned clay, and floral and faunal remains. The two sherds found in a pit were quartz/chert tempered and fabric impressed. A concentration of ceramics on the surface of the site was comprised of quartz/chert tempered sherds that were fabric impressed, plain, and knot roughened/net impressed. Rim sherds from the controlled surface collection were everted. The lithics recovered during the test excavations include bifaces, a retouched flake, a slot abrader, chert debris, and limestone. Middle Woodland Expanded Stem Cluster projectile points/knives were found on the surface of the site and a single Late Woodland medium triangular PPK was found in a disturbed context.

The lack of diagnostics in three of the four subsurface pits precludes identifying the cultural affiliation of these features. It can only be conjectured here that at least the two deep bell-shape pits (F 2 and 4) were associated with the shallow pit (F 1) that contained quartz/chert tempered sherds. The presence of Middle and Late Woodland PPKs in plowzone contexts indicate that the site was a locus of limited hunting and butchering activities during the Middle and Late Woodland periods. The inability to isolate other Middle and Late Woodland artifacts among the surface remains has probably resulted in underestimation of the magnitude of other activities that were conducted in the habitation area during these periods.

4. SUMMARY OF THE LIGGETT SITE INVESTIGATIONS

The Liggett site (40MU312), a Middle and Late Woodland occupation area, was found in Cheek Bend on the Duck River during site reconnaissance of the proposed Columbia Reservoir study area. Middle Woodland projectile points/knives and a concentration of Late Woodland ceramics found during the controlled surface collection of the east section of the site were situated on the valley slope of Cheek Bend and the second terrace of the Duck River. Test excavations involved the machine-removal of plowzone in eleven 2 m wide transects that were spaced 10-20 m apart. Four pits were defined, mapped, and excavated.

Pits were circular deep and bell-shape or oval shallow and either basin-shape or had insloping sides and a flat bottom. The majority of the ceramics are tempered with quartz/chert and the predominant

surface treatments are fabric impressed and plain. The most frequently represented projectile point/knife forms are in the Expanded Stem Cluster. A Late Woodland medium triangular PPK was found in the plowzone backdirt pile of an excavation unit. Most of the ceramics and all of the PPKs were recovered from the controlled surface collection or disturbed contexts and only two sherds were found in feature context.

CHAPTER VI

SUMMARY OF THE SITE INVESTIGATIONS

The proposed Columbia Reservoir and study area is located along the Middle Duck River and its tributaries in the Nashville Basin of Middle Tennessee. Intensive controlled surface reconnaissance conducted in the study area indicated that the alluvial terraces of the Middle Duck River were generally occupied more intensively during the Middle Woodland period than any other time from Paleoindian through Late Woodland/Early Mississippian. The most extensive late Middle Woodland habitation in the study area was found on Fountain Creek during controlled surface reconnaissance along creeks that flow into the Duck River. Testing and subsequent block excavations at the Edmondson Bridge site (40MU423) exposed structures and associated pits, fill areas, and a possible ceremonial area. The testing of three additional Middle and Late Woodland sites revealed scattered pits and limestone fill areas.

The structures on the Edmondson Bridge site were large oval to subrectangular single postmold patterns. Midden accumulations were sometimes found adjacent to the structures. A possible ceremonial area on this site was comprised of the smallest structure and two prepared features. Pits on the four sites investigated were usually circular or oval in plan view and either basin-shape or had insloping sides and a flat bottom in profile. Two deep bell-shape pits were excavated on a Late Woodland site. Limestone fill areas were examined

on three sites; these features, along with associated earth ovens, were probably food processing areas. The ceramics include a variety of tempering agents and surface treatments. The predominant ceramic types on the Middle Woodland sites are quartz tempered plain and sometimes simple stamped and limestone tempered plain and occasionally cordmarked. The Late Woodland site contained fragments of fabric impressed, plain, and knot roughened/net impressed vessels that are tempered with quartz/chert. The most frequently represented projectile point/knife forms are in the Middle Woodland Expanded Stem Cluster.

CHAPTER VII

RESEARCH ORIENTATION

Archaeological remains in the Columbia Reservoir research area offer the opportunity to study human adaptation and culture change in the Middle Duck River drainage during the Middle and Late Woodland periods. 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 the elements of technology, subsistence economy, and settlement patterns with other ancillary attributes consisting of mortuary activities, ceremonialism, and interregional exchange.

The major emphasis of archaeological research in recent years has been placed upon human adaptation and culture change. The objective of such research is to "isolate each system (part) and study it as a separate variable or complex of variables, with the ultimate goal being reconstruction of the entire pattern of articulation" (Flannery 1967:119-122). The data available from surface surveys and site excavations in the research area will be used to study human adaptation and culture change through the reconstruction of the pattern of articulation between the constituent attributes or variables. Four general topics will form the basis for this research. These topics are: 1) settlement system, 2) site composition, 3)

subsistence system, and 4) site activities. Settlement systems are identified through the analysis of site distribution. The analysis of site composition is facilitated by the exposure, mapping, and excavation of large areas of sites. Information pertaining to subsistence is obtained through the study of faunal and floral remains and their relationship to features. Site activities are determined through the analysis of the types and distribution of material resulting from the occupations and the features constructed during the occupations. Data obtained as a result of the investigation of settlement system, site composition, and subsistence system may also yield information pertaining to site activities.

Previous research conducted in Middle Tennessee has revealed a variety of habitation types that were articulated together in different patterns of settlement during the Middle and Late Woodland periods. These types include villages, seasonal or ancillary base camps, mortuary/habitation sites, and transient camps. Based on extensive excavations in the Duck and Elk River valleys, the subsurface remains of a typical site in each category have been identified (Butler 1977:8-10, Faulkner and McCollough 1982:549-561, Prescott 1978:366, 456).

A village is a semipermanent to permanent occupation consisting of the following:

1): Certain structures are substantially constructed with large interior support posts and/or wall posts.

2): Features such as storage pits, hearths, earth ovens, and processing pits are located within or in close proximity to these structures.

3): A dichotomy of structures exists; one type has those traits listed in 1) and 2) and the other type is lightly constructed.

4): Feature superpositioning and midden deposits are present.

5): Chert debris and tools reflect various stages of lithic reduction and tool manufacture (primary-secondary-tertiary flakes, biface fragments, and biface thinning flakes).

6): Implements used in tool manufacture and repair are present in the assemblage (knapping hammers/pecking stones, anvil stones, slot abraders, and ground siltstone).

7): Tools used in procuring and processing meat and hides are present in the assemblage (projectile points/knives, bifaces, scrapers, and knapping hammers/pecking stones).

8): Tools used in processing botanical food resources are present in the assemblage (grinding stones, manos, and knapping hammers/pecking stones).

9): Features utilized in the processing and storage of food and heating are represented on the site (earth ovens, fill areas, storage pits, and hearths).

A seasonal or ancillary base camp consists of the following:

1): Structures are lightly constructed and sometimes open-sided. Interior support posts are lacking.

2): Features such as storage pits, hearths, earth ovens, and processing pits are not located inside structures.

3): If structures are present a dichotomy of structure types is absent.

4): Feature superpositioning and midden deposits are absent.

5): Types of tools and kinds of debris may be the same as those found in a village but are fewer in number.

6): Site activities are restricted to only a few of those categories occurring at villages.

A mortuary/habitation site consists of the following:

1): Dwellings are lightly constructed and sometimes open-sided. Interior support posts are lacking.

2): Features such as storage pits, hearths, earth ovens, and processing pits are not located inside structures.

3): A dichotomy of dwelling types is absent.

4): Clusters of mortuary structures and features are located away from the habitation area.

5): Feature superpositioning and midden deposits are occasionally present.

6): Implements used in tool manufacture and repair are present in the assemblage (knapping hammers/pecking stones, anvil stones, slot abraders, and ground siltstone).

7): Exotic materials and artifacts are present in the assemblage (nonlocal chert, mica, galena, copper, nonlocal ceramics, and marine shell).

8): Features utilized in or resulting from the processing and disposal of the dead are represented on the site (mortuary structures, crematory pits, redeposited cremations, burial mounds, cemetery areas, burial pits).

A transient camp consists of the following:

1): Structures are absent.

2): Features, if present, are found as isolated occurrences, pairs, or small clusters.

3): Feature superpositioning and midden deposits are absent.

4): Types of tools and kinds of debris may be the same as those found in a village but are fewer in number and restricted to a few categories.

5): Site activities are restricted to one or two of those categories occurring at villages.

In addition to the habitation sites, ceremonial centers also occurred in the Middle Woodland settlement pattern. A ceremonial center consists of the following:

1): Domestic structures, pits, and middens are absent.

2): Mortuary/ceremonial features and areas such as enclosures, burial mounds, crematory pits, and cemetery areas are present.

3): Implements used in tool manufacture and repair are present in the assemblage (knapping hammers/pecking stones, anvil stones, slot abraders, and ground siltstone).

4): Exotic materials and artifacts are present in the assemblage (nonlocal chert, mica, galena, copper, nonlocal ceramics, and marine shell).

The habitation and nonresidential sites articulated in settlement patterns that are typified by four models. Sites are articulated in a mobile dispersed type of settlement system (Prescott 1978:360, Wagner 1982:526) when:

1): Individual family groups occupy transient camps and move in a restricted area around seasonal base camps.

2): Family groups temporarily gather at base camps to exploit seasonally available food resources.

3): Sites consist of transient camps and seasonal base camps.

Sites are articulated in a dispersed type of settlement system (Cobb 1978:101, Faulkner 1973: 35-45, Faulkner and McCollough 1982c:550, Wagner 1982:526) when:

1): Individual family groups occupy transient camps and move in a restricted area around seasonal base camps and semipermanent villages.

2): Family groups temporarily gather at base camps to exploit seasonally available food resources.

3): Family groups temporarily gather at a ceremonial center, mortuary/habitation site, or village to engage in social activities, trade, and mortuary activities.

4): Sites consist of transient camps, seasonal base camps, villages, ceremonial centers, and mortuary/habitation sites.

Sites are articulated in a modified dispersed type of settlement system (Butler 1977:8-10) when:

1): Individual family groups occupy base camps on a semipermanent basis and transient camps on a short-term basis.

2): Family groups temporarily gather at a ceremonial center or mortuary/habitation site to engage in social activities, trade, and mortuary activities.

3): Sites consist of transient camps, multiseasonal base camps, ceremonial centers, and mortuary/habitation sites.

Sites are articulated in a nucleated type of settlement system (Cobb 1978:101, Faulkner 1973:35-45, Faulkner and McCollough 1982c:555-560, Kline et al. 1982:66-70) when:

1): Family groups occupy villages on a semipermanent to permanent basis with the village forming the nucleus of the settlement system.

2): Individual family groups temporarily occupy ancillary base camps.

3): Individual family groups or work units temporarily occupy transient camps.

4): Sites consist of transient camps, ancillary base camps, and semipermanent to permanent villages.

Middle and Late Woodland subsistence practices were generally based on hunting, gathering, and limited horticulture. Cultigens may have influenced food procurement and production practices as early as

late Middle Woodland times in some areas but major changes did not occur in the subsistence economy until emergent Mississippian times (Caddell 1981:44-48, Crites 1978:189-215, MacMahan 1983:135-147).

The objective of the present study is to first describe Middle and Late Woodland cultures in the Middle Duck River Drainage and then to compare the basic attributes of human adaptation and the interrelationship of these attributes among contemporary Woodland groups in the Midsouth. The nature of the cultural changes that took place during Woodland times should be expressed in the elements of settlement and subsistence systems, site composition, and site activities. These attributes of human adaptation and cultural change will be described for Woodland groups in selected areas of the Middle and Upper Duck and Elk River drainages in Middle Tennessee, the Bear Creek Drainage and Middle Tennessee River Valley in northern Alabama, the Middle and Upper Tombigbee River Drainage in eastern Mississippi and adjacent Alabama, and the South Fork of the Forked Deer River in western Tennessee.

CHAPTER VIII

HUMAN ADAPTATION IN SELECTED AREAS OF THE MIDSOUTH DURING THE MIDDLE AND LATE WOODLAND PERIODS

1. MIDDLE DUCK RIVER DRAINAGE

The Duck River drains the middle of the Nashville Basin and adjacent portions of the Highland Rim in the Interior Low Plateau physiographic province. The proposed Columbia Reservoir is located on the Middle Duck River (Figure 60) in the inner portion of the Nashville Basin and a transitional area between the inner and outer sections of the Basin. Fountain Creek, a major tributary of the Duck River, is situated in the transitional area. The uplands of the Inner Basin are marked by cedar glades and open patches in areas with little or no soil formation while the deep soil of the river valley and the Outer Basin supports a typical Western Mesophytic Forest. The geologic and floristic variability of the Middle Duck River Drainage would have provided a relatively high carrying capacity for the aboriginal inhabitants of the area.

During the late Middle Woodland by around A.D. 600 an area of Fountain Creek located 10 km upstream from the Middle Duck River would have appeared as a complex of at least three single post structures, a few fill areas, and numerous pits positioned on the crest and slopes of the second terrace (Edmondson Bridge site-40MU423). The structures were oval and subrectangular in shape and measured 8.0-14.0 m x 5.0-10.5 m (floor area $\bar{x}$ = 94.5 m^2). Pits were usually circular to

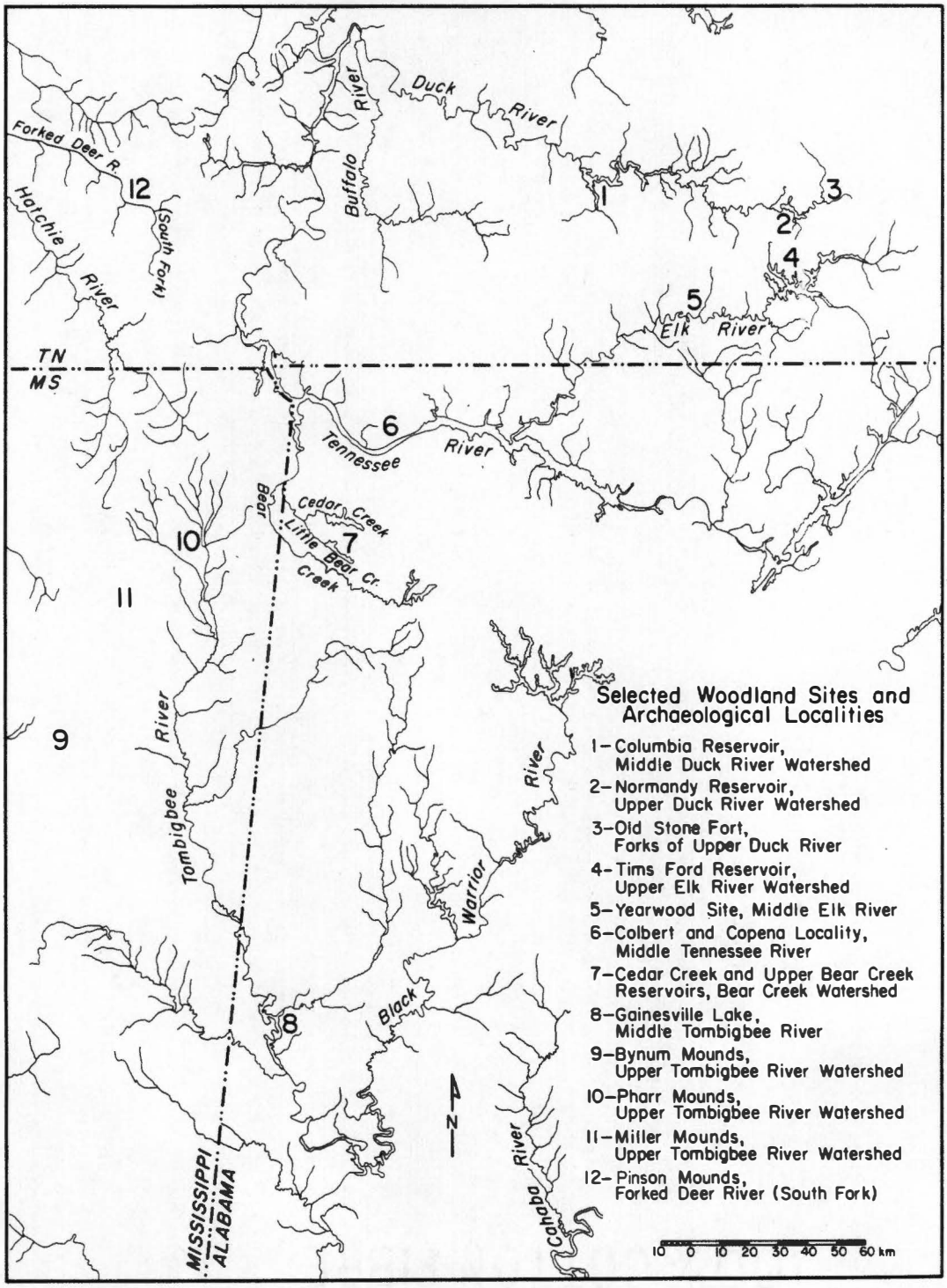


Figure 60. Selected Middle and Late Woodland Sites and Archaeological Localities in the Midsouth.

oval, shallow, and either basin-shape (69.2%) or had insloping sides and flat bottoms (21.2%). During the warm weather a large lightly built subrectangular structure (Structure 2) was erected mainly for sleeping. Daily activities were conducted either in the open or in a semicircular shelter adjacent to the east wall of the enclosed structure. Most of the food processing took place approximately 100 m to the southeast of the main occupation area. One or more large earth ovens (F 17) were repeatedly utilized at this location for cooking a variety of plant and animal remains such as deer and other mammals, birds, mussels, fish, possibly snails, and arboreal seed crops. The oven was lined with heated blocks of limestone; filled with food; and then sealed with grass, sticks, and finally earth. When cooking was completed the oven was opened and the food removed. Cleaning of the facility prior to each use resulted in the accumulation of a large mound of burned limestone, organic material, and other debris (Fill Area 1) adjacent to the pit. Food gathering by the site inhabitants was supplemented by simple horticulture (sunflower and squash). Surpluses were probably stored for future use in above ground locations or shallow pits.

During the cold season a large substantially built oval structure (Structure 1) was used for sleeping and daily maintenance activities. The apparent partitioning of the structure into three nearly equal size rooms suggests the dwelling was separated into discrete work and sleep areas. The northwest room was used for the processing and storage of food as indicated by the location of four of the six

interior structure pits in this area. Two of these pits were earth ovens (F 2 and 53) while the others probably served as short-term storage facilities. Certain features in the northwest room (F 2, 53 and PM 147) contained tools utilized in food preparation; these included a grinding/pitted stone, a pecking stone, and biface and projectile point/knife fragments. The lack of pits in the east room indicates this area was used for sleeping. The south room was presumably an entry and daily activity area. A trench segment (TS 7) near the south wall of the structure probably supported an interior wind baffle near an entrance. The numerous pits located within 5 m of the oval dwelling, including an earth oven (F 42), were probably used for food processing and storage. An additional earth oven (F 26) was situated approximately 17 m northwest of the structure.

Ceremonial activities on the site occurred in and adjacent to a small subrectangular structure (Structure 3) located to the east of the dwellings. These activities may have included the smoking of a large effigy form elbow pipe and the use and processing of nonlocal lithics and ceramics.

Small fragments of nonlocal lithics (copper, mica and micaceous schist), mostly found in and around the oval structure, were probably the result of manufacturing artifacts from raw materials for trade or inclusion as mortuary items. The nonlocal lithics were probably obtained through interregional exchange with groups in the southern Appalachian Mountain area.

A second occupation area was established on the terrace slope of Fountain Creek. A structure (Structure 4) and fill area (Fill Area 2) were partially exposed next to a topographic depression situated approximately 50 m to the south of the structures on the terrace crest. The positioning of two earth ovens (F 8 and 11) and an additional pit within or near the structure are indicative of a cold season dwelling. The accumulation of soil and material that formed Fill Area 2 resulted from the dumping of domestic debris and organic remains just outside the structure. The fill area and an earth oven (F 8) contained an assemblage of food preparation tools that is virtually identical to that found in the cold season dwelling on the terrace crest. The Structure 4 assemblage consisted of a grinding stone, a knapping hammer/anvil stone, and complete and fragmentary bifaces and projectile points/knives. Other structures and associated pits are most likely situated in close proximity to Structure 4 and may form a second occupational complex on the site. The few isolated pits scattered around the site were probably affiliated with the two structure area occupations or may be the remains of individual short-term transient settlements.

The ceramics on the Edmondson Bridge site are predominantly quartz tempered and limestone tempered plain. Minority types are quartz tempered red slipped and simple stamped; limestone tempered polished, red slipped, simple stamped or incised, and curvilinear complicated stamped; limestone/quartz tempered plain, simple stamped, and cordmarked; grog tempered plain; and waterworn pebble tempered

plain. All of the minority types comprise only 8.6% of the ceramic assemblage while the plain quartz tempered and limestone tempered types make up 91.4% of the assemblage. Vessels are subconoidal with inslanting to slightly outcurving necks and rims and occasionally vertical rims. The vessel lips are rounded or flattened and often decorated on top with plain dowel impressions. Most of the minority ceramic types are probably near local trade items or imitations of nonlocal types. Other types, including red slipped limestone or quartz tempered and plain grog tempered, may have been obtained through interregional exchange. Lumps of fired clay containing tempering indicate that pottery was manufactured on the site. A pit (F 55) located in the warm weather dwelling (Structure 2) contained quartz tempered potter's clay and the earth oven (F 17) adjacent to Fill Area 1 contained limestone tempered potter's clay.

The late Middle Woodland lithic assemblage includes Lanceolate Expanded Stem Cluster projectile points/knives, mostly of the shallow side-notched variety and occasionally of the corner removed variety. Occasional McFarland Cluster and Lanceolate Spike Cluster projectile points/knives may also be represented in the assemblage. The initial reduction of chert cores was probably of minor importance at the site. This is indicated by the paucity of chert cores and initial reduction debitage. The large number of late Middle Woodland projectile points/knives suggests the site was a base for hunting activities in the area and thinning flakes in the assemblage are the result of repairing and sharpening these tools.

For the purpose of dating the late Middle Woodland occupation on the Edmondson Bridge site one charcoal sample was submitted for analysis. This sample was collected from the earth oven (F 17) adjacent to Fill Area 1. A radiocarbon age determination of the sample yielded an uncorrected date of 1400 ± 75 years: A.D. 550 (GX 11488).

A late Middle Woodland settlement, the Edmondson Bridge site, was established on the second terrace of Fountain Creek approximately 10 km from the Duck River. This habitation was probably a semipermanent to permanent village because it consisted of warm and cold weather dwellings and associated pits; a ceremonial structure and adjacent fill area; an earth oven/fill area food processing complex; and a wide range of activities took place on the site. Subsistence was based on the gathering of arboreal seed crops and the exploitation of various terrestial and aquatic animals. This was supplemented by simple horticulture. In the warm weather most food processing took place in a designated area about 100 m southeast of the main habitation. Food was probably stored for future use in shallow pits and/or above ground locations in or near the dwellings. Ceremonial activities were probably conducted in a small structure. Nonlocal lithics and ceramics were concentrated in this area. During the cold weather food preparation and most other daily activities took place in a large oval dwelling. By late winter or early spring the site may have been abandoned by at least a portion of the village population and individual family groups dispersed into surrounding areas until

summer. The late Middle Woodland ceramics are mostly plain and tempered with quartz or limestone. Projectile points/knives are predominantly the shallow side-notched variety of the Lanceolate Expanded Stem Cluster.

A second occupation area on the Edmondson Bridge site was comprised of at least one structure, a few pits, and a fill area located approximately 50 m south of the structure complex on the terrace crest. The village on the terrace crest was probably articulated with short-term seasonal base camps and/or transient camps. The transient camps lacked structures and contained small clusters of features and/or single isolated features. Site activities were generally limited to food procurement and processing. One such settlement, the Fountain Creek site, was located approximately 130 m to the southwest on the first terrace of Fountain Creek. This site probably served as a central locus for preparing and cooking plant and animal remains gathered from surrounding areas.

During the late Middle Woodland the Fountain Creek site would have appeared as a food processing complex with one or more earth ovens and a fill area formed by repeated use and cleaning of the pit(s). A few additional earth ovens and temporary storage pits were probably also scattered across the terrace crest parallel to Fountain Creek. The pits were circular to oval and either basin-shape or had insloping sides and flat bottoms. Most of the food processing on the site took place on the west end of the terrace crest. One or more earth ovens were probably utilized many times at this location for

cooking plant and animal remains. Cleaning of the ovens prior to each use resulted in the accumulation of a large mound of burned limestone, organic material, and other debris adjacent to the pits. A few ceramic vessels and projectile points/knives were utilized in food preparation. A sherd from the site surface was quartz tempered plain and projectile points/knives consisted of McFarland Cluster, Lanceolate Expanded Stem Cluster, and Lanceolate Spike Cluster types.

Food processing complexes also occurred on transient camps during the early Middle Woodland. One such transient camp, the Leftwich site, was situated on the first and second terraces of the Duck River approximately 335 m north of Cedar Creek. In early Middle Woodland times this location would have appeared as a food processing complex with one or more earth ovens and a fill area formed by repeated use and cleaning of the pit(s). A few additional earth ovens, storage pits, and burial pits were probably scattered across the terraces parallel to the Duck River. Cooking and storage pits were circular to oval and either basin-shape or had insloping sides and flat bottoms. One isolated earth oven (F 4) was extensively utilized for cooking mostly animal remains such as deer and turkey. Food may have been temporarily stored in a large deep pit to the north of Feature 4. Most of the food processing on the site took place on the slope of the second terrace to the northwest of Feature 4. One or more earth ovens were probably utilized many times at this location for cooking deer and other mammals and occasionally fish, mussels, and arboreal seed crops. Cleaning of the ovens prior to each use resulted in the

accumulation of a large mound of burned limestone, organic material, and other debris adjacent to the pits. A few ceramic vessels and projectile points/knives were utilized in food preparation activities. Ceramics were mostly quartz tempered simple stamped and limestone tempered cordmarked. Other types were quartz/grog/chert tempered plain and possibly chert/quartz tempered cordmarked. Projectile points/knives were the corner removed variety of the Lanceolate Expanded Stem Cluster and possibly also the shallow side-notched variety. Chert reduction was a minor ancillary activity in the food processing complex area. The reduction of chert nodules and cores was a major activity in the Feature 6 area to the northwest of the food processing complex. This chert knapping area may well have been associated with another occupation on the site. A single semiflexed primary inhumation of unknown cultural origin was contained in an isolated pit (F 5) on the first terrace of the Duck River. The feature was an elongated oval with inslanting sides and a rounded to slightly flattened bottom.

Small temporary base camps or transient camps consisting of small pit clusters and lacking structures were also established in the Middle Duck River Drainage during Late Woodland times. A greater variety of activities were conducted on these settlements then in the previous Middle Woodland period and food may have been stored in large deep pits. One such settlement, the Liggett site, was located on the valley slope and possibly the second terrace of the Duck River in Cheek Bend. This site probably served as a central location from

which hunting and gathering activities were conducted in adjacent floodplain and upland areas.

During the Late Woodland period by around A.D. 900 this site would have appeared as a cluster of deep storage pits and shallow earth ovens positioned on the tip of a lobe projecting from the valley slope. Additional isolated shallow earth ovens may have been situated in downslope areas on the second terrace of the Duck River. The storage pits were circular, deep, and bell-shape (F 2 and 4) and the earth ovens (F 1 and 8) were shallow and either basin-shape or had insloping sides and flat bottoms. The earth ovens were lined with blocks of heated limestone and then filled with such food items as fish, mussels, and arboreal seed crops. The processed food was kept in deep storage pits and recovered at a later time, possibly after the site was abandoned. Ceramic vessels were probably utilized in food preparation and storage. A few projectile points/knives were utilized in hunting activities in the adjacent uplands as well as the preparation of food at the site. The ceramics are predominantly quartz/chert tempered fabric impressed and plain. Minority types are quartz/chert tempered knot roughened/net impressed and limestone/quartz tempered cordmarked. The lithic assemblage includes a thin stemless medium triangular projectile point/knife and possible Lanceolate Expanded Stem Cluster forms that are most often associated with the Middle Woodland period. Chert nodules and cores were reduced in the area of Feature 4 and bifacial flake tools were manufactured.

Intensive controlled surface collections conducted in the Middle Duck River Drainage revealed that the surface evidence of small Woodland camps consisted of 1-8 projectile points/knives and occasional sherds. These sites comprised the vast majority of the individual Middle and Late Woodland site loci in the Middle Duck River Drainage. A few moderate-size sites contained 9-16 projectile points/knives and occasional sherds or less often large amounts of pottery. These sites may have been small temporary base camps or transient habitations that were visited frequently. The large habitations were few in number and consisted of more than 22 projectile points/knives and variable amounts of pottery ranging from a dozen to hundreds of sherds. Prehistoric activities at these sites usually cannot be determined from the surface remains alone. Most habitations in the Middle Duck River Watershed are multicomponent and the nondiagnostic remains, especially tools, cannot be associated with any archaeological variant on a site.

A reanalysis of the projectile points/knives recovered from the initial Columbia Reservoir survey (Dickson 1976) indicates the Middle Woodland occupation of the Middle Duck River Drainage was both intensive and extensive during the first half of the period. The number of early Middle Woodland McFarland Cluster (n = 48) and corner removed type Lanceolate Expanded Stem Cluster (n = 32) projectile points/knives far exceeds the number of late Middle Woodland shallow side-notched type Lanceolate Expanded Stem Cluster (n = 16) and Lanceolate Spike Cluster (n = 3) projectile points/knives. Nearly

three-fourths (n = 37) of the total early and late Middle Woodland components in the study area were early while only slightly more than one-fourth (n = 14) were late.

Tributary habitats were apparently preferred over the main river valley throughout the Middle Woodland period. Approximately one-third of both the early (n = 30) and late (n = 6) Middle Woodland projectile points/knives from the initial survey were found along the Duck River while about two-thirds of both the early (n = 50) and late (n = 13) Middle Woodland projectile points/knives were situated along creeks that flow into the Duck River.

The results of the controlled surface collections conducted in Cheek Bend and Cannon Bend also indicate the Middle Woodland occupation of the Middle Duck River Valley was more intensive early in the period. This is proposed because the number of early Middle Woodland projectile points/knives (n = 63) in the two bends far exceeds the number of late Middle Woodland projectile points/knives (n = 34). While the near Outer Basin habitat of Cannon Bend was apparently preferred over the Inner Basin habitat of Cheek Bend during the Middle Woodland period (Table 1, Figures 3 and 4, pages 7-9), the occupational intensity of the latter remained constant throughout the period. This is indicated by comparing the numbers of early (n = 31) and late (n = 26) Middle Woodland projectile points/knives found in Cheek Bend. While the occupational intensity of other areas (Cannon Bend and tributaries) apparently decreased during late Middle Woodland

times, Cheek Bend continued to be utilized throughout the period, possibly as a base for hunting activities in the adjacent uplands.

The decrease in the intensity and extensiveness of occupation in the Middle Duck River Valley during late Middle Woodland times may be an indication of population nucleation at fewer but larger and more permanent habitations away from the main river channel. Dickson's (1976) examination of the Middle Duck River Valley may have excluded such large occupation areas, one of these being the Edmondson Bridge site.

The Late Woodland occupation of the Middle Duck River Drainage was at most sporadic. The surface remains of sites usually consisted of isolated projectile points/knives and occasionally a few sherds. The Liggett site was not a typical Late Woodland site because a relatively large amount of pottery was recovered from the surface.

During the Middle Woodland period semipermanent or permanent villages were established on the first and second terraces of the Middle Duck River and its tributaries (Figure 60). Ancillary base camps and/or transient camps were associated with the larger more permanent settlements. Villages had multiple oval and subrectangular single post structures, numerous pits, and food processing areas comprised of large earth ovens and adjacent fill areas. Early Middle Woodland groups probably moved in a restricted area around temporary to semipermanent base camps. Late Middle Woodland groups occupied village areas on a permanent or semipermanent basis. These villages may have been abandoned in the late winter and/or spring with the

population separating into individual family units until the following summer when the groups again aggregated at the village.

Late Woodland groups established transitory camps or possibly small temporary base camps in the Middle Duck River Drainage. These camps were short term occupations situated in areas ideal for exploiting various locally and/or seasonally available resources. The sites were comprised of small clusters of pits including occasional deep storage facilities. Large villages were apparently not located in the Middle Duck River area. The short term encampments may have been associated with larger more permanent settlements in adjacent river drainages, such as the Elk River to the south.

2. UPPER DUCK RIVER DRAINAGE, MIDDLE AND AND UPPER ELK RIVER DRAINAGE

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. The Normandy Reservoir is located on the Upper Duck River in a transitional zone between the Highland Rim and the Nashville Basin sections of the Interior Low Plateau physiographic province (Figure 60, page 216). In the upper reservoir, the uplands (Highland Rim) are flat barrens with prairie areas while in the lower reservoir the uplands are deeply dissected with long narrow sloping ridgetops separated by narrow steep sided

valleys. The valley floor (Nashville Basin) is narrow in the upper reservoir and wide with extensive floodplain and older alluvial terrace formations in the lower reservoir. The Normandy area is also an ecotone that is formed by the overlapping of the Western Mesophytic and Mixed Mesophytic forests. The commingling of plant communities from these two forest regions would have provided a relatively high carrying capacity for the aboriginal inhabitants of the area (Faulkner and McCollough 1973:408; 1974:1-2). The Tims Ford Reservoir is located on the Upper Elk River approximately 30 km south of the Normandy Reservoir (Figure 60, page 216). 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.

In the area of the Interior Low Plateau physiographic province the Middle Woodland period (250 B.C.-A.D. 600)

> is defined as that period of cultural development when local cultures began to participate in (or were influenced by) the Hopewellian Interaction Sphere, and stamped pottery reached its highest point in the Tennessee Valley (Faulkner and McCollough 1974:423).

By the Late Woodland period (A.D. 700-1000) the extensive exchange networks found in earlier times were lacking and limestone tempering was replaced by chert tempering. The Middle and Late Woodland periods are defined by their chronological placement; material assemblage;

settlement, subsistence, and mortuary patterns; and exchange and ceremonialism.

Extensive archaeological excavations in the Normandy Reservoir were conducted primarily on multicomponent sites that were intensively occupied during the Middle Woodland period. Late Woodland Mason phase components were also investigated. Additional Middle Woodland sites in the uplands near the Normandy Reservoir have also been studied. Archaeological investigations in the Tims Ford Reservoir of the Upper Elk River Valley were conducted on Middle and Late Woodland occupation areas. Excavations were also undertaken on a Middle Woodland site located in the adjacent Middle Elk River Valley.

Neel Phase/Mortuary Complex (250 B.C.-A.D. 150)

The early Middle Woodland Neel phase/mortuary complex was initially delineated through the analysis of a structure and three pits on a large (14.0 ha) multicomponent site (Eoff I-40CF32) situated on the first terrace of the Upper Duck River (Faulkner 1977:163-169). The circular single post structure measured 4.9 m x 4.6 m (floor area - 17.7 m^2) and contained a basin-shape pit in the central floor area. A fall occupation for this hunting and gathering base camp was indicated by the floral and faunal remains recovered from the features. The Neel ceramics are limestone tempered plain (Mulberry Creek Plain) and cordmarked (Candy Creek/Flint River Cordmarked). The lithics include Lanceolate Expanded Stem Cluster (Bakers Creek and Swan Lake) and medium triangular McFarland Cluster (McFarland) projectile points/knives. Interregional interaction through direct

contact and indirect diffusion of ideas is indicated by the presence of sand tempered Connestee pottery, lithic material from the southern Appalachian Mountains, and a blade industry on local cherts.

Two large (8-10 ha) multicomponent sites located on the first terrace of the Upper Duck River had substantial Neel components (Bacon 1982:176-197). These settlements may have functioned as mortuary/habitation sites at which local early Middle Woodland groups temporarily gathered for the primary purpose of social intensification, including mortuary activities. The Banks III site (40CF108) contained three overlapping square and subrectangular Neel phase structures that measured 9.1-10.1 m x 7.8-9.8 m (floor area $\bar{x}$ = 80.7 m²). The structures contained small hearths that were often centrally located. A cluster of four pits containing redeposited human cremations and one primary flesh burial was situated near the structures. A much larger Neel phase occupation on the Parks site consisted of seven and possibly eight square and rectangular single post structures and two burial zones. The structures measured 6.0-9.5 m x 3.1-8.7 m (floor area $\bar{x}$ = 54.8 m²) and interior facilities consisted of small hearths, earth ovens, roasting pits, and occasional storage pits. Six structures were clustered near a burial zone and another structure and burial zone were situated 61 m east of the cluster. The remains of an eighth possible structure were found 45 m northeast of the structure cluster. The two burial zones were comprised of 16 pits containing redeposited human cremations, two primary flesh inhumations, and one crematory pit. A second possible

crematory pit was located approximately 45 m west of the structure cluster.

Two small (1 ha) multicomponent sites found on the Elk River had Neel phase components. The Brickyard site (40FR13) is located in the Tims Ford Reservoir on the second terrace of the Upper Elk River (Butler 1968:203-204) and the Yearwood site (40LN16) is positioned on the valley edge overlooking the Middle Elk River (Butler 1977:1-15; 1979:150-156). Hand excavation of a small portion of the Brickyard site uncovered a Neel phase habitation area consisting of six pits. The extensive investigation of the Yearwood site revealed a substantial Neel phase mortuary/habitation base camp at which early Middle Woodland groups gathered during the warm weather for the primary purpose of social intensification (Figure 60, page 216). The site consisted of 40 pits and 13 single post structures arranged in three groups. The structures were mostly subrectangular, rectangular, and square and measured 7.3-13.0 m x 4.7-12.0 m (floor area $\bar{x}$ = 76.6 m^2). The central habitation area was comprised of seven lightly built structures and most of the pits and domestic debris. Two groups of three substantially built structures were located 10-40 m away from the central domestic activity area. Mortuary activities were indicated by redeposited human cremations in pits, primary and secondary flesh burials, and a possible crematory pit situated 80 m away from the main site area.

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 area $\bar{x}$ = 70.8 m²) and the open shelter measured 7.7 m x 4.7 m deep (floor area - 28.4 m²). 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. Mortuary practices during the Neel phase consisted of cremation of the dead in pits located near a mortuary/habitation site. The cremated remains were redeposited in small pits clustered near structures. Occasional primary and secondary flesh burials were interred in the burial zones along with redeposited cremations.

Since the initial definition of the Neel phase at the Eoff I site, additional ceramic and lithic artifacts have been identified on other Neel sites. These include limestone tempered check stamped (Wright Check Stamped), simple stamped (Bluff Creek Simple Stamped), and complicated stamped (Pickwick Complicated Stamped) pottery. Podal supports occur on vessels and rims are occasionally notched. It should be noted that while the Neel phase was defined in part by a relatively large amount of limestone tempered cordmarked pottery (25%) and a virtual absence of stamped pottery, approximately one-half of the ceramics from the Brickyard site are Wright Check Stamped. The Neel phase ceramic assemblage also contains types that were produced or influenced by groups in other regions. These include limestone tempered red slipped over plain, red slipped over complicated stamped,

and incised/punctated; 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 varieties. The lithic assemblage includes occasional Lanceolate Spike Cluster PPKs, rectanguloid siltstone elbow pipes, and two hole shale gorgets. Lithic raw materials and finished artifacts derived through interaction with groups in other areas consist of greenstone celts, copper earspools, mica, galena, quartz crystals, serpentine, and Flint Ridge prismatic blades.

The early chronological placement of the Neel phase (250 B.C.-A.D. 150) was originally questioned because of its distinctive attributes which are lacking in the early Middle Woodland McFarland phase (Butler 1977:12-13, 1979:155-156; Faulkner 1977:168-169). These traits include a high percentage of limestone tempered cordmarked pottery, little fabric impressed and stamped ceramics, a blade industry, nonlocal trade goods, and a predominance of square, rectangular, and subrectangular structures. The Neel phase may in fact represent an early Middle Woodland mortuary complex (Banks III, Parks, and Yearwood) that is part of the early McFarland phase or the Neel phase may be a distinct local early Middle Woodland manifestation, possibly centered in the Elk River Valley, that consists of mortuary/habitation sites for social intensification and small seasonal to multiseasonal encampments occupied by nuclear or extended families (Eoff I and Brickyard).

McFarland Phase (150 B.C.-A.D. 200)

The early Middle Woodland McFarland phase was delineated through extensive archaeological research conducted in the Upper Duck and Elk River valleys. McFarland phase occupations were investigated at one ceremonial enclosure and twelve multicomponent habitation sites of various sizes (0.1-12.1 ha). The large habitations (n = 6) were semipermanent or permanent villages located on the first terraces of the rivers (four sites) and in the uplands bordering the valleys (two sites). The base camps (n = 6) were probably occupied on a seasonal basis by nuclear or extended families. These latter sites were located on first and second river terraces. The villages consisted of one to six structures and varying numbers of pits. The seasonal encampments were comprised of 2 to 15 pits. Situated on a plateau between the forks of the Upper Duck River (Figure 60, page 216), an earth and stone embankment enclosing 20 ha may have served as a locus of social intensification for Middle Woodland groups.

McFarland phase occupations were excavated on 10 sites in the Upper Duck River Valley. The Parks site (40CF5) McFarland component included one circular and two oval structures and one semisquare open cabana-type shelter. The oval structures and semisquare shelter were in close proximity and oriented in a line while the circular structure was isolated. The structures measured 6.1-7.6 m x 5.0-6.1 m (floor area $\bar{x}$ = 31.3 m^2). The enclosed dwellings contained up to five pits including storage and processing facilities. Domestic activity zones located away from the structures were comprised of cooking,

processing, and storage pits (Faulkner and McCollough 1982b:314-445; McCollough and DuVall 1976:116-134). The McFarland phase occupation on the Eoff I site (40CF32) consisted of one circular and two oval structures that were spatially isolated from each other. These structures measured 5.3-8.2 m x 2.7-7.3 m (floor area $\bar{x}$ = 28.5 m²) and contained two to four interior pits including storage, processing, and cooking/heating facilities. Domestic activity zones similar to those on the Parks site were located away from the structures (Faulkner 1977:69-274, 1982:303-388; Faulkner and McCollough 1974:87-94). The Ewell III site (40CF118) McFarland habitation consisted of one circular structure and a cluster of five semicircular open cabana-type shelters located 20 m to the east. The structure and shelters measured 4.4-7.2 m x 2.1-5.8 m (floor area $\bar{x}$ = 21.0 m²). The enclosed dwelling contained two storage pits. Domestic activity zones located away from the structures were each comprised of a storage pit paired with processing and cooking pits (DuVall 1982:20-28, 39-79). The McFarland site (40CF48) is the type site for this early Middle Woodland phase. Excavations on this site revealed five circular structures. The walls of three structures touched but did not overlap and the remaining two structures were relatively isolated. The five structures measured 6.3-7.1 m x 6.3-6.8 m (floor area $\bar{x}$ = 34.3 m²). Roof support patterns included four widely spaced postmolds at the corners of a large square and four postmolds in the same arrangement with an additional central postmold. The interior facilities consisted of basins and one to two storage pits. The 72 exterior pits

included earth ovens and storage pits (Kline et al. 1982:22-31). The Banks III site (40CF108) contained an oval structure that measured 10.1 m x 7.2 m (floor area - 57.1 m²) and had three interior hearths (Bacon 1982:177). This structure is assigned here to the McFarland phase. McFarland occupations on the Nowlin II (40CF35), Banks V (40CF111), Jernigan II (40CF37), Boyd I (40CF68), and Aaron Shelton (40CF69) sites were comprised of 1-13 pits but lacked structures (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). The Old Stone Fort (40CF1) is a discontinuous earth and stone embankment that would be 1.4 km long if complete. The walls (1-2 m high) converge towards the east at an entrance complex. The entrance is formed by a walled corridor which meets the exterior embankment at twin conical earth and stone pedestals or pillars. The pillars are 10-15 m in diameter and about the same height as the walls. Little occupational debris and no domestic features were found within the enclosure during test excavations; however, "transparent flint glass" and carved stone were found there in the nineteenth century when agricultural activities were initiated. Construction and utilization of the Old Stone Fort began during the McFarland phase and continued into the late Middle Woodland Owl Hollow phase (Faulkner 1967).

McFarland phase components were excavated on two sites in the Tims Ford Reservoir of the Upper Elk River Valley. In addition to a Neel occupation, the Brickyard site had a McFarland component

consisting of five pits (Butler 1968:203-204). A small McFarland phase encampment (40FR47) located on a terrace remnant of the Elk River was salvaged after the topsoil had been bulldozed away prior to the inundation of Tims Ford Reservoir. The site was comprised of the partial remnants of an oval structure, domestic pits, and a primary flesh inhumation in a pit. The dwelling probably measured approximately 9.4 m x 7.3 m (floor area - 43.9 m^2) and enclosed three storage pits and a central hearth. A domestic activity zone similar to those on the Parks, Eoff I, and Ewell III sites contained earth ovens, processing pits, a hearth, and scattered postmolds (Bacon and Merryman 1973:1-23).

During the early Middle Woodland McFarland phase short-term encampments and multiseasonal or possibly year around habitations were established on the first and second terraces of the Upper Duck and Elk rivers. Sites were occasionally located on the floodplain and in the uplands (Kline et al. 1982:4). The McFarland phase settlement pattern developed from a mobile dispersed to a dispersed or modified dispersed system and possibly to a nuclear system. 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. The nuclear system with permanent year around villages probably developed late in the McFarland phase and then intensified and culminated 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 m^2) and contained interior basins, storage pits, processing pits, and occasionally hearths. Some circular structures had integral roof supports situated at the corners of a large square and this configuration was sometimes accompanied by a central postmold. These structures probably had pitched conical roofs while the dwellings lacking patterned roof supports were dome-like constructions formed by tensioning and tying saplings set in the wall postmolds. The semicircular and semisquare shelters measured 4.4-7.6 m x 2.7-5.0 m deep (floor areas = 7.3-33.9 m^2) and usually lacked interior pits and postmolds. These shelters were probably utilized during warm weather while the substantially constructed enclosed structures with interior pits were cold weather dwellings. Domestic activity zones on sites may have functioned as either outdoor work areas associated with structures or separate warm weather occupations utilized by individual families. The McFarland phase subsistence pattern was based on the gathering of arboreal seed crops (hickory, butternut, and acorns) supplemented by 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 1982a: 528-529; Crites 1982:538-539; Faulkner 1977:156-157; Kline et al. 1982:55-64). Mortuary practices during the early Middle Woodland

McFarland phase 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 1982b:84-90; Wagner 1982:494).

The early Middle Woodland McFarland phase ceramics are limestone tempered and predominantly plain (Mulberry Creek Plain), check stamped (Wright Check Stamped), and fabric impressed (Long Branch Fabric Marked). The fabric marked pottery was carried over from the Early Woodland period and continued through the early McFarland phase but was replaced by check stamped pottery during the late McFarland phase. Additional limestone tempered ceramic types associated with the McFarland phase include curvilinear complicated stamped (Pickwick Complicated Stamped) and some red slipped pottery that may be nonlocal. Vessel podal supports are typical. Small quantities of mixed grit and limestone tempered ceramics were often recovered. The McFarland phase lithic assemblage includes medium triangular McFarland Cluster (McFarland) and a few Lanceolate Expanded Stem Cluster (Bakers Creek and Swan Lake) PPKs, sandstone elbow pipes, gorgets, and shale digging implements (Faulkner 1977:157-159; Faulkner and McCollough 1974:330-331; Kline et al. 1982:4). Nonlocal lithic artifacts and raw materials derived through interregional exchange consist of greenstone celts and occasional scraps of unworked mica. While the trade of materials and artifacts into the Upper Duck River Valley during the McFarland phase was not as intensive as in the earlier Neel phase, the

diffusion of Hopewellian ideas and concepts may have influenced the construction of the Old Stone Fort during McFarland times.

Owl Hollow Phase (A.D. 200-700)

The late Middle Woodland Owl Hollow phase was delineated through extensive archaeological research conducted in the Upper Duck and Elk River drainages. The late Middle Woodland in this region has been divided into the Early Owl Hollow subphase (A.D. 200-400), Middle Owl Hollow subphase (A.D. 400-600), and Late Owl Hollow subphase (after A.D. 600). Owl Hollow phase occupations were investigated on eight sites of various sizes (0.1-13.9 ha) located on the first terraces of the Upper Duck and Elk rivers (four sites) and the older alluvial terraces and adjacent upland areas of marginal streams that flow into the rivers (four sites). These sites were intensively occupied villages consisting of 1-5 structures and associated pits. Owl Hollow phase hunting and gathering camps may have been located in areas, such as the Cumberland Plateau escarpment, that have not been extensively studied. Most temporary encampments in the Upper Duck River Valley are represented by only limited surface debris while others, such as Rhoton Cave (Faulkner and McCollough 1974:138-139), were visited frequently by small Middle Woodland groups which left little material diagnostic of the Owl Hollow phase.

Owl Hollow phase occupations were excavated on five sites in the Upper Duck River Valley that usually contained midden deposits measuring 10-50 cm in depth. The Eoff I site (40CF32) Middle Owl Hollow subphase component included three overlapping circular

structures, one oval structure, and one semicircular open cabana-type shelter. The structures and shelter measured 5.3-13.7 m x 2.7-11.4 m (floor area $\bar{x}$ = 43.6 m²). The circular structures and semicircular shelter were situated 30 m from the oval structure. A domestic activity zone consisting of earth ovens, storage pits, and small shallow basins was located between the two structure loci. The circular structures and semicircular shelter lacked interior facilities and patterned roof supports. The oval structure is a type of multi-family Owl Hollow phase dwelling referred to as a double earth oven house (Faulkner and McCollough 1974:288). This structure type consisted of a pair of large heavily burned centrally located earth ovens surrounded by four post pits positioned at the corners of a square. These post pits were integral in supporting a large conical roof which was buttressed at the wall by a single row of small short posts or stakes. This wall often exhibited rebuilding along some sections. A discharge midden containing burned limestone and other debris may have been associated with the structure and its central earth ovens. The oval double earth oven house on the Eoff I site lacked a discharge midden and interior storage facilities. The circular structures lacked interior pits in definite association (Cobb 1982:159-169, 289-300). The Banks III Middle Owl Hollow subphase component consisted of three oval structures and one rectangular double wall structure. The structures measured 7.6-11.9 m x 6.7-10.2 m (floor area $\bar{x}$ = 72.9 m²). Two of the oval structures were double earth oven houses. Both had discharge middens resulting from

the cleaning and reuse of the interior cooking/heating facilities. The third oval structure had a central postmold and a centrally located hearth. The double earth oven houses and the third oval structure were in close proximity while the rectangular double wall structure was located 50 m east of the house cluster (Faulkner and McCollough 1974:263-292). The Banks III Middle Owl Hollow subphase component consisted of a single oval double earth oven house and associated pits (Faulkner and McCollough 1974:125-129; Cobb 1978: 105-170). The structure measured 13.7 m x 10.7 m (floor area - 115.1 m^2). Limited test excavations (<75 m^2) were conducted on two sites located along marginal streams that flow into the Upper Duck River. Excavations on the Middle Owl Hollow subphase occupation on the Schofner site (40BD55) revealed four pits and excavations on the Late Owl Hollow subphase habitation on the Raus site (40BD46) revealed seven pits (Cobb and Faulkner 1978:10-52). More extensive excavations probably would have indicated that these sites are village areas involving one or more structures and numerous pits.

Owl Hollow phase occupations were excavated on three sites in the Elk River Drainage. These sites contained midden deposits that measured 10-30 cm in depth. The Owl Hollow (40FR7) and Hamby (40CF214) sites are located along marginal streams that flow into the Elk River and the Peters site (40FR45) is situated on the first terrace of the Elk River. Extensive excavations (812 m^2) on the Owl Hollow site uncovered an Early Owl Hollow subphase occupation consisting of one circular structure that measured 6.0 m x 5.3 m

(floor area - 25.0 m^2) and a portion of an oval double earth oven house. The latter dwelling contained two interior storage facilities in addition to the centrally located earth ovens. The 150 exterior facilities included 20 storage pits, 17 smudge pits, and 7 fired areas. Radiocarbon samples dated from the site indicate that in addition to a substantial Early Owl Hollow subphase component a smaller Late Owl Hollow occupation may also be represented (Cobb and Faulkner 1978: 54-95). Limited excavations on the Hamby site revealed a Late Owl Hollow subphase occupation consisting of nine features including two storage pits. Small scale testing on the Peters site uncovered a Middle Owl Hollow subphase habitation consisting of 15 features including two bell-shape storage pits (Cobb and Faulkner 1978:97- 127).

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 in a nucleated settlement system. Throughout the Early Owl Hollow subphase sites were dispersed along marginal upland streams and the terraces of the Upper Duck River. A shift in the settlement pattern to the broad floodplain areas of the Upper Duck River and the narrower valley of the Elk River occurred during the Middle Owl Hollow subphase. This settlement change may be the result of increased use

and dependence upon native and tropical domesticated plants. Late Owl Hollow subphase sites were dispersed into marginal areas such as upland stream valleys and may not have been as intensively occupied as Middle Owl Hollow subphase sites. The distribution of Middle Woodland sites in the Upper Duck and Elk River drainages reflects a gradual trend from dispersed temporary to semipermanent habitations and then to fewer more intensively occupied semipermanent to permanent villages. These changes may be the result of increased dependence on horticulture which in turn influenced the location of sites to expansive areas of alluvial soils. After A.D. 600 population pressure and/or the permanent fractioning of village groups resulted in the dispersal of settlements back into marginal upland areas. These smaller groups may have returned to a hunting and gathering based economy in which horticulture no longer played an important role in the subsistence pattern (Cobb 1978:105-109, 157, 169-170, 199-200; 1982:232-234; Cobb and Faulkner 1978:3, 128-130; Faulkner and McCollough 1974:547, 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 deep (floor area - 11.2 m^2). The 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 the 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 postmolds. The lightly built structures were located on the sites with one or more double earth oven houses but sites with double earth oven houses did not always have clearly defined lightly built structures in association. This indicates that families occupying a winter house often inhabited lightly built structures on the same site during the warm weather. The Owl Hollow phase subsistence pattern was based on the intensive collecting of arboreal and herbaceous seeds (hickory, acorns, chestnuts, lambsquarter, knotweed, and maygrass) and increasingly on simple horticulture (sunflower, squash, gourd, and maize) supplemented by the exploitation of faunal resources. Animals utilized included deer, turkey, small mammals, mussels, fish, and reptiles (Cobb 1978:199-200, 1982:232-234; Cobb and Faulkner 1978:3, 128-130; Faulkner 1978:187; Faulkner et al. 1976:235-236; Faulkner and McCollough 1974:578, 574; Shea 1978:617). Owl Hollow phase mortuary practices consisted of flexed and semiflexed primary flesh inhumations in midden deposits or shallow pits and redeposited cremations in shallow pits or basins. Grave goods associated with the flesh burials

included fish hooks, marine shell beads, and a bone awl (Brown 1982b:130-135).

Owl Hollow phase ceramics are predominantly limestone tempered and plain (Mulberry Creek Plain). Limestone tempered simple stamped pottery (Bluff Creek Simple Stamped) constitutes up to 15% of the early Owl Hollow ceramic assemblage but is virtually absent by the end of the phase. Additional early Owl Hollow ceramic types include limestone tempered check stamped (Wright Check Stamped), complicated stamped (Pickwick Complicated Stamped), and cordmarked (Flint River Cordmarked). Plain and cordmarked limestone/grit and chert tempered ceramics are occasionally represented throughout the Owl Hollow phase and probably are local variations of Mulberry Creek Plain and Flint River Cordmarked. Early Owl Hollow jars are subconoidal with straight to slightly flaring notched rims and later jars have thin walls, pronounced shoulders, and flaring notched rims. The Owl Hollow 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, and stone gorgets. Lanceolate Spike Cluster PPKs are the predominant type of hafted biface by the late Owl Hollow phase. Stone gorgets and bone needles occur during the Early Owl Hollow subphase. Continuity from the early to late Middle Woodland is evident in the following traits which were present during both the McFarland and Owl Hollow phases: 1) plain and simple stamped limestone tempered pottery, 2) Lanceolate Expanded Stem and Lanceolate Spike Cluster PPKs, and 3)

stone elbow pipes and gorgets (Cobb and Faulkner 1978:3, 128-130; Faulkner and McCollough 1974:334, 578-579).

Interregional exchange of artifacts and ideas may have influenced Owl Hollow phase ceramic technology, lithic technology, and ceremonialism. Portions of a limestone/grit tempered zoned rocker-stamped vessel were found on the Owl Hollow phase component of the Eoff I site. This vessel is either a trade item or a local imitation of a Hopewellian ceramic style. A rudimentary blade technology on local cherts occurred during the Owl Hollow phase. While the initial stages of construction and use of the Old Stone Fort ceremonial center occurred during the early Middle Woodland McFarland phase, the final stages were not completed until the early Owl Hollow phase around A.D. 450 (Cobb 1982:219, 233-234; Faulkner 1967:33-34).

Mason Phase (A.D. 700-1000)

The Late Woodland Mason phase was delineated through extensive archaeological research conducted in the Upper Duck and Elk River drainages. Mason phase occupations were investigated on 13 multicomponent sites of various sizes (0.1-10.1 ha). These Mason sites are mostly located on the first and second river terraces. Additional sites known through survey are found on the valley slopes and in the bluff and upland zones (Duggan 1982:22). The larger habitations (n = 6) were seasonal base camps or semi-permanent to permanent villages usually comprised of one or more structures and a number of associated pits. The smaller Mason phase components (n = 7) were transitory camps consisting of a few pits and/or postmolds

($n < 11$). The tentative chronological placement of the Mason phase structures was usually based upon their spatial proximity to Late Woodland features and not on radiocarbon dating or the occurrence of diagnostics in the postmolds.

Mason phase occupations were excavated on eleven sites in the Upper Duck River Valley. The Parks site (40CF5) Mason phase component tentatively included one circular structure, one oval structure, and a square structure. These three enclosed structures measured 6.1-15.2 m x 4.7-10.7 m (floor area $\bar{x}$ = 83.4 m²). The circular structure and the oval structure were located a few meters apart and a cluster of eight Late Woodland pits containing 14 burials overlapped both structures. The circular structure contained two interior cooking and storage pits and interior partitions. The oval structure had a central support post. The square structure was spatially isolated on the site and contained a shallow basin, a cooking pit, and interior partitions (Brown 1982:478-483, 534-536). The Jernigan II site (40CF37) Mason phase component was comprised of an oval enclosed structure and four pits. The structure measured 10.1 m x 6.4 m (floor area - 50.8 m²). The pits were mostly found in and around the structure and included a shallow centrally located basin (Faulkner and McCollough 1982a:168-169, 206). The Davidson Branch site (40CF74) Mason phase component was comprised of two pits and probably an oval enclosed structure. The structure measured 10.7 m x 9.1 m (floor area - 76.5 m²) and contained a centrally located basin (McCollough and DuVall 1976:65-67). The Ewell III site (40CF118) Mason component

was comprised of a semisquare open cabana-type shelter and eleven pits; five of which were earth ovens with fired walls. The structure measured 7.0 m x 7.0 m deep (floor area - 49.0 m²) and contained a centrally located earth oven and a large off center postmold for a roof support (DuVall 1982:72, 79). The Mason phase occupations on the Neel II (40CF40), Wiser-Stephens (40CF81), Riddle (40CF59), Eoff I (40CF32), Banks I (40CF34), Banks II (40CF113), and Aaron Shelton (40CF69) sites consisted of 1-18 pits and/or postmolds but lacked clearly defined structures (Davis 1978:329-341; Faulkner 1977:169; Faulkner and McCollough 1974:82-86, 117-119, 189-208; McCollough and DuVall 1976:99-107; Wagner 1982:419).

Mason phase occupations were excavated on two sites in the Tims Ford Reservoir of the Upper Elk River Valley. Extensive excavations (343 m²) on the Mason site (40FR8) revealed a Late Woodland occupation consisting of 40 pits and 35 postmolds. The pits included shallow basins, straight-sided and bell-shaped storage pits, and fire basins. Clearly defined postmold patterns were not evident in the limited area exposed on this type site for the Mason phase but six clusters of postmolds may represent portions of Late Woodland structures (Faulkner 1968a:15-34). Limited test excavations (19 m²) in the Tucker Rockshelter (40FR16) revealed a 50 cm deep stratified midden that contained material diagnostic of the Mason phase.

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 that were affiliated with the larger more permanent villages in a dispersed or modified dispersed settlement system. Sites which functioned as villages exhibited intensive occupation with midden accumulations, numerous pits (n = 18-40), and usually multiple structures (Parks, Wiser-Stephens, and Mason). While structural configurations were lacking on the Wiser-Stephens site, there were many Mason pits and postmolds including numerous cooking/heating facilities. The sites comprised of possibly one or two structures and up to 11 associated pits were probably ancillary base camps (Jernigan II, Davidson Branch, and Ewell III). The remaining sites, those comprised of up to eight Late Woodland pits, were transient camps (Neel II, Eoff I, Banks I and II, Riddle, Aaron Shelton, and Tucker Rockshelter) (Brown 1982a:532-536; Duggan 1982:3-4, 22, 133-141; Prescott 1978:366).

The majority of the Mason phase base camps and villages tentatively contained one or more lightly built circular, oval, and square enclosed structures and semicircular and semisquare open cabana-type shelters. The enclosed structures measured 4.3-15.2 m x 3.1-10.7 m (floor area $\bar{x}$ = 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 other 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 postmolds. The semisquare and semicircular

shelters measured 7.0-10.3 m x 4.9-7.0 m deep (floor area $\bar{x}$ = 49.0 m²). Both contained central roof supports and one had a central earth oven. The enclosed structures and open shelters were probably utilized at least during the warm weather. Evidence for substantial winter structures with interior cooking/heating facilities, processing and storage pits, and patterned roof supports is lacking during the Mason phase. Pits were usually scattered across the sites on Late Woodland components but occasionally were clustered near the structures or formed domestic activity zones utilized in cooking, processing, and storage. The Mason phase subsistence pattern was based upon the intensive collecting of wild plant foods, especially arboreal seed crops (hickory nuts, butternuts, and acorns) supplemented by simple horticulture (squash, gourd, sunflower, and maize) and the exploitation of faunal resources. Animals that were hunted and collected by Mason phase groups consisted mostly of deer supplemented by raccoon, squirrel, rabbit and occasionally gastropods, fish, turkey, reptile, and snake (Brown 1982a:532-536; Duggan 1982: 39-117; DuVall 1982:12; Faulkner 1968b:245; Faulkner and McCollough 1982a:303; MacMahan 1983:10, 137-139).

Mason phase mortuary practices consisted of flexed and semiflexed primary flesh inhumations in deep pits and basins and less often 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 cemetery area on the Parks site was comprised of a cluster of eight partially filled earth ovens and

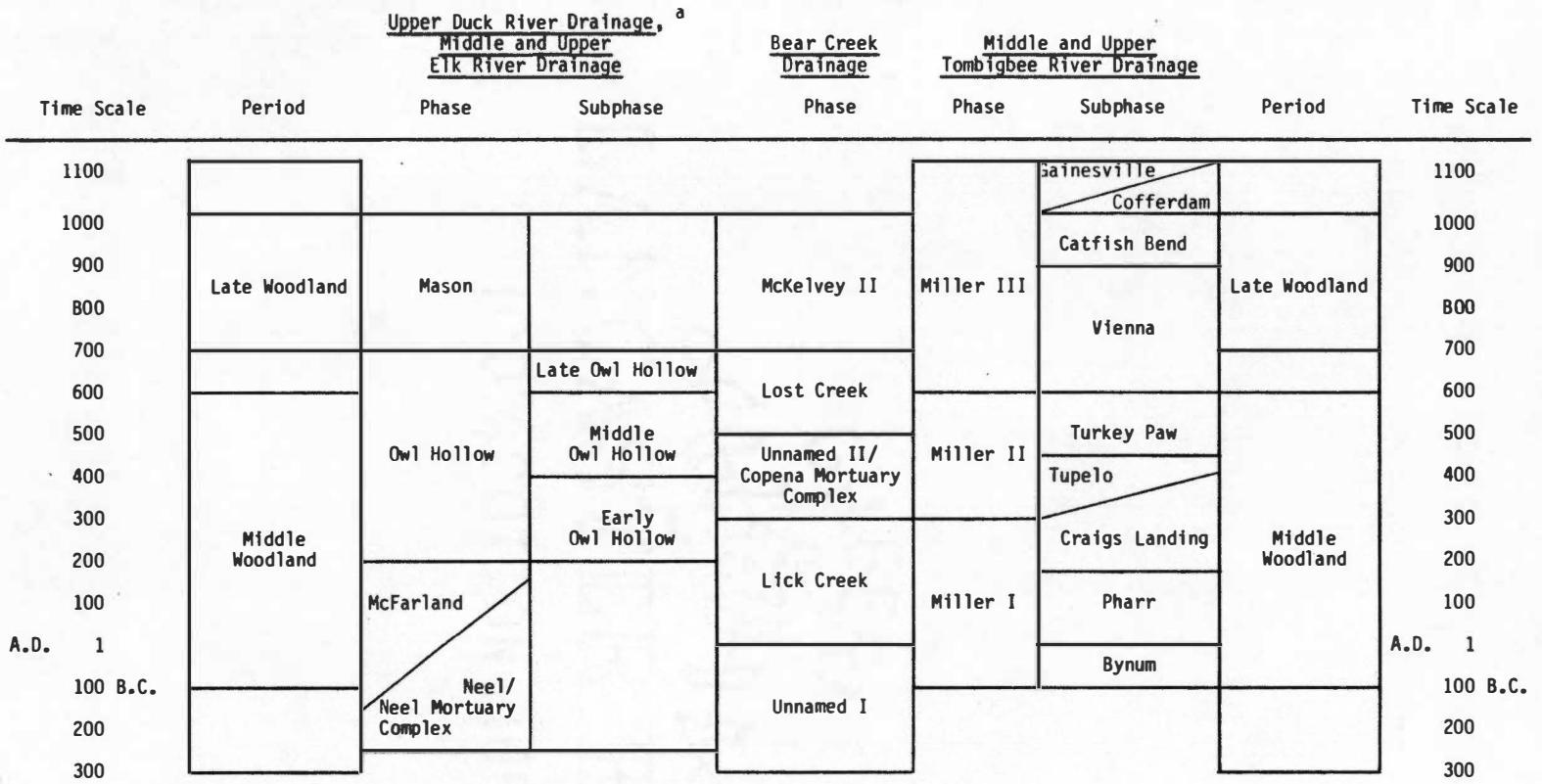
storage and processing pits containing 15 individuals. A smaller cemetery area on the Mason site was centered around a deep pit with a shallow basin-shape mortuary facility in the bottom. The burial was covered with limestone slabs, filling most of the larger pit, and a fire was built on top. This central burial pit intruded upon two additional burial facilities. An alignment of twelve postmolds adjacent to the burial pits may have been associated with the cemetery area. Grave goods found with a Mason phase burial consisted of bone fish hooks and marine shell snail beads (Brown 1982b:168-176; Duggan 1982:104; Faulkner 1968:35-38; McCollough and DuVall 1976:43).

The Late Woodland Mason phase ceramics are predominantly chert tempered and cordmarked (Elk River Cordmarked), plain (Elk River Plain), knot roughened/net impressed (Elk River Knot Roughened/Net Impressed), and occasionally check stamped (Elk River Check Stamped). Cordmarked and plain surface treatments are codominant in the Elk River series. Knot roughened/net impressed chert tempered pottery varies among site assemblages from minor amounts to being codominant with cordmarked and plain types. Limestone, shell, sand, grit-grog, and grog tempered ceramics were also present in small quantities. Large multicomponent sites in the Upper Duck River Valley sometimes contained small amounts of limestone tempered and shell tempered pottery in Mason phase context that may have been obtained through trade with contemporary Mississippian groups. The Mason phase lithic assemblage includes small triangular projectile points/knives in the Hamilton Cluster (Hamilton Triangular and Madison) and occasional

examples of Jacks Reef Corner Notched and Jacks Reef Pentagonal PPKs. Sandstone digging implements and bone tools also occur in Late Woodland material assemblages. Interregional exchange during the Mason phase is suggested by the occurrence of marine shell beads and sand, grit-grog, and grog tempered plain ceramics. The context of the shell beads is questionable, however, and the pottery may represent variants of local Late Woodland types (Davis 1978:424-425; Duggan 1982:3-4, 22, 39-107, 133, 137; Faulkner 1968:58-83).

The Middle and Late Woodland periods are separated into a chronological sequence of phases in the Upper Duck River and Middle and Upper Elk River drainages of southern Middle Tennessee (Figure 61). In the following summary the phases are briefly outlined and compared according to individual attributes and the pattern of articulation of these attributes.

During the early Middle Woodland McFarland phase semipermanent villages and a ceremonial center were established on the first terraces of the Upper Duck and Elk rivers and in the uplands bordering the river valleys. The villages articulated with ancillary base camps and transient camps in a dispersed to nucleated form of settlement system. Villages had multiple circular and oval enclosed structures and semicircular and semisquare open-cabana type shelters. Ancillary base camps were comprised of either a single structure and associated pits or up to fifteen pits and no structures. Transient camps were noted by their paucity of features. McFarland groups moved in a restricted area around short-term ancillary base camps and temporarily



[a] Most Similar Regional Chronology to Middle Duck River Drainage.

Figure 61. Middle and Late Woodland Chronologies in Selected Areas of the Midsouth.

gathered at a habitation site or ceremonial center for social activities, trade, and mortuary purposes. Burials were flexed and placed in shallow and deep basins and pits during the early McFarland phase while late McFarland interments were cremated and redeposited in small shallow basins on the habitation sites.

The Neel phase settlement pattern was probably similar to that of the McFarland phase and centered around a scheduled seasonal return to a single location for ceremonial activities. Enclosed structures were mostly square, rectangular, and subrectangular in contrast to the circular and oval McFarland dwellings. The larger Neel phase settlements had habitation areas containing a number of flimsy enclosed structures and spatially separated mortuary zones. Neel phase interments were usually cremated, as in the late McFarland phase, and redeposited in pit clusters. Primary and secondary flesh burials occurred less often. Neel phase seasonal to multiseasonal base camps contained a single structure and associated pits and transient camps were comprised of a few pits.

In the late Middle Woodland Owl Hollow phase there was a decrease in the number of sites and a concomitant increase in the intensity of site occupation and degree of sedentism. Base camps and transient camps were affiliated with villages as in the early Middle Woodland. The villages were often permanent nucleated settlements with multiple cold and warm weather dwellings. The enclosed structures were usually circular and oval and less often square. Double earth oven houses were constructed for the cold weather and other enclosed structures or

occasionally semicircular open cabana-type shelters were utilized in the warm weather. This structural dichotomy may have had its inception in the McFarland phase with open shelters and substantially built circular structures containing interior storage and processing pits. As in the early McFarland phase, the Owl Hollow mortuary pattern included flesh inhumations placed in pits or midden deposits and cremations redeposited in shallow pits or basins. During the Owl Hollow phase settlements were initially dispersed along upland streams and in the Upper Duck River Valley. As horticulture became more important settlements were often situated in the broad valley areas of the Upper Duck River. Later in the Owl Hollow phase sites again were dispersed along marginal upland streams.

Late Woodland Mason phase settlements were usually situated along the older alluvial terraces of the major rivers as in the early Middle Woodland McFarland phase. Large semipermanent to permanent villages were affiliated with ancillary base camps and transient camps. The semipermanent to permanent villages usually contained multiple lightly built circular, oval, and square enclosed structures and semisquare open cabana-type shelters. Ancillary base camps were comprised of 1-2 structures and associated pits. Transient camps contained up to eight pits. During the Mason phase flexed and semiflexed primary flesh inhumations were usually placed in deep pits or basins and occasionally shaft and chamber burial facilities. Cemetery areas on habitation sites consisted of a cluster of reused domestic pits containing interments and a group of burials bordered by a postmold

alignment. Cremation was present during the preceding late Middle Woodland Owl Hollow phase but lacking in the Mason phase.

Middle and Late Woodland subsistence practices were based on the gathering of plant foods, simple horticulture, and the exploitation of various faunal resources. Arboreal seed crops were utilized along with deer, turkey, and smaller terrestrial animals. During the late Middle Woodland Owl Hollow phase herbaceous seeds were intensively collected and dependence upon horticulture reached a climax. The increased use of cultigens may have influenced the location of Middle Owl Hollow subphase sites to the broad alluvial valley section of the Upper Duck River. Plant foods were probably stored in the vertical wall cylindrical McFarland pits and bell-shaped Mason pits. In the Owl Hollow phase foodstuffs may have been stored in above ground localities within or in close proximity to the cold and warm weather dwellings.

The local Neel phase ceramics are limestone tempered plain (Mulberry Creek Plain) and cordmarked (Candy Creek/Flint River Cordmarked) along with minor amounts of check stamped (Wright Check Stamped), simple stamped (Bluff Creek Simple Stamped), and complicated stamped (Pickwick Complicated Stamped). During the McFarland phase cordmarked pottery was absent. Limestone tempered fabric marked pottery (Long Branch Fabric Marked) was codominant with Mulberry Creek Plain in the early McFarland phase but was replaced by Wright Check Stamped during the late McFarland phase. Small amounts of curvilinear Pickwick Complicated Stamped pottery were present during the McFarland

phase as in the Neel phase. Some mixed limestone/grit tempered pottery is included in the McFarland ceramic assemblage. During the following Owl Hollow phase Mulberry Creek Plain continued as a predominant type and eventually represented over 90% of the late Middle Woodland ceramic inventory. Bluff Creek Simple Stamped was present in small quantities (1-15%) in the Early Owl Hollow subphase but was virtually absent by the Late Owl Hollow subphase. Pickwick Complicated Stamped and mixed temper pottery continued to be represented in small amounts. Additional late Middle Woodland minority types include Wright Check Stamped and Flint River Cordmarked. Tetrapodal vessel supports occurred on early Middle Woodland vessels. Vessel rims were occasionally notched during the Neel phase and often notched in the Owl Hollow phase. Vessels were at first generally subconoidal jar forms with straight to slightly flaring rims but during the Late Owl Hollow subphase shoulders became pronounced, rims were more flared, and vessel walls thinned. The Late Woodland Elk River Ceramic series is quite different from the earlier Middle Woodland types. The Mason phase pottery is mostly chert tempered cordmarked, plain, and knot roughened/net impressed. Ceramics that were produced in or stylistically influenced by other regions occurred locally throughout the Middle and Late Woodland periods, especially during the Neel phase. Possible trade wares will be discussed with other factors suggestive of interaction between groups in the Upper Duck and Elk River drainages and other regions.

During the early Middle Woodland Neel and McFarland phases the predominant projectile point/knife group was the McFarland Cluster. A few Lanceolate Expanded Stem Cluster and Lanceolate Spike Cluster PPKs were also represented. The medium triangular McFarland Cluster PPKs were absent in the late Middle Woodland Owl Hollow phase. Lanceolate Expanded Stem Cluster PPKs predominated early in the Owl Hollow phase and Lanceolate Spike Cluster PPKs predominated late in the Owl Hollow phase. Stone elbow pipes and gorgets were present throughout the Middle Woodland period. The small triangular Hamilton Cluster PPKs of the Late Woodland period indicate a technological shift to bow hunting from the preceding Middle Woodland period. The Hamilton Cluster PPKs predominated during the Mason phase. Occasional examples of the small arrow-size projectile point/knife types Jacks Reef Corner Notched and Jacks Reef Pentagonal were also found on Late Woodland sites. Stone digging implements were present during the McFarland and Mason phases. Bone tools occurred in the Owl Hollow and Mason phases. The local Middle and Late Woodland assemblages contained lithic and faunal materials and artifacts that were derived through or influenced by interaction with groups in other regions.

The increased sedentism and intensity of site occupation during the Middle Woodland period was paralleled by an apparent decrease in the interactions between local groups and other regions. This waning of interregional exchange continued into the Late Woodland period as settlements became more dispersed. The early Middle Woodland Neel phase is distinguished in part by the numerous lithic and ceramic

items that were either obtained through trade or technologically and stylistically influenced by artifacts or ideas from other areas. The Neel phase ceramics that were either acquired through trade or represent local imitations of nonlocal types consist of limestone tempered red slipped over plain, red slipped over complicated stamped, and incised/punctated; sand tempered plain, incised, punctated, simple stamped, and rocker stamped over cordmarked; grog tempered rocker-dentate stamped in an oval pattern and diamond and dot check stamped; and grit-grog tempered rocker stamped. The Neel phase lithic assemblage contains nonlocal raw materials such as mica, galena, quartz crystals, and serpentine and finished artifacts consisting of copper earspools and Flint Ridge prismatic blades. The blade technology was also applied to local cherts. Many if not all of these trade items may have been destined for inclusion with burials as grave goods; however, the predominant mortuary practice of cremation and redeposition of the remains has left little evidence of such associations. During the early Middle Woodland McFarland phase the construction and use of the Old Stone Fort rock and earth enclosure was initiated. The building and architectural form of this ceremonial center may have been influenced by Middle Woodland enclosure sites located in the Ohio River Valley. Unlike in the Neel phase, nonlocal materials and artifacts were only occasionally found on McFarland sites. Greenstone celts, small scraps of mica, and a few sherds of red slipped over plain pottery were recovered from McFarland domestic facilities. The red slipped ceramics represent either a trade ware or

a local imitation of a nonlocal pottery type. The final construction phase and use of the Old Stone Fort ceremonial center occurred during the late Middle Woodland Owl Hollow phase as interregional exchange continued to decrease. A few fragments of limestone/grit tempered zoned rocker stamped pottery were recovered from an Owl Hollow site. A rudimentary blade industry on local cherts may represent a technological continuum from the early Middle Woodland lithic industry. Sand, grit-grog, and grog tempered pottery with plain surfaces occurred in minor amounts during the Late Woodland Mason phase along with the local chert tempered Elk River series. The former are either trade items or imitations of nonlocal ceramic types. Marine shell beads found in association with a Mason burial were obtained through trade as either finished artifacts or raw materials that were locally altered.

In the Upper Duck and Middle and Upper Elk River drainages, the early Middle Woodland McFarland phase probably developed into the late Middle Woodland Owl Hollow phase. The Late Woodland Mason phase is, however, distinct from the preceding Owl Hollow phase. The Mason phase settlement and subsistence patterns are similar to those of the McFarland phase, the chert tempered Elk River ceramics contrasts with the predominantly limestone tempered plain late Middle Woodland pottery, and projectile points/knives are reduced to a small triangular arrow-size. The investigation of only a few late Owl Hollow components precludes arguing for or against the *in situ* development of the Mason phase from the Owl Hollow phase. The

relationship between the two contemporary early Middle Woodland phases in the region cannot be clearly defined on the basis of the available data. The Neel phase may represent a mortuary complex with distinct structures, ceramics, burial/habitation sites, and raw materials and artifacts derived through interregional exchange. This mortuary complex would be locally affiliated with at least the earlier portion of the McFarland phase. Alternatively, Neel may be an early Middle Woodland phase centered in the Elk River Valley with some outlying sites intruding into the McFarland area along the Upper Duck River Valley.

During the Middle and Late Woodland periods in the Middle Duck River Drainage the most similar regional affiliates were in the adjacent Upper Duck River and Middle and Upper Elk River drainages. Sites were initially articulated in a dispersed to modified dispersed form of settlement system with base camps and villages being occupied for longer periods by the late Middle Woodland. Semipermanent base camps and villages developed into permanent nucleated villages in the Upper Duck River and Upper Elk River drainages. Late Middle Woodland villages in the Middle Duck River Drainage may have been occupied year around but were not continuously occupied year after year, as indicated by the lack of feature superpositioning and substantial midden accumulations. Family groups occupying transitory camps moved in a restricted area around ancillary base camps and large habitation and mortuary/habitation sites, the latter occurring only in early Middle Woodland times. Late Middle Woodland villages contained

substantially built cold season dwellings and lightly built warm weather structures. The large conical roof double earth oven houses characteristic of the late Middle Woodland in the Upper Duck River and Upper Elk River drainages were lacking in the Middle Duck River Drainage. The subrectangular structures on the late Middle Woodland Edmondson Bridge site in the Middle Duck River area may represent a continuation of similar architectural forms found during the early Middle Woodland Neel phase in the Upper Duck River and Middle and Upper Elk River drainages. Late Woodland villages may have been located in the Elk River Valley while dispersed base camps and transient camps containing occasional structures and few pits were scattered through the Middle and Upper Duck and Elk River drainages.

Late Middle Woodland subsistence practices in the Middle Duck River Drainage are best characterized as a continuation of the early Middle Woodland pattern of hunting, gathering, and simple horticulture from the Upper Duck River and Elk River drainages. In contrast to subsistence patterns in adjacent regions, herbaceous seeds were apparently not intensively utilized in the Middle Duck River Drainage during late Middle Woodland times and maize, if present, did not influence food procurement and production practices.

Middle and Late Woodland mortuary practices have not been delineated in the Middle Duck River Drainage. A distinct ceremonial area in association with a large habitation area on the late Middle Woodland Edmondson Bridge site may represent a later form of the

mortuary/habitation sites found during the early Middle Woodland Neel phase in adjacent regions.

Early Middle Woodland ceramics were at first predominantly limestone tempered cordmarked and stamped but later were plain, stamped, and fabric impressed. Fabric impressed ceramics were absent in the late Middle Woodland and stamped ceramics decreased at the expense of plain ceramics through the late Middle Woodland. By around A.D. 600 virtually all the ceramics in the Upper Duck River and Elk River valleys were limestone tempered plain but in the Middle Duck River Drainage limestone tempered plain and quartz tempered plain ceramics were codominant. Late Woodland ceramics were mostly chert or quartz/chert tempered cordmarked, plain, fabric impressed, and knot roughened/net impressed.

Lithic assemblages include medium triangular McFarland Cluster and corner removed Lanceolate Expanded Stem Cluster PPKs in the early Middle Woodland. Shallow side-notched Lanceolate Expanded Stem Cluster and Lanceolate Spike Cluster PPKs predominated during the late Middle Woodland but were replaced by small triangular arrowpoints in the Late Woodland period.

3. BEAR CREEK DRAINAGE, MIDDLE TENNESSEE RIVER VALLEY

The Middle and Upper Duck and Elk River drainages are located approximately 150 km northeast of the Bear Creek Watershed and adjacent Middle Tennessee River. The Mjddle 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 Middle Woodland Colbert culture and later Copena mortuary complex are known mostly from this section of the Tennessee Valley (Futato 1980:122-123; Walthall 1979:200) (Figure 60, page 216). 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 (Figure 60, page 216). 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 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 valley slopes and in ravines while oak and pine forests occur in the local uplands. The Lower Bear Creek Drainage flows through the Highland Rim section of the Interior Low Plateau and the southern extent of the Western Mesophytic Forest region (Braun 1950:271-278).

In the area of northern Alabama and adjacent Mississippi the Middle Woodland period (300 B.C.-A.D. 700) is in part that period of cultural development when distinct local societies and separate cultures began to participate in or were influenced by the Hopewell Interaction Sphere (cf. Caldwell 1977:137-138; Faulkner and McCollough 1974:423). While limestone tempered stamped pottery reached its highest point in the Middle Tennessee Valley during this period, sand tempered fabric marked, plain, and cordmarked ceramics predominanted in the Middle and Upper Tombigbee Valley. The Middle Woodland pottery in the Bear Creek Watershed was influenced by the limestone tempered ceramic series to the north and the sand tempered series to the south and west. By the Late Woodland period (A.D. 700-1000) the extensive exchange networks found in earlier times were lacking and limestone tempering was replaced by grog tempering. The Middle and Late Woodland periods are defined by their chronological placement; material assemblage; settlement, subsistence, and mortuary patterns; and exchange and ceremonialism.

Extensive archaeological excavations in the Cedar Creek and Upper Bear Creek reservoirs (Bear Creek Watershed) were conducted primarily on mortuary sites and large multicomponent sites containing midden deposits. The two unnamed phases in the Bear Creek sequence are described in part through prior research that was carried out in the adjacent Middle Tennessee River Valley (Figure 60, page 216).

Unnamed I Phase (300 B.C.-A.D. 1)

The local manifestation of the early Middle Woodland Colbert culture was not named in the chronological sequence because the archaeological research undertaken in the Bear Creek Watershed revealed only one feature on the Ricker site (1FR310) that was tentatively assigned to this phase. This large multicomponent site contained a 50 cm deep midden deposit and was situated on the first terrace of Cedar Creek. Additional information pertaining to the Colbert culture was derived from the results of archaeological investigations in the Tennessee River Valley. The Colbert culture sites consisted of large semipermanent base camps in the river valley and transient camps in upland rockshelters. These shelter sites were occupied during the fall and winter by nuclear families. The large open sites were comprised of storage pits, cooking/heating facilities, and postholes (Futato 1980:123-124; Walthall 1980:115). The settlement pattern of the Colbert culture was probably a modified dispersed system in which separate family groups moved in a restricted area around large multiseasonal base camps. These groups temporarily gathered at the base camp to engage in social activities, trade, and mortuary activities. A segment of the base camp population may have remained in residence year around. Transient camps may have been established by nuclear families in the Bear Creek Watershed during the Unnamed I phase. These groups in turn gathered at base camps in the main river valley for one or more seasons before dispersing again in the fall and winter to upland locations.

The early Middle Woodland Unnamed I phase ceramics are limestone tempered and fabric marked (Long Branch Fabric Marked) and plain (Mulberry Creek Plain). The lithic assemblage includes medium triangular Greeneville/McFarland Cluster projectile points/knives (Greeneville/McFarland and Copena) and possibly the small to medium and thick expanded stem Flint Creek Cluster PPKs (Flint Creek) (Futato 1983:148-149, 225, 230-235).

Lick Creek Phase (A.D. 1-300)

The middle Middle Woodland Lick Creek phase was delineated through archaeological research conducted in the Bear Creek Watershed. Lick Creek phase occupations were investigated on four stone mound sites and two multicomponent habitation sites with midden deposits measuring up to 50 cm in depth. The habitation sites were comprised of 3-9 pits. The stone mounds were each constructed of limestone slabs and contained multiple interments. Three of the four stone mound sites are located on the valley edge overlooking the Little Bear Creek Drainage and the fourth is positioned on the bluff edge above Cedar Creek. 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. These sites were probably temporary base camps or transient camps.

The Dam Axis site (1FR524) Lick Creek component consisted of three ovoid shallow basins, two of which were located in close proximity to each other. The Lick Creek component on the Ricker site (1FR310) was comprised of nine pits in a linear arrangement. Two-

thirds of the pits were shallow basins and one was a deep cylindrical feature with vertical walls (Futato 1975b:75-110, 1983: 12-24). The Lick Creek phase subsistence pattern was based on the gathering of arboreal seed crops and occasionally herbaceous seeds. This was supplemented by the exploitation of deer and less often turtle, opossum, squirrel, rabbit, raccoon, fox, snake, and fish (Caddell 1983:340-341; Hale 1983:315-316). Information pertaining to intersite settlement patterns is lacking for the Bear Creek area during this period of time because only two non-mortuary sites were examined.

Mortuary practices during the middle Middle Woodland Lick Creek phase 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 Carpenter Mound (1FR594), Massey Mound (1FR520), Venus Mound (1FR528), and Johnson Mound (1FR571) were constructed in areas of limestone outcrops. The mounds measured 8-13 m in diameter x 0.5-1.5 m high. A low rock wall consisting of vertically placed limestone slabs in a shallow trench was occasionally erected around a 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. Stamped ceramics were conspicuously lacking in the stone mounds (Futato 1983:84-97, 424-425; Oakley 1975b;175-268).

The middle Middle Woodland Lick Creek phase ceramics are limestone tempered and predominantly cordmarked (Flint River

Cordmarked) and plain (Mulberry Creek Cordmarked). Additional Lick Creek ceramic types include limestone tempered fabric marked (Long Branch Fabric Marked), check stamped (Wright Check Stamped), simple stamped (Bluff Creek Simple Stamped), and complicated stamped (Pickwick Complicated Stamped). Fabric marked ceramics occurred more frequently early in the Lick Creek phase while paddle stamped ceramics increased in frequency late in the phase. Jars are subglobular to globular and bowls are open. The subglobular jars have wide flared rims and tetrapodal supports. Ceramic platform and elbow pipes were manufactured during the Lick Creek phase. The stamped pottery of the late Lick Creek phase may represent a transitional ceramic assemblage to the following Unnamed II phase and the typical Copena pottery types. The lack of paddle stamped ceramics in the stone mounds suggests that these mortuary facilities were erected during the early to middle Lick Creek phase. The lithic assemblage includes medium triangular Greeneville/McFarland Cluster projectile points/knives (Greeneville/McFarland and Copena), occasional Lanceolate Spike Cluster PPKs (Bradley Spike, New Market, Flint River Spike, Ebenezer), possibly the small to medium and thick expanded stem Flint Creek Cluster PPKs (Flint Creek), microlithic tools, a blade industry on local cherts, and stone gorgets (Futato 1983:130-137, 149, 225-240, 281, 423-425).

Nonlocal ceramics found on Lick Creek phase habitation and mortuary sites were obtained through interaction with Middle Woodland groups in the Upper Tombigbee River Valley and the Mississippi River

Valley. The Miller 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. Other artifacts obtained through participation in Middle Woodland exchange networks include greenstone implements; Flint Ridge prismatic blades; marine shell beads, bowls, dippers, and gorgets; and a copper awl (Futato 1983:149, 423-424).

Unnamed II Phase/Copena Mortuary Complex (A.D. 300-500)

The local middle Middle Woodland manifestation associated with the Copena mortuary complex was not named in the chronological sequence because archaeological research conducted in the Bear Creek Watershed did not reveal any definitive habitation sites for this time period. The Lick Creek phase occupation on the Ricker site (1FR310) was either late Lick Creek or possibly early Unnamed II phase. This was suggested by the presence of a minority of paddle stamped ceramics, which are characteristic of the later Unnamed II phase, with a predominance of the cordmarked and plain ceramics, as in the Lick Creek phase. A single basin-shape pit containing only plain and check stamped pottery may be an Unnamed II phase feature. The middle Middle

Woodland occupation on the Dam Axis site (1FR524) was either early Lost Creek phase or late Unnamed II phase. This was indicated by the predominance of plain ceramics, which is characteristic of the Lost Creek phase, along with a minority of the paddle stamped ceramic types found in the earlier Unnamed II phase (Futato 1975b:109; 1983:24-26, 424-426). The villages of this period may be typified by the Wright Village (LU65) and the associated burial mounds (LU°63 and LU°64) located in the Middle Tennessee River Valley near the confluence with Bear Creek. Numerous Copena burial mounds have been identified in the Middle Tennessee Valley (Walthall 1979:200) and a cluster of three such mounds were excavated on the Hester site (1FR311) in the Bear Creek Watershed.

Situated in the Pickwick Basin and partially excavated by Works Progress Administration field crews, the Wright Village was selected for investigation because of its probable association with a pair of Copena burial mounds located less than 200 m away (Webb and DeJarnette 1942:173-175). The Wright Village covered approximately 0.6 ha near the edge of the Middle Tennessee Valley and contained a 30 cm deep midden deposit. A circular single post structure and 68 pits were excavated 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 contained 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).

The semipermanent to permanent Copena villages in the Tennessee Valley were located on older alluvial terraces away from the river bank. Seasonal transient camps occupied by men were found in upland rockshelters. The entire village population moved only occasionally. The Copena villages consisted of multiple structures and numerous pits including possible storage facilities (Walthall 1973a:100, 141, 149; 1973b:74, 102; 1979:204; 1980:128-129). The presence of Copena burial mounds in the Bear Creek Watershed indicates that mortuary/habitation sites and ancillary base camps or minimally transient camps probably existed in the region during the Unnamed II phase. These sites would have been similar to the late Lick Creek phase and early Lost Creek phase habitations with multiple features and were most likely articulated in a modified dispersed to nucleated type of settlement system.

The Unnamed II Copena phase subsistence pattern in the Bear Creek Watershed was based upon at least the gathering of arboreal seed crops (hickory and acorn). This system was more intensive in the Tennessee River Valley and included additional high yield natural plant foods. This was supplemented by 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 during the middle Middle Woodland Unnamed II Copena phase consisted of extended or sometimes flexed burials in elongated ovoid to rectangular pits in the floor or in the fill of a low small accretional earthen mound. Stone slabs were used in burial

pits for floors, covers, and rests in the Bear Creek Watershed while puddled clay served the same functions in the Tennessee Valley mounds. Cremations and mortuary processing facilities were located near the mounds. The two Copena burial mounds 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 located on a sandy knoll at the confluence of Cedar and Lost creeks. The limits of the burial pit cluster comprising Mound A indicate that this mortuary facility once measured at least 6-8 m in diameter. Only about 50 cm of fill was noted in the profile of this mound. Twenty-eight burials were excavated in the three mound loci at the Hester site. Grave goods associated with the Unnamed II phase burials in the Bear Creek Watershed consist of greenstone implements, galena, copper and marine shell artifacts, and mica. Additional artifacts found with the Tennessee Valley Copena burials are Copena projectile points/knives, steatite pipes, and a bituminous 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 middle Middle Woodland Unnamed II Copena phase ceramics are limestone tempered and predominantly plain (Mulberry Creek Plain) and check stamped (Wright Check Stamped). Additional ceramic types associated with the Unnamed II phase are simple stamped (Bluff Creek Simple Stamped), complicated Stamped (Pickwick Complicated Stamped), occasionally cordmarked (Flint River Cordmarked), and fabric marked (Long Branch Fabric Marked). 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 that occurred at the Wright Village were obtained through interaction with Middle Woodland groups in the Upper Tombigbee River Valley. The Miller ceramics found in the Middle Tennessee River Valley are sand tempered cordmarked (Furrs Cordmarked), fabric marked (Saltillo Fabric Impressed), and plain (Baldwin Plain). Brushed and rocker stamped ceramics recovered from the Wright Village are either nonlocal types or local imitations of trade wares. Other artifacts and raw materials obtained through local or regional trade in the Bear Creek Watershed and Middle Tennessee River Valley served as grave offerings; these consist of greenstone celts and spades, galena, copper beads and earspools, marine shell bowls and spoons, and mica. In the Middle Tennessee Valley steatite

pipes and coal discs were also obtained for inclusion in burial mounds (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 delineated through archaeological research conducted in the Bear Creek Watershed. Lost Creek phase occupations were investigated on four large multicomponent sites with midden deposits that measured 15-50 cm in depth. These habitation areas were each comprised of a dispersed to densely superimposed cluster of 3-12 Lost Creek phase pits that were often spatially associated with features from other cultural components. Two sites were located on Little Bear Creek and two in the Cedar Creek Drainage. One Cedar Creek site was situated on the first terrace of the creek and the second was positioned on the second terrace of Lost Creek, a tributary of Cedar Creek. 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. These features were situated among 54 other pits and burials of various components in an area that measured approximately 50 m x 20 m. One of the cone-shape pits was a deep earth oven with a heavily fired bottom. The Lost Creek phase pits on site 1FR507 consisted of two shallow basins and a fire pit. 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 14 features

were shallow basins. One exception was a deep rectangular earth oven with heavily fired walls. This feature contained carbonized sunflower seeds. Twenty-eight postmolds were scattered around the Hendrix site. A few may have been associated with the Lost Creek phase component but no structural patterns were indicated. Four of thirteen 2 m x 2 m units excavated on the Lost Creek site (1FR590) each contained a late Middle Woodland shallow basin. These pits were all situated within a 50 m^2 area. Some of the 20 postmolds found in the test units may have been related to the Lost Creek phase component but no structural patterns were indicated (Futato 1975b:75, 110, 1975c:154, 1983:30-41, 59-61).

The Lost Creek phase subsistence pattern 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). Information pertaining to the exploitation of faunal resources, intersite settlement patterns, and mortuary practices is generally lacking for the Lost Creek phase. Lost Creek phase sites were located on the older alluvial terraces and bluff edges in the Little Bear Creek and Cedar Creek drainages. Features occurred in dispersed to densely superimposed clusters. The presence of substantial earth ovens during the Lost Creek phase along with an increase in the amount of recovered floral material and the appearance of simple horticulture may indicate that the intensity of site occupation was increasing as populations became larger and possibly more sedentary. There was no evidence of late Middle Woodland mortuary mounds in the Bear Creek

Watershed (Futato 1983:133). While burials occurred on sites with Lost Creek phase components, none could be definitely assigned to this phase. Evidence of the exchange and ceremonialism characteristic of the preceding Unnamed II phase is lacking for the Lost Creek phase.

The late Middle Woodland Lost Creek phase ceramics are limestone tempered and almost all plain (Mulberry Creek Plain). Vessel forms include jars with straight to slightly incurvate rims, small tetrapods, and large loop handles and deep hemispherical bowls. Limestone tempered and grog tempered decorated types were present in small amounts in the assemblage. The lithic assemblage includes Lanceolate Expanded Stem Cluster projectile points/knives (Swan Lake, Mud Creek, and Bakers Creek) and occasional examples of small and thick expanded stem Flint Creek Cluster PPKs (Flint Creek) (Futato 1983:150, 225-228, 235-239, 431).

McKelvey II Phase (A.D. 700-1000)

The Late Woodland McKelvey II phase was delineated through archaeological research conducted in the Bear Creek Watershed. McKelvey II occupations were investigated on three sites that probably served as temporary base camps or transient camps.

The Champion site (1FR318) is located on an older alluvial terrace of Little Bear Creek. This Late Woodland occupation area consists of a small shallow midden (14.0 m x 12.5 m x 20 cm deep), eight pits, two material concentrations, and six scattered postmolds. Two of the features were basin-shape and the third was a small fire pit or hearth. The features were situated within or in close

proximity to the midden area. The Dam Axis site (1FR524) is a large multicomponent habitation located on the valley edge of Little Bear Creek. The McKelvey II phase features on this site consisted of a hearth and a burial. The Ricker site (1FR310) is a large multicomponent occupation area positioned on the first terrace of Cedar Creek. While features of the McKelvey II phase were lacking on the site, large amounts of Late Woodland ceramics and projectile points/knives were recovered from a 50 cm deep midden deposit (Futato 1975a:11-31, 1975b:75-110, 1983:12-24).

Information pertaining to subsistence and intersite settlement patterns is generally lacking for the McKelvey II phase in the Bear Creek Watershed. Late Woodland sites were located on the older alluvial terraces and bluff edges of Cedar Creek and Little Bear Creek. Features occurred in either dispersed clusters or as isolated pits sometimes associated with a burial. McKelvey II mortuary practices in the Bear Creek Watershed were indicated by a tightly flexed primary inhumation in a shallow basin on the Dam Axis site. The cultural affiliation of the burial was determined by a piece of grog-grit tempered potter's clay in association with the skeletal elements (Futato 1983:81).

The Late Woodland McKelvey II ceramics in the Bear Creek Watershed are grog tempered and predominantly plain (McKelvey Plain) and cordmarked (Mulberry Creek Cordmarked). Additional minority types are grog tempered and check stamped (Wheeler Check Stamped), incised (Alligator Incised), and complicated stamped (Gainesville Complicated

Stamped), and mixed grog/limestone tempered. In the Tennessee River Valley during the McKelvey I phase, ceramics were grog tempered and predominantly plain and check stamped instead of plain and cordmarked as in McKelvey II. This Late Woodland ceramic dichotomy represents either a temporal or geographic distinction between McKelvey II and I in the Bear Creek Watershed and the Middle Tennessee River Valley. If McKelvey I is earlier than McKelvey II, then as settlements shifted from the Tennessee River Valley (early) to the Bear Creek Uplands (late) Wheeler Check Stamped ceramics were replaced by Mulberry Creek Cordmarked pottery. If McKelvey I and II are essentially contemporary Late Woodland manifestations, then check stamped pottery occurred as a predominant type in the Tennessee Valley while cordmarked pottery was a major ceramic type in the Bear Creek Uplands. The available site data from these two adjacent regions are insufficient to prove either the temporal or geographic models. The local lithic assemblage includes small triangular Hamilton Cluster projectile points/knives (Hamilton). Evidence of interregional exchange in the Bear Creek Watershed is indicated by the presence of nonlocal sand tempered incised Weeden Island ceramics (Carrabelle Incised) (Futato 1983: 127-130, 151, 240-242, 434-436; Walthall 1980:138-139).

The Middle and Late Woodland periods are separated into a chronological sequence of phases in the Bear Creek Watershed of northwest Alabama and adjacent Mississippi (Figure 61, page 216). Some of these phases also apply to the prehistoric occupation in adjacent portions of the Middle Tennessee River Valley. The Bear

Creek Watershed may in fact represent an outlying upland area in which temporary camps were established by groups residing mainly in the Tennessee Valley. In the following summary the phases are briefly outlined and compared according to individual attributes and the pattern of articulation of these attributes.

During the early Middle Woodland Unnamed I phase base camps were established by Colbert culture groups in the Middle Tennessee River Valley. These base camps were comprised of storage pits, earth ovens, hearths, and postholes. Transient camps occupied by nuclear families were located in the adjacent uplands, including the Bear Creek Watershed. A large multicomponent site on the first terrace of Cedar Creek contained a single pit feature that was assigned to the Unnamed I phase. Colbert culture groups moved in a restricted area around large semipermanent base camps in a modified dispersed type of settlement system. These family units temporarily gathered at the base camps during the warm season and dispersed into the uplands in the cold season, possibly leaving a segment of the population behind at the base camps.

The following early Middle Woodland Lick Creek phase was restricted to the area of the Bear Creek Watershed. Four mortuary mound sites and components on two large habitation sites were assigned to the Lick Creek phase. The multicomponent habitation sites were situated on the first terrace of Cedar Creek and the valley edge above Little Bear Creek. These sites contained 3-9 Lick Creek pits arranged in pairs, linear patterns, or as isolated occurrences. Among the pits

were occasional large deep earth ovens with heavily fired walls. The Lick Creek phase sites probably served as temporary to semipermanent base camps or transient camps. The increased number of pit features on sites along with the accumulation of substantial midden deposits and the construction of burial mounds suggest that during the Lick Creek phase the Bear Creek Watershed was occupied more intensively, possibly by a larger more permanent population, than in the preceding Unnamed I phase.

During the Lick Creek phase the distinctive Copena mortuary complex was evolving in the Middle Tennessee River Valley. Semipermanent to permanent villages consisting of multiple structures and numerous pits were established on the older alluvial terraces of the Tennessee River in conjunction with nearby burial mounds. Transient hunting camps occupied by men were located in upland rockshelters. By about A.D. 300 the Unnamed II phase had developed in the Bear Creek Watershed, probably as a result of influences from the Copena complex in the adjacent Tennessee Valley. A large multicomponent habitation site on the valley edge above Little Bear Creek contained a single pit feature that was tentatively assigned to the Unnamed II phase. A group of three Copena burial mounds was situated at the confluence of Cedar and Lost creeks. Additional Unnamed II phase habitation sites may have been designated as late Lick Creek phase or early Lost Creek phase. The apparent decrease in the number of pit features and lack of midden accumulations on sites during the Unnamed II phase may be due to an inability to distinguish

habitation sites from those of the earlier and later phases. The presence of burial mounds containing numerous interments suggests that mortuary/habitation sites and transient camps were probably established in the Bear Creek Watershed during the Unnamed II phase.

The late Middle Woodland Lost Creek Phase was apparently restricted to the Bear Creek Watershed. Components on four large habitation sites were assigned to the Lost Creek phase. These sites were situated on older alluvial terraces and bluff edges in the Bear Creek area and consisted of clusters of 3-12 pits, including occasional large deep earth ovens with heavily fired walls. The number and distribution of features on Lost Creek phase sites, along with the accumulation of substantial midden deposits, are similar to the early Middle Woodland Lick Creek phase. This pattern may be indicative of continued and increasingly intensive site occupation by sedentary groups from about A.D. 1-700.

The Late Woodland McKelvey II phase was restricted to the uplands bordering the Middle Tennessee River Valley, including the Bear Creek Watershed. Two Late Woodland sites were situated on the older alluvial terraces of Cedar Creek and Little Bear Creek and a third site was located on the valley edge above Little Bear Creek. The number (3-12) and distribution of features on McKelvey II phase sites in the Bear Creek Watershed was rather variable. One large multicomponent site contained Late Woodland materials in the midden deposit but lacked associated features. Another site was comprised of a small shallow Late Woodland midden area with several affiliated pits

and material concentrations. A second large multicomponent site contained a Late Woodland hearth and a burial. These sites may have served as small temporary base camps or transient camps that were occupied by family groups. McKelvey II phase settlements in the Bear Creek Watershed were smaller, less intensively occupied, and apparently more dispersed than the Middle Woodland Lick Creek phase and Lost Creek phase habitations.

Middle and Late Woodland subsistence practices were based on the gathering of wild plant foods, especially arboreal seed crops, and the exploitation of various faunal resources, including deer and turtle. The role of simple horticulture among Copena groups in the Middle Tennessee River Valley is uncertain. Food procurement and production in the Bear Creek area was not influenced by simple horticulture until the late Middle Woodland Lost Creek phase, when sunflower and possibly maize were cultivated. Riverine fauna were exploited by Copena groups in the Tennessee River Valley but were apparently not extensively utilized in the Bear Creek Watershed during the Middle and Late Woodland periods.

Mortuary practices included the construction of both stone burial mounds over partially articulated interments and accretional earthen mounds with extended or flexed primary inhumations in elongated ovoid to rectangular pits. The stone mounds are restricted to the Bear Creek Watershed and represent a distinctive attribute of the middle Middle Woodland Lick Creek phase. The earthen mounds of the Unnamed II Copena phase occur in both the Middle Tennessee River Valley and

the Bear Creek Drainage. Interments in Lick Creek phase and Unnamed II phase burial mounds contained grave offerings which include nonlocal artifacts and raw materials acquired through exchange with groups in other areas. Occasional flexed burials in village areas and burial caves utilized for cremation and primary inhumation are characteristic of Copena mortuary and habitation sites in the Tennessee Valley. A tightly flexed burial in a shallow pit was found on a Late Woodland McKelvey II phase site in the Bear Creek Watershed. Evidence of mound construction or other mortuary activities are lacking for the early Middle Woodland Unnamed I phase and the late Middle Woodland Lost Creek phase.

The local ceramics of the Unnamed I phase are limestone tempered and fabric marked (Long Branch Marked) and plain (Mulberry Creek Plain). During the following Lick Creek phase Long Branch Fabric Marked was gradually replaced by limestone tempered cordmarked ceramics (Flint River Cordmarked). Minor amounts of limestone tempered paddle stamped pottery (Wright Check Stamped, Bluff Creek Simple Stamped, and Pickwick Complicated Stamped) appeared late in the phase. Jars have tetrapodal supports and flaring rims with wide rim folds. Ceramic platform and elbow pipes tempered with limestone were also manufactured during the Lick Creek phase. Mulberry Creek Plain and Wright Check Stamped are the predominant ceramic types of the Unnamed II Copena phase. Minor amounts of Bluff Creek Simple Stamped, Pickwick Complicated Stamped, Flint River Cordmarked, and Long Branch Fabric Marked are also present. During the late Middle Woodland Lost

Creek phase local ceramics were virtually all Mulberry Creek Plain. Grog tempered and limestone tempered decorated pottery were also included in small amounts. The local ceramics of the Late Woodland McKelvey II phase in the Bear Creek Watershed are grog tempered plain (McKelvey Plain) and cordmarked (Mulberry Creek Cordmarked) along with some check stamped (Wheeler Check Stamped), incised (Alligator Incised), complicated stamped (Gainesville Complicated Stamped), and mixed grog/limestone tempered types. In the Middle Tennessee Valley, the Late Woodland McKelvey I phase local ceramics are grog tempered and predominantly plain and check stamped. Ceramics that were either stylistically influenced by nonlocal types or manufactured in other regions and obtained through exchange occurred on Middle and Late Woodland sites in the Bear Creek Watershed and the adjacent Middle Tennessee River Valley, especially during the Lick Creek and Unnamed II phases. These trade wares will be discussed along with other factors indicating local groups were participating in interregional exchange networks.

During the early and middle Middle Woodland Unnamed I, Lick Creek, and Unnamed II phases the predominant projectile point/knife group was the Greeneville/McFarland Cluster. Lanceolate Spike Cluster projectile point/knife forms appeared as minority types by the Lick Creek phase and became codominant with the Greeneville/McFarland Cluster during the Unnamed II phase. Lanceolate Expanded Stem Cluster PPKs predominated throughout the late Middle Woodland Lost Creek phase. The expanded stem Flint Creek Cluster occurred as a minority

form throughout the Middle Woodland period in the Bear Creek Watershed. Late Woodland McKelvey II phase projectile points/knives were mostly in the small arrow-size Hamilton Cluster. A blade industry on local cherts was evident during the Lick Creek phase along with microlith tools and stone gorgets. This pattern continued into the following Unnamed II phase. The middle Middle Woodland lithic assemblages also contained raw materials and artifacts acquired through trade with groups in other areas.

The apparent increased sedentism and intensity of site occupation in the Bear Creek Watershed during the Middle Woodland period was paralleled by decreasing participation in interregional exchange networks by the Lost Creek phase. The decline of trade and interaction continued into the Late Woodland period as settlements became smaller and more dispersed in the Bear Creek area. The middle Middle Woodland Lick Creek and Unnamed II Copena phases are distinguished in part by the lithic and ceramic items that were either obtained through trade or technologically and stylistically influenced by artifacts or ideas from other areas. Most of these nonlocal items were included as mortuary offerings in burial mounds. Sand tempered cordmarked (Furrs Cordmarked), incised (Basin Bayou Incised), fabric marked (Saltillo Fabric Impressed), and plain (Baldwin Plain) ceramics occurred on habitation and mortuary sites during the Lick Creek and Unnamed II phases. The nonlocal ceramics of the Lick Creek phase also included grog tempered punctated/incised (Twin Lakes Punctated), rocker stamped (Indian Bay Stamped), and grog/limestone tempered

cordmarked/punctated/plain (Cormorant Cord Impressed) types. Possible local imitations of trade wares are limestone tempered rocker stamped and punctated/cordmarked. The Lick Creek phase lithic assemblage includes greenstone implements and blades of Flint Ridge and local cherts. Additional artifacts acquired through exchange are marine shell beads, bowls, dippers, gorgets, and a copper awl. The latter group of items served as grave offerings in stone burial mounds. Greenstone implements and copper artifacts occurred on both habitation and mortuary sites during the Unnamed II Copena phase. Marine shell artifacts, galena, mica, steatite pipes, a coal disc, and Copena projectile points/knives were found with burials in the accretional earthen mounds. Interregional trade was lacking during the late Middle Woodland Lost Creek phase, while some exchange in the following Late Woodland McKelvey II phase is indicated by the occurrence of sand tempered incised pottery (Carrabelle Incised).

In the Bear Creek Watershed, the early Middle Woodland Unnamed I phase probably developed into the middle Middle Woodland Lick Creek phase when local site occupation intensified and stone burial mounds were constructed. The Copena mortuary complex evolved in the adjacent Middle Tennessee River Valley and by about A.D. 300 the paddle stamped ceramics began replacing the cordmarked ceramics of the Lick Creek phase in the Bear Creek area. Copena burial mounds were constructed in both localities but the Unnamed II phase habitation sites were difficult to identify. Late Middle Woodland sites continued to be intensively occupied but evidence of exchange and ceremonialism was

lacking. The Lost Creek phase subsistence pattern was supplemented by simple horticulture, possibly including maize. During the Late Woodland McKelvey II phase, sites became smaller and more dispersed. Ceramic technology shifted from limestone to grog tempering and lithic technology from medium-size expanded stem to small arrow-size projectile points/knives. The Late Woodland ceramics in the Bear Creek area were plain and cordmarked while the McKelvey I pottery of the Tennessee Valley was plain and check stamped. The Bear Creek Watershed is located approximately 30 km east of the Tombigbee River headwaters and 150 km northeast of the Gainesville Lake area of the Tennessee-Tombigbee Waterway.

4. MIDDLE AND UPPER TOMBIGBEE RIVER DRAINAGE, FORKED DEER RIVER DRAINAGE

The Tombigbee River drains much of the adjacent Fall Line Hills and Black Belt sections of the Coastal Plain physiographic province in eastern Mississippi and adjacent Alabama. In the areas of Mississippi and Alabama located below the fall line

> both topographic features and vegetative types appear as parallel belts trending east-west across eastern Alabama and then arching northward in western Alabama and then arching northward in western Alabama and eastern Mississippi (Muto and Gunn n.d.:B1).

The Tombigbee River flows southward to the Mobile River and Delta before emptying into Mobile Bay. The Gainesville Lake portion of the Tennessee-Tombigbee Waterway is dominated by the Black Belt, a topographic/vegetative band just beyond the Fall Line Hills. In the

Black Belt area slight elevation changes result in differences in plant communities and the creation of a number of habitats that were exploited by the prehistoric occupants of the river area (Braun 1950: 279; Brose and Weisman 1983:52).

Generally the Black Belt is described as an upland prairie containing grasses, herbs, and scattered clumps of woody vegetation on sandy ridges (Muto and Gunn n.d.:B3, B7-8). A prairie-forest mosaic with many areas of grassland in an oak-hickory forest is located immediately to the west of the Gainesville Lake portion of the Tombigbee River (Caddell 1981:11-12). In the Fall Line Hills to the east of the Tombigbee River is an oak-hickory forest complex containing occasional large patches of prairie (Caddell 1981:11-12; Muto and Gunn n.d.:B274). A swamp forest complex comprised of sweet gum, water and willow oaks, sugarberry, magnolia, and an undergrowth of shrubs and vines occurs along major streams in the Gainesville Lake area (Braun 1950:283; Caddell 1981:11-12).

In the area of east Mississippi and adjacent Alabama the Middle Woodland period (100 B.C.-A.D. 600) is in part that period of development when distinct local societies and separate cultures began to participate in or were influenced by the Hopewell Interaction Sphere (cf. Caldwell 1977:137-138). Burial mounds were constructed, nonlocal artifacts were included as grave offerings, population size increased along with the size and number of sites, and agriculture was introduced (Jenkins 1982:67-68). While sand tempered fabric marked, plain, and cordmarked ceramics predominated in the Middle and Upper

Tombigbee River Valley during this period, limestone tempered stamped pottery reached its greatest frequency in the Middle Tennessee Valley to the north. By the Late Woodland period (A.D. 600-1100), the extensive exchange networks found in earlier times were absent and sand tempered pottery was replaced by grog tempered varieties.

Extensive archaeological excavations in the Gainesville Lake area of the Tennessee-Tombigbee Waterway were conducted primarily on large multicomponent sites containing midden deposits (Figure 60, page 216). Four additional mortuary/habitation sites will be included with the discussion of the Gainesville Lake excavations. Three of the four sites (Bynum, Pharr, and Miller) are located on minor tributaries in the headwaters of the Upper Tombigbee Drainage in northeast Mississippi (Figure 60, page 216). The three sites are positioned either in hill districts bordering the Black Belt or on the edge of the Black Belt. Excavations were undertaken on these sites in association with the construction of the Natchez Trace Parkway. The fourth site (Pinson Mounds), in West Tennessee, is situated approximately 80 km north of the Tombigbee River headwaters in an extension of the hill districts (Figure 60, page 216). Outlying areas of the Black Belt may extend into West Tennessee near Pinson Mounds.

The Middle and Late Woodland Miller sequence (Miller I-III phases) in the Middle and Upper Tombigbee River Drainage is further subdivided into a series of subphases that are often characterized, in part, by the mortuary/habitation sites (Bynum, Pharr, Miller, and Pinson). Pinson Mounds represents a local adaptation of the Middle

Woodland burial complex but its closest regional affiliate is the Miller variant to the south (Broster and Adair 1975:80-81). Jenkins (1982:81-83) has suggested that Miller may have its antecedents at this mortuary/habitation site. The Middle and Late Woodland periods are defined here by their chronological placement; material assemblage; settlement, subsistence, and mortuary patterns; and exchange and ceremonialism.

Miller I Phase-Bynum Subphase (100 B.C.-A.D. 1)

The early Middle Woodland Bynum subphase was delineated through archaeological research conducted in the Middle and Upper Tombigbee River Drainage. Bynum subphase occupations were investigated on a multicomponent habitation site (0.4 ha) in the Gainesville Lake area and a mortuary/habitation site (2.8 ha) in the headwaters of the Tombigbee Watershed. The former was a temporary base camp located on the first terrace of the Tombigbee River and the latter was a semipermanent mortuary/habitation site situated on Houlka Creek, a small tributary of the Tombigbee River (Figure 60, page 216).

The Bynum subphase settlement on the Craigs Landing site (1GR2) in the Gainesville Lake area was represented by a cluster of six pits. Some features were basin-shape while others were cylindrical with vertical to contracting walls (Jenkins and Ensor 1981:35-55). The early Middle Woodland occupation of the Bynum site (MCS-16) probably spanned both the Bynum and later Pharr subphases. The village area was comprised of eight large circular single post structures. Three of the structures overlapped and seven structures were arranged in a

linear pattern across the site. The structures measured 10.7-23.8 m in diameter (floor area $\bar{x}$ = 241.1 m²). Two of the structures each had a single central postmold and two structures contained 1-2 interior pits, including hearths. A group of six mounds on the Bynum site were located to the east of the village area up to 275 m away (Cotter and Corbett 1951:12-14).

Throughout the early Middle Woodland Miller I phase; base camps, transitory camps, and mortuary/habitation sites were articulated in a dispersed to modified dispersed type of settlement system. The base camps usually consisted of midden deposits and pit clusters in the main river valley, transitory camps lacked midden deposits and were comprised of scattered lithics and ceramics, and the mortuary/habitation sites were situated in tributaries of the main river and consisted of 1-8 mounds and an associated village with multiple structures and numerous pits. During the cold weather individual family groups moved in a restricted area around a mortuary/habitation site. These groups temporarily gathered at the mortuary/habitation site in the warm season to engage in social activities, trade, and mortuary activities. The family groups also gathered at seasonal base camps to exploit annually available food resources and then separated again during the late fall or early winter. A segment of the population may have remained at a base camp (Jenkins 1982:72-73).

The Miller I subsistence pattern was based on the gathering of arboreal seed crops (hickory and acorn) and occasionally additional wild plant foods such as grass seeds and persimmons. This was

supplemented by the exploitation of deer and occasionally other mammals, turtle, birds, fish, and mussels (Caddell 1981:32, 43; Jenkins 1982:72; Woodrick 1982:163).

The local ceramics of the Bynum subphase are sand tempered and plain (Baldwin Plain) and fabric impressed (Saltillo Fabric Marked). The Miller I phase lithic assemblage includes Lanceolate Expanded Stem Cluster projectile points/knives (Mud Creek), Lanceolate Spike Cluster PPKs (Bradley Spike), and Tombigbee Stemmed Cluster PPKs with straight to contracting stems and tapered shoulders (Jenkins 1982:69-71).

The early Middle Woodland occupation of the village area on the Bynum site began during the Bynum subphase and continued into the following Pharr subphase. The construction of burial mounds on the site apparently did not begin until the early Pharr subphase. Exchange and ceremonialism, while lacking for the early Miller I, were intensive by the middle Miller I (Jenkins 1982:79). Evidence of mortuary patterns during the Bynum subphase is lacking.

Miller I Phase-Pharr Subphase (A.D. 1-200)

The early Middle Woodland Pharr subphase was delineated through archaeological research conducted in the Upper Tombigbee River Drainage. Pharr subphase occupations were investigated on two mortuary/habitation sites. As previously discussed, the early Middle Woodland settlement of the Bynum site village area spanned the Bynum and Pharr subphases. Structures and pits on the site were probably representative of both subphases. The burial mounds on the Bynum site were erected during the initial portion of the Pharr subphase. The

Pharr site, a second mortuary/habitation site, was located on a terrace at the confluence of Little Brown and Mackey's creeks in the Upper Tombigbee Watershed (Figure 60, page 216). The eight mounds on the site are scattered over a 34 ha area. This mortuary/habitation site, like the Bynum site, was a semipermanent village with an associated mound group; however, the village area on the Pharr site was heavily disturbed by agricultural activities. Test excavations revealed a 30 cm deep plow disturbed midden deposit, scattered postmolds, and three shallow pits (Bohannon 1972:22-25).

Mortuary practices during the Pharr subphase are known from the excavation of seven mounds on the Bynum and Pharr sites. At the Bynum site, mound construction was initiated with the preparation of a platform. A large feature containing a subpit was then usually excavated into the platform. A conical structure supported by substantial posts was erected within the feature. Interments were cremated in the subpit and fragmentary bones were clustered or redeposited elsewhere. The remains of the mortuary features were covered by a large earthen mound that measured 14-25 m in diameter x 2-5 m high. Burials were not included in the mound fill. Grave goods associated with the cremations consist of greenstone celts, copper artifacts, projectile points/knives, galena, and shell (Cotter and Corbert 1951:2, 5-9). Mortuary practices at the Pharr site followed a pattern similar to but less elaborate than at the Bynum site. Submound crematory pits, if present, were smaller and less formal. The structure erected over the subpit crematory facility was supported

by scattered postmolds and probably less substantial. One submound pit on the Pharr site was lined with logs. Crematory areas occurred on the surface of the mound platform and submound fire/crematory pits were sometimes located beyond the edge of the platform. The primary mortuary facilities were capped by a low earthen mound. Secondary mortuary activities consisted of flesh inhumations in rectangular pits and cremations. The two phases of burial activity were then covered by an earthen mound that measured 18-52 m in diameter x 0.5-5 m high. Redeposited cremations and pits were included in the mound fill. Like at the Bynum site, grave offerings include greenstone implements, copper artifacts, and galena. The Pharr site assemblage also contains local and nonlocal ceramic vessels, a blade cache, and a silver-plated pan pipe.

The Bynum and Pharr mortuary/habitation sites were probably associated with seasonal base camps and transitory camps. Subsistence was most likely based on the gathering of arboreal seed crops and supplemented by deer and other faunal resources. Although there is little direct evidence for these practices during the Pharr subphase, these settlement and subsistence patterns are implied for the entire early Middle Woodland Miller I phase (Caddell 1981:32, 43; Jenkins 1982:72; Woodrick 1981:163).

The local ceramics of the Pharr subphase are sand tempered and predominantly plain (Baldwin Plain) and fabric impressed (Saltillo Fabric Marked) along with minor amounts of sand tempered cordmarked (Furrs Cordmarked), incised (Basin Bayou Incised), and zoned stamped

(Alligator Bayou Stamped). Sand tempered platform pipes were also manufactured during the Pharr subphase. The early Miller I lithic assemblage continued into the Pharr subphase with the addition of a blade industry on local cherts. Exchange and ceremonialism, while lacking during the early Miller I, was intensive by the middle Miller I Pharr subphase.

Nonlocal ceramics that occurred on the Pharr subphase mortuary/habitation sites were obtained through interaction with Middle Woodland groups to the north in the Flint River or Copena areas and to the southwest in the Mississippi River Valley. The ceramics from northern Alabama are limestone tempered cordmarked (Flint River Cordmarked), brushed (Flint River Brushed), and plain (Mulberry Creek Plain). A complete grog tempered incised vessel (Marksville Incised) from the Mississippi River Valley was found in mortuary context on the Pharr site. Sand tempered zoned stamped vessels on the Pharr site are probably local imitations of trade wares. Other artifacts and raw materials obtained through participation in Middle Woodland exchange networks consist of greenstone artifacts (celts, platform pipe, and labret), copper artifacts (beads, earspools, and covered wood), mica, galena, a silver plated pan pipe, and a blade cache. The latter includes blades of Flint Ridge chert. In addition to the ceramic and lithic technologies, certain aspects of the middle Miller I mortuary ceremonialism may have been influenced through interregional interaction. These would include the construction of structures (charnel houses) over crematory facilities on the Bynum and Pharr

sites and a log-lined tomb on the Pharr site (Bohannon 1972:33-40, 62-66; Cotter and Corbett 1951:37-42).

Miller I Phase-Craigs Landing Subphase (A.D. 200-300/400)

The early Middle Woodland Craigs Landing subphase was delineated through archaeological research conducted in the Middle Tombigbee River Drainage. A late Miller I occupation was investigated on a multicomponent habitation site (0.4 ha) in the Gainesville Lake area. The Craigs Landing site (1GR2) was a temporary base camp located on the first terrace of the Tombigbee River. The late Miller I component on the site was comprised of 10 pits that were mostly basin-shape. Mortuary/habitation sites, evident in the preceding Pharr subphase, were lacking during the Craigs Landing subphase in the Middle and Upper Tombigbee River Drainage (Jenkins and Ensor 1981:35-55).

The Craigs Landing site was probably associated with transitory camps. Family groups probably moved in a restricted area around seasonal or semipermanent base camps, since large mortuary/habitation sites such as the Bynum and Pharr sites were lacking during late Miller I. Subsistence was most likely based on the gathering of arboreal seed crops and supplemented by deer and other faunal resources. Although there is little direct evidence for these practices during the Craigs Landing subphase, these settlement and subsistence patterns are said to be characteristic of the entire early Middle Woodland Miller I phase (Caddell 1981:32, 43; Jenkins 1982:72; Woodrick 1981:163). Mound construction and other indications of mortuary activities along with information pertaining to interregional

exchange and ceremonialism were lacking for the Craigs Landing subphase.

The local ceramics of the Craigs Landing subphase are sand tempered plain (Baldwin Plain), fabric impressed (Saltillo Fabric Marked), and cordmarked (Furrs Cordmarked). Vessel forms include deep hemispherical bowls and globular jars with everted to extremely everted or inverted rims and conoidal to slightly globular cordmarked jars with inslanting or vertical rims. The Miller I lithic assemblage described with the Bynum subphase is also representative of the Craigs Landing subphase.

Pinson Mounds (A.D. 1-500)

The Pinson Mounds mortuary/habitation site is included here with the discussion of early Middle Woodland Miller I sites in the Middle and Upper Tombigbee River Drainage. Although somewhat differentiated from the mortuary/habitation sites to the south, strong ties between Pinson Mounds and the Middle to Late Miller I phase are indicated by radiocarbon dates, mortuary practices, and the ceramic assemblages (Broster and Adair 1975:81-83; Fisher and McNutt 1962:8-11; Mainfort et al. 1982:14-18; Mainfort et al. 1985:49-56; Jenkins 1981:82-83).

Pinson Mounds (40MD1) is a mortuary/habitation site located in West Tennessee on a steep plateau above the South Fork of the Forked Deer River in a hill district of the Coastal Plain physiographic province. This Middle Woodland mortuary center and occupation area is situated approximately 80 km north of the Upper Tombigbee River Drainage and the Bynum, Pharr, and Miller mortuary/habitation sites.

The site is comprised of 30 mounds, some of which are located within an earthen enclosure, and a compact village area (Cochran site) covering an area of 0.5 ha approximately 200 m from the largest mound. Excavations on the Cochran site (40MD23) and within the adjacent enclosure revealed multiple structures and numerous pits. This semipermanent village was occupied by groups temporarily residing in the Pinson Mounds area to take part in mortuary activities and other forms of social intensification (Broster and Adair 1975:46-48; Fisher and McNutt 1962:1).

The occupation areas on the Pinson/Cochran site included five circular dwellings and two mortuary structures. The five circular single post structures measured 4.8-7.5 m in diameter (floor area $\bar{x}$ = 28.6 m^2) and lacked interior pits. Two dwellings had patterned roof supports arranged in a centrally located square of eight postmolds or a large square of seven postmolds with an additional central postmold. One of the structures had a portico on the west wall and three hearths nearby. Another structure apparently had a double row of wall postmolds. One of three dwellings uncovered on the Cochran site may have been a locus for manufacturing grave goods. Situated less than 3 m away, the two remaining structures had overlapping walls. A circular dwelling in the Pinson Mounds area was adjacent to an oval mortuary structure that measured 6.4 m x 3.2 m (floor area - 16.1 m^2). The mortuary structure contained an elongated oval crematory pit and a hearth. The second mortuary structure was comprised of a circular wall trench that measured 2.2 m in diameter. A flexed interment was

cremated on a puddled clay surface covering the floor area within the wall trench. This mortuary facility may have been surrounded by a rectangular enclosure of postmolds that measured 5.2 m x 3.7 m (floor area - 19.2 m^2). Four oval pits were positioned outside of the wall trench but within the rectangular postmold enclosure. Paired postmolds along wall sections of the habitation and mortuary structures are indicative of rebuilding and possibly repeated or long term use of these facilities. Seventy-five pits and numerous postmolds were scattered around the habitation areas investigated on the Pinson Mounds/Cochran site. These pits included 19 hearths, 5 earth ovens, and 1 storage pit (Broster and Adair 1975:5-55; Toplovich 1980:91-108). Information pertaining to subsistence practices is lacking in the habitation areas of the Pinson Mounds/Cochran site.

Mortuary practices at Pinson Mounds are known mainly from the study of two burial mounds and nearby habitation areas. Most mounds were apparently constructed between A.D. 1-200 while Mound 12 was built around A.D. 475. In the construction of Mound 12, a clay submound platform was initially prepared and a layer of gray puddled clay was applied to the platform surface. A portion of the platform surface was utilized for crematory fires and then the platform was covered with a layer of dark sand. A second layer of puddled gray clay was added to the platform over the sand and additional cremations occurred on the new surface. Crematory basins, fired areas, and scattered postmolds intruded into the platform from the last surface. The platform was then covered by an earthen mound that measured

24 m x 17 m x 2-3 m high. A crematory pit and a line of postmolds intruded into the mound fill. Mound 6, an intersecting pair of conical mounds, differed from Mound 12 and early Middle Woodland mounds in the Upper Tombigbee River Drainage. Prior to the initial mound construction, at least six primary inhumation chambers were excavated into the prepared ground surface along with the characteristic mortuary processing pits. The burial chambers were large rectangular to oval pits in which multiple individuals were interred. The pit floors were lined with puddled clay and logs and poles were either simply placed over the pits or formed actual superstructures. Clay platforms measuring 2 m wide and 0.5 m high were raised over the submound features and then covered with a sand layer. A 2 m high primary mound was erected over the central burial area and a row of posts was driven into the mound to buttress a layer of cremations redeposited on a mound ramp. Sand layers were spread over the core mound and a 3 m high mantle was added. The mantle was used as a platform for redeposited cremations and the addition of two mantles completed mound construction. Mortuary activities in the habitation areas consisted of cremations in specially prepared structures and possibly cremation in pits that were identified as hearths. Mortuary offerings recovered from crematory structures consisted of sheet mica and a copper reel-shaped gorget. Sheet mica, quartz crystals, copper, nonlocal chert, blades of Flint Ridge chert, Copena Triangular projectile points/knives, and carved sandstone palette fragments were found in a structure on the Cochran site and

may have been intended for eventual inclusion in burial mounds or other mortuary contexts on the Pinson Mounds site (Broster and Adair 1975:30-45, 48; Mainfort et al. 1982:14-18; Mainfort et al. 1985: 49-56).

The local ceramics at Pinson Mounds are predominantly sand tempered plain (Baldwin Plain) and cordmarked (Furrs Cordmarked). Minor amounts of grog tempered cordmarked (Mulberry Creek Cordmarked), plain (Baytown Plain), and fabric impressed (Withers Fabric Impressed) and sand tempered fabric marked (Saltillo Fabric Impressed) and zoned rocker stamped pottery were found in association with Baldwin Plain and Furrs Cordmarked. The rocker stamped ceramics are probably local imitations of trade wares. The local lithic assemblage includes medium triangular Greeneville/McFarland Cluster (Greeneville/ McFarland, Copena Triangular, and Copena) and Lanceolate Expanded Stem Cluster (Bakers Creek, Mud Creek, and Swan Lake) projectile points/ knives (Broster et al. 1980:39-44; Fisher and McNutt 1962:2-3, 6; Jenkins 1981:82-83).

Nonlocal lithic raw materials and artifacts, which occurred in habitation and mortuary areas at the Pinson Mounds and Cochran sites, were obtained through interaction with Middle Woodland groups in other regions. Exotic items found in mortuary context or intended for mortuary inclusion consist of sheet mica, quartz crystals, copper, a copper reel-shaped gorget, nonlocal cherts, blades of Flint Ridge chert, schist artifacts, and marine shell. Copper beads and

greenstone celts were recovered from habitation areas (Broster and Adair 1975:11, 45, 48, 83; Mainfort et al. 1985:54).

A surface reconnaissance conducted along the Forked Deer River near Pinson Mounds indicated that during the Middle Woodland period short term encampments and semipermanent base camps and possibly villages were established in the valley and adjacent uplands. Small transient encampments occupied by nuclear families were associated with larger more permanent base camps and a mortuary/habitation site in a dispersed to modified dispersed settlement system. Groups temporarily gathered at a mortuary/habitation site to engage in social activities, trade, and mortuary activities. Base camps served as seasonal gathering places for exploiting annually available floral and faunal resources. Small encampments consisted of surface scatters of grinding tools, debitage, and occasional sherds and projectile points/knives in areas up to 0.1 ha in size. The base camps contained large amounts of ceramics and a variety of lithic tool types and debitage in areas ranging in size from 0.3-0.5 ha. Most of the sites were located in optimal areas for exploiting a variety of floral and faunal resources, such as the first terrace of the river and the contact zone between the valley slope and the uplands (Broster and Weaver 1975:93-97).

Miller II Phase-Tupelo Subphase (A.D. 300-450)

The late Middle Woodland Tupelo subphase was delineated through archaeological research conducted in the Upper Tombigbee River

Drainage. A Tupelo subphase occupation was investigated on the Miller mortuary/habitation site (MLE62) located on a terrace of Yanaba Creek in the Tombigbee Watershed (Figure 60, page 216). The site was a semipermanent occupation with two associated burial mounds that were located adjacent to a village area. Excavations in the habitation area revealed a shallow midden deposit, multiple structures, and shallow pits (Jennings 1941:189-195).

The Tupelo subphase occupation areas on the Miller site included one square structure with rounded corners, a subrectangular structure, and two overlapping semicircular open cabana-type shelters. These structures measured 5.7-7.2 m x 3.7-6.8 m (floor area $\bar{x}$ = 32.0 m²). The subrectangular dwelling contained a pit with a primary inhumation and the square structure contained two shallow basins.

A dispersed to modified dispersed settlement system continued from the Miller I phase into the following Miller II phase. Groups occupying transitory camps during the cold weather aggregated at a mortuary/habitation site to engage in trade, mortuary activities, and other social functions. These groups also gathered at seasonal base camps to exploit a variety of annually available floral and faunal resources. The Tupelo subphase subsistence pattern changed little from the Miller I phase. Arboreal seed crops (hickory, acorn, and walnut) were intensively utilized and supplemented by the exploitation of deer and occasionally other plants and animals (Caddell 1981:32; Jenkins 1982:91, 94).

Early Miller II mortuary practices at the Miller site are known from the examination of both mounds and the associated village area. In preparation of the mound floor, the humus was burned off leaving irregular fired areas and some ash and charcoal. A few (n = 2-3) extended or less often semiflexed primary inhumations were either interred in rectangular to elongated oval pits dug into the prepared floor or placed directly on the submound surface. A secondary construction stage in one mound consisted of a low earthen mound raised 1.5 m over the burial pits in the mound floor. Three inhumations were then placed on the dome surface. Earthen mounds that measured 25 m in diameter and 4-5 m high were erected over the secondary and/or primary mortuary areas. One mound was accretional and contained 27 burials in the fill. This included an interment that was overlain and underlain by layers of tan clay. Grave goods associated with the mound burials consist of a limestone platform pipe, conch shell, turtle carapace, a copper earspool, and ceramic vessels. Village area inhumations were interred in the midden or shallow pits. One of these burial pits was found within a structure (Jenkins 1982:94-95; Jennings 1941:189-195).

The early Miller II Tupelo subphase ceramics are sand tempered and predominantly cordmarked (Furrs Cordmarked) and plain (Baldwin Plain) with a minority of fabric impressed (Saltillo Fabric Marked). The amount of Furrs Cordmarked in the ceramic assemblage more than doubled, at the expense of Saltillo Fabric Marked, from the late Miller I Craigs Landing subphase to the early Miller II Tupelo

subphase. The local lithic assemblage of the Tupelo subphase probably remained unchanged from the Miller I phase; however, the blade industry of the Pharr subphase was lacking during Miller II times (Jenkins 1982:71, 85).

Nonlocal ceramics and lithics, which occurred in habitation and mortuary contexts at the Miller site, were acquired through interaction with Middle Woodland groups in other regions. Minor amounts of limestone tempered plain (Mulberry Creek Plain) and cordmarked (Flint River Cordmarked) ceramics at the Miller site were probably manufactured in the Flint River region of northern Alabama. The quantity and variety of exotic mortuary offerings decreased dramatically from the Miller I phase to the early Miller II Tupelo subphase. Nonlocal artifacts found in the burial mounds at the Miller site consisted of a conch shell and a copper earspool that was recovered from a disturbed context (Jenkins 1982:94-95; Jennings 1941:189-195).

Miller II Phase-Turkey Paw Subphase (A.D. 450-600)

The late Middle Woodland Turkey Paw subphase was delineated through archaeological research conducted in the Middle Tombigbee River Drainage. Turkey Paw subphase occupations occurred on three multicomponent habitation sites with midden deposits measuring 0.2-0.5 ha in area and 15-60 cm deep. These sites were located on the first terraces of the Tombigbee River and Turkey Paw Branch, a tributary of the Tombigbee. The Turkey Paw subphase sites probably

served as temporary base camps and semipermanent to permanent villages.

The Turkey Paw subphase settlement on site 1GR1X1 in the Gainesville Lake area was comprised of 22 pits and one or possibly two oval structures that measured 10.1 m x 6.1-6.7 m (floor area $\bar{x}$ = 50.8 m^2). Approximately two-thirds of the pits (n = 14) were basin-shape and three had vertical sides and flat bottoms (cylindrical). One of the structures was very similar to the cold weather multifamily double earth oven houses found on late Middle Woodland Owl Hollow sites in Middle Tennessee (Faulkner and McCollough 1974:288). The Gainesville Lake example had a large central earth oven surrounded by four large postmolds positioned at the corners of a square measuring 2.5-3.5 m on each side. A smaller second earth oven was positioned just outside the square. Additional interior pits were lacking. The large postmolds were integral in supporting a substantial conical roof which was buttressed at the wall by a single row of posts. Paired postmolds along one side of the structure are indicative of rebuilding. An overlapping entryway and a short extended entryway were located at the north and south ends of the structure. Nine pits were found within 5 m of the exterior structure wall. A second possible structure was situated approximately 8 m to the north of the double earth oven house. The lack of patterned interior roof supports suggests this structure was probably a dome-like construction formed by tensioning and tying posts from opposite walls. A few interior pits were positioned along the south

wall of the structure. Twenty-four additional pits, half of these affiliated with the Turkey Paw subphase occupation of the site, were within 5 m of the exterior wall (Jenkins 1982:11-31). If the possible structure is in fact affiliated with the Turkey Paw subphase occupation, site 1GR1X1 may represent a fairly permanent late Middle Woodland settlement with dual cold season (double earth oven house) and warm weather (dome-like structure) dwellings. The late Middle Woodland occupation on the Craigs Landing site (1GR2) consisted of an oval structure that measured 9.1 m x 7.6 m (floor area - 54.3 m^2) and 21 pits. Three features were located within the structure and the remaining pits were clustered in the immediate vicinity of the postmold enclosure. Approximately three-fourths of the pits were basin-shape and nearly one-fourth were cylindrical with vertical sides and flat bottoms. The Turkey Paw subphase component on site 1PI61 was comprised of 14 pits arranged in two linear patterns. Approximately one-third of the features were basin-shape, nearly one-half were cylindrical, and two were bell-shape (Jenkins and Ensor 1981:11-31, 35-55, 95-149).

A dispersed to modified dispersed settlement system continued from the Miller I phase into the following early and late Middle Woodland Miller II phase. Groups occupying transitory camps during the cold weather aggregated at seasonal base camps in the summer and early fall to exploit a variety of annually available floral and faunal resources (Jenkins 1982:94). The possible pairing of a double earth oven house with a less substantial warm season structure on site

1GR1x1 suggests small villages were occupied on a semipermanent to permanent basis.

The Turkey Paw subphase subsistence pattern was based on the intensive utilization of arboreal seed crops (hickory, walnut, and acorn) and a variety of herbaceous seeds. This was supplemented by the exploitation of deer and the increased use of turkey, rabbit, squirrel, raccoon, and mussels (Caddell 1981:28-38, 43, 46-47; Jenkins 1982:90-93, 138; Woodrick 1981:116-122, 138). Evidence of mortuary practices is lacking on Turkey Paw subphase sites in the Gainesville Lake area.

A variety of ceramic types tempered with sand, grog, and bone appeared during the Turkey Paw subphase. These ceramics are predominantly sand tempered plain (Baldwin Plain) with a minority of fabric impressed (Saltillo Fabric Marked), cordmarked (Furrs Cordmarked), simple stamped (McLeod Simple Stamped), and check stamped (McLeod Check Stamped). Other minority types are grog tempered plain (Baytown Plain), cordmarked (Mulberry Creek Cordmarked), and fabric impressed (Withers Fabric Marked) and bone tempered plain (Turkey Paw Plain) and fabric impressed (Turkey Paw Fabric Marked). Vessels are often beaker-shape with flat bases, vertical to outslanting sides, and occasionally large riveted loop handles and podal supports. Nonlocal Weeden Island ceramics were acquired through exchange with Middle Woodland groups in other regions. The local lithic assemblage includes Tombigbee Stemmed Cluster projectile points/knives with

straight to contracting stems and tapered shoulders (Jenkins 1982: 87-90, 97).

Miller III Phase-Vienna Subphase (A.D. 600-900)

The Late Woodland Vienna subphase was delineated through archaeological research conducted in the Middle Tombigbee River Drainage. Vienna subphase occupations in the Gainesville Lake area occurred on two multicomponent habitation sites with midden deposits that measured 0.2-0.4 ha in area and 15-30 cm deep. These sites were located on the first terraces of the Tombigbee River and Turkey Paw Branch, a tributary of the Tombigbee, and probably served as temporary base camps. The Vienna subphase settlements in the Gainesville Lake area included two pits on site 1GR1x1 and 36 pits in clusters of 2-8 features on site 1PI61 (Jenkins and Ensor 1981:11-31, 95-149).

Throughout the Miller III phase the size and number of sites increased as populations became more sedentary. Groups occupying small transitory camps during the late winter aggregated at large base camps for much of the year. Transitory camps situated in upland areas contained sparse midden deposits and scattered ceramics, lithics, and mussels while the base camps located on river terraces in the Tombigbee Drainage had dense middens with ceramics, firecracked rock, and terrestrial and aquatic faunal remains. The Vienna subphase subsistence pattern was based upon the intensive utilization of arboreal seed crops (hickory, acorn, and walnut) and a variety of herbaceous seeds. This was supplemented by maize agriculture and the exploitation of deer, turtle, bird, and the increased use of aquatic

resources (Caddell 1981:28-47; Jenkins 1982:99, 105-111; Woodrick 1981:116-138). Burial mounds were not constructed during the Miller III phase. Occasional tightly flexed inhumations occurred on Vienna subphase habitations (Hill 1981:227; Jenkins 1982:111).

The early Miller III Vienna subphase ceramics are predominantly sand tempered plain (Baldwin Plain) and cordmarked (Furrs Cordmarked) and grog tempered plain (Baytown Plain) and cordmarked (Mulberry Creek Cordmarked) with a minority of fabric impressed (Withers Fabric Marked). The lithic assemblage of the Vienna subphase includes the small triangular Pickens arrowpoint type. Evidence of exchange, in the form of nonlocal raw materials and artifacts, is lacking for the Vienna subphase (Jenkins 1982:99-100, 103-104, 112).

Miller III Phase-Catfish Bend Subphase (A.D. 900-1000)

The Late Woodland Catfish Bend subphase was delineated through archaeological research conducted in the Middle Tombigbee River Drainage. Catfish Bend subphase occupations in the Gainesville Lake area occurred on two multicomponent habitation sites with midden deposits that measured 0.4-0.6 ha in area and 30 cm deep. These sites were located on the first terrace of the Tombigbee River and probably served as temporary base camps or semipermanent village areas.

The Catfish Bend subphase settlement on site 1PI33 was comprised of seven pits. The Middle Miller III component on site 1PI61 consisted of 33 pits, a subrectangular single-post "keyhole" structure with a depressed floor, and 3 cemetery areas. The structure measured 3.7 m x 3.4 m x 10-20 cm deep (floor area - 12.6 m^2) and had a 3.1 m

long extended entryway. Two burials pits were intrusive into the floor of the structure. Site 1PI61 also contained numerous postmolds oriented around a central plaza. Structural patterns were not defined among these postmolds. The settlement and subsistence patterns of the Vienna subphase continued through the Catfish Bend subphase; however, village populations were becoming more sedentary and the settlements more nucleated. During the Catfish Bend subphase the use of maize increased, beans were introduced, and the exploitation of aquatic faunal resources decreased. Mortuary practices are indicated by the three Catfish Bend subphase cemetery areas on site 1PI61. These cemetery areas were each comprised of 11-18 individuals in small to large basin-shape pits. The burials were tightly flexed or occasionally semiflexed and nearly one-fourth of the interments contained grave goods consisting of projectile points/knives and freshwater shell beads and pendants (Caddell 1982:36-48; Hill 1982: 227; Jenkins 1982:99; Jenkins and Ensor 1981:69-149, 105-111; Woodrick 1981:116-138).

The middle Miller III Catfish Bend subphase ceramics are predominantly grog tempered plain (Baytown Plain) and cordmarked (Mulberry Creek Cordmarked). Other minority types are grog tempered fabric impressed (Withers Fabric Marked) and sand tempered plain (Baldwin Plain) and cordmarked (Furrs Cordmarked). The lithic assemblage of the Catfish Bend subphase includes the small triangular Madison arrowpoint type. Evidence of exchange, in the form of

nonlocal raw materials and artifacts, is lacking for the Catfish Bend subphase (Jenkins 1982:99, 101, 103).

Miller III Phase-Cofferdam Subphase (A.D. 1000-1100)

The Late Woodland Cofferdam subphase was delineated through archaeological research conducted in the Middle and Upper Tombigbee River Drainage. Cofferdam subphase occupations were investigated on two multicomponent habitation sites in the Gainesville Lake area and a Miller I mortuary/habitation site in the headwaters of the Tombigbee Watershed. The Gainesville Lake area sites had midden deposits which measured 0.2-0.4 ha in area and 15-30 cm in depth. These sites were situated on the first terraces of the Tombigbee River and one of its tributaries. The Miller I mortuary/habitation site (2.8 ha) was located on Houlka Creek, a small tributary of the Tombigbee River. The three sites probably served as temporary base camps or semipermanent village areas during the Cofferdam subphase.

The late Miller III settlement on site 1GR1x1 consisted of 24 pits in clusters of up to 12 features. The Cofferdam subphase component on the Craigs Landing site (1GR2) was comprised of 39 pits loosely arranged in a linear pattern. Approximately one-third to two-thirds of the pits were basin-shape and about one-third were cylindrical with vertical sides and flat bottoms. The late Miller III settlement on the Bynum site (MCS-16) consisted of a circular single post structure that measured 4.6 m x 4.6 m (floor area - 16.6 m^2). A small fire pit was found in the dwelling. The settlement and subsistence patterns of the Catfish Bend subphase continued through

the Cofferdam subphase. Late Miller III mortuary practices are indicated by flexed or semiflexed village area burials in basin-shape pits. Some of these pits initially served as refuse or cooking pits (Caddell 1981:28-33, 44-48; Cotter and Corbett 1951:12-14; Jenkins 1982:99, 105-112; Jenkins and Ensor 1981:11-55; Woodrick 1981: 116-138).

The late Miller III Cofferdam subphase ceramics are predominantly grog tempered plain (Baytown Plain) and cordmarked (Mulberry Creek Cordmarked) with a minority of fabric impressed (Withers Fabric Marked) and a few shell tempered sherds. Grog tempered ceramic discoidals were also manufactured during this time. The lithic assemblage of the Cofferdam subphase includes the small triangular Hamilton and Madison arrowpoint types. Evidence of exchange, in the form of nonlocal raw materials and artifacts, is lacking during the Cofferdam subphase (Jenkins 1982:99, 103-104).

Miller III Phase-Gainesville Subphase (A.D. 1000-1100)

The Late Woodland Gainesville subphase was apparently contemporary to the Cofferdam subphase. Mississippian attributes noted on Gainesville subphase sites were generally lacking on sites of the Cofferdam subphase. The Gainesville subphase was delineated through archaeological research conducted in the Middle Tombigbee River Drainage. Gainesville subphase settlements in the Gainesville Lake area occurred on two multicomponent habitation sites that had midden deposits which measured 0.4-0.6 ha in area and 30 cm deep. These sites were located on the first terrace of the Tombigbee River

and probably served as temporary base camps or semipermanent to permanent village areas.

The Gainesville subphase settlement on site 1PI33 consisted of two pits with vertical sides and flat bottoms. The terminal Miller III component on site 1PI61 was comprised of four rectangular structures with depressed floors, two cemetery areas, and three cooking pits. The structures measured 2.9-4.6 m x 1.8-3.4 m (floor area $\bar{x}$ = 10.0 m²). Three structures were single post construction and the fourth had both single posts and wall entrenched posts. Two structures had central roof supports and three had central hearths. The structures occurred in pairs on opposite sides of a central plaza area that was probably in use since the Catfish Bend subphase. Each pair of structures was spatially associated with a cemetery area consisting of loosely scattered graves and burial clusters. Located near a structure area, a group of three cooking pits was situated within a ring of mussel shells which measured 9.8 m across (Jenkins and Ensor 1981:69-149).

The settlement and subsistence patterns of the Catfish Bend subphase continued through the Gainesville subphase. Mortuary practices are indicated by the two Gainesville subphase cemetery areas on site 1PI61. The cemeteries were each comprised of 14-19 semiflexed individuals in basins or rectangular pits. Over one-third of the graves contained mortuary offerings which consisted of freshwater and marine shell beads and pendants, perforated black bear canines, turtle

shells, and occasional greenstone celts (Caddell 1981:36-48; Hill 1981:227; Jenkins 1982:99, 105-112; Woodrick 1981:116-138).

The local ceramics of the terminal Miller III Gainesville subphase are identical to those of the preceding Catfish Bend subphase with the addition of minor amounts of shell tempered and mixed grog/shell tempered pottery. The local lithic assemblage of the Gainesville subphase includes the small triangular Madison arrowpoint type. The presence of marine shell artifacts and greenstone celts in mortuary context indicates that terminal Miller III groups participated, to some degree, in interregional exchange (Jenkins 1982:99, 101-102, 104).

The Middle and Late Woodland periods are separated into a series of chronological phases and subphases in the Middle and Upper Tombigbee River of eastern Alabama and adjacent Mississippi (Figure 61, page 256). In the following summary these phases and subphases are briefly outlined and compared according to individual attributes and the patterns of articulation of these attributes.

During the Miller I phase (Bynum, Pharr, and Craigs Landing subphases) temporary to semipermanent base camps, transitory camps, and mortuary/habitation sites were established in the Tombigbee River Watershed and adjacent regions to the north. Base camps contained midden accumulations, occasional structures, and pits arranged in clusters and linear patterns. Transitory camps, known only from surface evidence, were comprised of scattered ceramics and lithics but lacked midden deposits. Mortuary/habitation sites each consisted of

1-6 mounds and an adjacent village area. The habitation area contained as many as eight structures and associated hearths, earth ovens, and occasional storage pits. These sites were articulated in a dispersed to modified dispersed form of settlement system in which family groups occupying transitory camps during the cold weather gathered at seasonal base camps and mortuary/habitation sites to either exploit seasonally available food resources or participate in social activities. The pattern of articulation between base camps and transitory camps continued through the Miller II phase (Tupelo and Turkey Paw subphases). Mortuary/habitation sites were absent by the late Middle Woodland Turkey Paw subphase. Increased sedentism on small villages was indicated by the paired cold and warm season dwellings. Base camps were comprised of pits in clusters and linear arrangements (7-12 features) or a single structure and associated features. During the Late Woodland Miller III phase (Vienna, Catfish Bend, Cofferdam, and Gainesville subphases) sites were articulated in a more nucleated type of settlement system. Villages became larger and more permanent. By the Catfish Bend subphase village areas consisted of multiple structure situated around a central plaza. Small seasonal ancillary base camps contained clusters and linear arrangements of 2-8 features. Transitory camps were occupied only during the late winter.

Middle and Late Woodland subsistence practices were based on the gathering of wild plant foods, especially arboreal seed crops, and the exploitation of various faunal resources, including deer, turkey,

turtle, and mussels. The use of deer decreased throughout the Miller I-III phases and this was paralleled by a concomitant increase in the use of other fauna beginning in the late Middle Woodland Turkey Paw subphase. While herbaceous annuals were gathered throughout the Middle and Late Woodland periods, an increase in the variety of these plants occurred during the Turkey Paw subphase. Maize and bean agriculture was introduced in the Vienna and Catfish Bend subphases and gradually increased in importance through the Late Woodland period.

Miller I and II groups aggregated at large mortuary/habitation sites to participate in social activities which included the preparation and burial of the dead. During the early Middle Woodland Pharr subphase earthen mounds were constructed over large subfloor pits and other mortuary facilities. Postmolds on the floors of the pits indicated that substantial structures (charnel houses) were erected on the mound platform. Cremation took place either within or in close proximity to the structure, which may have in fact served as the crematory pyre. Secondary mound construction occasionally included flesh inhumations. Primary burials in central submound tombs are unique to the Pinson Mounds site to the north. By the late Middle Woodland Tupelo subphase, however, primary flesh interment in rectangular to elongated oval submound or mound fill pits was the preferred method of burial. Occasional inhumations in village area middens and pits were also noted by this time. Evidence of mortuary activity was lacking for the late Middle Woodland Turkey Paw subphase

but large mortuary/habitation sites were apparently absent. During the Late Woodland Miller III phase, burials (primary inhumations) were located in village areas as isolated occurrences or in cemetery clusters. Interments were tightly flexed early (Vienna subphase) and flexed to semiflexed later (Catfish Bend, Gainesville, and Cofferdam subphases). Miller I grave goods include a profusion of nonlocal artifacts and raw materials acquired through exchange with groups in other areas. Miller II mortuary offerings were generally of the same types as the Miller I phase but fewer in number. Grave goods were found with up to one-third of the Miller III burials and included marine shell beads and pendants along with other bone and shell artifacts.

The local ceramics of the Miller I phase are sand tempered plain (Baldwin Plain) and fabric impressed (Saltillo Fabric Marked) with cordmarking (Furrs Cordmarked) appearing by the Pharr subphase. Minority types are incised (Basin Bayou Incised), zoned stamped (Alligator Bayou Stamped), and zoned rocker stamped. Minor amounts of grog tempered pottery were found in association with the predominant sand tempered types at Pinson Mounds. During the Miller II Tupelo subphase Furrs Cordmarked increased at the expense of Baldwin Plain and Saltillo Fabric Marked. A variety of tempering agents was employed in the manufacture of late Middle Woodland Turkey Paw subphase ceramics while the surface treatments basically remained plain, cordmarked, and fabric impressed. Baldwin Plain was the predominant type but minor amounts of Saltillo Fabric Marked and Furrs

Cordmarked were present along with sand tempered simple stamped (McLeod Simple Stamped) and check stamped (McLeod Check Stamped). Small amounts of grog tempered plain (Baytown Plain), cordmarked (Mulberry Creek Cordmarked), and fabric impressed (Withers Fabric Marked) along with bone tempered plain (Turkey Paw Plain) and fabric impressed (Turkey Paw Fabric Marked) complete the Turkey Paw subphase ceramic assemblage. The local ceramics of the Miller III Vienna subphase are approximately one-half sand tempered (Baldwin Plain and Furrs Cordmarked) and one-half grog tempered (Baytown Plain, Mulberry Creek Cordmarked, and Withers Fabric Marked). Sand tempered ceramics are a minority by the Catfish Bend subphase and absent by the following Cofferdam and Gainesville subphases. The grog tempered series continued through the late subphases with the addition of some shell tempered and mixed grog/shell tempered pottery appearing in the Gainesville subphase. Nonlocal ceramics were obtained through trade during the Middle Woodland Miller I and II phases. These trade wares will be discussed along with other factors indicating local groups were participating in interregional exchange networks.

The predominant projectile point/knife group of the Miller I and II phases was the Tombigbee Stemmed Cluster with straight to contracting stems and tapered shoulders. The Lanceolate Expanded Stem Cluster (Mud Creek, Bakers Creek, and Swan Lake) and Lanceolate Spike Cluster (Bradley Spike and Flint River Spike) groups were also represented in the Miller I phase. Projectile points/knives were restricted to small triangular arrowpoint types (Pickens, Hamilton,

and Madison) during the Late Woodland Miller III phase. The Middle and Late Woodland lithic assemblages also contained varying amounts of artifacts and raw materials acquired through trade for inclusion with burials.

The increased number of sites and degree of sedentism in the Gainesville Lake area during the late Middle Woodland Turkey Paw subphase was paralleled by decreasing participation in interregional exchange networks. The decline of trade and interaction continued through the Late Woodland period as settlements became larger and more permanent. The early Middle Woodland Pharr subphase is distinguished in part by the number and variety of nonlocal ceramic and lithic items that were obtained through trade for inclusion in burial mounds. Grog tempered incised (Marksville Incised), limestone tempered cordmarked (Flint River Cordmarked), and limestone tempered brushed (Flint River Brushed) vessels were found in Pharr subphase mounds. The nonlocal lithic raw materials and artifacts consisted of greenstone implements, galena, mica, and silver-plated and copper artifacts. Mortuary offerings in late Middle Woodland Tupelo subphase mounds included copper and marine shell artifacts. Weeden Island ceramics were occasionally recovered from late Middle Woodland Turkey Paw subphase habitation sites. The only nonlocal items associated with Late Woodland Miller III burials were marine shell artifacts.

In the Middle and Upper Tombigbee Drainage, the early Middle Woodland Miller I phase was noted for mortuary/habitation sites which were temporarily occupied by large groups for the purposes of social

intensification. Seasonal base camps and transitory camps were occupied by smaller groups for the rest of the year. Mortuary offerings found in Miller I mounds include a variety of items obtained through interregional exchange. The early Middle Woodland settlement pattern continued through the Miller II phase. Mortuary/habitation sites were present during the Tupelo subphase but lacking by the following Turkey Paw subphase. Interregional exchange declined dramatically through the late Middle Woodland Miller II phase. During the Late Woodland Vienna subphase and throughout the Miller III phase villages became larger and more intensively occupied as populations became more sedentary. The subsistence base was supplemented by the cultivation of maize and beans. Ceramic technology shifted from sand tempering (Miller I and II) to predominantly grog tempering (Miller III) while surface treatments generally remained unchanged (plain, cordmarked, fabric impressed). The medium-size stemmed projectile points/knives of the Miller I and II phases were replaced by small stemless triangular arrowpoints in the Late Woodland Miller III phase.

5. SUMMARY OF HUMAN ADAPTATION IN SELECTED AREAS OF THE MIDSOUTH

During the early Middle Woodland in the Midsouth semipermanent base camps and villages were established in the main river valleys and adjacent uplands. These sites were articulated in a dispersed to modified dispersed form of settlement system in which family groups occupying transitory camps moved in a restricted area around seasonal

to multiseasonal 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. In this more nucleated type of settlement system, 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 and Tombigbee River drainages. During the Late Woodland period villages became even larger and more permanent in the Tombigbee River Drainage. Structures and cemetery areas were oriented around a central plaza and shell tempered pottery appeared in small quantities. In the Duck River and Bear Creek localities base camps and transient camps were articulated in a modified dispersed form of settlement system similar to that found during the early Middle Woodland.

Middle and Late Woodland subsistence practices in the Midsouth were based on the gathering of wild plant foods, simple horticulture, and the exploitation of various faunal resources. Arboreal seed crops were always utilized and herbaceous seeds were gathered in increasing quantities and varieties by the late Middle Woodland. Food procurement and production practices were notably influenced by

horticulture (maize, squash, beans, and sunflower) during the late Middle Woodland in the Upper Duck River and Bear Creek areas and the Late Woodland period in the Tombigbee River area. Deer, turkey, and other terrestial animals were exploited throughout the Middle and Late Woodland. In the Tombigbee River Drainage the use of deer decreased through time and was replaced by smaller terrestial animals. Riverine fauna were procured on sites located in the main valleys along the Tombigbee and Tennessee rivers but were not extensively utilized in other areas, especially in minor tributary localities. During the early Middle Woodland in the Midsouth, site location was often influenced by the local availability of naturally occurring food resources. As the importance of food production increased in the late Middle Woodland and Late Woodland, site location, in some areas, was influenced by the local availability of arable land for horticulture. When storable supplies of food were available, villages were occupied on a more permanent basis and a larger population inhabited a smaller area. Thus the nucleation of settlements is a direct result, in part, of food production capabilities.

In many areas of the Midsouth during the Middle Woodland period groups temporarily gathered at large mortuary/habitation sites or ceremonial centers 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. Mound groups in the Bear

Creek locality were not associated with habitation areas. Mortuary activities were probably the most elaborate in the Tombigbee River Drainage area during early Middle Woodland times and the Tennessee River Valley during the late Middle Woodland. Large earthen mounds capped charnel structures, cremations, and primary inhumations in pits in the Tombigbee River Drainage and on the Forked Deer River to the north. Low stone mounds were raised over partially articulated interments in the Bear Creek Watershed. In the Tennessee River Valley and Bear Creek areas accretional earthen mounds contained primary inhumations in elongated pits. Grave goods include 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 flesh inhumations were included in village areas.

The early Middle Woodland in the Midsouth 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 grave goods include 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 include occasional nonlocal lithics, ceramics, and marine shell. The decline of trade and interaction continued into the Late Woodland period. Mortuary items include occasional nonlocal ceramics and marine shell.

During the Middle and Late Woodland periods in the Midsouth a variety of tempering agents and surface treatments were used in the manufacture of ceramic vessels. Middle Woodland pottery was tempered with limestone or quartz in the Duck and Elk River drainages, limestone was utilized in the Bear Creek and Tennessee River areas, and sand, grog, and bone were utilized in the Tombigbee River Drainage. The dominant surface treatments during early Middle Woodland times were 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 but in the Bear Creek Watershed paddle stamped ceramics were not prevalent until late Middle Woodland times. In the Tombigbee River Drainage plain, fabric marked, and cordmarked surface treatments were codominant throughout the Middle and Late Woodland periods. Late Middle Woodland ceramics were predominantly plain and occasionally paddle stamped in all areas of the Midsouth. Late Woodland ceramics were tempered with grog in all areas except the Duck and Elk drainages, where chert and chert/quartz

tempering were utilized. Cordmarked, plain, and fabric impressed surface treatments occurred in most areas. Check stamped pottery was generally restricted to the Tennessee Valley and Bear Creek areas and knot roughened/net impressed ceramics were only found in the adjacent Duck and Elk River drainages. Interregional exchange during the Middle Woodland period brought a variety of nonlocal ceramic wares into all areas of the Midsouth. These ceramic wares probably influenced the local ceramic technology.

Middle and Late Woodland lithic assemblages in the Midsouth included projectile points/knives (PPKs), elbow pipes, gorgets, microlith tools, and a blade industry on local cherts. The medium-large triangular McFarland Cluster PPKs were prevalent during early Middle Woodland times in the Duck River and Elk River drainages and the Tennessee Valley and Bear Creek areas. The Tombigbee Stemmed Cluster PPKs with straight to contracting stems and tapered shoulders were dominant throughout the Middle Woodland period in the Tombigbee River Drainage. Lanceolate Expanded Stem Cluster and Lanceolate Spike Cluster PPKs appeared during the early Middle Woodland in the Midsouth 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. Blade technology in the Midsouth was probably initially the result of the local imitation of mortuary offerings (Flint Ridge prismatic blades) obtained through trade. 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 PPKs were found throughout the Midsouth in the Late Woodland period. This technological shift to bow hunting probably represented an increased food procurement potential for the prehistoric inhabitants of the Midsouth but may have resulted in population pressures on certain faunal resources, especially deer in the Tombigbee River Drainage.

CHAPTER IX

SUMMARY AND CONCLUSIONS

The proposed Columbia Reservoir is located on the Middle Duck River and its tributaries in the Nashville Basin of Middle Tennessee. Intensive controlled surface reconnaissance conducted in two bends of the Middle Duck River indicated that the floodplain areas were generally occupied more intensively during the Middle Woodland period than any other time in prehistory. Excavations undertaken at a large late Middle Woodland site (40MU423) exposed structures and associated pits, fill areas, and a possible ceremonial area. The testing of additional Middle and Late Woodland sites revealed scattered pits and limestone fill areas.

Archaeological remains in the Middle Duck River Drainage offer the opportunity to study human adaptation in the Middle and Late Woodland cultures of this area. The basic attributes of such adaptive cultural systems are the elements of technology, subsistence economy, and settlement patterns with other ancillary attributes consisting of mortuary activities, ceremonialism, and interregional exchange. The data available from surface surveys and site excavations in the research area were used to study human adaptation and cultural change through the reconstruction of the pattern of articulation between the constituent attributes. The elements of human adaptation in other areas of the Midsouth during the Middle and Late Woodland periods were then described. In reconstructing the patterns of human adaptation in

the Midsouth it became obvious that the basic attributes of this system articulate in a cyclical system in which each element affects the other and each element is also crucial for the maintenance of the whole system. Technology influences subsistence practices and the ability to obtain food, food procurement and production capacities in turn influence site location, intensity of site occupation, and the degree of sedentism. Interregional trade and interaction influence ceramic and lithic technologies, which in turn influence the subsistence system.

Future Woodland research in Middle Tennessee should focus on acquiring the data necessary for reconstructing the entire pattern of human adaptation. Surveys should include the mapping of all site locations and recording of the total areas covered; large areas of sites should be exposed, mapped, and excavated; the recovery of floral and faunal material should be maximized through waterscreening and flotation; and the sites examined must not only include the "biggest and the best" locations but also the relatively small sites that contain only sparse surface remains. Additional archaeological study is necessary in the Middle Duck River and Middle and Upper Elk River drainages, especially in the uplands bordering the main valleys. The ongoing program of Woodland research in Middle Tennessee should also be expanded to include the little known Early Woodland period. The present study is another step towards understanding the former lifeways of the Woodland inhabitants of Middle Tennessee and other areas of the Midsouth.

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APPENDIX

FAUNA FROM 40MU423, 40MU424, 40MU262, AND 40MU312

A total of 952.1 g of bone was recovered through feature excavation and flotation on the Edmondson Bridge site (447.7 g), Fountain Creek site (13.2 g), Leftwich site (489.9 g), and Liggett site (1.3 g). These vertebrate faunal remains were initially separated from other cultural and noncultural items according to previously outlined procedures (q.v. Flotation and Sorting). The faunal material was then size-graded in a 2.83 mm (Number 7) geologic sieve. The two size fractions (>2.83 mm and <2.83 mm) were weighed and counted. The burned pieces were also counted and recorded for comparison to the total number of pieces from each feature and site. Potentially identifiable vertebrate faunal specimens were removed for additional analysis. The comparative collection maintained by the Department of Anthropology at the University of Tennessee, Knoxville was used in identifying these specimens. Lynn Snyder analyzed most of the vertebrate fauna and compiled the data. William Dickerson identified the fish remains from the Edmondson Bridge site. Dr. Paul Parmalee assisted in the identification of several bird bone specimens.

A total of 952 identifiable prehistoric and modern freshwater mollusks and 41.0 g of unidentifiable prehistoric shell fragments were recovered through feature excavation and flotation on the Edmondson Bridge site (900 mollusks, 31.8 g of unidentifiable shell fragments), Fountain Creek site (2 mollusks), Leftwich site (49 mollusks, 9.0 g of

unidentifiable shell fragments), and Liggett site (1 mollusk, 0.2 g of unidentifiable shell fragments). These mollusk remains were initially separated from other cultural and noncultural items according to previously outlined procedures (q.v. Flotation and Sorting). Freshwater mussels were identified only when portions of the pseudocardinal teeth were present. Fragmentary specimens of a few species (e.g. Amblema plicata) are often identifiable even when pseudocardinal teeth are absent. The inclusion of such fragments in a final count tends to bias a sample toward a limited number of species. Mussel fragments that were identifiable to the species level and lacked pseudocardinal teeth were classified as unidentifiable fragments. Fragmentary specimens of certain snails (e.g. Anguispira alternata) are also identifiable to the genus and even species levels. Only relatively complete snail specimens were included in the final counts. Identifiable freshwater mollusks were counted. The burned mollusks were also counted and recorded for comparison to the total number of mollusks from each feature and site. Unidentifiable shell fragments were weighed. Dr. Walter Klippel analyzed the freshwater mollusks.

Table A-1. Vertebrate Fauna from 40MU423.

Feature	Size Grade: >2.83 mm		Size Grade: <2.83 mm		Both Size Grades	
	Number of Pieces	Weight (g)	Number of Pieces	Weight (g)	Number of Pieces	Weight (g)
F 1[a]	1/1[b]	0.1[c]	20/20	<0.1 (2)	21/21	0.1 + <0.1 (2)
F 2	2/2	0.1 + <0.1 (1)[d]	78/62	0.4 + <0.1 (1)	80/64	0.5 + <0.1 (2)
F 3	41/41	1.2 + <0.1 (3)	250/250	1.3 + <0.1 (1)	291/291	2.5 + <0.1 (4)
F 6	17/13	1.3 + <0.1 (1)	66/53	0.2 + <0.1 (2)	83/66	1.5 + <0.1 (3)
F 7	12/12	0.9	70/70	0.4	82/82	1.3
F 8	91/80	4.3	408/361	2.9	499/441	7.2
F 9			16/16	0.2	16/16	0.2
F 10			42/42	0.1	42/42	0.1
F 11	135/106	42.4 + <0.1 (1)	880/728	5.2	1,015/834	47.6 + <0.1 (1)
F 12	4/4	0.1	21/21	0.1	25/25	0.2
F 13			1/1	<0.1 (1)	1/1	<0.1 (1)
F 14			1	<0.1 (1)	1	<0.1 (1)
F 16			1/1	<0.1 (1)	1/1	<0.1 (1)
F 17	210/105	29.0	4,027/3,644	14.9 + <0.1 (1)	4,237/3,749	43.9 + <0.1 (1)
F 18	1	0.1	5/5	<0.1 (1)	6/5	0.1 + <0.1 (1)
F 20			14/14	<0.1 (3)	14/14	<0.1 (3)
F 21			9/9	<0.1 (2)	9/9	<0.1 (2)
F 23	5/5	0.1	77/77	0.3 + <0.1 (1)	82/82	0.4 + <0.1 (1)
F 24	2/2	0.1	23/23	<0.1 (2)	25/25	0.2 + <0.1 (2)
F 25	70/70	29.2	242/242	1.0	312/312	30.2
F 26	27/27	2.3	108/108	0.4	135/135	2.7
F 27			2	<0.1 (2)	2	<0.1 (2)
F 28			2/2	<0.1 (1)	2/2	<0.1 (1)
F 29			7/7	<0.1 (2)	7/7	<0.1 (2)
F 31	8/8	0.1 + <0.1 (1)	21/21	<0.1 (2)	29/29	0.1 + <0.1 (3)
F 32			31/31	0.1 + <0.1 (1)	31/31	0.1 + <0.1 (1)
F 33	1/1	0.3	10/10	<0.1 (1)	11/11	0.3 + <0.1 (1)
F 34			5/5	<0.1 (1)	5/5	<0.1 (1)
F 35	80/80	6.6	308/308	1.4	388/388	8.0
F 36	27/27	2.0	246/244	1.3 + <0.1 (1)	273/271	3.3 + <0.1 (1)
F 37	6/6	0.6	89/89	0.6	95/95	1.2
F 38			2/2	<0.1 (1)	2/2	<0.1 (1)
F 39			38/38	0.3	38/38	0.3
F 40	29/29	0.7	338/338	2.3	367/367	3.0

Table A-1. (continued)

Feature	Size Grade: >2.83 mm		Size Grade: <2.83 mm		Both Size Grades	
	Number of Pieces	Weight (g)	Number of Pieces	Weight (g)	Number of Pieces	Weight (g)
F 41	58/58	5.1	272/267	3.0	330/325	8.1
F 42			15/15	<0.1 (2)	15/15	<0.1 (2)
F 43	35/35	2.4	236/236	2.0	271/271	4.4
F 44			9/9	<0.1 (2)	9/9	<0.1 (2)
F 45	67/59	4.0	281/269	2.1	348/328	6.1
F 46	2/2	<0.1 (1)	26/26	0.1 + <0.1 (1)	28/28	0.1 + <0.1 (2)
F 47	27/18	5.7	93/92	0.5 + <0.1 (1)	120/110	6.2 + <0.1 (1)
F 48	33/33	3.7	228/228	1.4	261/261	5.1
F 49			5/5	<0.1 (2)	5/5	<0.1 (2)
F 50	2/2	0.1	44/44	0.2	46/46	0.3
F 51	1/1	<0.1 (1)	47/47	0.3	48/48	0.3 + <0.1 (1)
F 52			10/10	<0.1 (1)	10/10	<0.1 (1)
F 53	1	7.4	18/17	0.2	19/17	7.6
F 54	1	<0.1 (1)	4/4	<0.1 (2)	5/4	<0.1 (3)
F 55	7/7	0.1 + <0.1 (1)	94/94	0.3	101/101	0.4 + <0.1 (1)
Fill Area 1	1,127/764	121.2	4,624/3,150	39.9	5,751/3,914	161.1
Fill Area 2	443/443	35.6	5,391/5,389	29.2	5,834/5,832	64.8
Fill Area 3	281/278	19.3 + <0.1 (1)	1,833/1,821	9.0 + <0.1 (2)	2,114/2,099	28.3 + <0.1 (3)
PM 102[e]			1/1	<0.1 (1)	1/1	<0.1 (1)
PM 183			1/1	<0.1 (1)	1/1	<0.1 (1)
PM 185			1/1	<0.1 (1)	1/1	<0.1 (1)
Total	2,854/2,319	326.1 + <0.1 (12)	20,691/18,568	121.6 + <0.1 (47)	23,545/20,887	447.7 + <0.1 (59)

[a] Pit Feature

[b] Number of Pieces (Burned and Unburned)/Number of Burned Pieces

[c] Weight of Burned and Unburned Pieces

[d] Number of Individual Weights <0.1 g

[e] Postmold

Table A-2. Identifiable Vertebrate Fauna from 40MU423.

Species	Pit Feature 1	2	3	8	11	17	18	25	35	36	41	42	45	47	48	53	54	55	Fill Area 1	2	3	Total
Reptiles																						
Turtle sp.													1/1						2			3/1
Box/Water Turtle		1/1[a]	3/3	2/1	1/1	34/34							4/4	1/1	2/2				4/3	6/6	1/1	59/57
Box Turtle *Terrapene* sp.						1/1					1/1								1/1			3/3
Softshell Turtle *Trionyx* sp.										1/1												1/1
Snake Serpentes				1/1		1/1												1/1	1			4/3
Non-Poisonous Snake Colubridae		1/1			2/1	1						1/1							12/2			17/5
Total Reptiles		2/2	3/3	3/2	3/2	37/36				1/1	1/1	1/1	5/5	1/1	2/2			1/1	20/6	6/6	1/1	87/70
Amphibians																						
Frog *Rana* sp.																			1			1
Total Amphibians																			1			1
Fish																						
Fish Osteichthyes				18/1	12/1	612/10													1	207	1	851/12
Gar *Lepisostheus* sp.				1																		1
Minnow Family Cyprinidae						24													1			25
Stoneroller *Campostoma* sp.						23/1													7			30/1
Orangefin/River Chub *Nocomis* cf. *effusus/micropogon*						6													8			14
Shiner *Notropis* sp.						1																1
Bluntnose Minnow *Pimephales notatus*						3													1			4

Table A-2. (continued)

Species	Pit Feature 1	2	3	8	11	17	18	25	35	36	41	42	45	47	48	53	54	55	Fill Area 1	2	3	Total
Fish																						
Creek Chub Semotilus atromaculatus						1																1
Sucker Family Catostomidae						7													4			11
Black/River Redhorse Moxostoma duquesnei/carinatum						11																11
Black Redhorse Moxostoma duquesnei						1																1
Golden Redhorse Moxostoma erythrurum						1																1
Catfish Ictaluridae				1		1													6			8
Bullhead Ictalurus cf. bullhead						4													1			5
Black Bullhead Ictalurus cf. melas						2																2
Madtom Noturus sp.						19																19
Slender Madtom Noturus exilis						8													1			9
Sunfish Family Centrarchidae						40													6			46
Rock Bass Ambloplites rupestris						11																11
Sunfish Lepomis sp.						36													6			42
Green Sunfish Lepomis cf. cyanellus						1																1
Bass Micropterus sp.						1													1			2
Largemouth Bass Micropterus salmoides						1																1
Darter Percidae						8													1			9

Table A-2. (continued)

Species	Pit Feature 1	2	3	8	11	17	18	25	35	36	41	42	45	47	48	53	54	55	Fill Area 1	2	3	Total
Fish																						
Greenside Darter *Etheostoma blennioides*						11																11
Sculpin *Cottus* sp.						1																1
Freshwater Drum *Aplodinotus grunniens*										1	2										4	7
Total Fish				20/1	12/1	834/11				1	2						1		250		5	1,125/13
Birds																						
Wild Turkey *Meleagris gallopavo*							1												1/1	1/1		3/2
Perching Bird Passeriforme						1													1			2
Small Bird spp.						1													3			4
Total Birds						2	1												5/1	1/1		9/2
Mammals																						
Short-tailed Shrew *Blarina brevicauda*																					1	1
Eastern Mole *Scalopus* cf. *aquaticus*	1/1																		7			8/1
Cottontail *Sylvilagus* cf. *floridanus*										3/3												3/3
Rabbit *Sylvilagus* sp.			1/1		1/1	3/3													5			10/5
Grey/Fox Squirrel *Sciurus carolinensis/niger*					2/2					4/4				1/1					8	3/1	1	19/8
Flying Squirrel *Glaucomps volans*																					1	1
Squirrel Sciuridae						1													1	1/1		3/1
Small Mammal																			1	2/2		3/2

Table A-2. (continued)

Species	Pit Feature 1	2	3	8	11	17	18	25	35	36	41	42	45	47	48	53	54	55	Fill Area 1	2	3	Total
Mammals																						
Small Rodent Mouse sp.				3/2		2/1													7/1		1	13/4
Vole Microtinae																			1		2	3
Prairie/Woodland Vole Microtus ochrogaster/pinetorum																			3			3
Fox sp. cf. Canidae															1/1							1/1
Striped Skunk Mephitis mephitis																			5			5
White-tailed Deer Odocoileus virginianus					2	1/1		37/37	2/2					2		1			8/2	1/1		54/43
Total Mammals	1/1		1/1	3/2	5/3	7/5		37/37	2/2	7/7				2	1/1	2/1			46/3	7/5	6	127/68
Total Identifiable Vertebrate Fauna	1/1	2/2	4/4	26/5	20/6	880/52	1	37/37	2/2	9/8	3/1	1/1	5/5	3/1	3/3	2/1	1	1/1	322/10	14/12	12/1	1,349/153

[a] Number of Pieces (Burned and Unburned)/Number of Burned Pieces

Table A-3. Freshwater Mollusks from 40MU423.

Species	Pit Feature 1	2	6	8	11	12	13	15	16	17	20	23	25	26	36	40	41	51	52	54	55	Postmold 130	Fill Area 1	2	3	Total
Aquatic Snails																										
Pleuroceridae										13/6[a]													5			18/6
Elimia laqueata										230/59							1						213/13			444/72
Elimia laqueata (modern)															5											5
Leptoxis praerosa																							1			1
Lithasia sp.										1																1
Total Aquatic Snails										244/65					5		1						219/13			469/78
Terrestial Snails																										
Polygyridae/Zonitidae																							75			75
Anguispira alternate										2													2			4
Gastrocopta sp.										6																6
Gastrocopta armifera																							1			1
cf. Hawaiia minuscula																							2			2
Hawaiia minuscula																							53	1		54
Hawaiia minuscula (modern)	2	16	1							175	5				1				1					27		228
Mesodon inflectus (modern)																								2		2
Polygyra troostiana										2													1			3
cf. Pupoides albilabrus																							1			1
Pupoides albilabrus										3																3
Retinella indenta																							1			1
Retinella lewisiana										19													9			28
Strobilops labyrinthica																							1			1
Ventrideus cf. demissus										2																2
Zonitoides arboreus																							2			2
Unidentifiable										2/1																2/1
Total Terrestial Snails	2	16	1							211/1	5				1				1				148	30		415/1

Table A-3. (continued)

Species	Pit Feature 1	2	6	8	11	12	13	15	16	17	20	23	25	26	36	40	41	51	52	54	55	Postmold 130	Fill Area 1	2	3	Total
Mussels																										
Amblema plicata																							1L, 1R			2
Elliptio dilatata										1L[b]																1
Lampsilis sp.										1R[c]																1
Lexingtonia dolabelloides																							1L, 1R			2
cf. Lexingtonia dolabelloides										1R													1R			2
Villosa sp.																							1R			1
Unidentifiable Fragments				5						2																7
Total Mussels				5						5													6			16
Total Identifiable Mollusks	2	16	1	5						460/66	5				6		1				1		373/13	30		900/79
Unidentifiable Shell Fragments (g)			<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	8.9	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	22.9	<0.1	<0.1	31.8 + <0.1 (18)[d]
Unidentifiable Shell Fragments (modern) (g)										<0.1																0 + <0.1 (1)

[a] Number of Pieces (Burned and Unburned)/Number of Burned Pieces

[b] Left Valve of Mussel (L)

[c] Right Valve of Mussel (R)

[d] Number of Individual Weights <0.1 g

Table A-4. Vertebrate Fauna from 40MU424, 40MU262, and 40MU312.

Site	Size Grade: >2.83 mm		Size Grade: <2.83 mm		Both Size Grades	
Feature	Number of Pieces	Weight (g)	Number of Pieces	Weight (g)	Number of Pieces	Weight (g)
40MU424						
F 1[a]			1	<0.1 (1)[b]	1	<0.1 (1)
F 2	58/50[c]	6.9[d]	359/319	2.1 + <0.1 (1)	417/369	9.0 + <0.1 (1)
F 3			14/14	<0.1 (4)	14/14	<0.1 (4)
F 4			100/97	0.9	100/97	0.9
Fill Area 1	11/11	1.0	107/103	2.3 + <0.1 (1)	118/114	3.3 + <0.1 (1)
Total	69/61	7.9	581/533	5.3 + <0.1 (7)	650/594	13.2 + <0.1 (7)
40MU262						
F 1	2/2	0.1	34/23	0.2 + <0.1 (2)	36/25	0.3 + <0.1 (2)
F 2	10/9	0.9 + <0.1 (1)	12/12	<0.1 (3)	22/21	0.9 + <0.1 (4)
F 4	2,648/2,648	250.8 + <0.1 (1)	643/643	79.9 + <0.1 (2)	3,291/3,291	330.7 + <0.1 (3)
F 6	3/3	0.1 + <0.1 (1)	1/1	<0.1 (1)	4/4	0.1 + <0.1 (2)
Fill Area 1	518/182	151.4	733/177	6.5 + <0.1 (5)	1,251/359	157.9 + <0.1 (5)
Total	3,181/2,844	403.3 + <0.1 (3)	1,423/856	86.6 + <0.1 (13)	4,604/3,700	489.9 + <0.1 (16)
40MU312						
F 1	1	<0.1 (1)	6/5	<0.1 (2)	7/5	<0.1 (3)
F 2			9	<0.1 (4)	9	<0.1 (4)
F 4	12/11	0.9 + <0.1 (2)	62/60	0.2 + <0.1 (9)	74/71	1.1 + <0.1 (11)
F 8			11/10	0.2 + <0.1 (1)	11/10	0.2 + <0.1 (1)
Total	13/11	0.9 + <0.1 (3)	88/75	0.4 + <0.1 (16)	101/86	1.3 + <0.1 (19)

[a] Pit Feature

[b] Number of Individual Weights <0.1 g

[c] Number of Pieces (Burned and Unburned)/Number of Burned Pieces

[d] Weight of Burned and Unburned Pieces

Table A-5. Identifiable Vertebrate Fauna from 40MU424, 40MU262, and 40MU312.

	40MU424			40MU262			40MU312		
	Pit Feature	Fill Area		Pit Feature			Pit Feature		
Species	2	1	Total	1	4	Total	1	2	Total
Reptiles									
Box/Water Turtle					3/2	3/2			
Non-Poisonous Snake Colubridae	2/1[a]		2/1		2	2			
Total Reptiles	2/1		2/1		5/2	5/2			
Fish									
Fish Osteichthyes				1/1	1	2/1	1	2	3
Freshwater Drum *Aplodinotus grunniens*					1	1			
Total Fish				1/1	2	3/1	1	2	3
Birds									
Wild Turkey *Meleagris gallopavo*				2/2		2/2			
Large Brid Aves sp.					1	1			
Total Birds				2/2	1	3/2			
Mammals									
Short-tailed Shrew cf. *Blarina brevicauda*					1	1			
Eastern Mole *Scalopus aquaticus*				1/1	2	3/1			
Grey/Fox Squirrel *Sciurus carolinensis/niger*	2/1	2/1							
Squirrel Sciuridae	3/1	3/3							

Table A-5. (continued)

Species	40MU424 Pit Feature 2	40MU424 Fill Area 1	40MU424 Total	40MU262 Pit Feature 1	40MU262 Pit Feature 4	40MU262 Fill Area 1	40MU262 Total	40MU312 Pit Feature 1	40MU312 Pit Feature 2	40MU312 Total
Mammals										
Small Mammal		1	1						1	1
Small Rodent Mouse sp.	1		1			21	21			
Vole Microtinae						3	3			
White-tailed Deer Odocoileus virginianus					40/40	14/3	54/43			
Total Mammals	6/4	1	7/4	1/1	40/40	41/3	82/44		1	1
Total Identifiable Vertebrate Fauna	**8/5**	1	9/5	1/1	43/43	**49/5**	**93/49**	1	3	4

[a] Number of Pieces (Burned and Unburned)/Number of Burned Pieces

Table A-6. Freshwater Mollusks from 40MU424, 40MU262, and 40MU312.

Species	40MU424		40MU262					40MU312			
	Fill Area 1	Total	1	Pit Feature 4	5	Fill Area 1	Total	1	Pit Feature 2	4	Total
Aquatic Snails											
Pleuroceridae	1	1	9/1[a]	2		4	15/1				
Elimia edgariana			1	1			2				
Elimia laqueata				1			1				
Lithasia sp.						1	1				
Pleurocera sp.			21/1	3		3	27/1				
Total Aquatic Snails	1	1	31/2	7		8	46/2				
Terrestial Snails											
Polygyridae/Zonitidae									1	1	
Retinella lewisiana			1				1				
Strobilops labyrinthica						1	1				
Total Terrestial Snails			1			1	2		1	1	
Mussels											
Elliptio dilatata	1R[b]	1				1R	1				
Total Mussels	1	1				1	1				
Total Identifiable Mollusks	2	2	32/2	7		10	49/2		1	1	
Unidentifiable Shell Fragments (g)	<0.1	0 + <0.1 (1)[c]	4.6	0.4	<0.1	4.0	9.0 + <0.1 (1)	0.2	<0.1	<0.1	0.2 + <01 (2)

[a] Number of Pieces (Burned and Unburned)/Number of Burned Pieces

[b] Right Valve of Mussel (R)

[c] Number of Individual Weights <0.1 g

VITA

Charles Bentz, Jr. was born on December 16, 1953 in Chicago, Illinois. He attended elementary schools in that city and was graduated from Foreman High School in June, 1971. The following September he entered the University of Illinois, Chicago Circle Campus, and in June, 1976 he received a Bachelor of Arts degree in Liberal Arts and Sciences with a major in Anthropology. Since 1974, he has participated in various archaeological projects in Illinois and Tennessee.

In September, 1981, he entered the graduate program at the University of Tennessee, Knoxville. During this period he became affiliated with the Columbia Archaeological Project and served as a research technician for this project. He was awarded the Master of Arts degree in Anthropology in June, 1986.

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