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Late Middle Woodland Settlement and Subsistence Patterns in the Eastern Highland Rim of Tennessee

James E. Cobb

University of Tennessee, Knoxville

To the Graduate Council:

I am submitting herewith a dissertation written by James E. Cobb entitled "Late Middle Woodland Settlement and Subsistence Patterns in the Eastern Highland Rim of Tennessee." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Anthropology.

Charles H. Faulkner, Major Professor

We have read this dissertation and recommend its acceptance:

Paul W. Parmalee, John B. Rehder, Fred H. Smith

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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LATE MIDDLE WOODLAND SETTLEMENT AND SUBSISTENCE PATTERNS IN THE EASTERN HIGHLAND RIM OF TENNESSEE

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

James E. Cobb

March 1985

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ABSTRACT

The Owl Hollow phase, a late Middle Woodland tradition, is identified in the upper Duck and Elk river valleys in the Eastern Highland Rim of south-central Tennessee. This hunter-gatherer and horticultural adaptation is documented with the material remains and features associated with eight large intensively occupied sites located in the main river valleys and along minor tributary streams that drain the Highland Rim. Forty radiocarbon and eight archaeomagnetic dates indicate a temporal range of about A.D. 200-650 for the late Middle Woodland Owl Hollow phase.

The recovery of contemporaneous warm and cold season structures and a variety of associated seasonality data provides evidence that the Owl Hollow phase sites were occupied as year-round villages. The villages are delineated by organic-enriched middens that often occur in a circular pattern around a debris-free area that may have functioned as a plaza. A community pattern of one (or more) double earth oven winter lodges and contiguous light-framed circular or oval summer structures was revealed on four of the eight Owl Hollow sites excavated.

The analysis of floral and faunal materials indicates that subsistence was based primarily on hunting, fishing, and shellfish collecting, and on the gathering of arboreal hickory nuts, acorns, and herbaceous seeds. Squash/gourd, sunflower, and maize were cultivated and possibly contributed significantly to the Owl Hollow phase diet. The increased utilization of cultigens may have influenced the locality and the permanency of sites in the lowlands adjacent to large areas of alluvial soil.

The cultural materials diganostic of the Owl Hollow phase are lanceolate, spike-shaped projectile points, and limestone and limestone/chert-tempered plain and stamped pottery. The analysis and typological comparison of these material remains suggests that both cultural continuity and change occurred during the Owl Hollow phase. The chronometric dates, which form three clusters, lend support to early, middle, and late periods of cultural development and occupation of Owl Hollow phase sites. The separate periods are distinguishable by relative frequencies of diagnostic cultural materials, changes in subsistence patterns, and variations in settlement locations.

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CHAPTER I

INTRODUCTION

The Department of Anthropology, University of Tennessee, Knoxville, began the study of Middle Woodland occupations in the Eastern Highland Rim Physiographic Section of south-central Tennessee in 1966. Eight weeks of salvage excavations were conducted in conjunction with the Tennessee Valley Authority's (TVA) construction of the Tims Ford Dam and Lake Project in the upper Elk River Valley of Franklin County, Tennessee. The limited salvage effort resulted in the excavation of three sites in the 3,400 hectare (ha) reservoir, and significantly, two Middle Woodland phases were identified. Faulkner (ed. 1968) named these phases Brickyard and Owl Hollow and provided a tentative cultural-temporal context.

The Brickyard phase, classified as early Middle Woodland, was identified in primary context at 40FR13, the Brickyard site and type station for this phase (Butler 1968). The Owl Hollow phase was tenuously based on surface collected materials from a large, single site known locally as the Owl Hollow site (40FR7). This site was situated some 300 meters (m) from the maximum flood pool and could not be excavated under the terms of the 1966 salvage contract with the National Park Service (NPS). Nevertheless, Faulkner (ed. 1968) included information from the surface survey of 40FR7 in his formulation of the upper Elk River Valley cultural sequence. The 2.8 ha site was eventually purchased by TVA as part of Tims Ford Project lands. Although never tested, this site became the type station for the Owl

Hollow phase, hypothesized to occur between the early Middle Woodland Brickyard and Late Woodland Mason phases (Faulkner, ed. 1968).

The Owl Hollow phase remained tenuously defined for seven years following the Tims Ford Project. In 1971, the Department of Anthropology, University of Tennessee, Knoxville, returned to the Eastern Highland Rim for survey and salvage excavations in connection with TVA's proposed construction of the Normandy Dam and Lake in Coffee County, Tennessee. The Normandy Project, located approximately 20 kilometers (km) northwest of the Elk River and Tims Ford Reservoir, eventually inundated 1,280 ha of the upper Duck River Valley.

Unlike the Tims Ford Project, the Normandy Project had a well conceived archeological program financially supported by TVA and NPS from the outset. Co-principal investigators, Drs. Charles H. Faulkner and Major C. R. McCollough, developed a comprehensive site inventory, site assessment, and data recovery plan. This plan was implemented early in the project and extended through four successive years of intensive field investigations.

A primary research goal of the Normandy Project was to identify prehistoric subsistence and settlement patterns in the Eastern Highland Rim and Nashville Basin physiographic sections (Faulkner and McCollough 1973). This was accomplished by systematic survey and site testing which evaluated early human occupation of the diverse biogeographic zones in the project. A sample of the more important sites in these zones was then excavated to recover diagnostic artifactual remains and data on subsistence and settlement.

The occupation of the Normandy Reservoir locality proved to be both extensive and intensive, particularly throughout some 500 years of Middle Woodland habitation. Perhaps the most intensive occupation occurred along the broad, alluvial terraces of the lower reservoir zone during the late Middle Woodland Owl Hollow phase about A.D. 100-600. The excavations of three large Owl Hollow phase village sites exposed large winter dwellings and adjacent summer shelters providing evidence of a unique community pattern of year-round settlement along the Duck River.

The late Middle Woodland data recovered from the Normandy Reservoir was supplemented with survey information collected by local avocational archeologists. Large Owl Hollow phase sites were reported in the headwaters of both the Duck and Elk rivers, often many kilometers from the main alluvial river valleys (Gordon 1973; Cobb and Faulkner 1978). As a direct result of Normandy excavations and the additional survey data, a more complex settlement system was suggested for the late Middle Woodland period of the Eastern Highland Rim than was previously expected. Concommitantly, there was the realization that further work was required on sites outside the reservoir construction areas to gain a better understanding of Owl Hollow phase adaptive strategies.

The Owl Hollow Archeological Project began in 1976 with funding provided by the National Science Foundation (Grant BNS 76-11266). Research questions centered on late Middle Woodland settlement and subsistence patterns and cultural adaptation in an environmentally diverse area of south-central Tennessee. Six sites in different biogeographic areas underwent testing and data recovery to identify

occupational histories, major food sources, and differences in site function. In addition, information was incorporated on the relative size and location of 16 surface surveyed Owl Hollow phase sites in the Elk River drainage of Coffee, Franklin, Moore, and Lincoln counties, Tennessee (personal communication, Jerry Dickey).

The data generated by the Normandy and Owl Hollow research projects provide ample evidence of a highly successful late Middle Woodland adaptation to the upper Duck and Elk river valleys. This unique adaptation is fully documented with data from numerous intensively occupied late Middle Woodland village sites. The prehistoric occupational histories of these sites span well over 500 years and collectively represent a regionally unique cultural manifestation identified as the Owl Hollow phase.

The results of seven years of Normandy and Owl Hollow project Middle Woodland research are presented in the following chapters. The biogeographic information, cultural-historical background, research objectives, and site specific studies are more fully developed and explained under major chapter headings. A detailed summary incorporates available site research and survey data into a model of an Owl Hollow phase settlement and subsistence system.

CHAPTER II

NATURAL ENVIRONMENT

Introduction

The Owl Hollow Project Study Locality originally centered on the headwaters of the Duck and Elk rivers primarily in Bedford, Coffee, and Franklin counties in south-central Tennessee. The study locality was extended southwest to include Lincoln and Moore counties following incorporation of survey data from the Elk River drainage. Figure 1 illustrates the five county study locality which corresponds to the known distribution of Owl Hollow phase sites. The five contiguous counties delimit an area of approximately 5,631 km^2.

Geomorphology

The upper Duck and Elk river valleys are in the transitional zone between the Nashville Basin and the Eastern Highland Rim physiographic sections of the Interior Low Plateaus Physiographic province (Fenneman 1938). These major stream valleys form extensions of the Nashville Basin, while the surrounding ridges represent more resistant outliers of the Highland Rim. The surface elevation of the Nashville Basin averages 235 m Above Mean Sea Level (AMSL) and is characterized by rolling to hilly topography.

The Nashville Basin proper is a structural dome uplifted during the Paleozoic Era and subsequently eroded into a topographic depression or basin. This process of reduction is ongoing laterally as evidenced by headward stream erosion of the older and softer Ordovician rocks along

Figure 1. The Owl Hollow Project Study Locality

the periphery of the basin. Streams such as the Duck and Elk and their tributaries have cut narrow, V-shaped valleys into the exposures of dolomitic limestone and Fort Payne chert. These geological strata form the distinctive eroded topography of the dissected escarpment of the Eastern Highland Rim.

The eastern escarpment is a discontinuous, truncated, and deeply dissected formation of Mississippian age strata. The elevation varies throughout the study area but averages around 295 m from the north in Coffee County to the southwest in Lincoln County (Love et al. 1959). The dissected escarpment gives way to a topographically variable plateau often referred to as the flat Highland Rim (Love et al. 1959).

The general surface configuration of the Highland Rim is marked by low, rolling hills and sinkhole depressions formed by solution and collapse of the underlying dolomitic limestone of the St. Louis Formation. This formation is characterized by interbedded limestone strata containing lenses and nodules of chert. It weathers to a residuum of reddish or yellowish brown silty clay soil containing concretions, angular fragments and blocks of friable chert (Hardeman 1966). The largest section of the Highland Rim is the Barrens, an area of moderate relief occurring between the dissected escarpment of the Rim and the Cumberland Plateau on the east (Faulkner and McCollough 1973).

The eastern boundary of the Highland Rim is the heavily dissected, near-vertical escarpment of the Cumberland Plateau. The Plateau crest reaches an elevation of about 600 m and stands approximately 300 m above the Highland Rim. The Cumberland Plateau is capped by resistant sandstone of the Pottsville Formation and is underlain by limestone

conglomerates of Mississippian and Pennsylvanian age. Karst action in the underlying limestone strata has contributed to the dissection along the western portion of the Cumberland Plateau and helped create the characteristic coves and gorges along the western Plateau edge. Precipitation collects and percolates through the permeable sandstones and conglomerates until it reaches impermeable shale or fine grained limestone beds where it flows along the contour of the strata. These groundwater aquifers give rise to streams that develop dendritic drainage patterns as they erode headward from the western margin of the Cumberland Plateau (Delcourt 1979).

The Duck and Elk river basins are contiguous in their source areas along the eastern Highland Rim and the Cumberland Plateau escarpment, respectively. The source of the Duck River is in the flat Highland Rim that is drained by several tributaries flowing from the eastern portion of the Barrens (Love et al. 1959). The Elk River is formed by numerous small tributaries flowing from the intermittent coves occurring along the western escarpment of the Cumberland Plateau.

The Duck and Elk river watersheds have a combined total of about 2,994 km^2 of dendritic stream drainage in the Owl Hollow Project Study Locality. This fact alone illustrates the pervasive influence these stream systems have had on shaping and reshaping the local landscape by the processes of erosion and redeposition. The two streams form narrow valleys with small flood plains and alluvial terraces in their upper reaches along the Highland Rim. At the Highland Rim escarpment, the Duck and Elk have cut steep walled valleys in the Rim with very narrow floodplains and terraces. The streams flow over gravelly bottoms with

frequent rock shelters or ledges and quite a number of waterfalls. As the Duck and Elk flow into the Nashville Basin, their floodplains broaden out, stream valleys widen, and terraces become more pronounced.

Soils

The primary soil groups of the Owl Hollow Project Study Locality were formed as residuum from the decomposition of limestone, sandstone, and shale. The soil formations and associations are the result of in situ weathering, and the transportation and redeposition by water, gravity, and wind which have laid down unconsolidated deposits of clay, silt, sand, loess, and cherty rock fragments (Love et al. 1959:75).

Fox et al. (1958:7) recorded four soil groups differentiated by topographic position. These include soils of the uplands, colluvial lands, alluvial lands, and bottom lands. The soil series which associate with these groups are discussed for specific site localities in Chapters V-IX.

The characteristics of various soil associations combined with topographic relief were apparently important factors influencing aboriginal settlements. The soil survey information provides a low level mechanism for extrapolating to past physiographic conditions. Since soil characteristics are dependent upon many interrelated factors, it is important to consider other variables, particularly climate, vegetation, and animal life that contribute to habitat formation through soil genesis. Collectively, these variables provide a range of habitats potentially available for exploitation by prehistoric groups.

Climate

The climate of south-central Tennessee and the Owl Hollow Project Study Locality is humid and temperate (Strickland et al. 1947:7). It is characterized by mild seasonal changes in temperature and a relatively high annual precipitation rate (Love et al. 1959:89).

The mean annual temperature recorded for a 67 year period in south-central Tennessee is 15 celsius. Winters are generally mild and temperatures below zero occur on an average of only once a year. The average frost-free period is 190 days. It extends from April 13 to October 20, although killing frosts have occurred as late as May 10 and as early as September 27 (Fox et al. 1958:4).

The average annual precipitation rate is 138 centimeters (cm) based on a 68 year record. Rainfall is generally well distributed throughout the year with winter and spring having higher rates that average 42 cm and 37 cm, respectively. Winter precipitation usually occurs in the form of slow drizzling rain or as sleet and snow. Periodic snowfalls seldom exceed 8 to 10 cm and generally melt within a day or two.

The driest seasons of the year are summer and fall, which have an average precipitation rate of 32 cm and 26 cm, respectively. Rainfall generally occurs in the form of convection thunderstorms of great intensity and short duration. During late summer and early fall (September-October), decreasing precipitation causes a minimum of stream flow and a drying of normally swampy wetland areas on the Highland Rim and Nashville Basin (TVA 1972).

The regional temperature and precipitation patterns generally do not reflect local variations for which little data are available. Such

variations exist due primarily to differences in elevation, slope direction, convection currents, and proximity to upland areas. These variations can significantly affect localized areas with more or less precipitation, prevalence for early frosts, and differences in vegetational patterns (Strickland et al. 1947:18). These localized climatic conditions, influenced by physiography, accentuate habitat variations which are perhaps most pronounced and observable in the type and distribution of floral species.

Flora

The Owl Hollow Study Locality is in Dice's (1943:16) Carolinian biotic province. It is characterized by a diversified deciduous forest which can be subdivided into several forest regions. Dominant among these regions is the Mixed Mesophytic Forest of the Cumberland Plateau and the Western Mesophytic Forest lying west of the Cumberland escarpment in an irregular zone varying from 160 to 320 km in width. Braun (1950:122) characterizes the Mixed Mesophytic forest as a single climax type and the Western Mesophytic Forest as more diffuse with a "mosaic pattern of climax vegetation types."

The upper Elk and Duck river valleys share affinities with both the Mixed Mesophytic and Western Mesophytic forests. The mosaic pattern of plant communities in these two river valleys along the Highland Rim and in the Barrens equates well with an ecotone as defined by Braun (1950:17) and Odum (1971). In areas of transition between two or more diverse communities, there is a tendency for a greater variety and

density of species due to the "edge effect." Odum (1971:157) explains this ecological principle:

> The ecological community commonly contains many of the organisms of each of the overlapping communities and, in addition, organisms which are characteristic of and often restricted to the ecotone. Often, both the number of species and the population density of some of the species are greater in the ecotone than in the communities flanking it.

The Mixed Mesophytic Forest has a large number of dominant species with relative abundance of particular climax species dependent upon such factors as bedrock, topography, and exposure. Prior to historic disturbance, communities of the Mixed Mesophytic Forest were widespread throughout the Cumberland Mountains and extended southwest into protected, steep, north facing ravines along the dissected western Cumberland Plateau and eastern Highland Rim (Braun 1950).

The transitional Western Mesophytic Forest is composed of numerous climax and subclimax vegetation types. For example, in the Owl Hollow Study Locality, Braun (1950:153) characterizes the flat Highland Rim as a transitional oak dominated region. In actuality, however, there are many contiguous but distinctive floral associations: the dissected stream bank margins, the karstic swamp areas and the Barrens all have variable flora. Occurring throughout the Western Mesophytic Forest are oak-hickory, oak-tuliptree, beech-chestnut (formerly), prairie, and edaphic (cedar glade) communities.

The interface of the Western and Mixed Mesophytic Forest regions forms a mosaic pattern of vegetational communities. Based on pollen evidence, Delcourt (1979) determined that forests along the eastern Highland Rim and Cumberland Plateau assumed their present composition and distribution about 5,000 years ago. Delcourt's (1979) study

strongly suggests that vegetation during the Middle Woodland period (200 B.C. to A.D. 650) was not radically different from that observed at the time of historic settlement.

Faulkner and McCollough (1973) identified four major biogeographic resource zones in their study of the Normandy Reservoir. These four zones--the floodplains, the older alluvial terraces, the valley slopes and bluffs, and the uplands--were segregated on the basis of flora and physiography. However, as related by Faulkner and McCollough (1973:10-11) and King and Graham (1981:139), it is impossible to accurately reconstruct in detail the vegetation of these microenvironmental resource zones or to accurately quantify the resources of such zones. The total reconstruction is probably not altogether necessary, however, since primitive peoples rarely rely on environmental zones or even microenvironments but rather on "critical categories" of individual plant and animal genera whose ranges may intersect several environments (Flannery 1971). Nonetheless, the study of microenvironments is important, and it should be possible to identify key genera and/or dominant species which are representative of the types of resources available for exploitation, their distribution, and their relative abundance. This process is best accomplished by working from the present into the past using detailed floral and faunal surveys and by using corroborative information from the archeological record.

It is important to begin resource studies by establishing the floral record. As part of the Normandy Reservoir cultural resource investigations, botanical collections were taken throughout the reservoir to sample native taxa and those known to be of potential

economic value to an aboriginal population (Shea 1978:603). The survey was divided into transects which sampled all major microenvironmental zones adjacent to or in the immediate vicinity of archeological sites. The microenvironments sampled were restricted to the Normandy Reservoir and the immediately surrounding area. Shea's (1978) botanical survey did not extend to any areas of the flat Highland Rim or the western escarpment of the Cumberland Plateau.

Faulkner and McCollough (1974) emphasized the systematic recovery of paleobotanical materials from archeological context. The contents of numerous Normandy Reservoir Middle Woodland features rich in carbonized plant remains were processed by water flotation and waterscreen methods of recovery, and selectively sampled for identification of floral contents (Faulkner, Corkran and Parmalee 1976; Shea 1978). The analysis of the charred botanical remains revealed an archeological sample of wood charcoal, nuts, seeds, and fruit (Shea 1978:608). The sample of floral remains was increased during the Owl Hollow Project with the continued use of waterscreen and water flotation recovery techniques and sample analyses (Crites 1978).

The major biogeographic zones in the Owl Hollow Study Locality include the Nashville Basin, the escarpment of the eastern Highland Rim, the flat Highland Rim, and the western escarpment of the Cumberland Plateau. These zones can be further subdivided into five microenvironments having distinctive plant communities: floodplain/terrace, Highland Rim escarpment, Oak Barrens, Highland Rim swamp, and Cumberland Plateau escarpment. The former two microenvironmental zones parallel those established by Faulkner and McCollough (1973:10) for the Normandy

Reservoir and are presented in this study as tables of common species. The vegetational communities of the Oak Barrens, the Highland Rim swamp, and the Cumberland Plateau escarpment microenvironmental zones are discussed in a format that provides continuity with previous floristic and archeological studies (cf. Faulkner and McCollough 1973).

Floodplain/Terrace Resource Zone

The floodplains and terraces of the upper Duck and Elk river systems are in the Nashville Basin. This zone combines Faulkner and McCollough's (1973:11-24) "Flood Plain" and "Older Alluvial Terrace" microenvironmental zones of the upper Duck River Valley.

Table 1 is a partial listing of floral species prevalent in the Floodplain/Terrace Resource Zone as compiled from several key sources documenting historic vegetation in the Nashville Basin.

Highland Rim Escarpment Resource Zone

The narrow valleys and small coves formed by headward erosion of the Duck and Elk rivers created varied habitats along the eastern and northern facing slopes and bluffs. This resource zone is essentially the same as that defined by Faulkner and McCollough (1973:24-28) as the "Valley Slopes and Bluffs Zone" of the upper Duck River Valley. Table 2 identifies a sample of the modern flora found in the Highland Rim escarpment zone.

Oak Barrens Resource Zone

The Oak Barrens Zone is located in the interior of the flat to rolling eastern Highland Rim. During historic settlement, Highland Rim vegetation was recorded as scrub oak and mixed hardwood forests with

Table 1. A partial listing of floral species common in the Floodplain/Terrace Resource Zone. Sources are: Shaver and Denison 1928; U.S. Department of Agriculture 1965; Duncan and Ellis 1969; and Shea 1978.

Overstory Species	Understory Species	Herbaceous Plants
Sycamore (*Plantanus occidentalis*)	Redbud (*Cercis canadensis*)	Water Plantain *Alisma subcordatum*)
Black Willow (*Salix nigra*)	Basswood (*Tilia americana*)	Snakeroot (*Sanicula canadensis*)
Silver Maple (*Acer saccharinum*)	Box Elder (*Acer negundo*)	Milkweed (*Ascelpias syriaca*)
White Elm (*Ulmus americana*)	Pawpaw (*Asimina triloba*)	Christmas Fern (*Polystichum acrostichoides*)
Elm (*Ulmus fulva*)	Hazelnut (*Corylus americana*)	Cane (*Arundinaria* sp.)
Catalpa (*Catalpa bignonioides*)	Elderberry (*Sambucus canadensis*)	Sunflower (*Helianthus annuus*)
Black Walnut (*Juglan nigra*)	Strawberry bush (*Euonymus americanus*)	Jerusalem Artichoke (*Helianthus tuberosus*)
Bitternut Hickory (*Carya cordiformis*)	Persimmon (*Diospyros virginiana*)	Bearsfoot (*Polyminia uvedalia*)
Sugar Maple (*Acer saccharum*)	Honey Locust (*Gleditsia triacanthos*)	May-Apple (*Podophyllus peltatum*)
Sweet Gum (*Liquidambar styraciflua*)	Black Locust (*Robinia pseudo-acacia*)	Lambs-Quarters (*Chenopodium album*)
White Oak (*Quercus alba*)	River Birch (*Betula nigra*)	Bulrush (*Scirpus* sp.)
White Ash (*Fraximus americana*)	Kentucky Coffee Tree (*Gymnocladus dioicus*)	Hog Peanut (*Amphicarpa bracteata*
Beech (*Fagus grandifolia*)	Spicebush (*Lindera benzoin*)	Black-eyed Susan (*Rudbeckia* sp.)
Buckeye (*Aesculus octandra*)	Red Mulberry (*Morus rubra*)	Ironweed (*Vernonia noveboracensis*)
Black Gum (*Nyssa sylvatica*)	Red Ash (*Fraxinus pennsylvanica*)	Sage (*Salvia lyrata*)
Black Cherry (*Prunus serotina*)	Buckthorn (*Rhammus caroliniana*)	False Solomon's Seal (*Smilacina racemosa*)
Hackberry (*Celtis* sp.)	Hawthorn (*Crataegus* sp.)	Greenbrier (*Smilax bona-mox*)
Northern Red Oak (*Quercus rubra*)	Plum (*Prunus americana*)	Trillium (*Trillium* sp.)

Table 2. A partial listing of floral species common in the Highland Rim Escarpment Resource Zone. Sources are: Duncan and Ellis 1969; Faulkner and McCollough 1973: West, Goff and Johnson 1976; Shea 1978.

Overstory Species	Understory Species	Herbaceous Plants
Hickory (*Carya* sp.)	Sassafras (*Sassafras albidium*)	Water Plantain (*Alisma subcordatum*)
Shagbark Hickory (*C. ovata*)	Sourwood (*Oxydendrum arboreum*)	Arrowhead (*Sagittaria graminea*)
Bitternut Hickory (*C. cordiformis*)	Persimmon (*Diospyros virginiana*)	Snakeroot (*Sanicula canadensis*)
Mockernut Hickory (*C. tomentosa*)	Service Berry (*Amelanchier canadensis*)	Jack-in-the-Pulpit (*Arisaema triphyllum*)
Pignut Hickory (*C. glabra*)	Basswood (*Tilia* sp.)	Hercules' Club (*Aralia spinosa*)
White Oak *Quercus alba*)	Redbud (*Cercis canadensis*)	Ginseng (*Panax quinquefolium*)
Chestnut Oak (*Q. pinus*)	Dogwood (*Cornus* sp.)	Wild Ginger (*Asarum canadensis*)
Northern Red Oak (*Q. rubra*)	Elderberry (*Sambucus canadensis*)	Common Milkwood (*Asclepias syriaca*)
Black Oak (*Q. velutina*)	Red Mulberry (*Morus rubra*)	Blazing Star (*Liatris* sp.)
Black Walnut (*Juglans nigra*)	Smooth Sumac (*Rhus glabra*)	Goldenrod (*Solidago* sp.)
Butternut (*J. cinerea*)	Honey Locust (*Gleditsia triacanthos*)	May Apple (*Podophyllum peltatum*)
American Beech (*Fagus grandifolia*)	Black Locust (*Robinia pseudo-acacia*)	Tag Alder (*Alnus serrulata*)
Yellow Poplar (*Liriodendron tulipifera*)	Beaked Hazel Nut (*Corylus cornuta*)	Wild Confrey (*Cynoglossum* sp.)
Sugar Maple (*Acer saccharum*)	Hophornbeam (*Ostrya virginiana*)	Prickly Pear (*Opuntia* sp.)
Red Maple (*A. rubrum*)	Ironwood (*Carpinus caroliniana*)	Bluebell (*Campanula americana*)
Ash (*Fraxinus* sp.)	Pawpaw (*Asimina triloba*)	Common Greenbrief (*Smilax* sp.)
White Ash (*F. americana*)	Slippery Elm (*Ulmus rubra*)	Maple Leaf Viburnum (*Viburnum acerfolium*)
Black Cherry (*Prunus serotina*)	Sourwood (*Oxydendrum arboreum*)	Grape (*Vitis* sp.)
Black Gum (*Nyssa sylvatica*)	Hawthorn (*Crataegus* sp.)	Christmas Fern (*Polystichum acrostichoides*)

prairie openings referred to as the "barrens" (De Selm et al. 1973). The remnant oak barrens are discussed in Faulkner and McCollough (1973:30-32) as a "unique vegetational feature." In this study, the Oak Barrens are considered a separate resource zone based on a distinctive vegetational association and a probability of exploitation by late Middle Woodland groups.

Prairie grasslands or barrens are associated with the Mississippian Plateau formation of middle Kentucky and Tennessee. Jillson (1930) reports early accounts of treeless prairies extending from near the Ohio River southward through the Green River area of Kentucky and into Tennessee. It was formerly unclear if open prairie grasslands existed prehistorically along the eastern Highland Rim of Tennessee (see Faulkner and McCollough 1973:30). However, Delcourt's (1979) coring of Anderson Pond and Mingo Pond along the eastern Highland Rim in White and Franklin counties, Tennessee, respectively, recovered fossil pollen evidence spanning the late glacial to the present. Significantly, the Mingo Pond sample produced an abundant representation of numerous upland non-arboreal pollen types. Included in the pollen samples are taxa within the Cyperaceae, Gramineae, Compositae, and Fabaceae which are representative of the prairie barrens flora of Middle Tennessee (De Selm et al. 1973).

The vegetative succession of the barrens, as reported by Braun (1950:155), is one of scrub oak forest displacing prairie after a period of grassland dominance. De Selm (in Faulkner and McCollough 1973:31) characterizes the barrens forest association as southern red oak--scarlet oak, post oak-blackjack oak, and mockernut hickory with a grassy

understory or prairie openings. Table 3 identifies modern flora found in the Oak Barrens Resource Zone.

Oak forms the dominant canopy species in the dry barrens forest today with post oak, blackjack oak, and black oak most common. Other important species are southern red oak, white oak, mockernut, pignut and white hickories, yellow poplar, black gum, sourwood, dogwood, and red cedar (Love et al. 1959:6). The current proportion of dominant species in the eastern Highland Rim forests of Tennessee is not known; however, Table 4 lists early historic species found in the upland prairies or oak barrens of Missouri. These data reveal percentages of species in barrens habitats prior to extensive historic disturbance and probably compare favorably with past forests of the eastern Highland Rim of Tennessee.

As revealed in Table 4, the majority of trees found in the barrens produce nuts or have some edible plant parts which could have been exploited as food resources by aboriginal groups. However, the large majority of acorn producing species in the barrens have a bitter or less desirable food acorn. The black, blackjack, southern red, and scarlet oak produce acorns which require considerable leaching to make them palatable. If the bitter oaks were exploited annually, it was probably as a secondary or emergency food source.

Various species of hickory, although less dominant than the oaks, constitute the only other important nut-bearing trees of the dry barrens. Of the three hickory species identified in Table 3, two (the mockernut and pignut) were perhaps less desirable for human consumption due to thick shells and small kernels (Maddox 1938:18). The pignut

Table 3. A partial listing of floral species common in the Oak Barrens Resource Zone. Sources are: Gattinger 1901; Lewis 1954; Love et al. 1959; Faulkner and McCollough 1973; Shea 1978.

Overstory Species	Understory Species	Herbaceous Plants
Post Oak (Quercus. stellata)	Sassafras (Sassafras albidum)	May Apple (Podophyllum peltatum)
Blackjack Oak (Q. marilandica)	Persimmon (Diospyros virginiana)	Blazing Star (Liatris sp.)
Black Oak (Q. velutina)	Red Bud (Cercis canadensis)	Christmas Fern (Polystichum acrostichoides)
Southern Red Oak (Q. falcata)	Sourwood (Osydendrum arboreum)	Prickly Pear (Opuntia sp.)
White Oak (Q. alba)	Ironwood (Carpinus caroliniana)	Honeysuckle (Lonicera sp.)
Scarlet Oak (Q. coccinea)	Hophornbeam (Ostrya virginiana)	Bittersweet (Celastrus scandens)
Mockernut Hickory (Carya tomentosa)	Smooth Sumac (Rhus glabra	Gooseberry (Vaccinium stamineum)
Pignut Hickory (C. glabra)	Dogwood (Cornus florida)	Deerberry, Blueberry (Vaccinium sp.)
Bitternut Hickory (C. cordiformis)	Basswood (Tilia americana)	Beggar Lice (Desmodium mudiflorum)
Black Walnut (Juglans nigra)	Serviceberry (Amelanchier sp.)	Pennyroyal (Hedeoma pulegioides)
Yellow Poplar (Liriodendron Tulipifera)	Plum (Prunus sp.)	Sage (Salvia lyrata)
Black Gum (Nyssa sylvatica)	Narrow-leafed Crabapple (Pyrus angustifolia)	Solomon's Seal (Polygonatum biflorum)
American Beech (Fagus grandifolia)	Maple Leaf Viburnum (Viburnum acerifolium)	False Solomon-Seal (Smilacina racemosa)
Black Cherry (Prunus serotina)	Hazelnut (Corylus americana)	Sawbrier (Smilax glauca
Eastern Red Cedar (Juniperus virginiana)	Flowering Hydrangea (Hydrangea radiata)	Common Greenbrier (Smilax rotundifolia)
White Elm (Ulmus americana)	Button Bush (Cephalanthus occidentalis)	Bent Grass (Agrostis sp.)
Sweet Gum (Liquidambar styraciflua)	Red Chokeberry (Pyrus arbutifolia)	Broomsedge (Andropogon virginicus)
	Arrow-Wood (Virburnum nudum)	Manna Grass (Glyceria sp.)
	Southern Buckthorn (Bumelia lycioides)	Panic Grass (Panicum sp.)
	Smooth Alder (Alnus serrulata)	Bedstraw (Galium sp.)

Table 4. Species recorded in the Missouri Oak Barrens as witness trees at quarter sections and section corners during the Federal Land Surveys (after Wood and McMillan 1976:26-27).

Species	Number	Percentage
Post Oak (*Quercus stellata*)	131	58.0
Black Oak (*Q. velutina*)	43	19.0
White Oak (*Q. alba*)	12	5.2
Blackjack Oak (*Q. marilandica*)	11	4.8
Chinquapin Oak (*Q. prinoides*)	6	2.6
Bur Oak (*Q. macrocarpa*)	4	1.8
Pin Oak (*Q. palustris*)	2	0.9
Northern Red Oak (*Q. rubra*)	1	0.4
Hickory (*Carya* sp.)	3	1.3
Black Hickory (*C. texana*)	7	3.1
Shellbark Hickory (*C. laciniosa*)	1	0.4
Walnut (*Juglans* sp.)	1	0.4
Elm (*Ulmus* sp.)	2	0.9
White Elm (*U. americana*)	1	0.4
Sugar Maple (*Acer saccharum*)	1	0.4
Willow (*Salix* sp.)	1	0.4
Totals	227	100.0

hickory, as an example, is approximately one inch long and averages over 200 seeds per pound (U.S. Department of Agriculture 1965:125). This evidence suggests that nut-bearing trees, while abundant in the dry barrens, produced seeds of lower economic importance that required a high expenditure of energy for processing.

Throughout the barrens, there were numerous woody understory species and herbaceous plants and grasses with edible parts that somewhat offset the imbalance of the less desirable nuts (Table 3). The presence and abundance of these woody shrubs and herbaceous plants can only be inferred from historic accounts and existing relict stands (Gattinger 1901:24; Faulkner and McCollough 1973:32-34). The quantity of understory plants in the barrens was probably attributable to a particularly favorable habitat of open forests and prairie grasslands. Table 3 lists numerous shrubs and herbs, found today in the oak barrens, which have edible food parts. Swanton (1946) and Hudson (1976) report that the berries, fruits, nuts, bulbs, and fronds of these plants were consumed fresh, made into breads, used in soups, or dried and stored for winter use by historic Indian groups. This wide variety of plants, which ripen or are available from early spring into late fall and early winter, probably were important plant resources for exploitation by prehistoric groups as well.

Prehistorically, the prairies and open woodlands of the barrens must have contained many different species of grass which have since been eliminated or reduced to isolated, remnant communities. The many species of grass provided aboriginal groups with food and raw materials for utilitarian items such as baskets, mats, and thatching. Shea

(1978:655-685) recorded several extant species of grass (Table 3) which collectively suggest the potential importance of the herbaceous plants as a resource in the Oak Barrens zone. Herbaceous seed bearing plants were probably productive enough annually in the Oak Barrens zone to provide a large, harvestable seed crop to aboriginal gatherers.

Highland Rim Swamp Resource Zone

The Highland Rim Swamp Zone is located in areas of the flat Highland Rim which are lowlying and characteristically have poor drainage throughout most of the year. These swampy areas vary in size from 2 to 4 ha sinkholes to the extensive 809 ha Mingo Swamp.

Geologically, the swampy areas were created by solution and collapse of the underlying limestone which formed depressions in the land surface. As these areas recessed, they were filled with silty sediments and subjected to either seasonal wet-dry periods or fluctuations in the ground water flow from internal springs. The factors of an active solution cavity combined with continuous silty sedimentation and slow drainage maintained these lowlying boggy areas for long periods of time along the eastern Highland Rim.

Mingo Swamp, located in Franklin County in the upper Elk River drainage system, was perhaps one of the most extensive swamps occurring on the flat Highland Rim. Mingo Swamp is drained by Beans and Caney Hollow creeks on the south, Murrell and Town creeks on the west, and Dry Creek on the north. Numerous unnamed intermittent streams issue from the marsh in all directions but eventually connect with one of the above drainage systems. All streams flow west or southwest to the Elk River.

The vegetation of Mingo Swamp has apparently been relatively stable since the early Holocene of about 9,500 B. P. to the present (Delcourt 1979:270). A stratigraphic pollen sequence from Mingo Pond, a locality within Mingo Swamp, established that both mesic deciduous-coniferous forests and prairie vegetation occurred along the eastern Highland Rim. Present in the sample were pollen of pine and spruce, which disappeared around the mid-Holocene, along with taxa representative of the barrens flora, which has remained throughout the area till the present. During the mid-Holocene, lowering of the water table resulted in the development of an oak-sweet gum forest replacing the mixed prairie-deciduous forest surrounding Mingo Pond.

The vegetation of Mingo Swamp is currently characterized as an oak forest with dominant canopy species being water and willow oaks in the lower regions and white, red and post oaks in the higher elevations (Soderbom 1971:11). Table 5 provides a list of selected woody and herbaceous species recorded in Mingo Swamp and along the immediate periphery.

The former extent of Mingo Swamp is difficult to ascertain but probably varied from about 800 ha to 1,600 ha based on remnant swampy areas and soil and vegetation type (Love et al. 1959). Mingo Swamp probably reached its greatest extent about 500 B.C. to A.D. 1200, reflecting increased precipitation during the late Holocene (Delcourt 1979:271). Significantly, this would have been during the late Middle Woodland period of c. A.D. 200 to A.D. 650.

The extensive Mingo Swamp was undoubtedly a very attractive eco-niche for aboriginal subsistence and a major factor in the establishment

Table 5. A partial listing of floral species common in the Highland Rim Swamp Resource Zone. Sources are: Soderbom 1971; Quarterman and Powell 1978; Quarterman et al. 1976; Delcourt 1979.

Overstory Species	Understory Species	Herbaceous Plants
Willow Oak (*Quercus phellos*)	Serviceberry (*Amelanchier* sp.)	Gerardia (*Agalinis purpurea*)
Water Oak (*Q. nigra*)	Buttonbush (*Cephalanthus occidentalis*)	St. Andrews Cross (*Ascyrum hypericoides*)
Red Oak (*Q. rubra*)	Flowering Dogwood (*Cornus florida*)	Yellow Fox-Gloves (*Aureolaria flava*)
Swamp Chestnut Oak (*Q. michauxii*)	Persimmon (*Diospyros virginiana*)	Beautyberry (*Callicarpa americana*)
Southern Red Oak (*Q. falcata*)	American Holly (*Ilex opaca*)	Sedge (*Carex bullata*)
White Oak (*Q. alba*)	Partidgeberry (*Mitchella repens*)	Verbesina (*Eclipta alba*)
Post Oak (*Q. stellata*)	Red Mulberry (*Morus rubra*)	Virginia Sweetspire (*Itea virginica*)
Overcup Oak (*Q. lyrata*)	Sourwood (*Oxydendrum arboreum*)	Wood Rush (*Juncus debilis*)
Black Cherry (*Prunus serotina*)	Winged Elm (*Ulmus alata*)	Cardinal Flower (*Lobelia canbyi*)
Black Willow (*Salix nigra*)	Sassafras (*Sassafras albidum*)	Panic Grass (*Panicum verrucosum*)
Red Maple (*Acer rubrum*)	Rhododendron (*Rhododendron* sp.)	Knotweed (*Polygonum pennsylvanicum*)
Mockernut Hickory (*Carya tomentosa*)	Buckthorn (*Rhamnus caroliniana*)	Hercules Club (*Arala spinosa*)
American Beech (*Fagus grandifolia*)	Common Deerberry (*Polycodium stamineum*)	Royal Fern (*Osmunda regalis*)
Black Walnut (*Juglans nigra*)		Nutgrass (*Cyperus* sp.)
Eastern Red Cedar (*Juniperus virginiana*)		Floating Water Primrose (*Jussiaea decurrens*
Sweet Gum (*Liquidambar styraciflua*)		Water Hoarhound (*Lycopus rubellus*)
Yellow Poplar (*Liriodendron tulipifera*)		Common Greenbrier (*Smilax rotundafolia*)
Black Gum (*Nyssa sylvatica*)		Goat's Rue (*Tephrosia virginica*)

of sites along the fringe during the late Middle Woodland period. The swamp was probably exploited heavily for a wide variety of seasonally available plant and animal resources. During the late winter, the swamp is filled to about one meter deep, then generally decreases to one-half meter deep in early autumn (Soderbom 1971). While the presence of a significant body of water in the fall and early winter would have hampered seed collecting activities, it, nonetheless, would have attracted a significantly rich animal and waterfowl population (Quarterman et al. 1976).

The current vegetation record of Mingo Swamp is probably not significantly different from that of the late Middle Woodland period. Of the nut-bearing trees, the oaks, and particularly willow oak, are the dominant species along with minor numbers of hickory and even less frequent walnut. While oaks are abundant throughout the swamp, five out of the eight species identified in Table 5 produce bitter acorns. As discussed above, bitter acorns were likely less desirable and probably constituted a secondary food source. The oaks in the white oak group, while producing a more palatable nut, were fewer in number throughout the swamp, as were hickories and walnut. Consequently, the nut-bearing trees probably were not a factor in subsistence exploitation of Mingo Swamp by aboriginal groups.

Weed seeds and tuberous plants were reported to occur in great numbers throughout the swamp environment (Delcourt 1979; Quarterman et al. 1976). Several herbaceous plants of possible economic importance such as knotweed and may grass were prevalent along the fringe of the swamp. Various tubers that occur in shallow water, such as the duck

potato, American Lotus, Jerusalem artichoke, and greenbrier may also have been exploited as a food resource.

The nuts, seeds, and herbaceous plants were likely concentrated around the shallowly inundated edge of the marsh during the late summer, fall, and throughout the winter seasons. While the plant foods were available for exploitation, it is more likely that the nuts and seeds were a major factor in the concentration of numerous large and small mammals, marsh birds, and especially waterfowl. Seasonally inundated wetlands are the prime habitat for over 60 species of ducks and birds and, significantly, one of the primary food sources of migratory and wintering waterfowl is acorns (Martin et al. 1951). Bird counts made in and around Mingo Swamp (The Migrant 1933; 1935; 1936; 1937) report large migratory duck populations. One can surmise that prior to major historic impact on Mingo Swamp, conditions existed to attract a significantly larger water fowl population and make this area a uniquely attractive microenvironment.

Cumberland Plateau Escarpment Resource Zone

The rugged topography along the western Cumberland Plateau edge has contributed to development of a rich and varied flora with many diverse plant communities (Clark 1966). Recognized differences in the communities and the dominant canopy species correlate with the degree of slope and exposure of a particular area. To some degree, this area and the eastern Highland Rim represent similar econiches having similar plant communities. The primary difference between the two rugged areas, however, is one of scale.

According to Braun (1950), forests of the western plateau escarpment can be further subdivided into association-segregates on the basis of soil characteristics, slope, exposure, and topography. For the purpose of this study, flora associated with low altitude coves and gorges is more important, although it is difficult to categorize the vegetation into well delineated community types. Cove formations or wide valleys segregate easier than the gorges which are subject to greater microenvironmental influences. Clark (1966:25) identifies four primary forest types associated with the coves and gorges of the western plateau escarpment: the Hemlock, Hemlock-Hardwoods, Mixed Mesophytic and Oak-Hickory types. Clark's (1966) assessment of forest dominants is included in a modified form as Table 6. A listing of selected woody and herbaceous species recorded in the Cumberland Plateau coves and escarpments is provided in Table 7.

The western escarpment of the Cumberland Plateau is characterized by entrenched stream bank, narrow terrace, rugged upland, and xerophytic habitats. Throughout these primary habitats, oaks dominate as food-bearing nut trees along with several species of hickory and walnut. Oaks were extensive on the flat Highland Rim and occurred along with shellbark and shagbark hickories on the peripheries of moist stream courses (Braun 1950). As one follows the entrenched streams along the escarpment fringe, oaks are an important element in the rich mesophytic cove forests. Beyond the coves, oaks and hickories are co-dominants on the higher elevated and more xeric south and southwest facing escarpment slopes. One formerly abundant specie of tremendous importance was the American chestnut. Prior to 1920, chestnut trees were reported as the

Table 6. Forest types associated with the coves and gorges of the western Cumberland Plateau escarpment (after Clark 1966:25-30).

Forest Type	Dominant Species	Habitat
1. Hemlock:	Eastern Hemlock (*Tsuga canadensis*) Umbrella Tree (*Magnolia tripetala*) Spindletree (*Euonymus americanus*)	narrow, north facing slopes and under sandstone cliffs of upper gorges where there is very little direct sunlight.
2. Hemlock-Hardwoods:	Eastern Hemlock (*Tsuga canadensis*) American Beech (*Fagus grandifolia*) Red Maple (*Acer rubrum*) Yellow Birch (*Betula lutea*) Yellow Poplar (*Liriodendron tulipifera*) Umbrella Tree (*Magnolia tripetala*)	east and northeast facing areas near major streams in the mid to upper portions of the gorges, some direct sunlight.
3. Mixed Mesophytic:	Yellow Buckeye (*Aesculus octandra*) Yellowwood (*Cladrastis lutea*) Sugar Maple (*Acer saccharum*) Chinquapin Oak (*Quercus muhlenbergii*) White Ash (*Fraxinus americana*) Red Elm (*Ulmus rubra*) Cucumber Tree (*Magnolia acuminata*) Shagbark Hickory (*Carya ovata*) American Beech (*Fagus grandifolia*) White Basswood (*Tilia heterophylla*) Red Oak (*Quercus rubra*)	widespread within the lower gorges and coves although pronounced variations in composition occur; association-segregates such as beech-white oak, beech-hemlock-white oak-tupliptree communities are recognized but are usually not well defined. The more mesic hemlock-mixed mesophytic communities seem to be confined to the lowest ravine slopes where there is much more direct sunlight.

Table 6 (Continued)

Forest Type	Dominant Species	Habitat
3. Mixed Mesophytic (Continued)	Sweet Gum (*Liquidambar styraciflua*) Black Locust (*Robinia pseudo-acacia*)	
4. Oak-Hickory:	Chestnut (formerly) (*Castanea dentata*) Chestnut Oak (*Quercus prinus*) Red Oak (*Q. rubra*) White Oak (*Q. alba*) Black Gum (*Nyssa sylvatica*) Bitternut Hickory (*Carya cordiformis*) Shagbark Hickory (*C. ovata*) Black Locust (*Robinia pseudo-acacia*) Sourwood (*Oxydendrum arboreum*) Flowering Dogwood (*Cornus florida*)	widespread in the gorges in dry areas; generally inhabitants of upper west, south-west, northwest-facing and southeast facing slopes in areas of high relief near the escarpment having much direct sunlight.

Table 7. A partial listing of floral species common in the Cumberland Plateau Escarpment Resource Zone. Sources are: Braun 1950; Clark 1966.

Overstory Species	Understory Species	Herbaceous Plants
Eastern Hemlock (*Tsuga canadensis*)	Spindletree (*Euonymus americanus*)	Shield Fern (*Dryopteris spinulosa*)
American Beech (*Fagus grandiflora*)	Yellowwood (*Cladrastic lutea*)	Wood Fern (*Dryopteris intermedia*)
Red Maple (*Acer rubrum*)	Umbrella Tree (*Magnolia tripetala*)	Partridge Berry (*Mitchella repens*)
Sugar Maple (*A. succharum*)	American Hornbeam (*Carpinus caroliniana*)	Indian Cucumber-Root (*Medeola virginiana*)
Yellow Birch (*Betula lutea*)	Sourwood (*Oxydenrum arboreum*)	Cancer-Root (*Epifagus virginiana*)
Yellow Poplar (*Liriodendron tupliifera*)	Flowering Dogwood (*Cornus florida*)	Skullcap (*Scutellaria elliptica*)
Cucumber Tree (*Magnolia acuminata*)	Spicebush (*Lindera benzoin*)	
Yellow Buckeye (*Aesculus octandra*)	Alternate-leaf Dogwood (*Cornus alternifolia*)	Sedge (*Carex plantaginea*)
Red Elm (*Ulmus rubra*)	Tree Sparkleberry (*Vaccinium arboreum*)	Polypody (*Polypodium virginianum*)
Sweet Gum (*Liquidambar styraciflua*)	Trailing Arbutus (*Epigaea repens*)	Sorrel (*Oxalis acetosella*)
Black Walnut (*Juglans nigra*)	Sawbrier (*Smilax glauca*)	Club Moss (*Lycopodium lucidulum*)
	Beautyberry (*Callicarpa americana*)	Blue Violets (*Viola rotundifolia*)
	Hazelnut (*Corylus americana*)	Alum Root (*Heuchera americana*)
	New Jersey Tea (*Ceanothus americanus*)	Birthwort (*Aristolochia durior*)
		Spleenwort (*Athyrium pycnocarpon*)
		Showy Orchid (*Orchis spectabilis*)

major constituent of the present Cumberland Plateau oak-hickory forest (Braun 1950:105).

The western plateau escarpment provided quantities of other nuts and seeds from understory and herbaceous plants. Some of the secondary nut crop consisted of chinquapins, hazelnuts, walnuts, and perhaps butternuts. The occurrence of these latter species was more sparse in the mesic forest or along the stream courses and fringe of the flat Highland Rim. Collectively, however, the many different kinds of nut-bearing species would likely have offset the effects of periodic low mast production in any one or several species.

In addition to the abundant nuts, seeds from the herbaceous layer (Table 7) parallel closely those documented in the mesic forest habitat of the eastern Highland Rim. Throughout the western escarpment of the Cumberland Plateau, there were extensive secondary species providing a wide range of plant foods from the understory and herbaceous layers. The use and exploitation of these plant foods, however, would likely have been of only secondary importance in this resource zone, with major preference being the arboreal seed crops.

The extent of aboriginal use of the western plateau escarpment is suggested by the location of numerous village sites along the base of the escarpment and cave and shelter sites on the interior. During the Middle Woodland period, several sites were located directly in coves, and it has been suggested that these unique localities primarily afforded cold season protection for a transient population (Major C. R. McCollough, personal communication). However, the cove localities were likely multipurpose in their attraction and afforded much more than

protection against weather. The cove forests were rich mesophytic stands, and the streams active in cove formation served as access points onto the western plateau escarpment. The small streams supported a more diverse vegetation and attracted a more diverse animal population than would normally have occurred on either the escarpment or the Highland Rim.

Fauna

Faulkner and McCollough (1973) and Robison (1978) identify and discuss a rich and varied fauna available to the prehistoric hunters and gatherers of the upper Duck River Valley. The animal species identified, although not all are considered subsistence fauna, were adapted to the upper Duck River Valley and occurred throughout the Owl Hollow Research Locality. Consequently, this section of Chapter II will rely heavily on and be quoted freely from these two sources to present a selected list of faunal species of the Owl Hollow Research Locality. Table 8 lists those species and their preferred habitats. The habitats are keyed to specific resource zones of the upper Duck and Elk river valleys.

Gastropods and Naiads

The remains of gastropods and naiads are particularly numerous on Owl Hollow phase sites. Although available year-round, their most intensive exploitation possibly occurred during the late winter and early spring (Cobb and Faulkner 1978). Therefore, shellfish occurrences on archeological sites are usually good indicators of warm season site habitation (cf. Robison 1978:580).

Table 8. A selected listing of faunal species common in the Owl Hollow Study Locality. Sources are: TVA 1972; Faulkner and McCollough 1973; Robison 1978.

Species	Preferred Habitat
Gastropods:	
Pleurocera canaliculatum	aquatic; gastropods are associated directly with the floodplain resource zone. Gastropods occur most prolificly in the early spring and are generally found attached to rocks, sticks, and logs in shallow streams.
Anculosa umbilicata	
Elimia laqueata	
Lithasia duttoniana	
Lithasia fuliginosa	
Leptoxis praerosa	
Campeloma sp.	
Lioplax sp.	
Viviparus sp.	
Physa sp.	
[illegible]orbis sp.	
Gyraulus sp.	
Helisoma sp.	
Ferrissia sp.	
Lymnea sp.	
Naiads:	
Megalonaias gigantea	aquatic; certain species of naiads are adapted to specific conditions of stream size, stream flow, and bed load type. Generally speaking, naiads of smaller size occur in the head waters of rivers. There are also generally fewer naiad species found in the head waters of rivers.
Ambelma costata	
Quadrula pustulosa	
Quadrula cylindrica	
Tritogonia verrucosa	
Cyclonaias tuberculata	
Elliptio crassidens	
Lasmigona costata	
Lasnigona complanata	
Strophitus rugosus	
Obovaria subrotunda	
Actinonasias carinata	
Truncilla donaciformis	
Truncilla truncata	
Obliquaria reflexa	
Toxolasma sp.	
Plagiola lineolata	
Leptodea fragilia	
Proptera alata	
Liguma recta latissima	
Lampsilis anodontoides	
Lampsilis ovata	
Epioblasma triquetra	

Table 8 (Continued)

Species	Preferred Habitat
Sphaerium sulcatum	
Sphaerium transversum	
Musculium sp.	
Pisidium dubrium	
Pisidium sp.	
Fish:	
Spotted Gar (*Lepisosteus oculatus*)	aquatic; the various species of fish are adapted to specific river conditions reflecting water flow, depth, temperature, silt load and oxygenation level. Different species prefer mud, sand, or rock bottoms and as conditions and seasons change, so do the frequencies of these species in any particular stretch of the Duck and Elk rivers. Certain species are more prevalent during seasonal runs when "shoaling" or spawning occurs in the head-water streams.
Longnose Gar (*Lepisosteus osseus*)	
Shortnose Gar (*Lepisosteus platostomus*)	
Gizzard Shad (*Dorosoma cepedianum*)	
Threadfin Shad (*Dorosoma petenense*)	
River Carpsucker (*Carpiodes carpio*)	
Highfin Carpsucker (*Carpiodes velifer*)	
Quillback Carpsucker (*Carpiodes cyprinus*)	
Creek Chubsucker (*Erimyzon oblongus*)	
Northern Hogsucker (*Hypentelium nigricans*)	
White Sucker (*Catostomus commersoni*)	
Blue Sucker (*Cycleptus elongatus*)	
Spotted Sucker (*Minytrema melanops*)	
Largemouth Buffalo (*Ictiobus cyprinellus*)	
Smallmouth Buffalo (*Ictiobus bubalus*)	
Black Buffalo (*Ictiobus niger*)	
Silver Redhorse (*Moxostoma duquesnei*)	
Golden Redhorse (*Moxostoma eruthrurum*)	
Shorthead Redhorse (*Moxostoma macrolepidotum*)	

Table 8 (Continued)

Species	Preferred Habitat
Black Bullhead (*Ictalurus melas*)	
Yellow Bullhead (*Ictalurus natalis*)	
Elegant Madtom (*Noturus elegans*)	
Mountain Madtom (*Noturus eleutherus*)	
Slender Madtom (*Noturus exilis*)	
Brindled Madtom (*Noturus miurus*)	
Freckled Madtom (*Noturus nocturnus*)	
Channel Catfish (*Ictalurus punctatus*)	
Flathead Catfish (*Pylodictis olivaris*)	
Blue Catfish (*Ictalurus furcatus*)	
Redfin Pickerel (*Esox americanus*)	
Chain Pickerel (*Esox niger*)	
Orangespotted Sunfish (*Lepomis humilis*)	
Green Sunfish (*Lepomis cyanellus*)	
Longear Sunfish (*Lepomis megalotis*)	
Redear Sunfish (*Lepomis nicrolophus*)	
Warmouth (*Lepomis gulosus*)	
Bluegill (*Lepomis macrochirus*)	
White Crappie (*Pomoxis annularis*)	
Largemouth Bass (*Micropterus salmoides*)	
Smallmouth Bass (*Micropterus dolomieui*)	
Spotted Bass (*Micropterus punctulatus*)	
Rock Bass (*Ambloplites rupestris*)	

Table 8 (Continued)

Species	Preferred Habitat
Freshwater Drum (Aplodinotus grunniens)	
Walleye (Stizostidion vitreum	
Sauger (Stizostidion canadense)	
Amphibians:	
Bullfrog (Rana catesbeinana)	aquatic and terrestrial; most of the amphibian and reptilian species are commonly found associated with water, either directly or in a flood plain setting. Generally speaking, these species hibernate during the cold season. These species do not occur in great numbers throughout their habitat range.
American Toad (Bufo americanus)	
Fowler's Toad (Bufo woodhousei fowleri)	
Eastern Spadefoot Toad (Scaphiopus holbrooki)	
Spotted Salamander (Ambystoma maculatum)	
Marbled Salamander (Ambystoma opacum)	
Green Salamander (Aneides aeneus)	
Hellbender (Cryptobranchus alleganiensis)	
Mudpuppy (Necturus maculosus)	
Reptiles:	
Common Snapping Turtle (Chelydra serpentina)	
Eastern Spiny Softshell (Trionyx spinifer spinifer)	
Map Turtle (Graptemys geographica)	
Slider (Peeudemys concinna hieroglyphica	
Stinkpot (Sternothaerus ordoratus)	
Eastern Mud Turtle (Kinosternon subrubrum subrubrum	
Eastern Box Turtle (Terrapene carolina carolina)	
Northern Black Racer (Coluber constrictor constrictor)	
Corn Snake (Elaphe guttata guttata)	
Eastern Hognose Snake (Heterodon platyrhinos)	

Table 8 (Continued)

Species	Preferred Habitat
Northern Copperhead (*Agkistrodon contortrix mokasen*)	
Eastern Cottonmouth (*Agkistrodon piscivorus piscivorus*)	
Timber Rattlesnake (*Crotalus horridus horridus*)	
Birds:	
Turkey Vulture (*Carthartes aura*)	forest edge
Black Vulture (*Coragyps atratus*)	open woodlands
Red-Tailed Hawk (*Buteo jamaicensis*)	forest edge
Red-Shouldered Hawk (*Buteo lineatus*)	forest
Sparrow Hawk (*Falco sparverius*)	open woodlands
Broad-Winged Hawk (*Buteo platypterus*)	open woodlands
Marsh Hawk (*Circus cyaneus hudsonius*)	wet lowlands
Bald Eagle (*Haliaeetus leucocephalus*)	forest
Golden Eagle (*Aquila chrysaetos canadensis*)	open woodlands
Osprey (*Pandion haliaetus carolinensis*)	aquatic
Great Horned Owl (*Bubo virginianus*)	forest edge
Barred Owl (*Strix varia*)	forest
Screech Owl (*Otus asio*)	forest edge
Wild Turkey (*Meleagris gallopavo*)	forest
Greater Prairie Chicken (*Tympanuchus cupido*)	prairie
Ruffed Grouse (*Bonasa umbellus umbellus*)	forest
Bobwhite Quail (*Colinus virginianus*)	forest edge
Passenger Pigeon (*Ectopistes migratorius*)	open woodlands
Wood Duck (*Aix sponsa*)	aquatic
Blue-Winged Teal (*Anas discors*)	aquatic
Mallard (*Anas platyrhynchos platyrhynchos*)	aquatic
Ring-Necked Duck (*Aythya affinis*)	aquatic
Canada Goose (*Branta canadensis*)	aquatic
Black Duck (*Anas rubripes*)	aquatic
Gadwall (*Anas strepera*)	aquatic
Green-Winged Teal (*Anas crecca*)	aquatic
American Wigeon (*Anas americana*)	aquatic

Table 8 (Continued)

Species	Preferred Habitat
Ruddy Duck (*Oxyura jamaicensis rubida*)	aquatic
Hooded Merganser (*Lophodytes cucullatus*)	aquatic
Great Blue Heron (*Ardea herodias*)	aquatic
Little Blue Heron (*Florida caerulea caerulea*)	aquatic
Common Gallinule (*Gallinula chlorupas*)	aquatic
Mammals:	
White-tailed Deer (*Odocoileus virginianus*)	forest edge
Elk (*Cervus Canadensis*)	forest edge; open woodlands
Black Bear (*Ursus americanus*)	forest
Mountain Lion (*Felis concolor*)	forest
Gray Wolf (*Canis lupus*)	open woodlands
Raccoon (*Procyon lotor*)	river woodlands
Bobcat (*Lynx rufus*)	forest
Gray Fox (*Urocyon cineroargenteus*)	forest
Red Fox (*Vulpes fulva*)	forest edge
Mink (*Mustela vison*)	river edge
Otter (*Lutra canadensis*)	river edge
Spotted Skunk (*Spilogale putorius*)	open woodlands
Striped Skunk (*Mephitis mephitis*)	forest edge
Long-tailed Weasel (*Mustela frenata*)	open woodlands
Beaver (*Castor canadensis*)	river edge
Muskrat (*Ondatra zibethica*)	river edge
Woodchuck (*Marmota monax*)	forest edge
Eastern Gray Squirrel (*Sciurus carolinensis*)	forest
Eastern Fox Squirrel (*Sciurus niger*)	forest edge
Southern Flying Squirrel (*Glaucomys volans*)	forest
Eastern Cottontail (*Sylvilagus floridanus*)	forest edge
Opossum (*Didelphis marsupialia*)	river woodlands

Faulkner and McCollough (1973) and Robison (1978) suggest that gastropods and naiads were exploited as dietary supplements probably when other foods were not readily available. Fifteen gastropod and 54 naiad species are identified in the Duck River system; however, not all were commonly available in one locality and not all were likely exploited for food. Both Faulkner and McCollough (1973) and Robison (1978) suggest that there may have been fewer species for exploitation, smaller sized shellfish, and less reliance on shellfish populations in the upper Duck River Valley. The former two propositions are likely accurate, but the latter has not been conclusively proven in light of the large number of species and obviously intensive exploitation of shellfish at the Shofner site (40BD55) on the Duck River.

Fish

The upper Duck and Elk river systems formerly contained numerous species of fish that were potentially available for aboriginal exploitation. Faulkner and McCollough (1973:36) report 107 species of fish commonly occurring in the upper Duck River prior to significant effects of pollution and impoundment. The number of Duck River species was expanded to 122 by Robison (1978:502) and could likely increase by another nine species. It is important to consider that not all of these species were utilized because of size, habitat requirements, and seasonal availability. Numerous species of rough and game fish, however, were utilized. Based on the analysis of faunal remains from the Apple Creek site in Greene County, Illinois, Parmalee, Paloumpis and Wilson (1972:55) report that fish contributed nearly 40 percent of the estimated meat in the diet of a Middle Woodland population. Apparently

fish were easily harvested at certain seasons of the year in some river systems where backwater sloughs and ponds formed on broad floodplains. In the Owl Hollow Research Locality, it is more likely that fish were taken from the narrow Duck and Elk rivers in devices such as weirs, traps and baskets and from shallow pools during the early spring spawning runs of red horse and buffalo. Robison (1978:503) feels that 47 rough and game fish out of the 122 available species of fish were most likely utilized by aboriginal groups. Table 8 identifies only a selected number of fish species.

Amphibians and Reptiles

The various amphibians and reptiles that are commonly found throughout the upper Duck and Elk river valleys number about 70 species, according to Faulkner and McCollough (1973:36-37) and Robison (1978:504-505). All of the amphibians are aquatic salamanders and frogs while the reptiles, represented by turtles and snakes, are both aquatic and terrestrial in adaptation. The amphibian and reptilian fauna, taken together, probably did not contribute a significant quantity of food to the aboriginal diet (Parmalee, Paloumpis and Wilson 1972:24). Most sources referencing the use of either group of animals (cf. Wood and McMillan 1976:36) generally suggest that terrestrial box turtles and several species of aquatic turtles would likely have been most important in the prehistoric diet.

Birds

Birds are the most numerous species occurring in the upper Duck and Elk river valleys. Faulkner and McCollough (1973:37-40) list 213

species that are either permanent residents or seasonal migrants through Middle Tennessee. The vast majority of these birds, however, are small passerines and were probably not intensively exploited as food resources by aboriginal groups. Faulkner and McCollough (1973:37) and Robison (1978:505) use the criterion of size for selecting 33 larger birds commonly occurring year-round or as seasonal residents that constituted probable food species. This list (Table 8) includes the numerous species of hawks, owls, eagles and vultures, the common crow, greater prairie chicken, wild turkey, passenger pigeon, and various species of migratory waterfowl.

One of the most important birds to native groups was the wild turkey, which had its largest population in the oak-hickory forests (Shelford 1963:59). The turkey's importance is related to its large size, the quantity of meat provided, its availability throughout the year, and the use of certain long bones for the manufacture of tools (Parmalee, Paloumpis, and Wilson 1972:35). Altshelter (1931) relates that the turkey occurred in great numbers in the Kentucky barrens. One can assume that the turkey was found equally as numerous further to the south in the oak barrens of the eastern Highland Rim and throughout the Owl Hollow Research Locality.

Several species were likely important for subsistence but have since been extirpated in the Middle Tennessee area and are, therefore, difficult to assess. In this category belong the greater prairie chicken, the passenger pigeon, and to some extent the eagles, hawks, and owls. The latter species, however, may have been taken occasionally for

their feathers, skin, and other body parts rather than strictly for food.

Waterfowl were probably hunted during the fall and spring migratory seasons. Major attractants for the transient waterfowl would have been the riverine environments of the Duck and Elk as well as large, seasonally flooded areas along the flat Highland Rim, such as Mingo Swamp. The swampy area would have been an ideal waterfowl habitat where large numbers of ducks and geese would have concentrated to feed on acorns and grassy vegetation in and along the swamp's edge. Parmalee, Paloumpis, and Wilson (1972:30-32) report heavy exploitation of waterfowl by Middle Woodland groups in Illinois. Although the Middle Tennessee area is between two major flyways, this area should have attracted waterfowl in numbers large enough to have provided a seasonally reliable food source.

Many other species of birds listed in Table 8 were utilized by chance or taken opportunistically and likely constituted an important but supplementary food.

Mammals

Faulkner and McCollough (1973:40) and Robison (1978:506) list a modern mammal population of 44 species in the upper Duck River Valley (Table 8). These mammals, along with six extirpated species, generally ranged throughout the upper Duck and Elk rivers' biogeographic zones. Based on archeological remains and ethnographic accounts, the majority of meat in the aboriginal diet was contributed by the white-tailed deer and was supplemented by a variety of smaller mammals (cf. Parmalee, Paloumpis, and Wilson 1972:37).

Mammal population size is difficult to ascertain for certain prehistoric time periods such as the Middle Woodland. Locality and habitat, however, influence population size and contribute directly to the variety of mammalian species present. Shelford (1963:59) relates that, with the exception of the gray squirrel, few mammals have large populations in the deciduous forest. Similarly, the barrens are the preferred habitat of only a few mammals. A large number of mammals occur along riverine floodplains, but the variety of species is not as great as that found in a forest edge habitat. This latter habitat, according to Shelford (1963:314), is the most prolific area for the occurrence of the greatest variety of mammals.

Perhaps the single most important animal for aboriginal subsistence was the white-tailed deer (Parmalee, Paloumpis and Wilson 1972:48-50). This animal occurs in all the biogeographic zones identified in the Owl Hollow Study Locality but has a preferred habitat in a forest edge setting. Other animals important in the subsistence quest, such as elk, raccoon, opossum, fox squirrel, gray fox, eastern cottontail, woodchuck, and striped skunk, thrive in or adjacent to forest edge habitats. Undoubtedly, aboriginal hunters concentrated on the forest edge not only for the larger number and greater variety of mammals but also because many of the species are available year-round.

CHAPTER III

NORMANDY ARCHEOLOGICAL PROJECT

Introduction

Construction of the Normandy Dam and Lake began in 1970 in the upper Duck River Valley near the town of Normandy, Tennessee. The 1,280 ha project are is characterized physiographically by contrasting relief formed by unequal erosion of the limestone strata. This led co-principal investigators Drs. Charles H. Faulkner and Major C. R. McCollough (1973:1) to distinguish lower and upper reservoir zones based on the physiography. Beginning at the dam site at river mile 248.6 and extending upstream to river mile 255, the lower reservoir zone is characterized by relatively broad floodplains and wide terraces. From river mile 255 to the headwaters, a distance of 24 km, the area of the upper reservoir zone is marked by narrow, entrenched valleys having little floodplain or terrace development. The lower reservoir zone equates with the Nashville Basin while the contiguous upland ridges are in the dissected Highland Rim Section (Figure 2).

The research design for the Normandy Archeological Project was influenced by the complex physiography of the upper Duck Valley and by the contrasting environment. One of the primary goals of the Normandy Archeological Project was to better understand the ecological relationship of prehistoric groups to the upper Duck Valley environments. Segmentation of the upper Duck Valley into multiple resource zones and physiographic zones was an attempt by Faulkner and McCollough (1973) to understand the correlates of this ecological relationship. Since

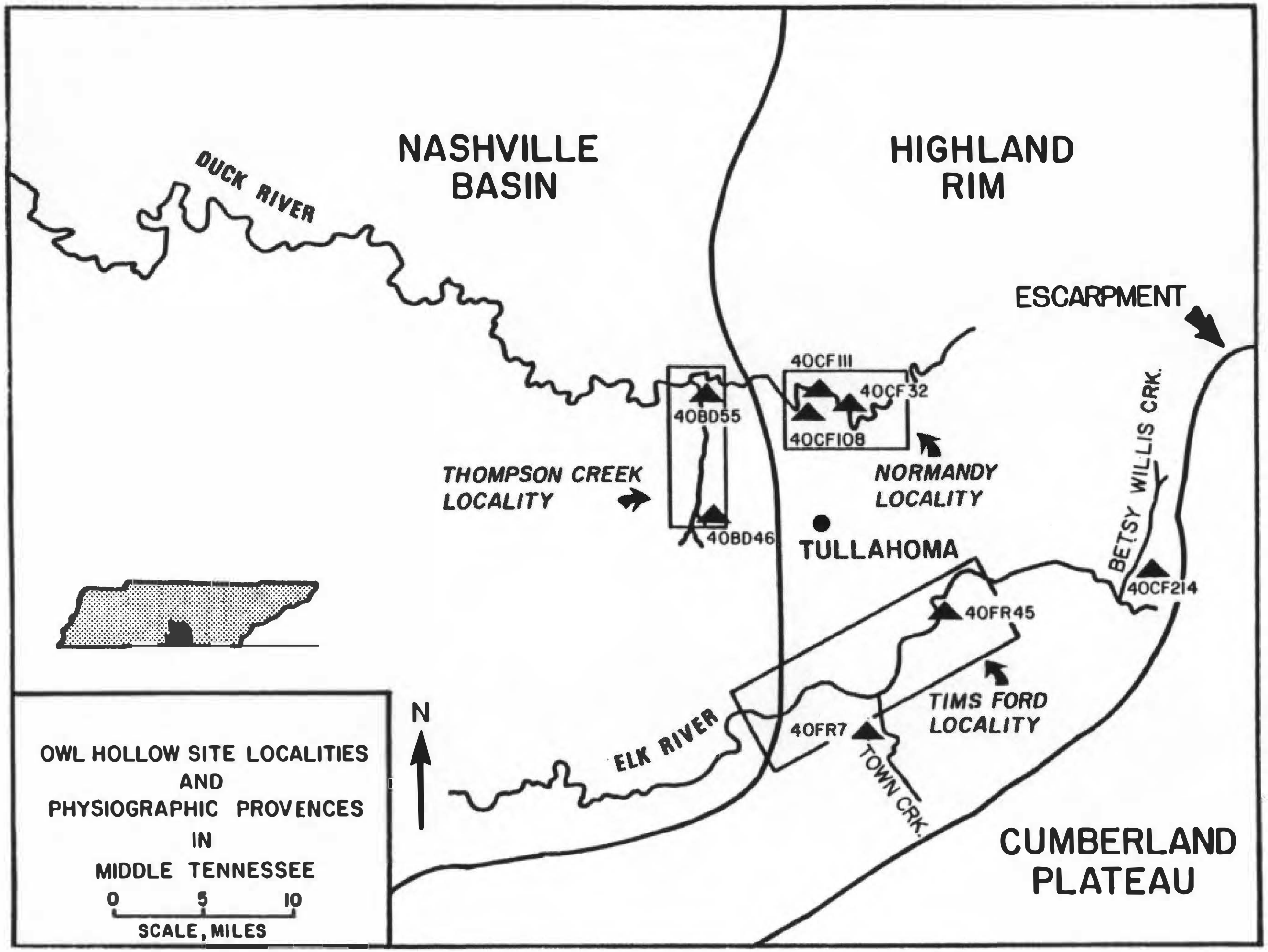

Figure 2. Owl Hollow site localities and physiographic provences in south-central Tennessee.

topography influences vegetation, Faulkner and McCollough (1973:333) suggest that their biogeographic subdivisions and zonation of the Normandy Reservoir have cultural significance in relation to site locations and subsistence strategies.

Eighty-three sites were recorded during archeological survey of the Normandy Project area. Twenty-five of these sites were subjected to intensive testing or data recovery. The cultural components, the site types, and the site distribution patterns were determined for prehistoric groups that inhabited the upper Duck River Valley. These data provided the basis for establishing models of prehistoric:

(1) cultural-historical development,

(2) utilization of natural resources,

(3) site location, and

(4) subsistence and settlement patterns.

These models were tested by intensive data recovery focused on selected sites of the lower and upper reservoir zones. These efforts yielded a broad spectrum of data on Normandy culture history, component representation, intrasite community patterning, and resource exploitation patterns.

Late Middle Woodland Research

Archeological survey and testing of sites in the upper Elk River Valley in the 1960s resulted in the identification of a tentative cultural-historical sequence for south-central Tennessee (Faulkner, ed. 1968). In Faulkner's (1968) scheme, surface materials collected from 40FR7 were classified as late Middle Woodland and formed the basis for

definition of the Owl Hollow phase. Comparison of the Owl Hollow materials with late Middle Woodland from the eastern Tennessee Valley led Faulkner (1968:244) to conclude that "the rather crude spike shaped and wide notched projectile points and limestone tempered plain and cord marked pottery" was representative of this phase. This limited material inventory from 40FR7 remained the sole identification of the Owl Hollow phase for some seven years.

The focus of archeological activity shifted to the upper Duck River Valley about 1971 in conjunction with construction on the Normandy Project. Archeological testing immediately upstream from the dam axis revealed a complex of intensively occupied sites located along the first terrace of a large bend in the Duck River. At least five discrete habitation loci extending over an area of 16 ha warranted separate site designations and intensive data recovery. Two of the sites identified were of late Middle Woodland origin and were designated the Banks III (40CF108) and the Banks V (40CF111) sites. A third late Middle Woodland site, designated Eoff I (40CF32), was located 8 km upriver along the second terrace of a wide bend at the confluence of Carroll Creek and the Duck River.

The first large scale data recovery effort in the Normandy Reservoir involved the excavation of the multi-component Banks III site. The testing phase at Banks III revealed a suspected late Middle Woodland activity locus. No amount of testing, however, could have prepared Faulkner and McCollough (1974) for the sheer quantity of data produced from the unexpected remains of a large Middle Woodland village. The Banks III site consequently formed the "core and point of departure" for

defining the Owl Hollow phase and documenting new aspects of late Middle Woodland culture in the Normandy locality (Faulkner and McCollough 1974:259-260). Subsequent work at the Banks V and Eoff I sites provided substantial comparative data and strong confirmation of the model of Owl Hollow phase cultural adaptation to the upper Duck Valley.

Chronology

Two chronometric dating techniques were employed for determining the range of Owl Hollow phase site occupations. Charred botanical materials were routinely collected and submitted for radiocarbon age determinations from all three Normandy Owl Hollow phase sites. Later in the project, archaeomagnetic samples were collected and dated from 40CF111 and 40CF32; these samples were obtained from selected features with fire-hardened interiors. The radiocarbon samples were submitted to the University of Georgia Center for Applied Isotope Studies, and the archaeomagnetic samples were collected and processed by the University of Oklahoma Earth Science Observatory.

The use of two different dating techniques ostensibly provided a rare opportunity to verify their relative consistency and in the process derive a more accurate date or range of dates. In reality, however, both dating techniques presented unique problems for interpretation, particularly when radically different single dates were derived from the same feature context. Rather than compare and contrast single dates and argue the reliability of the dating techniques, suffice it to say that this dilemma has been partially resolved by obtaining a series of multiple dates from each site. Table 9 presents a summary of

Table 9. Chronometric dates from Normandy Owl Hollow phase sites. These sites are listed according to their sequence of excavation. (Sources are: Faulkner and McCollough 1974; 1978; 1982.)

Site	Posthole or Feature #	Feature type	Radiocarbon date	Archaeomagnetic date
40CF108 (excavated 1972)				
Unnumbered str.	F-58	Earth oven	UGa 595 = A.D. 150 ± 75	
Unnumbered str.	F-100	Earth oven	UGa 596 = A.D. 165 ± 155	
Structure II	F-56 (Ph-253)	Roof support post	UGa 576 = A.D. 190 ± 400	
Structure II	F-59	Earth oven	UGa 577 = 145 B.C. ± 430	
Structure III	F-88	Earth oven	UGa 573 = A.D. 490 ± 130	
Structure III	F-89	Earth oven	UGa 574 = A.D. 710 ± 140	
Structure III	Ph-418	Roof support post	UGa 575 = A.D. 480 ± 515	
Structure IV	Ph-588	Interior wall post	UGa 662 = A.D. 465 ± 145	
Structure IV	Ph-902	Exterior wall post	UGa 663 = A.D. 395 ± 185	

Table 9 (Continued)

Site	Posthole or Feature #	Feature type	Radiocarbon date	Archaeomagnetic date
40CF111 (excavated 1973)				
Structure I	F-29	Earth oven	UGa 643 = A.D. 395 $\pm$ 70	
Structure I	F-31	Earth oven	UGa 644 = A.D. 455 $\pm$ 65	
	Ph-557	Roof support post	UGa 722 = A.D. 240 $\pm$ 75	
	F-64	Earth oven	UGa 645 = A.D. 525 $\pm$ 80	
	F-64	Earth oven	UGa 1004 = A.D. 45 $\pm$ 165	
	F-66	Earth oven	UGa 646 = A.D. 570 $\pm$ 95	
	F-66	Earth oven	UGa 721 = A.D. 435 $\pm$ 65	
	F-130	Storage/refuse pit	UGa 727 = A.D. 285 $\pm$ 85	

Table 9 (Continued)

Site	Posthole or Feature #	Feature type	Radiocarbon date	Archaeomagnetic date
40CF32 (excavated 1975)				
	F-19	Earth oven		11-11-75 NRC = A.D. 625 ± 25
	F-32	Earth oven		11-16-75 NRC = A.D. 565 ± 29
Structure III	F-33	Earth oven		11-11-75 NRC = "Early - not available"
Structure III	F-34	Earth oven	UGa 1304 = A.D. 465 ± 60	11-15-75 NR = A.D. 300
	F-92	Earth oven	UGa 1305 = A.D. 385 ± 55	11-12-75 NR = A.D. 575 ± 34
	F-93	Earth oven		11-10-75 NR = A.D. 530 ± 20
	F-116	Earth oven		11-13-75 NR = "Not available"
	F-801	Storage/refuse pit	UGa 2505 = A.D. 395 ± 75	

uncorrected chronometric dates obtained from individual sites with accompanying feature number and feature type represented.

Table 9 shows that the earth oven was used almost exclusively for obtaining temporal data from the three Owl Hollow phase sites. Aside from its being one of the few representative Owl Hollow feature types, the earth oven contained abundant carbonized materials in primary, stratified context. These pits proved ideal for obtaining charcoal samples for radiocarbon dating and later for extracting archaeomagnetic samples from the fire hardened clayey sides and bottoms. Dr. Major C. R. McCollough (personal communication) considered the sealed strata of the earth ovens likely to yield highly accurate dates. The abundance of these features, their heavy charcoal content, and their direct association with large, formal Owl Hollow phase structures led to the submission of numerous samples with the primary intention of deciphering intrasite relationships of the multiple structures. The large standard deviations and the often erratic dates from the same feature context prevented explication of the sequence of structure utilization. Emphasis shifted, therefore, to the identification of the temporal range of the late Middle Woodland occupation(s) and to a better understanding of their position in the local cultural-historical sequence.

The series of 20 radiocarbon and 7 archaeomagnetic dates established late Middle Woodland occupation in the upper Duck Valley spanning perhaps 500 years. By A.D. 100, cultural characteristics distinctive of the early Owl Hollow phase were identified at 40CF108. The subsequent excavations of 40CF111 and 40CF32 provided evidence of the continuation of the Owl Hollow cultural tradition well into the sixth century A.D.

Faulkner and McCollough (1974:97-98) initially divided the Owl Hollow phase into early (A.D. 100-200) and late (A.D. 400-500) occupations based on interpretations of 40CF108. Although the Owl Hollow phase sequence was later revised (Cobb and Faulkner 1978), it is perhaps significant that radiocarbon dates from 40CF111 and 40CF32 lend support to a dichotomous late Middle Woodland occupation of the Normandy Reservoir. There was evidence at all three Owl Hollow sites of intensive earlier and later utilization of the same site and, importantly, evidence points to traditional reutilization of the same intrasite locus throughout this 500 year span.

Structures

The most compelling evidence of intensive occupation by late Middle Woodland groups in the upper Duck Valley are the remains of large, permanent structures (Figure 3). These structures were first encountered on 40CF108 and defined by Faulkner and McCollough (1974:278) as "double-oven oval dwellings." Their definition derives from the unique arrangement of paired ovens located in the center of the structure floor. Adjacent to the ovens were four large and deeply set postholes which probably held posts supporting horizontal cribbing for the attachment of roof beams at the central apex of the structure. The large interior features were surrounded by an oval arrangement of shallow, exterior wall postholes which likely held stakes anchoring the descending roof beams (Figure 4). Two and probably three of the double oven oval dwellings were uncovered at 40CF108, while one structure was identified at 40CF111 and one at 40CF32.

Figure 3. An aerial view of Structure I on 40CF111 (Banks V). (From Faulkner and McCollough 1978)

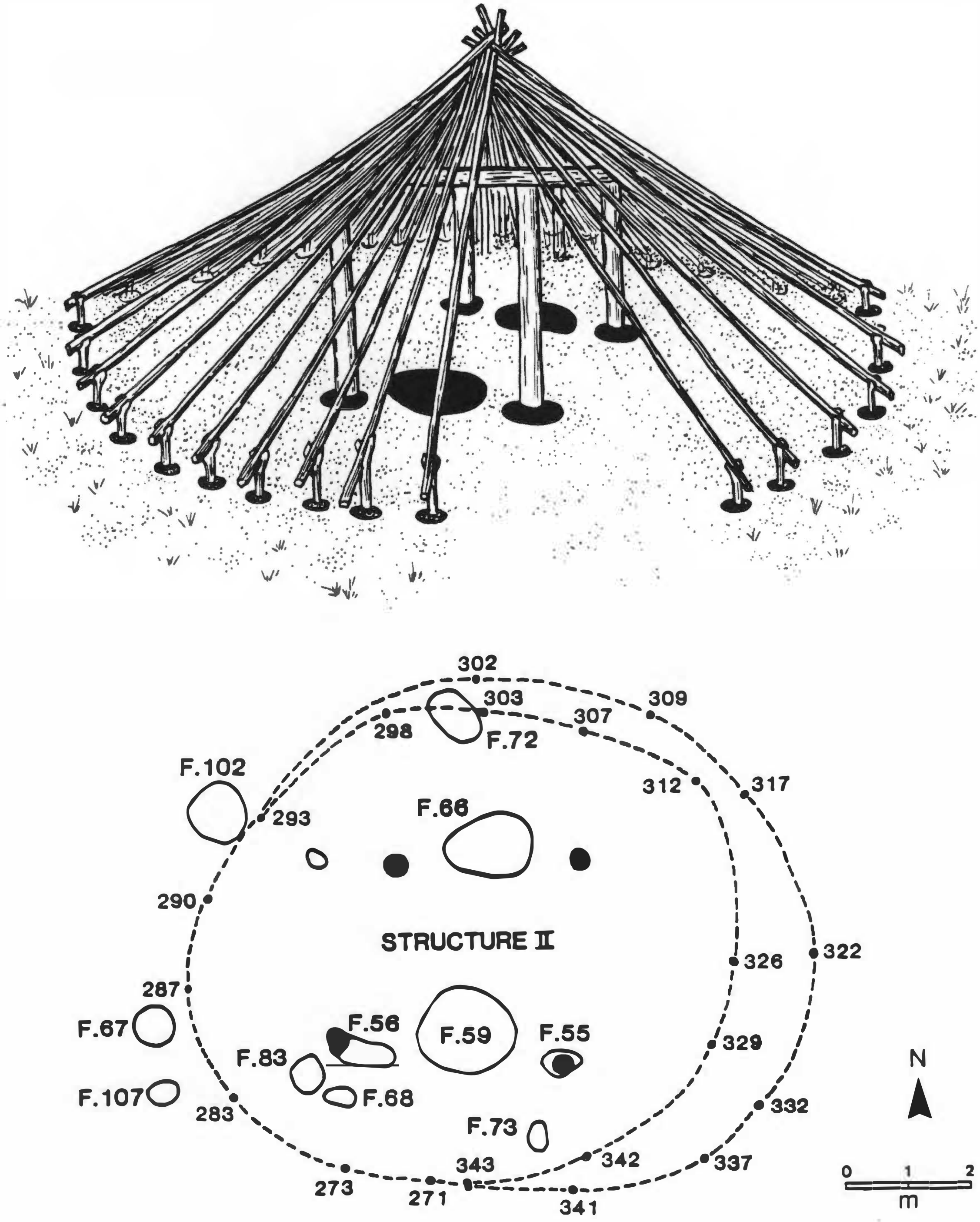

Figure 4. A reconstruction of the external framework of a double oven oval dwelling based on the posthole patterns exhibited by Structure II, 40CF108 (Banks III). (From Faulkner and McCollough 1974)

Faulkner and McCollough (1974:286) suggested the substantially built double oven houses were occupied predominantly during the winter months. Faulkner (1977:151) later advanced and supported the hypothesis that these structures functioned as "domestic hot houses" for the Owl Hollow population. Faulkner (1977:149) feels that these winter houses not only served as places of refuge during extremely cold periods, but also functioned as permanent settlements for territorial protection.

The various double oven structures identified at 40CF108, 40CF111, and 40CF32 appear to have been the main focus of site activity. That these structures were indeed intensively occupied and the ovens heavily used is indicated by accumulations of dark brown to black organic-enriched midden deposits adjacent to the structures. This midden accumulation undoubtedly resulted from domestic activity centered on frequent use and discharge of refuse from the interior ovens. Faulkner and McCollough (1974:285-286) suggested that the double ovens were probably utilized alternately for food preparation and heating during the cold season occupation of the structures. There also appears to have been a trend toward larger structures during the late Owl Hollow phase of A.D. 400-500 in the upper Duck Valley. This probably reflects a larger resident population and a more intensive occupation of the Duck River sites for a longer continuous period of time.

Another good indication of the relative permanence of these sites is the occurrence of contiguous and contemporaneous house types that were structurally different from the double oven dwellings. On 40CF108, two different structure types occurred adjacent to the double oven dwellings. Structure I was an oval house with a single post exterior

wall pattern. There was a single interior support posthole located near the center of the main dwelling floor (Figure 5). Faulkner and McCollough (1974:265) interpreted (and reconstructed) Structure I as a "tensioned dome . . . with a main wall-roof framework of bent saplings."

Structure IV on 40CF108 was a rectangular dwelling constructed with an outer wall enclosing an inner rectangular wall slightly skewed from symmetry. There were no interior features or identifiable support posts for this structure. Nevertheless, Faulkner and McCollough (1974:292) interpreted this dwelling as a "tensioned arbor-roof structure built on a rectangular plan," and Faulkner (1977:144) suggests that the complex interior arrangement of posts may have supported a gabled roof.

Structures probably similar to the tensioned wall-roof huts discussed above also occurred contiguous to the double oven dwellings at 40CF111 and 40CF32. The structure locations were well defined but the structure outlines were difficult to define because of multiple repairs or rebuilding phases. These structures are considered warm season dwellings due to their probable lighter framework and the absence of interior cooking or heating facilities (Faulkner and McCollough 1974:270). As might be expected, the summer structures were probably inhabited by a smaller group whose activities centered on the exterior rather than the interior of these structures.

The duration and intensity of the late Middle Woodland occupation at individual Owl Hollow sites is problematic. Apparently, once established, the Owl Hollow sites were occupied for varying lengths of time throughout the late Middle Woodland period. It is probable the

Figure 5. A long-range view of probable warm season Structure I, 40 F108 (Banks III). (From Faulkner and McCollough 1974)

occupation was year-round based on the occurrence and contemporaneity of both warm and cold season structures at the same site locus.

Features

Large subsurface pits were encountered on Owl Hollow phase sites in direct association with double oven oval dwellings. The contents of the pits underwent intensive analysis and cultural classification, while the pits themselves were classified into feature types based on presumed function. During this process, two feature types soon became hallmarks of the Owl Hollow phase in the Normandy Reservoir. Although a third feature type, the storage pit, was recognized, it did not occur consistently and predictably in association with the Normandy Owl Hollow phase sites. The latter feature type was distinguished more because of its absence than its presence on the Normandy Owl Hollow sites (Faulkner and McCollough 1974:327-328).

The most common and characteristic of the late Middle Woodland feature types was the earth oven. These features were typically large, circular and deep, basin shaped pits with hemispherical sides and bottoms (Figures 6 and 7). Earth ovens were invariably stratified in multiple layers. The upper layers were generally medium brown clayey loam while the lower layers were darker brown or black organic-enriched silty loam. Characteristic of the basal layer was large deposits of burned limestone rock and dense deposits of charcoal (Figure 8). The interior clay base and lower side walls were baked to a bright red coloration.

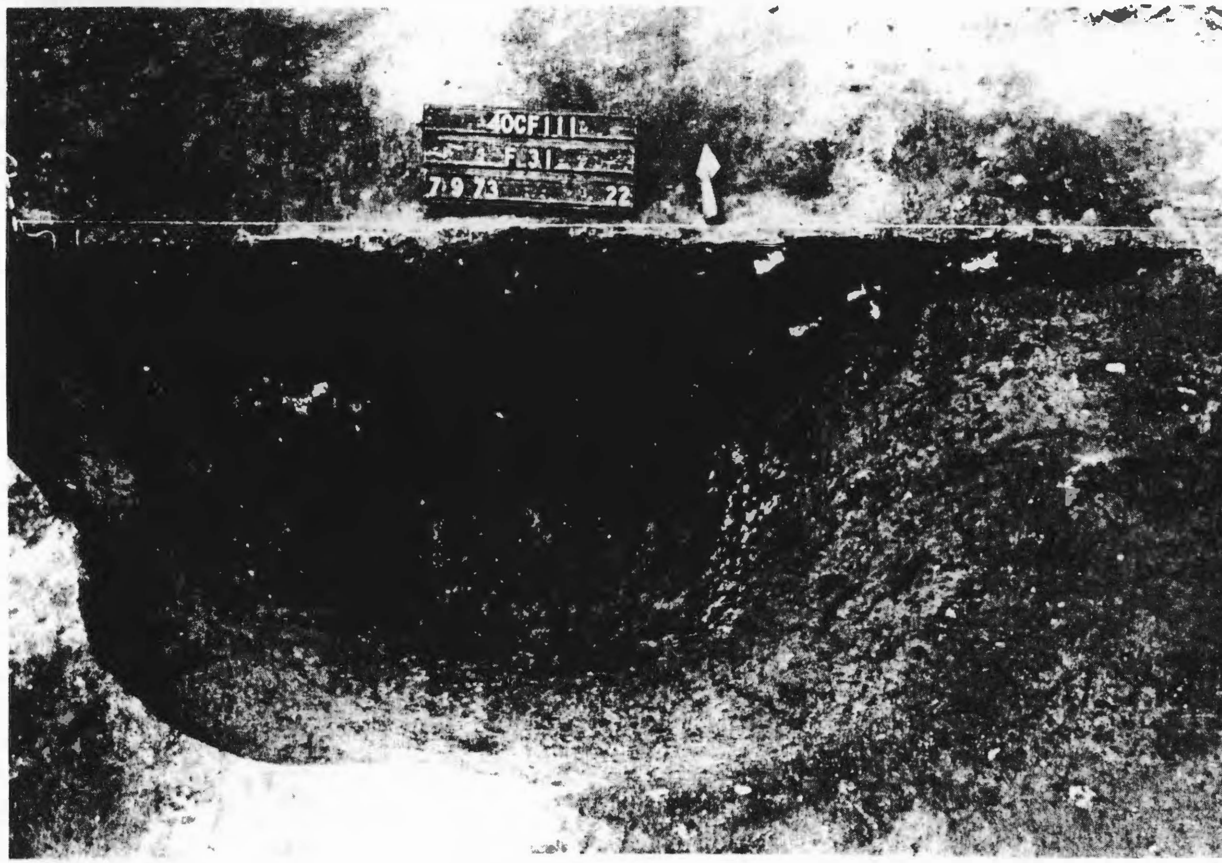

Figure 6. The north profile of earth oven Feature 31, Structure I, 40CF111 (Banks V). (From Faulkner and McCollough 1978)

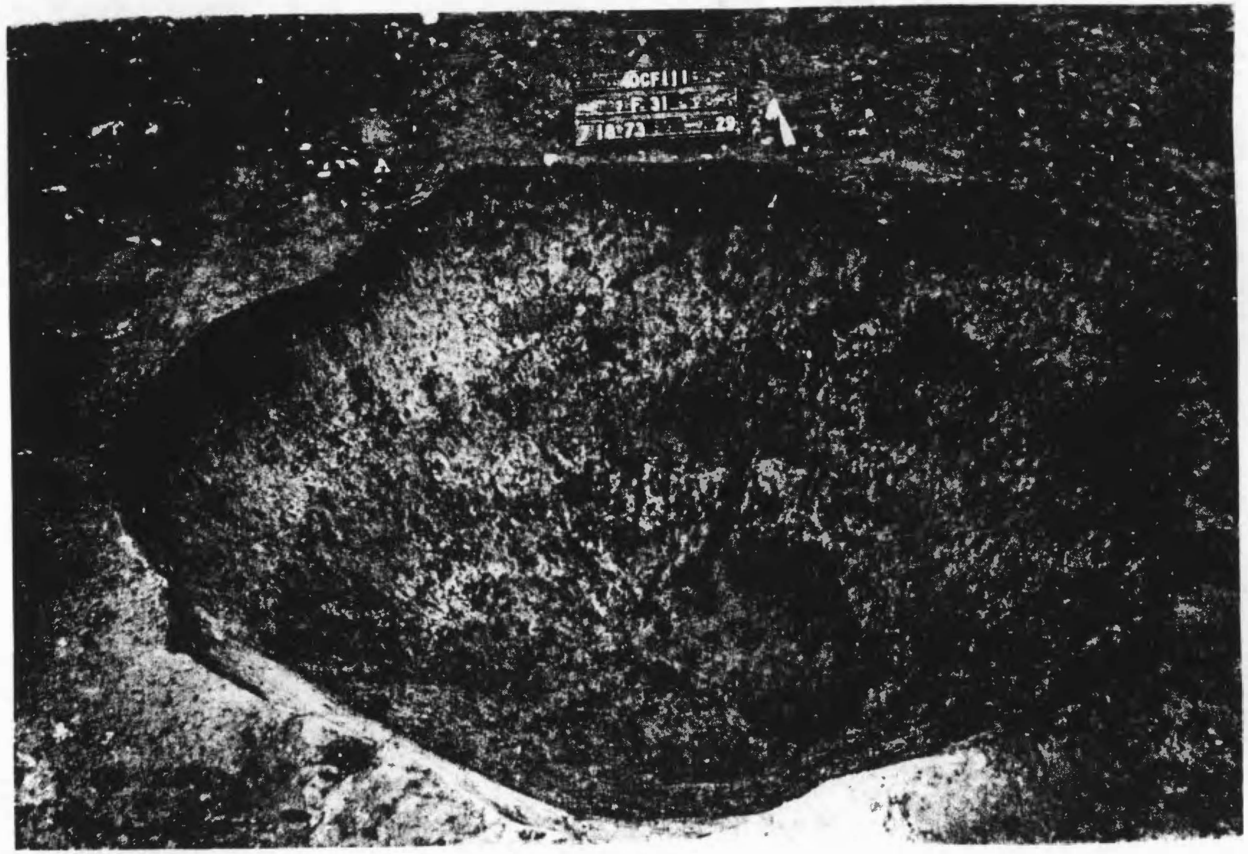

Figure 7. The partial excavation of earth oven Feature 31, Structure I, 40CF111 (Banks V). (From Faulkner and McCollough 1978)

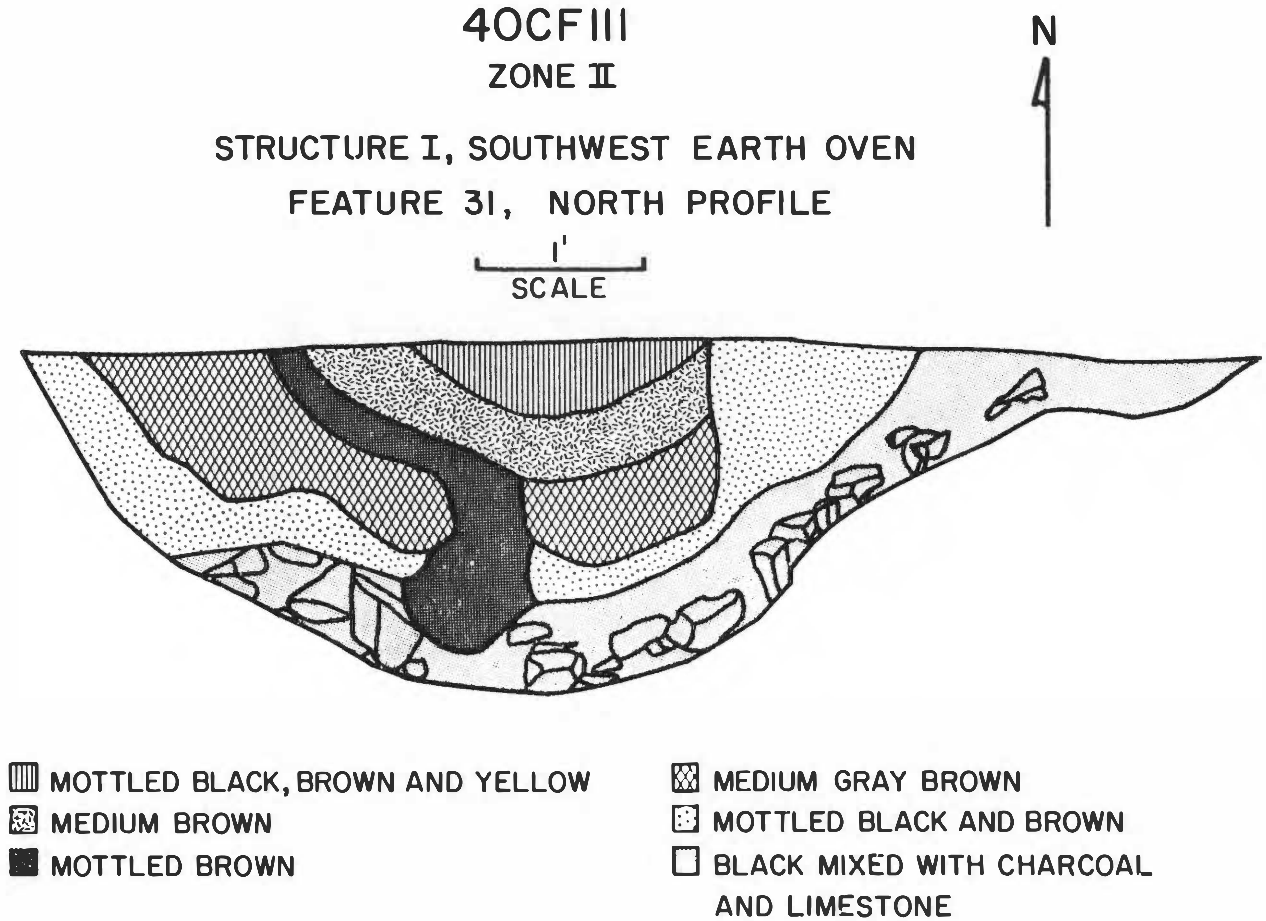

Figure 8. The north profile drawing of earth oven Feature 31, Structure I, 40CF111 (Banks V). (From Faulkner and McCollough 1978)

The stratified earth oven fill was the primary source of diagnostic lithics, ceramics, and floral and faunal materials recovered on these late Middle Woodland sites. The materials collected from the ovens were strictly utilitarian artifacts and subsistence related ecofacts deposited in the upper secondary and lower primary pit fill. Throughout the late Middle Woodland period, the earth ovens apparently functioned solely for domestic activities associated with food preparation and heating during the cold season occupation of the upper Duck Valley (Cobb 1978:156-157).

A second feature type with definite Owl Hollow phase attribution was the central structure support posthole. The structure support postholes were basically circular with a large average circumference (44-47 cm) and an average depth of over 40 cm. The side walls were vertical and ended in flat or rounded bottoms. Frequently, a shallow, elongated basin intersected the posthole at the point of origin. Faulkner and McCollough (1974:275) referred to the shallow pits as "setting basins" which aided erection of the heavy support post.

Posthole fill was generally a mottled, medium brown clayey loam which resembled the upper levels of earth oven fill in coloration and associated debris. This debris, generally considered to be of secondary inclusion, consisted of burned limestone fragments, Chattanooga shale, lithic debitage and tools, ceramics, and charred floral and faunal materials. Occasionally, unburned limestone was included in the fill as posthole packing material and/or a slab of limestone was used as a false bottom (Cobb 1982:188).

The large, deep, and vertical-walled pits functioned as receptacles for the central roof support posts of the double oven oval dwellings. The occurrence of setting basins and the size of the pits suggested the use of large posts and the construction of a rather substantial interior framework. Generally, these postholes occurred as pairs flanking each earth oven and forming a square or rectangular arrangement in the center of the structure floor. As a result, these features were indirectly in association with and retained evidence of cold season activities occurring in the Owl Hollow winter dwellings.

Aside from the two feature types discussed above, there was a noticeable absence of other types of subsurface pits associated with the Owl Hollow phase occupation of the upper Duck Valley. Perhaps most noticeable was the paucity of storage pits; there were none recorded at 40CF32 and 40CF108 and only two at 40CF111. This lack of storage/refuse-filled pits was disturbing given the facts that:

(1) the upper Duck Valley was occupied by late Middle Woodland groups for approximately 500 years,

(2) the Owl Hollow sites were probable year-round residences for large segments of the population,

(3) the more intensive occupation of these sites occurred during the cold season when food storage would have been necessary,

(4) analysis of earth oven fill indicated storable hickory nuts were a staple in the Owl Hollow diet during the cold season, and

(5) storage pits were frequently encountered at Owl Hollow sites excavated outside the Normandy Reservoir.

It is difficult to explain how an Owl Hollow site with a substantial winter dwelling and cold season food processing ovens would not have had more evidence of storage features. However, McCollough and Faulkner (1976:236) and Cobb (1978:170) have discussed alternative hypotheses to account for the near absence of below ground storage features. A distinct possibility is the use of above ground storage either in the winter house or in some adjacent facility. The probable year-round habitation perhaps allowed Middle Woodland groups to experiment with different storage techniques.

Material Remains

The double oven oval dwellings were the focal areas for the recovery of material remains from the Normandy Owl Hollow phase sites. The predominant feature type, the earth oven, contained the vast majority of artifacts and ecofacts from primary feature context. Recovery of lithic and ceramic collections from these features proved important for cultural-temporal comparisons, while the faunal and floral materials proved important for subsistence evaluation. These four categories of materials represent the artifacts manufactured or utilized at the site and ecofacts incorporated into pit fill as refuse from food processing and consumption activities. Critical analysis and evaluation of these materials have provided considerable insight into late Middle Woodland occupation and utilization of the upper Duck Valley (e.g., Faulkner, Corkran and Parmalee 1976).

Artifacts

There was a strong emphasis on lithic research throughout the Normandy Archeological Project. From the beginning, Faulkner and McCollough (1973) emphasized a descriptive-comparative approach for treating the Normandy lithic remains. Lithic types and clusters were identified and quantified, and indices were calculated for the individual site collections. These various collections were then evaluated and compared at the intrasite and intersite levels for identification of functional components, activity sets, cultural-temporal association and recognition of change through time. Ultimately, Faulkner and McCollough's (1973) purpose was to define culturally significant lithic tool assemblages representative of particular time periods, such as the late Middle Woodland in the Normandy Reservoir.

Several other aspects of lithics research were emphasized besides the lithics classification system. New and refined data were presented on lithic raw material source areas, procurement or quarry sites, lithic material types, and lithic thermal alteration. Research by Penny and McCollough (1976) made it possible to better distinguish and segregate Normandy lithics on the basis of "local," "near-exotic," and "distant exotic" materials. Lithics from source areas along the eastern Highland Rim or the adjacent western escarpment of the Cumberland Plateau were considered near-exotics and separated from strictly local materials occurring in the environs of the upper Duck Valley. The distant exotic lithics have source areas at a great distance from the upper Duck Valley and likely occurred far outside the geographical range of local groups. The paucity of distant exotics suggests a heavy reliance on locally

available and easily obtainable lithics from in and around the upper Duck River Valley.

Predominantly local and near-exotic lithic raw materials were used to manufacture a wide variety of late Middle Woodland utilitarian tools and implements. The majority of lithics, however, were non-diagnostic debitage and expediently manufactured unifacial tools that were difficult to categorize into tool types. Bifacial implements and projectile points/knives were not as prevalent, but, nevertheless, culturally diagnostic. The projectile points/knives were placed into two clusters represented by seven different types (Faulkner and McCollough 1973:98-102). These clusters, the Lanceolate Expanded Stemmed (Types 61-65) and the Lanceolate Spike (Types 59-60) represent a wide range of projectile point/knife styles manufactured throughout the late Middle Woodland period. The temporal significance of these clusters, however, and their association with the early and late Owl Hollow phases, respectively, is fairly well established (Cobb and Faulkner 1978:130).

The Lanceolate Expanded Stemmed cluster is considered typologically earlier, although it may have extended into the middle Owl Hollow phase. This cluster is characterized by a narrow, lanceolate blade shape with straight or excurvate blade edges, weakly developed shoulders, shallow side notches and an expanded stem (Faulkner and McCollough 1973:223). The Lanceolate Spike Cluster is more prevalent on middle and late Owl Hollow phase sites. This cluster has a narrow, thick lanceolate blade shape with straight or excurvate blade edges and a rounded, pointed, or straight base shape (Faulkner and McCollough 1973:221). Perhaps

significantly, the Spike Cluster projectile points/knives occur more frequently as smaller, bi-pointed examples on the late Owl Hollow phase sites.

Although there is basic continuity in the form and style of the lithic projectile types during the late Middle Woodland period, this continuity is marked by subtle, periodic change. The most obvious difference is from the larger, shallow side notched forms of the early Owl Hollow phase to the smaller, bi-pointed forms of the late Owl Hollow phase. The changes recorded in the projectile types of the Middle Woodland period are possibly precursors of more drastic changes and reorientation in the lithic technology in the early Late Woodland period. This gradual change in projectile styles probably marks the transition from reliance on spear throwers and dart points to a more widespread use and acceptance of the bow and the manufacture of arrow points.

The Normandy Archeological Project also emphasized the study of ceramics. The ceramic classification system was based on the distinction of primary tempering elements that were divided into ceramic ware groups. Within each group, surface treatment and/or decorative elements were used to distinguish individual types. Both ware groups and types were considered to have cultural as well as relative temporal significance based on their frequency of occurrence in feature and site assemblages (Faulkner and McCollough 1974:44).

Ceramic remains associated with the late Middle Woodland occupation of the Normandy Reservoir clustered into three predominant ware groups. Collectively, the limestone, limestone/chert, and chert-tempered wares

represent over 98 percent of the ceramic sample recovered in late Middle Woodland context at 40CF108, 40CF111 and 40CF32. These ware groups, however, are not entirely exclusive to the late Middle Woodland period and can be used for limited temporal seriation studies. Within these groups, the occurrence and relative frequency of limestone, limestone/chert and chert-tempered sherds suggests a temporal association from the early Middle Woodland to the Late Woodland periods.

The use of limestone-tempering spans the entire Middle Woodland period in the Southeast. In the Normandy Reservoir, limestone-tempered ceramics occur predominantly in two cultural-temporal phases, McFarland and Owl Hollow, with a combined temporal range of approximately 200 B.C. to A.D. 650. Faulkner and McCollough (1974:44-45), however, consider limestone-tempering more prevalent in assemblages dating to the earlier Middle Woodland period.

Beginning about A.D. 100, late McFarland and/or early Owl Hollow phase groups began mixing limestone with a variety of other tempering materials such as chert, quartzite, sand, and grit. These materials mixed with limestone represented minority wares occurring throughout the remainder of the Middle Woodland period (Cobb 1983:220). Chert and limestone, however, became a more dominant "minority" type and a major constituent of the mixed-tempered ware group associated with the late Middle Woodland Owl Hollow phase in the Normandy locality (Faulkner and McCollough 1974:43).

The chert-tempered ware is identified primarily with the Late Woodland period and Mason phase of about A.D. 600-900 in the Normandy locality. Although this is a distinguishable minority ware throughout

the Middle Woodland period, it occurs infrequently and is often difficult to separate from the mixed tempered wares (Charles H. Faulkner, personal communication). The use of chert exclusively as the primary tempering agent, however, is reported with a higher frequency in the ceramic assemblage only during the late Middle Woodland period.

The Middle Woodland ceramic sample recovered from the Normandy Reservoir was primarily plain surface sherds. DuVall (1982:137) identified 23 percent of the ceramic sample from the early Middle Woodland at 40CF118 as limestone-tempered plain. By the late Middle Woodland period, the combined limestone-tempered plain ceramic sample from 40CF108, 40CF111, and 40CF32 totaled 92 percent. The problems of cultural assignment, however, were somewhat clarified by temper differentiation and by sherds with distinguishable surface treatment generally consisting of cordmarked and stamped designs.

In conjunction with the dominant plain ceramics, the minority check stamped, cord marked, and simple stamped types occurred with differing frequencies during the McFarland and Owl Hollow phases. This has permitted a low level seriation analysis of the diagnostic ceramic types similar to that performed on the ware groups discussed above. The check stamped and cord marked, simple stamped, and plain types occur most frequently during the corresponding early, middle, and late periods of the Middle Woodland occupation in the upper Duck Valley.

The limestone-tempered check stamped type recovered in Normandy Reservoir context is identified as Wright Check Stamped (Heimlich 1952:17-18). It is the most diagnostic type and the most frequent stamped type found on McFarland phase sites in the upper Elk (Bacon and

Merryman 1973:6-8) and the upper Duck valleys (Faulkner and McCollough 1974:330; Faulkner and McCollough, eds. 1977:96-97). This distinctive type is dominant in the Middle Woodland ceramic assemblage from about 100 B.C. to A.D. 100.

The introduction and primary cultural association of cordmarked ceramics in the Normandy Reservoir is not well understood. However, it is a well documented and predominant type during Faulkner's (1977) Neel phase of c. 300 B.C. to 100 B.C. Following the Neel phase, cordmarking survives as a minority surface treatment throughout the McFarland and into the early Owl Hollow phases. The limestone-tempered cordmarked type in the Normandy Reservoir is identified as Candy Creek Cordmarked (Lewis and Kneberg 1946:102-103; Faulkner and McCollough 1974:147).

The limestone-tempered simple stamped pottery recovered from the Normandy Reservoir is exclusively associated with the Middle Woodland period. It is recorded first in the late McFarland phase (DuVall 1982:139-140) and somewhat later as one of the two dominant types in the Owl Hollow phase ceramic assemblage (Faulkner 1978:189). This type is identified as Bluff Creek Simple Stamped (Heimlich 1952:18; Faulkner 1978:189). The type ranges throughout the Owl Hollow phase but is most frequent in the ceramic assemblage of the early late Middle Woodland from about A.D. 100-400.

Limestone-tempered plain was the majority type recovered from Middle Woodland sites in the Normandy Reservoir (Cobb 1982:220). The type is identified as Mulberry Creek Plain (Heimlich 1952:15-19; Faulkner 1978:189). In the Normandy Reservoir, it dates from as early as 390 B.C. to about A.D. 600 (Cobb 1978). Smoothed over plain sherds

from vessels originally having a stamped or textured surface apparently occur more frequently in late McFarland and early Owl Hollow phase context. Scraping of vessel exterior and/or interior surfaces, which often gave an appearance of brushing, occurs from the early to middle Owl Hollow phase. During the Owl Hollow phase, a completely smooth surfaced plain type occurs most frequently.

According to Faulkner (1978:191), a Middle Woodland ceramic assemblage can be relatively dated on the basis of presence, absence, and predominance of limestone-tempered cord marked, stamped, and plain types, respectively. The Normandy Reservoir late Middle Woodland sites are characterized by a predominantly plain ceramic assemblage. This evidence suggests strongly that the three Normandy Owl Hollow phase villages were settled late in the Owl Hollow phase.

Ecofacts

There was a systematic effort throughout the Normandy Archeological Project to obtain representative samples of charred botanical materials. This was accomplished primarily by processing fill from subsurface pits using a combination of waterscreening and water flotation techniques. This approach was particularly emphasized for the late Middle Woodland sites where there were concentrations of earth ovens with dense charcoal deposits. The earth ovens at 40CF108, 40CF111, and 40CF32 contained perhaps the largest and most impressive quantity of floral materials of any other context in the Normandy Reservoir. Significantly, the floral remains in the basal layer were probably sealed, primary deposits resulting from the last sequence of oven use. Analysis of the samples from selected ovens has provided the bulk of comparative information on

wild plant exploitation and domesticated plant utilization by Owl Hollow phase groups inhabiting the upper Duck Valley. The plant remains from 40CF32 are presented in Figure 9 as a representative sample from these Normandy late Middle Woodland sites (Cobb 1982:226).

There are several significant categories of plant remains represented in the botanical sample from 40CF32 (Figure 9). These can be divided into food and non-food categories but are not mutually exclusive. The categories of wood charcoal, nut shells and seeds, fruits, and grains provide some indication of the upper Duck Valley environment, site locality, econiche exploitation, food storage and insight into subsistence practices.

Wood charcoal resulted from daily firing of the ovens for heating and cooking purposes. Identification of the wood charcoal fragments suggested the dominant species exploited for fuel wood were obtained from all four of Faulkner and McCollough's (1973:8-34) biogeographic zones identified in the upper Duck Valley. The exploitation of all biogeographic zones represented a considerable expenditure of energy. A plausible explanation for this procurement pattern is the need to go further afield in search of wood supplies as those supplies contiguous to the late Middle Woodland village sites were depleted (Cobb 1982:227).

The nut shells, residue from food processing, represented a substantial portion of the charred floral sample (Figure 9). The remains of hickory nut (*Carya* sp.) and walnut (*Juglans* sp.) were particularly well represented in the floral sample; however, interpretations based on quantity must be advanced with caution. The relative importance of nuts and other seeds must be understood in relation to several factors

Wood Charcoal

	Carya spp.	Salix nigra	Quercus rubra	Quercus alba	Quercus spp.	Juniperus virginiana	Acer spp.	Castanea dentata	Gleditsia triacanthos	Gymnocladus dioicus	Fraxinus spp.	Arundinaria spp.	Diffuse porous	Ring porous	Unidentifiable
Feature 33 No. Fragments Weight (g)	17 / 3.59	2 / .23	3 / .27	1 / .03	1 / .04					1 / .06					4 / .45
Feature 34 No. Fragments Weight (g)	14 / 97.02			2 / 11.0		3 / 17.01	1 / 0.06	2 / 15.21	3 / 13.01						8 / 10.32
Feature 92 No. Fragments Weight (g)	17 / 11.51		1 / 2.0	2 / 4.0		3 / 4.08					1 / 2.0	1 / 1.0	3 / 2.09	2 / 2.06	8 / 3.11
Feature 801 No. Fragments Weight (g)															
Total Sample: No. Fragments Weight (g)	48 / 112.12	2 / .23	4 / 2.27	5 / 15.03	1 / .04	6 / 21.09	1 / 0.05	2 / 15.21	3 / 13.01	1 / .06	1 / 2.0	1 / 1.0	3 / 2.09	2 / 2.05	20 / 13.80
Percent of Sample	.10	--	.002	.01	--	.02	.007	.01	.01	--	.002	--	.002	.002	.01

Nut Shells

	Carya spp.	Juglans nigra	Juglandaceae	Quercus spp.	Juglans cinerea
Feature 33 No. Fragments Weight (g)	25.96	15.31	.09	.13	1.50
Feature 34 No. Fragments Weight (g)	100.01	.23	2.10	.11	.67
Feature 92 No. Fragments Weight (g)	197.42 *	19.31		.33 *	*
Feature 801 No. Fragments Weight (g)					
Total Sample: No. Fragments Weight (g)	331.39	34.05	2.99	.57	2.25
Percent of Sample	.28	.03	.003	--	.002

Seeds, Fruits, and Grains

	Galium triflorum	Vitis sp.	Asteraceae	Polygonum spp.	Gleditsia triacanthos	Rhus glabra	Diospyros virginiana	Zea mays (kernel)	Zea mays (cupules)	Helianthus annuus L.	Cucurbita pepo	Chenopodiaceae	Miscellaneous seed debris	Sample residue	Total No. Frags.	Total Weight (grams)
Feature 33 No. Fragments Weight (g)	1 / .02	1 / .01											2.53	17.01	31	68.9
Feature 34 No. Fragments Weight (g)			3 / .04					1 / .02	2 / .02				55.68	205.43	39	543.8
Feature 92 No. Fragments Weight (g)	2 / .04	2 / .02		1 / .02	1 / .01	1 / .02					3 / .02	1 / .03	211.01	101.34	49	562.4
Feature 801 No. Fragments Weight (g)		*			*		1			1	1	1			3	
Total Sample: No. Fragments Weight (g)	3 / .06	3 / .04	3 / .04	1 / .02	1 / .01	1 / .02	1 / 1	1 / .02	2 / .02	1 / 1	4 / .04	1 / .03	270.02	324.58	122	1175.6
Percent of Sample	--	--	--	--	--	--	--	--	--	--	--	--	.23	.20	--	--

*Present, but not quantified.

Figure 9. Botanical remains from 40CF32 (Eoff I).

including preservation, patterns of refuse disposal, and food preparation techniques. According to Faulkner, Corkran and Parmalee (1976:232-237), these factors can radically skew the quantity and quality of recovered remains, particularly from an earth oven context.

A major consideration for thick hickory and walnut shells is the probability that they were intentionally burned and disproportionately preserved in relation to such thin shelled nuts as acorns, chinquapins, and chestnuts (Cobb 1982:225). While this is difficult to verify, there is little question that nuts, collectively, represented an extremely important part of the late Middle Woodland diet. The largest quantity and greatest variety of nuts were likely gathered from the older alluvial terraces and the valley slopes and bluffs of the upper Duck Valley.

A small sample of seeds, fruits, and grains was identified in the botanical remains from 40CF32 (Figure 9). These remains were relatively small and insignificant in comparison to nut remains. Sample size, however, could have been affected by the late winter seasonality of the refuse deposits, food processing, and/or preservation techniques. Nevertheless, the remains of three cultivated plants, sunflower, gourd, and maize, were identified in this sample and probably represent significant additions to the late Middle Woodland diet. The occurrence of cultigens in a storage feature and in earth oven context signify some degree of cold season reliance on these foods. Based on their storage and preservation, it is tempting to assign considerable importance to the cultigens. It would be tenuous, however, to project the significance of certain food categories from such a limited sample.

Both the wild and cultivated plants represented in this sample were probably gathered or harvested from the floodplains or older alluvial terraces biogeographic zones. These two zones occur in close proximity or in direct association with all the late Middle Woodland sites.

The botanical sample from 40CF32 was restricted to one site and to a single seasonality of refuse deposits. Both of these conditions are limiting factors in the general interpretation of late Middle Woodland botanical exploitation patterns. In addition, analysis of the sample of botanical remains from 40CF32 was restricted to a single pit type. Nevertheless, the skewed and non-random floral data does provide considerable insight into the relative importance of arboreal seeds, fruits, and grains in the diet; the relative intensity of exploitation of these foods; and the range of econiches utilized by the late Middle Woodland groups inhabiting such base camps as 40CF108, 40CF111, and 40CF32.

The faunal sample recovered from late Middle Woodland context in the upper Duck Valley consisted of fragmented and calcined bone and shellfish remains. These remains were generally poorly preserved on all three Owl Hollow phase sites due to the strong acidity of the Normandy soils. One exception was the faunal elements in the earth ovens that were well preserved due to the limestone in the oven fill and the calcined condition of numerous bone fragments resulting from prolonged, intense heat. Figure 10 identifies the faunal sample from a representative late Middle Woodland site in the upper Duck Valley.

The majority of the faunal materials found in late Middle Woodland pits was unidentifiable or recognizable only as large and small mammal

	Odocoileus virginianus: Right Scapula	Left Astragulus	Right Distal Humerus	Occipital	Unidentifiable Large Mammal Bone	Unidentifiable Small Rodent: Left Proximal Femur	Unidentifiable Small Mammal Bone	Unidentifiable Small Mammal Bone: Burned	Unidentifiable Bird Bone	*Pseudemys/Graptemys/Chrysemys*: Carapace Fragments	Unidentifiable Fish Bone	Unidentifiable Fish Scales	Unidentifiable Bone	Unidentifiable Shell	Total	Percent by Feature
Feature 19	1				1		33							X	35	6
Feature 33		1	1		4		124	5	1						136	23
Feature 34						1	61	216			20				298	50
Feature 41					2		5			7					14	2
Feature 47							53				1				54	9
Feature 48							13								13	2
Feature 54							30								30	5
Feature 92												X	X			
Feature 93	1			1			15				1				18	3
Feature 115													X			
Feature 116													X	X		
Feature 117													X			
Feature 119													X			
Total	2	1	1	1	7	1	334	221	1	7	22				598	
Percent of Total	*	*	*	*	1	*	58	36	*	1	4					

X = Present, but not quantified. * = Less than 1 percent.

Figure 10. Faunal remains from 40CF32 (Eoff I).

bone fragments. Consequently, information derived from the Normandy faunal sample was limited but, nevertheless, served for intersite comparisons and projection of an Owl Hollow phase faunal procurement pattern (Faulkner, Corkran and Parmalee 1976:235).

The bulk of the "unidentifiable large mammal bone" fragments identified in the faunal samples from 40CF108, 40CF111, and 40CF32 was probably from white-tailed deer (Odocoileus virginianus). This fragmented bone, along with the identifiable deer elements recovered, provides limited interpretive data on procurement practices and the processing of large mammals for consumption (Cobb 1982:229).

The recovery of deer scapula, astragulus, calcaneum, and vertebrae suggests that at least periodically deer were killed in close proximity to and butchered at the site locus. However, the successful procurement of large game animals in close proximity to the site probably declined in direct relation to the intensity and the length of occupation of these sites. The number of male-related artifacts and activity areas associated with the Normandy winter lodges suggests that males were probably engaged in activities away from the lowland villages (Cobb 1978:170; 1982:233). Male activities were probably concentrated on late fall-winter-early spring hunts for deer and other game animals. The animals were likely procured at some distance from the villages, possibly from Highland Rim or Oak Barrens hunting camps. The meat of these animals would likely have been returned to the riverine villages, particularly during times of local food scarcity.

The lack of long bones recovered, together with the number of large mammal bone fragments, suggests that selective faunal elements were

being crushed for marrow extraction. These elements were probably a cold season food source with the majority being deer. The pattern of refuse disposal in the earth ovens indicates that deer were being processed and consumed but limits interpretation of their relative importance in the diet. Nevertheless, the white-tailed deer was probably the primary game animal hunted on a year-round basis and probably supplied the most meat consumed by the Owl Hollow phase groups.

A comparison of faunal samples from all three Owl Hollow sites suggests a disproportionate representation of deer to other faunal remains. The remains of small game animals, birds, turtles, fish, and shellfish, which were frequently encountered in Normandy late Middle Woodland pits, represent "slow game" according to Faulkner, Corkran, and Parmalee (1976:234-235). The remains represented the largest sample of fauna recovered but were largely unidentifiable due to fragmentation, burning, and poor preservation. Although species identification and minimum numbers are generally lacking, the quantity of unidentifiable bone fragments indicates these animals represented a significant portion of the diet of Owl Hollow phase groups.

Faulkner, Corkran, and Parmalee (1976:235-236) suggest that the presence of slow game animals in the faunal remains of winter lodges resulted from the hunting, trapping, and collecting activities of adult females and children. These activities would have occurred in close proximity to the winter village site and probably provided important supplemental food for a large segment of the resident population. Women, children, the elderly, and the infirm were possibly the predominant cold season base camp inhabitants while able-bodied men were

periodically on hunting forays. This hypothesis, first advanced by Faulkner, Corkran, and Parmalee (1976:235-236) for the late Middle Woodland of the eastern Highland Rim, resulted from the analysis of faunal remains from 40CF108 and is generally supported by evidence from two other late Middle Woodland sites, 40CF111 and 40CF32.

The Normandy late Middle Woodland faunal procurement pattern is based on the interpretation of seasonal remains from winter structures. The types of fauna recovered from late fall-winter-early spring seasonality indicate a probable natural division of labor in subsistence activities associated with the Normandy faunal procurement pattern. Some of the factors influencing this pattern would have been local climatic conditions, animal populations, and/or cultural factors determining village location, size, and length of occupation. This pattern was apparently successfully adapted to local conditions and provided the necessary means for maintenance of large villages in the upper Duck River Valley.

Summary

Owl Hollow phase groups occupied the upper Duck River Valley for some 300 years during the late Middle Woodland period. Three separate site loci in the Normandy Reservoir, 40CF108, 40CF111, and 40CF32, produced evidence of relatively contemporaneous villages occupied from about A.D. 200 to about A.D. 500. The villages consisted of large, substantially-built winter lodges and small, less-substantial, arbor-like summer shelters. The size and types of structures and their associated material remains suggest sedentary villages occupied for

several consecutive years. The villages were probably maintained by band-sized groups until the natural resources were depleted in the site vicinity and surrounding localities. Many years after abandonment, the sites were likely reoccupied by new generations of Owl Hollow phase peoples sharing a similar cultural tradition. This cycle was repeated many times during the late Middle Woodland period. The overwhelming evidence for this pattern of settlement and subsistence in the Normandy Reservoir was the in situ remains of numerous structures, the dual structure types, the substantial earth ovens, and the black, localized middens surrounding these site loci.

The winter structures, capable of housing several extended families or a band-sized group, were central to these late Middle Woodland villages. The structures were probably multipurpose and functioned as shelter during periods of extreme cold, activity areas for domestic tasks, and perhaps as a place for the storage of winter foods (Faulkner, Corkran, and Parmalee 1976:236).

The dominant interior features of the winter structures were centrally placed earth ovens, where the majority of cold season activity occurred. These facilities probably served the dual purposes of heating and cooking and were probably continuously used throughout the cold season. Periodically, the ovens were cleaned of accumulated ash and charcoal deposits which were then dumped adjacent to the structures. The continual use of the large ovens contributed substantially to the accretional refuse midden associated with the late Middle Woodland sites.

The Owl Hollow subsistence pattern involved hunting, gathering, collecting, fishing, and horticultural activities. The subsistence pattern, based on the floral and faunal remains, was probably intensively concentrated on econiches close to the village site during the warm season. The cold season occupation of lowland sites, however, possibly caused segmentation of the group and the establishment of hinterland hunting camps at some distance from the sedentary villages (Faulkner, Corkran, and Parmalee 1976:235).

The excavations of 40CF108, 40CF111, and 40CF32 provided a large corpus of data on the late Middle Woodland occupations in the Normandy Reservoir. Substantial data were recorded on settlement and community patterns, subsistence exploitation, material remains, and the local chronology. This information permitted considerable explication of the Owl Hollow phase occupations in the upper Duck River Valley. However, the nature of the research universe in a salvage program has limitations and restrictions. The limitations are often expressed as a failure to understand the hypothesized systematics and patterning as viewed from one (or more) sites during a particular time period. The restrictions relate to the confinement to artificial reservoir boundaries. The value of the Normandy Archeological Project (as with any reservoir project) is measured by the extent to which future research can add to and expand on the primary data base.

CHAPTER IV

RESEARCH DESIGN

The data generated by the Normandy Archeological Project provided direct evidence of late Middle Woodland adaptation to the upper Duck River Valley. Faulkner and McCollough (1973:2) emphasized the research potential of the ecotonal Nashville Basin and eastern Highland Rim for explaining the interactions between physiography and prehistoric cultural groups. Intensive survey, testing and data recovery efforts, however, were restricted to the research universe defined by the boundaries of the Normandy Dam and Lake Project. Only those sites within the reservoir proper were eligible for salvage under agreements with the Tennessee Valley Authority and the National Park Service. Nevertheless, Faulkner and McCollough (1973; 1974) concentrated on establishing "local" chronology and recognizing intrasite activity areas, community patterns and settlement types of late Middle Woodland occupations in the Duck River floodplain.

The Normandy Reservoir work (Faulkner and McCollough 1973) fostered an areal perspective that extended beyond the reservoir proper and beyond the upper Duck River Valley. Site locations from throughout the upper Duck and Elk river valleys, from tributary streams along the eastern Highland Rim, and from the coves and stream valleys of the western escarpment of the Cumberland Plateau were recorded with the aid of local, avocational archeologists. As a result, approximately 30 additional late Middle Woodland sites were identified throughout the upper Duck and Elk river drainages. The substantial information on late

Middle Woodland sites derived from this ancillary survey work, along with the data recovered from the Normandy Reservoir sites, was incorporated into the research design and formed the point of departure for the regionally oriented Owl Hollow Research Project.

The Owl Hollow Research Project was designed to further the goals of the Normandy Archeological Project by quantitative evaluation of man-land relationships, primarily, with some consideration of man-man relationships as well. The former refers to the relationships between sites and features of the biophysical environment such as the streams, landforms, soils and vegetative zones. The latter refers to the geographic dispersal and contemporaneity of sites (Roper 1975:110). Both the physiographic and geographic relationships of a contemporaneous group of sites within a single culture must be considered in defining a group's settlement pattern (Winters 1969:110). The pattern implies underlying regularities that have contributed to the systematic distribution of artifacts and other indicators of past human activities in an area. Settlement and subsistence patterns are inextricably associated with the biophysical environment and are cultural-behavioral expressions of these physiographic and geographic relationships.

Struever (1968:287) suggests that with a regional focus "the structure of an extinct settlement system should be reflected in the kind, number and distribution of settlement types." The concept of a settlement system refers to the functional relationships among the sites contained within the settlement pattern (Winters 1969:110). While the pattern derives from the empirical archeological remains, the system is an abstract formulation. The settlement pattern definition, and

particularly its physiographic aspects, has generally emphasized the cultural component and site type. In this study, the emphasis will be on both the site and the site's surrounding environment. Site catchment analysis will be used to observe the area surrounding the site or central place, which was available for exploitation (Roper 1979:19).

Site catchment is used to model the natural resource potential of a representative sample of late Middle Woodland Owl Hollow phase sites. Toward this end, there are several propositions that are of significance in explaining variability in site distribution and that are potential factors in the site selection process. These are expressed as follows:

1. Late Middle Woodland hunter-gatherer groups interacted directly with the biophysical environment.
2. The interaction was structured and patterned to promote procurement of natural resources.
3. The natural resources were differentially available for procurement either spatially or seasonally.
4. The late Middle Woodland groups segmented and dispersed in a rational manner to enhance exploitation of their natural environment.
5. Settlement locations were practical alternatives for maximizing yield and minimizing energy utilization (Plog and Hill 1971).
6. The archeological contents of late Middle Woodland settlements reflect behavioral patterns and, in conjunction with a set of laws relating behavior to material objects, leads to the

recognition of activity areas, activity sets and ultimately site types (Struever 1968:287; Roper 1975:10-19).

A number of researchers have stated that, in general, sites are optimally located in relation to major environmental zones (Struever 1968; Munson, Parmalee and Yarnell 1971:412; Faulkner and McCollough 1973:333). Site catchment analysis, however, goes beyond stating that an ecotone exists or that it offers access to several contiguous environments. Site catchment provides the means for identifying available resources, assessing the potential exploitation zones of these resources (e.g., hunter-gatherer vs. horticulturists), and evaluating the site location for time and energy expenditure.

Although numerous variables are pertinent to the study of the site arena, the highly correlated floral and faunal resource zones and their distributions are among the most critical elements. Therefore, the microenvironmental resource zones identified in Chapter II will be illustrated and evaluated for five Owl Hollow phase sites. One relevant way to examine these resource zones is to use an arbitrary analytic arena (Roper 1975:146-147). For this study (and after Roper 1975:147), a 3.22 km radius (2 miles) is used to approximate the arena. The center of the site is used as the point of origin from which two concentric circles representing 1.61 km (1 mile) are drawn. A compensating polar planimeter was used to calculate the amount and percentage of area occupied by each microenvironmental zone.

The rationale for a 3.22 km arena is that this size area roughly approximates an hour's walk, and usually includes at least some portion of each of the major resource zones present in a study locality (Roper

1975:147). This permits an accurate assessment of the distance and effort involved in exploitation activities. For example, if the flood-plain/terrace microenvironmental resource zone is important, it may consistently occur within the 1 km radius while other resource zones of less importance may show up in the 2 km circle or may not be present at all.

Additional variables pertinent to site selection and location are discussed in an effort to explain each site locus and its relationship to the larger arena. These include such variables as site situation, soil characteristics, distance to the nearest permanent water source, the rank/order of the nearest stream and the distance to the upland/lowland ecotone. A group's location can be affected by any or all of the above variables, as well as by relative proximity to a second group. The identification and discussion of these complex and inter-related variables provides insight into the question of why prehistoric groups located sites where they did and how prehistoric groups interacted with their local environment.

The basic goals of site catchment analysis are environmental reconstruction, site chronology, and settlement and subsistence pattern recognition. These goals have consistently been pursued throughout the Normandy Archeological Project and the Owl Hollow Research Project as critical elements in the study of man-land relationships. Growing out of the Normandy Project and fully incorporated into the Owl Hollow Project were a set of site specific goals that are best stated as a series of questions or hypotheses:

1. Were Owl Hollow phase sites permanent year-round settlements with a seasonal shift from winter lodge to summer lodge, or
2. were these seasonal sites occupied only in the winter with summer sites being found on the tributary streams or in adjacent river valleys?
3. Were the Owl Hollow sites in the upper Elk River Valley directly tied to seasonal settlements in the upper Duck River Valley, or
4. were the Owl Hollow sites independent entities and/or temporally separated from the Duck River sites?
5. Are the floral and faunal remains in the winter lodge earth ovens representative of a subsistence pattern based primarily on wild plant and animal foods, or
6. are these remains in the winter lodge earth ovens only representative of a seasonal cycle with food production being important during the warm season?
7. Was the apparent increase in population during the Owl Hollow phase caused by more intensive horticulture including probable maize production, or
8. was this increase in population due to other cultural factors?

The above questions represent research directions and present research issues specific to five sites that were investigated during the Owl Hollow Research Project. Chapters V-IX are site-specific studies of these late Middle Woodland Owl Hollow phase occupation loci and their arenas. Chapter X presents a summary of the research issues, the

results of the site-specific work, and new information on the late Middle Woodland manifestation identified as the Owl Hollow phase.

CHAPTER V

THE SHOFNER SITE (40BD55)

Introduction

The Shofner site is located in Bedford County, Tennessee, near the confluence of Thompson Creek, a first order tributary, and the Duck River (Figure 2, page 46). A reconnaissance survey by Gordon (1973) identified 40BD55 as an intensively occupied area 915 m east of the Duck River and 46 m north of Thompson Creek. The site limits are tentatively 92 m east-west and 46 m north-south. This is based on the distribution of late Middle Woodland surface material along the first terrace of Thompson Creek. This prominent terrace runs along the southeastern margin of a broad meander in the Duck River identified as Hooser Bend.

A wide floodplain and older alluvial terraces (226-244 m AMSL) extend north, south, and west from the immediate site area. Surface elevations of 40BD55 vary from 239 m AMSL near the site periphery to 241 m AMSL near the site center along the apex of the terrace. The soil at the site and in the adjacent lowland is well drained, medium acidic Cumberland silt loam (terrace type). Along the eastern margin of the site, the elevation increases to gently rolling hills and bluffs varying from 244-275 m AMSL, which is also marked by a soil change to low fertility Colbert silt loam (Strickland et al. 1947).

Site Catchment

The Shofner site arena is situated in the lowlands of the upper Duck River Valley near the confluence of Thompson Creek. The immediate site arena suggests a predominant riverine and floodplain-terrace orientation. The location on a high creek terrace probably provided the site inhabitants protection from periodic and unexpected flooding as well as access to resources available in lowland and aquatic settings. Figure 11 illustrates that within a 1.61 km radius of the Shofner site, there were large expanses of floodplains and terraces extending along the Duck River and two major tributaries, Thompson Creek and Garrison Fork. The lowlands within the 1.61 km radius total 432 ha and constitute approximately 54 percent of the surface area (Figure 12). By expanding to a 3.22 km radius from the site, the total lowlands represent 1,136 ha and correspond to 35 percent of the total site arena delineated for this study.

In the upper Duck River Valley, the outliers of the eastern Highland Rim extend into lowland areas and form rather abrupt topographic changes. The juncture with the outlier hills and an increase in elevation from 244 to 275 m AMSL marks the transition from Floodplain/ Terrace Resource Zone to the Highland Rim Escarpment Resource Zone. This lowland-upland transition zone is less than 92 m east of the Shofner site and is most evident in those areas flanking Thompson Creek along the east and west. In the expanded site arena of 3.22 km, the Highland Rim Escarpment Resource Zone is much more pervasive and corresponds to 52 percent of the surface area. This is particularly evident along those streams flowing from the south such as Thompson

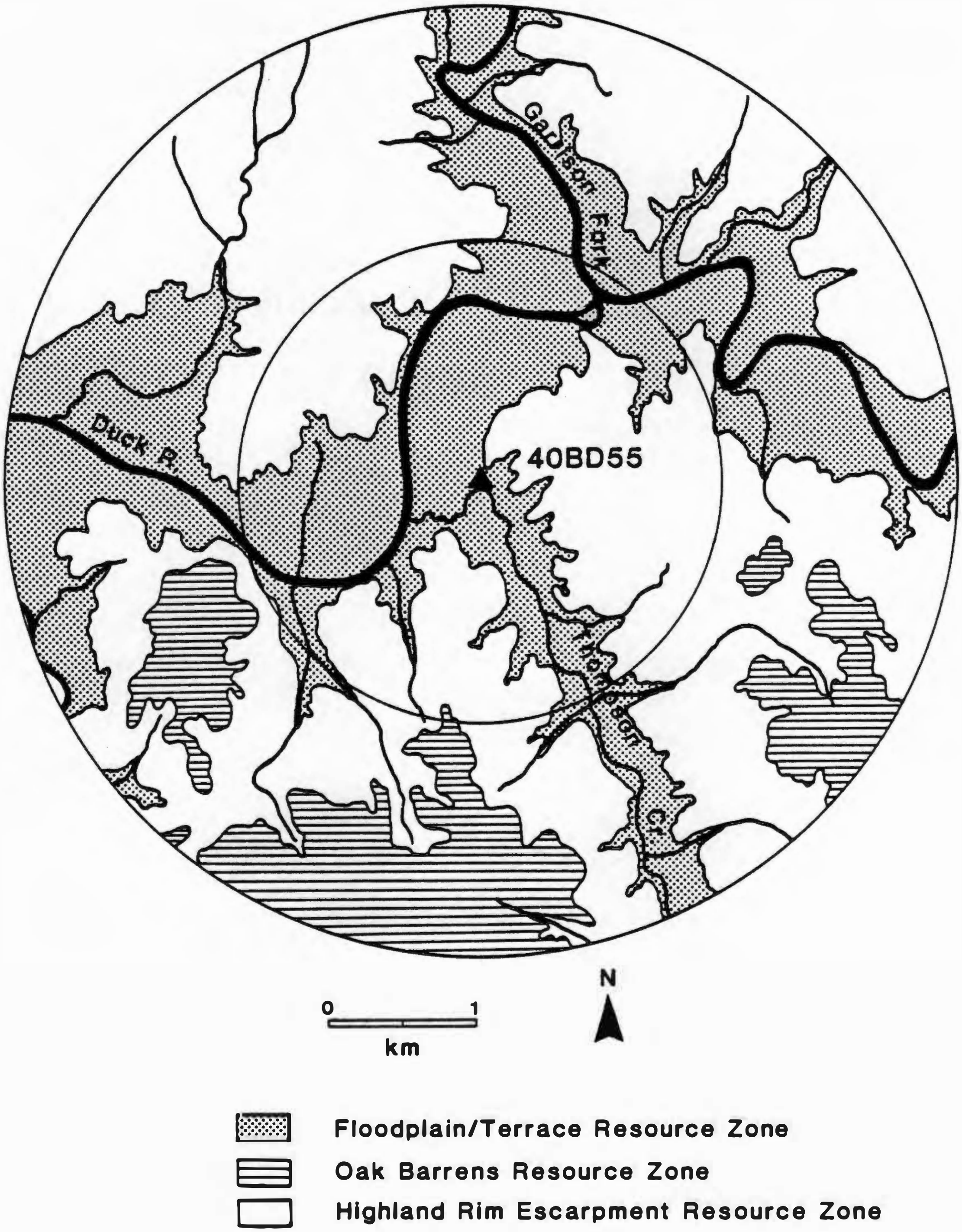

Figure 11. Topographic stratification of the Shofner site arena into biogeographic resource zones.

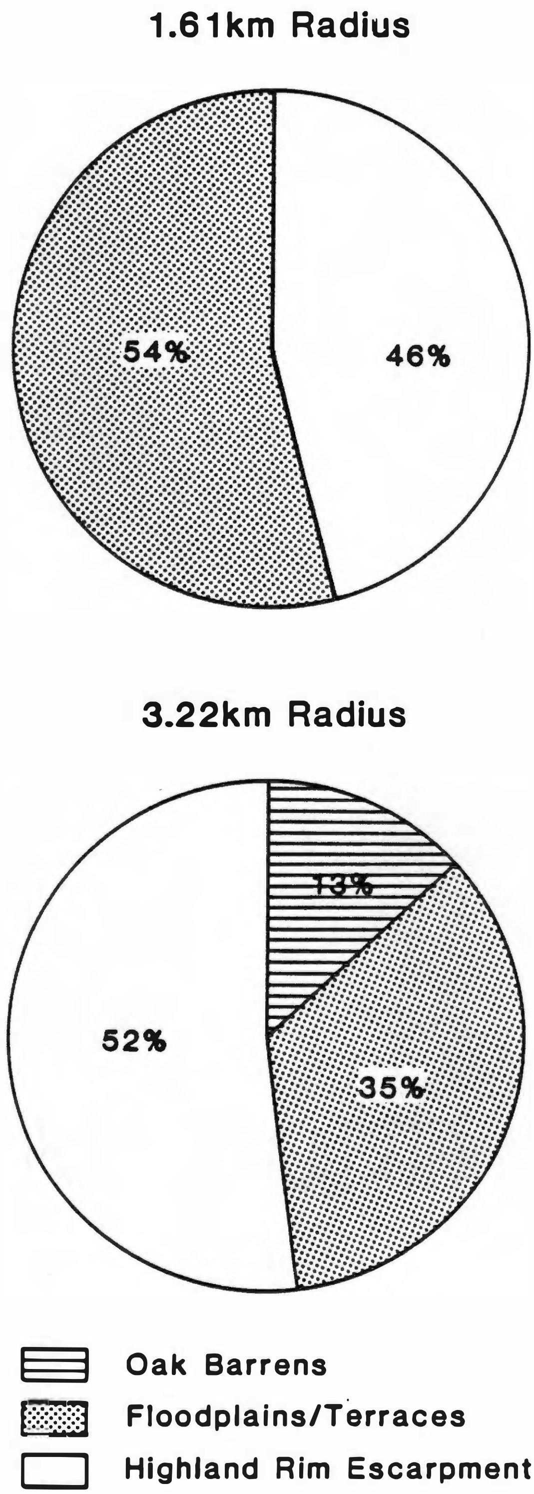

Figure 12. Biogeographic resource zones identified in the Shofner site arena.

Creek. Tributary stream valleys become progressively narrower away from the Duck River and topography is more extreme with closer proximity to the Eastern Highland Rim.

South of the Shofner site between the 1.61 km and 3.22 km radii, there are higher elevations corresponding to those of the flat Highland Rim. Although somewhat degraded and rounded, the flat Highland Rim areas extend from elevations 275 m AMSL to 323 m AMSL and in the upper reaches contain vegetation associated with the Oak Barrens Resource Zone. The Barrens areas, although a small percentage of the total site arena (cf. 13 percent, Figure 12), nevertheless, contributed to the variability of habitats and the potential range of resources in close proximity to the Shofner site.

The attraction of the Shofner site locus for aboriginal occupation was likely related to the availability of natural resources in the immediate (1.61 km) and extended (3.22 km) site arena. It is possible to characterize the nature of this occupation by identifying certain key elements of the natural environment that may have influenced settlement decisions.

The floodplain and terrace soils are well drained, high in natural fertility and organic matter, and by today's standards are used to grow a wide variety of crops. These soils were probably well-suited for aboriginal horticulturists and for the growth of various herbaceous plants that typically occur in abandoned fields and on riverine mudflats (Struever 1968). The floodplains and terraces probably also provided a large variety of wood and woody plants, tubers, and fruits that matured at one or more seasons or were available year-round. Equally important

as the plant foods were various aquatic shellfish, fish, and turtle species, which were exploited during the early spring and throughout the warm season. The cultivated plants, wild herbaceous plants, and aquatic species probably constituted critical categories of floodplain/terrace resources.

The Highland Rim Escarpment Resource Zone was a source of a variety of raw materials, and plant and animal foods. Chert was perhaps the most important of the raw materials available in this zone. A highly significant seasonal food resource was arboreal seeds including those of chestnut, hickory, oak, black walnut, and butternut. Animals of primary importance were the deer and turkey, which were likely available year-round in most resource zones. During the fall, it is probable that deer and turkey were attracted in greater numbers to the Highland Rim Escarpment because of the arboreal seed crop.

The Shofner site arena encompasses upland hills, broad lowlying floodplains and terraces, and several major streams including the Duck River and Thompson Creek. Thompson Creek flows from the Eastern Highland Rim and provides a passage to the Elk River drainage. The streams, their narrow and wide valleys, and nearby outlier hills provided the Shofner site inhabitants communication routes with other areas, and a range of habitats from which to select raw materials and foods for life maintenance activities.

Site Testing

Archeological field work at the Shofner site began on December 11, 1975, with the establishment of a permanent datum and a grid system at

the site. Following initial surface survey and testing, work concentrated approximately 30 m west of the landowner's house in a vegetable garden on the back slope of the first terrace (Figure 13). This area was chosen for testing because of accessibility, a high density of cultural refuse, and close proximity to the probable main occupation locus, which occurred beneath and adjacent to the Shofner dwelling and utility buildings. A total of 62 m^2 of plowzone deposits was removed during the 10 days of limited test excavations.

The testing of 40BD55 was conducted by intuitively placing 2 x 2 meter units in areas of heavy cultural material concentrations. Three units were excavated and then connected by 1 m wide trenches extending east-west 12 m and north-south 22 m (Figures 13 and 14). The plowzone was screened through 6.35 millimeter (mm) hardware cloth as soil conditions permitted. Following plowzone removal, excavated areas were troweled to reveal evidence of subsurface disturbances such as features and/or postholes.

The 1 m wide test trenches and the 2 m^2 test units were expanded when features were encountered to reveal contextual associations and to facilitate excavation and recording. Aboriginal features were completely excavated, a soil flotation sample collected, and the remainder submitted to dry screening. Generally, a 9.5 liter (l) soil flotation sample was collected from all aboriginal features that were of sufficient size. Due to the winter testing, these samples were retained for indoor processing with the Owl Hollow Project laboratory flotation device (Cobb and Faulkner 1978a). During feature excavation, diagnostic

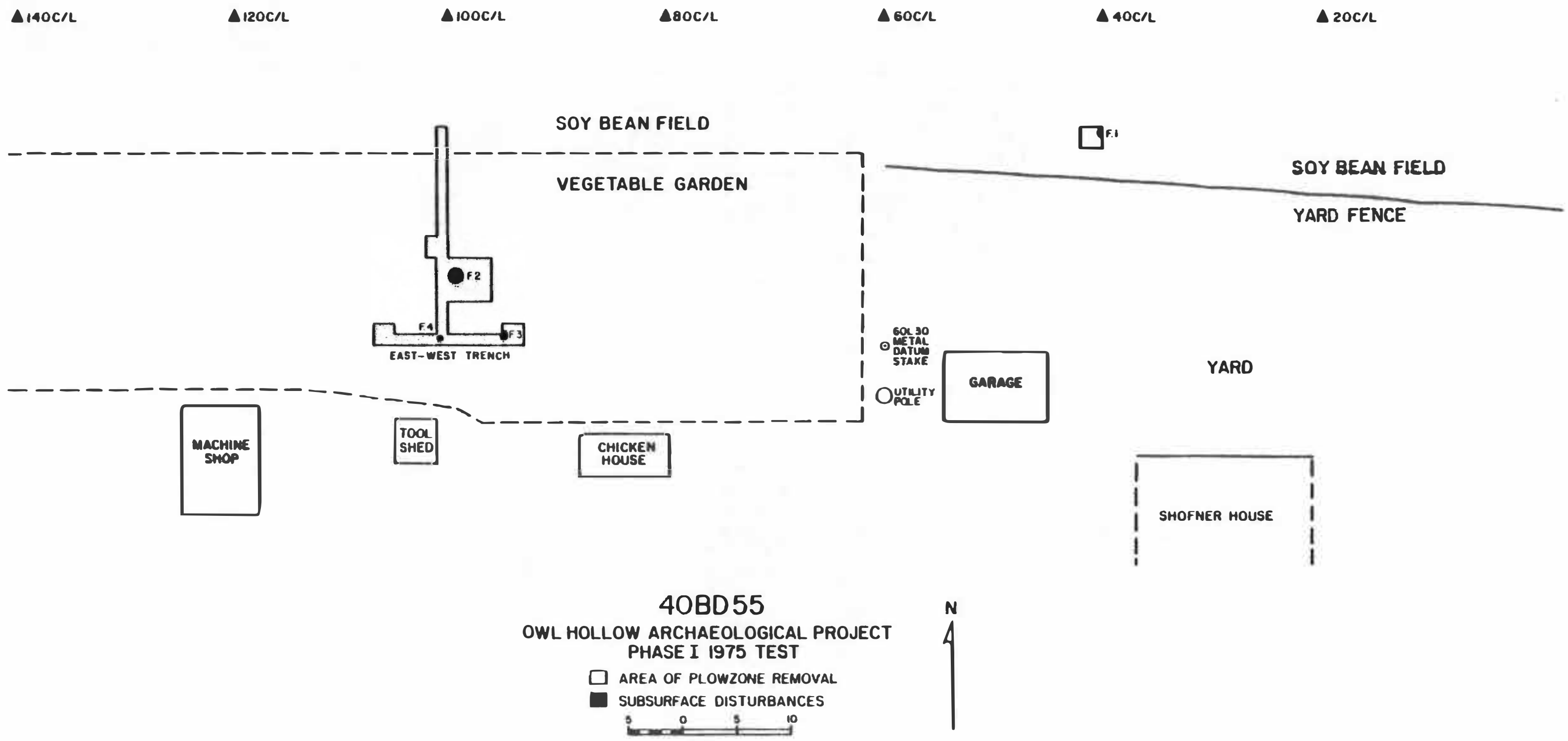

Figure 13. The Shofner site (40BD55) excavation map.

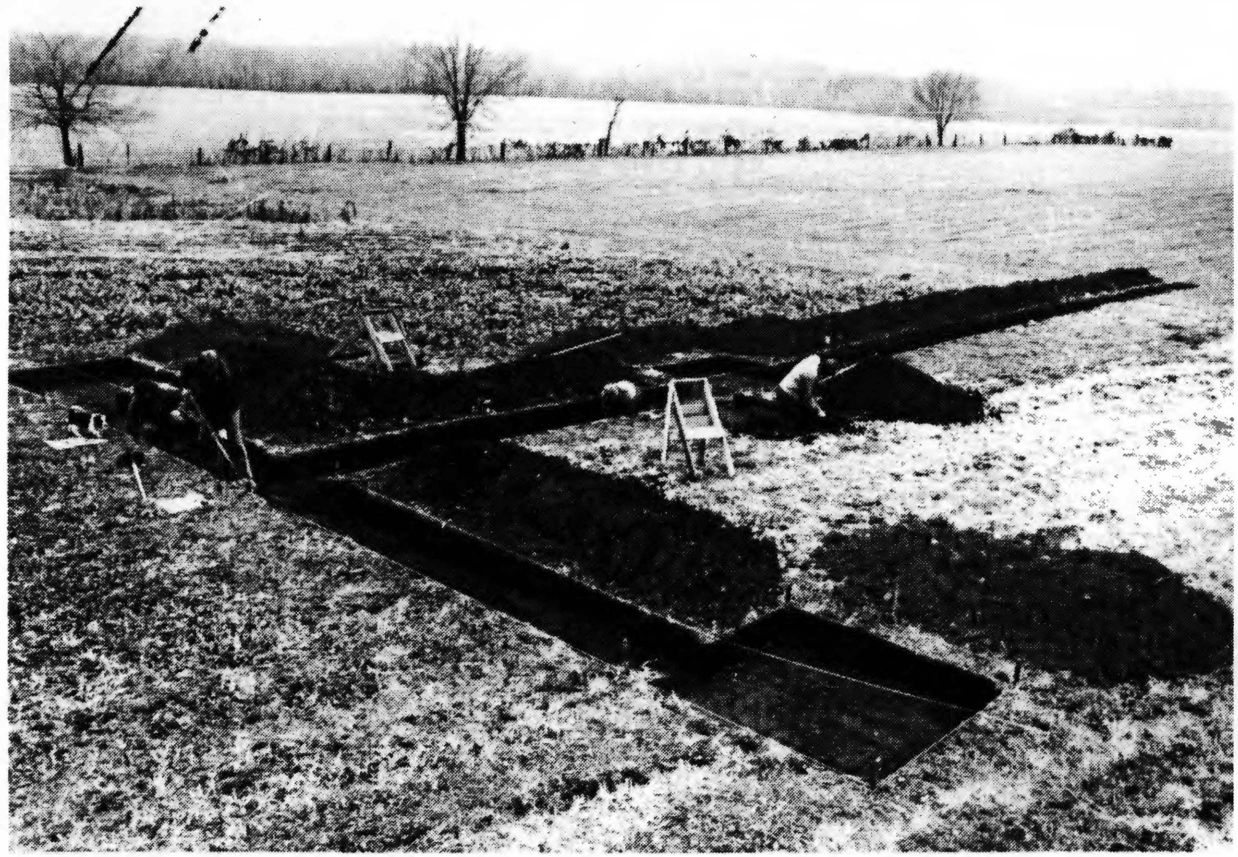

Figure 14. The excavation of the Shofner site.

remains were identified and radiocarbon samples collected from undisturbed feature context.

Standardized field forms were used to record the feature/posthole dimensions, the grid locations, and elevations of all disturbances. Photography was used to document all significant features and the excavation process. A site map of the excavated area was drawn utilizing coordinates from the permanently placed primary datum point corresponding to grid stake 60L30. The area tested was back-filled with power equipment provided by the landowner, Mr. Cecil Shofner.

Radiocarbon Dates

Two radiocarbon age determinations for 40BD55 were obtained from the University of Georgia Geochronology Laboratory. One large charcoal sample was submitted for a single chronometric date (UGa 1341); however, the laboratory retained the remaining portion and provided a second date. The sample was collected from the northeast quadrant of Feature 2, a large storage pit filled with refuse. The predominant portion of the sample submitted for dating purposes was composed of carbonized wood and a small quantity of nut shell. These charred remains were deposited near the base of the feature. The two dates obtained for 40BD55, Feature 2 are:

UGa-1341: 1385 ± 60 B.P. (A.D. 565); one standard deviation range is A.D. 505-625.

Gratis date: 1485 ± 95 B.P. (A.D. 465); one standard deviation range is A.D. 370-560.

Although these dates vary by 100± years, there is one standard deviation overlap in their ranges. The variation of the dates is

consistent with a sample composition of primarily charred wood fragments. Both dates indicate a late Middle Woodland and middle Owl Hollow phase temporal range (Faulkner and McCollough 1974:327-328). Cultural material included in the feature fill suggest an assessment of about A.D. 565 is more accurate for the occupation of the Shofner site.

Features

Four subsurface disturbances identified as aboriginal features were excavated and recorded on 40BD55 (Table 10). Three of the features (numbers 1, 3 and 4) were small, amorphous in shape, and had indeterminate functions. These pits did not produce sufficient data for analysis and interpretation of the 40BD55 occupation. Feature 2, however, was a significant feature type which provided the bulk of material remains for the assessment of cultural activity and temporal associations at 40BD55 (Figure 15).

Feature 2 was encountered in an area with a high density of aquatic gastropod shells on the surface and mixed throughout the plowzone. When located, the feature was so large and densely packed with gastropods, a decision was made to excavate the refuse in separate quadrants. The refuse from each quadrant, with a combined total weight of 716.44 kilograms (kg), was collected for water flotation. Consequently, the contents of this feature, which represented the first undisputed storage pit associated with an Owl Hollow phase occupation, were retained and analyzed.

Feature 2 was a very formal, circular-rimmed pit with vertical side walls and a flat bottom. The size and shape of this pit suggested it

Table 10. Feature data from 40BD55.

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
1	historic posthole	amorphous, conical pit	23 x 45	27
2	storage pit	circular, basin-shaped pit	129 x 135	50
3	shallow basin	oval, basin-shaped pit	57 x 85	14
4	conical pit	circular, cylindrical pit	37 x 37	59

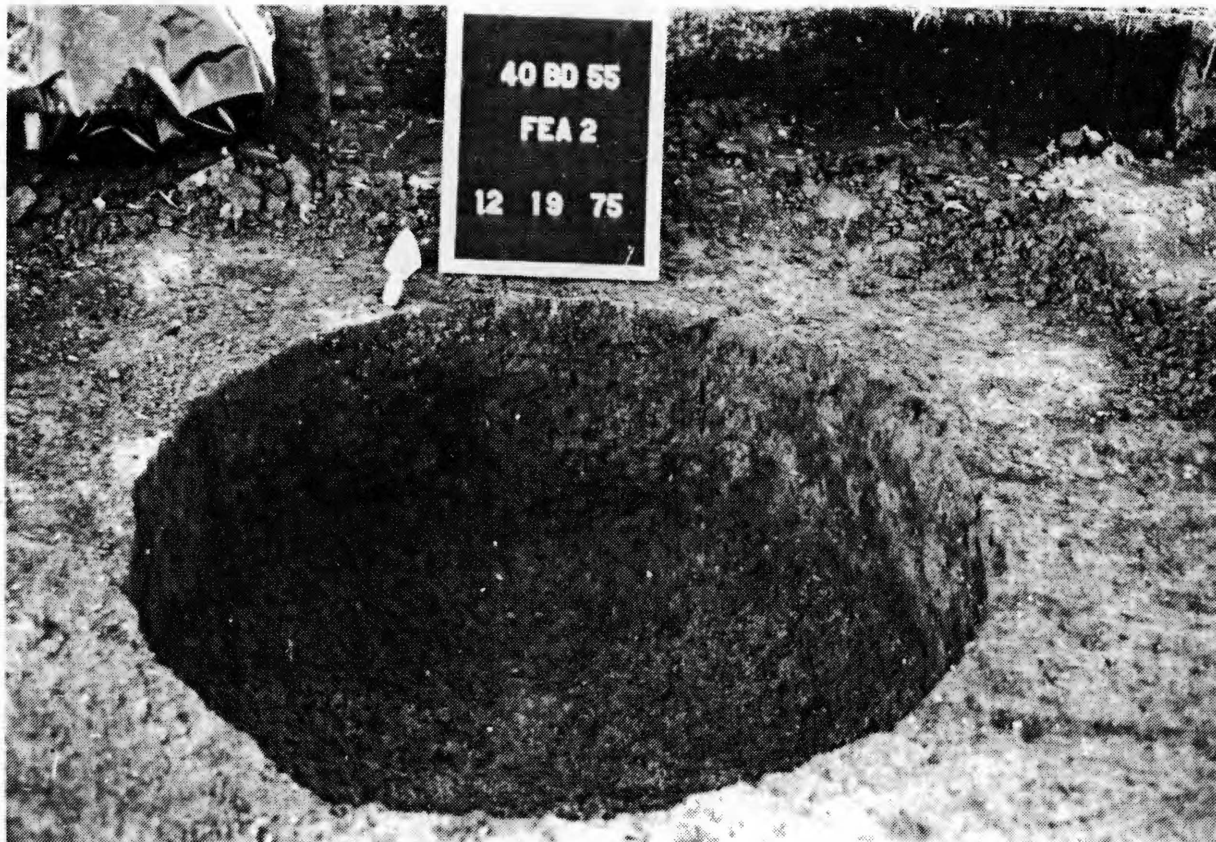

Figure 15. Feature 2, 40BD55.

had functioned primarily as a storage facility. The pit contents indicated a secondary use as a refuse receptacle. It had a homogeneous deposit of yellow-brown, ashey, soil and was filled with debris indicating remains primarily from domestic food preparation activities. During excavation, two lanceolate projectile points/knives and mixed-tempered ceramics from a minimum number of eight vessels were recovered. These vessels were predominantly plain with notched rims the only form of decoration. Also recovered were bone tools and food remains of large and small mammals, birds, fish and shellfish. The white-tailed deer was the most abundant land mammal represented, and probably provided the greatest amount of meat to the site inhabitants. Water flotation revealed impressive quantities of charred floral materials and various aquatic species. There were over 90 kg of gastropod and pelecypod shells representing 32 species. At least eight families of fish and three species of aquatic turtles were present in the sample recovered from this feature.

An important category of remains recovered from Feature 2 was numerous species of wild and cultivated plants. The botanical sample recovered from each quadrant of Feature 2 was submitted to a 25 percent analysis. Significantly, two species of cultivated plant foods, maize and squash, were identified in the sample along with two species of wild seeds occurring in quantities of definite economic importance. Arboreal seeds were heavily exploited with hickory nuts and acorns co-dominant in the sample. A wide range of wood species from upland and lowland habitats was also identified from Feature 2; the hickories, white oak, and red oak groups were heavily exploited.

The location of Feature 2 on the back slope of the first terrace suggests a marginal placement of this storage pit adjacent to the main occupation locus. Test excavations that extended north and northwest of Feature 2 failed to recover structural data. Surface survey, however, indicated the probability of several other large pits like Feature 2. The Feature 2 area had a surface accumulation of aquatic gastropods apparently from truncation of the feature by deep plowing. Four additional gastropod concentrations were noted surrounding the apex of the first terrace and the probable central site occupation locus.

Mr. Cecil Shofner (personal communication) reported digging into red clay "the color of and as hard as brick" while putting in a rose garden in the yard between the garage and house. The hard-baked red clay was probably an earth oven within a winter structure located on the highest portion of the first terrace overlooking Thompson Creek. A suggested community pattern for this site would be a cluster of houses along the apex of the terrace, and use of the marginal areas surrounding the site for placement of support facilities such as storage-refuse Feature 2. The occupation of 40BD55 is tentatively suggested to be year-round based on the accumulation of substantial quantities of both warm season and cold season flora and fauna in Feature 2.

The cultural association of Feature 2 is primarily suggested by lithics and ceramics. The lanceolate projectile points/knives and limestone and mixed limestone/chert-tempered pottery are diagnostic of the late Middle Woodland Owl Hollow phase. Two chronometric dates from the northeast quadrant support the cultural assessment and suggest an

occupation of the site around the middle of the sixth century A.D. (c. A.D. 550).

Lithic Analysis

Lithic remains from the Shofner site were recovered from the surface, the plowzone, and three of the four excavated features. The lithic material in disturbed surface/plowzone context was not tabulated, but instead used to establish comparative raw material types for the Thompson Creek locality of the upper Duck River Valley (Appendix A). These types compare favorably with those defined by Penny and McCollough (1976:191-196) for the Normandy Reservoir and Bedford County sites located along the Duck River immediately below Normandy Dam.

There are 14 distinctive types of lithic raw material, and one generalized type of cryptocrystalline quartz or chert (Type X), plus limestone and sandstone in the Shofner lithic sample. These raw materials are locally available in the Duck River Valley with near-exotic materials being from nearby localities along the eastern Highland Rim (Penny and McCollough 1976:146). No materials of distant-exotic origin were recovered from surface survey or test excavations at the Shofner site. The raw material types identified from 40BD55 are discussed below.

Local Lithic Materials

Type A: Blue-Gray and Tan Chert (N = 2)

This chert is derived from exposures of the lower Mississippian Fort Payne Chert Formation found throughout the upper Duck Valley. The Fort Payne Formation is heavily weathered to a cherty rubble which

occurs in the alluvial floodplains and in stream beds as chert pebbles (Wilson 1970). There is considerable color variation in the Fort Payne cherts. The matrix can vary from light blue to dark blue, blue-gray, light-medium gray, or tan (Penny and McCollough 1976:151). Outcrops of blue-gray and distinctive tan and blue varieties occur; these varieties also grade into one another and exhibit several colors. The blue-gray and tan chert is coarsely textured, opaque and contains blue and white bands or inclusions (Faulkner and McCollough 1973:53). This material occurs locally in the Shofner site area as stream gravel in the channels of the Duck River and Thompson Creek.

Type B: Blue-Gray and Tan chert, variety tan (N = 61)

This predominantly tan variety of Fort Payne chert is a medium to coarse-grained chert. It occurs stratigraphically above the blue-gray beds in the Fort Payne Formation and is possibly more abundant in the upper Elk River drainage, where it occurs in nodular or seminodular form (Penny and McCollough 1976:151-152). This variety reflects lateral variation in the quality and coloration of the Fort Payne Formation (personal communication, Major C. R. McCollough).

Type C: Blue-Gray and Tan chert, variety blue-gray (N = 75)

The predominantly blue-gray variety of Fort Payne chert consists of dense, medium to fine-grained chert (blue variant) and coarse siliceous limestone to near-vitreous chert (gray variant) (Penny and McCollough 1976:152).

Type F: Gray nodular chert (N = 3)

This material varies in coloration from light to dark gray. It is a dense, medium to fine-grained nodular chert. The gray nodular chert is possibly locally derived and occurs higher in the Fort Payne Formation. It possibly co-occurs with blue-gray and tan chert in the upper Duck Valley near the Shofner site.

Type H: Matt Brown chert (N = 17)

This material varies in coloration from a dark gray-green to a dark brown. It is a medium to fine-grained chert occurring in nodular form. This chert is possibly local and derived from the Fort Payne Formation (personal communication, Major C. R. McCollough). The source of this material possibly co-occurs with blue-gray and tan chert in the stream channels of the Duck River and its tributaries.

Type I: Blue-Black fossiliferous chert (N = 12)

This material is dark gray-blue to non-lustrous black with a mottled appearance from fossilized crinoid inclusions. It is a coarse-grained, tabular chert with a thick, porous cortex. The origin of this material is thought to be in the upper Mississippian Warsaw Formation that caps the flat Highland Rim (Penny and McCollough 1976:176-178). Penny and McCollough (1976:177) suggest availability of this material in erosional features at many widely spaced locations on the Highland Rim. They have assigned an intermediate "local" and "near exotic" status to this material.

Type N: Gray banded chert (N = 158)

This chert is dark gray with wavy black bands. It is a fine-grained, lustrous material that occurs in subspherical to flattened nodules with diameters of four inches to at least one foot (Faulkner and McCollough 1973:53-54). It outcrops at the interface of the Ordovician Catheys and Bigby-Cannon limestone formations in a stratum approximately 10 feet thick (elevation 247-250 m AMSL). The gray banded material occurs at specific quarry sites (cf. 40BD80) and in stream gravels of the Duck River (Penny and McCollough 1976:160-164). It probably outcrops near the Shofner site, since it is the most abundant chert material in the lithic sample.

Type Q: White, coarse-textured fossiliferous chert (N = 2)

This material is light gray to off-white with gray and black inclusions, and probable fossil fragments that give the material a speckled appearance (cf. Penny and McCollough 1976:177-178). It is a medium to coarse-grained chert that occurs in tabular form with a thick, porous cortex. The exposed chert weathers to a light gray coloration with a semi-lustrous texture. The origin of this tabular chert is probably in the Fort Payne Formation in the level immediately above the Chattanooga Shale. This material probably co-occurs locally with the Fort Payne Formation cherts as stream gravel and fragmented scree at the base of eroded hills.

Type R: Tan, coarse-grained chert (N = 2)

This material is light tan in coloration with dark brown and wavy to circular light blue inclusions. It is coarse-grained, nodular chert

with a thick porous cortex. The origin of this chert is probably in the lower Mississippian Fort Payne Formation since it appears to be a variety of blue-gray and tan (Penny and McCollough 1976:151-152). This material was probably locally available at the base of eroded hills and in stream gravels of the Duck River and Thompson Creek.

Type S: Reddish Tan chert (N = 1)

This material is light yellowish to dark reddish tan in coloration. It is a medium to coarse-grained tabular chert. The origin of this chert is unknown but probably originates in the lower Mississippian Fort Payne Formation (cf. Penny and McCollough 1976:151). It occurs as stream gravel or at the base of eroded hills.

Type U: Dark Gray mottled chert (N = 1)

This material is dark gray with light gray streaks and numerous light gray inclusions. It is medium to fine-grained and occurs in nodular form. The origin of this material is presently unknown although it may occur higher in the Fort Payne Formation (personal communication, Major C. R. McCollough). This material is derived from stream bed gravels in the upper Duck Valley.

Type X: Non-specific chert (generalized category) (N = 1)

This material represents unknown chert type(s) and source area(s). However, the chert is probably local or near-exotic, but is infrequent in the lithic sample and does not, as yet, constitute a distinctive type.

<u>Limestone</u> (N = 13)

This material is the most common rock found in the Duck River Valley. There are several kinds of limestone that range from coarse, fossiliferous limestone to metamorphosed, dolomitic limestone that occurs throughout the Duck Valley. This rock was readily available and used to manufacture hammerstones, manos, digging implements, and abraders. However, it was much more frequently utilized as cooking stones and as pottery temper (Faulkner and McCollough 1973:55).

<u>Sandstone</u> (N = 1)

This material occurs commonly on the escarpment of the Cumberland Plateau but is also found locally in the Warsaw Formation rubble. It occurs as slabs of fine-grained sandstone between and among the chert layers. A fine to medium-grained sandstone also occurs at the base of the Chattanooga shale (Faulkner and McCollough 1973:55).

<u>Near-Exotic Lithic Materials</u>

Type D: <u>Blue-Green nodular chert</u> (N = 64)

This chert is blue-green to dull, dark gray-green in coloration. It is a fine-grained and vitreous material that occurs in small spherical nodules with a thick calcareous cortex. The origin of this chert is in the St. Louis limestone underlying the flat Highland Rim near the Cumberland Plateau escarpment (Faulkner and McCollough 1973:56-57). Two source areas are discussed by Penny and McCollough (1976:179-180) near Hillsboro, Tennessee: source area one is in Beans Creek near Lusk Cove, and source area two is in Bradley Creek south of Hillsboro. The blue-green nodular chert occurs as stream gravel in the channels of

these small creeks. This material was transported from these source areas to sites in the upper Elk and Duck valleys.

Type G: Black-Brown nodular chert (N = 58)

This material is dark gray-brown to blue-black in coloration. It is a medium to fine-grained, non-lustrous chert that occurs in large nodules. The nodular cortex is thin and dense. The material weathers to a light gray coloration. The origin of this chert is currently unknown but possibly occurs on the flat Highland Rim in the St. Louis limestone formation.

Type V: Vein quartz/chalcedony (N = 1)

This material is gray-white in coloration with a waxy luster. It is a fine-grained chalcedony of milky translucency that occurs either in layers or as water-worn nodules. Penny and McCollough (1976:182) noted that coarse crystalline vein quartz and fine crystalline chalcedony are intergraded in the same nodules and often defy specification of raw material type. The origin of this material is probably in the Pennsylvanian deposits of the western Cumberland Plateau escarpment. The primary source of this material is the Hillsboro Locality where it occurs as water-worn spheres in stream beds that drain the escarpment coves.

Chipped and Ground Lithic Material

A total of 472 lithic remains was recovered from undisturbed feature context at the Shofner site (Table 11). Feature 2 contained 97 percent of the lithics sample with the remainder coming from features 3

Table 11. Distribution of lithics in features, 40BD55.

	Lithic Tool Types	F-2	F-3	F-4	Total	Percent
1	Hammerstone	1			1	*
2a	Subconical core	1			1	*
2d	Amorphous core	6			6	1
3	Decortication flake	44	3		47	10
4	Flat flake	106	9	1	116	25
5	Bifacial thinning flake	127			127	27
7	Unidentifiable flake fragments	140			140	30
9	End scraper	1			1	*
10	Side scraper	4			4	1
15	Utilized flake: unifacial	4			4	1
17	Thick biface knife	1			1	*
18	Thin biface knife	1			1	*
24	Perforator	1			1	*
25	Microtool	1			1	*
28	PP/K: narrow thick lanceolate stemmed	2			2	*
36	Unident. PP/K: medial fragments	3			3	1
37	Unident. PP/K: distal fragments	3			3	1
39	Millingstone	1			1	*
42	Abrader	1			1	*
46a	Millingstone fragments	9			9	2
46b	Chopping tool fragments	2			2	*
	Total	459	12	1	472	
	Percent	97	3	*		100

* = less than 1 percent.

and 4. This material consists of primary lithics, unifacial and bifacial implements, projectile points/knives and ground stone implements. The separate tool types are discussed below for 40BD55 and displayed in tabular form with associated raw material types in Table 12. Refer to Appendix B for a comprehensive listing of tool types identified from the late Middle Woodland sites investigated during the Owl Hollow Research Project.

Lithics from 40BD55, represented by the raw material types discussed above, were submitted to a functional analysis and classification. This classificatory system is patterned after the lithic typology employed by Faulkner and McCollough (1973) for the Normandy Archeological Project. Separate letter designations, however, are used for the raw material types identified in the Owl Hollow Study Locality. Burned limestone rock and Fort Payne tabular chert were weighed and recorded separately, but both were presumably refuse from cooking activity. The small portion of fired clay recovered from feature context probably originated from earth oven use and occurred with the general feature debris.

<u>Primary Lithics</u> (N = 438)

(Number preceding categories indicates Tool Type.)

1 <u>Hammerstone</u> (n = 1)

This is a polyhedral-shaped implement that has discrete areas of wear indicative of battering. The implement came from Feature 2, and the raw material is limestone.

Table 12. Lithic assemblage from features, 40BD55.

Type	A	B	C	D	F	G	H	I	N	Q	R	S	U	V	X	Limestone	Sandstone	Total	Percent
	Raw Materials[a]																		
1																1		1	*
2a										1								1	*
2d				3			1		2									6	1
3	1	6	14	8		5			13									47	10
4		18	11	17	2	11		1	55		1							116	25
5		14	15	25		16	10	6	40					1				127	27
7	1	20	33	11	1	22	6	5	41									140	30
9									1									1	*
10						1			2						1			4	1
16a		1	1						1				1					4	1
17		1																1	*
18											1							1	*
24												1						1	*
25									1									1	*
28						1			1									2	*
36		1	1		1													3	1
37					1				1	1								3	1
39																1		1	*
42																1		1	*
46a																8	1	9	2
46b																2		2	*
Total	2	61	75	64	3	58	17	12	158	2	2	1	1	1	1	13	1	472	
Percent	*	13	16	14	1	12	4	3	33	*	*	*	*	*	*	3	*		100

* = less than 1 percent.

[a] = the following categories were also inclusive in the features:

Fort Payne tabular chert (fire-cracked)	29,448.6 g
Burned limestone fragments	7,793.4 g
Fired clay	13.9 g
Miscellaneous debris	20,979.4 g

2a Subconical core (n = 1)

This type of core has an angle between the striking platform and the flake removal surface that is greater than 45°. Faulkner and McCollough (1973:80) relate that subconical cores indicate a highly standardized approach to primary lithic technology and flake/blank form.

2d Amorphous core (n = 6)

This type of core is amorphous in shape due to a random technique of flake removal; flakes from three cores are also of random shape. This is the most common core type in the Shofner lithic sample.

3 Decortication flakes (n = 47)

These flakes result from core reduction and/or core rejuvenation and retain portions of exterior cortex. These flakes are usually amorphous and not further modified.

4 Flat flakes (n = 116)

These are lamellar flakes that have been detached by direct percussion from a core; these flakes contain no cortex and are generally unmodified.

5 Bifacial thinning flakes (n = 127)

These flakes result from thinning or sharpening a bifacial implement and generally retain a striking platform as evidence of their removal. They are usually expanding and thin with scars of previous bifacial removals on the dorsal surface.

7 Unidentifiable flake fragments (n = 140)

These are miscellaneous, amorphous flakes of varying size that lack attributes for placement into the above types. These flakes are generally not modified.

Unifacial Tools (N = 9)

9 End scraper (n = 1)

This implement is made on a flake with a convex working edge formed by continuous, steep retouch. The working edge has moderate abrasion.

10 Side scraper (n = 4)

These implements are made on flakes and have a relatively straight, retouched edge along one or both lateral margins.

15 Utilized flake: unifacial (n = 4)

These are flakes having unsystematic use modification along one or more edges. The utilization is generally in the form of localized irregular retouch and/or edge wear.

Bifacial Tools (N = 4)

17 Thick biface knife (n = 1)

This implement is a crude, ovoid-shaped, bi-convex biface with a highly irregular cutting edge. There are areas of steep retouch and abrasion on the distal end. This implement may have functioned for chopping/scraping as well as cutting activities.

18 Thin biface knife (n = 1) (Figure 16, c)

This implement is an ovate-shaped bifacially thinned knife exhibiting blade asymmetry. There is marginal retouch along bilateral edges with some edge abrasion.

24 Perforator (n = 1)

This implement, made on a flake, has a short, pointed projection formed by marginal retouch along both sides of the projection. Bilateral edge wear is present.

25 Microtool (n = 1) (Figure 16, d)

This symmetrical implement is made on a small flake by steep alternate edge retouch. Heavy edge abrasion is present possibly from use as a drilling or perforating tool.

Projectile Points/Knives (N = 8)

28 Narrow thick lanceolate stemmed (n = 2) (Figure 16, a-b)

These are elongated, stemmed projectile points with straight to excurvate blade edges. The proximal end of one projectile point retains the nodular cortex, while the cortex on the other projectile point has probably been intentionally removed. The stems are straight to slightly contracting. The bases terminate at transverse to slightly rounded, well-developed shoulders. These projectile points conform to the type Bradley Spike (Kneberg 1956). This type occurs in Woodland context in the Southeast and is a cultural indicator of the late Middle Woodland Owl Hollow phase in south-central Tennessee (cf. Faulkner, ed. 1968:244 and Faulkner and McCollough 1974:326-329).

Figure 16. The Shofner site: Projectile points/knives and bifacial tools. Narrow thick lanceolate stemmed, a-b; Thin biface knife, c; Microtool, d.

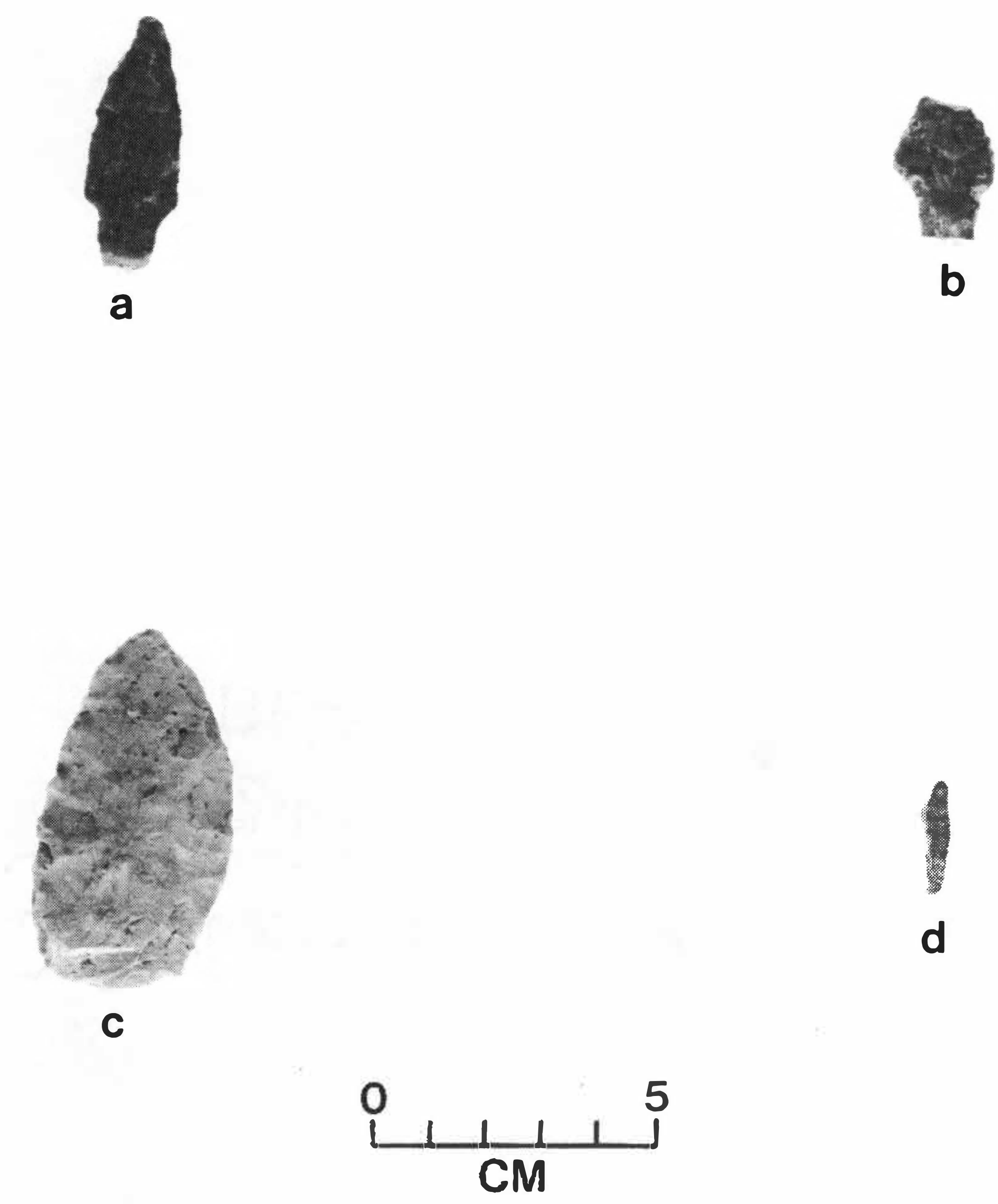

Figure 16

36 <u>Unidentifiable pp/k: medial fragments</u> (n = 3)

These are fragmented, bifacially flaked medial sections of probable projectile points. They cannot be identified with any recognizable type.

37 <u>Unidentifiable pp/k: distal fragments</u> (n = 3)

These are broken distal ends of probable projectile points that cannot be identified with any recognizable type.

<u>Ground Stone Tools</u> (N = 13)

39 <u>Millingstone</u> (n = 1)

This implement is a rounded block of limestone with a flat, slightly pitted, striated/smoothed working surface. The surface has linear and circular striations. Some evidence of pecking is present on the ends and lateral edges of the implement.

42 <u>Abrader</u> (n = 1)

This flat slab of limestone had been modified along one edge by grinding and smoothing. The modified areas were heavily striated.

46a <u>Millingstone fragments</u> (n = 9)

These are highly fragmented cobbles of limestone (8) and sandstone (1) which exhibit localized utilization suggestive of millingstone activity. Pecked, smoothed, striated, and polished surfaces are present on these fragmented implements.

46b Chopping tool fragments (n = 2)

These are fragments of limestone slab choppers/hoes which exhibit bifacial edge alteration and striations or smoothing/polishing from intensive use modification.

Lithics Summary

The Shofner lithics sample was basically composed of locally available raw materials (64 percent), although near-exotic materials (36 percent) were well represented. The local raw materials commonly occur throughout the upper Duck River Valley in specific quarry sites and in stream gravels of the Duck River and its tributaries (Penny and McCollough 1976:160-164). The near-exotic materials likely occurred as stream gravel in the channels of small creeks flowing along the flat Highland Rim. The near-exotic source areas are approximately 42 km northwest of the Shofner site.

The lithic raw materials were procured to manufacture a variety of utilitarian tools and weapons. Primary lithics, which resulted from the manufacturing process, constitute the bulk of material deposited as refuse. The significance of this sample, however, is the variety of tool types and the diverse activities represented by the tools. A functional interpretation suggests scraping, cutting and piercing activities as well as grinding, abrading, and chopping tasks were performed in and around the site locus. Diagnostic projectile points/knives are late Middle Woodland lanceolate forms. The primary type identified, the Narrow Thick Lanceolate Stemmed form, is similar to the Bradley Spike projectile point (Kneberg 1956). While this type is an

indicator of the Owl Hollow phase, it appears to be more prevalent on sites dating to the late Owl Hollow phase.

Ceramic Analysis

A total ceramic sample of 885 sherds was recovered from undisturbed context in Features 2, 3, and 4 at the Shofner site. These ceramics are grouped on the basis of predominant tempering material(s) into ware categories and classified into types according to distinctive surface finish. The following ware categories are present in the Shofner sample: limestone; limestone/chert; limestone/chert/sand; grit; chert; and chert/grit. The ware categories are described below and tabulated in Table 13.

Limestone-tempered ware (N = 72)

This ware is present throughout the Middle Woodland period in south central Tennessee. It is associated predominantly with the early Middle Woodland McFarland phase but occurs with mixed tempered wares containing chert, grit, and sand during the late Middle Woodland Owl Hollow phase. Faulkner and McCollough (1977:93) consider limestone-tempered ceramics a locally manufactured ware.

Limestone-tempered, Residual Plain (N = 42)

These are fragmented sherdlets that lack an exterior surface finish or have a highly eroded exterior surface. Leaching has occurred in most of these sherds. The average size and eroded surface condition does not warrant further classification.

Table 13. Distribution of ceramics in features, 40BD55.

Ceramic Ware and Type	F-2	F-3	F-4	Total	Percent
Limestone-tempered					
Residual	40	2		42	5
Plain	17	6		23	3
Cordmarked	6			6	1
Brushed	1			1	*
Limestone/Chert-tempered					
Residual	86		1	87	10
Plain	95		3	98	11
Cordmarked	2			2	*
Limestone/Chert/Sand-tempered					
Residual	2			2	*
Plain	22			22	2
Grit-tempered					
Residual	125			125	14
Plain	72			72	8
Chert-tempered					
Residual	58			58	7
Plain	112			112	13
Cordmarked	2			2	*
Chert/Grit-tempered					
Residual	75			75	8
Plain	158			158	18
Total	873	8	4	885	
Percent	99	1	*		100

* = less than 1 percent.

Limestone-tempered, Plain (n = 23)

This type is similar to Mulberry Creek Plain (Heimlich 1952:15-19) which occurs throughout the Tennessee River drainage system. It is considered the most common sherd type of the Middle Woodland period in the upper Duck and Elk river valleys (Faulkner and McCollough 1974:335-336). However, this type seems to decrease in frequency in the ceramic assemblage of the late Owl Hollow phase (c. A.D. 500-650). A reduction in the use of limestone probably corresponds to a preference for mixed temper materials. The limestone-tempered plain body sherds are completely smoothed; tool and/or scraping marks are less evident on interior and exterior vessel surfaces.

Limestone-tempered Cordmarked (n = 6)

The six small body sherds recovered from the Shofner site do not conform to any recognized type. The surface treatment is different from the fine and deep cord impressions of Candy Creek Cordmarked and the wide, loose cordmarking of Hamilton Cordmarked (Lewis and Kneberg 1946:102-103). The cordmarking is distinguishable but completely smoothed over on all sherds. The occurrence of limestone-tempered cordmarked pottery in the upper Duck Valley associates predominantly with the Middle Woodland period and is a minority type in the McFarland phase in the Normandy Reservoir (Faulkner and McCollough, eds. 1977:166). Faulkner and McCollough (1974:334) suggest this is a rare type in the Owl Hollow phase, and evidence from the Shofner site supports this assessment.

Limestone-tempered Brushed (n = 1)

This small body sherd probably corresponds to the type Flint River Brushed (Heimlich 1952:10). The exterior surface has fine, parallel striations, and the interior is smoothed and unbrushed. A brushed surface treatment associates culturally with late Middle Woodland to early Late Woodland in northern Alabama (Heimlich 1952). Faulkner and Graham (1966:47) discuss some of the difficulties in distinguishing brushing from scraping. They identify a brushed surface as having fine striations not over 1 mm in width and applied in a rather haphazard manner. For consistency, their definition is used in this report.

Limestone/Chert-tempered ware (n = 187)

Faulkner and McCollough (1974:43) first identified this ware in the Normandy Reservoir at site 40CF108. They suggested a late Middle Woodland association that marked the transition between the predominantly limestone-tempered ceramics of the early Middle Woodland and the chert-tempered ceramics of the Late Woodland. This ceramic ware is primarily associated with the Owl Hollow phase in south-central Tennessee. Manufacture of the limestone/chert-tempered ware is apparently an extension of the use of limestone as a tempering agent. A very friable, fossiliferous type of limestone rock was selected; the fossils were formed of silica or chert which became resistant inclusions in the pottery as the limestone rock was pulverized as a tempering material. Conscious selection of this material may have been due to the availability or the friable nature. The limestone-tempered plain and limestone/chert-tempered plain types are similar except for use of

non-fossiliferous limestone and a lack of sandy grit inclusions in the former type.

Limestone/Chert-tempered Residual Plain (n = 87)

These are highly fragmented sherdlets lacking an exterior surface finish. This condition was caused by breakage, poor manufacturing techniques, and/or erosion from exposure. The small size and poor condition preclude further classification.

Limestone/Chert-tempered Plain (n = 98) (Figure 17, a, e)

This type has not been formally defined; however, it was first identified at the Banks III site in the Normandy Reservoir and associates with the late Middle Woodland Owl Hollow phase. Characteristic of this type is a distinctive tempering of fossiliferous limestone which contributes about equal proportions of limestone and chert to the ceramic paste. Smaller proportions of sand, grit, or quartzite are detectable which produces a roughened surface texture. The poor quality, friable chert occurs as small, angular fragments rather than lamellar flakes. Although the surface of these sherds is plain, there are frequent irregular tool marks on the interior and exterior sherd surfaces produced from scraping to thin the vessel walls. Minor degrees of localized polishing are present on some exterior surfaces. Vessel shape and minimum number were determined from different styles of rim sherds. Vessel reconstruction suggests there is a minimum of six limestone/chert-tempered plain subconoidal jars. One vessel has a well-developed shoulder and a recurvate, outward flaring notched rim (Figure 17, a). Decoration of plain vessels consists of rim

Figure 17. The Shofner site: Ceramics. Limestone/Chert-tempered notched rim sherd, a; Chert/Grit-tempered notched rim sherds, b-d; Limestone/Chert-tempered folded rim sherd, e; Limetone/Chert-tempered cordmarked body sherds, f-g.

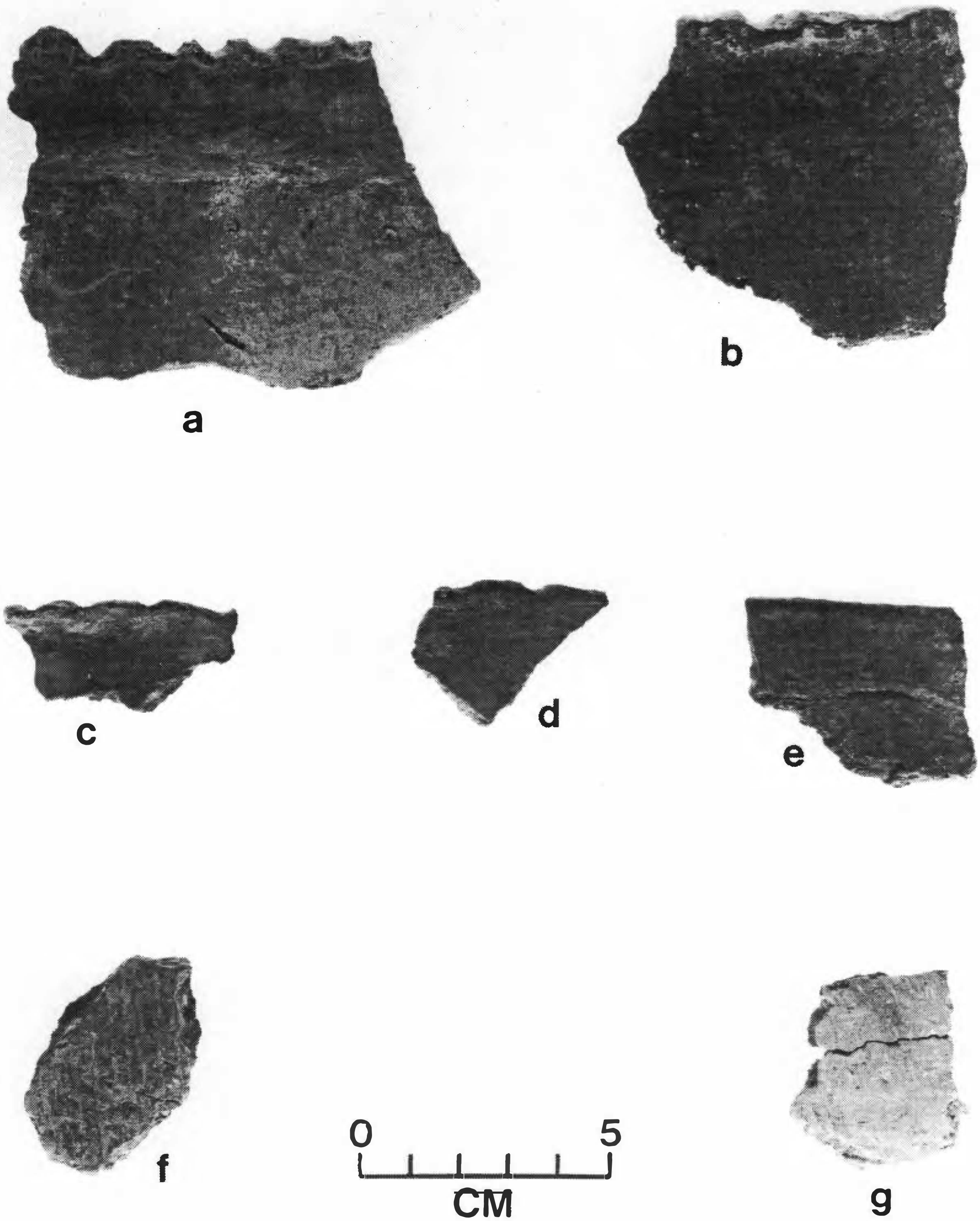

Figure 17

notching applied to the rounded (83 percent) or flattened (17 percent) vertical rim lip (N = 6). These notches either form a series of shallow depressions or occur as broader, U-shaped notches having a scalloped shape. Plain vessel rims are straight (17 percent), incurvate (17 percent) and excurvate (34 percent) with generally thinned and rounded rim lips (50 percent). One rim is folded (2 cm wide) and has a flattened rim lip (Figure 17, e).

Limestone/Chert-tempered Cordmarked (n = 2) (Figure 17, f - g)

The cordmarked impressions on these two body sherds do not conform to those on previously identified ceramic types. However, due to the wide, loose cordmarking, and the large amount of tempering and thickness, two type associations are suggested: Hamilton Cordmarked and Elk River Cordmarked. Both of these types are Late Woodland. The sherds are thick, have a well-smoothed interior, and a heavy cordmarked exterior; one sherd is partially smoothed.

Limestone/Chert/Sand-tempered ware (n = 24)

This ceramic ware is distinguished by large amounts of limestone, chert, and sand tempering materials. The quantity of the tempering suggests intentional use of these materials. The limestone and chert are coarse to finely crushed; the sand tempering is more variable often lending a coarse texture and, infrequently, a micaceous appearance. The vessel walls are generally well-smoothed and relatively thin. This ware was probably locally manufactured during the late Middle Woodland period.

<u>Limestone/Chert/Sand-tempered Residual Plain</u> (n = 2)

The surfaces of these body sherds are highly weathered and could not be further classified into a specific type.

<u>Limestone/Chert/Sand-tempered Plain</u> (n = 22)

These sherds do not conform to an identified type, but probably represent localized variations in the use of mixed-temper in ceramic manufacture. The sherds in this type are small, relatively thin, plain body sherds. They are distinguished by large and small fragments of fossiliferous limestone and a sandy texture. Two sherds from the same vessel are possibly of non-local origin since micaceous sand is an obvious inclusion in the paste. In general, this type is probably of local manufacture and displays similar surface treatment as other plain types.

<u>Grit-tempered ware</u> (N = 197)

This ware has not been previously defined. An Early Woodland quartzite-tempered ware was recognized by Faulkner and McCollough (1974:42) in the Normandy Reservoir; however, the grit-tempered ware from the Shofner site occurs much later in time. This ware is possibly localized in the upper Duck Valley and is tentatively assigned to the late Middle Woodland period. It is distinguished by a coarsely crushed quartzite or a finely crushed angular chert material. The tempering material is abundant and generally constitutes over 70 percent of the paste.

Grit-tempered Residual Plain (n = 125)

The residual sample represents eroded body sherds which are too small for further classification. The large proportion of grit tempering has probably contributed to a fragmentation of the sherds.

Grit-tempered Plain (n = 72)

This type has not been previously identified in Middle Woodland context in south-central Tennessee. It does not associate culturally with Early Woodland plain quartzite-tempered pottery from the Normandy Reservoir (Faulkner and McCollough 1974:42). Coarsely crushed quartzite and/or angular chert was used as the principal tempering material. The vessel body sherds are thin and poorly smoothed; angular chert or quartzite protrudes from the interior and exterior surfaces. Portions of two separate vessels are present but are reduced largely to residual sherdlets (cf. Grit-tempered Residual Plain 63 percent). Four rim sherds are present in the sample but are too small to aid in reconstruction of vessel shapes. Three rims are rounded and shallowly notched; one other rim is rounded and unnotched. Rim notching is the only evidence of decorative modification.

Chert-tempered ware (N = 172)

This ware was defined by Faulkner, ed. (1968) and associated with the Late Woodland Mason phase in the upper Elk Valley. However, the chert-tempered ceramic sample from the Shofner site differs from the Elk River ceramic series. This ware is distinguished by large amounts of crushed angular chert, considerable variation in sherd thickness, and smoothed exterior and interior surfaces. This ware possibly represents

transitional or early Elk River series ceramics that developed locally in the upper Duck Valley. It does not differ significantly except in tempering material from other late Middle Woodland wares recovered at the Shofner site and is, therefore, assigned to the late Owl Hollow phase.

Chert-tempered Residual Plain (n = 58)

This sample is mainly sherdlets too fragmented and eroded for further classification.

Chert-tempered Plain (n = 112)

This type is associated with the Elk River ceramic series (Faulkner, ed. 1968:63-65) and is identified as Elk River Plain. However, there are variations in the plain type recovered from Shofner, and the Elk River Plain type. The Shofner chert-tempered plain is distinguished by coarsely crushed, angular chert tempering. Vessel body sherds are thin and there are plain and notched rim sherds (n = 2). Exterior surfaces are smoothed but retain indications of tool/scraping marks that resemble light brushing. Vessel shape, based on two rim sherds, is a subconical jar with an expanded shoulder and an excurvate, flaring rim. The only decoration occurred in the form of rim notching. This type is locally manufactured and associated with the late Owl Hollow phase in the upper Duck Valley (cf. Cobb 1978).

Chert-tempered Cordmarked (n = 2)

This type is identical to Elk River Cord Marked (Faulkner, ed. 1968:61-63). The sample is two small, thin body sherds possibly from the same vessel. Both sherds have angular chert tempering, fine,

distinctive cord impressions and a completely smoothed interior surface. Culturally, these sherds are probably late Middle Woodland or early Late Woodland.

Chert/Grit-tempered ware (N = 233)

This ware has not been previously defined in south central Tennessee. However, other mixed-temper wares were defined in the Normandy Reservoir (cf. Faulkner and McCollough 1974:42-43), and occur at the Shofner site in late Middle Woodland context. This ware is distinguished by large angular chert and smaller particles of quartzite and chert tempering. It is well-smoothed on the interior and exterior and is relatively thin. This chert grit-tempered ware probably associates with the late Owl Hollow phase and represents a variation in locally manufactured ceramics during the late Middle Woodland period.

Chert/Grit-tempered Residual Plain (n = 75)

These highly eroded and fragmented body sherdlets could not be classified into a specific type.

Chert/Grit-tempered Plain (n = 158) (Figure 17, b - d)

This type has not been formally defined in south-central Tennessee, but it probably associates with mixed-temper plain types identified by Faulkner and McCollough (1974:42-43). Characteristic of this type is a mixture of coarse, angular chert and finely crushed quartzite and chert. The body sherds are thin and well-smoothed, although large fragments of chert protrude from the paste. Tool or scraping marks are randomly present on exterior and interior sherd surfaces. Vessel shape and minimum number were determined from 12 rim sherds representing at least

nine vessels. Partial reconstruction of one vessel indicated a subconoidal jar with a well-developed shoulder and an excurvate, notched rim (Figure 17, b). Notches vary from shallow transverse indentations to broad and wavy, scalloped notching. This chert/grit-tempered pottery type is probably associated with the late Owl Hollow phase.

Ceramics Summary

The primary and mixed-temper wares discussed above and illustrated in Table 13 associate culturally with the Middle Woodland to early Late Woodland periods. The limestone-tempered ceramics (8 percent) indicate a general Middle Woodland cultural association (c. 200 B.C. - A.D. 600). The grit-tempered ceramics (22 percent), although infrequent in the ceramic assemblage of the Normandy Reservoir (Faulkner and McCollough 1974:42-44), probably co-occur temporally with limestone-tempered ceramics in south-central Tennessee (cf. Butler 1968:168). The chert-tempered ceramics (20 percent) are primarily characteristic of the Late Woodland (c. A.D. 650 - 900) (Faulkner, ed. 1968:58-70); however, Faulkner and McCollough (1974:334) recognize chert-tempered pottery as a minority ware throughout the Middle Woodland period in the upper Duck and Elk river valleys. The mixed-temper ceramics (50 percent) suggest a cultural association of late Middle Woodland to early Late Woodland (c. A.D. 200 - 650). Faulkner and McCollough (1977:97) believe mixed-temper pottery could mark the transition between predominantly limestone-tempered early Middle Woodland pottery (McFarland phase) and chert-tempered Late Woodland (Mason phase) pottery. This proposition suggests

cultural significance for these mixed-temper wares in terms of definition of the late Middle Woodland Owl Hollow phase.

The ceramic wares and cultural phase associations in south-central Tennessee are based primarily on radiocarbon dated context in the Tims Ford and Normandy Reservoirs (Faulkner, ed. 1968; Faulkner and McCollough 1973; 1974; 1977). Analysis of the Shofner ceramics has provided evidence of variations in the ceramic wares of the Owl Hollow phase and further indications of ware-phase associations during the late Middle Woodland period.

Floral Analysis

Feature 2 produced abundant charred floral remains. The entire feature fill was floated and yielded light and heavy flotation samples. The light fraction sample was composed of whole and fragmented plant parts, herbaceous seeds, and wood charcoal. The heavy fraction consisted of much larger plant parts, arboreal seeds, and wood charcoal. A 25 percent sample of the light and heavy fractions was analyzed from Feature 2 (Tables 14 and 15). The analyzed fractions provided direct evidence of the Shofner site subsistence orientation, seasonality of site occupation, and resource zone exploitation.

The sample analyzed from Feature 2 indicated a wide variety of plants were utilized from the Shofner site arena. Most of these plants were obtained from econiches in close proximity to the site and may have been seasonally harvested from Floodplain/Terrace and Highland Rim Escarpment resource zones. Beginning in the fall, the arboreal seed crop was available for collection from the Highland Rim Escarpment

Table 14. Floral remains from 40BD55 consisting of the light fraction flotation sample.

	Hickory Nut (*Carya* sp.)	Acorn (*Quercus* sp.)	Black Walnut (*Juglans nigra*)	Unidentifiable Wood	Unidentifiable Seeds	Unidentifiable Bulk Material	Unidentifiable Material	Total	Percent
Feature 2:									
Northeast Quadrant	7.6	1.9	.2	49.2	1.0	86.6	.05	146.55	33
Southeast Quadrant	5.6	.4	.1	46.0	.1	68.0	.1	120.3	27
Northwest Quadrant	4.2	.8	.1	38.4	.2	67.2	.1	111.0	25
Southwest Quadrant	3.9	.3	.1	20.0	.1	38.7	.1	63.2	15
Total	21.3	3.4	.5	153.6	1.4	260.5	.35	441.05	
Percent	5	1	*	35	*	59	*		100

* = less than 1 percent.

Table 15. Floral remains from feature context at 40BD55.

Units: 98L24 and 98L26 Feature 2

Wood Charcoal	Weight (grams)	Percent	Number	Percent
Elm (*Ulmus* sp.)			18	5
Hackberry (*Celtis laevigata*)			13	3
Honey Locust (*Gleditsia triacanthos*)			8	2
Ironwood (*Carpinus caroliniana*)			3	1
Kentucky Coffee Tree (*Gymnocladus dioicus*)			11	3
Sweetgum (*Liquidambar styraciflua*)			1	*
Sycamore (*Plantanus occidentalis*)			7	2
Walnut (*Juglans nigra*)			4	1
Ash (*Fraxinus* sp.)			7	2
Beech (*Fagus grandifolia*)			1	*
Hickory (*Carya* sp.)			149	37
White Oak Group (*Quercus* sp.)			82	20
Red Oak Group (*Quercus* sp.)			62	15
Oak, sp. (*Quercus* sp.)			27	7
Persimmon (*Diospyros virginiana*)			1	*
Black Cherry (*Prunus serotina*)			3	1
Chestnut (*Castanea dentata*)			3	1
Hophornbeam (*Ostrya virginiana*)			1	*
Total:			401	100
Herbaceous Seeds				
Maygrass (*Phalaris* sp.)			246	69
Pigweed (*Amaranthus* sp.)			6	2
Goosefoot (*Chenopodium album*)			61	17
Knotweed-Smartweed (*Polygonum* sp.)			6	2
Purslane (*Portulacca*, sp.)			2	1
Bulrush (*Scirpus* sp.)			1	*
Spike Rush (*Eleocharis* sp.)			3	1
Wild Strawberry (*Fragaria virginiana*)			5	1
Chickweed (*Stellaria media*)			1	*
Sedge (*Carex* sp.)			1	*
Legume			1	*
Grass family (*Poaceae*)			2	1
Spurge (*Euphorbia* sp.)			1	*
Cane (*Arundanaria* sp.)			1	*
Grape (*Vitis sp.*)			5	1
Sumac (*Rhus* sp.)			4	1
Honey Locust (*Gleditsia triacanthos*)			5	1

Table 15 (Continued)

Wood Charcoal	Weight (grams)	Percent	Number	Percent
Herbaceous Seeds (Continued)				
Maize (*Zea mays*)			4	1
Cucurbit (*Cucurbitacea*)			1	*
Total			356	98
Arboreal Seeds				
Hickory nut (*Carya* sp.)	21.3	85		
Acorn (*Quercus* sp.)	3.4	14		
Walnut (*Juglans* sp.)	.3	1		
Total:	25.0	100		

* = less than 1 percent.

Resource Zone. Feature 2 was probably established as a storage facility for the surplus nut crop, primarily acorn and hickory nut. Additional wild plants and seeds utilized in the late summer or fall and possibly stored in Feature 2 were grape, sumac, and honey locust, which were likely gathered in the Floodplain/Terrace Resource Zone.

Inhabitants of the Shofner site were probably dependent on stored plant foods to some degree throughout the winter (i.e., November - February). In the spring and early summmer, plant foods in the Floodplain/Terrace Resource Zone were again available, and those utilized were wild strawberry, bulrush, spike rush, and maygrass. The presence of goosefoot suggests it could have been exploited as an early spring pot herb. By mid-to-late summer, wild seed-bearing plants were more prolific and those heavily exploited were pigweed, goosefoot, knotweed, and purslane. Perhaps the most economically important wild plant foods utilized at Shofner were maygrass and goosefoot, available from early to late summer in the Floodplain/Terrace Resource Zone (Table 15).

Two species of cultivated plants, maize and squash, were present in the Shofner botanical sample. Although these remains were not abundant, they suggest horticultural activity occurred near the Shofner site. The significance of the cultivated food remains in the Owl Hollow diet have not been fully evaluated. These foods, however, suggest an increasingly important resource in the economy of late Middle Woodland groups localized in the upper Duck River Valley. In terms of site occupation, cultivation of plant foods would have occurred during the warm season (c. May - September) and entailed land preparation, planting,

protection, and harvest of the mature crop(s) likely in the Floodplain Terrace Resource Zone. Recovery of mature seed fragments suggests storage of the surplus maize and squash for use during the cold season.

The wood species identified from the Shofner sample were initially separated according to their occurrence in Floodplain/Terrace, Highland Rim Escarpment, and Oak Barrens resource zones. There was no apparent pattern in wood selection from specific areas; however, it is interesting to note that the most abundant wood species (the oaks and hickories) correlate with the most heavily utilized plant foods, acorns and hickory nuts. The wood was probably used primarily to maintain cooking and/or heating fires, but could have functioned for dwelling construction, tools, etc. The charred wood recovered from Feature 2, however, was incorporated directly with the refuse from domestic activity. The collection of fire wood was probably pursued daily and represented an important year-round activity of the site inhabitants, particularly women and children.

Faunal Analysis

The faunal elements recovered from the Shofner site were from Feature 2. This sample provided evidence of a wide variety of food animals exploited by the Shofner site inhabitants. The well-preserved faunal remains were probably dumped in Feature 2 during two seasons of site occupation based on the presence of warm and cold season fauna. These materials provided good evidence for interpreting faunal exploitation patterns, site seasonality, and subsistence practices of the late Middle Woodland site inhabitants.

The faunal elements recovered from Feature 2 are listed in Tables 16, 17, and 18. This sample suggests exploitation of food animals from resource zones in close proximity to the site. Vertebrate and invertebrate fauna from Floodplain/Terrace and Highland Rim Escarpment resource zones are well-represented in the refuse from Feature 2. Preservation in this pit was enhanced by deposition of gastropod and pelecypod shells. These invertebrates were likely collected from nearby Thompson Creek and the Duck River, a more distant source area.

In addition to the very substantial number of invertebrate remains, numerous species of large and small fish, turtles, frogs, and a hellbender occurred in the Shofner faunal sample. These animals were either directly or indirectly obtained from an aquatic habitat associated with the Floodplain/Terrace Resource Zone of Thompson Creek and the Duck River. Land turtles, snakes, toads, birds, and small mammals were exploited in Floodplain/Terrace and nearby Highland Rim Escarpment resource zones. Exceptions would have been the forest-dwelling turkey and the single large herbivore, the deer, which could have been obtained from the Floodplain/Terrace, Highland Rim Escarpment, and the Oak Barrens resource zones.

The animal species identified from Feature 2 are difficult to segregate into a specific pattern of seasonal procurement. Perhaps the best indicators of seasonality are the abundant gastropod and pelecypod samples, the creek and riverine fish species, the large numbers of reptiles and amphibians, and the woodchuck, a winter hibernating animal. There are, however, certain animals present which could have been hunted year-round, i.e., the deer, cottontail, squirrel, raccoon, and skunk.

Table 16. Freshwater gastropoda from Feature 2, 40BD55.

Species	No. of Shells Identified in 4 1/32 samples			Total Estimated Shell
Lithasia armigera duttoniana	1,065	x 8	=	8,520
Lithasia geniculata fuliginosa/ L. salebrosa	1,269	x 8	=	10,152
Lithasia obovata sordida	744	x 8	=	5,952
Lithasia sp.	78	x 8	=	624
Pleurocera canaliculatum filum	13,278	x 8	=	106,224
Goniobasis laqueta/edgariana	6,571	x 8	=	52,568
Anculosa subglobosa	1,763	x 8	=	14,104
Viviparous georgianus	31	x 8	=	248
Total Estimated Freshwater Gastropoda Sample	24,799	x 8	=	198,392

Table 17. Pelecypoda sample identified from the Shofner site, 40BD55.

Species	Shell Fragments	MNI[1]	Percent of Total
Fusconaia barnesiana	599	334	24
Lexingtonia dolabelloides	314	176	12
Fusconaia/Lexingtonia sp.	125	69	5
Amblema plicata	4	4	*
Quadrula cylindrica	8	6	*
Cyclonaias tuberculata	1	1	*
Pleurobema oviforme	10	9	*
Elliptio dilatatus	56	29	2
Pegias fabula	43	26	2
Strophitis undulatus	2	1	*
Ptychobranchus subtentum	469	251	18
Obovaria subrotunda	1	1	*
Lemiox rimosus	51	29	2
Medionidus conradicus	249	127	10
Villosa taeniata	49	26	2
Villosa vanuxemi	22	13	1
Villosa cf. iris	7	7	*
Villosa sp.	247	147	10
Villosa sp./Epioblasma capsaeformis	223	131	9
Lampsilis ovata	8	4	*

Table 17 (Continued)

Species	Shell Fragments	MNI[1]	Percent of Total
Lampsilis fasciola	41	27	2
Epioblasma triquetra	3	3	*
Epioblasmas cf. florentina	1	1	*
Epioblasma capsaeformis	7	4	*
Epioblasma lewisi	1	1	*
Sphaeriidae	4	2	*
Total Identifiable Pelecypoda Sample	2,545	1,429	99

[1] Minimum Number of Individuals.

* = less than 1%

Table 18. Vertebrate faunal sample identified from the Shofner site (40BD55).

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals:			
Raccoon (Procyon lotor)	7	2	*
Striped Skunk (Mephitis mephitis)	2	1	*
Gray Fox (Urocyon cinereoargenteus)	1	1	*
Domestic Dog (Canis familiaris)	2	1	*
Dog/Fox (Canidae)	6	--	
Woodchuck (Marmota monax)	2	1	*
Fox Squirrel (Sciurus niger)	6	1	*
Gray/Fox Squirrel (Sciuris sp.)	28	3	*
Beaver (Castor canadensis)	2	1	*
Deer Mouse (Peromyscus sp.)	3	2	*
White-footed/Deer Mouse (Peromyscus sp.)	3	2	*
Hispid Cotton Rat (Sigmodon hispidus)	1	1	*
Southern Bog Lemming (Synaptomys cooperi)	2	1	*
Pine Vole (Microtus pinetorum)	1	1	*
Vole (Microtus sp.)	1	1	*
Meadow Jumping Mouse (Zapus hudsonuis)	1	1	*
Rodents (miscellaneous genera) (Cricetidae)	35	--	1

Table 18 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals (Continued)			
Cottontail			
(*Sylvilagus floridanus*)	63	2	1
White-tailed Deer			
(*Odocoileus virginianus*)	60	3	1
Total identifiable mammal bone	226		
Unidentifiable large mammal bone	339		5
Unidentifiable small mammal bone	5,849		91
Total Mammal Bone Sample	6,414		
Birds:			
Bobwhite			
(*Colinus virginianus*)	3	1	1
Turkey			
(*Meleagris gallopavo*)	11	2	3
Miscellaneous songbirds			
(*Passerine* sp.)	3		1
Total identifiable bird bone	17		
Unidentifiable bird bone	371		95
Total Bird Bone Sample	388		
Reptiles:			
Box Turtle			
(*Terrapene carolina*)	165	4	
Turtle			
(Kinosternidae)	10	1	
Turtle			
(Graptemys/Chrysemys)	21	2	
Turtle			
(Testudines)	155	--	
Lizard			
(Lacertilia)	1	1	
Snake			
(Colubridae)	18	1	
Snake			
(Crotalidae)	2	1	
Snake			
(Serpentes)	81	1	
Total identifiable reptile bone	453		

Table 18 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Amphibians:			
Hellbender (*Cryptobranchus alleganiensis*)	17	2	16
Eastern Spadefoot Toad (*Scaphiopus holbrooki*)	9	2	9
Toad (*Bufo* sp.)	37	4	35
Bullfrog (*Rana catesbeiana*)	1	1	1
Frog (*Rana* sp.)	13	3	13
Toad/Frog (*Bufo* sp./*Rana* sp.)	26	3	25
Total identifiable amphibian bone	103		
Unidentifiable amphibian bone	1		1
Total Amphibian Bone Sample	104		
Fish:			
Gar (*Lepisosteus* sp.)	1	1	*
Common Stoneroller (*Campostoma anomalum*)	1	1	*
Creek Chub (*Semotilus atromaculatus*)	1	1	*
Shiner (*Notropis* sp.)	1	1	*
Minnow (Cyprinidae)	5	3	*
Buffalofish (*Ictiobus* sp.)	2	1	*
Northern Hogsucker (*Hypentelium nigricans*)	3	1	*
River Redhorse (*Moxostoma carinatum*)	1	1	*
Redhorse (*Moxostoma* sp.)	8	2	*
Sucker (Catostomidae sp.)	25	2	1
Catfish (Ictaluridae)	5	2	*
Sunfish (Centrarchidae)	25	4	1

Table 18 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Fish (Continued)			
Freshwater Drum (Aplodinotus grunniens)	14		1
Total identifiable fish bone	92		
Unidentifiable fish bone	2,086		96
Total Fish Bone Sample	2,178		
TOTAL IDENTIFIABLE BONE SAMPLE	891		9
TOTAL UNIDENTIFIABLE BONE SAMPLE	8,646		91
TOTAL VERTEBRATE FAUNAL SAMPLE	9,537		

[1]Minimum Number of Individuals

* = less than 1 percent.

Nevertheless, evidence suggests that the faunal remains in Feature 2 resulted from procurement during the warm season.

The Shofner faunal sample represents primarily food animals procured to meet subsistence needs. There were, however, a number of species which were probably fortuitously included in this sample. These include various species of rodents and voles, the snake and lizard remains, and the toads. Aside from these questionable food species, the remainder of the faunal sample consisted of significant numbers of fish, small mammals, and deer.

The fish were likely supplements to the diet and were taken in quantity throughout the warm season. The small mammals possibly represented a larger portion of the diet that was obtained in close proximity to the site. This latter category of food animals probably corresponds to Faulkner, Corkran, and Parmalee's (1976:236) "slow game," which is hypothesized to have been procured by the women and children on a daily basis. The deer, which is believed to have been procured at some distance from the floodplain/terrace base camps (Cobb 1982:231), was the single most important food animal. This large herbivore was important for a variety of uses, not the least of which was the large quantity of meat supplied per animal.

The faunal remains having the largest representation in the sample, however, were probably the least important for quantity of food provided and nutritional value. The gastropods and pelecypods were collected in large numbers to supply only small amounts of food and daily nutritional needs. The freshwater shellfish have frequently been discussed as "famine" or "starvation" foods (personal communication, Dr. Charles H.

Faulkner). Nevertheless, the late Middle Woodland Shofner inhabitants collected thousands of these animals for consumption. The shell remains were either discarded non-randomly in certain areas of the site or used to refill empty storage pits such as Feature 2. The large number of shellfish remains at the Shofner site suggests these animals were more than a famine food. The shellfish likely supplied a subsistence need by supplementing other foods or adding variety to the late Middle Woodland diet at certain seasons of the year, particularly the late winter/early spring and throughout the warm season.

Site Summary

The Shofner site is located at the southeast terminus of Hooser Bend near the confluence of Thompson Creek and the Duck River. The site, which is also the current location of the Cecil Shofner residence, is on a second terrace overlooking extensive Thompson Creek and Duck River floodplains. Limited testing along the site periphery, nevertheless, provided considerable information on the late Middle Woodland occupation of a riverine-oriented site in the upper Duck River Valley. Significantly, the Shofner site was the first Owl Hollow phase occupation to be tested outside the Normandy Reservoir.

The Shofner site produced a quantity of cultural remains from a single, large, refuse-filled storage pit. The sample of cultural remains appears to be random and represent a wide range of activities pursued at this site over several seasons. The storage pit also contained materials used for two radiocarbon dates, which suggest a late Owl Hollow phase association dating about A.D. 550.

The variety of activities suggests intensive site occupation, and use of locally available resources. For example, a large portion of the lithic raw materials was derived from local streambed gravel or nearby quarry outcrops. The ceramics discarded in Feature 2 were all apparently locally manufactured, and the food resources were either cultivated or procured in the local site environs. Both male and female tasks are represented by the lithic and ceramic material remains, respectively.

The recovery of lithic debitage, cores, and a hammerstone indicate male-related core reduction and stone tool/weapon fabrication was occurring at the site. Unifacial and bifacial stone tools suggest female-related food processing tasks requiring cutting/butchering, scraping, and grinding activities. Other tool types in the lithic inventory suggest manufacturing tasks requiring piercing and drilling activity. Besides the primary lithics and tools, male activity at the site was further indicated by recovery of two projectile points/knives. These weapons are stemmed, lanceolate projectiles which appear to be diagnostic of the late Owl Hollow phase.

The large ceramic sample recovered from the Shofner site indicates domestic fabrication of predominantly plain utilitarian jars. These vessels, which likely functioned for food processing tasks, were basically sub-conoidal in shape with pronounced shoulder development and outward flaring rims. The rims are thinned, folded and thickened or modified by rim notching. The large number of vessels represented in the Feature 2 ceramic sample, a minimum number of 26, shows little

variation in vessel design, shape and/or decorative technique. No trade vessels are present in the ceramic sample.

Seriation of the Shofner ceramic sample supports a middle to late Owl Hollow phase assessment of the ceramic assemblage. The use of limestone as a tempering material (8 percent) is a generalized Middle Woodland trait, while the use of mixed tempering materials (50 percent) marks a transition between the Middle and Late Woodland periods. Chert tempering (20 percent) occurs predominantly in the Late Woodland period. The high proportion and variation of mixed tempering materials suggests a probable late Owl Hollow phase occupation of the Shofner site.

The abundant faunal and floral samples are well-represented by numerous species of plants and animals that were available seasonally and year-round in the Shofner site locality. The subsistence and life maintenance requirements suggest full involvement of both males and females in hunting and gathering activities. Based on the Feature 2 sample, subsistence procurement during the warm season was focused on the Floodplain/Terrace Resource Zone. Beginning in the early spring and throughout the summer, gastropods, pelecypods, fish, turtles, and small mammals were likely exploited in the lowland site arena. The spring and summer was also the time for planting cultigens such as maize and cucurbits and harvesting these and the herbaceous weed seeds of the lowland zone. By late summer/early fall, hunting and nut harvesting increased in importance and subsistence procurement shifted to the Highland Rim Escarpment Resource Zone. During the late fall, storage pits such as Feature 2 were filled with surplus foods for winter use. This cycle of activities could have been performed in the same locality

for a number of years depending on such factors as the availability of natural resources, the dependency on cultivated plants, and the size of the local group.

Sites such as Shofner probably functioned as optimally located lowland villages. Analysis of the recovered refuse remains, plus Feature 2, strongly suggests that there was year-round residence on the Shofner site during the middle to late Owl Hollow phase.

CHAPTER VI

THE RAUS SITE (40BD46)

Introduction

The Raus site is located in northwest Bedford County, Tennessee, at the confluence of Bennett Branch and Thompson Creek (Figure 2, page 46). The site locality is approximately 8 km south of the Duck River and the Shofner site. A reconnaissance survey by Gordon (1973) identified the Raus site on the east terrace of Thompson Creek and the north terrace of Bennett Branch. The site occupies an area approximately 122 m north-south and 61 m east-west. It is defined by concentrations of surface artifacts mixed with dark organic refuse deposits.

The Thompson Creek floodplain and terrace formations at the Raus site contrast with the contiguous dissected eastern Highland Rim. Immediately adjacent to the site on the southeast, south, and southwest is the eastern Highland Rim escarpment with elevations of 275-305 m.

Site Catchment

The Raus site is situated in the upper reaches of Thompson Creek near eastern Highland Rim escarpment. The wider lowlands in this area of Thompson Creek were created by small tributaries flowing from the escarpment and entering Thompson Creek near the Raus site. The immediate site arena, therefore, is a hinterland stream-terrace influenced by contiguous uplands (Figure 18). This location would have been advantageous for access to the escarpment as well as north and

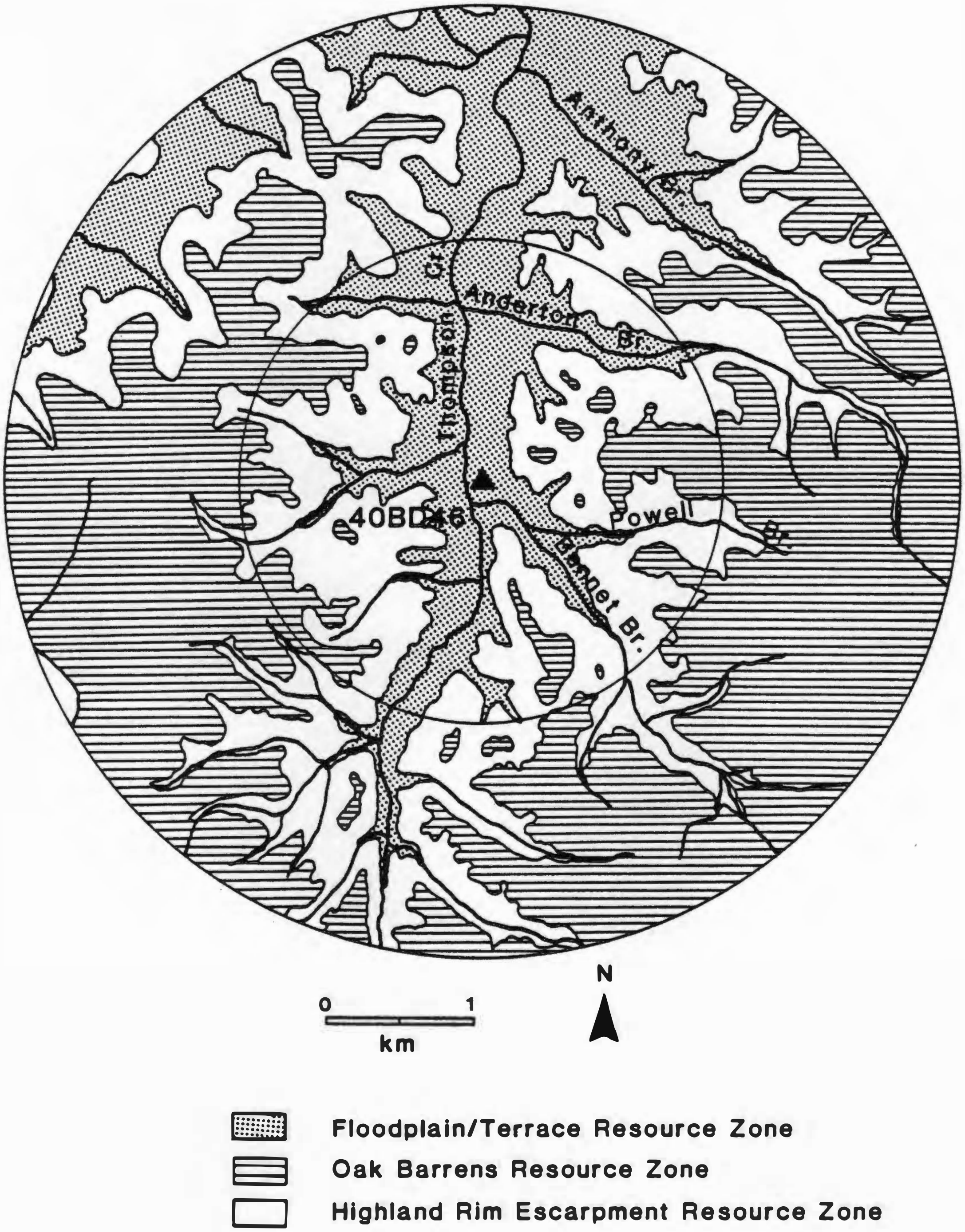

Figure 18. Topographic stratification of the Raus site arena into biogeographic resource zones.

south to the Duck and Elk river valleys, which are equidistant from the Raus site.

The projection of a 1 km radius of the Raus site (Figure 19) reveals the closely contiguous and dominant influence of the upland resource zones, which are 520 ha or 65 percent of the surface area. The floodplains and terraces of the entrenched hinterland streams represent 285 ha or 35 percent of the 1 km Raus site arena. It is perhaps more revealing to use the 2 km radius to display the Raus site arena. The floodplains/terraces, Highland Rim escarpment and Oak Barrens resource zones are all represented by surface areas of similar size and areal distribution (Figure 19).

It is difficult to categorize the Raus site occupation in terms of availability of key resources. Lithic raw materials were particularly abundant near the Raus site locality, and seasonal food resources were available for exploitation. However, there was probably a difference in the quality of resources available in hinterland site localities as opposed to those available in the major river valleys. The small streams would not have supported as large a faunal population, and the floodplains and terraces were not wide enough to have provided a large variety and dependable supply of herbaceous plant foods. Horticulture could have been practiced but this, too, would have been limited perhaps to the north end of the site arena where the Thompson Creek Valley is the widest. From an economic perspective, the availability of food resources in the Raus site locality would have been limited for a large resident population or for year-round habitation.

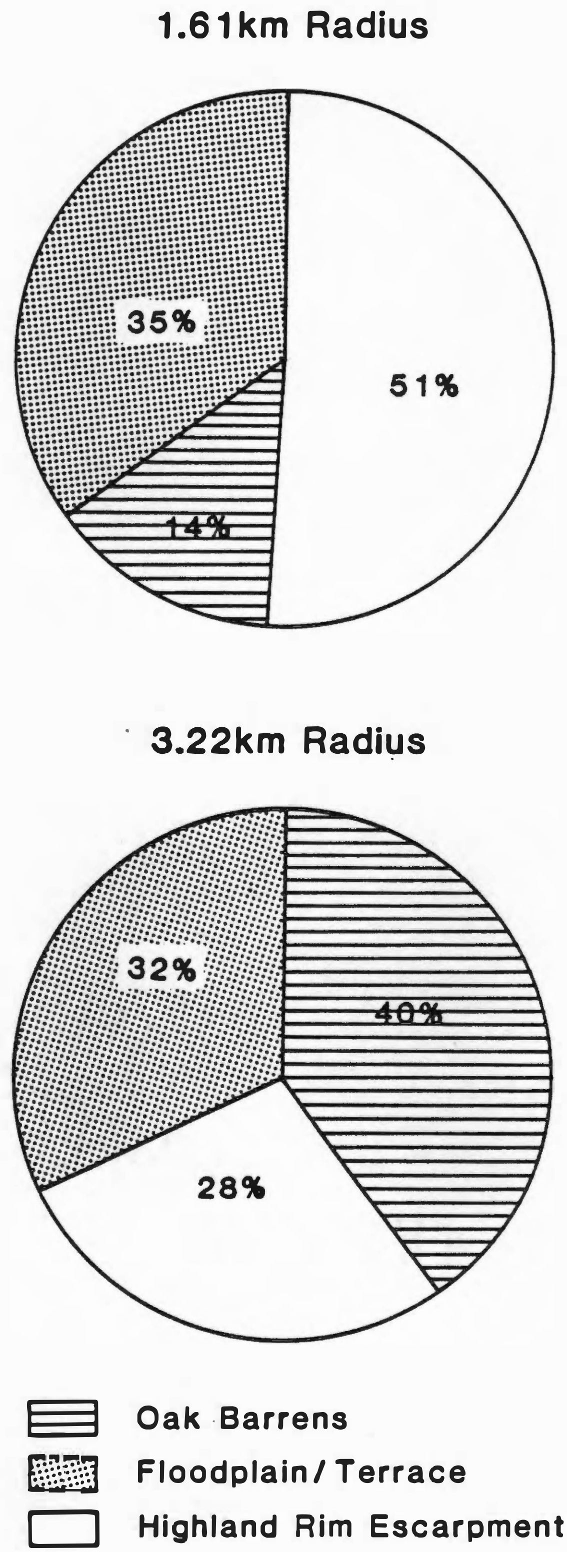

Figure 19. Biogeographic resource zones in the Raus site arena.

The primary attraction of the Raus site for aboriginal occupation may have been the abundance of seasonally available food resources from the Eastern Highland Rim Escarpment and Oak Barrens resource zones. The arboreal seed crop from these areas would likely have been prolific. Chestnut, hickory and oak were abundant species of the Highland Rim Escarpment Resource Zone, while oak occurred as the dominant species of the Barrens a short distance from the site. The annual seed crop would likely have attracted and concentrated larger numbers of deer and turkey in these resources zones from the late summer to early winter seasons. Perhaps the Raus site occupation was maintained close to the hinterland to take advantage of the upland food resources available seasonally throughout these zones.

Site Testing

Archeological field work began at the Raus site on December 10, 1975, with the placement of permanent and temporary datum points, and the establishment of a grid over two separate areas of the site (Figure 20). The north-south centerline was established along the first terrace parallel with Thompson Creek. The initial test pits on the site were located immediately north of the 0 x 0 stake of the centerline and constitute Test Area 1. Test Area II was located 38 m north of the 0 x 0 stake and 8 x 20 m west of the centerline. Previous surface collections along the first terrace by avocational archeologists suggested these were areas of intensive aboriginal activity with the possibility of buried midden deposits and/or storage pits (personal communications,

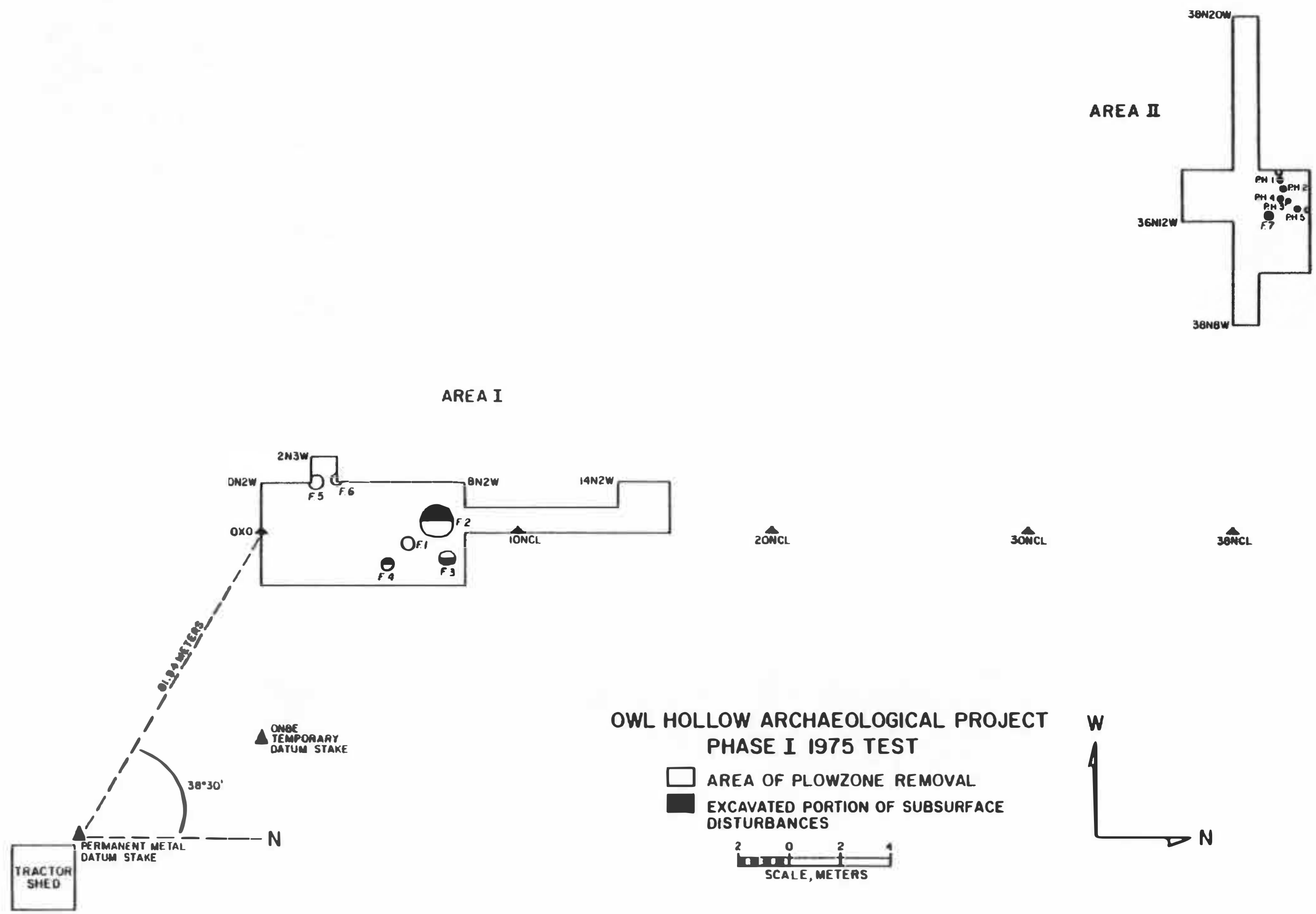

Figure 20. The Raus site (40BD46) excavation map.

Messrs. Gilley Stephens and Greg Klein). A total of 67 m^2 of disturbed plowzone was removed from the two test areas.

The approach to testing 40BD46 varied somewhat between Areas I and II. In Area I, five intuitive 2 x 2 m test units were excavated along the southeast margin of the terrace where a significant density of cultural material was present on the surface. These units were intersected by a one meter wide trench which was later expanded in areas of subsurface activity (Figure 21). Area II was initially opened with a 1 x 8 m trench which required expansion by 4 meters north-south after plowzone removal revealed a black, organic-rich refuse midden (Figure 22).

Excavation techniques employed on the Raus site closely paralleled those utilized on the Shofner site. The disturbed plowzone was hand excavated and a sample from each unit was either screened through 6.35 mm hardware cloth or shovel sorted, depending on soil conditions. Subsurface disturbances were revealed by shovel skimming and troweling the undisturbed stratum. Units were expanded for contextual interpretation of disturbances such as features and midden deposits.

Features in Area I were either partially excavated or triangulated without excavation based on potential significance and context of the feature. One feature and five postholes in Area II were completely excavated primarily because of their size and probable structural associations. A localized refuse midden in Area II was sampled in stratigraphic levels. Soil flotation samples were collected from each midden level, and the remainder of the fill was dry screened. The flotation sample was generally a standardized 9.5 l. All soil samples

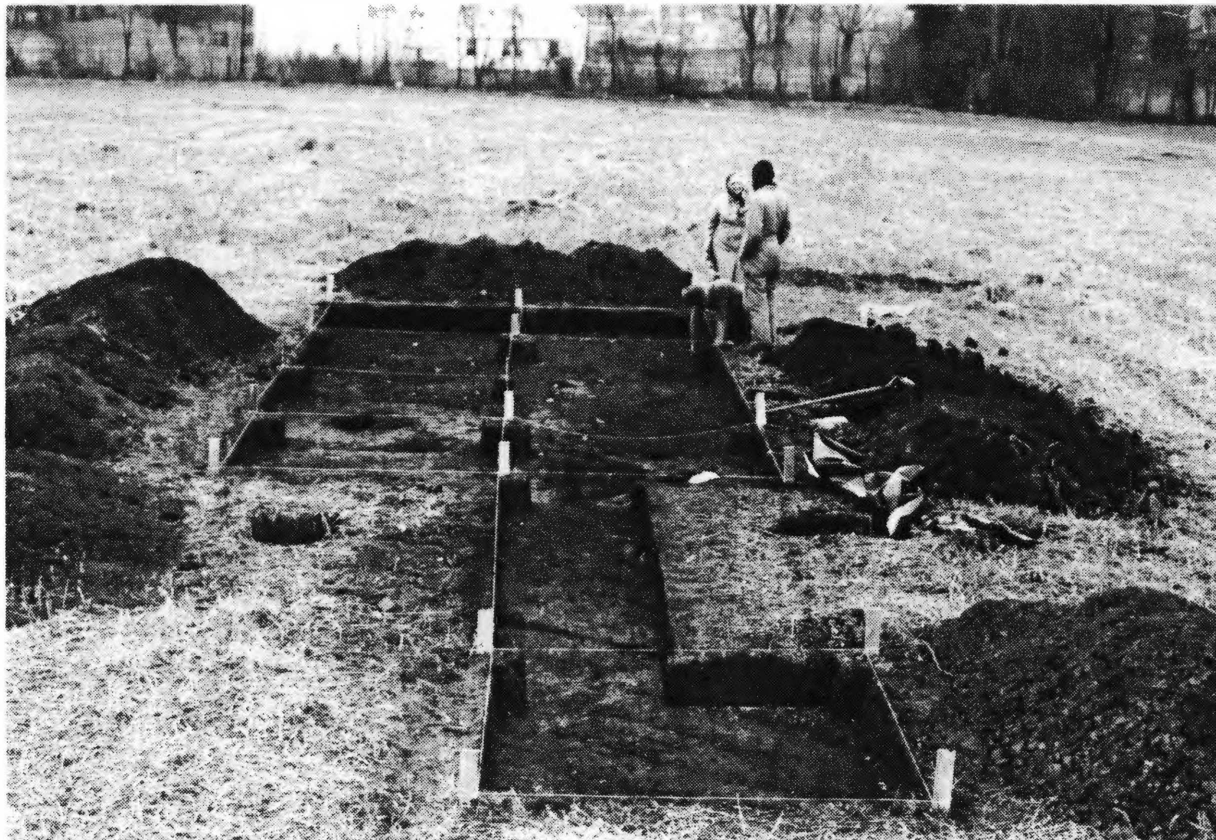

Figure 21. The Raus site, Excavation Area I.

Figure 22. The Raus site midden profile in Excavation Area II.

were obtained as in situ deposits and submitted to indoor processing with the Owl Hollow Project Laboratory Flotation Device (Cobb and Faulkner 1978a).

Selected samples of cultural and ecofactual materials were collected and retained separately during the excavation process. The most significant of these included radiocarbon samples selected from undisturbed midden context, as well as the collection of fragile botanical and faunal remains. Following the excavation of cultural features, all pertinent information was recorded on standardized field forms for separate units, features and postholes. Photography was used to record cultural features, the midden strata and the general details of the excavation process. After final testing, a site map of Areas I and II, the grid units, and subsurface disturbances was drawn using coordinates off the permanently placed primary datum point. The test areas were back filled with power equipment provided by Mr. Bob Parker of the Raus Community.

Radiocarbon Date

One radiocarbon date for 40BD46 was obtained from the University of Georgia Geochronology Laboratory. The sample was selected from Level IV of the stratified refuse midden in Area II. This sample was collected from deposits of organic-rich refuse in grid unit 38N x 14W. The sample was composed of large fragments of wood charcoal and charred hickory nut shell. The resulting date obtained for 40BD46 is:

UGa 1340: 1335 ± 60 B.P. (A.D. 615); one standard deviation range is A.D. 555-675.

The Raus date represents a single assessment that is late Middle Woodland, but is consistent within one standard deviation of the Shofner site dates. This date suggests a late Owl Hollow phase occupation of the Raus site. The diagnostic cultural materials recovered in Areas I and II support the radiocarbon assessment within a single standard deviation.

Features

Seven subsurface disturbances from 40BD46 were identified as features (Table 19). One of these features, an ash-filled pit, was completely excavated, one half the fill was removed from three features, two of which were cremations and one an earth oven, and three features were triangulated but not excavated (Figure 20). At least one of the unexcavated features (Feature 1) was a small pit containing a redeposited cremation. Adverse weather prevented more extensive sampling of disturbances such as Features 5 and 6 in Area I.

One of the more significant features was a shallow, basin-shaped earth oven designated Feature 2. It was located in Area I adjacent to Features 1, 3, and 4, and numerous postholes which were not excavated or recorded. Only the west half of Feature 2 was removed. The feature fill was a compacted soil that was black in coloration and greasy in texture. It contained a quantity of burned limestone rock, fire-cracked Fort Payne chert, and lithic debitage and limestone-tempered plain ceramics. Wood charcoal was the predominant organic material identified in the feature. The clay-lined basal portion and sides of the pit were hardened and discolored by prolonged burning. The feature fill was

Table 19. Feature and posthole data from 40BD46.

Number	Type	Description	Dimensions (cm)	Depth (cm)
		PART I		
1	cremation pit	oval, basin-shaped pit	49 x 56	15
2	earth oven	circular, basin-shaped pit	148 x 120	18
3	cremation pit	oval, basin-shaped pit	67 x 60	17
4	cremation pit	oval, basin-shaped pit	47 x 52	14
5	shallow pit	circular, basin-shaped pit	102 x 98	22
6	shallow pit	circular, basin-shaped pit	77 x 82	19
7	shallow pit	circular, bowl-shaped pit	21 x 23	23
		PART II		
1	posthole	circular, shallow pit	12 x 12	16
2	posthole	circular, shallow pit	13 x 15	17
3	posthole	circular, shallow pit	15 x 17	18
4	posthole	circular, shallow pit	15 x 16	18
5	posthole	circular, shallow pit	14 x 13	17

probably of primary deposition, and the depth of the feature much greater prior to historic disturbance.

Feature 2 was near three pits containing redeposited cremations, one of which had been plow disturbed (Feature 1). Based on the similarity of feature fill and the close association of the cremations with Feature 2, it is possible Feature 2 had a special mortuary function and was used as a crematory basin.

Features 3 and 4, both cremations, were sampled by removal of one half of the fill from each pit. This partial excavation recovered skeletal elements sufficient for determinations of age and sex of the remains from Feature 4. The teeth, mastoid process and coronal suture of the right parietal suggested an adult female with a relative age of c. 40 years. The Feature 3 cremation was determined to be an adult (personal communication, Mr. Tracy Brown).

Feature 7 was a small, ash-filled pit in Area II, excavation unit 38N x 14W. It was located in the undisturbed subsoil stratum beneath a 49 cm refuse midden. Contextually, this feature was adjacent to postholes 1-5; however, it was devoid of diagnostic cultural materials. The function is unknown.

Postholes

Seven subsurface disturbances from 40BD46 were identified as postholes (Table 19). The postholes were located in Area II beneath a refuse midden. Five of the postholes were excavated and recorded. These were all similar in size (mean diameter 14 cm and mean depth 17 cm), and occurred in a semi-circular alignment that suggested an

exterior wall of a structure. A probable cold season earth oven house is postulated. This argument is supported by the arrangement of the posts and the occurrence of a thick, organic-rich refuse midden laden with charcoal, burned limestone rock, animal bone, and ceramics.

Refuse Midden

A 49 cm organic-enriched refuse midden was located in Area II (Figure 22). The stratified deposits were divided into four levels originating beneath the plowzone:

Level	Thickness	Munsell Color
I	12 cm	7.5 YR 5/4 brown
II	6 cm	7.5 YR 3/2 dark brown
III	9 cm	10 YR 2/1 black
IV	22 cm	10 YR 4/2 dark grayish-brown

Level I was an intermittent deposit encountered at the base of the plowzone that had been disturbed by plowing. Level II was a compacted deposit that was rich in organic and cultural materials. Level III was a compacted deposit generally devoid of artifactual materials, but contained fragments of burned limestone and chunks of wood charcoal. Level IV was a loosely compacted deposit that contained prolific artifactual and ecofactual remains. Dispersed charcoal from this level was collected for the radiocarbon date obtained for the Raus site. Beneath Level IV, a yellowish, gravel-filled subsoil was encountered that contained intrusive cultural features and postholes.

Based on soil auger tests, the midden in Area II along the terrace appeared to be somewhat localized and circular. The diameter of the midden along the east-west axis was approximately 10 meters; however, north-south along the terrace, the extent of the midden was somewhat greater but not accurately determined. Plowing and erosion has dispersed the midden in the plowzone probably beyond the actual extent of the original deposit.

The formation of the midden was apparently in conjunction with a cold season dwelling and probably resulted from repeated dumping of refuse from earth oven(s). The location of the refuse along the possible perimeter of the house (postholes 1-5), and its greater depth in this area presents several possibilities for interpretation. It is quite possible the oven refuse functioned as a sod covering not only to stabilize the house in an area of structural weakness but also as primary insulation for the winter dwelling. Following destruction or collapse of the house, the oven refuse (roof insulation and other materials dumped outside the dwelling) formed thick "midden" deposits in the area of the former structure. This construction pattern is hypothesized for the Raus site and is supported by independent data derived from Structure I, site 40CF111, in the Normandy Reservoir (Cobb 1978).

Lithic Analysis

The lithic materials from the Raus site were recovered from Areas I and II in plowzone, feature, posthole, and refuse midden context. The lithics from disturbed context were used in conjunction with Shofner

site lithics to establish descriptive raw material categories for the Thompson Creek locality (Appendix A). There were 18 distinctive types of chert, one generalized category of chert, and limestone, shale, and steatite identified in the Raus lithics sample. The raw materials are available locally in the Thompson Creek locality or occur in adjacent localities as near-exotic materials. One lithic type of distant-exotic origin was recovered at the Raus site. The raw material types identified from 40BD46 are discussed below.

Local Lithic Material

Local lithic utilization appears essentially the same as that recorded at the Shofner site. Of the 19 locally available lithic materials, 12 were present in the Shofner sample and previously described in Chapter V. These are:

Type	Raw Material	Sample Size (N)
A	Blue, Gray and Tan chert	320
B	Blue, Gray and Tan chert, variety tan	1
C	Blue, Gray and Tan chert, variety blue-gray	424
F	Gray nodular chert	53
H	Matt Brown chert	247
I	Blue-Black fossiliferous chert	31
N	Gray-banded chert	350
Q	White, coarse-textured fossiliferous chert	10
R	Tan coarse-grained chert	7
S	Reddish-Tan chert	2
X	non-specific chert (generalized category)	78
	Limestone	5

The seven local lithic resources not recovered at the Shofner site are described below:

Type J: Blue-Gray agatized chert (N = 1)

This material is a light gray-blue, non-lustrous chert with blue agatized inclusions. It is basically coarse-grained, somewhat fossiliferous and occurs in tabular form. The source of this chert is currently unknown; however, it is probably of local derivation.

Type K: Greenish-Gray chert (N = 295)

This material is predominantly a light-to-dark gray chert with light gray inclusions and dark gray bedding. It is a fine-grained, vitreous material that occurs in tabular formations with thin cortex development. The origin of this material is probably in the Mississippian Fort Payne formation.

Type L: Greenish-Gray chert, highly mottled (N = 339)

This material is light gray in coloration with a highly speckled appearance from numerous light blue to dark gray inclusions. It is fine-grained, predominantly tabular, and has a thin cortex development. This chert is probably a variety of greenish-gray chert defined above and co-occurs in the Fort Payne Formation. A local source is from the gravel bars of the nearby Duck River and Thompson Creek.

Type M: Dark Blue-Gray chert (N = 2)

This material ranges from dark gray to blue-gray in coloration with some light colored inclusions and light banding. This fine-grained chert appears to occur in tabular form and has a thick cortex

development that is white to gray. The source of this material is unknown; however, it is probably derived from the Fort Payne Formation (personal communication, Dr. Major C. R. McCollough).

Type O: Blue-Gray mottled chert (N = 1)

This material is light blue with numerous gray-green inclusions that appear randomly and as discontinuous banding. It is basically fine-grained; however, it has a coarse-grained cortex that is tan in coloration. The origin of this lithic material is probably the Fort Payne Formation. Local sources are unknown other than possible stream gravel bars.

Type P: Tan chert (N = 7)

This material is a light gray-to-tan chert which is medium to coarse grained. It has a thick cortex and is generally heavily weathered. A pink variety of this material apparently has resulted from thermal alteration (cf. Hood and McCollough 1976:197-206). The origin is in the Fort Payne Formation; it occurs locally as terrace and stream cobbles.

Shale (N = 21)

This material, called Chattanooga shale, is thinly laminated, carbonaceous grayish-black shale available throughout the upper Duck Valley (Penny and McCollough 1976:149). It occurs beneath Fort Payne limestone from Lower Mississippian/Upper Devonian deposits which average 5 to 9 m in thickness. This material outcrops locally from weathered exposures on the hills flanking the Duck Valley and occurs as bedrock in

the headwaters of many tributary streams such as Thompson Creek. In the Raus site locality, it was probably available from stream gravel bars.

Near-Exotic Lithic Material

Two near-exotic cherts recovered at the Shofner site were also present at the Raus site. These were:

Type	Raw Material	Sample Size (n)
D	Blue, Green nodular chert	125
G	Black-Brown nodular chert	249

One additional near-exotic chert and one distant-exotic lithic material were utilized by the Raus inhabitants. These two types are described below.

Type E: Blue-Green nodular chert, variety reddish brown (N = 122)

This material is primarily dark blue to gray-green in coloration with light reddish-brown sub-cortex banding and/or inclusions. It is a fine-grained and vitreous chert occurring in nodular form with a medium cortex. The origin of this material is in the St. Louis limestone beneath the flat Highland Rim near the Cumberland Plateau escarpment (Faulkner and McCollough 1973:56-57). Penny and McCollough (1976:179-180) discuss two source areas for blue-green nodular in the Hillsboro, Tennessee, locality. An approximate distance from source areas to the Raus site is c. 58 km by way of Duck River and Thompson Creek.

Distant-Exotic Lithic Materials

Steatite (N = 1)

This lithic material is a dark gray steatite or soapstone with a large number of micaceous inclusions. Faulkner and McCollough (1973:59) relate that the chemical composition and source of the steatite found in the upper Duck Valley are presently unknown. They suggest that the likely source is northern Georgia or Alabama.

Chipped and Ground Lithic Materials

The lithic sample from feature, posthole, and midden context at 40BD46 totalled 2,692 artifacts (Table 20). The lithics were recovered primarily from the refuse midden in Area II. The lithics sample consists of primary lithics, unifacial and bifacial tools, projectile points/knives, and ground stone implements.

The percentages in Tables 20 and 21 indicate that the majority of lithics from 40BD46 is chert debitage. A small quantity of tools and diagnostic projectile points/knives, however, is present. Highly fragmented Chattanooga shale, which probably resulted from the sharpening of tools, was counted separately and tabulated in the artifact totals. Non-artifactual lithic materials such as fire-cracked chert and burned limestone rock were weighed to the nearest gram. Miscellaneous debris removed from the water flotation and water screening processes was weighed to the nearest gram and presented as a sub-category of Table 20. The lithic sample from 40BD46 was submitted to a functional analysis and classification resulting in the identification of 34 tool types (Table 21).

Table 20. Lithic assemblage from features, postholes, and midden, 40BD46.

Tool Type	Raw Materials** A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Limestone	Shale	Steatite	Total	Percent
2a	1										3													4	*
2b					1																			1	*
2c																								1	*
2d			1					1	1		1			1										5	*
3	30		48	16	15	4	20	15	1		47	36		43		1	1			13				290	11
4	57		75	18	13	4	37	17	3	1	51	50		63			8	3		18				418	16
5	96		119	32	65	21	85	123	8		99	109	2	133	1	1		4		18				916	34
6							1																	1	*
7	117		144	48	27	17	94	74	14		68	127		93		5	1		2	17				848	32
9	1		1			1								1						1				5	*
10	2										1									1				4	*
11			1	1		1					2													5	*
13			1					2												1				4	*
15	10		14	4		1	6	8	3		9	8		8						4				75	3
16	1		2			1	1		1		1	1												8	*
17			1								3	2												6	*
18			1																					1	*
20	1		2									4		2						2				11	*
26																				1				1	8
27	1						1				1	1		1										5	*
28	1		1				1	1			1													5	*
29			1																					1	*
30		1				1																		2	*
31	1		1									1												4	*
34	1		4	1							2			2										10	*
35			2					2																4	*
36			2	2	1	3	1	3			3			1						1				17	1
37			3	3			1	1			3			2										13	1
46a Stone Vessel Rim																							1	1	*
46b Worked/Unworked fragments																					5	21		26	1
Total	320	1	424	125	122	54	249	247	31	1	295	339	2	350	1	7	10	7	2	78	5	21	1	2,692	
Percent	12	*	16	5	5	2	9	9	1	*	11	13	*	13	*	*	*	*	*	3		1	*		100

* = less than 1 percent

** The following categories were also inclusive in the features, postholes and midden:

(a)	Chert/Limestone rock (includes rough chert and fire-cracked rock)	34,473.6 g
(b)	Burned limestone rock	275.0 g
(c)	Miscellaneous debris (the remains following flotation and sorting)	10,236.8 g

Table 21. Distribution of lithics in features, postholes, and midden, 40BD46.

	Lithic Tool Types	F-2	F-3	F-4	F-7	Ph-1	Ph-4	35N14W Level I	35N14W Level II	35N14W Level III	38N8W Level I	38N8W Level II	38N12W Level I	38N12W Level II	38N12W Level III	38N14W Level I	38N14W Level II	38N14W Level III	38N14W Level IV	Total	Percent
2a	Subconical core							1					1					2		4	*
2b	Flat core																1			1	*
2c	Discoidal core							1												1	*
2d	Amorphous core							1	1							2			1	5	*
3	Decortication flake				1			26	14	21	22	12	55	18	3	65	27	6	20	290	11
4	Flat flake			1	1	1		56	47	34	32	2	66	24	3	52	41	25	33	418	16
5	Bifacial thinning flake		2	1	6	2	1	71	46	43	28		139	108	5	61	291	55	57	916	34
6	Bipolar flakes						1													1	*
7	Unident. flake fragments		1	6	8	3	2	65	42	48	25	6	131	112	7	77	189	52	74	848	32
9	Endscraper												1			3			1	5	*
10	Sidescraper							1					1			1			1	4	*
11	Spokeshave							1								2	1		1	5	*
13	Perforator							1	1				1				1			4	*
15	Utilized flake: unifacial							5	15	7	3	2	9	4		9	4	8	9	75	3
16	Blade-like flake: unifacial					1							5		1				1	8	*
17	Thick biface knife							2	1			1						2		6	*
18	Thin biface knife															1				1	*
20	Core tool: scraper										7		2			2				11	*
26	Notched tabular chunk								1											1	*
27	PP/K: narrow thick lanceolate							1	3							1				5	*
28	PP/K: narrow thick lanceolate stemmed							1	1							1	1		1	5	*
29	PP/K: narrow thick lanceolate contracted stemmed																	1		1	*
30	PP/K: narrow thick lanceolate shallow side-notched												1						1	2	*
31	PP/K: lanceolate expanded stemmed										1		1					1	1	4	*
34a	Medium-large triangular straight elong. blade	1						2			1							1		5	*
34b	Medium-large triangular recurvate elong. blade										1		1							2	*
34c	Wide expanded stemmed, weak shouldered																1			1	*
34d	Medium straight-expanded, barbed, wide blade							1												1	*
34e	Medium-large, straight stemmed, wide, asymmetrical-recurvate thick blade												1							1	*
35	Unident. PP/K: basal frags.								1				1			2				4	*
36	Unident. PP/K: medial frags.							4	2				2			4	2	1	2	17	1
37	Unident. PP/K: distal frags.		1					2	1	1					1	2	3		2	13	1
46a	Stone vessel rim																		1	1	*
46b	Worked/unworked frags.	1						2	3	1	2		9	2		1	2	1	2	26	1
	Total	2	4	8	16	7	4	244	179	155	122	23	427	268	20	286	564	155	208	2,692	
	Percent	*	*	*	1	*	*	9	7	6	5	1	16	10	1	11	21	6	7		100

* = less than 1 percent

Primary Lithics (N = 2,484)

The primary lithics are represented by nine categories of cores and/or flakes; six of these artifact types identified from the Raus site were discussed in the previous chapter and are descriptively identical. The previously identified tool types and sample sizes from Raus are:

	Tool Type	Sample Size (n)
2a	Subconical core	4
2d	Amorphous core	5
3	Decortication flake	290
4	Flat flake	418
5	Bifacial thinning flake	916
7	Unidentifiable flake fragments	848

Three primary lithic types not previously discussed were identified in the Raus lithic sample. These are described below. (Number preceding categories indicates Tool Type.)

2b Flat core (n = 1)

This core has an angle between the striking platform and flake removal surface that is less than 45°. Faulkner and McCollough (1973:80) suggest the flat core resulted from random or less systematic core reduction.

2c Discoidal core (n = 1)

This core is circular and results from flake removals that converge to the center on one or both sides. Faulkner and McCollough (1973:80)

associate the discoidal cores with systematic core reduction and flake/blank removal.

6 Bipolar flake (n = 1)

These flakes result from a specialized technique of hard hammer and anvil reduction of small chert nodules and/or continued reduction of small chert cores. The flakes frequently have dual proximal-distal shatter or, infrequently, opposing striking platforms.

Unifacial Tools (N = 101)

Six types of unifacial tools were defined in the Raus site lithics sample. Three of these types were described in Chapter V. The previously described same tool types and the totals for the Raus site are:

	Tool Type	Sample Size (n)
9	End scraper	5
10	Side scraper	4
15	Utilized flake: unifacial	75

Three additional types of unifacial implements from the Raus site are discussed below.

11 Spokeshave (n = 5)

These are flakes with broad, semi-circular notches along one or both lateral edges. The interior of the notches forms the primary working area which is heavily abraded.

13 Perforator (n = 4)

These flake tools are modified by alternate marginal retouch to form pointed projections. The projections are abraded distally and bilaterally.

16 Blade-like flake: unifacial (n = 8)

These implements are specialized flake tools which were detached from prepared cores (possibly subconical) and exhibit some use modification. The blade-like flakes are relatively short and thin with medial ridge(s) and parallel lateral working edges. Use modification occurs along one or both bilateral edges.

Bifacial Tools (N = 19)

Four types of bifacial tools were defined in the Raus site lithics sample. Two of the tool types were described in Chapter V. The previously described tools and the totals for the Raus site are:

	Tool Type	Sample Size (n)
17	Thick biface knife	6
18	Thin biface knife	1

The bifacial tools from the Raus site are discussed below.

20 Core tool: scraper (n = 11)

These implements display random flaking and steep marginal retouch along one or more edge. There is heavy abrasion on the working edge(s) from intensive utilization.

26 Notched tabular chunk (n = 1)

This implement displays a single area of intensive use modification. The concave working edge, formed on an otherwise unmodified chunk of coarse-grained chert, is heavily abraded. It probably functioned as a heavy duty scraping tool.

Projectile Points/Knives (N = 61)

Nine types representing complete and fragmented projectile points/ knives were defined in the Raus site lithics sample. Three of the types were present in the Shofner sample and described in Chapter V. The previously described tool types and the totals for the Raus site are:

	Tool Type	Sample Size (n)
28	Narrow thick lanceolate stemmed	5
36	Unidentifiable projectile points/knives, medial fragments	17
37	Unidentifiable projectile points/knives, distal fragments	13

The projectile points/knives identified at the Raus site are described below.

27 Narrow thick lanceolate (n = 5)

These are elongated, bi-pointed projectile points with straight to excurvate blade edges. The proximal end is rounded or pointed and may have an unfinished basal edge that results from intentional removal of cortex. Shoulder development is weak and defined by an expansion of the blade. The blades are generally well formed with secondary chipping along the edge. These projectiles conform to the type Flint River Spike

(DeJarnette, Kurjack and Cambron 1962). This projectile type occurs in Woodland context in the Southeast and is a cultural indicator of the late Middle Woodland Owl Hollow phase in south-central Tennessee (cf. Faulkner, ed. 1968:244; Faulkner and McCollough 1974:326-329).

29 Narrow thick lanceolate contracted stemmed (n = 1)

These are elongated, biconvex, stemmed projectile points with excurvate blade edges. The rounded proximal ends either have cortex or suggest intentional removal. The stems are contracting from a developed shoulder area; the shoulders often have barbs. These projectile points conform to the type New Market Spike (Cambron and Hulse 1964:35). This type was identified in Middle Woodland context in the Tennessee River Valley of northern Alabama. In south central Tennessee, this type co-occurs with a similar type, Bradley Spike (Kneberg 1956), on late Middle Woodland Owl Hollow phase sites. This type possibly associates predominantly with the late Owl Hollow phase.

30 Narrow thick lanceolate shallow side-notched (n = 2) (Figure 23, b)

These are narrow, elongated projectile points with straight to slightly excurvate blade edges. The blade is crude and thick and terminates in an unfinished base; the hafting area has broad, shallow side notches that terminate in an expanded base. This projectile point does not conform to a previously identified type; however, Faulkner and McCollough (1973:100) defined a category of Narrow Thick Lanceolate Side Notched and a Lanceolate Expanded Stemmed cluster in the upper Duck

Figure 23. The Raus site: Projectile points/knives. Narrow thick lanceolate stemmed, a, c-d, g-h; Narrow thick lanceolate shallow side notched, b; Lanceolate expanded stemmed, e-f.

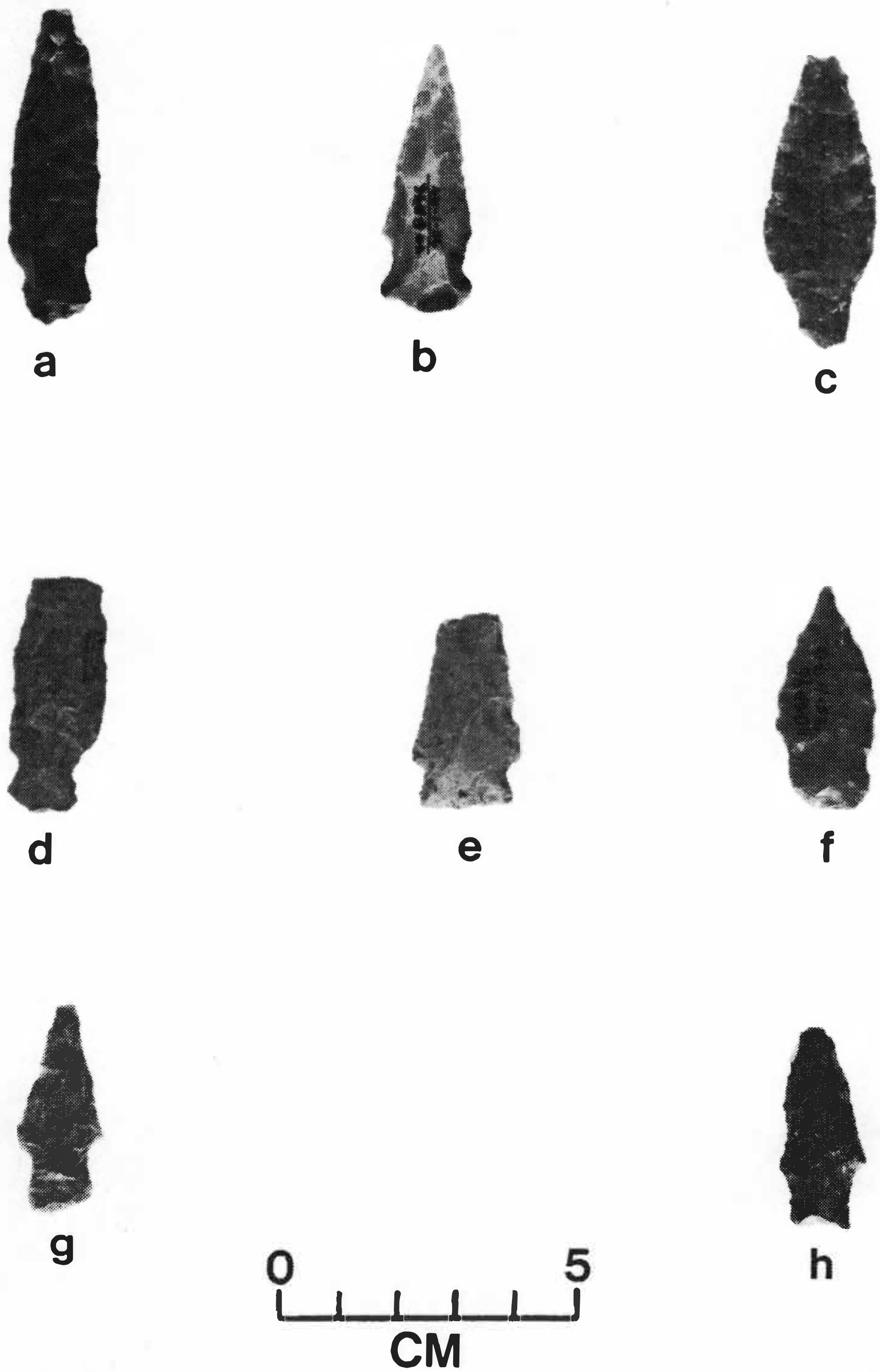

Figure 23

River Valley that appears to be associated with the Middle to Late Woodland occupation of that locality.

31 Lanceolate expanded stemmed (n = 4) (Figure 23, e-f)

These are elongated expanding stemmed projectile points with straight to excurvate blade edges. The blades are somewhat thick and asymmetrical and crudely formed. Shoulder formation is reduced and rounded. Basal stems are broad and expanding while the proximal end is straight to slightly concave. Cortex often appears at the proximal base. These projectiles are similar to the Bakers Creek type which DeJarnette, Kurjack and Cambron (1962) associate with the Copena complex of northern Alabama. Faulkner and McCollough (1973:100) suggest a Middle-Late Woodland context in the upper Duck Valley.

34a Medium-large triangular, straight elongate blade (n = 5)

These projectile points/knives correspond to Type 55 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:96). These triangular projectiles are associated with the early Middle Woodland McFarland phase.

34b Medium-large triangular, recurvate elongate blade (n = 2)

These projectile points/knives correspond to Type 56 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:96-97). These recurvate triangular projectiles are associated with the early Middle Woodland McFarland phase.

34c <u>Wide expanded stemmed, weak shouldered</u> (n = 1)

This projectile point/knife corresponds to Type 77 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:107-108). This broad, stemmed point is probably associated with the Middle Woodland period in the upper Duck River Valley.

34d <u>Medium straight-expanded, barbed, wide blade</u> (n = 1)

This projectile point/knife corresponds to Type 81 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:109-110). The type is associated with either the Terminal Archaic or Early Woodland periods in the upper Duck River Valley.

34e <u>Medium-large straight stemmed, wide, asymmetrical-recurvate thick blade</u> (n = 1)

This projectile point/knife corresponds to Type 106 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:123-124). This type probably functioned as a crude, asymmetrical knife. Cultural affiliation is probably Late Archaic.

35 <u>Unidentifiable projectile points/knives, basal fragments</u> (n = 4)

These are bifacially flaked proximal ends of projectile points that have been modified by breakage and fire spalling. These projectiles are not identified with any recognizable type.

Ground Stone Tools (N = 27)

Two types of ground stone materials are identified in the Raus site lithic sample. These are discussed below.

46a Steatite vessel rim (n = 1)

This is a fragment of a steatite vessel that was probably imported into the upper Duck River Valley during the Terminal Archaic period. Source area(s) are unknown but possibly occurred in northern Alabama or Georgia. Steatite functioned for the manufacture of containers and ornaments during the Late Archaic and Early Woodland periods. This material, however, is foreign to the cultural assemblage of the late Middle Woodland and must be considered a fortuitous inclusion in the artifactual assemblage from the Raus site.

46b Worked/Unworked shale fragments (n = 25)

The fragmented Chattanooga black shale probably resulted either from the manufacture of shale tools at the Raus site, or the breakage and disintegration of these tools. Shale was utilized to manufacture crude digging implements and ceremonial objects such as rectangular two-hole gorgets and amulets (cf. McCollough and Faulkner 1976 and Cobb 1978).

Lithics Summary

The lithics sample recovered from the Raus site came primarily from the Area II refuse midden. Raw material categories essentially paralleled those recovered at the Shofner site with high percentages of locally available Fort Payne blue, gray and tan tabular cherts (28

percent) and the gray banded chert (13 percent). The near-exotic materials, however, were less represented than anticipated. Since the site is in the headwaters of a stream and close to the flat Highland Rim, there should have been a higher percentage of near-exotic types in the chert sample. The distant-exotic category was represented by a single type, steatite, which is probably incidentally included in the Raus lithics and is extraneous to the late Middle Woodland occupation of the Raus site.

The primary lithics category represents the largest sample of chert recovered from the Raus site. This material resulted from core reduction and lithic workshop activities and was incorporated into the general site refuse primarily as debitage. The ratio of debitage to finished and broken tools and projectile points/knives is 14:1. The manufactured implements were scraping, cutting, and piercing tools that functioned in life maintenance and fabrication activities. These implements were likely utilized and discarded directly at the site, and were concentrated in the refuse midden adjacent to the activity and habitation areas.

The projectile points/knives were well represented in the Raus lithics sample with the majority being of late Middle Woodland origin. There were, however, several early Middle Woodland triangular and late Archaic stemmed types which were either intrusive or represent Owl Hollow phase knife forms (particularly, the triangular types). Of the late Middle Woodland types recovered, there were a variety of forms manufactured from many different types of raw materials. The considerable variety in the projectile types possibly indicates the

midden from which they were recovered accumulated over a period of time. There is a strong probability that the late Middle Woodland Owl Hollow phase projectile points/knives had greater variability early in the phase and became more lanceolate and eventually bipointed spikes late in the phase. The occurrence of projectile types 27 and 28, the narrow, thick lanceolate types, clustering in the upper levels of the midden supports the radiocarbon date for a late Owl Hollow phase occupation of the Raus site.

Ceramic Analysis

The ceramic sample recovered from the Raus site totaled 840 sherds (Table 22). This sample was recovered from feature, posthole, and refuse midden context; however, a single limestone/chert-tempered check stamped sherd from surface provenience is illustrated in Figure 24, d. In the discussion below, the ceramics are grouped according to the predominant tempering material(s) into ware categories. The ceramic types associated with the ware categories are distinguished on the basis of distinctive surface treatment. The ware categories from the Raus site are the same as for the Shofner site. These are identified by the primary tempering materials of limestone, grit and chert along with several mixed-temper categories such as limestone/chert, limestone/chert/sand and chert/sand. These categories and associated types are further described below.

Table 22. Distribution of ceramics in features, postholes, and midden units, 40BD46.

Ceramic Ware and Type	F-2	F-3	F-4	F-7	35N14W Level			38N8W Level		38N12W Level			38N14W Level				Total	Percent
					I	II	III	I	II	I	II	III	I	II	III	IV		
Limestone-tempered																		
Residual					5	2	1	2		10			16		3	2	41	5
Plain				2	20	9	1	10	4	44	5		33	2	6	11	147	18
Cordmarked						1				1			1				3	*
Complicated stamped															1		1	*
Limestone/Chert-tempered																		
Residual					8	7	1	4		3			6		6	2	37	4
Plain					31	35	6	12	8	67	3		33		31	8	233	29
Simple stamped										1							1	*
Roughened											1						1	8
Complicated stamped										1							1	*
Limestone/Chert/Sand-tempered																		
Residual					1					7	1		2		1		12	1
Plain					18	5	1	4	1	32	1		35		10		107	13
Grit-tempered																		
Residual										1			1		1		3	*
Plain										8	3	1			6		18	3
Chert-tempered																		
Residual					4			3	1	1						1	10	1
Plain					15	16	3	7	4	31	3		21		6	40	146	17
Roughened					1												1	*
Chert/Grit-tempered																		
Residual					4	1				5							10	1
Plain	1	1	1		12	11	1			29	4			2	3		65	8
Complicated stamped						1											1	*
Total	1	1	1	2	119	89	14	42	17	241	20	1	149	4	74	64	840	
Percent	*	*	*	*	14	11	2	5	2	29	2	*	18	*	9	8		100

* = less than 1 percent

Figure 24. The Raus site: Ceramics. Chert-tempered plain rim sherd, a; Limestone/Chert-tempered plain notched rim sherd, b; Limestone/Chert-tempered plain rim sherd, c; Limestone/Chert-tempered check stamped, d (surface sherd); Limestone-tempered cord marked, e; Limestone-tempered plain, f; Chert/Grit-tempered complicated stamped, g; Limestone/Chert-tempered complicated stamped, h.

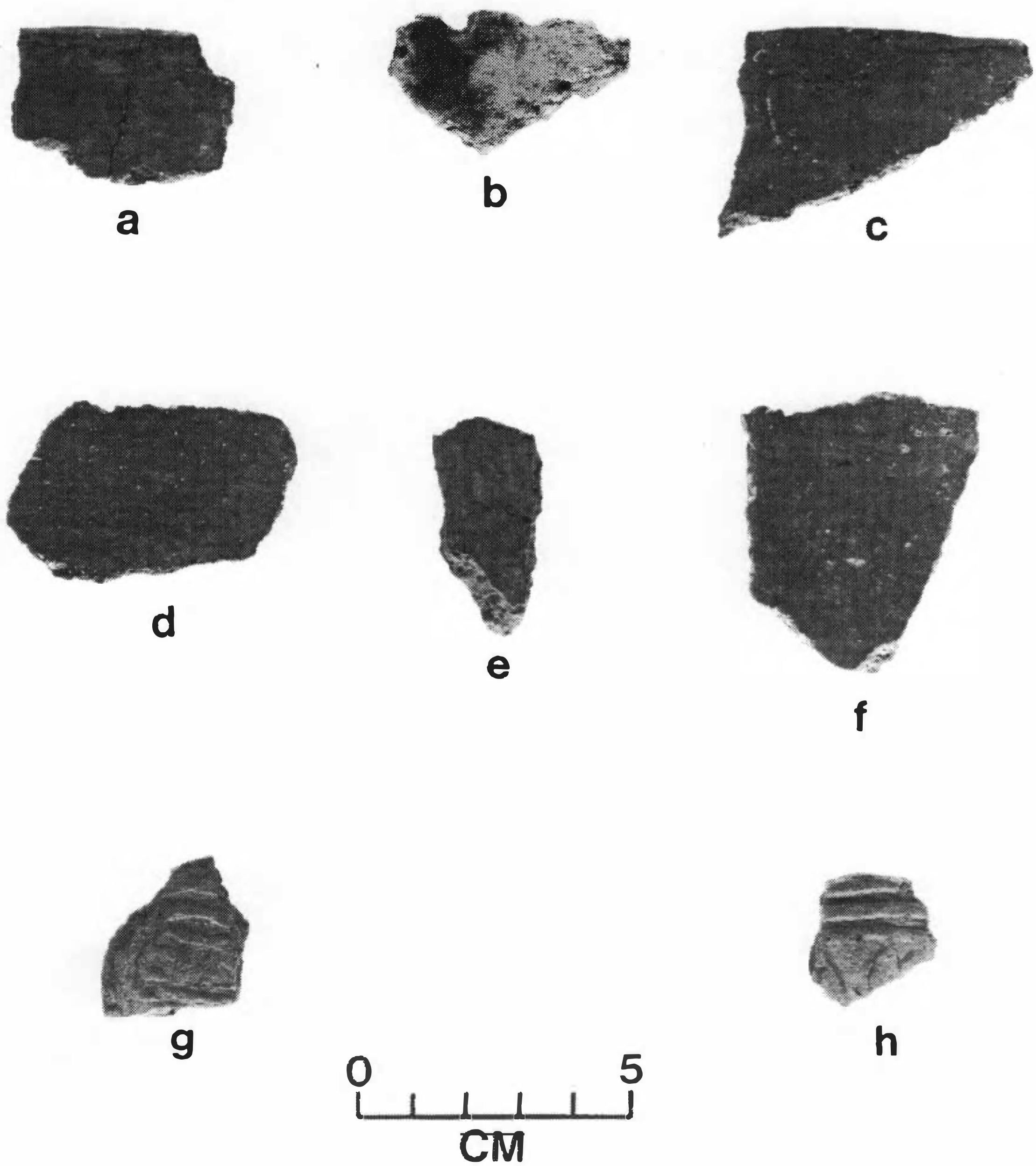

Figure 24

Limestone-tempered ware (N = 192)

This ceramic ware was identified at the Shofner site and is described in Chapter V. Three previously described limestone-tempered ceramic types occurred in the Raus ceramic sample. These are:

Ceramic Type	Sample Size (n)
Residual Plain	41
Plain	147 (Figure 24, f)
Cordmarked	3 (Figure 24, e)

One additional type was identified at the Raus site and is described below.

Limestone-tempered Complicated Stamped (n = 1)

This type is similar to Pickwick Complicated Stamped described by Heimlich (1952:18). The impression is a geometric, curvilinear design. Heimlich (1952:18) suggests a correlation of vessel size, shape, and area of application of complicated stamped designs. These designs occur almost invariably on the neck and high rims of small globular jars; the bodies are plain, polished, or burnished; the lips are flattened or rounded, and the rims are nearly vertical. Limestone-tempered, complicated stamped ceramics associate with the Middle Woodland period in the eastern Tennessee Valley. Complicated stamped ceramics may occur more frequently during the early Owl Hollow period (c. A.D. 200-400) and decrease in frequency during the middle Owl Hollow period (c. A.D. 400-600).

Limestone/Chert-tempered ware (N = 273)

This ware is identical to that recovered at the Shofner site and has been previously described in Chapter V. Two previously described types associated with this ware occurred in the Raus ceramic sample. These are:

Ceramic Type	Sample Size (n)
Residual Plain	37
Plain	233 (Figure 24, b, c)

In addition, three limestone/chert-tempered types were recovered at the Raus site and are discussed below.

Limestone/Chert-tempered Simple Stamped (n = 1)

This type is similar to Bluff Creek Simple Stamped (Heimlich 1952:18). The stamped impressions form parallel lines (lands and grooves) which are oriented horizontal to the vessel rim. Vessels are slightly smoothed on the exterior and interior surfaces. This type is a minority in the Thompson Creek locality probably because of the late date of the Shofner and Raus sites. The stamping tradition, and simple stamping in particular, appears more frequently in cultural context dating to the early Owl Hollow phase (A.D. 200-400) (cf. Cobb 1977).

Limestone/Chert-tempered Roughened (n = 1)

This type is similar to the type Knot-Roughened and Net-Impressed described by Faulkner (ed., 1968:65-66); however, there is an addition of limestone-tempering. Sherds of this type have a knot-roughened and smoothed-over exterior surface. The Knot-Roughened and Net-Impressed

type is in the Elk River series which dates to the Late Woodland Period. This mixed-temper type, however, probably associates with the late Middle Woodland or early Late Woodland period in the Thompson Creek locality.

Limestone/Chert-tempered Complicated Stamped (n = 1) (Figure 24, h)

This type is similar to that described by Heimlich (1951:18) as Pickwick Complicated Stamped. The tempering is either mixed with chert or results from crushed fossiliferous limestone. Characteristic of this type are bands of curvilinear impressions often restricted to the neck or rim of otherwise plain, globular jars. The discussion of the complicated stamped type under the heading of limestone-tempered ware (this chapter) applies to this type.

Limestone/Chert/Sand-tempered ware (N = 119)

This ceramic ware was identified at the Shofner site and described in Chapter V. Two types in this ware occurred in the Raus ceramic sample. These types were previously described in Chapter V and are listed below.

Ceramic Type	Sample Size (n)
Residual Plain	12
Plain	107

Grit-tempered ware (N = 21)

This ceramic ware was identified at the Shofner site and described in Chapter V. Two ceramic types in this ware were recovered at the Raus

site. These two types were previously described in Chapter V and are listed below.

Ceramic Type	Sample Size (n)
Residual Plain	3
Plain	18

Chert-tempered ware (N = 157)

This ceramic ware was identified at the Shofner site and is described in Chapter V. Three types in this ware occurred in the Raus ceramic sample. Two types previously described in Chapter V are listed below.

Ceramic Type	Sample Size (n)
Residual Plain	10
Plain	146 (Figure 24, a)

One additional type was recovered at the Raus site and is described below.

Chert-tempered Roughened (n = 1)

This type is identical to the Knot-Roughened and Net-Impressed type (Faulkner, ed. 1968:65-66). Sherds of this type have knot-roughened impressions that have been smoothed over; the interior is generally well-smoothed. This type is in the Elk River series, dates to the Late Woodland period, and is associated with the Mason phase in the upper Elk River Valley. This type suggests a late Owl Hollow phase/early Mason phase cultural association.

Chert/Grit-tempered ware (N = 76)

This ware was previously identified in the Shofner ceramic sample and is described in Chapter V. Three ceramic types in this ware group were identified at the Raus site. Two of these types are listed below.

Ceramic Type	Sample Size (n)
Residual Plain	10
Plain	65

The third type recovered at the Raus site is described below.

Chert/Grit-tempered Complicated Stamped (n = 1) (Figure 24, g)

This type probably corresponds to Pickwick Complicated Stamped as described by Heimlich (1952:18). Although the mixed chert/grit temper represents a significant variation from the use of limestone, the curvilinear design on this small sherd appears identical to that of the Pickwick Complicated Stamped type. The discussion of the complicated stamped type under the heading of limestone-tempered ware (this chapter) applies to this type.

Ceramics Summary

The ware categories described for the Raus site associate with the Middle and Late Woodland periods. The ceramic ware percentages suggest the following cultural period associations:

Ware Category	Percent	Cultural Period	Temporal Assoc.
Limestone-tempered	23	Middle Woodland	200 B.C.-A.D. 600
Grit-tempered	3	Middle Woodland	200 B.C.-A.D. 600
Chert-tempered	18	Middle/Late Woodland	A.D. 200-900

Limestone/Chert-tempered	33	Late Middle Woodland	A.D. 200-600
Limestone/Chert/Sand-tempered	14	Late Middle Woodland	A.D. 200-600
Chert/Grit-tempered	9	Late Middle Woodland	A.D. 200-600

Ware frequencies from the Raus site indicate that occupation occurred during the late Middle Woodland period. Faulkner and McCollough (1974:43) proposed that mixed-temper pottery indicates a transition from the Middle to Late Woodland use of limestone and chert tempering, respectively. Their proposition is supported by the large percentage (56 percent) of mixed-temper ceramics from the Raus site and the radiocarbon date of A.D. 615.

Based on the ceramic distribution in the midden, the Raus site occupation by Owl Hollow phase groups appears to have occurred over a relatively short period of time. Midden level IV ceramics are similar in ware and type composition to midden level II. This suggests a rather intensive cold season occupation that was probably of relatively short duration.

Floral Analysis

Charred floral materials from the Raus site were recovered primarily from the refuse midden in Area II. The flotation of soil samples from midden levels III and IV in Unit 38N14W yielded well-preserved remains of numerous species of plants. A 25 percent sample from the two midden levels was analyzed and tabulated by number or gram weight. The arboreal and herbaceous seeds and wood charcoal are identified in Table 23.

Table 23. Floral remains from midden context at 40BD46.

	Hickory (*Carya* sp.)	Sassafras (*Sassafras albidum*)	Elm (*Ulmus* sp.)	Sycamore (*Plantanus occidentalis*)	Red Oak Group (*Quercus* sp.)	White Oak Group (*Quercus* sp.)	Unidentifiable Species	Maygrass (*Phalaris* sp.)	Goosefoot (*Chenopodium* sp.)	Purslane (*Portulacca* sp.)	Knotweed (*Polygonum* sp.)	Cleavers (*Galium* sp.)	Pigweed (*Amaranthus* sp.)	Maize (*Zea maze*)	Grass family (Poaceae)	Acorn shell (*Quercus* sp.)	Acorn meat (*Quercus* sp.)	Hickory shell (*Carya* sp.)	Walnut shell (*Juglans* sp.)	Total No. Fragments	Total Weight (grams)
Unit 38N14W		**Wood Charcoal**								**Herbaceous Seeds**						**Arboreal Seeds**					
Midden Level III																					
Number of Fragments	11	2	1		2	1	6	35	1	2	1	3	1		10					76	
Weight (grams)																41	2	620	3		666
Midden Level IV:																					
Number of Fragments	10	1		1	1	1	1	15	2					2	5						
Weight (grams)																35		474			509
Total Sample:																					
Number of Fragments	21	3	1	1	3	2	7	50	3	2	1	3	1	2	15					115	
% of Fragments	18	3	1	1	3	2	6	43	3	2	1	3	1	2	13						
Weight (grams)																76	2	1,094	3		1,175
% of Weighed Sample																6	*	93	*		

* = less than 1 percent

The analyzed floral sample suggests the importance of certain arboreal and herbaceous seeds. The floral remains recovered from the refuse deposits probably resulted from cold season habitation of the site and, therefore, reflect a winter diet of the Raus site occupants. This diet was based at least partially on the consumption of a wide range of stored seeds of which hickory nuts and maygrass appear to have been of major economic importance.

The remains of the cultigen maize were recovered at the base of midden level IV in 38N14W (Table 23). This evidence is particularly significant because of the occurrence of maize in a winter floral sample, and because of the headwater location of the Raus site 8 km from the Duck River floodplain. The maize could have been cultivated in the Raus site arena along the narrow floodplains and terraces of Thompson Creek or northward toward the Duck River where the Floodplain/Terrace Resource Zone reaches its maximum width.

Wood charcoal was abundant in the Raus floral sample and likely represents the remains from heating and cooking activities. The wood charcoal sample represents species that could have been, and likely were, collected in close proximity to the Raus site. The various wood species, which are essentially the same from both midden levels, occur in the Highland Rim Escarpment and Floodplain/Terrace resource zones. Hickory, a transitional species, was the predominant wood used to fuel fires.

The Raus floral sample suggests that a variety of plants from resource zones close to the site were exploited for food, probable building materials, and fuel for cooking and heating. During the late

Middle Woodland period, the gathering of arboreal seeds was still an important subsistence activity. However, it is apparent that horticulture was practiced by Owl Hollow phase groups. It is probable that cultigens and herbaceous seeds (semi-cultigens?) were planted and/or encouraged to grow in the Floodplain/Terrace Resource Zone and were harvested along with seasonal arboreal seeds from the Highland Rim Escarpment. These plant foods were likely stored for winter consumption at seasonal base camps such as Raus. By the late Owl Hollow phase, it is possible that cultigens were less of a factor in subsistence and did not influence the establishment of year-round settlements in close proximity to extensive floodplain areas.

Faunal Analysis

The faunal sample recovered from the Raus site came from Area II, refuse midden levels II-IV (Tables 24 and 25). The midden contained the remains of animals procured for food as well as discarded bone tools made from various faunal elements (Figure 25). In comparison to the Shofner fauna, certain categories of vertebrate and invertebrate animal remains were not represented in the Raus fauna. In addition, there was less variety in the Raus sample and fewer identifiable bone fragments. The differences in the faunal samples may reflect either site location and differences in adjacent habitats or they may represent seasonal variations in available fauna. Both factors were probably operative at the Raus site as suggested by the total faunal sample.

Absent from the Raus faunal sample were the remains of fish and freshwater shellfish. These animals were probably available in upper

Table 24. Freshwater Gastropoda from the Raus Site (40BD46).

Species	Shell Fragments	MNI[1]	Percent of Total
Lithasia armigera duttoniana	1	1	5
Pleurocera canaliculatum	8	8	42
Elimia laqueta/edgariana	10	10	53
Total Identifiable Freshwater Gastropoda Sample	19	19	100

[1] = Minimum Number of Individuals

Table 25. Vertebrate faunal sample identified from the Raus site (40BD46).

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals:			
Opossum (Didelphis marsupialis)	1	1	*
Raccoon (Procyon lotor)	1	1	*
Striped Skunk (Mephitis mephitis)	1	1	*
Domestic Dog (Canis familiaris)	1	1	*
Woodchuck (Marmota monax)	2	1	*
Eastern Chipmunk (Tamis striatus)	14	1	1
Gray/Fox Squirrel (Sciuris sp.)	5	1	*
Beaver (Castor canadensis)	2	1	*
Rodents (miscellaneous genera) (Cricetidae)	2	1	*
White-tailed Deer (Odocoileus virginianus)	62	4	5
Total identifiable mammal bone	91		7
Unidentifiable large mammal bone	201		16
Unidentifiable small mammal bone	941		76
Total Mammal Bone Sample	1,233		
Birds:			
Turkey (Meleagris gallopavo)	5	2	8
Total identifiable bird bone	5		8
Unidentifiable bird bone	55		92
Total Bird Bone Sample	60		

Table 25 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Reptiles:			
Box Turtle (*Terrapene carolina*)	74	3	63
Turtle (*Graptemys/Chrysemys*)	1	1	1
Snapping Turtle (*Chelydra serpentina*)	1	1	1
Turtle (miscellaneous genera) (Testudines)	34	---	29
Snake (Colubridae)	3	1	3
Snake (miscellaneous genera) (Serpentes)	4	--	3
Total identifiable reptile bone	117		
Fish:			
Minnow (Cyprinidae)	2	1	5
Sunfish (Centrarchidae)	2	1	5
Walleye/Sauger (*Stizostedion*)	1	1	3
Total identifiable fish bone	5		13
Unidentifiable fish bone	33		87
Total Fish Bone Sample	38		
TOTAL IDENTIFIABLE BONE SAMPLE	218		15
TOTAL UNIDENTIFIABLE BONE SAMPLE	1,230		85
TOTAL VERTEBRATE FAUNAL SAMPLE	1,448		

[1] Minimum Number of Individuals

* = less than 1%

Figure 25. The Raus site: Bone tools. Bone needles, a-c; Modified antler "plug," d; Deer phalangae gaming device, e; Modified antler tine, f.

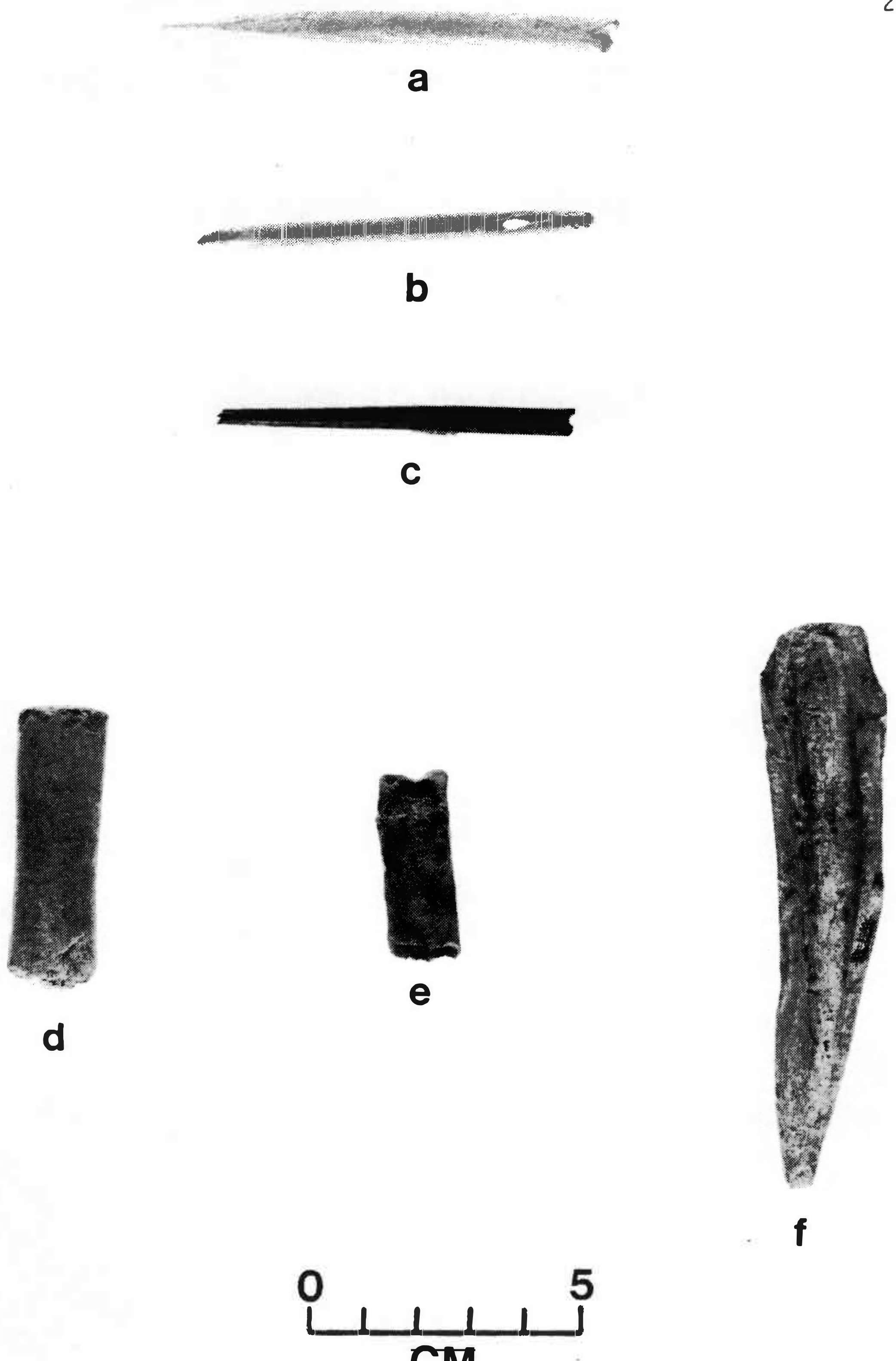

Figure 25

Thompson Creek. However, their absence does not suggest a less aquatic orientation of the Raus inhabitants, but likely a greater concentration on food resources in other environmental zones.

Since the Raus site was located near the eastern Highland Rim, there were several environmental resource zones close to the site. The Floodplain/Terrace, Highland Rim Escarpment, and Oak Barrens were generally confined to narrow strips and compressed in areal extent. The Raus fauna suggests all of these resource zones were exploited for the procurement of food animals. The Floodplain/Terrace Resource Zone and the Highland Rim Escarpment Resource Zone were source areas for the small mammals such as the opossum, raccoon, striped skunk, woodchuck, and squirrel. While important in subsistence, these small animals were secondary to the white-tailed deer in relation to the minimum number of individuals represented and consequently in the amount of available meat. The deer, which was the single most important food animal, was present in both lowland and upland habitats, and particularly in the edge areas of the Highland Rim Escarpment and Oak Barrens resource zones. The importance of deer is also reflected in the use of this animal's skeletal elements for the manufacture of utilitarian tools and gaming devices.

The faunal sample from the Raus site was deposited as refuse in an accretional midden that probably accumulated predominantly during the cold season. The almost total lack of aquatic species, particularly gastropods and pelecypods, suggests a winter procurement pattern as reflected by a majority of the fauna. Exceptions to this pattern were the hibernating woodchuck and chipmunk, as well as several reptiles,

which are more active in the early spring. The beaver is available year-round and may be active throughout the winter during periods of less intense cold (personal communication, Mr. Neil Robison).

The Raus faunal sample also reflects more of a cold season subsistence orientation in comparison to the Shofner fauna. The primary difference between the two samples is the gastropod and pelecypod fauna associated with the Shofner site. In terms of a subsistence pattern, however, similar types of small and large mammals and birds seem to have been exploited. Therefore, the basic difference in the Raus and Shofner fauna is probably attributable to the cold season accumulation of the Raus fauna.

Site Summary

The results of test excavations at Raus revealed two discrete areas of site use. Activities in Area I involved a possible crematory pit and associated cremations. Area II contained the remains of a stratified refuse midden and a probable double oven structure. Abundant artifactual and ecofactual materials were recovered, particularly from the refuse midden in Area II. Both lithic and ceramic assemblages suggest a late Owl Hollow phase occupation of the Raus site. This assessment is supported by a single radiocarbon date of A.D. 615 $\pm$ 60.

Lithic remains from the Raus site indicate exploitation of locally available raw materials. These lithic materials were likely derived from local stream gravel or nearby quarry sources. The lithics were utilized for the manufacture of domestic-related cutting, scraping, piercing, and butchering tools. The diagnostic weapons are lanceolate

projectile points/knives, which are characteristic of the late Owl Hollow phase.

Ceramics recovered from the Raus site were predominantly plain body sherds of single temper (38 percent) and mixed-temper (50 percent) wares. The predominant vessel type was apparently a medium-sized subconoidal, wide-mouthed jar. Decorative elaboration was limited to rim lip notching, which is a diagnostic trait throughout the Owl Hollow phase. Vessel surface treatment varied little; however, complicated stamped and cordmarked types were recovered. The decorated types are considered of general Middle Woodland origin and occur as minority types in most ceramic assemblages of the Middle Woodland period. According to Faulkner (1978:191), the predominance of plain surface treatment and the higher proportion of mixed-tempering suggests a late Owl Hollow phase occupation of the Raus site.

Ecofactual materials were recovered primarily from the midden in Area II and consisted of a variety of plant and animal species. The majority of these species suggest procurement from resource zones close to the site. The Floodplain/Terrace, the Highland Rim Escarpment, and the Oak Barrens resource zones were probably exploited for seasonally available plant and animal resources. The most important of the subsistence resources, based on quantity and MNI counts, were the arboreal and herbaceous seeds, the deer, and the turkey.

The arboreal seeds such as acorns, hickory nuts, walnuts, and chestnuts were probably gathered annually for fall storage and winter use. Their charred remains (except chestnut) were abundant in the refuse midden. A variety of herbaceous seeds and at least one

cultivated plant, maize, were harvested for subsistence needs. The presence of the arboreal and herbaceous seeds in a winterine refuse midden indicates that storage of foods was practiced. This is significant for interpretation of seasonality of occupation.

The deer and turkey probably accounted for the majority of meat utilized by the Raus site inhabitants. These two species were generally available year-round, but were probably more prevalent in the Raus site locality or adjacent areas during the fall season. Also included in the faunal sample were small game species of which there were a limited number of mammals, turtles, fish, and shellfish. These animals are usually considered supplemental to the predominant reliance on deer and turkey, but are potentially more important in faunal assemblages of year-round settlements (cf. Faulkner, Corkran, and Parmalee 1976:234-235).

The Raus site ecofactual sample was recovered from refuse apparently deposited around a fall/winter occupation locus. The midden flora and fauna are, therefore, skewed toward reflecting fall/winter species and procurement activities. Consequently, duration of site occupation is difficult to ascertain. It is probable that the stratified refuse midden was deposited during the winter season and that site occupation of Raus was continuous from late fall to early spring. This settlement pattern was possibly used during the late Owl Hollow phase to take advantage of ecologically optimal areas.

CHAPTER VII

THE OWL HOLLOW SITE (40FR7)

Introduction

The Owl Hollow site is located near the shore of Tims Ford Reservoir in west-central Franklin County, Tennessee. Prior to the reservoir, this site was situated along Town Creek, a small tributary of the Elk River. The site is approximately 2.25 km south of the former Elk River channel and about 43 m above the former Town Creek floodplain (Figure 2, page 46).

The Owl Hollow site was recorded during the 1966 archeological work in the Tims Ford Reservoir (Faulkner, ed. 1968). It was described as a large "open village site" encompassing about 183 m^2 or around 2.8 ha. The site was defined by an association of cultural material and dark brown refuse deposit that occurred in a circular pattern.

A random surface collection made at the Owl Hollow site in 1966 suggested a predominantly single component occupation of 40FR7, which Faulkner (ed., 1968) assigned to the late Middle Woodland period. The co-occurrence of lanceolate projectile points and large quantities of limestone-tempered cordmarked and plain pottery led Faulkner to identify a separate phase in his cultural-historical assessment of the upper Elk River Valley. This phase was designated Owl Hollow and was based primarily on the surface material collected from 40FR7, which became the Owl Hollow phase type station.

Site Catchment

The Owl Hollow site is situated in a transitional area between the Eastern Highland Rim and the dissected Highland Rim escarpment. The site is located on an eroded extension of the Highland Rim and is surrounded on three sides by deep dissection and narrow V-shaped valleys associated with the Town Creek drainage. This small drainage system flows northward from Mingo Swamp past the Owl Hollow site to the Elk River, a distance of approximately 4.5 km. The Owl Hollow site is on a broad ridge nose of the flat Highland Rim and about equidistant between Mingo Swamp and the Elk River floodplain (Figure 26).

Owl Hollow site formation occurred along the margins of a silted-in sinkhole. Drainage was to the north through a wide breach in the collapsed sinkhole rim, possibly created by a large artesian spring which formerly flowed northeast to Town Creek. The locality of the sinkhole and the spring were apparently attractive to site inhabitants. Refuse deposits were concentrated along the sinkhole rim and created a circular pattern of dark brown midden that was clearly demarcated from the lower, central portion of the site, and the nearly sterile exterior margins. Along the northern margin of the site, the collapsed rim had been subjected to erosion and a swale subsequently filled with organic-enriched, dark brown refuse deposits to a depth of 30 cm. However, the general soil type of the site locality is Dewey silt loam, a cherty, grayish-brown, medium to strongly acidic topsoil formed under an oak-hickory forest cover (Fox et al., 1958:27).

The Owl Hollow site is physiographically situated in an upland setting as illustrated in Figure 27. The predominant microenvironmental

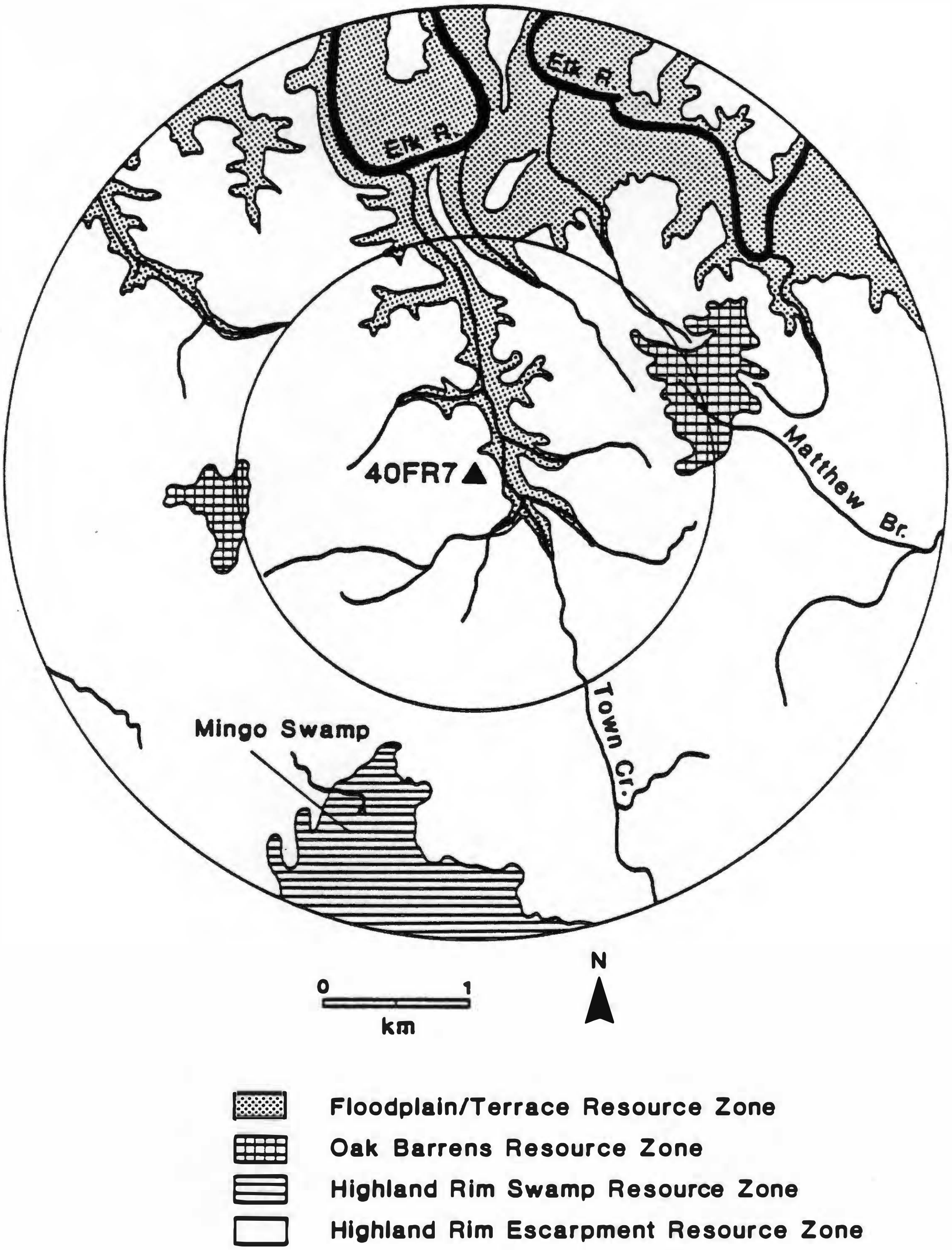

Figure 26. Topographic stratification of the Owl Hollow site arena into biogeographic resource zones.

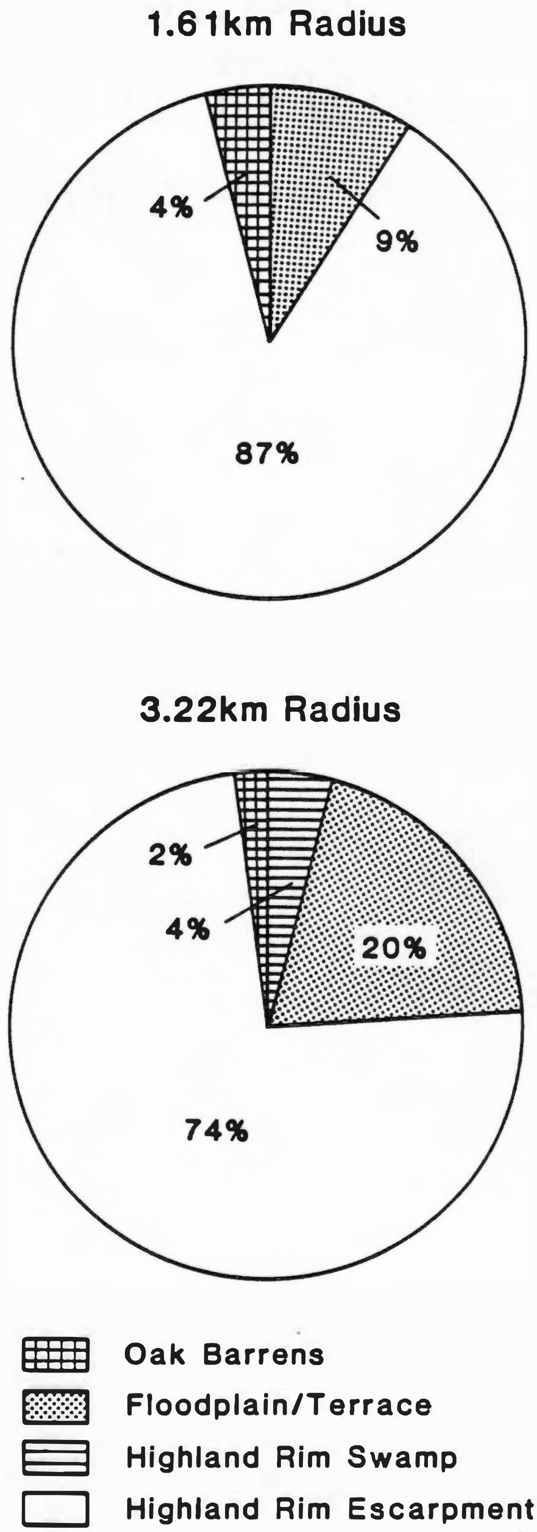

Figure 27. Biogeographic resource zones in the Owl Hollow site arena.

resource zone in the site arena is the Highland Rim escarpment defined by elevations of 275 m to 300 m AMSL. This is illustrated in both the 1.61 km and 3.22 km radii, which have a combined total of 3,085 ha and represent 80 percent of the surface area.

The remainder of the site arena is divided into several small, contrasting microenvironments located throughout both projected radii. The second largest microenvironment is that of the Floodplain/Terrace Resource Zone (15 percent) located primarily along the Elk River at elevations 244 m to 275 m, but also associated with small tributary streams draining the Highland Rim escarpment such as Town Creek. The Oak Barrens Resource Zone (3 percent) is represented by small localities to the east and west of the Owl Hollow site that exceeded elevations of 300 m. Along the southern edge of the site arena, a vegetationally distinctive Highland Rim Swamp Resource Zone (2 percent) occurred that was part of the more extensive Mingo Swamp locality. The distribution of resource zones and the percentages given above for each zone correspond to the entire site arena and vary from those presented in Figure 27.

The projection of a site arena provides a delineated and quantified space that can be segregated into microenvironmental resource zones having "critical categories" of natural resources. The initial consideration, however, is the specific site locus and its relationship to the arena. For the Owl Hollow site, the primary attraction of the site locus over any number of similar localities was likely the fresh-water artesian spring that flowed from the hillside adjacent to the site. Other considerations which enhanced this particular site locality

cannot be discounted. These likely included the distance to and the availability of natural resources that were relied on seasonally and year-round by late Middle Woodland groups.

The flat Highland Rim and escarpment likely provided a variety of raw materials and plant and animal foods. The slopes of the escarpment were probably heavily forested while the flat Highland Rim was intermittently forested with large, contiguous tracts of open parkland. The variety of habitats throughout this area would have been conducive to much larger plant and animal populations as well as other resources. Perhaps most significant were lithic outcrops including various cherts, limestone, sandstone, and shale; the seasonally available arboreal seeds of chestnut, hickory, oak, black walnut, and butternut; and the year-round source of meat and by-products resulting primarily from deer and turkey. Animal foods of seasonal importance were various aquatic shellfish, fish, and turtle species procured from the Elk River and Town Creek, and perhaps migratory waterfowl hunted in the Mingo Swamp environs. These species were likely exploited during the spring and fall, respectively.

The Owl Hollow site locality suggests horticulture was not a critical resource category of the late Middle Woodland groups that inhabited 40FR7. Plants such as sunflower, squash, gourd, and maize could have been cultivated in limited quantities adjacent to the site, along Town Creek, or at some distance from the site on the floodplains and terraces of the Elk River. The flat Highland Rim, however, would likely have provided seasonally available wild herbaceous seeds in large

quantities to offset the lack of cultigens and compliment the prolific arboreal seeds.

It is conceivable, based on the potential availability of resources in the upland and lowland microenvironments, that the Owl Hollow site could have functioned as a "periodic" year-round village for late Middle Woodland groups oriented to intensive hunting and gathering.

Site Testing

Archeological fieldwork began at the Owl Hollow site on June 24, 1976. Initially, the site was prepared for excavation by the establishment of a permanent 0 x 0 datum point in the southwestern corner of the site. This point was marked by a 90 cm steel rod driven flush with the ground surface. From this point, a grid baseline was established 200 m north and a grid centerline 200 m east terminating with additional permanent steel rods driven into the ground on the northwest and southeast margins of the site. Temporary 5 cm x 5 cm wooden stakes were placed flush with the ground surface at 20 m intervals along the baseline and centerline coordinates which mark the west and south margins of the site, respectively (Figure 28).

The excavation of the Owl Hollow site involved transecting the midden ring and the central portion of the site along the east-west axis with alternating 2 x 2 m test units (Figure 28). Following testing, there were four areas excavated that contained thick midden deposits or large clusters of postholes and features. These excavated areas are identified as the Western, Central, North Midden and Eastern Expansion areas (Figures 29-31). The plowzone was removed from a combined total of

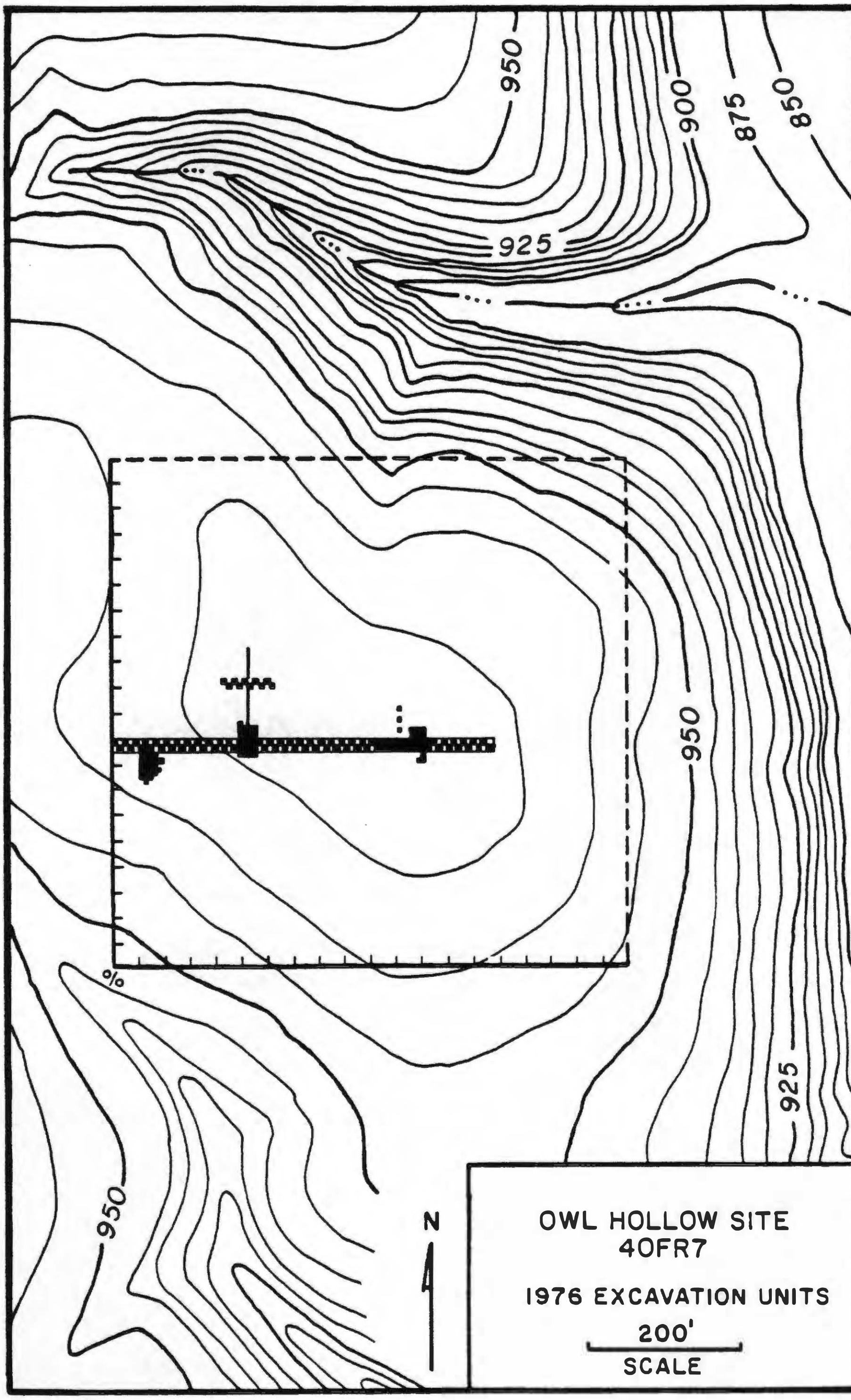

Figure 28. The distribution of the Owl Hollow site (40FR7) test units and expansion areas.

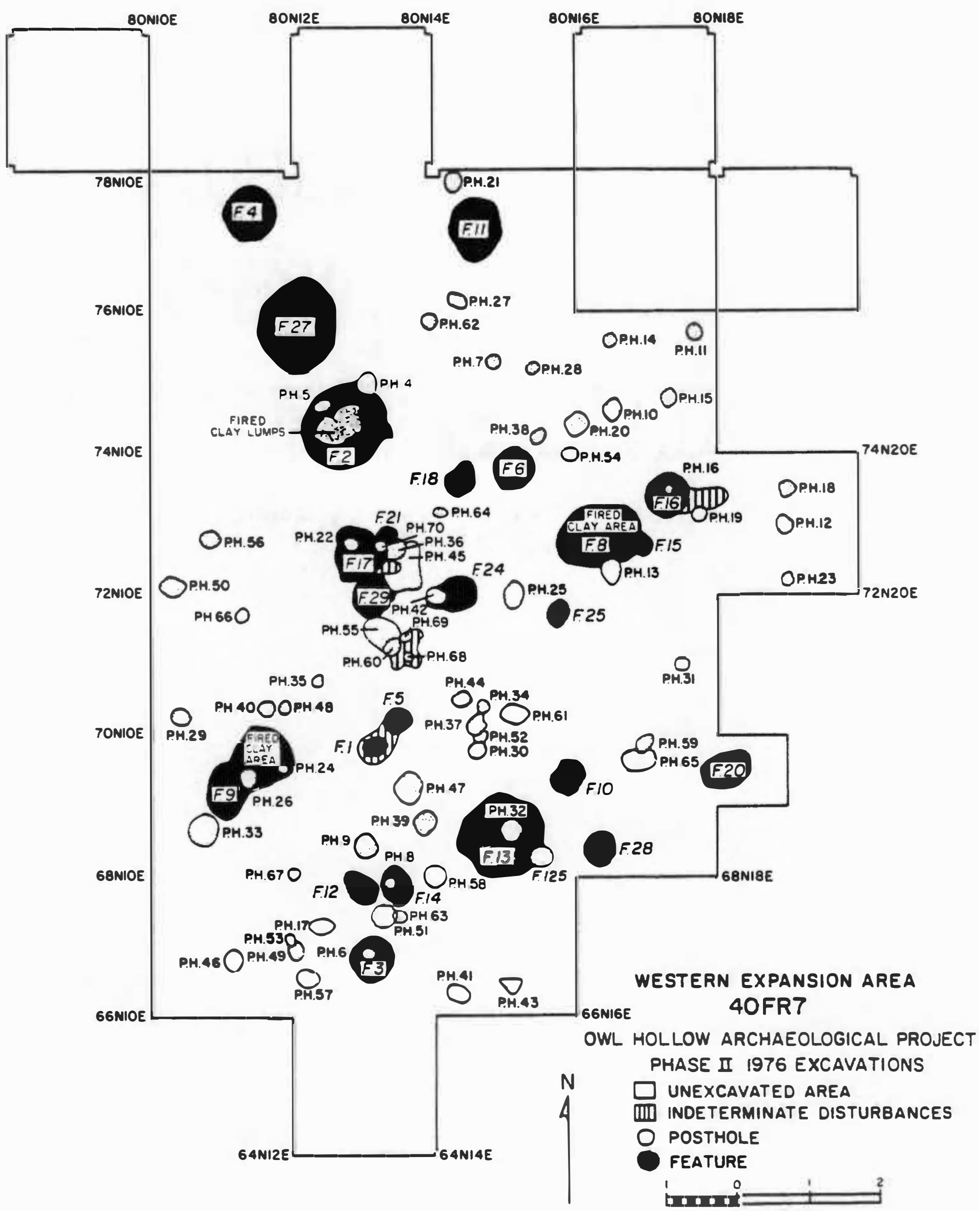

Figure 29. The Owl Hollow site Western Expansion Area.

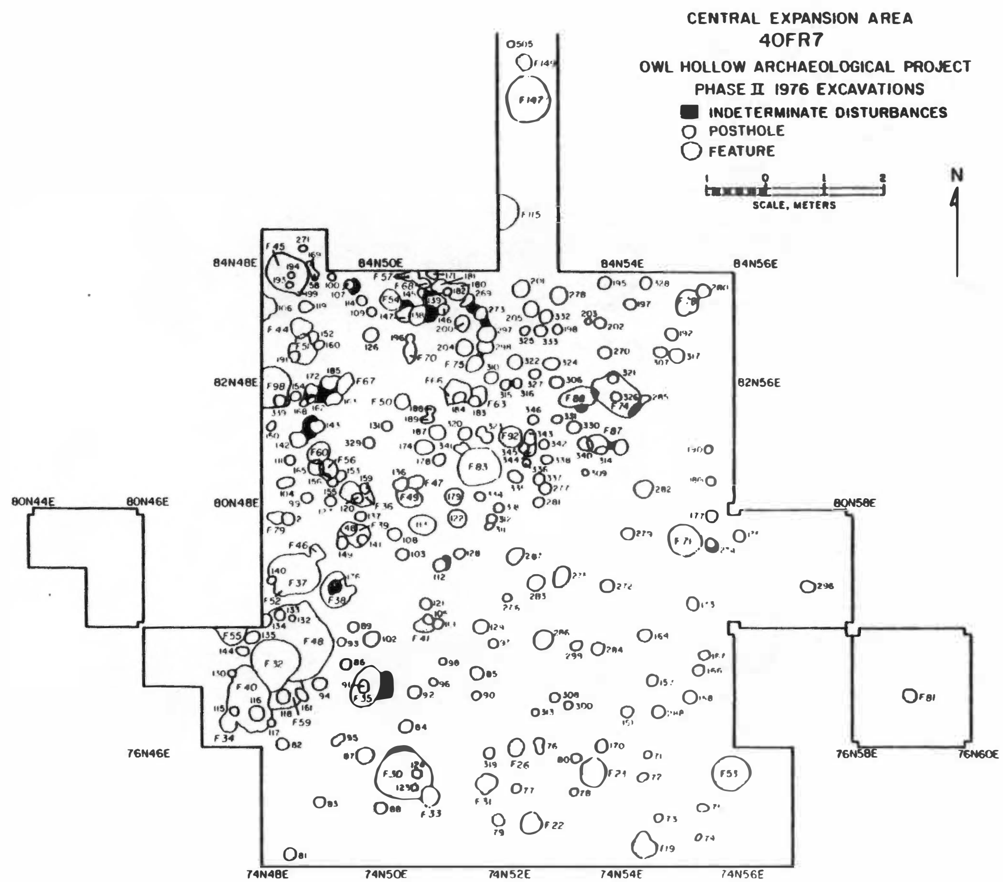

Figure 30. The Owl Hollow site Central Expansion Area.

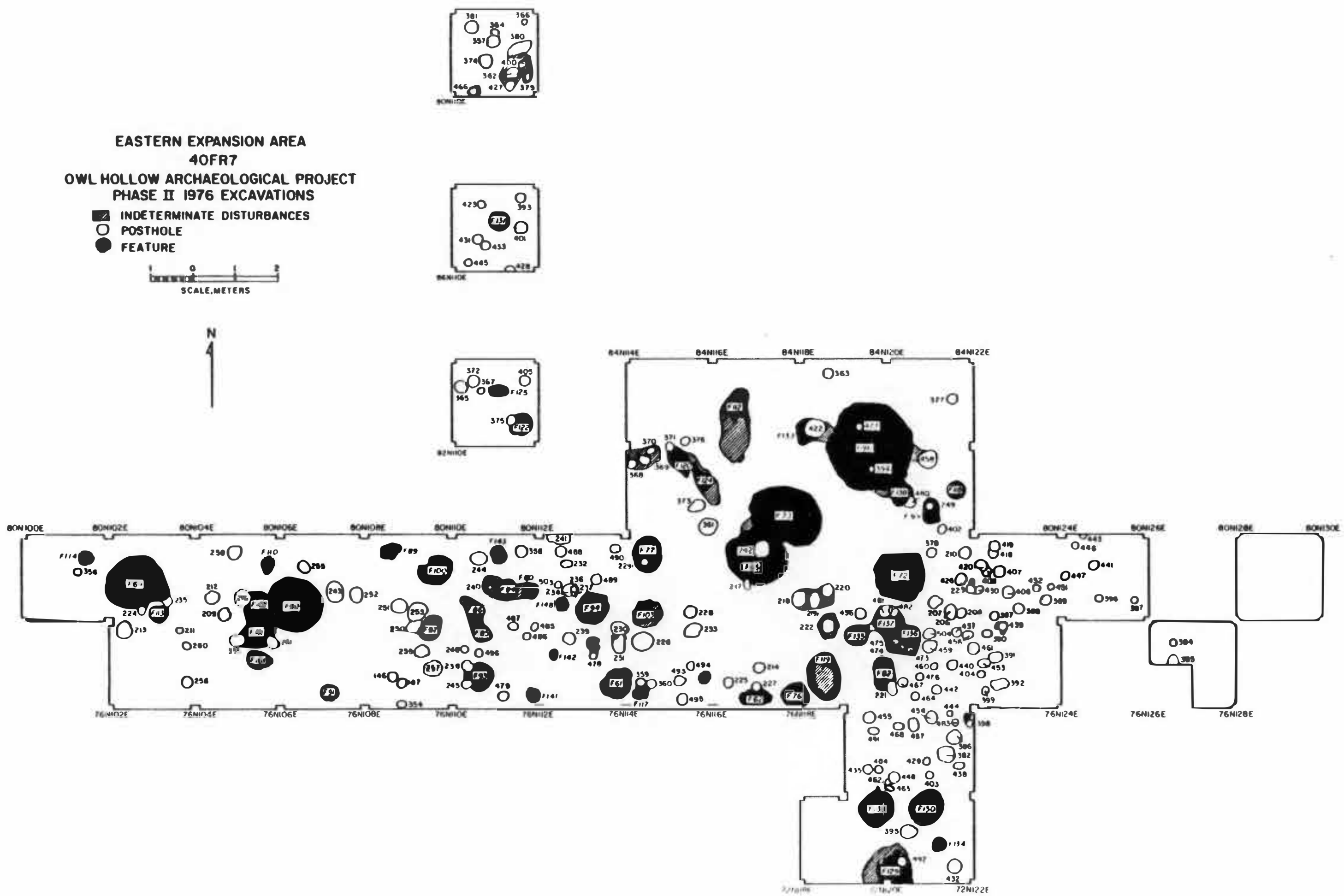

Figure 31. The Owl Hollow site Eastern Expansion Area.

203 2 x 2 m units or 812 m^2. This revealed 655 subsurface disturbances identified as either features or postholes, and a 30 cm thick midden.

The soil from features, from selected postholes, and from 10 midden units was waterscreened through 1.5 mm hardware cloth and 6 mm mesh. Soil samples from features, midden, and postholes were collected from undisturbed deposits and processed with the Owl Hollow Project Laboratory Flotation Device (Cobb and Faulkner 1978a). Flotation enhanced recovery of fragile carbonized plant remains, faunal material, and small lithic tools. In addition, samples of carbonized deposits from a wide range of subsurface disturbance types were selected for radiocarbon dates.

Following excavation of the subsurface disturbances and the refuse midden, all pertinent information on the size, shape, and location of these cultural features was recorded on standardized field data forms. Supplementary recording of the cultural features and excavation process involved black/white and color photography. Throughout excavation of the Owl Hollow site, a contour map and individual area maps were drawn that illustrated natural and cultural features on the site relative to grid coordinates. Following completion of the 1976 work at the site, all excavated areas were refilled with power equipment.

Radiocarbon Dates

Twelve radiocarbon samples from features and the North Midden were selected for the chronological assessment of the Owl Hollow site. Ten dates were obtained from the University of Georgia Geochronology Laboratory, and two dates were received from Geochron Laboratories

Division. These radiocarbon samples were submitted to answer the following research questions:

(1) the relative time period of the Owl Hollow site occupation;

(2) the contemporaneity of discrete intrasite activity areas;

(3) the contemporaneity of structures in the Central and Eastern Expansion Areas; and

(4) the association of the North Midden with the Central Expansion Area.

The number of samples submitted from each expansion area suggests, in general, the relative cultural complexity and significance for interpretation of late Middle Woodland activities in that area. Two radiocarbon samples came from the Western Expansion Area, three from the Central Expansion Area, one from the North Midden Area, and six from the Eastern Expansion Area. The radiocarbon samples were composed of charred wood and charred hickory nut shell secured from undisturbed deposits. The 12 dates obtained for 40FR7 are listed below followed by a brief interpretation of the site occupation.

Western Expansion Area

Feature 10. Sample obtained from a charcoal deposit sealed in the center of bell-shaped storage pit; primarily wood charcoal and charred hickory nut shell.

UGa 1426: 1415 $\pm$ 60 B.P. (A.D. 535); one standard deviation range is A.D. 475-595.

Feature 20. Sample collected from secondarily deposited charcoal near bottom of bell-shaped storage/refuse pit; primarily wood charcoal and charred hickory nut shell.

UGa 1566: 1695 ± 85 B.P. (A.D. 255); one standard deviation range is A.D. 170-340.

Central Expansion Area

Feature 53. Sample collected from sealed charcoal layer in bottom of cylindrical storage pit; primarily charred wood.

UGa 1427: 1385 ± 85 B.P. (A.D. 565); one standard deviation range is A.D. 480-650.

Feature 53. Sample collected from sealed charcoal layer in bottom of cylindrical storage pit; primarily charred wood.

GX 4922: 1165 ± 125 B.P. (A.D. 785); one standard deviation range is A.D. 660-910.

Feature 45. Sample collected from secondarily deposited charred refuse occurring near the bottom of an oval, basin-shaped storage pit; primarily wood charcoal and charred hickory nut shell fragments.

UGa 1567: 1715 ± 65 B.P. (A.D. 235); one standard deviation range is A.D. 170-300.

North Midden Area

Unit 100N X 54E, Midden Level I, 11-20 cm. Sample collected from dispersed charcoal secondarily deposited in a refuse midden layer; primarily large fragments of wood charcoal.

UGa 1569: 1725 ± 60 B.P. (A.D. 225); one standard deviation range is A.D. 165-285.

Eastern Expansion Area

Feature 65. Sample collected from charcoal layer that resulted from in situ burning in a basin-shaped earth oven; primarily wood charcoal.

UGa 1563: 1875 ± 155 B.P. (A.D. 75); one standard deviation range is 20 B.C. - A.D. 230.

Feature 69. Sample collected from a deposit of wood ash and charcoal sealed under a clay cap in a storage/refuse pit; primarily wood charcoal with inclusions of hickory nut shell.

UGa 1568: 1640 ± 65 B.P. (A.D. 310); one standard deviation range is A.D. 245-375.

Feature 73. Sample collected from charred organic material that formed an in situ basal deposit in a cylindrical earth oven; primarily charred wood fragments with minor quantities of charred hickory nut shell.

UGa 1564: 1855 ± 100 B.P. (A.D. 95); one standard deviation range is 5 B.C. - A.D. 195.

Feature 73. Sample collected from charcoal in a deposit sealed by partial clay floors in a cylindrical earth oven; primarily charred wood.

GX 4923: 1320 ± 125 B.P. (A.D. 630); one standard deviation range is A.D. 505-755.

Feature 85. Sample collected from wood charcoal that was sealed in the bottom of a shallow, oval roasting pit; sample was wood charcoal.

UGa 1565: 1715 ± 65 B.P. (A.D. 235); one standard deviation range is A.D. 170-300.

Feature 96. Sample collected from wood charcoal that was sealed under fired clay layer in a hemispherical-shaped earth oven; primarily charred wood with inclusions of charred hickory nut shell.

UGa 1428: 1675 ± 60 B.P. (A.D. 275); one standard deviation range is A.D. 215-335.

Six of the above dates, or 50 percent of the sample, suggest contemporaneous occupation of a large portion of the site by early Owl Hollow phase groups about A.D. 200-300 (Figure 32). Two early dates and four later dates possibly represent the initial occupation of 40FR7, and later reoccupations of the site. Complicating these interpretations were multiple dates obtained from the same pit. The earth oven complex of features 65 and 73 produced dates of A.D. 75 and 95, respectively. A verification of these dates by submission of a third sample to Geochron Laboratories, however, provided a late date of A.D. 630. Based on the highly inconsistent results from the two radiocarbon laboratories, it is quite probable the samples selected from these earth ovens were contaminated by prehistoric intrusions. A third earth oven, Feature 96, which is probably paired in structural context with Feature 73, had a date of A.D. 275 $\pm$ 60. This latter date is considered the mean for occupations of the Eastern Expansion Area, and the double oven winter lodge located in that area.

The radiocarbon dates clustering in the A.D. 200-300 range were obtained from three large storage facilities, a roasting pit, an earth oven, and a refuse midden. The significance of these dates is the temporal correlation of activities in separate expansion areas, and the establishment of contemporaneity of site habitation. Material remains recovered from the expansion areas and from radiocarbon dated pits support the temporal associations and the chronometric dates. Projectile points/knives of shallow side-notched and expanded stemmed forms, considered diagnostic of the early Owl Hollow phase, were recovered throughout these areas. Along with projectiles, there was

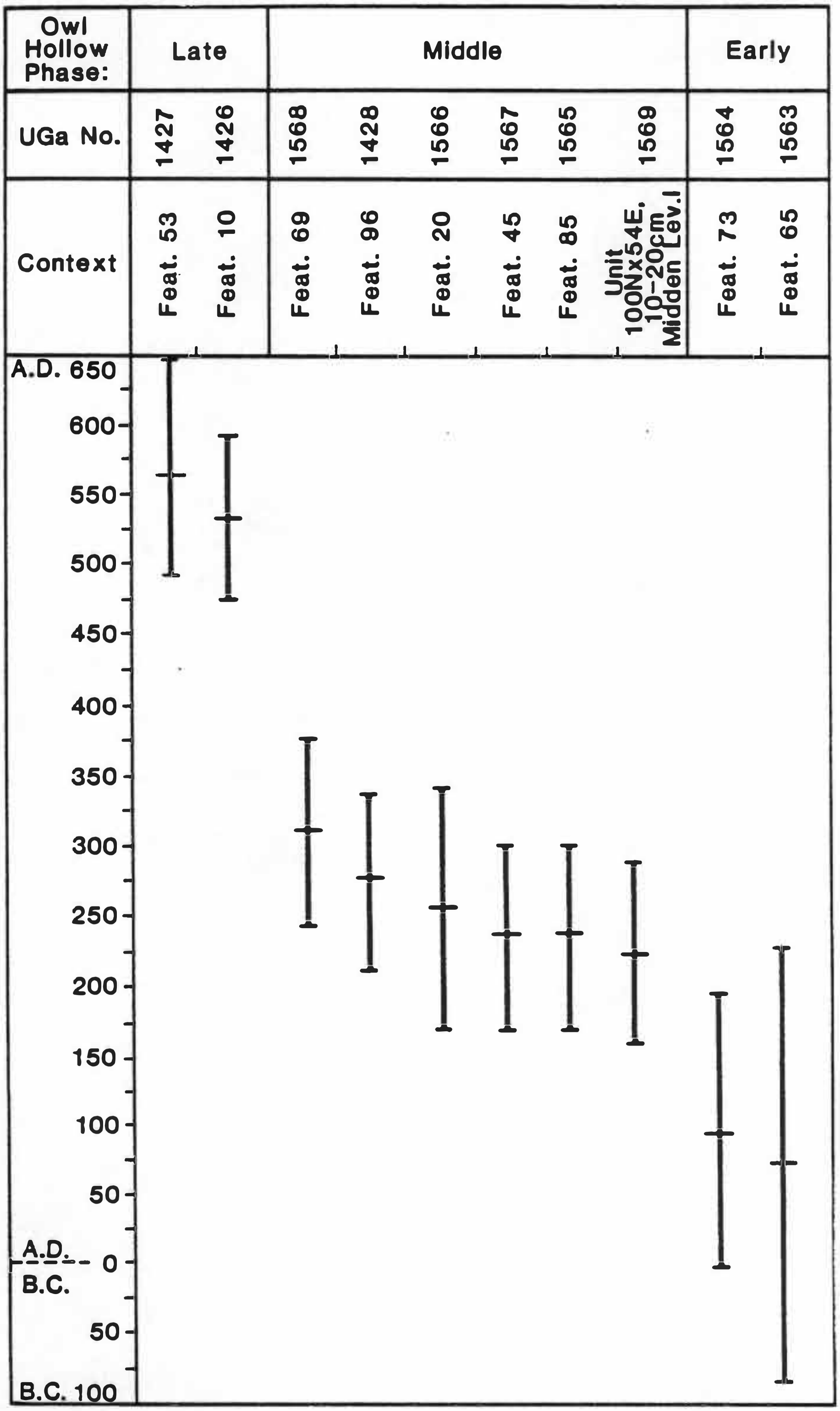

Figure 32. The Owl Hollow site radiocarbon determinations.

limestone-tempered, simple stamped pottery (8 percent of the sample), and minor but significant quantities of complicated stamped, diamond checked stamped and cordmarked pottery (1 percent, collectively). Limestone-tempered plain pottery constituted about 54 percent of the ceramic sample.

Radiocarbon dates suggest that middle and late Owl Hollow phase reoccupation of 40FR7 occurred about 200 to 400 years after the initial occupation of A.D. 200-300. This is suggested by activities in the West and Central expansion areas where substantial storage pits were excavated. Although later occupations were probably somewhat more sporadic, they continued to occur in areas of previous structural loci at the site and suggest strong cultural continuity throughout the Owl Hollow phase.

Structures

Two probable structures were identified in the Central and Eastern expansion areas of 40FR7. These structures were constructed differently which suggests different functions and different seasons of site habitation. The two structures occurred in separate areas of the site.

A circular or oval structure around 6.1 m in diameter was partially defined in the Central Expansion Area. This structure had apparently undergone several rebuilding phases, one of which is outlined in Figure 33. Numerous features and postholes were clustered in this area, but none could be clearly assigned to a specific structure. Apparently all rebuilding phases represent a similar light framed house type. There was no evidence of earth ovens in association with this structure or any

Figure 33. The postholes and features in the Central Expansion Area: the postholes of a possible round summer structure are covered.

refuse accumulation from earth ovens in the surrounding area. Floral and faunal remains from the pits and postholes in the Central Expansion Area suggest warm season exploitation. Seasonality, therefore, is suggested to be spring-summer for Structure Locus I in the Central Expansion Area based on the following evidence:

(1) a small, circular structure type,

(2) the absence of interior features such as hearths and earth ovens, and

(3) the presence of abundant aquatic fauna.

Fifty-six meters east of the warm season habitation area, Structure Locus II was identified in the Eastern Expansion Area (Figure 34). Structure definition is based on the arrangement of paired earth ovens in association with four central support posts. Total dimensions of the structure were not determined, but a partial exterior wall alignment was defined. Adjacent to this wall were two large cylindrical-shaped storage pits. Botanical and faunal remains from the storage facilities and the earth ovens were different from those recovered in Structure Locus I. The ovens and storage pits contained mammal remains of white-tailed deer and a large sample of charred hickory nuts. Warm season fauna such as fish, aquatic snails, mussels, and turtles were virtually absent. A winter occupation of this double oven structure and the Eastern Expansion Area is based on the following evidence:

(1) the dual earth oven structure,

(2) the lack of aquatic (warm season) species, and

Figure 34. The postholes and features in the Eastern Expansion Area: the paired earth ovens and large support postholes suggest a possible winter structure.

(3) the presence of large, formal storage facilities adjacent to the structure.

Two different types of structures occurred at 40FR7 during the early Owl Hollow phase of A.D. 200-300. If these structure types were contemporaneous at this early date, a community pattern of warm season and cold season structures likely existed at 40FR7. The distribution of refuse suggests an arrangement of structures in a circular pattern. Apparently the winter houses were along the exterior margin, and the summer houses along the interior margin of the circular village; a possible plaza area was located in the village center. Repeated occupation of areas at the Owl Hollow site is indicated by the density of features and postholes, and the superposition of several structures at the same locus. The dual structures and their apparent arrangement suggests the Owl Hollow site probably functioned as an important base camp for several centuries.

Features

The excavation of portions of the Owl Hollow site revealed 145 subplowzone pits identified as features. The features were distinguished on the basis of size, shape, and cultural content. The 40FR7 features are divided into nine generalized types. The feature types are described below rather than each individual feature. Specific information on each feature is provided in Table 26.

Type 1. Indeterminant Disturbances

These are irregularly shaped, amorphous disturbances lacking distinctive size, shape, context, and generally devoid of diagnostic

Table 26. Feature Data from 40FR7.

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
1	2	amorphous root cast	irregular	24
2	8	irregular surface hearth	116 x 129	6
3	5	circular, basin-shaped storage pit	65 x 64	24
4	3	circular, basin-shaped pit	76 x 77	16
5	3	circular, conical pit	42 x 38	25
6	3	circular, basin-shaped pit	58 x 63	17
7	2	amorphous root cast	38 x 50	27
8	8	oval surface hearth	85 x 120	surface
9	8	irregular surface hearth	55 x 70 x 120	surface
10	5	circular, bell-shaped storage pit	46 x 48	42
11	3	oval, basin-shaped pit	90 x 70	12
12	3	oval, basin-shaped pit	44 x 48	17
13	8	irregular surface hearth	75 x 85 x 125	surface
14	3	oval, basin-shaped pit	58 x 50	19
15	2	amorphous root cast	44 x 45	60
16	3	circular, basin-shaped pit	64 x 63	20
17	2	amorphous root cast	70 x 68	25
18	3	circular, basin-shaped pit	44 x 50	26
19	3	irregular, bowl-shaped pit	45 x 36	14
20	5	oval, bell-shaped storage pit	58 x 74	45
21	2	irregular root cast	26 x 29	17
22	6	circular, bowl-shaped pit	35 x 36	19

Table 26 (Continued)

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
23	6	irregular, shallow pit	46 x 47	15
24	3	irregular, basin-shaped pit	55 x 72	11
25	3	oval, basin-shaped pit	41 x 39	14
26	6	circular, bowl-shaped pit	30 x 27	16
27	2	irregular root cast	135 x 112	23
28	2	amorphous root cast	50 x 47	24
29	1	irregular disturbance	50 x 56	16
30	5	circular, basin-shaped storage pit	98 x 104	38
31	3	circular, shallow pit	35 x 34	17
32	5	circular, basin-shaped storage pit	82 x 90	27
33	6	circular, bowl-shaped pit	28 x 30	15
34	6	circular, bowl-shaped pit	28 x 30	13
35	8	oval, surface hearth	71 x 43	surface
36	3	irregular, basin-shaped pit	43 x 51	10
37	5	circular, basin-shaped storage pit	73 x 90	26
38	5	circular, basin-shaped storage pit	67 x 71	19
39	3	irregular, basin-shaped pit	40 x 57	20
40	5	oval, basin-shaped storage pit	111 x 81	40
41	6	irregular, shallow pit	20 x 43	18
42	2	amorphous root cast	76 x 52	21

Table 26 (Continued)

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
43		omitted*		
44	3	circular, shallow pit	40 x 36	21
45	5	circular, basin-shaped storage pit	70 x 77	30
46	3	irregular, deep pit	46 x 32	30
47	3	circular, shallow basin	27 x 26	9
48	5	circular, basin-shaped storage pit	129 x 126	18
49	3	oval, basin-shaped pit	32 x 49	16
50	3	circular, shallow pit	22 x 23	21
51	3	irregular, basin-shaped pit	50 x 60	20
52	3	oval, basin-shaped pit	26 x 30	21
53	5	circular, cylindrical storage pit	59 x 65	39
54	3	circular, basin-shaped pit	37 x 39	20
55	3	oval, shallow pit	33 x 64	15
56	3	circular, bowl-shaped pit	25 x 25	23
57	3	irregular, shallow pit	24 x 36	25
58	3	oval, shallow pit	26 x 20	17
59	3	irregular, shallow pit	18 x 24	17
60	3	circular, bowl-shaped pit	35 x 35	12
61	2	irregular root cast	73 x 72	48
62	8	irregular surface hearth	55 x 76	3
63	3	irregular, basin-shaped pit	32 x 23	15
64	4	circular, deep, cylindrical pit	40 x 96	68

Table 26 (Continued)

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
65	9	circular, deep, hemispherical pit	137 x 159	29
66	3	circular, basin-shaped pit	40 x 41	12
67	1	irregular disturbance	73 x 54	14
68	6	circular, bowl-shaped pit	24 x 25	17
69	5	circular, basin-shaped storage pit	130 x 135	41
70	3	oval, shallow pit	37 x 22	10
71	5	circular, cylindrical storage pit	48 x 53	20
72	2	irregular root cast	98 x 108	17
73	9	circular, deep, hemispherical pit	157 x 162	32
74	3	oval, basin-shaped pit	88 x 85	22
75	3	oval, shallow pit	22 x 25	6
76	3	circular, basin-shaped pit	65 x 63	27
77	3	oval, shallow pit	81 x 66	23
78	3	oval, shallow pit	44 x 33	25
79	3	irregular, shallow pit	28 x 32	20
80	3	circular, basin-shaped pit	38 x 42	32
81	6	circular, bowl-shaped pit	21 x 21	19
82	3	oval, basin-shaped pit	50 x 58	20
83	3	oval, basin-shaped pit	58 x 69	31
84	7	circular, bell-shaped pit	49 x 56	49
85	7	oval, cylindrical pit	39 x 43	34
86	7	oval, cylindrical pit	47 x 49	39

Table 26 (Continued)

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
87	3	oval, shallow pit	38 x 31	20
88	5	oval, basin-shaped storage pit	27 x 65	33
89	7	oval, cylindrical pit	38 x 45	50
90	3	circular, basin-shaped pit	126 x 130	24
91	3	circular, shallow pit	38 x 42	20
92	3	circular, shallow pit	32 x 32	16
93	3	circular, basin-shaped pit	64 x 65	17
94	2	amorphous root cast	75 x 81	58
95	7	circular, cylindrical pit	32 x 35	27
96	9	circular, deep, hemispherical pit	218 x 197	54
97	3	oval, basin-shaped pit	57 x 46	17
98	3	circular, shallow pit	67 x 70	21
99	3	oval, shallow pit	70 x 42	8
100	3	oval, basin-shaped pit	72 x 80	29
101	3	oval, basin-shaped pit	43 x 60	20
102	1	irregular disturbance	68 x 45	25
103	1	irregular disturbance	60 x 70	22
104		omitted*		
105	3	circular, conical pit	43 x 45	40
106	3	circular, shallow pit	42 x 40	6
107	3	oval, shallow pit	37 x 57	21
108	3	oval shallow pit	30 x 25	19

Table 26 (Continued)

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
109	5	oval, bell-shaped storage pit	93 x 76	41
110	7	oval, cylindrical pit	41 x 30	39
111	1	irregular disturbance	56 x 69	23
112	2	irregular root cast	190 x 86	29
113	7	circular, cylindrical pit	46 x 52	33
114	6	oval, bowl-shaped pit	26 x 32	13
115	5	circular, cylindrical storage pit	62 x 60	38
116	3	circular, shallow pit	27 x 26	32
117	3	oval, shallow pit	30 x 40	30
118	4	circular, deep pit	41 x 40	33
119	3	oval, shallow pit	111 x 75	25
120	2	irregular root cast	- - -	-
121	3	circular, deep pit	36 x 39	45
122	3	circular, shallow basin	52 x 50	15
123	3	circular, deep pit	37 x 28	50
124	2	irregular root cast	120 x 53	105
125	3	oval, shallow pit	26 x 52	21
126	6	circular, bowl-shaped pit	35 x 30	9
127		omitted*		
128		omitted*		
129	9	oval, deep, basin-shaped pit	80 x 95	41
130	3	circular, basin-shaped pit	35 x 37	16
131	3	circular, basin-shaped pit	48 x 42	20

Table 26 (Continued)

Feature Number	Feature Type	Description	Dimensions (cm)	Depth (cm)
132	3	oval, basin-shaped pit	56 x 68	17
133	4	oval, shallow basin	35 x 40	24
134	6	circular, bowl-shaped pit	27 x 29	28
135	6	oval, shallow pit	40 x 18	7
136	3	circular, basin-shaped pit	66 x 84	8
137	8	circular, surface hearth	68 x 70	surface
138	4	circular, deep, cylindrical pit	57 x 48	51
139	5	circular, cylindrical storage pit	82 x 75	93
140		omitted*		
141	6	oval, bowl-shaped pit	27 x 23	10
142	6	oval, irregular pit	19 x 18	5
143	5	circular, cylindrical storage pit	37 x 35	29
144	6	circular, bowl-shaped pit	28 x 28	14
145	3	circular, basin-shaped pit	33 x 26	12
146	3	circular, basin-shaped pit	50 x 48	10
147	5	circular, cylindrical storage pit	82 x 79	67
148	6	circular, bowl-shaped pit	28 x 29	12
149	6	oval, bowl-shaped pit	26 x 31	8
150	5	circular, bowl-shaped storage pit	78 x 80	56

*The "omitted" features were extremely amorphous root disturbances having no integrity.

cultural materials. These features were not directly attributable to aboriginal use or activities at the site.

Feature numbers: 29, 67, 102, 103, 111.

Total = 5; percent of total features, 40FR7 = 3.

Type 2. Tree Root Disturbances

These are amorphous disturbances that had multiple, irregular intrusions and dark, loose, humus fill. These features contained cultural material that probably resulted from aboriginal intrusion of a root mold, or resulted from a tree root obliterating a cultural feature. The features generally had poor context and non-diagnostic cultural materials.

Feature numbers: 1, 7, 15, 17, 21, 27, 28, 42, 61, 72, 94, 112, 120, 124.

Total = 14; percent of total features, 40FR7 = 10.

Type 3. Small to Large, Shallow, Circular, Oval or Irregular Pits

This type subsumes numerous features that had different sizes, shapes, and depths and were functionally non-diagnostic. The majority of the pits are oval, shallow basins that probably were used for clay borrow pits or small processing pits. Their random occurrence and homogeneity of fill suggests these pits were routinely excavated, utilized expediently and abandoned.

Feature numbers: 4, 5, 6, 11, 12, 14, 16, 18, 19, 24, 25, 31, 36, 39, 44, 46, 47, 49, 50, 51, 52, 54, 55, 56, 57, 58, 59, 60, 63, 66, 70, 74, 75, 76, 77, 78, 79, 80, 82, 83, 87, 90, 91, 92, 93, 97, 98, 99, 100,

101, 105, 106, 107, 108, 116, 117, 119, 121, 122, 123, 125, 130, 131, 132, 136, 145, 146.

Total = 67; percent of total features, 40FR7 = 46.

Type 4. Setting Basins/Structural Support Postholes

The setting basins are shallow, oval pits that co-occurred with large, deep cylindrical pits identified as interior structural support postholes. The postholes, however, were not always equipped with setting basins. The basins are hypothesized to have functioned for setting and stabilizing the interior posts during initial installation (Faulkner and McCollough 1974:275). Four structural support postholes flanked dual earth ovens in the Eastern Expansion Area of 40FR7.

Feature numbers: 64, 118, 133, 138.

Total = 4; percent of total features, 40FR7 = 3.

Type 5. Storage/Refuse Pits (Figures 35 and 36)

These are circular, cylindrical-shaped pits, or oval, basin-shaped pits with straight or contracting side walls and flat to rounded bottoms. These pits likely functioned for the storage of surplus food. Following removal of the food, the pits were intentionally filled with refuse. Some pits were utilized a number of times. Storage pits are generally associated with fall/winter activity.

Feature numbers: 3, 10, 20, 30, 32, 37, 38, 40, 45, 48, 53, 69, 71, 88, 109, 115, 139, 143, 147, 150.

Total = 20; percent of total features, 40FR7 = 14.

Figure 35. The partial excavation of Feature 69, a refuse-filled storage pit.

Figure 36. The complete excavation of Feature 69, a Type 5 storage pit.

Type 6. Smudge Pits

These are small, shallow, bowl-shaped circular or oval pits that contained densely packed charred plant material. The soft, non-fibrous material appeared to have been burned in situ. These pits generally lacked cultural material and identifiable ecofactual material such as bone, shell or wood charcoal. The pits occurred throughout the site, but were more prevalent in the Central Expansion Area. A possible function was for creating smoke to cure hides or repel insects near the warm season occupation locus.

Feature numbers: 22, 23, 26, 33, 34, 41, 68, 81, 114, 126, 134, 135, 141, 142, 144, 148, 149.

Total = 17; percent of total features, 40FR7 = 12.

Type 7. Roasting Pits (Figure 37)

These are oval, cylindrical pits that contained a stratified fill of yellow-brown clay and charred wood. The wood had been burned in situ in the pits. The pit fill was generally devoid of artifactual materials. Botanical analysis revealed an absence of arboreal or herbaceous seeds. These pits, which are non-randomly distributed in the Eastern Expansion Area, probably functioned as specialized roasting facilities for the preparation of certain plant foods, possibly roots or tubers.

Feature numbers: 84, 85, 86, 89, 95, 110, 113.

Total = 7; percent of total features, 40FR7 = 5.

Figure 37. The partially excavated features 85 and 86, Type 7 roasting pits.

Type 8. Fired Surface Areas

These are large, amorphous areas of fired clay that occurred at the base of the plowzone. The fired clay in these areas often extended 5 cm in depth and occasionally occurred as large deposits or lumps. Cultural material in association with these surface features was predominantly large ceramic sherds. It is possible that these areas were loci for firing ceramic vessels.

Feature numbers: 2, 8, 9, 13, 35, 62, 137.

Total = 7; percent of total features, 40FR7 = 5.

Type 9. Earth Ovens (Figures 38, 39, and 40)

These features are circular, hemispherical pits with fired clay sides and floors (Faulkner and McCollough 1974:285; Cobb and Shea 1977:194). These pits are generally stratified. The bottom layer contains burned limestone blocks and thick, compacted charcoal deposits. Upper layers generally contain charcoal and ash deposits and prolific cultural material in layers of alternating dark and light soil. Feature 73 had three distinctive internal floors of fired clay (Figure 38). These features often occur in pairs and function for cooking and heating in winter lodges. The large, formal earth oven is a diagnostic feature type of the Owl Hollow phase.

Feature numbers: 65, 73, 96, 129.

Total = 4; percent of total features, 40FR7 = 3.

The features identified at 40FR7 suggest that a range of activities occurred at the site. Some of the activities are identifiable and can be associated with the features. An example is the cylindrical or deep,

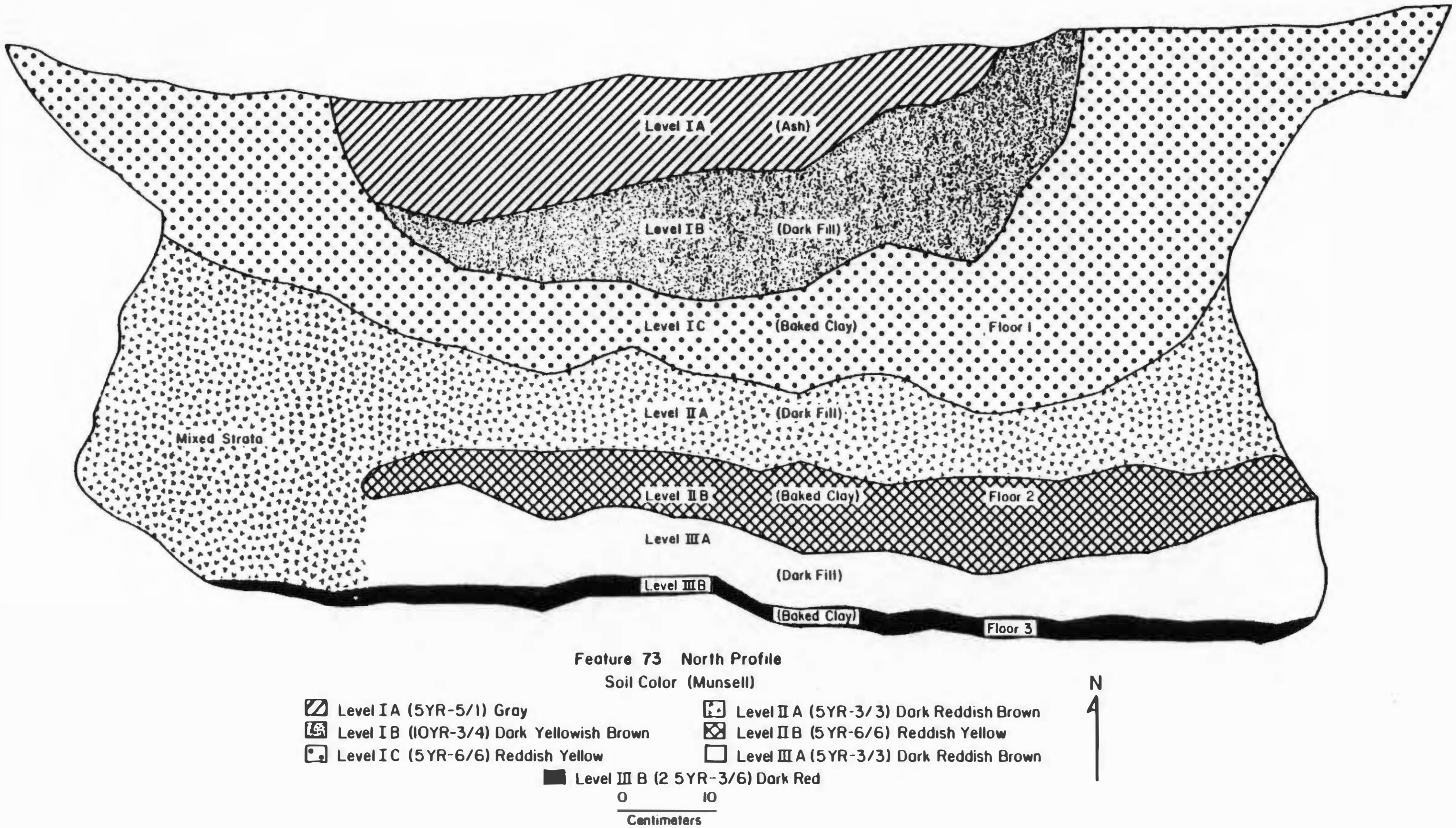

Figure 38. The north profile drawing of stratified earth oven Feature 73.

Figure 39. The partial excavation of Feature 96, a stratified earth oven.

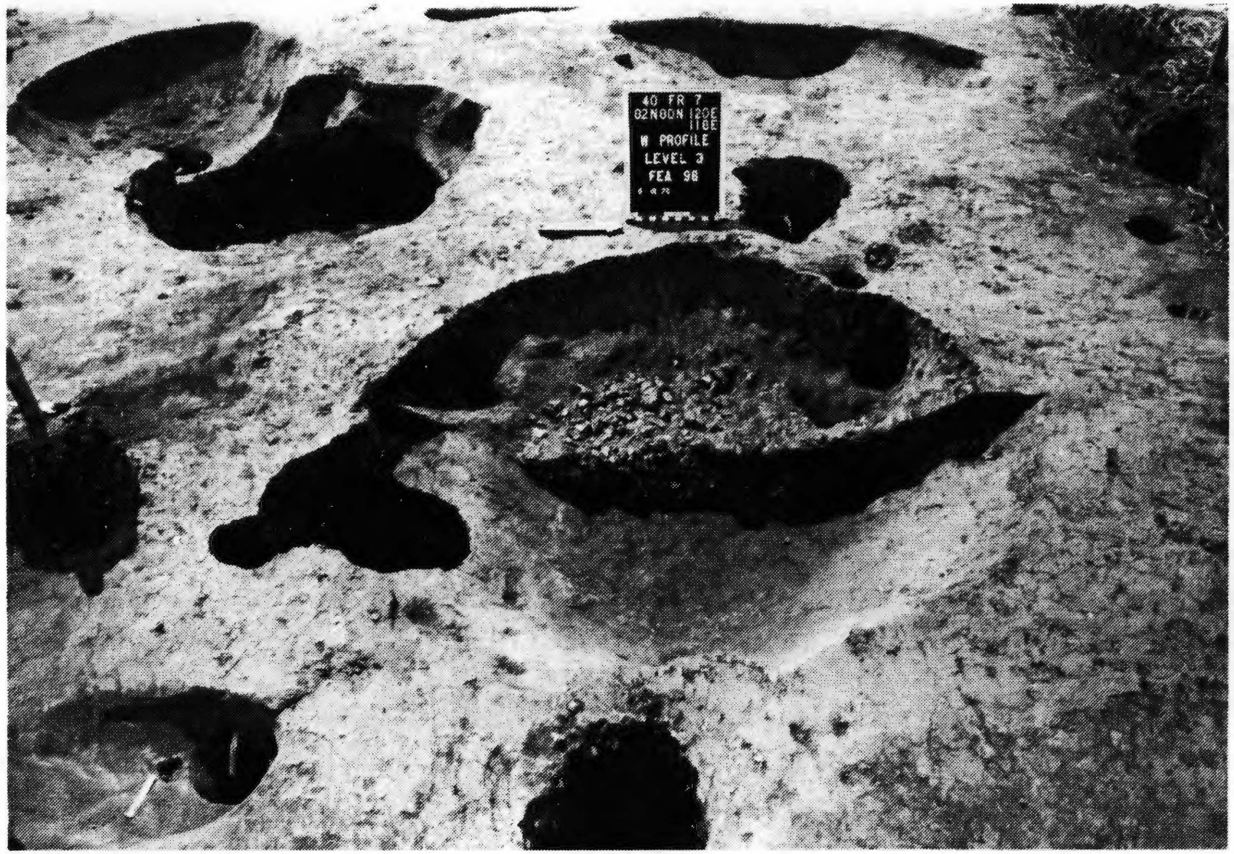

Figure 40. The exposed lower stratum of fire-cracked rock in earth oven Feature 96.

basin-shaped storage/refuse pit. However, our knowledge of the function of a majority of pits, particularly Type 3, the shallow basin-shaped pits, is limited. Inclusive materials, close associations, and intrasite distributions are all clues to pit function. Unfortunately, a large number of pits at 40FR7 seemed to have had a rather homogeneous fill, similar material remains, and a random distribution across the site.

The exceptions to the above generalities are four pit types which occur non-randomly and cluster in the Eastern and Central expansion areas. Feature types 4 and 9, the Setting Basin/Structural Support Postholes and the Earth Ovens, co-occur together with a high degree of frequency on Owl Hollow phase sites. These types are principal components of the double oven winter house first defined by Faulkner and McCollough (1974). The other feature types, 6 and 7, the Smudge Pits and Roasting Pits, are less culturally diagnostic but, nevertheless, are distributed non-randomly in the Central and Eastern expansion areas, respectively. Obviously, these pits had specialized functions perhaps associated with food preparation or a similar domestic task. It is probably important that these pits were associated with warm season (Type 6) and cold season (Type 7) activity areas.

The segregation of functional feature types makes it possible to define intrasite seasonal activity areas on Owl Hollow phase sites. This information will ultimately lead to a better documentation of site activities and a better understanding of how sites functioned in the settlement and subsistence systems of late Middle Woodland groups.

Postholes

There were 493 subsurface disturbances at 40FR7 identified as either roots or postholes. All of these disturbances, however, were excavated and recorded since some had questionable origins. The pits identified as postholes generally varied in size and shape from small, irregular intrusions to oval or circular, basin-shaped pits. Several of the larger postholes were deep, cylindrical pits. As with the features, there were differences noted in the origin, function, and distribution of these pits.

Postholes generally occurred without structure associations. Perhaps the exception was in the Central and Eastern expansion areas. Both of these areas had distinctive features and/or posthole alignments that permitted interpretation of structure configurations. The configurations are interpreted on the basis of partial wall alignments and comparison with known late Middle Woodland structure types.

In the Central Expansion Area, a number of postholes having similar size, depth, and fill color were identified as an exterior wall alignment of an oval or circular structure (Table 27). Postholes along the east and south portion of the alignment, marked by asterisks in Table 27 and shown in white in the foreground of Figure 33, were readily definable. These postholes had mean dimensions of 20 x 20 cm and a mean depth of 41 cm. The west and north portions of the alignment, however, were obliterated by prolonged and superimposed building activity. Two structure alignments were defined in the central area, both of which were of a light framed house averaging around 6.1 m in diameter. The size and shape of both posthole alignments defined in the Central

Table 27. Postholes that form the exterior wall alignment of a tentative circular structure in the Central Expansion Area of 40FR7.

Posthole Number	Location	Description	Dimensions (cm)	Depth (cm)
76*	74N52E	oval, cylindrical posthole	31 x 23	24
80*	74N52E	circular, cylindrical posthole	15 x 14	47
170*	76N52E	circular, cylindrical posthole	22 x 21	52
157*	76N54E	circular, cylindrical posthole	24 x 22	35
151*	76N54E	circular, cylindrical posthole	19 x 21	42
173*	78N54E	circular, cylindrical posthole	21 x 20	38
274*	78N54E	circular, conical posthole	22 x 22	59
177*	78N54E	circular, cylindrical posthole	18 x 18	26
186*	80N54E	oval, cylindrical posthole	15 x 17	22
190*	80N54E	circular, irregular posthole	10 x 11	41
317*	82N54E	oval, cylindrical posthole	26 x 27	38
307*	82N54E	oval, cylindrical posthole	20 x 24	46
202*	82N52E	circular, cylindrical posthole	19 x 18	52
203	82N52E	circular, cylindrical posthole	14 x 14	22
332	80N52E	circular, conical pit	21 x 23	40
325	82N52E	circular, cylindrical posthole	17 x 17	23

Table 27 (Continued)

Posthole Number	Location	Description	Dimensions (cm)	Depth (cm)
297	82N50E	irregular shallow basin	30 x 28	25
204	82N52E	circular, cylindrical posthole	27 x 25	24
329	80N48E	circular, cylindrical posthole	22 x 21	41
120	80N48E	circular, cylindrical posthole	16 x 19	30
127	80N48E	circular, cylindrical posthole	22 x 21	27
149	78N48E	circular, cylindrical posthole	18 x 20	22
176	78N48E	oval, irregular posthole	15 x 12	32
89	76N48E	circular, cylindrical posthole	15 x 15	19
102	76N48E	oval, basin-shaped posthole	23 x 27	22
92	76N50E	circular, cylindrical posthole	18 x 18	16

* = posthole forming the east and south wall alignments.

Expansion Area suggest a warm season structure (Faulkner 1977:154-155; Cobb 1982:165-169).

The Eastern Expansion Area was characterized by what appeared to be a random distribution of many different types of postholes. On closer examination, however, several large, cylindrical pits were associated with a pair of earth ovens. Due to size and distribution, the pits were interpreted as the holes where large posts forming the interior support framework of a winter lodge were placed. There were several possible alignments of these large interior support posts which led to the interpretation of multiple rebuilding or repair phases for the winter lodge.

The construction of the double oven winter lodge is represented by at least six features and eight postholes. Table 28 identifies these installations and provides additional information about each facility. Apparently, the two earth ovens were originally flanked by large cylindrical postholes identified as 218, 361, 422 and Feature 138. These pits have average dimensions of 41 x 45 cm and an average depth of 62 cm. The remaining pits in Table 28 are hypothesized to have resulted from repair or to represent entirely new building phases of the winter lodge. Since the same pit could have been reused many times, it is, therefore, difficult to project a sequence of construction phases beyond the suggestion that at least three occurred.

It was equally difficult to define a specific exterior wall alignment for the winter lodge. On the one hand, not enough area surrounding the earth ovens was cleared of plowzone, and, on the other, the area that was cleared had a sheet midden which obscured posthole locations. However, there is a probability that those postholes

Table 28. Features and postholes of the Eastern Expansion Area which probably associate with construction and maintenance of a double oven winter lodge.

Number	Type	Description	Dimensions (cm)	Depth (cm)
		PART I		
64	4	circular, deep, cylindrical pit	40 x 96	68
73	9	circular, deep, hemispherical pit	157 x 162	32
96	9	circular, deep, hemispherical pit	218 x 197	54
99	3	oval, shallow pit	70 x 42	8
118	4	circular, deep pit	41 x 40	33
138	4	circular, deep, cylindrical pit	57 x 48	51
		PART II		
218	posthole	oval, deep pit	33 x 30	68
219	posthole	oval, deep pit	38 x 30	61
220	posthole	circular, deep pit	24 x 26	44

Table 28 (Continued)

Number	Type	Description	Dimensions (cm)	Depth (cm)
249	posthole	oval, deep pit	20 x 22	27
361	posthole	circular, deep pit	35 x 37	63
422	posthole	oval, deep pit	40 x 65	66
458	posthole	oval, deep pit	37 x 44	54
480	posthole	oval, deep pit	19 x 22	35

clustered southeast and south of the earth ovens represent the remains of numerous building phases of an exterior structure wall (Figure 31). If the postholes are projected in an oval alignment, a 40 x 60 m structure is hypothesized to have been constructed in the Eastern Expansion Area. This structure was likely a winter lodge that was occupied for a number of years.

Refuse Midden

The North Midden Expansion is an area of intensive refuse accumulation (Table 29). This area was tested with 10 alternating 2 m units placed east-west, and a perpendicular 1 m wide by 30 m long trench trending north-south. The test pits and trench were situated to determine horizontal and vertical distribution of the midden, reveal its depositional history, and sample the midden contents.

An initial test unit, 100N x 50E, revealed a 30 cm thick, homogeneous, dark brown refuse deposit. This deposit was sampled in arbitrary 10 cm levels. The deposit contained abundant lithic and ceramic remains, as well as faunal and floral materials. Gastropods and pelecypods were particularly abundant throughout the midden. Following initial testing, all midden levels were removed and the fill water-screened through graduated 1.5 mm and 6 mm mesh to enhance data recovery. The integrity of arbitrary levels was maintained throughout the excavation, although the midden fanned out from the approximate central locus designated by the initial test unit.

Excavation of the midden revealed a deposit that had been made originally in a natural swail. The northern margin of the site was

Table 29. Material Identified in the North Midden Expansion Area, 40FR7.

Midden Units:	Contents: by Presence/Absence							Contents: by weight to nearest gram		
	Lithic	Ceramic	Bone	Botanical	Shell	Fired Clay	C-14	Rough Rock (g)*	Misc. Debris (g)**	Total Weight
98N48E										
0-10 cm	X	X	X	X	X	X		31,472.0	4,073.7	35,545.7
11-20 cm	X	X	X	X	X	X		39,707.8	2,072.0	41,779.8
21-30 cm	X	X	X	X	X	X		9,184.0	4,480.0	13,664.0
98N52E										
0-10 cm	X	X	X	X	X	X		35,504.0	8,736.0	44,240.0
11-20 cm	X	X	X	X	X	X		22,344.0	8,484.0	30,828.0
21-30 cm	X	X	X	X	X	X		9,128.0	5,680.7	14,808.7
100N50E (W 1/2)										
0-10 cm	X	X	X	X	X	X		29,120.0	3,376.0	32,496.0
11-20 cm	X	X	X	X	X	X	X	17,136.0	5,656.0	22,792.0
21-30 cm	X	X	X	X	X	X	X	4,928.0	2,296.0	7,224.0
31-subsoil	X	X	X	X	X	X			1,120.0	1,120.0
100N50E (E 1/2)										
0-subsoil	X	X	X	X	X	X	X	58,464.0	14,672.0	73,136.0
100N54E										
0-10 cm								32,928.0	6,40.0	39,368.0
11-20 cm							X	27,552.0	6,608.0	34,160.0
21-30 cm								16,688.0	6,272.0	22,960.0
98N56E										
0-10 cm								29,383.5	5,042.5	34,426.0
Total Weight:								363,539.3	85,008.9	448,548.2

* Rough Rock = Combined category of: Fire-cracked rock
Tabular chert
Limestone
Burned limestone
Sandstone

** Miscellaneous Debris = That remaining after the sorting and flotation of screened materials.

previously identified as having subsided due to collapse of the sinkhole rim. The result was a basin-shaped concavity where refuse accumulated or was purposefully dumped. Beneath the midden, a clay subsoil was encountered which had apparently been the original ground surface. There were numerous intrusions, postholes, and a storage pit, all attributable to Middle Woodland activities.

An explanation for the midden accumulation is that it originated from nearby activities and was dumped into the swail. This is reminiscent of the buildup of midden at 40CF111 in the Normandy Reservoir (Faulkner and McCollough 1974:129). Midden accumulations are generally associated with a winter lodge and the need to dispose of the contents of earth ovens. Undoubtedly, earth oven use contributed to the 40FR7 midden, since there were rather large quantities of fire-cracked rock, burned and unburned limestone, and fragments of charred wood and nuts (Table 29). The 40FR7 midden, however, did not appear as organically enriched as that on 40CF111 and 40BD46, and it contained shellfish and floral remains suggestive of early spring activities. In addition, the midden occurred immediately north of the Central Expansion Area, an hypothesized warm season structural locus.

The North Midden Expansion Area probably represents a localized accumulation from multi-season activity centered on the high ground surrounding the swail. Both cold and warm season debris were represented and rather evenly distributed throughout the 30 cm deposit. The distribution of materials and internal homogeneity suggest a rather rapid buildup of the midden. Based on the radiocarbon date from unit 100N54E (11-20 cm), this accumulation occurred during the intensive

occupation of 40FR7 about A.D. 200-300. This northern portion of the site may well represent the area of most intensive occupation, possibly due to the proximity to the artesian spring that flowed northward some 30 m from this area.

Lithic Analysis

The lithic sample obtained from 40FR7 was recovered from four separate sources: a controlled surface survey, systematic screening of the plowzone from test units, subplowzone pits, and a 30 cm refuse midden. The lithic sample from pits identified as features and postholes and the refuse midden was derived from undisturbed context. These lithics, which represent the largest sample from any of the Owl Hollow sites tested, were submitted to a functional analysis. The remainder of the lithic sample, that from disturbed plowzone context, was utilized to establish categories of lithic raw materials that are representative of the upper Elk River Valley and Owl Hollow site locality (Appendix A). The lithics identified at 40FR7 generally parallel those from the Thompson Creek locality, and compare with Penny and McCollough's (1976:191-196) raw material categories established for the upper Duck River Valley.

There were 22 distinctive types, and one generalized category of chert, plus limestone, sandstone, shale, hematite, calcite, and slate identified in the Owl Hollow lithic sample. These raw materials occurred locally in the upper Elk River Valley, occurred in adjacent localities of the eastern Highland Rim, and occurred along the western escarpment of the Cumberland Plateau. One type of lithic raw material

recovered at the Owl Hollow site was distant-exotic in origin. The raw materials from 40FR7 are described below.

Local Lithic Material

Local lithic utilization at 40FR7 did not vary substantially from that recorded at the Shofner and Raus sites. There were 18 types of locally available chert from the Owl Hollow site that have been previously described in chapters V and VI. These are:

Type	Raw Material	Sample Size (N)
A	Blue, Gray and Tan chert	24
B	Blue, Gray and Tan chert, variety tan	1,151
C	Blue, Gray and Tan chert, variety blue-gray	1,411
F	Gray nodular chert	379
H	Matt Brown chert	203
I	Blue-Black fossiliferous chert	60
J	Blue-Gray agatized chert	29
K	Greenish-Gray chert	1,229
L	Greenish-Gray, highly mottled chert	86
M	Dark Blue-Gray chert	320
N	Gray-banded chert	22
O	Blue-Gray mottled chert	130
P	Tan chert	121
Q	White, coarse-textured fossiliferous chert	84
R	Tan coarse-grained chert	20
S	Reddish-Tan chert	6
U	Dark Gray mottled chert	71

X	non-specific chert (generalized category)	18
	Limestone	20
	Sandstone	4
	Shale	1

One local type was identified in the lithic sample from the Owl Hollow site that had not been previously described. This type is:

Type J: Gray chert, tan cortex (N = 181)

This medium to coarse-grained chert is light gray to off-white with speckled inclusions; it has a thin, yellowish-tan cortex. This chert probably occurs in the Fort Payne Formation, and it possibly represents a variation of the Fort Payne blue-gray and tan chert. Local sources for this material are the gravel bars of the upper Elk River and stream banks of tributaries agrading the Highland Rim near the escarpment.

A generalized category of probable local cherts, Type X (N = 18), includes materials of different color and texture, which do not warrant separate types. This material represents currently unknown and unresearched chert types and source areas. This chert displays a variation in color that ranges from mottled blue to dark gray and dark gray-green. Much of this material is fine to medium-grained chert and was likely derived locally from the Fort Payne Formation.

Besides chert materials, quantities of locally available limestone (N = 20), sandstone (N = 4) and shale (N = 1) were recovered from the Owl Hollow site. The latter materials, particularly Type 46, were likely fragments of tools. Descriptions of these raw materials are presented above in chapters V and VI.

Near-Exotic Lithic Material

Three types of chert along with vein quartz/chalcedony are classified as near-exotic lithics. The following types were previously discussed in chapters V and VI:

Type	Raw Material	Sample Size (N)
D	Blue-Green nodular chert	4,263
E	Blue-Green nodular chert, variety reddish brown	480
G	Black-brown nodular chert	961
V	Vein quartz/chalcedony	6

Two lithic materials of probable near-exotic origin and one of distant-exotic origin were recovered at the Owl Hollow site. These materials are described below.

Hematite (N = 5)

These are fragments of a soft, earthy "red ocher" type of hematite. Faulkner and McCollough (1973:59) suggest that small quantities of hematite were probably derived from the Pennsylvanian deposits of the Cumberland Plateau. A fine-grained, dense, black hematite also occurs on late Middle Woodland sites. The source of this material is not known, but it likely came from outside the Highland Rim. Hematite was typically used for tools and as a pigment source.

Calcite (N = 1)

This material is crystallized calcium carbonate that varies from common limestone chalk to soft marble. It is derived as a precipitate and occurs as a mineral deposit in interbedded limestone probably

underlying the Cumberland Plateau. It functioned as a raw material for the manufacture of ornaments, such as rectangular two-holed gorgets and one-holed pendants.

Distant-Exotic Lithic Materials

Slate (N = 1)

This material, which is often termed green slate or greenstone, is a metamorphic rock that is foreign to the Highland Rim. A potential source area for this material is one of several "slate belts" found in the southern Blue Ridge or Piedmont physiographic provinces. Faulkner and McCollough (1973:60) report that the metamorphic rock area of central Alabama is a possible source for the greenstone found in the middle Tennessee area. This grayish-green slate was commonly used for celts or digging implements on late Middle Woodland sites.

Chipped and Ground Lithic Materials

The lithic sample recovered from features, postholes, and midden at 40FR7 totaled 11,288 artifacts (Table 30). The lithic sample is divided into primary lithics, unifacial and bifacial tools, projectile points/knives, and ground stone implements. While the majority of the lithics (93 percent) was in the category of primary lithics or chert debitage, there were also many different types of tools, and a large sample of diagnostic projectile points/knives. The sample of ground stone tools, however, was highly fragmented or reworked examples. Observation of surface collections from Owl Hollow phase sites on the flat Highland Rim suggests that limestone hoes, greenstone celts, and calcite pendants and gorgets should have been present in greater quantities. Perhaps

Table 30. Lithic assemblage from features, postholes, and midden, 40FR7.

Tool Type	Raw Materials** A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Limestone	Sandstone	Shale	Hematite	Calcite	Slate	Total	Percent
1		1																						1						2	*
2a		1	2	21	2		1	2			1																			30	*
2b			3	8				1			10	3	1			1				1										28	*
2c				6							2																			8	*
2d	1	4	2	40	1	3	12	2			21	1	7		4	1														99	1
3	1	220	152	740	186	72	147	37	3	3	136	12	62	3	26	28	26	9		43	4	1	2							1,913	17
4	7	243	327	1105	108	107	275	62	9	8	352	39	78	3	41	25	9	6	1	56	9	1	6							2,877	26
5	4	235	331	1247	111	104	197	36	6	5	224	18	90	8	29	4	6	1	1	39	25	2	1							2,724	24
6		2		6	1	2					4		1			1	1													18	*
7	1	413	518	763	52	64	243	41	32	10	400	10	56	5	22	58	40	3	2	32	30	1	9							2,805	25
9	1		3	10	1	1	5				4																			25	*
10			1	30	2	1	1	1			8		3			1	1	1		1										51	1
11			1	3			2								1					1										8	*
12				5							1		2																	8	*
13		1									1																			2	*
14		1	2	5	1						2				1															12	*
15	1	5	24	87	7	6	14	2	1	2	18		5	1	3		1		1	3										181	2
16	1	1	1	49	1	5	6	2	1		4	2									1	1								75	1
17	2	3	1	12		1	6	1			8		5		3					1										43	*
18				6	1		2			1	3		3								1									17	*
19	1										4																			5	*
20		2		8			2				2					1														15	*
23			1																											1	*
25		2	4	14		2	5	2			2		1																	32	*
26		1		2			1																							4	*
27		2	2	9			5	1			2									1										22	*
28			1	12	1	1	2				2																			19	*
29		1		9		1	3	3																						17	*
30		6	6	22	1	3	9	4	3		2																			56	1
31			2	6			5																							13	*
32			1	3				1			1		1							1										8	*
33		1		4	1		1	1			1									1										10	*
34	3		7	2	1		5	1	1		1		4	1		1														27	*
35			4	6	2		4	2			2								1											21	*
36		3	10	8		1	6	1	1		8			1																39	*
37	1	3	5	15		5	2		3		3	1	1							1	1									41	*
39																								4	4					8	*
40																								1						1	*
41																								1						1	*
44																													1	1	*
45																											7			7	*
46a-d																								13		1		1		15	*
Total	24	1151	1411	4263	480	379	961	203	60	29	1229	86	320	22	130	121	84	20	6	181	71	6	18	20	4	1	7	1	1	11,288	
Percent	*	10	13	38	4	3	9	2	*	*	11	1	3	*	1	1	1	*	*	2	1	*	*	*	*	*	*	*	*		

* = less than 1 percent

** = The following materials were recovered from the features, postholes, and midden:

(a)	Chert/Limestone rock (includes rough chert and fire-cracked rock)	941,172.95 g
(b)	Burned limestone rock	13,596.10 g
(c)	Miscellaneous debris	206,117.96 g
(d)	Sandstone	25,466.70 g

aboriginal use and disposal patterns accounted for the discrepancies in the sample. Large quantities of fragmented limestone, sandstone, and shale were recovered from earth ovens and the refuse midden. These materials were fire-cracked and burned beyond recognition of other than raw material type. Exhausted tools or tool fragments could have been obscured in this manner. These materials along with miscellaneous debris are presented as a sub-section of Table 30. The lithic sample from 40FR7 was submitted to a functional analysis and classification resulting in the identification of 41 tool types (Table 30).

Primary Lithics (N = 10,504)

The primary lithics are represented by 10 types of material remains. These artifacts are cores and flakes from core reduction and tool and projectile point/knife manufacturing and refurbishing activities. All of the tool types were discussed in the previous two chapters and are descriptively identical to those types defined for the Shofner and Raus samples. The primary lithic tool types and totals for the Owl Hollow site are:

	Tool Type	Sample Size (n)
1	Hammerstone	2
2a	Subconical core	30
2b	Flat core	28
2c	Discoidal core	8
2d	Amorphous core	99
3	Decortication flake	1,913
4	Flat flake	2,877

5	Bifacial thinning flake	2,724
6	Bipolar flake	18
7	Unidentifiable flake fragments	2,805

Unifacial Tools (N = 362)

Eight types of unifacial tools were identified in the Owl Hollow site lithics sample. Previously, six types were described in chapters V and VI. The unifacial tool types already discussed and their totals for the Owl Hollow site are as follows:

	Tool Type	Sample Size (n)
9	End scraper	25
10	Side scraper	51
11	Spokeshave	8
13	Perforator	2
15	Utilized flake: unifacial	181
16	Blade-like flake: unifacial (Figure 41, a-h)	75

Two additional types of unifacial tools from the Owl Hollow site are described below.

12 Denticulate (n = 8)

These are large, thick flake tools with closely spaced notches that form a jagged or serrated edge. This type of working edge usually appears on a single lateral side.

Figure 41. The Owl Hollow site: Blade-like flakes and microtools.

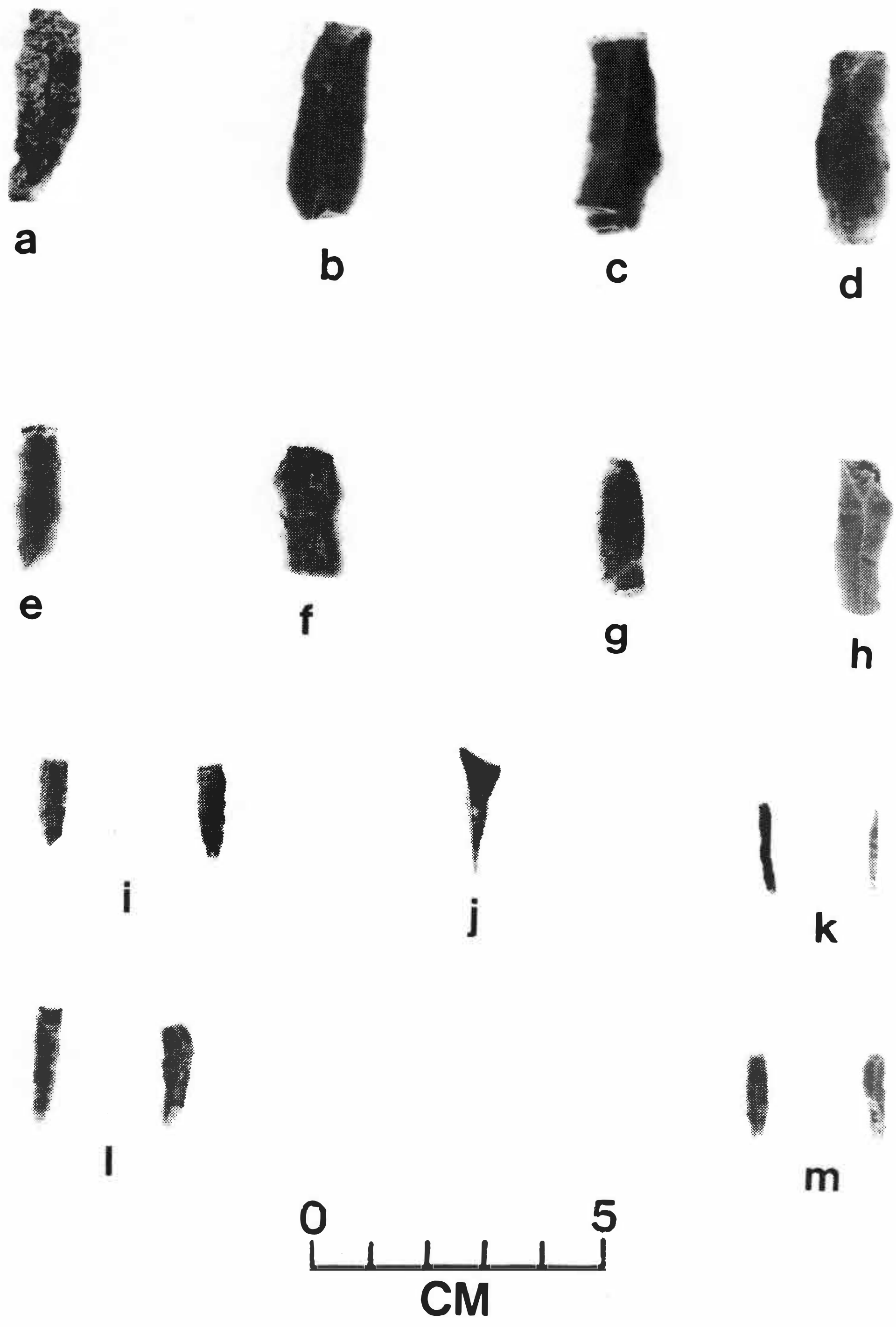

Figure 41

14 Graver (n = 12)

These are flake tools with one or more small projections that form a point and often display bilateral abrasion. These tools are shaped by alternate, localized retouch.

Bifacial Tools (N = 117)

Seven types of bifacial tools, including one miscellaneous category (Type 26) with four sub-types, were identified in the Owl Hollow lithic sample. Five of the types were described above in chapters V and VI. The previously described types and their totals for the Owl Hollow site are:

	Tool Type	Sample Size (n)
17	Thick biface knife	43
18	Thin biface knife	17
20	Core tool: scraper	15
25	Microtool (Figure 41 i-m)	32

The additional types of bifacial tools from the Owl Hollow site are described below.

19 Core tool: chopper (n = 5)

These implements are crude, possible combination tools that display areas of large flake removal and intensive utilization and battering of one edge. The edge utilized for chopping is generally at an angle of 30-45°. Cortex is usually present opposite the cutting edge and along the sides.

23 Drill (n = 1)

This implement has a narrow, bifacially flaked, tapering blade. The blade appears quadrilateral in cross section and tapers to a blunt, distal point. There is heavy abrasion throughout the blade length. The base is stemmed.

26a Adze (n = 1)

This implement is linear in shape with a tapering, blunt proximal end, and a wide, chisel-shaped distal or cutting end. A thicker cross section near the proximal end gives the tool an asymmetrical appearance. The working edge has extreme wear and areas of use polish. Faulkner and McCollough (1973:85) suggest these tools were hafted for heavy use and functioned as chisels, celts, adzes, or picks.

26b Miscellaneous bifacial tool (n = 1)

This implement did not conform to any of the previously described types. The tool has large, bifacial flake scars along the bilateral edges, but lacks a specific working area or signs of use modification. This tool was probably a preform in an intermediate stage of manufacture.

26c Projectile Point/Knife preform (n = 1)

This implement is bifacially flaked along the bilateral edges. The blade symmetry and the lack of retouch or signs of wear suggest a blank or preform for a projectile point or knife.

26d Cobble spall chopper (n = 1)

This implement is manufactured from dolomitic limestone. Large flakes are removed from one edge to form a 30-40° working area that has been modified by battering. This implement is similar in appearance to Type 19 tools described above; however, it is less systematically manufactured and appears to be an expedient tool form.

Projectile Points/Knives (N = 273)

The projectile points/knives are represented by 26 types defined in the Owl Hollow lithics sample. Ten of these types were described in chapters V and VI. The tool types previously described and their totals from the Owl Hollow site are:

	Tool Type	Sample Size (n)
27	Narrow, thick lanceolate	22
28	Narrow, thick lanceolate stemmed (Figure 42, h)	19
29	Narrow, thick lanceolate contracted stemmed	17
30	Narrow, thick lanceolate shallow side-notched (Figure 42, b, d-g)	56
31	Lanceolate expanded stemmed (Figure 42, a, c)	13
34c	Medium-large, triangular, straight elongate blade	4
34d	Wide expanded stemmed, weak shouldered	1
35	Unidentifiable PP/K: basal fragments	21
36	Unidentifiable PP/K: medial fragments	39
37	Unidentifiable PP/K: distal fragments	41

Figure 42. The Owl Hollow site: Projectile points/knives. Lanceolate expanded stemmed, a, c; Narrow thick lanceolate shallow side notched, b, d-g; Narrow thick lanceolate stemmed, h.

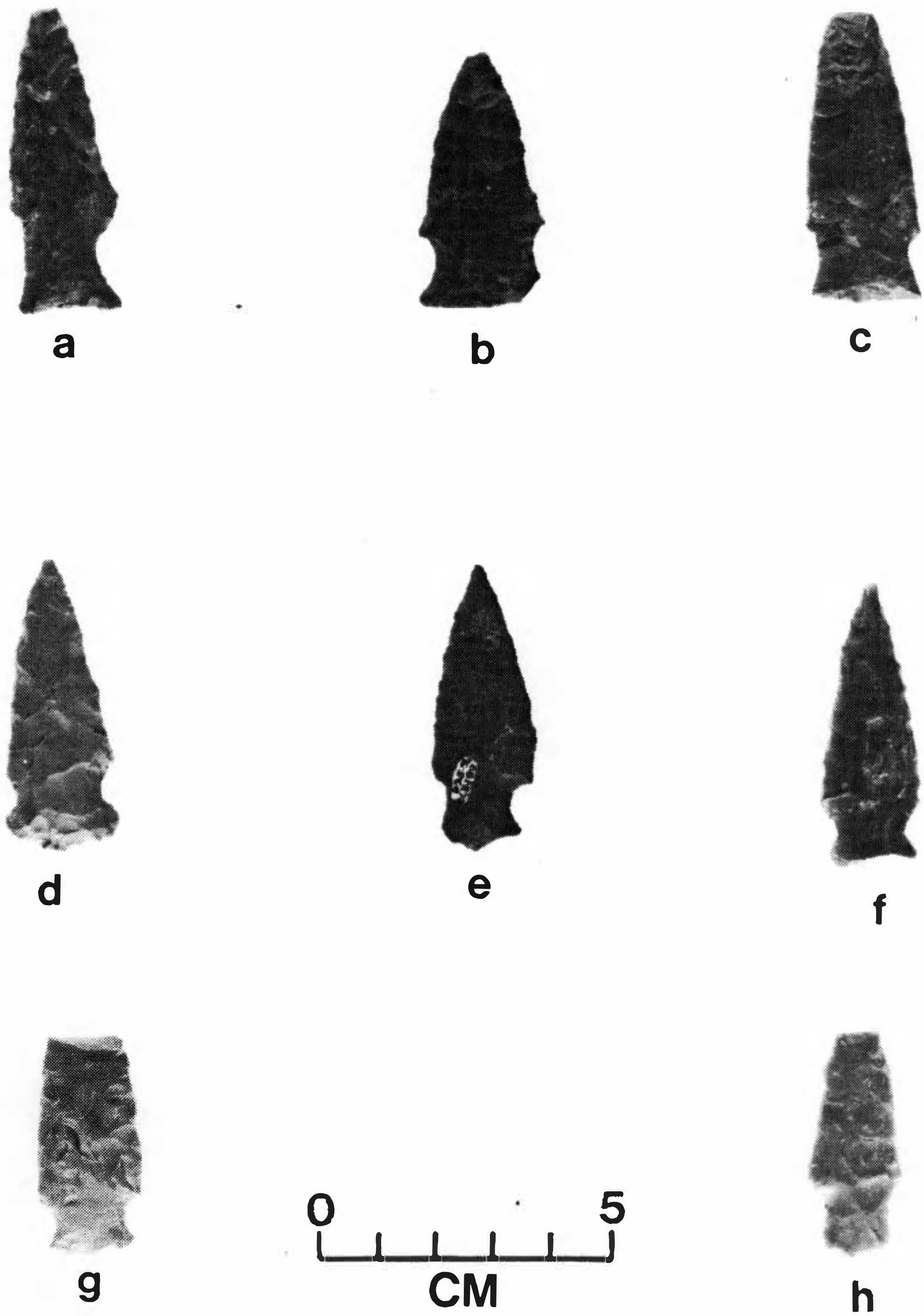

Figure 42

The additional 16 types of projectile points/knives from the Owl Hollow site are described below.

32 Lanceolate straight stemmed (n = 8)

Projectile points in this type have a narrow, biconvex blade and strong to weak shoulder development that tapers to a parallel-sided stem. Blade edges are straight to excurvate. The stems are frequently unfinished and have cortex along the basal edge. This projectile type is possibly a variant of the New Market Spike (Cambron and Hulse 1964:35) or the Bradley Spike (Kneberg 1956). It also resembles Normandy Reservoir Types 61-65 (Faulkner and McCollough 1973:99-102). These projectiles have a Middle Woodland affiliation in south-central Tennessee. This type probably occurs primarily on late Middle Woodland sites in middle to late Owl Hollow phase context.

33 Triangular shallow side-notched (n = 10)

The projectile points in this type have a broad, elongated, triangular blade with straight to slightly excurvate edges. Shoulders are weakly developed and extend into shallow side notches. The base is straight to slightly incurvate. These projectiles sometimes occur with a thick, irregularly flaked blade that is often asymmetrical. This type is similar to the Normandy Reservoir Types 66-67 (Faulkner and McCollough 1973:102-103), as well as resembling the New Market and Bradley Spike types mentioned above, except for the wider blade and pronounced notches. This type has a Middle Woodland cultural affiliation in south-central Tennessee.

34a Medium-large triangular, straight excurvate blade (n = 1)

This projectile point/knife corresponds to Type 53 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:94-95). This projectile, which has an isosceles triangular form, is a diagnostic type of the Middle Woodland McFarland phase of the upper Duck and Elk river valleys.

34b Medium-large triangular, thick straight-excurvate blade (n = 4)

These projectile points/knives correspond to Type 54 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:95). These are crude examples of Normandy Type 53 discussed above and possibly represent thick, trianguloid McFarland phase knives.

34e Small-medium short straight stemmed (n = 1)

This projectile point/knife corresponds to Type 78 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:108). This narrow, elongate, stemmed projectile is possibly associated with the Normandy Lanceolate Spike cluster, and is probably late Middle Woodland in origin.

34f Small-medium narrow expanded stemmed, slight barb, narrow blade (n=1)

This projectile point/knife corresponds to Type 80 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:109). This ovate to triangular projectile is associated with the terminal Archaic or Early Woodland periods.

34g <u>Medium expanded stemmed, straight base, excurvate blade</u> (n = 1)

This projectile point/knife corresponds to Type 82 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:10). This elongate, triangular projectile with a short, expanded stem is similar to the <u>McIntire</u>. This type is associated with Late Archaic shell mounds in northern Alabama (Cambron and Hulse 1964:A-106).

34h <u>Medium rounded stemmed, narrow blade</u> (n = 2)

These projectile point/knives correspond to Type 91 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:114-115). These thick, elongate projectiles with broad rounded bases occur in Late Archaic/Early Woodland context in Normandy and are included in Normandy's Rounded Base cluster.

34i <u>Medium straight stemmed, narrow blade</u> (n = 1)

This projectile point/knife corresponds to Type 98 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:118-119). The cultural affiliation of this narrow, elongate projectile with a narrow, straight base is unknown, but it is probably associated with Late Archaic/Early Woodland cultures.

34j <u>Medium-large narrow straight stemmed, slight barb, wide blade</u> (n = 2)

These projectile point/knives correspond to Type 105 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:123). These broad bladed, barbed and short stemmed

projectiles probably associate culturally with the Late Archaic, and are similar to types in the Pickwick or Rounded Base clusters in the Normandy Reservoir.

34k Medium-large, straight-expanded stemmed, crude base, thick blade (n = 2)

These projectile point/knives correspond to Type 110 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:126). These are undifferentiated stemmed artifacts which vary in size, but share traits such as thick blades and crude, unfinished stems. These artifacts are likely associated with Late Archaic or Early Woodland cultures and probably functioned as knives.

34l Medium-large corner removed, wide stemmed (n = 1)

This projectile point/knife corresponds to Type 113 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:127). This projectile point with an ovate-triangular blade and a short, wide stem formed by corner removals is similar to the White Springs type (DeJarnette, Kurjack and Cambron 1962). This type is considered Middle Archaic and associated with the White Springs-Sykes cluster in the Normandy Reservoir.

34m Medium-short incurvate-base stemmed, wide blade, slight blade (n = 1)

This projectile point/knife corresponds to Type 119 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:131). This projectile point with a short, wide,

serrated blade, and a short, straight stem is similar to the Kirk type (Coe 1964), which is Early Archaic in origin.

34n Large corner notched, straight base (n = 3)

These projectile point/knives correspond to Type 122 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:132-133). These wide-bladed, corner-notched projectiles with prominent barbs and expanded stems are similar to the Cypress Creek II projectiles of the western Tennessee Valley (Lewis and Lewis 1961). This type is associated with the Early Archaic period and included in the Early Archaic Kirk cluster.

34o Medium short expanded stemmed, bifurcated base, wide blade, weak shouldered (n = 1)

This projectile point/knife corresponds to Type 132 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:138-139). This projectile point with a wide blade, short shoulders, an expanded stem, and slightly bifurcated base is similar to the MacCorkle Stemmed, an Early Archaic type in the Kanawha Valley of West Virginia (Broyles 1971:7).

34p Lanceolate projectile point/knife preform (n = 1)

This artifact has an elongate blade and a hafting area prepared by shallow notching. The thick and crudely flaked preform is probably associated with the Lanceolate Expanded Stemmed cluster which dates from the Middle to Late Woodland occupation of the upper Duck Valley.

Ground Stone Tools (N = 33)

Nine types of ground stone tools were defined in the Owl Hollow lithics sample. One of these types was described in Chapter V. The tool type previously described and its total from the Owl Hollow site is:

	Tool Type	Sample Size (n)
39	Millingstone	8

The additional eight types of ground stone tools from the Owl Hollow site are described below.

40 Celt (n = 1)

This poled celt fragment was manufactured by pecking, grinding, and selective polishing of the distal end. The raw material is a hard, dolomitic limestone. This implement functioned predominantly for cutting and wood working.

41 Hoe (n = 1)

This implement is rectanguloid in shape and manufactured from a flat slab of limestone by bifacial flaking along the edges. The distal end has extensive use-wear and polish. The implement was used for digging and was probably hafted.

44 Bead (n = 1) (Figure 43, d)

This ornament was manufactured by cutting, drilling, and polishing. A single hole was centered in this fragment of calcite. This item probably functioned for adornment.

Figure 43. The Owl Hollow site: Ground stone tools. Elbow pipe, a; Two-holed gorget, b; One-holed pendant, c; Bead, d.

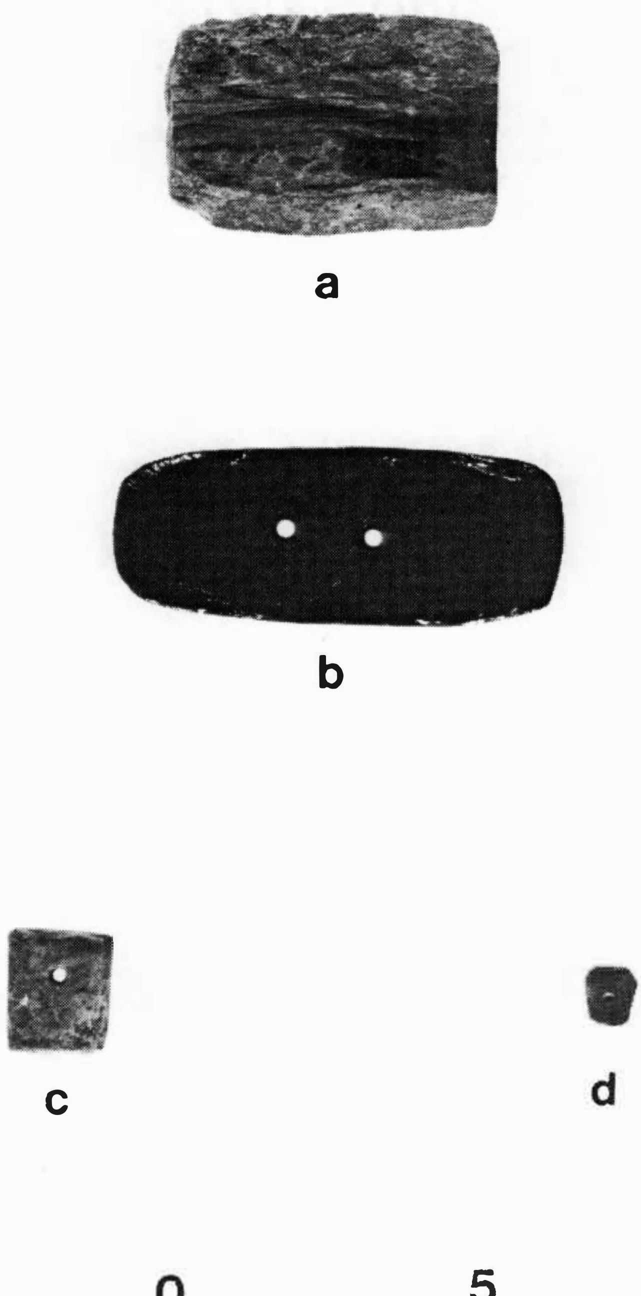

Figure 43

45 Ground and Faceted Hematite (n = 7)

These amorphous fragments of ferrous oxide have grinding striations and polish on one or more areas. The shapes created by grinding do not suggest any particular pattern or intentional form. These items functioned for extraction of an oxide powder often referred to as "red ochre." It was probably used as pigment.

46a Two-holed gorget (n = 1) (Figure 43, b)

This flat and rectangular ornament was manufactured from Chattanooga black shale. Two biconcave holes were drilled near the center, and the soft, exterior surface was scored with linear striations. The gorget was likely a human body or implement ornament.

46b One-holed pendant (n = 1) (Figure 43, c)

This ornament is thin, square in shape, and polished on both flat surfaces and along the edges. A biconcave hole is drilled slightly off-center. This item was manufactured from calcite. It probably served as a pendant.

46c Worked limestone (n = 12)

These are fragments of limestone tools. Working areas are identified by pecked, smoothed, striated, and polished surfaces. The functions of these tools are unknown; however, they probably served as millingstones, abraders, and/or hammerstones.

46d Elbow-pipe (n = 1) (Figure 43, a)

This is a fragmented stem section of a probable rectanguloid elbow pipe. The interior surface is gouged and striated, while the exterior surface is smoothed. The raw material is probably a soft limestone or possibly slate.

Lithics Summary

The lithics sample recovered from the Owl Hollow site came from features, postholes, and refuse midden in four dispersed excavation areas of the site. The lithics sample, therefore, is considered a representative, random sample of raw materials and tool types from a Highland Rim site in the upper Elk River Valley.

The majority of lithic raw materials (22 of 29 types) were local in origin, and were probably associated with the Fort Payne Chert Formation (Penny and McCollough 1976:151). The local lithics totaled 49 percent of the sample from 40FR7 and suggested a pattern of intensive local procurement. Accessibility and availability were probably key factors in the procurement pattern. Streams draining the escarpment provided access to the chert deposits that occurred as outcrops, talus skree, or stream gravels. Chert availability was undoubtedly enhanced because of the location of such sites as 40FR7 along the margin of the dissected Highland Rim.

Six types of near-exotic lithics totaled 51 percent of the 40FR7 lithics sample. Blue-green nodular represented 38 percent of the raw materials identified, and was the most intensively exploited of any of the raw materials. While Penny and McCollough (1976:178) recorded a

single Highland Rim source for blue-green nodular, the quantity of this chert suggests an additional source in the Owl Hollow site locality. The near-exotics, including hematite and calcite, probably occurred on the flat Highland Rim or on the escarpment of the Cumberland Plateau.

The 40FR7 lithics suggest near-exotics are less meaningful for determining exploitation and procurement patterns for sites on the Highland Rim. Little is known of the proximity of Highland Rim sites to raw material sources and of the types of raw material available on the flat Highland Rim. The local materials of the Fort Payne Formation and the proximity of near-exotic materials probably contributed to smaller lithic resource exploitation rounds and to significantly less use of distant-exotic raw materials. As an example, a single slate artifact was the only distant-exotic material recovered from the Owl Hollow site.

The waste flakes, the unifacial and bifacial tools, the projectile points/knives, and the ground stone tools are the by-products of manufacturing, and the tools fashioned to accomplish specific tasks. The tasks were related to subsistence and can, therefore, suggest certain activities associated with site habitation.

The large number of primary lithics, which totaled 93 percent of the sample, indicates that stone tool manufacturing at the site was an important routine activity. The percentage of primary lithics suggests the importance of lithic procurement and tool manufacture at the site, and also the intensity of site habitation by males.

The unifacial and bifacial tools are nondescript and non-diagnostic as cultural or temporal indicators. This is partially attributable to the modifying, the resharpening, and the breaking of these tools during

use. While a range of tools was manufactured, the tools generally exhibit poor quality workmanship and little attention to details of design and shape. Apparently, expedient tools were valued over the more systematically flaked types as attested by the larger number of utilized and blade-like flakes (types 15 and 16, Table 30).

The largest number of bifacial tools are represented by the types Thin Biface Knife and Microtool. The Thin biface knife is identified more frequently as a knife in the ovate rather than the triangular form. There is a tendency to classify these knives as preforms or McFarland triangular projectile points, which results in an under-representation of this type. The microtool is probably a finished product of intentional blade tool production. The function, however, is problematical. There were few examples of ground stone gorgets, pendants, beads, or little in the way of worked bone and shell to suggest microtool use. One alternative is that the microtool was used in working normally perishable substances, such as wood or leather. The microtools were designed for drilling, gouging, piercing, scraping, and/or cutting functions and appear to be small multipurpose tools.

Projectile points/knives from 40FR7 were not all late Middle Woodland in origin. The non-Middle Woodland types were dart points or knives that were classified into types on the basis of size, shape, and presumed cultural affiliation. Of the 172 projectile points/knives recovered, 15 were non-Middle Woodland and had the following cultural associations:

Cultural Affiliation	Total PP/K's
Early Archaic	5
Middle Archaic	1
Late Archaic	3
Late Archaic/Early Woodland	6

The projectile point/knife evidence suggests the Owl Hollow site was a transient base camp inhabited periodically for well over 6,000 years prior to the Middle Woodland occupation.

The Owl Hollow phase groups that inhabited 40FR7 produced a range of distinctive projectile points with the basic characteristic of an elongate shape. These forms are often referred to as "spikes," as in the types Bradley Spike (Kneberg 1956) and New Market Spike (Cambron and Hulse 1964). While the elongate shape is characteristic in general, the various basal shapes are used to distinguish separate types. The types occur together on most of the Owl Hollow sites. A possible projectile point sequence is postulated to begin with the shallow side-notched form, followed in time by the side-notched, expanded stemmed, straight stemmed, contracted stemmed, lanceolate stemmed, and narrow thick lanceolate (bipointed) type. However, there is no clear indication from radiocarbon dated context or the refuse midden at 40FR7 for suggesting this developmental sequence. Projectile points/knives were recovered at random from the midden. Numerous types appear to have been used contemporaneously and may have functioned as knives, as dart points, and possibly as arrow points.

Ceramic Analysis

The Owl Hollow site ceramic sample is represented by 7,275 sherds (Table 31). This sample was recovered from feature, posthole, and refuse midden context. The Owl Hollow ceramics are divided into major categories according to predominant tempering material(s). These categories constitute limestone, limestone/chert, limestone/chert/sand, grit, clay, and sand-tempered wares. The ware categories are further subdivided into types based on distinctive exterior surface treatments of smoothing (plain), stamping, cordmarking, brushing, and/or incising. The ware categories and types are described below.

Limestone-tempered ware (N = 6,674)

This ceramic ware was described in chapters V and VI. The previous descriptions apply to the ware and to five limestone-tempered types identified in the Owl Hollow ceramic sample. These are:

Ceramic Sample	Sample Size (n)
Residual Plain	2,027
Plain	3,904 (Figure 44, b)
Complicated Stamped	56
Brushed	32 (Figure 44, e)
Cordmarked	25 (Figure 44, a)

Three additional limestone-tempered types were identified in the Owl Hollow ceramic sample. These types are described below.

Table 31. Owl Hollow site ceramics: Ware and type totals and percentages from the combined sample.

	Middle Woodland Ware	Late Middle Woodland Mixed-Temper Ware		Late Middle Woodland Miscellaneous Trade Wares:					
Ceramic Types:	Limestone	Limestone/ Chert	Limestone/ Chert/ Sand	Clay/ Grit	Grit	Clay	Sand	Total	Percent
Residual Plain	2,027	39	3					2,069	28
Plain	3,904	450	41		4	2	5	4,406	61
Simple Stamped	614	25	11					650	9
Complicated Stamped	56	6	1					63	1
Brushed	32	10	1					43	1
Cordmarked	25	2						27	*
Check Stamped	13							13	*
Incised	3			1				4	*
Total	6,674	532	57	1	4	2	5	7,275	
Percent	92	7	1	*	*	*	*		100

* = less than 1 percent

Figure 44. The Owl Hollow site: Limestone-tempered ceramics. Smoothed-over cord marked body sherd, a; Plain body sherd, b; Smoothed-over simple stamped notched rim sherd, c; Diamond check stamped body sherd, d; Brushed/scraped body sherd, e; Simple stamped body sherd, f; Incised body sherds, g-h.

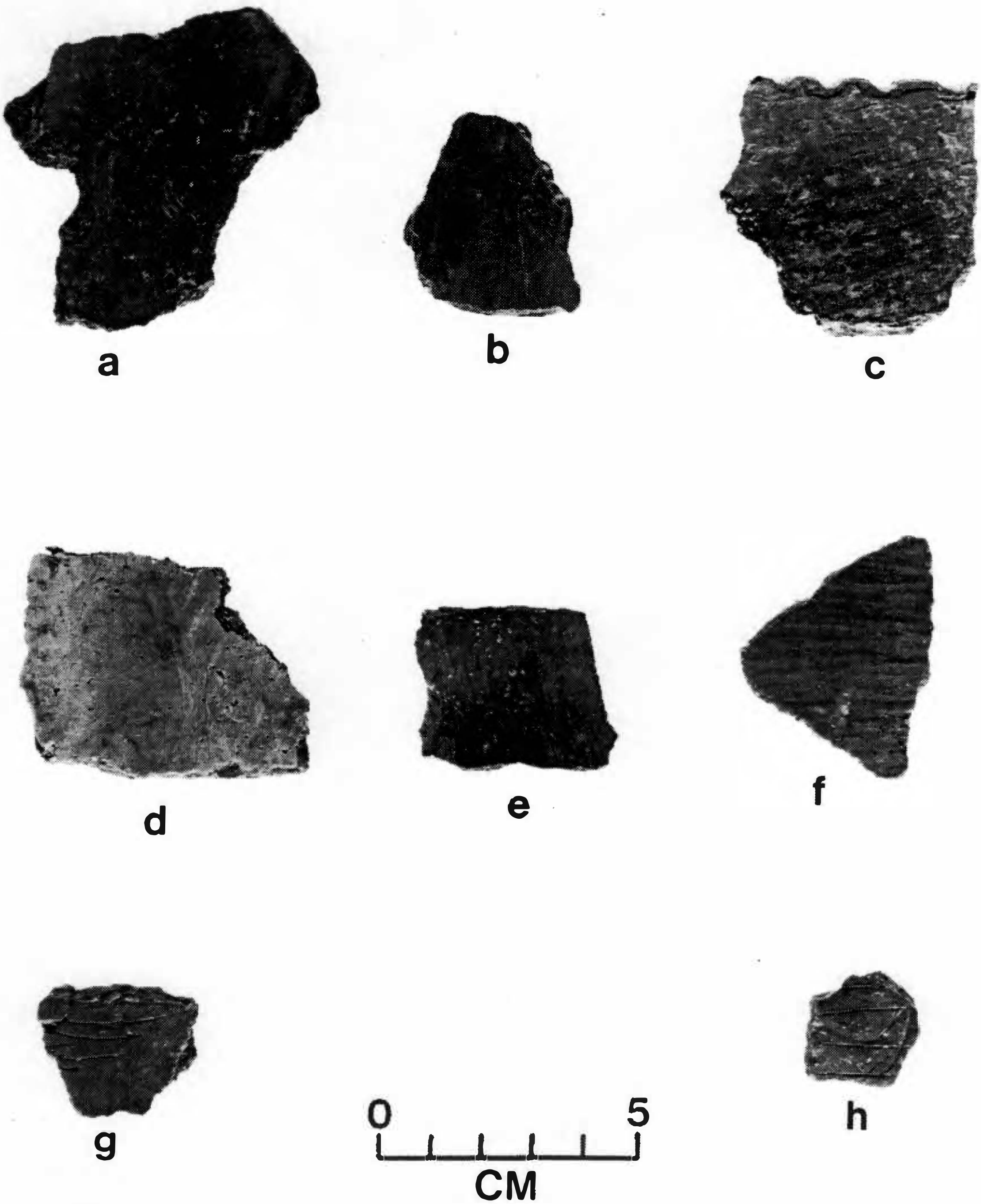

Figure 44

Limestone-tempered Simple Stamped (n = 614) (Figure 44, c, f)

This type has narrow, linear, parallel impressions that form distinctive lands and grooves. There is considerable variation in the application of the simple stamped impressions and treatment of the vessel following application. Seldom is the application sharp and clear, but is generally smoothed over, over-stamped, and carelessly applied. The simple stamped design is predominantly oriented diagonal to the vessel rim, and extends from the rim lip over the body of the vessel to the base. The majority of simple stamped vessels appear to be large conical jars. This type is a variant of Bluff Creek Simple Stamped identified in northern Alabama by Heimlich (1952:18). Limestone-tempered simple stamped ceramics are considered diagnostic of the early Owl Hollow phase (c. A.D. 200-400) in the upper Duck and Elk river valleys (Cobb 1977).

Limestone-tempered Check Stamped (n = 13) (Figure 44, d)

This type has a surface decoration of large (1 x 2 cm) diamond-shaped impressions; the diamond pattern was applied horizontally to the rim. The design is smoothed over and nearly obliterated in some areas of the vessel. This type has not been previously identified in Middle Woodland context in south-central Tennessee; however, it possibly represents a variation of the type Wright Check Stamped (Heimlich 1952).

Limestone-tempered Incised (n = 3) (Figure 44, g-h)

This type has narrow, shallow, straight line incisions on the exterior sherd surfaces. Due to the small size of the sherds, it is not possible to determine the vessel type, the placement of the incising, or

the design configuration. These sherds may be from a trade vessel of the type Sauty Incised (Heimlich 1952:19). This type occurs in northern Alabama and the Tennessee Valley to the east (Faulkner and Graham 1966:49). Sauty Incised, although infrequent in upper Duck and Elk river ceramic assemblages, is considered a Middle Woodland type with probable late McFarland and/or early Owl Hollow phase affiliation.

Limestone/Chert-tempered ware (N = 532)

This ware is described above in Chapter V. Six types were identified at the Owl Hollow site. Five of these types were previously described in chapters V and VI and are listed below.

Ceramic Sample	Sample Size (n)
Residual Plain	39
Plain	450
Simple Stamped	25
Complicated Stamped	6
Cordmarked	2

One additional type identified at the Owl Hollow site is described below.

Limestone/Chert-tempered Brushed (n = 10)

This type is distinguished by fine, parallel striations about 1 mm in width that are applied to the exterior surface. The interior is generally smoothed. The brushing technique is rather haphazard since horizontal and vertical applications and over-brushing in several directions are apparent. This type is likely a variant of the

limestone-tempered Flint River Brushed identified by Heimlich (1952:10) in northern Alabama. A brushed surface treatment associates with late Middle Woodland to early Late Woodland in the south-central Tennessee area. Brushing was not a common decorative technique during the Owl Hollow phase.

Limestone/Chert/Sand-tempered ware (n = 57)

This ware occurred at the Shofner and Raus sites and is described above in chapters V and VI. Five mixed-temper varities were identified in the Owl Hollow ceramics sample and are subsumed under the limestone/chert/sand ware: limestone/chert/grit; limestone/grit; limestone/sand; chert/grit; and chert/sand. These varieties probably represent fortuitous admixtures of tempering materials.

The limestone/chert/sand-tempered ware is represented by five types. Three types were previously described in chapters V and VI and are listed below.

Ceramic Sample	Sample Size (n)
Residual Plain	3
Plain	41
Complicated Stamped	1

Two additional types were identified in the Owl Hollow ceramic sample. These are described below.

Limestone/Chert/Sand-tempered Simple Stamped (n = 11)

This type is considered a variation of the limestone-tempered Bluff Creek Simple Stamped type (Heimlich 1952:18). All are considered of local manufacture. Consequently, the discussion (this chapter) of the limestone-tempered simple stamped type applies to this mixed-temper type, as well. The difference between the two types besides temper variation is a somewhat clearer design that probably resulted from the unleached condition of the sherds.

Limestone/Chert/Sand-tempered Brushed (n = 1)

This is a variant of the limestone-tempered Flint River Brushed (Heimlich 1952:10). The decoration is fine, parallel striations not over 1 mm in width applied to the vessel exterior. Brushing, as a decorative surface treatment, was apparently applied to a variety of mixed-temper vessels probably during the middle to late Owl Hollow phase. It was always a minority surface treatment when present. This type associates with late Middle Woodland to early Late Woodland in south-central Tennessee.

Grit-tempered ware (N = 4)

This ware was recovered at the Shofner and Raus sites and is described in chapters V and VI. One previously described ceramic type, grit-tempered plain (n = 4), is discussed in Chapter VI.

Clay/Grit-tempered ware (N = 1)

This ware was identified by Heimlich (1952:20-22) in the Guntersville Basin of northern Alabama. The primary tempering materials of this sherd are pulverized grit and crushed, burned clay, which may

represent sherds. The grit is distinguishable from sand tempering because of the generally larger, angular particles of quartz. This ware occurs in small quantities in Guntersville and is apparently even more rare to the north in south-central Tennessee. Heimlich (1952:46) associates the clay/grit-tempered ceramics with the late Middle Woodland to early Late Woodland periods and sees stronger cultural affiliation to the west in Mississippi and Arkansas.

Clay/Grit-tempered Incised (n = 1)

This sherd has wide incising that delineates a zone probably near the vessel rim. The sherd is well smoothed on the exterior and interior, and has no other markings associated with the incising. This incised type is possibly associated with Kirby Incised of northern Alabama (Heimlich 1952:22) that is described as having parallel lines incised obliquely to the rim lip. However, this sherd is not large enough to establish a similarity with Kirby Incised. Nevertheless, the combination of clay/grit-tempering and incised for surface decoration was not a common feature of the Owl Hollow phase ceramic tradition. While this sherd is likely from a late Middle Woodland context, it probably was derived outside the Owl Hollow Project Study Locality, and may well represent a trade vessel from northern Alabama.

Clay-tempered ware (N = 2)

This ware has finely crushed clay or grog as the primary tempering material. There is no evidence of other tempering materials with the clay. This ware has not been previously identified in the Owl Hollow Project Study Locality and may, therefore, represent ceramics traded into the upper Elk River Valley. The small number of sherds suggests this probability. Clay-tempered ware is present to the west and more prevalent in Mississippi, Arkansas and Louisiana. This ware is presumed to be of late Middle Woodland to early late Woodland cultural affiliation.

Clay-tempered Plain (n = 2)

This type is represented by two small body sherds, probably from separate vessels. Both sherds were rather nondescript; however, one sherd had a weathered orange exterior. Both sherds were clay-tempered with no other tempering materials mixed with the clay. A clay-tempered type has not been identified in south-central Tennessee or northern Alabama.

Sand-tempered ware (N = 5)

This ware has fine quartz sand as the primary tempering material. One sherd with extremely fine textured sand-tempering contained an abundance of mica particles in the paste. According to Faulkner and McCollough (1977:99), this ware is extremely rare on the Middle Woodland sites of the upper Duck River Valley. Nevertheless, it was recorded in Middle Woodland context in the upper Elk River Valley at the Brickyard site by Butler (1968:168), and is a constituent of the ceramic

assemblage of the Middle Woodland Yearwood site located further down the Elk River (Butler 1977:12). Although of minor occurrence in south-central Tennessee, this ware seems to consistently show up in ceramic assemblages during the Middle Woodland period. Faulkner and McCollough (1977:99) suggests the minor occurrence of the sand-tempered ware represents remains of trade vessels probably moving into south-central Tennessee from northern Alabama (Heimlich 1952:10) or northern Georgia (Wauchope 1966:52).

Sand-tempered Plain (n = 5)

The sherds in this type are sand-tempered and have plain exterior and interior surfaces. All except one are small body sherds. The exception is a rim sherd that is burnished on the interior and exterior. The sherd appears to have been from a vessel with a short, straight, constricted neck and a globular body. This sherd, and perhaps one other, has mica particles present in the paste and can be separated from the remaining coarse, sand-tempered sherds. Heimlich (1951:10) identified a plain, sand-tempered type in the Guntersville Basin of northern Alabama as O'Neil Plain. Ceramic analysts at the University of Georgia were queried about the burnished rim sherd but could offer no possible sources other than the lower Chattahoochee River locality of southwestern Georgia (personal communication, Kay Wood).

Ceramics Summary

The ceramics sample from the Owl Hollow site was obtained from features, postholes, and a refuse midden. The sample is the largest recovered and analyzed from late Middle Woodland Owl Hollow phase

context. This sample, therefore, is a representative ceramic collection for intersite comparisons, for measuring ceramic diversity, and for assessing ceramic change during the late Middle Woodland period (cf. Faulkner 1978).

The Owl Hollow site was intensively occupied during the time period of A.D. 200-300 (mean date 255 $\pm$ 66). Although there were earlier and later occupations, the radiocarbon dates suggest the majority of ceramics were deposited during an occupation of about 85 years during this period. The dates indicate that intensive site occupation was during the early Owl Hollow phase (Faulkner 1978:191). Therefore, the ceramics sample should reflect earlier developmental and later (middle Owl Hollow phase) transitional influences.

The Owl Hollow ceramic sample is characterized by limestone-tempered, mixed-tempered, and probable trade wares that have sand, clay, grit, or a combination of these tempering materials. These divisions represent the major ware categories that occurred in the Owl Hollow ceramic sample.

The limestone-tempered ware represents a majority of the ceramics recovered and occurs throughout the Middle Woodland period. During the late Middle Woodland period, limestone is combined with other materials to form mixed-temper wares (Faulkner 1978:189). This pattern was identified at the Owl Hollow site and represented by such mixed-temper groupings as: limestone/chert; limestone/chert/grit; limestone/grit; chert/grit; chert/sand; limestone/sand; and sand/grit. Several wares such as the Clay/Grit, Clay, and Sand-tempered were of non-local manufacture and probably transported to the upper Elk River Valley.

Faulkner (personal communication) feels that larger percentages of mixed-temper in the ceramic sample could indicate a middle-to-late Owl Hollow phase affiliation.

Based on the exterior surface decoration of vessels, seven distinctive ceramic types were identified along with residual plain, a category of fragmented, eroded sherdlets. The Owl Hollow site wares and types are identified in Table 31.

Plain is the predominant type in all ware categories, and simple stamping, which likely occurs more frequently early in the Owl Hollow phase (Faulkner 1978:189), is the predominant form of exterior surface decoration. Most other types of surface decoration or modification were of limited occurrence. These included complicated stamped, brushed, cordmarked, check stamped, and incised in descending order of occurrence. These latter types, with the exception of the bold diamond check stamped, were generally smoothed over and difficult to distinguish, particularly on small sherds.

The Owl Hollow site ceramic sample also contained sufficient fragments for partial vessel reconstruction and determination of size, shape, and type. The predominant vessel type identified was a medium-sized, sub-conoidal jar with slight shoulder development and a straight to slightly flaring rim (cf. Faulkner 1978:189). These jars have conoidal-rounded bases, and, occasionally, have small, vestigial tetrapods. Perhaps most distinctive of the ceramics traits is the use of rim notching along the rim lip. Rim notching occurs on plain and simple stamped types on over 50 percent of the rims examined. This trait is

distinctive of the late Middle Woodland period and occurs consistently during the Owl Hollow phase in south-central Tennessee.

Floral Analysis

There were totals of 1,481 woody plant remains (Table 32) and 291 seed and nut remains (Table 33) identified from a 25 percent analysis of a selected number of botanical samples from 40FR7. These samples were derived from intuitively selected features and one midden unit. Primary emphasis was placed on the radiocarbon dated features, and those having significant remains and/or special functions such as earth ovens, storage pits, and roasting pits. One botanical sample from midden unit 100N54E, Level I, 11-20 cm was included in the analysis. Recovery of a probable representative sample of the flora was enhanced by the consistent use of water screen and water flotation devices. The latter device permitted recovery and separation of a larger, heavy fraction from a lighter float fraction. The heavy and light fractions consisted primarily of denser wood charcoal and nut shell fragments, and the less dense, smaller weed seeds and cultigen fragments, respectively.

Wood charcoal represents the bulk of the recovered floral sample. This material suggests a pattern of species utilization from the adjacent Highland Rim Escarpment Resource Zone. The wood charcoal sample indicates that oak (39 percent), hickory (24 percent), and chestnut (19 percent) were the species primarily used. Aside from the apparent non-random collection of oaks, hickories, and chestnut, many other species were exploited, as well. The wide range of secondary species suggests random collection of all available wood near the site

Table 32. Wood charcoal from late Middle Woodland features and midden.

Woody Plant Remains Feature Nos.	Red Oak Group (*Quercus* sp.)	White Oak Group (*Quercus* sp.)	Oak (*Quercus* sp.)	Chestnut (*Castanea dentata*)	Walnut (*Juglans nigra*)	Hickory (*Carya* sp.)	Catalpa (*Catalpa* sp.)	Ash (*Fraxinus* sp.)	Basswood (*Tilia* sp.)	Pine (*Pinus* sp.)	Black Cherry (*Prunus serotina*)	Kentucky Coffee Tree (*Gymnocladus dioicus*)	Sassafras (*Sassafras albidum*)	Sycamore (*Platanus occidentalis*)	Black Willow (*Salix nigra*)	Maple (*Acer* sp.)	Cedar (*Juniperus virginiana*)	Beech (*Fagus grandifolia*)	Honey Locust (*Gleditsia triacanthos*)	Persimmon (*Diospyros virginiana*)	Dogwood (*Cornus* sp.)	Cottonwood (*Populus deltoides*)	Poplar (*Liriodendron tulipifera*)	Hackberry (*Celtis* sp.)	Cane (*Arundinaria* sp.)	Bark	Unidentifiable	Total Fragments	Percent
10	4	2		149		21	9	1																				186	13
20	22	10				18							2												2			54	4
45	8	5				3								3	1													20	1
51		2				2																						4	*
53				19		1																						20	1
65		5	6			11					1	1																24	2
69	11	1	12	1		39	4	29																				97	7
71		17		1		18																						36	2
73	81	68	10			95		1								1	3	2	2						4			267	18
81																													
83	5		2		2	12											2											23	2
84				1																						1		2	*
85	1			91																								92	6
86				1																								1	*
87	1					5																				1		7	1
89		30													1												40	71	5
92																													
95				6			2														7							15	1
96	36	30	16			33		10							1						1	1			9			137	9

Table 32 (Continued)

Woody Plant Remains

Feature Nos.	Red Oak Group (Quercus sp.)	White Oak Group (Quercus sp.)	Oak (Quercus sp.)	Chestnut (Castanea dentata)	Walnut (Juglans nigra)	Hickory (Carya sp.)	Catalpa (Catalpa sp.)	Ash (Fraxinus sp.)	Basswood (Tilia sp.)	Pine (Pinus sp.)	Black Cherry (Prunus serotina)	Kentucky Coffee Tree (Gymnocladus dioicus)	Sassafras (Sassafras albidum)	Sycamore (Plantanus occidentalis)	Black Willow (Salix nigra)	Maple (Acer sp.)	Cedar (Juniperus virginiana)	Beech (Fagus grandifolia)	Honey Locust (Gleditsia triacanthos)	Persimmon (Diospyros virginiana)	Dogwood (Cornus sp.)	Cottonwood (Populus deltoides)	Poplar (Liriodendron tulipifera)	Hackberry (Celtis sp.)	Cane (Arundanaria sp.)	Bark	Unidentifiable	Total Fragments	Percent
103			1																									1	*
109	23	19				13										1												56	4
110	6				19	41																				21		87	6
113	3		1			11																						15	1
114		1		10												2												13	1
115																													
129			3													2							1					6	*
134		4				1																						5	*
135		2	8	2		1																			1			14	1
139	7	19	3			7										1									1			38	3
142	2	5	8			3																						18	1
144																													
147	8	29				6																						43	3
148	10	1																							60			71	5
149																													
150	4		2		7	7					1													1				22	1
Midden	18	2			4	10			1	1																		36	2
Total	250	252	78	275	32	360	13	41	1	1	2	1	2	3	3	7	5	2	2	7	1	1	1	1	77	23	40	1,481	
Percent	17	17	5	19	2	24	1	3	*	*	*	*	*	*	*	1	*	*	*	1	*	*	*	*	5	2	3		100

* = less than 1 percent

Table 33. Herbaceous and arboreal seeds and fruits from late Middle Woodland features.

	Feature Numbers																								
	10	45	51	53	65	69	71	73	81	83	85	89	96	109	110	113	115	129	134	135	139	142	147	150	Total	Percent
Seed and Nut Remains																										
Goosefoot (*Chenopodium* sp.)	1	1	92		1		4	2	1	12				3											117	40
Cleavers (*Galium* sp.)					1			7					3				2				2				15	5
Knotweed (*Polygonum* sp.)					1		1						1												3	1
Maygrass (*Phalaris* sp.)						2	8	2		8		12		15								2		2	51	18
Pigweed (*Amaranthus* sp.)						1				1															2	1
Purslane (*Portulacca* sp.)																								1	1	*
Spurge (*Euphorbia* sp.)							1																	2	3	1
Lespedeza (*Lespedeza* sp.)										1															1	*
Grass family (Poaceae)				2			2				1														5	2
Fruit Head (Compositae)													1	1											2	1
Wild Bean (*Apios tuberosa*)					1									1											2	1
Morning Glory (*Ipomoea* sp.)						1																			1	*
Grape (*Vitis* sp.)		1			3	1		12			1		2	5	2		2	1			1				31	11
Spikerush (*Eleocharis*)						1				1															2	1
Pokeweek (*Phytolacca decandra*)																			1						1	*
Honey Locust (*Gledistia triacanthos*)																	13								13	4
Sumac (*Rhus* sp.)							1	3																	4	1
Leaf bud (fall-winter)					2				9							1				1			1		14	5
Sunflower (*Helianthus annuus*)			1			1		8																	10	3
Cucurbit (*Cucurbitacea*)						8		3																	11	4
Acorn (*Quercus* sp.)	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X				
Hickory (*Carya* sp.)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
~~Walnut (*Juglans*~~ sp.)	X	X	X	X	X	X		X				X	X		X		X	X			X	X				
Total	1	2	93	2	9	15	17	37	10	23	2	12	8	25	2	1	17	1	1	1	4	2	1	5	291	
Percent	*	1	32	1	3	5	6	13	3	8	1	4	3	9	1	*	6	*	*	*	1	1	*	2		100

X = present but not quantified

* = less than 1 percent

locality. These species were likely introduced into the site refuse as building materials, tools, or wood to fuel fires for cooking, heating, and firing pottery vessels. The use of these species for fuel is perhaps best illustrated by the total of the samples from earth oven features 73 and 96 (Table 32).

The charred remains of arboreal seeds, although not quantified by weight, were from species that represented two of the predominant wood groups discussed above, the oaks and hickories. Walnut, the other arboreal seed identified in Owl Hollow site refuse, was frequently recovered, but chestnuts were not identified in the arboreal seed sample. Based on the chestnut's importance to historic groups of the Southeast (Swanton 1946), their omission in the Owl Hollow sample leads to the assumption that the identification of arboreal seeds and the projection of their importance is greatly biased by many factors, not the least of which is preservation.

Hickory nuts, based on the presence of charred shell fragments in analyzed samples, were heavily utilized and far outnumbered acorns, walnuts, and chestnuts. The sample sizes suggest that hickory nuts were almost exclusively exploited by the Owl Hollow site inhabitants, and represented one of the most important seasonal food sources. While not refuting this argument entirely, the hickory nut's abundance in the refuse may be attributed to factors of shell density, processing techniques, and methods of disposal that aided carbonizing and preserving nut shell. The thinner and softer acorn and chestnut shells would be less likely to preserve after carbonization.

The nut crops were seasonally available for exploitation by the Owl Hollow site inhabitants. The nuts were collected during the fall for immediate utilization and for surplus storage as a winter food stock. In general, the different species of nuts were likely an abundant and dependable source of food available from the Highland Rim Escarpment Resource Zone which represents about 80 percent of the site arena.

Numerous species of herbaceous seeds were collected for food by the Owl Hollow site inhabitants. Large storage and processing pits contained abundant carbonized remains of goosefoot, maygrass, and cleavers. Pigweed, purslane, knotweed, grape seeds, and sumac were secondarily represented (Table 33). The remains of two cultivated plants, sunflower and squash/gourd, were recovered from earth ovens, storage pits, and processing pits (Cobb and Shea 1977). The wild seeds could have been gathered from localities within upland resource zones and from disturbed ground surrounding the site. It is equally possible that the cultigens were planted in the uplands near the site, particularly the sunflower. Considering the occurrence of two cultigens, however, it is possible that lowland floodplain gardens possibly along Town Creek or the Elk River were cultivated and maintained throughout the warm season by the Owl Hollow site occupants.

Analysis of a sample of plant food remains from the Owl Hollow site suggests that the late Middle Woodland inhabitants were exploiting the Highland Rim Escarpment Resource Zone for materials such as wood and arboreal seeds. The herbaceous seeds and cultigens were likely gathered at some distance from the site in the Oak Barrens, Highland Rim Swamp, and/or Floodplain/Terrace resource zones. Floral evidence suggests that

Owl Hollow site occupants were upland and lowland oriented in terms of plant utilization. Year-round use of fuel wood and seasonal scheduling for arboreal and herbaceous seeds probably dictated intensive exploitation of productive resource zones in the site arena.

Faunal Analysis

The faunal remains recovered from the Owl Hollow site included those of both vertebrates and invertebrates from undisturbed feature, posthole, and midden context. The samples in tables 34, 35, and 36 underwent species identification, quantification of faunal elements, and determination of the minimum number of individuals. These data reflect patterns of faunal exploitation, seasonality of site occupation, and resource zone utilization by the late Middle Woodland site occupants.

Included in the faunal sample from the Owl Hollow site are the remains of probable non-food species such as rodents, snakes, and toads. These burrowing subterranean animals probably coexisted with man on the site and were incorporated with the refuse deposits. The dog, probably another non-food animal, was represented by fetal specimens, sub-adults, and adults. Analysis of the skeletal elements indicates that dogs were not butchered for food (personal communication, Neil Robison). Although difficult in some cases to separate food from non-food animals, the assumption is made that the remainder of the Owl Hollow fauna represents the remains of food animals discarded by these late Middle Woodland people.

The majority of faunal remains recovered from the Owl Hollow site were those of shellfish. Various species of pelecypods and gastropods

Table 34. Pelecypoda sample identified from the Owl Hollow site, 40FR7.

Species	Shell Fragments	MNI[1]	Percent of Total
Fusconaia barnesiana	319	169	15
Lexingtonia dolabelloides	59	38	3
Fusconaia/Lexingtonia sp.	37	26	2
Quadrula cylindrica	1	6	*
Pleurobema oviforme	6	4	*
Elliptio dilatatus	153	81	7
Pegias fabula	34	21	2
Strophitis undulatus	4	3	*
Ptychabranchus fasciola	4	2	*
Ptychabranchus subtentum	517	260	24
Actinonaias pectorosa	9	5	*
Medionidus conradicus	306	180	14
Villosa taeniata	67	39	3
Villosa vanuxemi	17	10	1
Villosa sp.	482	245	22
Villosa sp./Dysnomia capsaeformis	82	43	4
Lampsilis ovata	6	3	*
Lampsilis fasciola	52	28	2
Epioblasma capseaformis	14	9	1
Total Identifiable Pelecypoda Sample	2,169	1,167	100

[1] Minimum Number of Individuals

* = less than 1 percent

Table 35. Freshwater gastropoda from the Owl Hollow Site (40FR7).

Species	Species	MNI[1]	Percent of Total
Lithasia verrucosa lima/ L. geniculata fuliginosa	32,226	32,226	60
Lithasia obovata	13,195	13,195	24
Lithasia sp.	2,618	2,618	5
Pleurocera canaliculatum	3,763	3,763	7
Elimia laqueta/edgariana	595	595	1
Anculosa subglobosa	1,659	1,659	3
Campeloma sp.	6	6	*
Viviparous georgianus	51	51	
Total Identifiable Freshwater Gastropoda Sample	54,113	54,113	100

[1] Minimum Number of Individuals

* = less than 1 percent

Table 36. Vertebrate faunal sample identified from the Owl Hollow site (40FR7).

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals:			
Opossum (Didelphis marsupialis)	15	1	*
Eastern Mole (Scalopus aquaticus)	5	1	*
Least Shrew (Cryptotis parva)	2	1	*
Short-tailed Shrew (Blarina brevicauda)	4	3	*
Raccoon (Procyon lotor)	61	6	*
Longtail Weasel (Mustela frenata)	5	1	*
Mink (Mustela vison)	3	1	*
Otter (Lutra canadensis)	1	1	*
Striped Skunk (Mephitis mephitis)	23	2	*
Gray Fox (Urocyon cinereoargenteus)	10	3	*
Fox, sp.	10	-	*
Domestic Dog (Canis familiaris)	186	4	*
Dog/Fox (Canidae)	8	-	*
Cougar (Felis concolor)	1	1	*
Woodchuck (Marmota monax)	27	2	*
Eastern Chipmunk (Tamias striatis)	15	2	*
Gray Squirrel (Sciurus carolinensis)	1	1	*
Fox Squirrel (Sciurus niger)	4	1	*
Gray/Fox Squirrel (Sciuris sp.)	255	15	*
Beaver (Castor canadensis)	5	1	*

Table 36 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals (Continued)			
White-footed Deer Mouse (*Peromyscus* sp.)	34	13	*
Rice Rat (*Oryzomys palustris*)	23	5	*
Eastern Woodrat (*Neotoma floridana*)	1	1	*
Pine Vole (*Microtus pinetorum*)	31	6	*
Vole (*Microtus* sp.)	3	-	*
Muskrat (*Ondatra zibethica*)	4	1	*
Porcupine (*Erethizon dorsatum*)	1	1	*
Small Rodents sp.	289	26	*
Cottontail (*Sylvilagus floridanus*)	149	8	*
White-tailed Deer (*Odocoileus virginianus*)	389	9	*
Deer (Cervidae)	3	-	*
Total identifiable mammal bone	1,568		2
Unidentifiable large mammal bone	1,949		2
Unidentifiable small mammal bone	87,778		96
Total Mammal Bone Sample	91,295		
Birds:			
Canadian Goose (*Branta canadensis*)	5	1	*
Duck, sp.	1	1	*
Hawk, sp. (cf. *Buteo* sp.)	2	1	*
Hawk, sp.	1	1	*
Grouse, sp. (Tetraonidae)	1	1	*
Bobwhite (*Colinus virginianus*)	8	2	*
Turkey (*Meleagris gallopavo*)	34	6	1
Sandhill Crane (*Grus canadensis*)	1	1	*
Passenger Pigeon (*Ectopistes migratorius*)	1	1	*

Table 36 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Birds (Continued)			
Mourning Dove			
Zenaidura macroura)	1	1	*
Screech Owl			
Otis asio	2	1	*
Owl, sp.	1	1	*
Crow			
(*Corvus* cf. *brachyrhyochos*)	1	1	*
Passerine, sp.	9	2	*
Total identifiable bird bone	68		1
Unidentifiable bird bone	5,574		98
Total Bird Bone Sample	5,642		
Reptiles:			
Snapping Turtle			
(*Chelydra serpentina*)	2	1	*
Stinkpot			
(*Sternothaerus odoratus*)	5	2	*
Mud Turtle			
(*Kinosternon subrubrum*)	8	3	*
Box Turtle			
(*Terrapene carolina*)	344	5	11
Turtle			
(Kinosternidae)	271	6	8
Turtle			
(*Graptemys/Chrysemys*)	12	1	*
Softshell Turtle			
(*Trionyx* sp.)	32	2	1
Turtle, sp.	793	-	24
Snake			
(Colubridae)	314	3	10
Snake			
(Crotalidae)	26	1	1
Snake, sp.	1,437	-	44
Total identifiable reptile bone	3,244		
Amphibians:			
Hellbender			
(*Cryptobranchus alleganiensis*)	75	4	13
Eastern Spadefoot Toad			
(*Scaphiopus holbrooki*)	122	11	22

Table 36 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Amphibians (Continued)			
Toad			
(*Bufo* sp.)	32	6	6
Toad			
(*Scaphiopus/Bufo*	100	-	18
Frog			
(*Rana* sp.)	58	4	11
Toad/Frog, sp.	164	-	30
Total identifiable amphibian bone	551		
Fish:			
Gar			
(*Lepisosteus* sp.)	9	2	*
Pike, sp.			
(Esocidae)	2	1	*
Common Stoneroller			
(*Campostoma anomalum*)	6	4	*
Minnow, sp.			
(*Phenacobius* sp.)	1	1	*
Creek Chub			
(*Semotilus atromaculatus*)	3	2	*
Creek Chub/Shiner			
(*Semotilus atromaculatus/notropis*)	3	3	*
Chub, sp.			
(*Nocomis* sp.)	16	9	*
Shiner, sp.			
(*Notropis* sp.)	6	3	*
Minnow, sp.			
(Cyprinidae)	19	7	*
Buffalofish			
(*Ictiobus* sp.)	4	2	*
Northern Hogsucker			
(*Hypentelium nigricans*)	2	1	*
Redhorse			
(*Moxostoma* sp.)	74	11	*
Sucker, sp.			
(Catostomidae)	221	19	1
Catfish			
(*Ictalurus* sp.)	9	3	*
Catfish			
(Ictaluridae)	17	4	*
Bass			
(*Micropterus* sp.)	5	2	*

Table 36 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Fish (Continued)			
Sunfish			
(*Lepomis* sp.)	1	1	*
Sunfish, sp.			
(Centrarchidae)	170	17	*
Freshwater Drum			
(*Aplodinotus grunniens*)	23	6	*
Total identifiable fish bone	591		2
Unidentifiable fish bone	23,132		97
Total Fish Bone Sample	23,723		
TOTAL IDENTIFIABLE BONE SAMPLE	6,022		5
TOTAL UNIDENTIFIABLE BONE SAMPLE	118,433		95
TOTAL VERTEBRATE FAUNAL SAMPLE	124,455		

[1] Minimum Number of Individuals

* = less than 1 percent

were heavily exploited. Sources for the shellfish were probably Town Creek and the more distant Elk River. The pelecypods and gastropods were likely procured from the Floodplain/Terrace Resource Zone during the late winter/early spring months (Cobb and Faulkner 1978). These months may be difficult for procurement of subsistence resources and the shellfish may be associated with a lean period of subsistence. However, the shellfish remains recovered from the Owl Hollow site were mixed with other food remains and thus suggests that shellfish were exploited seasonally as a supplemental food resource. Considering the large number of remains, the shellfish did not contribute a substantial amount of food and were not a nutritious food resource (Parmalee and Klippel 1974:432-433).

Occurring with the shellfish were the remains of numerous species of large and small fish. The larger varieties are represented by such species as redhorse, buffalo and other suckers, catfish and drum, while the smaller varieties included shiner, chub, stoneroller and other minnows, sunfish, and hogsucker. These fish were likely taken from the Elk River, or near the mouth of Town Creek, based on the size of the fish and their quantity. The large fish, and particularly the many species of small fish, were probably taken in nets during the spring and throughout the warm season. Other aquatic species that occurred in small numbers were the turtles, frogs, and salamanders. Intensive fishing with nets probably also captured the largest number of these amphibians and reptiles, particularly the aquatic turtles (personal communication, Neil Robison). This combination of numerous aquatic

species likely provided seasonally dependable and variable food resources for the Owl Hollow site inhabitants.

A large number of small mammals were hunted and/or trapped by the Owl Hollow site inhabitants. The more important species procured, based on the MNI counts, were the squirrel, cottontail, raccoon, gray fox, and the woodchuck. These animals were likely taken from the Floodplain/ Terrace and Highland Rim Escarpment resource zones and provided an important year-round supplemental meat source. These small game species were probably important to the Owl Hollow hunting and gathering groups for the added food reserve provided during difficult periods of the year for subsistence resources (cf. Faulkner, Corkran, and Parmalee 1976:234-235). The seasonal procurement and the intensity of the hunting and trapping of these small game species probably varied in proportion to the site's population size and the availability of more preferred species.

The preferred species were likely the larger game animals represented by elk, deer, bear and perhaps cougar. Their "preferred" status was due to the size and quantity of meat each animal provided. Based on total skeletal elements and MNI, deer is the single most important food animal represented in the Owl Hollow site faunal sample. This species also provided the most frequently utilized raw materials for the manufacture of tools and ornaments. Awls, punches, and eyed needles (Figure 45), plus two-holed, rectangular bone gorgets and an antler billet represent some of the tool types recovered at the Owl Hollow site made from deer skeletal elements.

Figure 45. The Owl Hollow site: Bone Tools. Eyed needles, a-c; Awls, d-e.

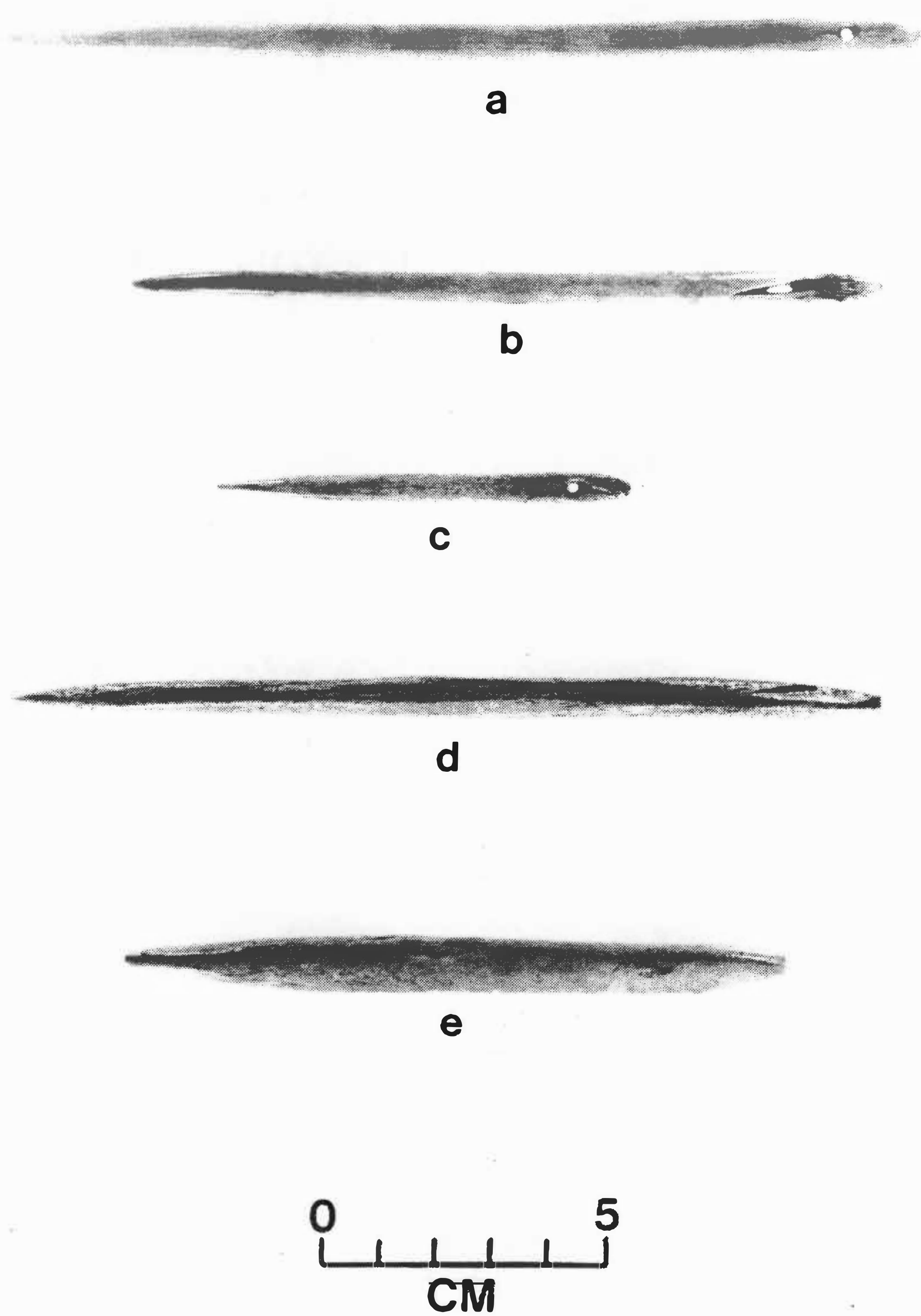

Figure 45

The faunal remains of several potentially significant food animals, notably bear, elk and beaver, were absent or not well represented in the faunal sample. This could be the result of several factors, of which sampling bias and butchering away from the site are but two. Faulkner, Corkran, and Parmalee (1976:234-235) suggest three possibilities to account for the lack of large game, particularly deer, in the faunal sample recovered from 40CF108, a late Middle Woodland site in the Normandy Reservoir:

1) seasonal dissociation of deer with the site locus,
2) the use of hunting camps away from the site, and/or
3) the crushing and boiling of large mammal bone for grease.

The latter possibility perhaps accounts for less identifiable large mammal bone at the Owl Hollow site. This method of processing and utilizing bone likely contributed to the considerable number of unidentifiable large and small mammal bone pieces that are recorded in Table 36. The unidentified small mammal bone category also contains the highly fragmented bone from large mammals, as well (personal communication, Neil Robison).

Fauna of secondary importance as food were likely various species of birds, particularly the turkey and waterfowl. This avian fauna is relegated to a more secondary status because of the smaller quantity of meat provided and/or its more limited seasonal availability. The turkey was well represented in the Owl Hollow faunal sample and likely, along with the deer, was one of the more important year-round food animals. Waterfowl, however, were under-represented in the faunal sample considering the proximity of the Highland Rim Swamp Resource Zone and

the reported heavy usage of Mingo Swamp by migratory waterfowl and indigenous speices such as the wood duck (The Migrant 1935:22). The paucity of the remains of waterfowl, and other birds such as the passenger pigeon, doves, grouse, quail, and the passerines in general is difficult to explain, but may relate to bone crushing and the disproportionately large sample of unidentifiable and fragmented bird bone. Only one percent of the bird bone sample was identifiable to the genus/species level and half of the identifiable sample was turkey (Table 36).

The fauna from the Owl Hollow site contributes directly to interpretation of site seasonality and lends support to identification of warm and cold season occupation loci. There is evidence that a majority of the aquatic species cluster non-randomly in subsurface disturbances near the Central Expansion and North Midden areas. These areas were associated with a warm season habitation (Cobb and Faulkner 1978:91-92). The Eastern Expansion Area was a probable fall-winter habitation locus. Site occupation of the Owl Hollow site is probably year-round.

Year-round occupation also means year-round procurement to support and maintain a population or a segment of that population. It is likely that the Owl Hollow site procurement pattern involved all segments of the population. It is also logical to assume that year-round occupation of a site for several consecutive seasons would soon deplete the available local faunal resources. This would require greater distances for faunal procurement and/or alternative procurement patterns to develop. One such alternative could likely have been the establishment of seasonal hunting camps at some distance from the main site. This

would have been similar to the faunal procurement pattern suggested by Faulkner, Corkran, and Parmalee (1976:235) for the late Middle Woodland populations of the Normandy Reservoir area. Whatever the procurement pattern, it would have been dynamic, cyclic, and dependent on the resource availability and resident population size. Based on the intensity of Owl Hollow site occupation, the site arena that consisted of Floodplain/Terrace, Highland Rim Escarpment, Oak Barrens, Highland Rim Swamp, and Cumberland Plateau Escarpment resource zones supported a large band-sized population that probably segmented seasonally for selective and opportunistic exploitation of faunal resources.

Site Summary

The Owl Hollow site revealed substantial information on the late Middle Woodland occupation of the upper Elk River Valley. The site contained a highly visible, circular, dark brown midden deposit. This deposit, which occurred around the rim of a sinkhole, suggested a planned village arrangement having a central plaza devoid of occupational debris. Test excavations supported this assessment, and revealed two areas of intensive habitation with significant remains.

Field work in the Central Expansion Area identified clusters of features and postholes. A light-framed structure was defined in this area and interpreted as a warm season habitation primarily on the evidence of: (1) a small, circular structure type; (2) absence of interior features, especially earth ovens and interior postholes; and (3) the presence of abundant aquatic fauna in relatively shallow, basin-shaped storage pits.

Excavation of the Eastern Expansion Area revealed a second clustering of features and postholes that suggested probable structure association. This assessment was based on the arrangement of paired earth ovens in association with four central support postholes. Total dimensions of the structure were not determined, since only a partial exterior wall alignment on the southeast was defined. A winter occupation of this structure, however, is based on: (1) the projected double-oven structure type; (2) a general lack of aquatic species in associated midden and features; and (3) the presence of two large and deep storage pits that contained deer bone and charred hickory nuts.

The occurrence of different but contemporaneous structure types on the same site indicates a unique community pattern. Apparently during the Owl Hollow phase, there was use of large double oven winter lodges during the cold season and a shift to a contiguous, smaller structure in the warmer months. Faulkner (1977) believes the pattern of winter-summer occupation of different structures, which is recognized in the southeast for certain historic tribes, may have originated in the Interior Low Plateaus during the Owl Hollow phase of the late Middle Woodland period. Antecedents for this pattern are recognizable in the early Middle Woodland McFarland phase (Kline, Crites, and Faulkner 1982:71).

The occupation of the Owl Hollow site occurred primarily during the third and fourth centuries A.D. with perhaps intermittent occupation several hundred years before and after this period. Six radiocarbon dates from the Central, North Midden, and Eastern Expansion areas verify that the period of intensive occupation is associated with the early Owl

Hollow phase (A.D. 200-400). Lithic and ceramic remains are different from the assemblages recovered from the middle and late Owl Hollow phase sites such as Shofner and Raus. The diagnostic projectile point/knife type is the lanceolate shallow side notched made predominantly of local chert. The ceramic assemblage is basically limestone-tempered (92 percent) with minor quantities of mixed-temper ceramics represented by limestone/chert- and limestone/chert/sand-tempered wares. Surface treatment is represented by a larger percentage of simple stamped and complicated stamped types. This is considerably different from the middle and late Owl Hollow phase wares that include higher percentages of mixed temper and predominantly plain types. Evidence of trade wares was also found at the Owl Hollow site, which suggests contact primarily with the Tennessee River drainage of northern Alabama.

The abundant floral and faunal samples recovered at the Owl Hollow site suggest seasonal exploitation of numerous econiches. This upland site was riverine/creek oriented during the spring, and possibly throughout the warm season until early fall. Squash/gourd and sunflower were cultivated in disturbed ground near the site, or along the narrow floodplains of Town Creek and the Elk River. In the fall, the resource utilization likely shifted to more intensive upland procurement of arboreal seed crops, herbaceous annuals, and the deer and turkey. The storage of surplus food was apparently divided between the warm and cold season dwellings rather than being exclusively cached near or inside the winter lodges. The habitat exploitation associated with dual structure types suggests that the Owl Hollow site was occupied year-round for a

number of years probably until local resources were depleted in the surrounding site arena.

CHAPTER VIII

THE PETERS SITE (40FR45)

Introduction

The Peters site is located in north-central Franklin County, Tennessee, along the shore of Tims Ford Lake (Figure 2, page 46). The site is situated at the northeast corner of a once prominent bend in the Elk River, and associated with an expansive floodplain and terrace formation. The alluvial floodplain is currently inundated by Tims Ford Lake; however, the broad, lowlying terrace extends over 2 km east-west and covers approximately 120 ha.

The Peters site was identified by occupation debris associated with a dark brown refuse midden. The site extends over an area of about 153 m^2. Observation of aerial photographs following early spring plowing in 1977 revealed a possible circular distribution of refuse at the Peters site. A distinctive pattern of dark brown midden was evident along the west and south boundaries of 40FR45, but was unevenly distributed and diffuse along the east side near the front of the terrace.

The apex of the terrace adjacent to the Peters site has been subjected to several forms of historic disturbance. A farm house, barns, outbuildings, fences, and a farm road have intruded portions of the site along the front terrace. The buildings were removed after acquisition by TVA in 1966. In addition to the farm complex, a major portion of the site has been under cultivation for over 60 years. This latter activity has probably disturbed the site to the greatest extent, particularly along the east side.

Site Catchment

The Peters site is located in the lowlands of the upper Elk River Valley (Figure 46). The site is situated along a prominent first terrace of the Elk that has a surface elevation of approximately 275 m AMSL. The predominant soil type associated with the terrace formation is Sequatchie fine sandy loam. This soil, which extends throughout a large portion of the 120 ha terrace, is a well-drained, high-yielding alluvium of the undulating terrace phase (Fox et al. 1958:50-51). There is a broad floodplain that extends in front of the site, which is now covered by the waters of Tims Ford Lake. The predominant soil member of the floodplain is the Huntington series, an organic-enriched, fine sandy loam. A large artesian spring, now submerged under Tims Ford Lake, formerly flowed across the floodplain from the base of the terrace in front of the Peters site.

The Peters site arena is composed of three topographically distinctive environmental resource zones distributed in 1.61 km and 3.22 km radii. As illustrated in Figure 47, a predominant lowland orientation of the site is evident from the projection of both radii. As an example, the Floodplain/Terrace Resource Zone within the 1.61 km radius is over 730 ha or 91 percent of the surface area. By expanding to a 3.22 km radius from the site, the total lowlands represent 4,021 ha and correspond to 71 percent of the site arena. The lowlands are distributed parallel to the sinuous Elk River, which flows on a north-south trending course through the site arena.

The second major environmental resource zone in the Peters site arena is the eastern Highland Rim escarpment with elevations of 290 m to

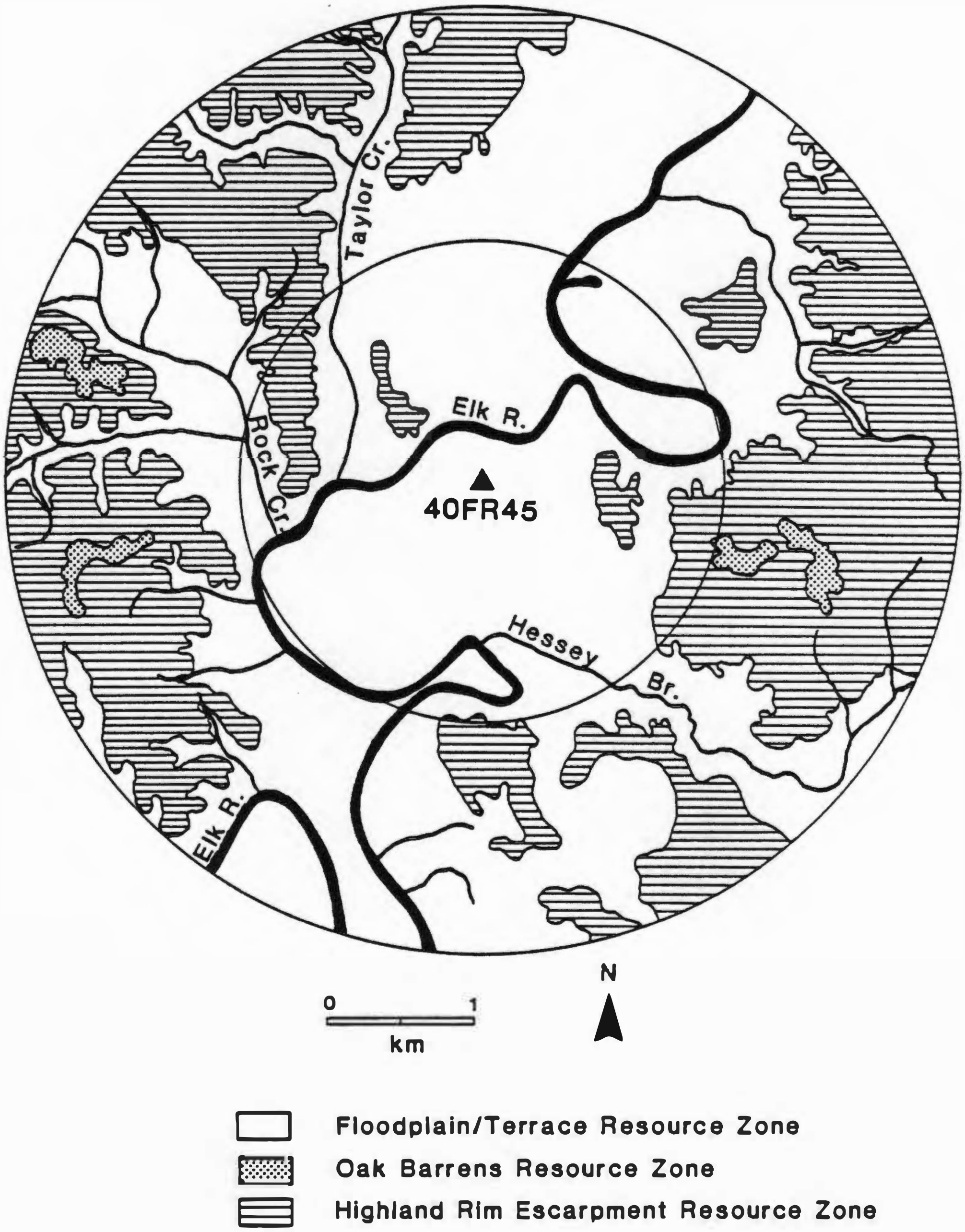

Figure 46. Topographic stratification of the Peters site arena into biogeographic resource zones.

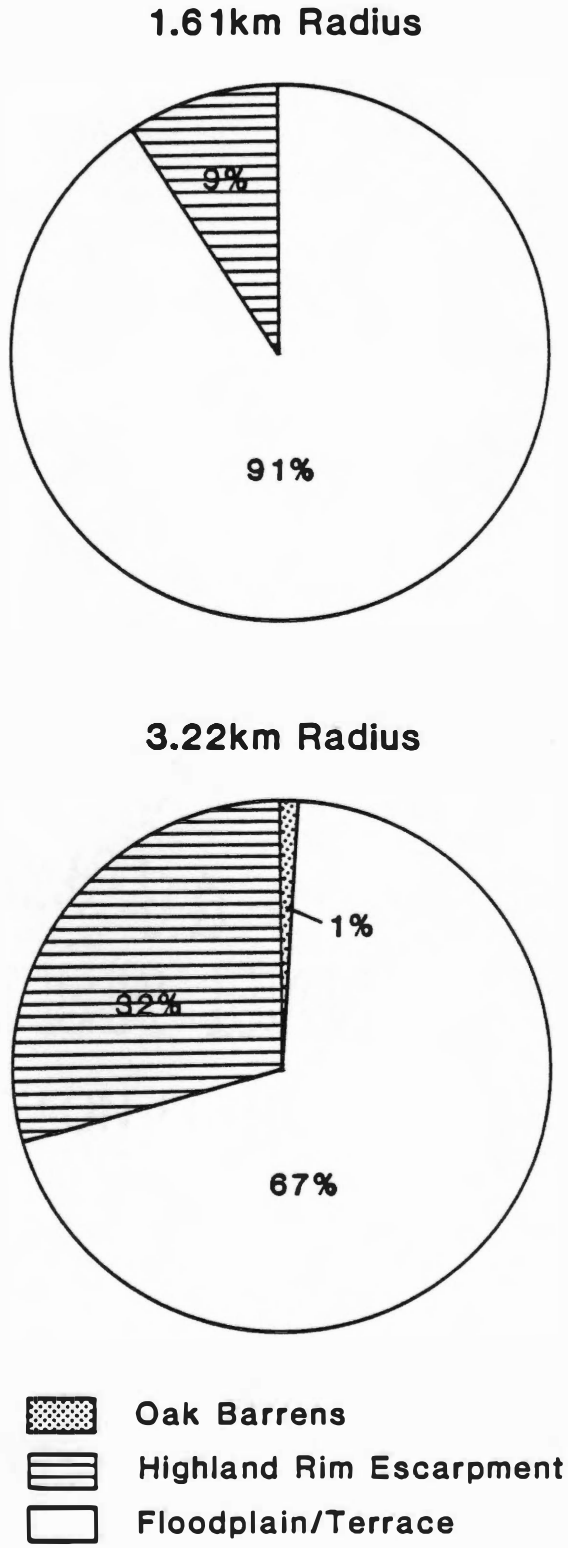

Figure 47. Biogeographic resource zones in the Peters site arena.

305 m AMSL. The topographic change from a lowland to an upland setting marks this transition. The escarpment is distributed east and west of the site primarily in the 3.22 km radius. Within a 1.61 km radius, the Highland Rim escarpment totals 9 percent of the surface area, while an extension to the 3.22 km arena increases the total to 32 percent. A minor portion (1 percent) of the site arena is the Oak Barrens Resource Zone at elevations of 305 m - 336 m AMSL.

The aboriginal occupation of the Peters site was likely influenced by a combination of environmental factors as well as the availability of natural resources in the site arena. The Peters environmental setting and the resource availability compares favorably with the Shofner site discussed in Chapter V. Key elements of the natural environment that contributed to site location were probably the prominent terrace above a broad floodplain of the Elk River, the quality and quantity of the floodplain/terrace soils, and the proximity of a large spring providing a year-round source of water.

Perhaps of secondary influence on the Peters site location was the Elk River and two major tributaries. Taylor and Rock creeks flow into the Elk from the north within 1.61 km of the site and provide easy access to the slopes and bluffs of the escarpment and flat Highland Rim. Rock Creek, larger of the two, also provided a corridor to the upper Duck River Valley by way of Carroll Creek (cf. Faulkner and McCollough 1974:3-5).

In terms of subsistence resources, the fertile soils of the floodplain/terrace would have been ideal for cultivated crops. In addition, the preparation of land for gardens would have encouraged the growth of

a variety of wild herbaceous plants that had edible parts maturing at different seasons of the year. Equally important and in close proximity to the site were the various aquatic and floodplain resources, such as shellfish, fish, and turtles that were probably exploited during the early spring and summer. As discussed relative to the Shofner site, the cultivated and wild herbaceous plants and aquatic species probably constituted critical categories of seasonally available floodplain/terrace resources.

The Highland Rim escarpment, although at a greater distance and requiring a greater amount of energy for exploitation, was the source of a variety of seasonally available plant and animal foods. Most significant of these foods was the high energy yielding arboreal seeds of which chestnut, hickory, and acorn were most important. The animal foods obtained from the Highland Rim and the Oak Barrens, however, were no less significant in terms of their seasonal availability in these resource zones. Deer, turkey, and probably elk were likely found in greater quantities throughout these zones during the fall and winter, because of the food resources, open parkland browse, and intermittent forest protection.

The late Middle Woodland groups that inhabited the Peters site would have had access to a variety of spring season aquatic and floodplain resources, summer season terrace resources, and fall/winter season upland resources. Distance to the uplands would have been a somewhat limiting factor, but it is reasonable to assume that the Peters site was in a lucrative area with easy access to several environmental resource zones for fishing, foraging, gardening, and collecting seasonally

available wild foods and raw materials for tools and weapons. Therefore, the Peters site likely functioned as a year-round village during the late Middle Woodland period and was occupied for a number of consecutive years.

Site Testing

Archeological field work at the Peters site began March 15, 1977, with the placement of a permanent datum stake on the TVA property line along the first terrace. From this datum stake, a 52 m north-south line was established that ran perpendicular to the first terrace and bisected a portion of the site. The initial test excavations were 2 x 2 m units located 30 m and 50 m south of the datum point that was designated the 0 x 0 stake. These areas were chosen for testing because of a lithic scatter at 30 m and a darker brown midden deposit at 50 m south. Following removal of the plowzone in these two areas, the unit at 30 m south was abandoned, and the remaining effort was concentrated on expanding the 2 m x 2 m test unit in the 50 m south area. A total of 30 m^2 of disturbed plowzone was removed from the Peters site and revealed 15 features, 13 postholes, and a localized dark brown refuse midden that averaged 10 cm in thickness (Figure 48).

The excavation and data recovery techniques employed at the Peters site were directed toward the discovery of undisturbed deposits and recovery of cultural materials in sealed context. This involved excavation of a refuse midden that covered a 4 m x 6 m area. Following midden removal in arbitrary 5 cm levels, a concentration of large and small pits extending into the subsoil were revealed. These pits were

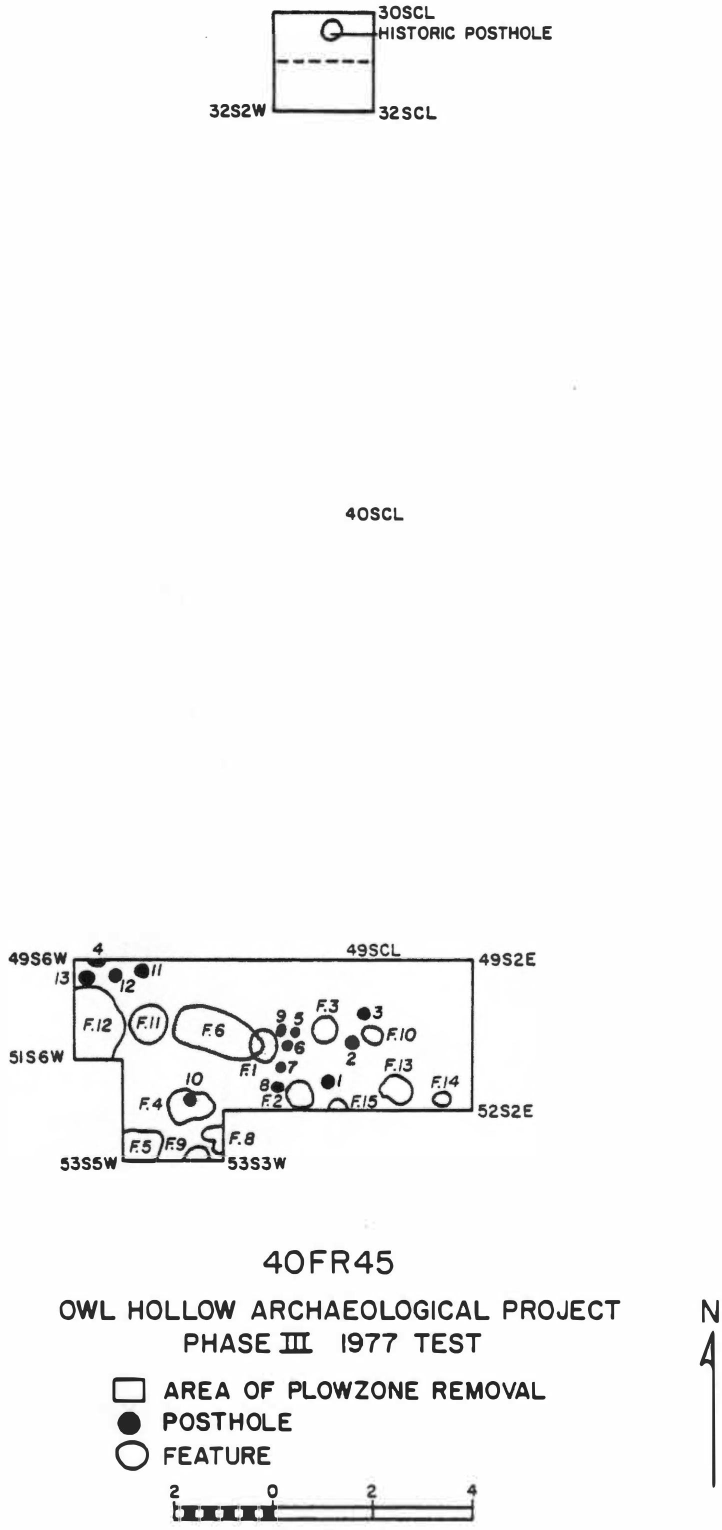

Figure 48. The Peters site (40FR45) excavation map.

excavated except for those portions extending beyond the limits of plowzone removal.

Soil from the pits was removed by trowel and field sorted for large remains prior to being passed through a 6 mm dry screen. Soil flotation samples were collected from pits that contained large quantities of carbonized plant remains. The soil samples were retained for water flotation with the Owl Hollow Project Laboratory Flotation Device (Cobb and Faulkner 1978a). During excavation, radiocarbon samples were collected from undisturbed context in features and postholes. All excavated pits were recorded on standardized field forms, and a site plan was drawn utilizing established grid coordinates. The excavation process and significant features were recorded with black-white and color photography. Following completion of testing on March 25, 1977, the temporary datum stake was replaced by a metal rod, and the test areas were backfilled and compacted.

Radiocarbon Dates

Two radiocarbon dates from the Peters site were obtained from the University of Georgia Geochronology Laboratory. These dates were from two large storage/refuse-filled features. The sample from Feature 6 (UGa 1765), located in grid units 50-52 south x 4 west, came from Level II, which was covered by a compacted dark brown, rock-filled refuse layer. The second sample came from Feature 12 (UGa 1776) in grid units 50-51 south x 5-6 west and was collected from Level IV at the base of the pit. Several compacted dark brown and yellow-brown refuse layers occurred above Level IV and effectively sealed the basal stratum. Both

samples were composed of charred wood and small fragments of charred hickory nut shell. The two dates from 40FR45 are:

UGa 1765: 1170 $\pm$ 55 B.P. (A.D. 780); one standard deviation range is A.D. 555 - 675.

UGa 1776: 1470 $\pm$ 60 B.P. (A.D. 480); one standard deviation range is A.D. 420 - 540.

The radiocarbon dates from the Peters site are from refuse-filled storage features having very similar stratified deposits. The strata from which the samples were collected were sealed. Overlying the features was a localized refuse midden that was deposited after refilling and abandonment of these pits. Considering the probable contemporaneity of the pits, however, there is a significant difference of 300$\pm$ years in their radiocarbon age determinations. Based on an archeological interpretation, the date of A.D. 480 $\pm$ 60 is consistent with the cultural materials recovered from the pits. In addition, similar diagnostic materials were recovered from the refuse midden overlying both of these pits. Therefore, the uncorrected assay of A.D. 480 $\pm$ 60 is accepted as dating the major occupation of the Peters site at the time features 6 and 12 were filled with refuse. The large pits were, undoubtedly, utilized during the intensive middle Owl Hollow phase occupation of the Peters site.

Features

Fifteen subplowzone disturbances were identified as cultural features at the Peters site. Nine of these features were exposed in the test pits and were completely excavated and recorded. Six were bisected and were only partially sampled. The features were divided into

functional types after those established at 40FR7. Table 37 lists specific information about each feature.

Three of the features were significant for site interpretation based on the feature type, the presence of stratified refuse deposits, the radiocarbon dated contents, and the inclusive cultural material. All three features, designated 1, 6, and 12 (Figures 49 and 50), are believed to have functioned as storage pits. The stratified pit contents, which were identical in the three features, indicated a secondary use of these pits as refuse receptacles.

The analysis of the pit contents suggested a sequence of refuse deposits that had formed over a period of five or six months. To paraphrase Cobb and Faulkner (1978:100), a hypothetical scenario of the use of the pits is posited:

> The large storage facilities were filled with surplus arboreal seeds gathered in the early fall for winter stores. Following depletion of stored foods during the cold season, the empty pits were again filled with spring and summer refuse from warm season subsistence activity. In the late summer/ early fall, some of the refuse-filled pits were again dug out, enlarged and prepared for filling with storable foods to be used during the winter, thus completing the cycle.

Floral and faunal evidence that supports the sequence of refuse deposition was recovered from the storage pits. The remains of gastropods, pelecypods, aquatic turtles, and fish occurred in a matrix of yellow-gray ash. These remains were deposited as spring and early summer refuse in the bottom two levels (IV and V) in all three features. Above the basal fill was a loosely compacted, charcoal enriched, dark brown deposit probably of mid-to-late summer origin (Levels III and IV). Perhaps the most significant remains identified in the feature deposits

Table 37. Feature and posthole data from 40FR45.

Number	Type	Description	Dimensions (cm)	Depth (cm)
		PART I		
1	5	oval, cylindrical storage pit	101 x 81	59
2	5	circular, cylindrical storage pit	60 x 56	43
3	5	circular, cylindrical storage pit	57 x 56	34
4	4	oval, irregular pit	57 x 97	12
*5	3	oval, basin-shaped pit	63 x 74	36
6	5	oval, deep, basin-shaped pit	86 x 143	93
*7	3	oval, shallow pit	28 x 38	21
*8	3	oval, shallow pit	36 x 30	21
*9	3	oval, shallow pit	27 x 58	16
10	3	oval, shallow pit	31 x 40	29
11	5	circular, cylindrical storage pit	88 x 80	71
*12	5	circular, cylindrical storage pit	1.04 x 97	140
13	8	oval, surface hearth	82 x 75	surface
14	3	oval, shallow pit	27 x 36	29
*15	3	oval, shallow pit	34 x 30	31
		PART II		
1	posthole	oval, deep pit	25 x 20	27
2	posthole	circular, shallow pit	29 x 32	19

Table 37 (Continued)

Number	Type	Description	Dimensions (cm)	Depth (cm)
3	posthole	oval, deep pit	24 x 20	30
*4	posthole	circular, shallow pit	24 x 25	10
5	posthole	circular, deep pit	16 x 15	25
6	posthole	circular, deep pit	16 x 18	34
7	posthole	oval, deep pit	24 x 28	39
8	posthole	circular, shallow pit	20 x 20	10
9	posthole	oval, deep pit	28 x 20	46
10	posthole	oval, deep pit	15 x 21	35
11	posthole	circular, deep pit	14 x 14	21
12	posthole	circular, deep pit	14 x 14	26
13	posthole	circular, shallow pit	13 x 16	14

* = Features/Postholes not completely excavated; dimensions/depth are approximate.

Figure 49. The Peters site excavation area with features 1, 6, 11, and 12 in the center background.

Figure 50. The partial excavation of Feature 12, a stratified, refuse-filled storage pit.

were numerous species of cultivated plants and wild herbaceous seeds of economic importance.

The upper levels of feature deposits (Levels I and II) consisted of compacted, dark brown soil identified as village refuse that included broken pottery, lithic tools and debitage, burned limestone rock, fire-cracked rock, fauna, and large charred wood fragments. Among the refuse were diagnostic projectile points/knives and limestone-tempered plain ceramics. Faunal remains included aquatic species, large and small land mammals, and birds. The refuse deposits concentrated in and around these three features provided the bulk of artifactual and ecofactual data for interpretation of the Peters site.

The association of storage features 1, 2, 6, 11, and 12 forms a significant activity location probably adjacent to a structure. The fired clay dump of Feature 4 suggests this structure was probably a cold season earth oven lodge. The remains of storage features indicate multi-season occupation. A suggested community pattern for the Peters site would be perhaps several discrete clusters of summer and winter houses surrounded by large support facilities such as features 1, 6, and 12.

The probable presence of summer and winter structures suggests a year-round site occupation. Refuse remains, a localized midden deposit, and evidence of earth oven activity (Feature 4) lends strong support to the proposition of year-round occupation. Diagnostic lithics and ceramics suggest this occupation was during the middle Owl Hollow phase around A.D. 400 - 600. A radiocarbon date of A.D. 480 $\pm$ 60 supports the

cultural material assessment for the middle Owl Hollow phase occupation of this lowland Elk River site.

Postholes

Thirteen subsurface disturbances at the Peters site were identified as postholes based primarily on size and shape. The majority of these postholes was fully excavated and recorded. Flotation samples were collected from two pits packed with charcoal which probably functioned as smudge pits. Table 37 lists specific information on individual postholes.

The distribution of postholes was random in the excavated area. This is likely a factor of limited excavation rather than a true representation of a distribution pattern. A possible significant cluster was noted on the eastern and northern edges of storage features 1, 6, 11 and 12. These postholes could have been associated with a temporary shelter protecting the food stores in these pits. Limited excavation prevented further determination of patterning in the posthole arrangement or definition of structural associations.

Refuse Midden

The large complex of storage pits centering on features 1, 6, 11, and 12 was sealed by a midden deposit. The compacted refuse averaged 20 cm in thickness and was dark brown in coloration. This homogeneous deposit was excavated in arbitrary 10 cm levels until the points of origin of separate features could be discerned.

The midden was localized in a depression that was associated with and resulted from use of the storage pits. From the rather homogeneous appearance of the midden, it was deposited over a short period of several months to perhaps intentionally fill in the depression surrounding the storage pits. Seasonality is suggested to be late fall or early winter based on the accumulated materials likely deposited from earth oven activity such as fire-cracked rock, burned limestone, and large chunks of charred wood. The refuse midden also contained large quantities of lithics, ceramics, floral, and faunal materials that appeared to be a generalized type of village refuse from a wide range of activities. These activities suggest that the storage facilities were directly associated with a habitation locus and that occupation of the site was likely year-round.

Lithic Analysis

The lithics sample recovered from the Peters site came from surface, plowzone, feature, posthole, and refuse midden context. The raw material types were identified for the Peters site with the aid of lithics from disturbed context, and by comparison with previously defined lithics types at 40FR7. The Peters site lithic types are identical to those designated for the Owl Hollow site (Appendix A).

Sixteen different types of chert were defined along with slate, limestone, and sandstone in the Peters site lithics sample. Thirteen types of chert and the limestone and sandstone were available in the local site arena and could have been procured from Elk River gravel bars or outcrops along Rock Creek (Penny and McCollough 1976:190). Three

types of chert were likely procured outside the site arena in areas of the eastern Highland Rim, such as the Pelham and Hillsboro localities. There was one distant-exotic lithic material identified in the sample recovered from the Peters site. The raw material types from 40FR45 are identified in Table 38 and discussed below.

Local Lithic Material

Local lithic types utilized at the Peters site are essentially the same as those defined from the Owl Hollow site. The 15 lithic types recovered from Peters that were previously identified in chapters V, VI, and VII are:

Type	Raw Material	Sample Size (n)
A	Blue, Gray and Tan chert	31
B	Blue, Gray and Tan chert, variety tan	145
C	Blue, Gray and Tan chert, variety blue-gray	314
F	Gray nodular chert	20
H	Matt Brown chert	127
I	Blue-Black fossiliferous chert	12
K	Greenish-Gray chert	4
L	Greenish-Gray, highly mottled chert	3
M	Dark Blue-Gray chert	4
N	Gray banded chert	1
O	Blue-Gray mottled chert	4
Q	White, coarse-textured fossiliferous chert	13
U	Dark Gray mottled chert	1
	Limestone	4
	Sandstone	3

Table 38. Lithic assemblage from features, postholes, and midden, 40FR45.

Tool Type	Raw Materials**																		Total	Percent
	A	B	C	D	E	F	G	H	I	K	L	M	N	O	Q	U	Limestone	Sandstone	Slate		
1																		1		1	*
2a		1		4																5	1
2b				1			1	2												4	*
2d	1		1	7	1			1		1		1			2					15	1
3	6	20	29	38	4		10	23	1		1	1			3					136	13
4	15	28	103	72	1	6	35	35	2	1					1					299	28
5	2	30	39	62	3	7	34	26	2		1									206	19
7	2	50	97	43	5		16	19	6	1		1		2	6					248	23
9							1	2												3	*
10	1	4	5			1	1	1												13	1
11			1																	1	*
12			1	1																2	*
14							1													1	*
15	2	1	5	7		2	8	2												27	2
16	1		4	2			2	1												10	1
17	1	2	4					4							1					12	1
18			2	1			1													4	*
25				1																1	*
27			3	1		1	1													6	1
28			2	2			1	1	1					1						8	1
29			1	1				1												3	*
30		1	2	1			1	1		1										7	1
31			1			1	3													5	1
32			1													1				2	*
33		1						2												3	*
34		1	3	2			1	2			1		1	1						12	1
35				1																1	*
36		2	7	2	1		4	3												19	2
37		4	3	7		2	5	1				1								23	2
38																	1			1	*
39																	3	2		5	1
40																			1	1	*
Total	31	145	314	256	15	20	126	127	12	4	3	4	1	4	13	1	4	3	1	1,084	
Percent	3	14	30	24	1	2	12	12	1	*	*	*	*	*	1	*	*	*	*		100

* = less than 1 percent

** = The following categories were also inclusive in the features, postholes and midden:

(a) Chert/Limestone rock (includes rough rock) 17,763 g
(b) Miscellaneous debris 18,390 g
(c) Unworked shale 687 g

Near-Exotic Lithic Materials

Three types of near-exotic lithics were recovered at the Peters site. These types were previously identified in chapters V, VI, and VII. These types are:

Type	Raw Material	Sample Size (n)
D	Blue-Green nodular chert	256
E	Blue-Green nodular chert, variety reddish brown	15
G	Black-Brown nodular chert	126

The lithic sample from the Peters site did not contain previously unidentifiable local or near-exotic cherts, or other types of lithic raw materials not previously discussed.

Distant-Exotic Lithic Material

One type of distant-exotic lithics was recovered at the Peters site. This material is identified as slate (n = 1) and was previously identified in the lithics sample from the Owl Hollow site (Chapter VII). The green slate or greenstone was possibly obtained from the metamorphic rock area of central Alabama.

Chipped and Ground Lithic Materials

The lithics sample from feature, posthole, and refuse midden context at the Peters site totaled 1,084 artifacts. The lithics sample consists of primary lithics, unifacial and bifacial tools, projectile points/knives, and ground stone implements. The lithics from 40FR45

were submitted to a functional analysis and classification that resulted in the identification of 32 separate tool types (Table 39).

Primary Lithics

The primary lithics are divided into eight types represented by a hammerstone, cores, and waste flakes. All of the primary lithic artifact types identified at Peters were discussed above and are descriptively identical to the previous samples. The previously identified tool types and sample sizes from Peters are:

	Tool Type	Sample Size (n)
1	Hammerstone	1
2a	Subconical core	5
2b	Flat core	4
2d	Amorphous core	15
3	Decortication flake	136
4	Flat flake	299
5	Bifacial thinning flake	206
7	Unidentifiable flake fragments	248

Unifacial Implements (N = 57)

Seven types of unifacial artifacts were recovered from the Peters site. These types were previously identified and described above. These unifacial tool types and samples sizes are:

	Tool Type	Sample Size (n)
9	Endscraper	3
10	Sidescraper	13

Table 39. Distribution of lithics in features, postholes, and midden, 40FR45.

Lithic Tool Types	Ph-1	F-1	F-4	F-5	F-6	F-7	F-10	F-11	F-12	50S 2W L-I	50S 4W L-I	50S5W L-I	50S5W L-II	51S 6W L-II	52S0W L-I	52S0W L-II	52S2W L-I	52S2W L-II	52S4W L-I	52S4W L-II	52S5W L-I	52S5W L-II	53S 5W L-II	Total	Percent
1 Hammerstone		1																							
2a Subconical core		3							1					1										5	1
2b Flat core					2				1												1			4	*
2d Amorphous core		3	1	1	5			1							1			1	1		1			15	1
3 Decortication flake		32		1	43	1	1	5	22		1	2	3		7		4		7	3	3		1	136	13
4 Flat flake		55	1	11	88			13	79			1	2		16		7	3	12	4	4	3		299	28
5 Bifacial thinning flake		31		3	78	1	1	3	67				2		9		1		3	2	4		1	206	19
7 Unident. flake fragments		42		1	82		4	4	91					1	9		2	1	3	1	6		1	248	23
9 Endscraper					1				1						1									3	*
10 Sidescraper		2			3			1	2						2				1	2				13	1
11 Spokeshave					1																			1	*
12 Denticulate					2																			2	*
14 Graver									1															1	*
15 Utilized flake: unifacial		6		1	7			2	6						2	1			1	1				27	3
16 Blade-like flake: unifacial		1		1	2	1			2										1	1	1			10	1
17 Thick biface knife				1	3		1	1				1			1			1		2	1			12	1
18 Thin biface knife					2	1				1														4	*
25 Microtool		1																						1	*
27 PP/K: narrow thick lanceolate		2			1									1						1	1			6	1
28 PP/K: narrow thick lanceolate stemmed		1			3					4														8	1

Table 39 (Continued)

Lithic Tool Types	Ph-1	F-1	F-4	F-5	F-6	F-7	F-10	F-11	F-12	50S 2W C-I	50S 4W C-I	50S5W C-I	50S5W C-II	51S 6W C-II	52S0W C-I	52S0W C-II	52S2W C-I	52S2W C-II	52S4W C-I	52S4W C-II	52S5W C-I	52S5W C-II	53S 5W C-II	Total	Percent
29 PP/K: narrow thick lanceolate contracted stemmed		2							1															3	*
30 PP/K: narrow thick lanceolate shallow side-notched						1				1	1	1							1			2		7	*
31 PP/K: lanceolate expanded stemmed		1				1				3														5	1
32 PP/K: lanceolate straight stemmed		1			1																			2	*
33 PP/K: triangular shallow side-notched	1	1			1																			3	*
34a Medium-large triangular straight elong. blade		1								1														2	*
34b Small-medium, side-notched		1																						1	*
34c Medium-large wide shallow side-notched, narrow blade		1																						1	*
34d Medium straight-stemmed, narrow blade							1	1					1								1			4	*
34e Medium straight-expanded, barbed, wide blade										2														2	*
34f Large triangular, thick excurvate blade														1								1		2	*
35 Unident. PP/K: basal frags.					1																			1	*
36 Unident. PP/K: medial frags.		5			5			1	3	1					1				1		1	1		19	2
37 Unident. PP/K: distal frags.		4		1	8			1	1	3					1	1			1	1		1		23	2
38 Pitted cobble									1															1	*
39 Millingstone					4				1															5	1
40 Celt		1																						1	*
Total	1	198	2	21	343	6	8	33	280	16	2	5	8	4	50	2	14	6	32	18	24	8	3	1,084	
Percent	*	18	*	2	31	1	1	3	26	1	*	1	1	*	5	*	1	1	3	2	2	1	*		100

* = less than 1 percent

11	Spokeshave	1
12	Denticulate	2
14	Graver	1
15	Utilized flake: unifacial	27
16	Blade-like flakes: unifacial	10

Bifacial Implements (N = 17)

Three types of bifacial artifacts were recovered from the Peters site. These types were previously identified and described above in chapters V, VI, and VII. The bifacial tool types and sample sizes are:

	Tool Type	Sample Size (n)
17	Thick biface knife	12
18	Thin biface knife	4
25	Microtool	1

Projectile Points/Knives (N = 89)

Sixteen different types of projectile points/knives were identified in the lithics sample from the Peters site. These are represented by culturally diagnostic types, and unidentifiable fragmented examples from several different time periods. Twelve of the projectile point/knife types--the majority of which are associated with the late Middle Woodland period--were described above in chapters V, VI, and VII. The previously described types and their sample sizes from Peters are:

	Tool Type	Sample Size (n)
27	Narrow thick lanceolate	6
28	Narrow thick lanceolate stemmed (Figure 51, a, c, g)	8

Figure 51. The Peters site: Projectile points/knives. Narrow thick lanceolate stemmed, a, c, g; Narrow thick lanceolate shall side notched, b; Lanceolate expanded stemmed, d-f; Narrow thick lanceolate contracted stemmed, h.

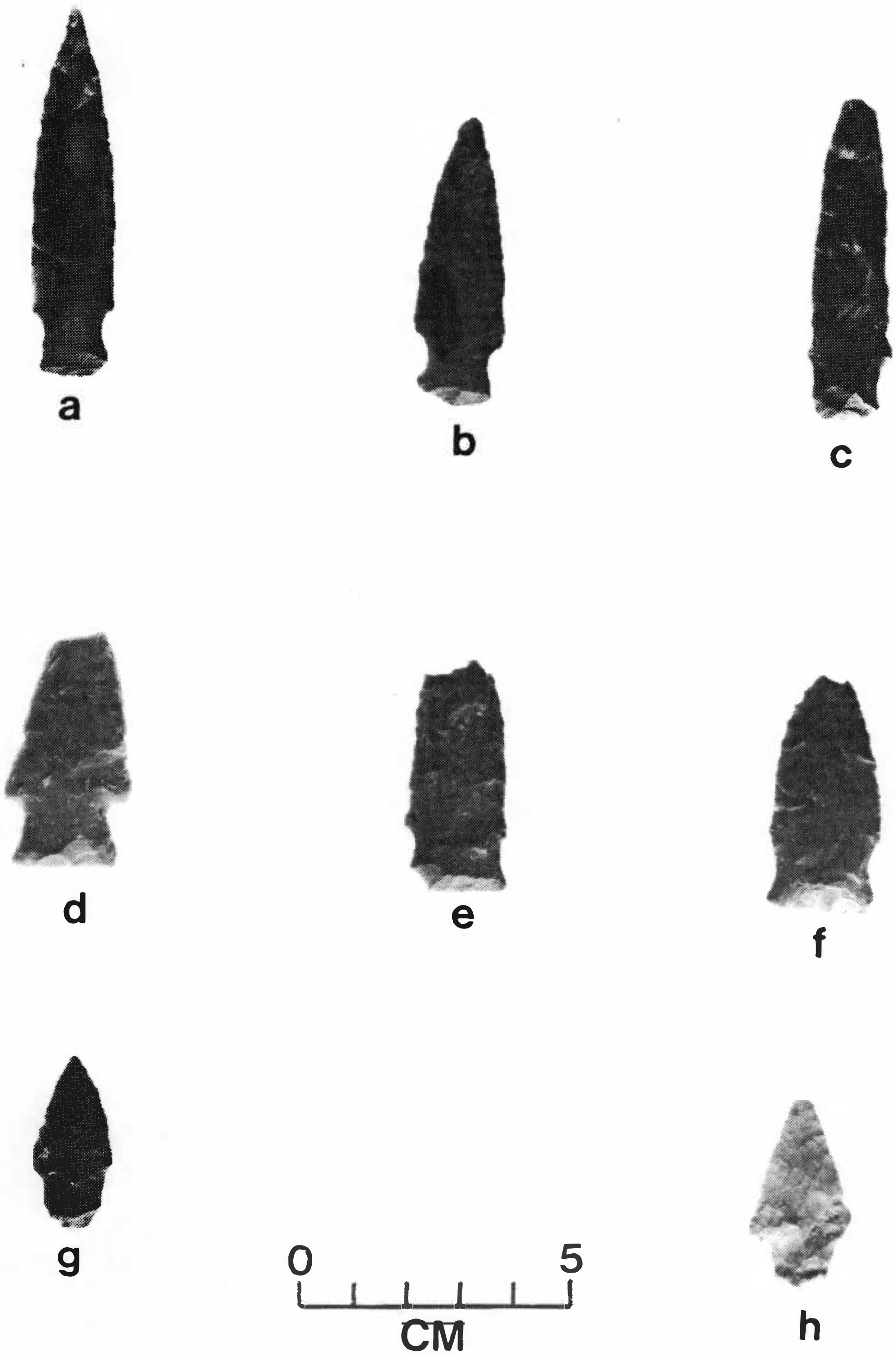

Figure 51

29	Narrow thick lanceolate contracted stemmed (Figure 51, h)	3
30	Narrow thick lanceolate shallow side-notched (Figure 51, b)	7
31	Lanceolate expanded stemmed (Figure 51, d-f)	5
32	Lanceolate straight stemmed	2
33	Triangular shallow side-notched	3
34a	Medium-large triangular, straight elongate blade	2
34e	Medium straight-expanded, barbed, wide blade	2
35	Unidentifiable PP/K: basal fragments	1
36	Unidentifiable PP/K: medial fragments	19
37	Unidentifiable PP/K: distal fragments	23

The additional four types of projectile points/knives from the Peters site are described below.

43b <u>Small-medium side-notched</u> (n = 1)

This projectile point/knife corresponds to Type 134 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:139-140). This narrow, elongated projectile with pronounced side notches and ground basal edges is associated with the Early Archaic period in northern Alabama (Cambron and Hulse 1964:A-10, A-11).

43c <u>Medium-large wide shallow side-notched, narrow blade</u> (n = 1)

This projectile point/knife corresponds to Type 67 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:103). This narrow, lanceolate projectile with excurvate

blade edges and a rounded base is likely a Middle-Late Woodland type and a possible variant of the late Middle Woodland spike types.

43d <u>Medium straight stemmed, narrow blade</u> (n = 4)

These projectile points/knives correspond to Type 98 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:118-119). These narrow, elongate projectiles with straight to excurvate blade edges and narrow, straight bases are probably associated with the Late Archaic-Early Woodland periods in the upper Elk River Valley.

43f <u>Large triangular, thick excurvate blade</u> (n = 2)

These projectile points/knives correspond to Type 52 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:94). These triangular artifacts with excurvate blade edges and straight to incurvate bases likely associated with the Middle Woodland period. The thick blades of these tools and uneven edge wear suggests they may have functioned as knives. These implements could be considered Type 17, thick biface knives, as well as projectiles.

<u>Ground Stone Tools</u> (N = 7)

Three types of ground stone artifacts were identified in the Peters site lithic sample. These types are represented solely by utilitarian implements. Two of the types are identified and described above in preceding chapters. These types are:

	Tool Type	Sample Size (n)
39	Millingstone	5
40	Celt	1

The remaining type is described below:

38 Pitted Cobble (n = 1)

This implement is an elongated limestone cobble displaying battering on both ends and along the sides. Striations are obvious on one face that has a single pecked depression in the middle of the cobble face. This implement probably functioned for pounding and grinding materials such as seeds.

Lithics Summary

The lithics sample from the Peters site was derived primarily from large storage/refuse-filled pits and a localized refuse midden that filled a low area associated with features 1, 6, 11 and 12. The lithics were likely dumped or collected in the refuse-filled areas over a period of 4-6 months. The nature of these deposits suggests a random accumulation of the cultural materials in an area probably adjacent to a structure.

The lithic raw materials recovered at the Peters site were similar to samples identified at previously investigated Owl Hollow phase sites. Lithic selection represented an almost 2 to 1 ratio of locally available materials (63 percent) over those from near-exotic source areas (37 percent). The latter category, however, was well represented primarily by two types of chert probably obtained from the Hillsboro locality on

the eastern Highland Rim. One distant-exotic material, green slate, was recovered at Peters.

The Peters lithic sample consisted of debitage, utilitarian tools, and weapons. There were no ornaments present, and few ground and polished tools in the sample. The three major categories of materials--primary lithics, uniface and biface tools, and projectile points/knives--indicated a variety of activities involving lithic artifacts.

The primary lithics are associated with core reduction and tool/weapon fabrication activities. The high correlation of cores and flakes with finished implements suggests these activities were being performed with some intensity at the site. The result was not only an accumulation of workshop debris, but evidence of male participation in onsite manufacture and maintenance of lithic tool kits. The tools fabricated were uniface and biface implements for scraping and cutting tasks. Flake tools were expedient, particularly the utilized flakes and blade-like flakes. Biface knives were generally well made on large flakes with triangular and ovate shapes predominating. A similar manufacturing technique on large flakes was used for the production of late Middle Woodland projectile points/knives, as well. Spike projectile points were recovered at the Peters site in large numbers, and represented a variety of types associated with the Owl Hollow phase. This sample not only indicates the range of projectile variation that existed in the tool kit, but the importance of hunting during the late Middle Woodland period, and the presence of male activity at the site throughout several seasons.

Ceramic Analysis

The ceramics sample from the Peters site totaled 1,724 sherds (Table 40). This sample represents material recovered from large storage/refuse features, and a localized refuse midden. These ceramics are divided according to the predominant tempering materials into five ware categories. The wares are identified as: limestone; limestone/chert; chert; limestone/chert/sand; and grit. The individual types associated with each ware are defined on the basis of distinctive surface treatments, or a lack of such treatment as in the plain type. The ceramic wares and types are discussed below.

<u>Limestone-tempered ware</u> (N = 1,588)

This ceramic ware was identified at the Shofner site and was previously described in Chapter V. The same limestone-tempered ware description applies to the Peters ceramics. Four previously described limestone-tempered ceramic types occurred in the Peters ceramic sample. These are:

Ceramic Type	Sample Size (n)
Residual Plain	216
Plain	1,368 (Figure 52, a, c-d)
Simple Stamped	3 (Figure 52, b, e)
Complicated Stamped	1

Table 40. Distribution of ceramics in features, postholes, and midden units, 40FR45.

Ceramic Ware and Type:	Ph-1	F-1	F-4	F-5	F-6	F-7	F-10	F-11	F-12	Level I, 50S4W	Level I, 50S5W	Level II, 50S5W	Level II, 51S6W	Level I, 52S0W	Level I, 52S2W	Level II, 52S2W	Level I, 52S4W	Level II, 52S4W	Level I, 52S5W	Level II, 52S5W	Total	Percent
Limestone-Tempered																						
Residual		82		6	44			7	5		5			3			8	30	2	24	216	13
Plain	1	355	1	84	344	3		87	233	1	16	26	10	12	5	2	88	35	41	24	1368	79
Simple Stamped					1																3	*
Complicated Stamped		2							1												1	*
Grit-tempered																						
Residual							2														2	*
Plain					7		3		1												11	1
Chert-tempered																						
Plain					16																16	1
Limestone/Chert-tempered																						
Residual					3				6												9	*
Plain					48			12	18			2							2	2	84	5
Limestone/Chert/Sand-tempered																						
Residual					1																1	*
Plain		8			2				3												13	1
Total	1	447	1	90	466	3	5	106	267	1	21	28	10	15	5	2	96	65	45	50	1724	
Percent	*	26	*	5	27	*	*	6	15	*	1	2	1	1	*	*	6	4	3	3		100

* = less than 1 percent

Figure 52. The Peters site: Ceramics. Limestone-tempered plain notched rim sherds, a, c-d; Limestone-tempered simple stamped notched rim sherds, b, e.

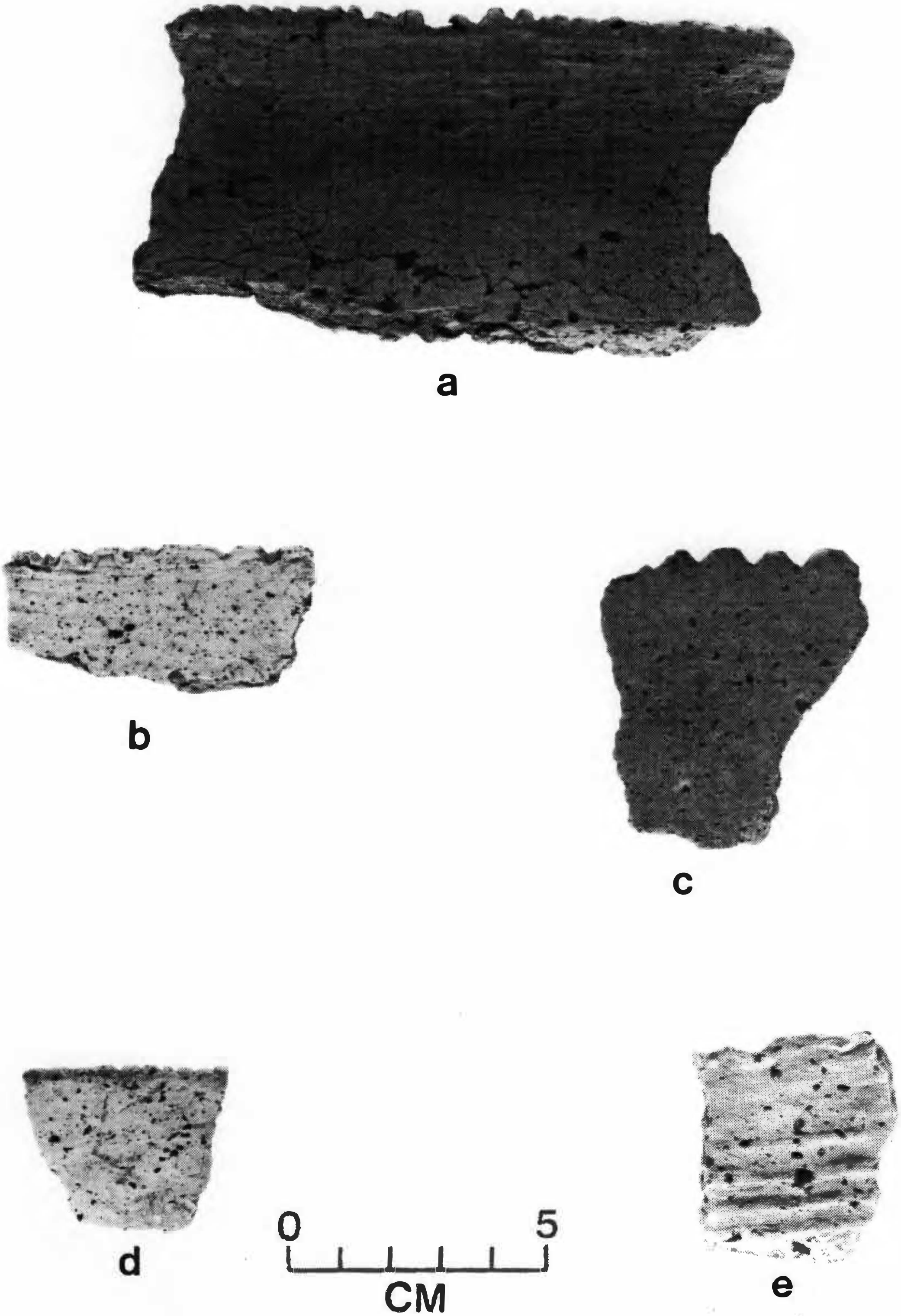

Figure 52

Grit-tempered ware (N = 13)

This ware was identified at the Shofner site and was previously described in Chapter V. An attempt was made to distinguish the Shofner grit-tempered ceramics from an Early Woodland quartzite-tempered ware. The use of grit temper mixed with other finely crushed materials seems to be typical of the ware on late Middle Woodland sites. As in the Shofner sample, the Peters grit-tempered ware contained coarsely crushed quartzite mixed with additional finely-crushed material(s). At Peters, this material was possibly a pulverized fossiliferous limestone.

Two previously described types were recovered at the Peters site and are listed below.

Ceramic Type	Sample Size (n)
Residual Plain	2
Plain	11

Chert-tempered ware (N = 16)

This ware was described in Chapter V; a single, plain type of chert-tempered ceramics was also described in Chapter V.

Limestone/Chert-tempered ware (N = 93)

This ware was identified at the Shofner site and was previously described in Chapter V. The following types associated with this ware were also described in Chapter V.

Ceramic Type	Sample Size (n)
Residual Plain	9
Plain	84

Limestone/Chert/Sand-tempered ware (N = 14)

This ceramic ware was identified at the Shofner site and was previously described in Chapter V. Two previously described types occurred in the Peters ceramic sample. These are:

Ceramic Type	Sample Size (n)
Residual Plain	1
Plain	13

Ceramics Summary

The ceramics sample recovered from the Peters site came from late Middle Woodland refuse-filled pits and a refuse midden. The deposits that contained the ceramics likely came from several seasons of activity and represent multi-season, domestic refuse associated with a structure or structures.

The ceramics are primarily plain, utilitarian vessels that were probably conoidal, recurvate jars. The vessels were constructed with expanded shoulders, slightly constricted necks, and flat or rounded rims that were frequently notched in a variety of styles. The rim notching occurred on both decorated and undecorated types, and on vessels of varying size. Notched rims occur throughout the Owl Hollow phase.

The Peters ceramics were predominantly limestone-tempered. Other ware groups were present, but had significantly lower representation. The ceramics sample has the following percentage frequencies, and suggests the following cultural-temporal associations:

Ware Category	Percent	Cultural Period	Dates
Limestone-tempered	92	Middle Woodland	200 B.C. to A.D. 650
Grit-tempered	1	Middle Woodland	200 B.C. to A.D. 650
Chert-tempered	1	Middle/Late Woodland	A.D. 100 to A.D. 900
Limestone/ Chert-tempered	5	Late Middle Woodland	A.D. 200 to A.D. 650
Limestone/Chert Sand-tempered	1	Late Middle Woodland	A.D. 200 to A.D. 650

Ware frequencies from the Peters site indicate a late Middle Woodland association of this ceramic sample. The ceramics, however, can be assigned with some confidence to a Middle Owl Hollow phase context. This is supported by the percentages of mixed-temper wares, and the predominance of limestone tempering. Another factor influencing this interpretation is the high percentage of plain ceramics (92 percent). In comparison to other Owl Hollow phase sites, the Peters occupation is later than the Owl Hollow type station, somewhat earlier than the Shofner site, and probably contemporaneous with the Normandy Reservoir Owl Hollow phase occupations.

Floral Analysis

Two large, refuse-filled storage pits at the Peters site contained a substantial quantity of charred plant materials. Soil samples from stratified levels of these features were collected and processed by water flotation in the Owl Hollow Laboratory (Cobb and Faulkner 1978a). Floral samples were then chosen for a 50 percent analysis. Table 41 lists the various species of arboreal, herbaceous, and cultivated plant remains recovered from features 6 and 12 at the Peters site.

Table 41. Floral remains from feature context at 40FR45.

	Hickory (*Carya* sp.)	Acorn (*Quercus* sp.)	Hazelnut (*Corylus americana*)	Chestnut (*Castanea dentata*)	Walnut (*Juglans* sp.)	Honey Locust (*Gleditsia triacanthos*)	Maygrass (*Phalaris* sp.)	Goosefoot (*Chenopodium* sp.)	Purslane (*Portulacca* sp.)	Cleavers (*Galium* sp.)	Ragweed (*Ambrosia* sp.)	Pondweed (*Potamogeton* sp.)	Pokeweed (*Phytolacca americana*)	Pepperwine (*Dentaria laciniata*)	Grape (*Vitis*, sp.)	Compositae flower head	Large fruit (unidentifiable)	Squash (*Cucurbita* sp.)	Gourd (*Lagenaria* sp.)	Corn (*Zea mays*)	Total No. Fragments	Total Weight (grams)
	Arboreal Seeds						Herbaceous Seed & Fruits											Cultigens				
Feature 6:																						
Level II																						
Number of Fragments							13	14	1	4		1	7		6					2	48	
Weight (grams)	48.9	2.7		.1																		51.7
Level III																						
Number of Fragments							2			1			2	2	2	1	1				11	
Weight (grams)	32.8	2.5																				35.3
Level IV																						
Number of Fragments										1											1	
Weight (grams)	9.3	.6																				9.9
Feature 12:																						
Level IV																						
Number of Fragments			19		27	1	51	4			1							4	2	11	120	
Weight (grams)	21.3	11.2	.2		.5													.005	.001	.097		33.3
Total Sample:																						
Number of Fragments			19		27	1	66	18	1	6	1	1	9	2	8	1	1	4	2	13	180	
Percent of Fragments			11		15	1	37	10	1	3	1	1	5	1	4	1	1	2	1	7		
Weight (grams)	112.3	17	.2	.1	.5													.005	.001	.097		130.2
Percent of Weighed Sample	86	13	*	*	*													*	*	*		

* = less than 1 percent

The flora from the Peters site provided a range of information about Owl Hollow phase plant utilization. Although the Peters flora reflects a diffuse economy, there is evidence that suggests a concentration on species which were cultivated or encouraged to grow in the Floodplain/Terrace Resource Zone in close proximity to the site. These plants are the cultigens maize, squash/gourd, and probably sunflower, and a large assortment of herbaceous weeds associated with "intensive harvest collecting" (Struever 1968:310) or given the status of "domesticated" (Yarnell 1976:266).

The number and variety of cultivated plant species identified in middle Owl Hollow phase context suggests that horticultural subsistence practices had increased in importance and had become well established by about A.D. 400. Carrying this argument one step further, there is the hypothesis put forward by Faulkner (1977:149) that food production was exerting stronger influences on site locations, duration of site habitation, and structure type(s).

It is equally clear from the Peters floral sample that wild plant foods, particularly arboreal seeds, remained important in the middle Owl Hollow phase diet. Seasonal scheduling of the annual nut harvest was likely pursued as usual with the collection of such "first-line" wild plant foods as the hickory nut (Ash, Ford, and Ash 1972:27). The various nut species were probably gathered from the Highland Rim Escarpment Resource Zone near the site for immediate consumption and for winter storage.

The arboreal seed remains in the Peters flora is probably the result of a late winter/early spring refuse deposit. Arboreal seeds

were generally dominant in the floral remains from the Normandy Owl Hollow sites which are considered contemporary with the Peters site. The large percentage of nuts from the upper Duck River lowland sites was probably the result of samples taken from earth oven features in winter houses.

The Peters site, a probable year-round habitation locus, offers a clear perspective on the exploitative strategies and seasonal economic orientation of the late Middle Woodland Owl Hollow phase groups. From the floral evidence, the strategy was one of intensive exploitation of local wild and cultivated plant foods that were available to the site occupants from early spring to late fall.

Faunal Analysis

The archeological testing of the Peters site produced fauna from the stratified fill of three large storage/refuse-filled pits designated features 1, 6 and 12. These features were excavated in natural stratigraphic levels. Faunal remains were recovered during the excavation of the pits and from water flotation of soil samples. Tables 42, 43, and 44 present the identified remains of vertebrate and invertebrate fauna from the Peters site.

It was suggested that the refuse from features 1, 6 and 12 was deposited over a 5 or 6 month period. Deposition likely began in the early spring and continued until late summer or early fall. Each season's deposits had different fill characteristics and different faunal species represented. The analysis of this material indicates

Table 42. Vertebrate faunal sample identified from the Peters site (40FR45).

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals:			
Opossum			
(*Didelphis marsupialis*)	1	1	*
Striped Skunk			
(*Mephitis mephitis*)	2	1	*
Gray/Fox Squirrel			
(*Sciurus* sp.)	5	1	*
Rice Rat			
(*Oryzomys palustris*)	1	1	*
Small Rodents	1	1	*
Cottontail			
(*Sylvilagus floridanus*)	14	2	*
Elk			
(*Cervus elephus*)	2	1	*
White-tailed Deer			
(*Odocoileus virginianus*)	75	3	2
Deer			
(Cervidae)	1	--	3
Total identifiable mammal bone	102		
Unidentifiable large mammal bone	282		7
Unidentifiable small mammal bone	3,548		90
Total Mammal Bone Sample	3,932		
Birds:			
Small Hawk, sp.	1	1	*
Turkey			
(*Meleagris gallopavo*)	14	2	4
Total identifiable bird bone	15		
Unidentifiable bird bone	339		96
Total Bird Bone Sample	354		

Table 42 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Reptiles:			
Stinkpot (*Sternothaerus odoratus*)	8	2	4
Turtle (Kinosternidae)	4	1	2
Box Turtle (*Terrapene carolina*)	63	3	29
Turtle (*Graptemys/Chrysemys* sp.)	2	1	1
Turtle sp.	90	--	41
Snake (Colubridae)	9	1	4
Snake (Crotalidae)	5	1	2
Snake sp.	37	--	17
Total identifiable reptile bone	218		
Amphibians:			
Hellbender (*Cryptobranchus alleganiensis*)	2	2	50
Frog (*Rana* sp.)	2	1	50
Total identifiable amphibian bone	4		
Fish:			
Gar (*Lepisosteus* sp.)	1	1	*
Minnow (Cyprinidae)	1	1	*
Northern Hogsucker (*Hypentelium nigricans*)	1	1	*
Redhorse (*Moxostoma* sp.)	4	2	*
Sucker (Catostomidae sp.)	11	4	1
Catfish (*Ictalurus* sp.)	4	2	*
Madtom (*Noturus* sp.)	2	2	*

Table 42 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Fish (Continued)			
Catfish sp. (Ictaluridae)	3	2	*
Bass (*Micropterus* sp.)	2	1	*
Sunfish sp. (Centrarchidae)	37	5	4
Freshwater Drum (*Aplodinotus grunniens*)	4	1	*
Total identifiable fish bone	70		
Unidentifiable fish bone	934		93
Total Fish Bone Sample	1,004		
TOTAL IDENTIFIABLE BONE SAMPLE	409		7
TOTAL UNIDENTIFIABLE BONE SAMPLE	5,103		93
TOTAL VERTEBRATE FAUNAL SAMPLE	5,512		

[1] Minimum Number of Individuals

* = less than 1 percent

Table 43. Pelecypoda sample identified from the Peters site (40FR45).

Species	Shell Fragments	MNI[1]	Percent of Total
Fusconaia barnesiana	1	1	9
Lexingtonia dolabelloides	3	2	27
Fusconaia/Lexingtonia sp.	1	1	9
Ptychobranchus subtentum	4	3	36
Villosa sp.	1	1	9
Lampsilis fasciola	1	1	9
Total Identifiable Pelecypoda Sample	11	9	99

[1] Minimum Number of Individuals

Table 44. Freshwater gastropoda from the Peters site (40FR45).

Species	Shell Fragments	MNI[1]	Percent of Total
Lithasia verrucosa lima/ L. geniculata fuliginosa	8,572	8,572	47
Lithasia obovata	262	262	1
Lithasia sp.	6,237	6,237	35
Pleurocera canaliculatum	2,492	2,492	14
Elimia laqueta/edgariana	81	81	*
Leptoxis subglobosa	442	442	2
Viviparous georgianus	5	5	*
Total Identifiable Freshwater Gastropoda Sample	18,091	18,091	99

[1] Minimum Number of Individuals

* = less than 1 percent

that inhabitants of the Peters site relied heavily on seasonal fauna from riverine, lowland, and upland habitats.

The largest sample of fauna with the greatest number of species reflects an early spring/early summer exploitation of the Elk River and the Floodplain/Terrace Resource Zone. The basal levels of features 1, 6, and 12 were packed with dome-shaped deposits of riverine fauna in a yellow-gray ashy matrix. This refuse consisted primarily of species of gastropoda and pelecypoda. Water flotation of the ashy matrix also provided evidence of an intensive exploitation of fish. This fauna was represented by small species such as hogsuckers, madtoms, sunfish, and various minnows. Larger fish were gar, redhorse, suckers, catfish, drum, and bass. The number of fish species, and particularly the smaller individuals, suggests that nets or traps were used to obtain the fish. Other animals such as turtles, hellbenders, and frogs complete the list of riverine and floodplain species utilized for food.

Analysis of an upper level of refuse deposited in features 1, 6 and 12 (Level III) revealed several species of small and large mammals that probably reflect summer/early fall hunting activities. These included striped skunk, squirrel, opossum, cottontail, and deer. Birds were represented by the turkey and an unidentified species of hawk, and reptiles by several poisonous and non-poisonous snakes and the box turtle.

Based on the MNI counts, the number of animals represented in the features does not suggest a major reliance on any single species. In considering the entire faunal sample from these pits, however, the white-tailed deer was probably the most economically important food

animal on a year-round basis. Significantly, a second large herbivore, the elk, was represented by at least one individual. Two elk antler tines were recovered from the base of features 6 and 12. It is probable that the elk antler tines had either been dumped with early spring shellfish refuse or were left on the bottoms of the pits after they were emptied of winter food stores.

The refuse deposited in features 1, 6, and 12 suggests intensive exploitation of a range of habitats by the late Middle Woodland Peters site occupants. Although the site is located in the lowlands, there was probable exploitation of Highland Rim Escarpment and Oak Barrens resource zones as evidenced by the remains of deer, and particularly those of elk. Seasonality of stratified pit refuse and the pits, themselves, support multi-season occupation of the site. However, the size of the large, permanent storage facilities, the use for storage of winter foods, and the refilling with warm season refuse suggests a resident population living on the site the entire year.

Site Summary

The location of the Peters site is at the northeast corner of a 120 ha terrace along the former Elk River, now Tims Ford Lake. This site represents the first lowland late Middle Woodland habitation locus tested in the upper Elk River Valley. The results of the limited testing and data recovery effort were highly significant in a number of ways. The Peters site yielded data for cultural and chronological comparisons with similarly situated lowland occupations of the upper Duck River Valley. In addition, large quantities of subsistence related

data and information on patterns of settlement were recovered. Diagnostic lithics and ceramics suggested a middle Owl Hollow phase occupation at Peters, and this was supported by an acceptable radiocarbon date of A.D. 480 ± 60. The single date places the Peters site occupation contemporaneous with the Owl Hollow phase sites in the Normandy Reservoir and the Shofner site in the Thompson Creek locality. All of these sites were intensively occupied lowland villages.

Cultural material recovered from the Peters site indicates selection of locally available lithic resources for the fabrication of stone tools and weapons. The ceramics sample recovered--a basically plain, limestone-tempered, utilitarian ware--was also locally manufactured. No exotic lithics or trade ceramics were recognized in the Peters site cultural material. This is consistent with material inventories from other middle Owl Hollow phase sites.

Perhaps the most significant materials recovered from the Peters site were the large ecofact samples. These plant and animal remains represented numerous species procured from several site-contiguous microenvironmental resource zones. The remains suggest seasonal exploitation and that the Peters site served as a permanent, year-round village. It appears that the middle Owl Hollow phase subsistence strategy involved procurement of a wide range of seasonal wild plant and animal species. The use of cultigens, however, probably exerted a strong influence on the location and the occupation span of the middle Owl Hollow phase sites such as Peters.

CHAPTER IX

THE HAMBY SITE (40CF214)

Introduction

The Hamby site is located in southeastern Coffee County, Tennessee, approximately 5 km north of the Elk River on Betsy Willis Creek (Figure 2, page 46). The Hamby site is situated some 300 m east of Betsy Willis Creek in an area that appears to have once been an active sinkhole. The site was identified by a surface distribution of late Middle Woodland cultural material interspersed with concentrations of dark brown soil. The distribution of materials suggests habitation loci were probably confined to the inside slope of the sinkhole rim. The areal extent of the site, however, was not determined, but is perhaps coextensive with portions of the 8 ha area that encompasses the sinkhole.

The Hamby site is located in a field that has been in continuous cultivation for perhaps 50 years. Agricultural activity and erosion have reduced the rim of the sinkhole to red-yellow subsoil. The plowzone is about 10 cm thick along the rim and reaches depths of 20 cm near the sinkhole center, which is silted in with colluvial wash. Historic impact to the Hamby site is greatest from plowing on the higher portions of the rim. Prehistoric subplowzone pits, however, are still present along the inside slope of the sinkhole rim.

Site Catchment

The Hamby site arena is situated in an upland setting on the flat eastern Highland Rim near the western escarpment of the Cumberland

Plateau. The site is associated with a sinkhole near the confluence of three small streams that drain the Cumberland Plateau escarpment (Figure 53). The sinkhole is composed primarily of Cumberland silt loam. This soil, associated with eroded, gently sloping areas, has medium surface runoff and medium internal drainage. Sinkholes that have this soil type may be flooded during periods of heavy rainfall (Love et al. 1959:75).

The upland orientation of the Hamby site is illustrated in a projection of the 1.61 km and the 3.22 km radii (Figure 54). The surface area of the radii is composed of upland environmental resource zones. The primary resource zone is the Oak Barrens of the flat Highland Rim that has an area of 3,219 ha or 80 percent of the total site arena. The Cumberland Plateau escarpment represents 759 ha (19 percent) of the arena with the remaining portion of 43 ha (1 percent) in Highland Rim swamp.

The attraction of the Hamby site for aboriginal occupation was probably related to the natural resource availability, and the accessibility of the upland environmental resource zones. The site location inside the sinkhole rim undoubtedly afforded protection for the inhabitants, plus the rim height of 320 m AMSL commanded a view of the surrounding area. It is likely the sinkhole had an artesian spring near the north end that drained west into Betsy Willis Creek. Betsy Willis is one of three small streams that converge at the site from separate areas of the eastern Highland Rim. Two of the streams drain directly from the Cumberland escarpment, while the third stream parallels the escarpment for 8 km. These streams probably served as corridors along

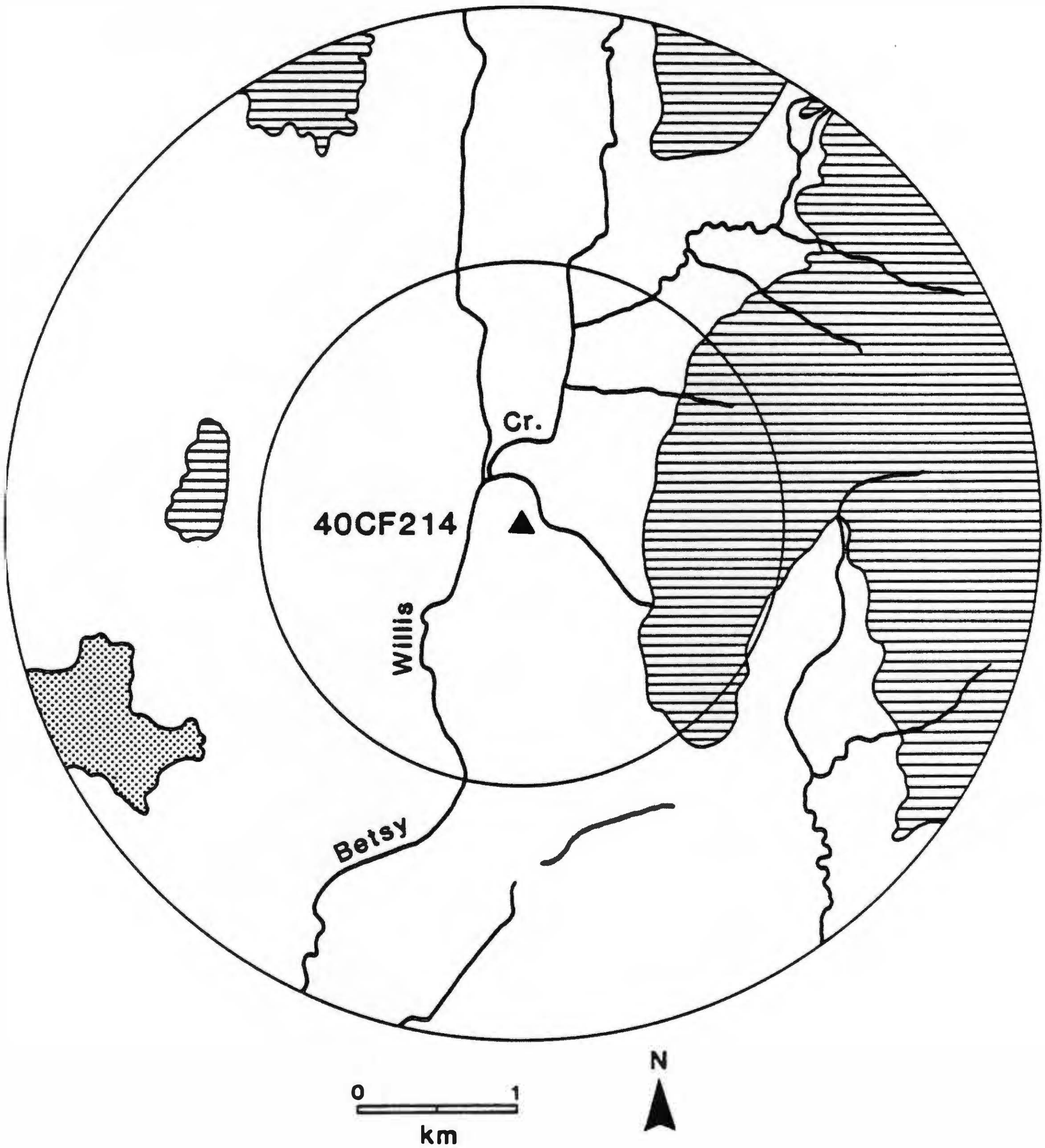

Figure 53. Topographic stratification of the Hamby site arena into biogeographic resource zones.

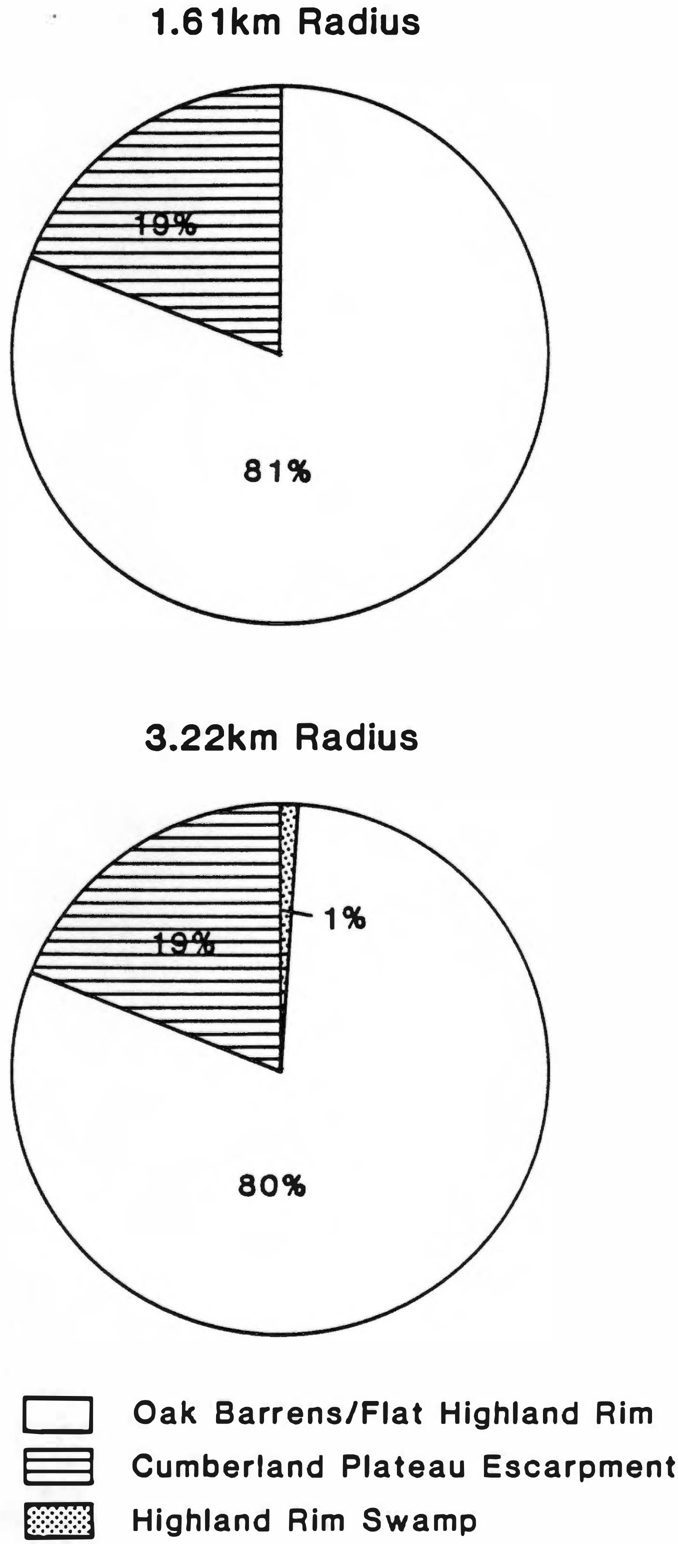

Figure 54. Biogeographic resource zones in the Hamby site arena.

the flat Highland Rim and as points of ingress to or egress from the rugged escarpment of the Cumberland Plateau.

The western escarpment of the Cumberland Plateau was probably an important factor influencing aboriginal activity and site location on the eastern Highland Rim. The near vertical escarpment of the Plateau rises approximately 600 m AMSL and serves as an effective barrier against direct east-west travel and communications. It likely influenced localized weather patterns, and certainly exerted a strong influence on the diversity of vegetation and animal life in the coves and gorges of the escarpment. Perhaps to take full advantage of this physiographic feature, the Hamby site was located some 800 m west of the escarpment. The site is associated with an unnamed tributary of Betsy Willis Creek that flows from the closest contact with the escarpment, Evans Point.

The late Middle Woodland groups that inhabited the Hamby site would have had access to a range of resources along the minor stream courses, the Cumberland Plateau and the Highland Rim swamps in the site arena. More specifically, the critical category of subsistence resources available to the site inhabitants would likely have been arboreal seeds, and the deer and turkey. The seeds of chestnut, hickory, and oak would have been prevalent during the fall in the environmental resource zones of the Hamby arena. The deer and turkey, although available year-round, would likely have been more prevalent in certain portions of the uplands during the fall and winter seasons. It is also possible that elk migrated southward to winter in the Oak Barrens and open prairie grasslands of the Highland Rim and were available for exploitation.

The Hamby arena was essentially terrestrial oriented and limited in terms of horticulture and aquatic resource potential. The small streams of the flat Highland Rim, such as Betsy Willis Creek, have poorly developed floodplains and terraces, and many of the tributaries are intermittent. The creeks are too small to have supported a large number of aquatic species such as gastropods, pelecypods, fish, and turtles. The latter resources, important during the early spring season, were available in other localities in the major streams and rivers.

The attraction of the Hamby site appears to have been for procurement of seasonal plant and animal resources in the environmental zones of the Highland Rim, Oak Barrens and Cumberland Plateau localities. The Hamby site, therefore, probably functioned as a base camp of short, seasonal duration.

Site Testing

Archeological field work at the Hamby site began March 15, 1977. A permanent datum was placed on the eastern edge of the site and used to establish grid coordinates (Figure 55). Eighteen 2 m x 2 m units were intuitively located across the site and the plowzone stripped from these units. Nine features and three postholes were identified. Most of the features and postholes had been disturbed by plowing which resulted in the recovery of shallow pits that contained very little diagnostic material. Two exceptionally large and deep features, however, were identified as refuse-filled storage pits. These pits, designated features 7 and 8, contained diagnostic cultural materials in sealed,

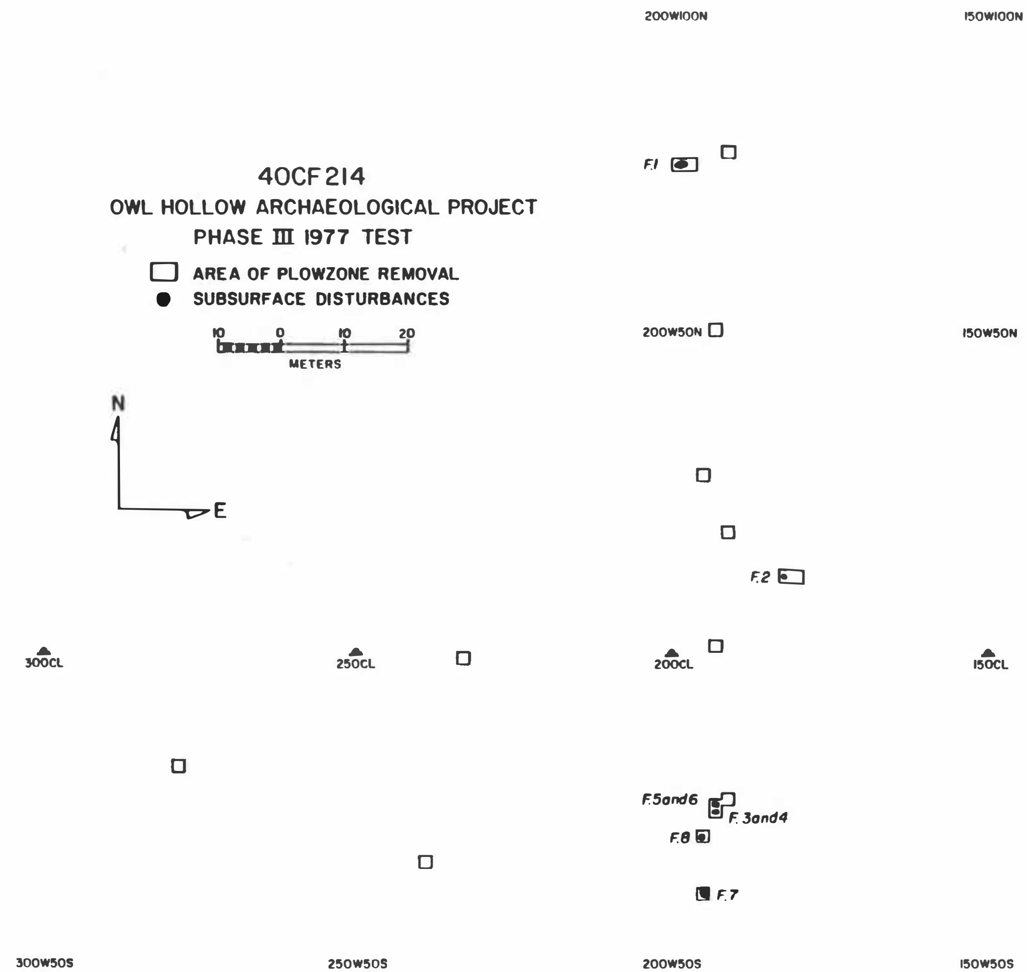

Figure 55. The Hamby site (40CF214) excavation map.

stratified context. The latter pits were completely excavated except for a portion of Feature 7 that extended outside the excavation unit.

Feature and posthole excavation involved removal and field sorting of the pit contents and the collection of soil flotation samples. The soil samples were processed by water flotation in the Owl Hollow Project Laboratory (Cobb and Faulkner 1978a). These excavation and flotation procedures recovered well-preserved artifactual and ecofactual materials from the Hamby site. Several large samples of charred organic materials for radiocarbon dates were collected separately from features 7 and 8.

Following completion of testing, a permanent datum was established along the eastern site boundary. Grid coordinates and elevation data were recorded on standardized field forms for separate units, features and postholes. The excavation process and significant features were recorded with color and black and white photography. A site map locating all excavated units and subplowzone disturbances was drawn and field checked using grid coordinates from the permanent datum point. Excavation units were refilled using power equipment provided by Mr. Arley Hamby, owner of the site, on March 25, 1977.

Radiocarbon Dates

Two chronometric dates were obtained for the Hamby site occupation. One sample was submitted to the University of Georgia Geochronology Laboratory, and a second sample sent to Geochron Laboratories Division. The second date was obtained to correct a suspected inaccurate date received from the University of Georgia. The material used for both dates came from the same deposit in Feature 8 (Level II) and was

composed of charred hickory nuts. The two dates from the Hamby site are:

UGa 1766: 1140 ± 55 B.P. (A.D. 810); one standard deviation range is A.D. 755-865.

GX 4921: 1045 ± 110 B.P. (A.D. 905); one standard deviation range is A.D. 795-1015.

The radiocarbon dates from Hamby are considered about 200 years too late based on the diagnostic cultural material recovered from Feature 8. The cultural remains are exclusively late Middle Woodland. The ceramic sample was a limestone-tempered ware with plain surface treatment. Notched rims, a characteristic of the Owl Hollow phase, were present in several different styles. Projectile points/knives were lanceolate spike forms that were stemmed and bipointed.

There are few logical explanations to account for the two late dates from the Hamby site. It is possible but not probable that Feature 8 was dug through a late Middle Woodland midden by later groups and incorporated Middle Woodland debris in the fill. It is also possible but not probable that the dates are accurate, and the remains were left by groups with a modified late Middle Woodland tradition that were utilizing marginal sites. The latter possibility would mean contemporaneity with Late Woodland and early Mississippian groups.

Since the preceding are tenuous possibilities, perhaps it is best to disregard the radiocarbon dates and rely on cultural typology and the comparative approach at this stage of Owl Hollow research. Therefore, based on cultural material comparisons with other Owl Hollow phase sites, it is probable that the occupation of Hamby dated to the late Owl Hollow phase about A.D. 600.

Features

The plowzone removal at the Hamby site revealed eight subplowzone disturbances that were identified as features based on pit size and shape. Following excavation, six of the features were identified as basal remnants of once larger pits. These features had likely been modified by deep plowing that resulted in reduction of pit size and dispersal of pit contents. Consequently, the majority of features were functionally and culturally indeterminant with the exception of two significant storage/refuse pits. Table 45 lists pertinent data on all features identified at the Hamby site.

The excavation of two large storage pits, designated features 7 and 8, resulted in the recovery of substantial artifactual and ecofactual samples. These features were contiguous and probably utilized contemporaneously for cold season food storage, and afterwards as convenient receptacles for refuse. Material remains from the features indicate a cultural association with the Owl Hollow phase occupation of the site.

Feature 7 was a circular, deep, basin-shaped pit filled with organic-enriched refuse (Figure 56). Approximately three-fourths of this feature was excavated. Initial removal of a portion of the pit fill revealed three distinctive levels of refuse. Each level was removed separately. A basal layer contained abundant floral and ceramic material in a dark gray, organic-enriched matrix. This layer also contained minor quantities of calcined bone, unburned fragmented bone, and lithics. A second level was medium brown in color and devoid of artifactual and ecofactual materials. This layer possibly represents intentional fill placed in the pit. Feature 7 was capped by a third

Table 45. Feature and posthole data from 40CF214

Number	Type	Description	Dimensions (cm)	Depth (cm)
		PART I		
1	burial pit	oval, basin-shaped pit	93 x 189	32
2	shallow pit	oval, basin-shaped pit	74 x 63	16
3	shallow pit	circular, basin-shaped pit	52 x 51	21
4	shallow pit	circular, basin-shaped pit	48 x 50	19
5	tree root	circular, deep pit	47 x 41	58
6	shallow pit	circular, basin-shaped pit	40 x 42	29
7	storage pit	circular, deep, basin-shaped pit	158 x 150	92
8	storage pit	circular, cylindrical storage pit	102 x 95	69
		PART II		
1	posthole	circular, shallow pit	20 x 23	14
2	posthole	circular, deep pit	27 x 27	19
3	posthole	oval, shallow pit	28 x 21	15

Figure 56. The partial excavation of Feature 7, a stratified, refuse-filled storage pit.

layer of dark brown compacted fill. This layer appeared to be a general accumulation of midden, since it contained a range of fragmented and eroded artifacts and ecofacts. The upper levels of refuse were truncated by plowing and mixed with plowzone material.

Feature 8, a circular, cylindrical-shaped pit (Figure 57), contained a large quantity and variety of refuse deposits. This pit, which was completely excavated, also contained three discrete levels of refuse. A basal deposit was field identified as a lens of unfired clay. However, a variety of lithics and ceramics was recovered from the clay. A second level contained an impressive deposit of whole, charred hickory nuts. The hickory nuts were contained in a charcoal-enriched matrix that had additional floral materials, lithics, and ceramics. The upper level, a dark brown compacted midden layer, was similar to the top level deposited in Feature 7. This midden-like fill contained chunks of wood charcoal, fire-cracked rock, and a large deposit of ceramics. Significantly, the upper level of Feature 8 contained quantities of unleached, limestone/chert-tempered ceramics which suggest a firm late Middle Woodland period of occupation for the Hamby site.

Features 7 and 8 were impressive storage facilities containing significant deposits but were not spatially associated with other diagnostic pits which could aid interpretations of intrasite habitations. Nevertheless, it is possible to infer some context for these pits. The compacted midden layers in Features 7 and 8 contained gray ash, charred hickory nuts, calcined bone, and particularly fire-cracked rock. The domestic activities represented by these remains were probably associated with prolonged earth oven use in close proximity to

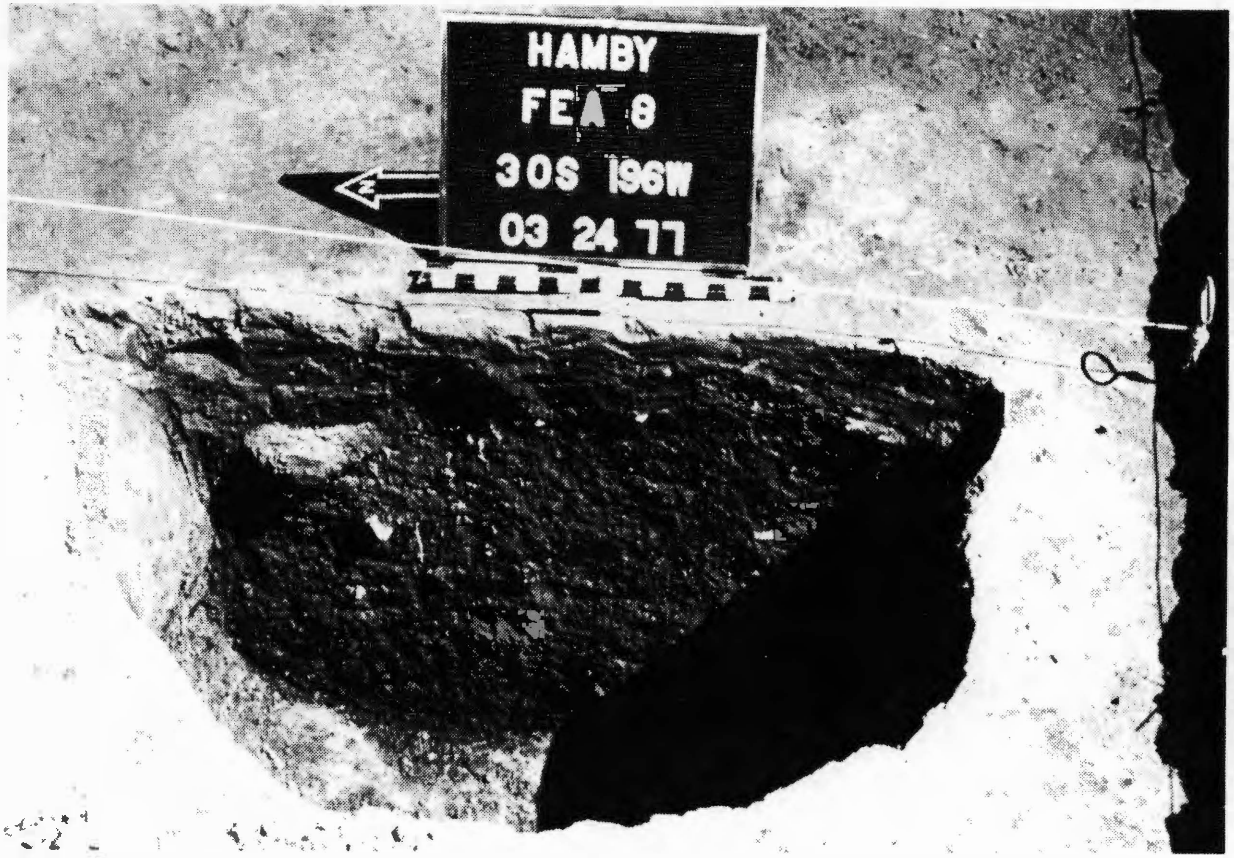

Figure 57. The partial excavation of Feature 8, a stratified, refuse-filled storage pit.

these pits. The pits, their carbonaceous refuse, and the midden suggest multi-season occupation of the Hamby site.

Burial

During the testing of the Hamby site, a single burial was identified in Test Unit 200W77N. The burial was deposited in a shallow, oval pit designated Feature 1 (Table 45). The feature was encountered at the base of the plowzone near the center of the sinkhole. There were no additional contextual associations and, consequently, Feature 1, Burial 1, appeared to be a random installation. The burial is located 105 m from the late Middle Woodland occupation locus associated with features 7 and 8. There was no indication from the burial fill that the interment was late Middle Woodland or associated with the Owl Hollow phase occupation of the Hamby site.

Burial 1

This was a partial inhumation that appeared to have been fully extended. The individual had been placed on its back and was facing east. A physical anthropological examination of the fragmented and deteriorated remains was only able to determine that the interment was an adult (personal communication, Mr. Tracy Brown).

Postholes

A number of smaller subsurface disturbances were encountered in several excavated units that were tentatively identified as postholes. The majority of these smaller pits were not sectioned or excavated, however, due to time limitations and the lack of patterned associations.

Near the end of field work, three of these small pits were selected for excavation to verify the size, shape, and depth and to confirm their classification as postholes (Table 45). These small pits were selected in units partially covered by midden deposits that had larger subsurface disturbances. Excavation revealed circular, shallow pits that contained dark brown soil and artifactual and ecofactual materials. Although the depths of these postholes were rather shallow, there is confirmation that structures were present at the Hamby site and that evidence of structural activity is still preserved.

Refuse Midden

Plowzone removal from a number of units at the Hamby site revealed deposits at the base of the plowzone that resembled a refuse midden. These deposits, however, were variable in size, depth, and material content. In some units, the midden-like soil was a thin, light brown deposit less than 5 cm in thickness that possibly resulted from erosional deposition. In other units, it was a dark brown deposit with concentrations of burned limestone, charcoal, pottery, and lithics preserved in natural depressions of variable size that averaged 5 cm to 10 cm in depth. The size and shape of these depressions may have resulted from irregular slope wash, large tree root cavities, animal burrows, and/or aboriginal activity. The present distribution and preservation of the midden has been effected by deep and prolonged plowing. Plow scars were evident throughout the midden deposits.

Preserved refuse midden was more frequently encountered in the units that had large features and postholes. This is similar to the

distribution of midden at the Peters site and suggests that these similar loci may have been associated with winter lodges.

Lithic Analysis

The lithics sample from the Hamby site came from features, postholes, and a dispersed refuse midden. Lithics from surface and plowzone context at Hamby were used to establish descriptive raw material categories for the Betsy Willis Creek locality. The raw materials identified were essentially identical to those categories defined for the upper Elk River Valley from the Owl Hollow and Peters sites (Appendix A).

There were 14 different types of chert defined in the Hamby sample along with sandstone, hematite, and greenstone. The majority of these materials were available locally which includes the nearby Hillsboro locality. Two distant-exotic lithic types were identified in the Hamby lithic sample. The raw material types identified from Hamby are listed in Table 46 and discussed below.

Local Lithic Materials

The lithic raw materials from the Hamby site represent predominantly local lithic resources obtained in the vicinity of Betsy Willis Creek, the flat Highland Rim, and the Cumberland Plateau Escarpment. Source areas of some previously designated near-exotic cherts particularly from the Hillsboro area are in the Hamby site locality. All of the local, near-exotic, and distant-exotic raw material types recovered at Hamby have been previously described above in chapters

Table 46. Lithic assemblage from features, postholes, and midden units, 40CF214.

Tool Type	Raw Materials[a] B	C	D	E	F	G	H	I	K	M	Q	T	U	V	Sandstone	Hematite	Greenstone	Total	Percent
2a			1			2						1						4	*
2b							3			1								4	*
2d	1	1	5	1		2		1		1								12	2
3	6	10	30			28	10	2		4		10		1				101	14
4	12	12	30		2	75	21	3			2	7	1	2				167	23
5	9	16	29			96	15	7		2	1	12						187	26
7	19	30	17	1	3	68	24	1	1	5	2	6	2	1				180	25
9		1				1						1						3	*
10						2		2		2								6	1
11							1											1	*
15		1	1			7		1				1	1					12	2
16			1		1	1												3	*
17						2							1					3	*
20			1															1	*
25				1		1												2	*
27					1	2												3	*
28			1		2													3	*
29						1												1	*
30						1								1				2	*
32						1												1	*
34						1												1	*
35						1						1						2	*
36			1			2	3											6	1
37		1				4	1											6	1
39															1			1	*
40																	1	1	*
46																1		1	*
Total	47	72	117	3	9	298	78	17	1	15	5	39	5	5	1	1	1	714	
Percent	7	10	16	*	1	42	11	2	*	2	1	5	1	1	*	*	*		

* = less than 1 percent

[a] = The following categories were also inclusive in the features, postholes, and midden:

(a)	Chert/Limestone rock (includes rough rock)	12,378 g
(b)	Burned limestone rock	1,613 g
(c)	Miscellaneous debris	12,913 g

dealing with the Shofner, Raus, Owl Hollow, and Peters sites. The 12 local raw materials from Hamby are identified and quantified below.

Type	Raw Material	Sample Size (N)
B	Blue, Gray and Tan chert, variety tan	47
C	Blue, Gray and Tan chert, variety blue-gray	72
D	Blue-Green nodular chert	117
E	Blue-Green nodular chert, variety reddish brown	3
F	Gray nodular chert	9
G	Black-Brown nodular chert	298
H	Matt Brown chert	78
I	Blue-Black fossiliferous chert	17
K	Greenish-Gray chert	1
M	Dark Blue-Gray chert	15
Q	White, coarse-textured fossiliferous chert	5
T	Gray chert, tan cortex	39
U	Dark Gray mottled chert	5
V	Vein quartz/chalcedony	5
	Sandstone	1

Distant-Exotic Lithic Materials

Two types of distant exotic lithics were recovered at the Hamby site. These materials are identified as hematite (n = 1) and greenstone (n = 1) and were previously identified in the lithics samples from the Owl Hollow and Peters sites, respectively. It is likely both materials, the greenstone or green slate and the fine-grained, dense, black hematite, were derived from the same source areas. The source was

possibly the metamorphic rock area of north-central Alabama, although there are several "slate belts" found in the southern Blue Ridge or Piedmont physiographic provinces (Faulkner and McCollough 1973:60).

Chipped and Ground Lithic Material

The lithics sample from the features, postholes, and midden units at the Hamby site totaled 714 artifacts. The lithics probably represent a random sample potentially from a range of activities that occurred at the site. The lithics sample consists of primary lithics, unifacial and bifacial tools, projectile points/knives, and ground stone ornaments and implements. Although there was greater occurrence of primary lithics in the sample, the categories of tools and projectiles were well represented by a range of types and diagnostic examples. The functional analysis and classification of Hamby lithics resulted in the identification of 27 separate lithic tool types. These are quantified in Table 47 and described below.

Primary Lithics (N = 655)

The primary lithics, which represent 92 percent of the sample, are divided into seven types comprised of cores and lithic waste flakes from core reduction and knapping activities. All of these types were previously identified and discussed above in preceding chapters. The Hamby tool types and sample sizes for primary lithics are:

	Tool Type	Sample Size (n)
2a	Subconical core	4
2b	Flat core	4
2d	Amorphous core	12

Table 47. Distribution of lithics in features, postholes, and midden units, 40CF214.

	Lithic Tool Type	Ph-1	Ph-2	F-1	F-2	F-3	F-5	F-7	F-8	F-9	18N 192W	50N 192E	24S 192W	30S 196W	Total	Percent
2a	Subconical core							1	1				1	1	4	*
2b	Flat core			2					1			1			4	*
2d	Amorphous core			2		1		2	2		3			2	12	2
3	Decortication flake	1		8		2		20	39	2	7	1	3	18	101	14
4	Flat flake		1	12		4		25	81	1	5		8	30	167	23
5	Bifacial thinning flake			7	2	1		12	138	1	5		4	17	187	26
7	Unidentifiable flake fragments			9	2	7	1	20	102	3	8		3	25	180	25
9	End scraper							1			1			1	3	*
10	Side scraper			1	1			1			2			1	6	1
11	Spokeshave											1			1	*
15	Utilized flake: unifacial			3		1			1		3	1	1	2	12	2
16	Blade-life flake: unifacial								1					2	3	*
17	Thick biface knife			1				2							3	*
20	Core tool: scraper			1											1	*
25	Microtool								1					1	2	*
27	PP/K: narrow thick lanceolate								1		1		1		3	*
28	PP/K: narrow thick lanceolate stemmed							1	1		1				3	*
29	PP/K: narrow thick lanceolate contracted stemmed								1						1	*
30	PP/K: narrow thick lanceolate shallow side-notched			1										1	2	*
32	PP/K: lanceolate straight stemmed											1			1	*
34	Small rounded-pointed stemmed, narrow blade							1							1	*
35	Unident. PP/K: basal fragments													2	2	*
36	Unident. PP/K: medial fragments							1	4				1		6	1
37	Unident. PP/K: distal fragments					1		1	3			1			6	1
39	Millingstone										1				1	*
40	Celt												1		1	*
46	Gorget								1						1	*
	Total	1	1	47	5	17	1	88	378	7	37	6	23	103	714	
	Percent	*	*	7	1	2	*	12	53	1	5	1	3	14		

* = less than 1 percent

3	Decortication flake	101
4	Flat flake	167
5	Bifacial thinning flake	187
7	Unidentifiable flake fragments	180

Unifacial Implements (N = 25)

Five types of unifacial tools that represented 4 percent of the lithics were recovered from the Hamby site. These tool types, which have been previously identified and discussed above in preceding chapters, are descriptively identical to those in the Hamby sample. The Hamby unifacial tool types and sample sizes are:

	Tool Type	Sample Size (n)
9	End scraper	3
10	Side scraper	6
11	Spokeshave	1
15	Utilized flake: unifacial	12
16	Blade-like flake	3

Bifacial Implements (N = 6)

Three types of bifacial tools were defined in the Hamby sample, the totals of which represent 1 percent of the lithics. These types have all been described above in preceding chapters. The bifacial tool types and sample sizes are:

	Tool Type	Sample Size (n)
17	Thick biface knife	3
20	Core tool: scraper	1
25	Microtool	2

Projectile Points/Knives (N = 25) (Figure 58)

Nine types of projectile points/knives that represented 4 percent of the lithics sample were identified at the Hamby site. These projectiles are represented by relatively complete and identifiable examples as well as those highly fragmented and unidentifiable as to type. Five of the projectile types are considered diagnostic lanceolate forms of the late Middle Woodland Owl Hollow phase. These diagnostic types and the three types that comprised the unidentifiable projectiles were previously discussed above in preceding chapters. The eight projectile types and their sample sizes are:

	Tool Type	Sample Size (n)
27	Narrow thick lanceolate (Figure 58, b, c, h)	3
28	Narrow thick lanceolate stemmed (Figure 58, e, f)	3
29	Narrow thick lanceolate contracted stemmed (Figure 58, d)	1
30	Narrow thick lanceolate shallow side-notched (Figure 58, a, g)	2
32	Lanceolate straight stemmed	1
35	Unidentifiable PP/K: basal fragments	2
36	Unidentifiable PP/K: medial fragments	6
37	Unidentifiable PP/K: distal fragments	6

Figure 58. The Hamby site: Projectile points/knives. Narrow thick lanceolate shallow side notched, a and g; Narrow thick lanceolate, b-c, h; Narrow thick lanceolate contracted stemmed, d; Narrow thick lanceolate stemmed, e-f.

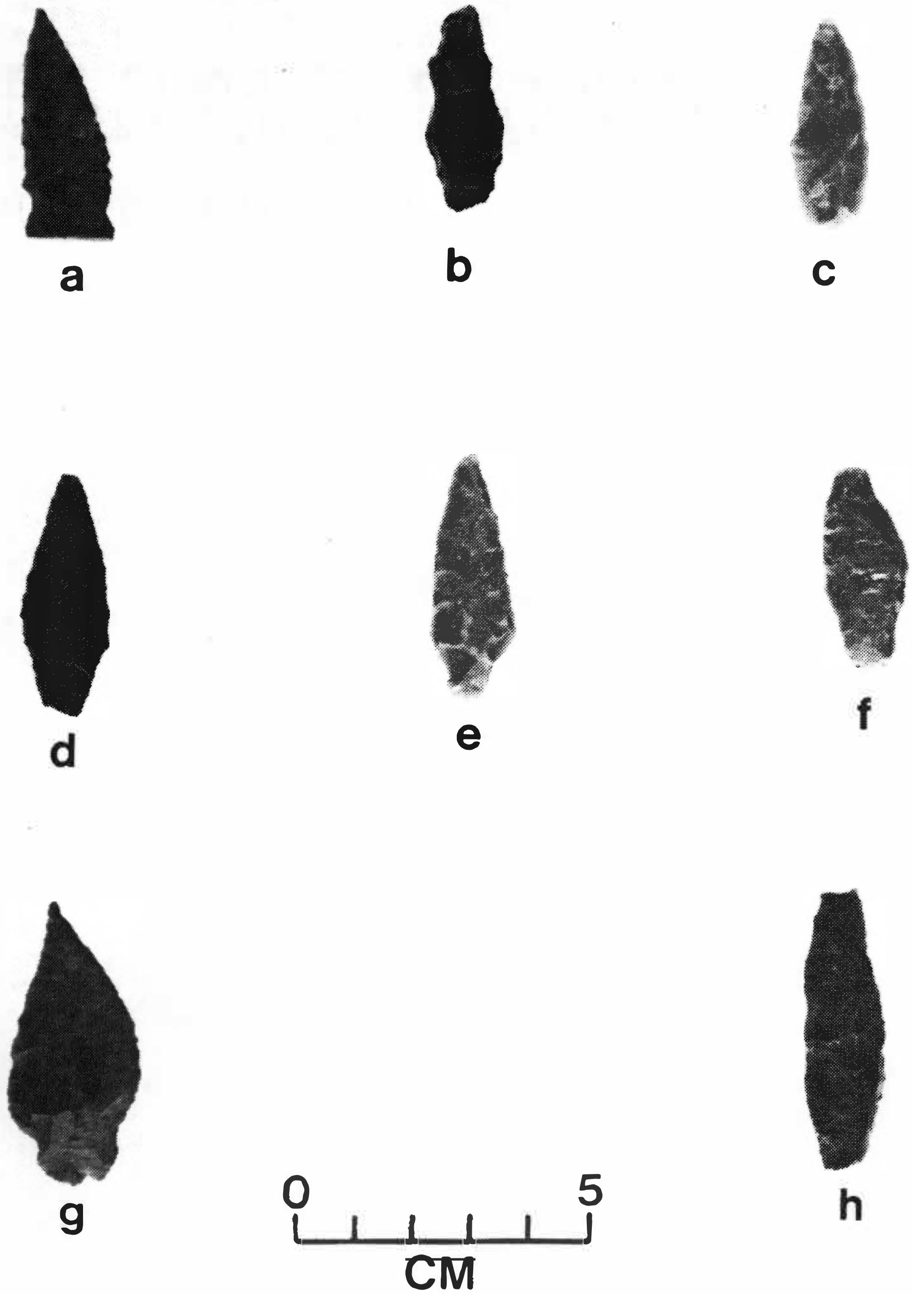

Figure 58

One additional projectile point/knife type which has not been previously identified on other Owl Hollow phase sites was encountered at Hamby. This type is described below.

34 Small rounded-pointed stemmed, narrow blade (n = 1)

This projectile point/knife form corresponds to Type 72 in the Normandy Archeological Project's Comprehensive Lithic Typology (Faulkner and McCollough 1973:105). This narrow, elongate projectile with tapered shoulders and a contracting stem is probably a variant form of the lanceolate spike group. There is also the possibility it may have functioned as a Type 18, Thin biface knife, rather than a projectile point. Nevertheless, it likely associates with the late Middle Woodland period.

Ground Stone Tools (N = 3)

Three types of ground stone artifacts were recovered at the Hamby site. These types are represented by two utilitarian tools and one ornament. Two of the types are identified above in preceding chapters. These types are:

	Tool Type	Sample Size (n)
39	Millingstone	1
40	Celt	1

The remaining type, a possible hematite ornament, is described below.

46 Gorget (n = 1)

This possible ornament was fabricated out of a fine-grained, dense, black hematite. The artifact was fragmented across a drilled hole. The recovered portion displayed grinding striations and areas of smoothing and polish along two faces. This was possibly a rectanguloid, two-holed gorget similar to the one recovered at the Owl Hollow site.

Lithics Summary

The Hamby site lithics sample was recovered from a number of subsurface pits and refuse deposits. The pits and units with refuse were dispersed across the site, which probably assured a random, representative lithics sample of both raw materials and tool categories.

The raw material categories identified at Hamby paralleled those established at sites in the main Elk River Valley, particularly the Peters site. This was somewhat unexpected due to the site's location on the flat Highland Rim, and the proximity to the Cumberland Plateau escarpment. Essentially, raw materials such as Hillsboro blue-green nodular chert (16 percent) were available to Hamby site residents as local materials. It was expected that the sample would have reflected a predominant exploitation of these local high quality cherts, and perhaps several new types of chert obtained from the western escarpment of the Cumberland Plateau. Considering local lithic availability, there was probably little need to import near-exotic cherts (i.e., gray-banded from the upper Duck River Valley) and only one distant-exotic material--fine-grained, black hematite--was identified in the sample.

Analysis of the Hamby lithics revealed a tool assemblage that also closely paralleled those from other Owl Hollow phase sites. There was a predominance of lithic debitage (92 percent) and a small number of unifacial, bifacial, and ground stone tools (4 percent) and projectile points/knives (4 percent). The tools were primarily utilitarian in nature with cutting, scraping, piercing, and grinding functions represented. The types of domestic activities generally associated with the presence of these tools on sites suggests more prolonged, multiseasonal occupation. There was little indication of other than routine, life maintenance activities that occurred at the Hamby site based on the lithic tool assemblage.

The category of projectile points/knives, however, was somewhat atypical of previous assemblages discussed above. There appeared to be less variety of types represented in the sample and more similarity in the size and shape of projectiles. Most of the projectiles were shorter in length and similar to Type 27, Narrow thick lanceolate. This change in basic size and shape suggests a change in function, as well. The variation in size may reflect adaptation of the lanceolate late Middle Woodland form to one more suitable as an arrowpoint.

Ceramic Analysis

The ceramic sample recovered from the Hamby site totaled 872 sherds (Table 48). The sample came primarily from two large storage/refuse-filled pits and several smaller features and a posthole. The ceramics are divided into two ware groups on the basis of predominant temper materials. These wares are limestone and limestone/chert, which

Table 48. Distribution of ceramics in features and postholes, 40CF214.

Ceramic Ware and Type	Ph-3	F-1	F-2	F-3	F-5	F-6	F-7	F-8	Total	Percent
Limestone-tempered										
Residual			2	4			21	20	47	5
Plain	1	1	1	3	3	3	215	550	777	89
Simple Stamped								1	1	*
Complicated Stamped							1		1	*
Brushed								1	1	*
Limestone/Chert-tempered										
Plain								45	45	5
Total	1	1	3	7	3	3	237	617	872	
Percent	*	*	*	1	*	*	27	71		

* = less than 1 percent

represent 95 percent and 5 percent of the sample, respectively. The ceramic wares and types are discussed below.

Limestone-tempered ware (N = 827)

This ceramic ware is the most frequently encountered on the Owl Hollow phase sites and was previously described in Chapter V. These are:

Ceramic Type	Sample Size (n)
Residual Plain	47
Plain	777
Simple stamped	1
Complicated stamped	1
Brushed	1

Limestone/Chert-tempered ware (N = 45)

This ware was identified at the Shofner site and is described in Chapter V. This same limestone/chert-tempered ware description applies to the Hamby ceramics. In addition, one previously described type, limestone/chert-tempered plain (n = 45), was recovered at the Hamby site. There were no additional limestone/chert-tempered types identified in the Hamby ceramic sample.

Ceramics Summary

The ceramics sample recovered from the Hamby site came from feature and posthole context. However, two of the largest storage/refuse-filled features contained 98 percent of the ceramics. These pits were likely filled with refuse from cold season activity. The number of plain

ceramics recovered (94 percent) and the number of large utilitarian vessels represented (N = 23) tends to support a strict domestic function of the ceramics and vessel use for cooking, processing, and storage.

It is difficult to interpret the Hamby ceramics sample. On the one hand, it appears different from those samples recovered on previously identified Owl Hollow phase sites. The variety of ceramic wares and types are not present at the Hamby site. The almost total use of limestone-temper seems aberrant, and the rather crudely made, friable nature of the pottery seems atypical. On the other hand, there are similarities to previously analyzed ceramic samples. The use of stamping and brushing are present, albeit in reduced numbers. The vessel sizes, shapes, and, importantly, rim notching is part of the Hamby ceramic tradition. The differences observed in this ceramic sample may be less than a true representation of Hamby ceramics because of the sample size associated almost exclusively with domestic activity.

Taking the opposite perspective that the Hamby ceramics are an indication of a very late Middle Woodland sample, obviously considerable change toward the direction of plain limestone-tempering has occurred. This trend has been documented on other late Owl Hollow phase sites perhaps beginning as early as A.D. 500 at the Shofner site. Two radiocarbon dates support an extremely late temporal placement for Hamby. Although the dates are both considered inaccurate, an early seventh century date (c. A.D. 600 $\pm$ 50) is supportable based on the present ceramic sample.

Floral Analysis

The analyzed floral sample from the Hamby site came from the west half of Level II in Feature 8. A 5 percent analysis revealed a limited range of plant species in a sample that was non-random in composition (Table 49). Level II was composed almost entirely of whole, charred hickory nuts representing five different species of hickory native to the eastern Highland Rim: red hickory (*Carya ovalis*), shagbark hickory (*C. ovata*), mockernut hickory (*C. tomentosa*), pignut hickory (*C. glabra*), and bitternut hickory (*C. cordiformis*).

Besides the large sample of hickory nuts, there were minor quantities of wood charcoal represented by oak, and the shell and meat of the acorn, the only other arboreal seed identified in the sample. Herbaceous weed seeds were represented by four species, two of which were potentially important as food resources. However, none of these herbaceous seeds were present in quantities suggesting intensive exploitation or economic importance. There were no cultivated plants identified in the Hamby floral sample.

The floral sample, possibly representing the remains of winter food stores, indicates an intensive, local exploitation of arboreal seeds, particularly hickory nuts and acorns, as cold season staples. Feature 8 contained a large quantity of hickory nuts that was possibly accidentally burned and discarded as refuse. Along with the hickory nuts were several species of weed seeds and acorns. These remains suggest the Hamby site occupants were exploiting resources in close proximity to the site probably from the flat Highland Rim and Cumberland Plateau

Table 49. Floral remains from feature context at 40CF214.

	Oak (*Quercus* sp.)	Cane (*Arundanaria* sp.)	Unidentified	Hickory (*Carya* sp.)	Acorn (*Quercus* sp.)	Goosefoot (*Chenopodium* sp.)	Knotweed (*Polygonum* sp.)	Pokeweed (*Phytolacca americana*)	Peppervine (*Dentaria lacinata*)	Grass seed (*Poaceae*)	Miscellaneous debris	Sample residue	Total
	Wood Charcoal			**Arboreal Seeds**		**Herbaceous Seeds**							**Total**
Feature 8 (W 1/2)													
Level II													
No. Fragments	3	4	4			2	1	1	2	1			18
Weight (grams)	.1			707.5	.5						151.7	229.8	1,089.6*
Total Sample: **(Total gram weight of light fraction)**													21,791.1

* = total gram weight of 5 percent analyzed sample

the site probably from the flat Highland Rim and Cumberland Plateau localities.

Faunal Analysis

The analyzed faunal sample was recovered primarily from the basal level of Feature 7. The sample was represented by highly fragmented, calcined, and poorly preserved faunal elements as indicated by the disproportionate unidentifiable bone category in Table 50. Although there were only 64 identifiable bone elements (4 percent of the sample), these came from a variety of fauna represented by mammal, bird, reptile, amphibian, and fish species. A single freshwater gastropod was recovered (Table 51).

The variety in the Hamby fauna is deceiving unless quantity is considered as well. Mere presence or absence of certain species is perhaps significant, but random change alone could result in one gastropod or one bone from a large fish being discarded in the refuse. Other than these chance occurrences, there was a paucity of fish and shellfish remains in the Hamby sample. The amphibians and more than one-third of the reptiles probably occurred naturally at the site locus and were not a factor in subsistence. The box turtle and small mammal species could hardly be considered critical subsistence items of the late Middle Woodland diet. This leaves the deer and turkey for consideration as the primary food resources exploited by the Hamby site occupants. In this respect, the seasonal subsistence orientation and Hamby fauna did not differ substantially from faunal samples recovered at Owl Hollow phase sites discussed above in chapters V - VIII.

Table 50. Vertebrate faunal sample identified from the Hamby site (40CF214).

Species	Bone Fragments	MNI[1]	Percent of Total
Mammals:			
Gray/Fox Squirrel			
(*Sciurus* sp.)	2	1	*
Small Rodents	1	1	*
Cottontail			
(*Sylvilagus floridanus*)	7	1	*
White-tailed Deer			
(*Odocoileus virginianus*)	20	3	*
Total identifiable mammal bone	30		2
Unidentifiable large mammal bone	137		8
Unidentifiable small mammal bone	1,528		90
Total Mammal Bone Sample	1,695		
Birds:			
Turkey			
(*Meleagris gallopavo*)	1	1	
Total identifiable bird bone	1		4
Unidentifiable bird bone	26		96
Total Bird Bone Sample	27		
Reptiles:			
Turtle			
(Kinosternidae)	1	1	3
Box Turtle			
(*Terrapene carolina*)	10	1	33
Turtle sp.	9		30
Snake			
(Colubridae)	1	1	3
Snake sp.	9		30
Total identifiable reptile bone	30		

Table 50 (Continued)

Species	Bone Fragments	MNI[1]	Percent of Total
Amphibians:			
Toad (*Bufo* sp.)	1		50
Toad (*Scaphiopus/Bufo*)	1		50
Total identifiable amphibian bone	2		
Fish:			
Redhorse (*Moxostoma* sp.)	1	1	
Total identifiable fish bone	1		4
Unidentifiable fish bone	26		96
Total Fish Bone Sample	27		
TOTAL IDENTIFIABLE BONE SAMPLE	64		4
TOTAL UNIDENTIFIABLE BONE SAMPLE	1,717		96
TOTAL VERTEBRATE FAUNAL SAMPLE	1,781		

[1] Minimum Number of Individuals

* = less than 1 percent

Table 51. Freshwater gastropoda sample from the Hamby site, 40CF214.

Species	Shell Fragments	MNI[1]	Percent of Total
Lithasia verrucosa lima/ L. geniculata fuligninosa	1	1	100
Total Identifiable Freshwater Gastropoda Sample	1	1	100

[1] Minimum Number of Individuals

The composition of the Hamby fauna is undoubtedly attributable to two factors: the distance of the site locality from a major river and the seasonality of site occupation. Indications are that the Hamby faunal sample represents exploitation of Highland Rim and possibly Oak Barrens and Cumberland Plateau resource zones, probably during the fall and throughout the winter season.

Site Summary

The Hamby site is located on the flat Highland Rim about 5 km north of the Elk River Valley and 800 km west of the Cumberland Plateau escarpment. The site was at first considered an anomaly because of the rather isolated location at some distance from a major river. However, other late Middle Woodland sites are now known to occur on the flat Highland Rim in a similar biogeographic context as Hamby. Currently, Hamby represents the first of these sites to have been investigated and also one of the first sites to contain material remains which contrast markedly with previously reported sites close to or in major river valleys.

Limited testing of the Hamby site revealed a rather intensive late Middle Woodland occupation along the rim of a sinkhole. Two large storage pits filled with refuse contained the bulk of cultural remains. These remains were lithics, ceramics, a small faunal sample, and a large deposit of charred floral materials, the majority of which were hickory nuts.

A portion of the Feature 8 floral sample was used to obtain two radiocarbon dates which indicated an extremely late site occupation of

about A.D. 800 - 900. Cultural material remains from the Hamby site suggest a late Owl Hollow phase occupation, but not as late as the radiocarbon dates indicate. A typological comparison of the diagnostic lithics and ceramics suggests that the radiocarbon dates are as much as 200 years too late. A more reasonable assessment would be about A.D. 600 - 650.

The Hamby material remains, while generally diagnostic of the late Middle Woodland period, are also significantly diverse in a number of ways. The projectile points/knives were of the lanceolate spike tradition but suggested a pattern of modification to a bi-pointed form of medium to small size. This suggests a possible transitional form that may have functioned as an arrow point. The ceramic assemblage was predominantly limestone-tempered and plain with notched rims; however, the highly leached ceramic sample appeared very friable and crudely manufactured. It is probable the ceramics functioned as a predominantly plain, utilitarian ware for domestic use. The strict use of limestone-tempering probably reflects reliance on locally available limestone which was not fossiliferous and did not contain chert inclusions. The faunal sample was relatively small and consisted of a ratio of 24:1 unidentifiable bone. This sample was similar to those recovered from earth oven context at Normandy Reservoir Owl Hollow phase sites. The floral sample was predominantly arboreal seeds that apparently were accidentally charred and dumped as refuse in Feature 8.

The large floral sample is probably the key to an interpretation of the Hamby site settlement, as well as explaining the diversity of the material remains. The projection of a 3.2 km radius delineating a site

arena suggested that a rich diversity of seasonal plant and animal resources was a factor in site settlement. Seasonality data from Feature 8 suggests an intensive fall/winter occupation of the site based primarily on the recovery of an exceptionally large sample of arboreal seeds. Wild herbaceous plant remains were negligible and cultivated plant foods totally absent. The size of the storage pits (features 7 and 8) suggests a probable short-term, cold season camp. The material remains from these features were likely a biased sample reflecting this cold season occupation. The Hamby occupation, divergent from the occupations of early and middle Owl Hollow phase sites, may represent a late or terminal Owl Hollow phase settlement pattern oriented to annual shifting base camps.

CHAPTER X

SUMMARY

A decade of research in south-central Tennessee has provided considerable information about the lifeways of indigenous late Middle Woodland groups. Their hunter-gatherer and horticultural adaptations are evident from the occurrence of intensively occupied sites spanning a period of over 400 years. Although there was cultural continuity throughout this period, there was also evidence of change, particularly in settlement locations and subsistence orientation. The evidence of cultural change, and the possible factors effecting it were expressed as a series of testable hypotheses in Chapter IV. While these hypotheses have not been proven, the study of five Owl Hollow phase sites located in the lowlands and uplands of the Duck and Elk river valleys has provided corroborative data for supporting four of the eight hypotheses. Question number eight still remains highly speculative.

The majority of Owl Hollow sites investigated during the Normandy and Owl Hollow projects were intensively occupied year-round settlements. Structural evidence from three Normandy Reservoir Owl Hollow phase sites and the Owl Hollow type site (40FR7) indicates that both summer and winter dwellings were used during the occupations of A.D. 200-600. Additional evidence of multiseasonal site occupation was large subsurface pits at the Shofner (40BD55) and Peters (40FR45) sites, which were used for storage of fall-gathered foods that were put aside for winter consumption. These pits were filled with refuse accumulated during late winter, early spring, and summer. The remains of large

structures and storage facilities support Hypothesis 1, that involved the establishment of permanent villages with a seasonal shift from warm season to cold season dwellings. Hypothesis 2 is rejected based on independent evidence from six of eight Owl Hollow phase settlements.

There is considerable evidence that the Owl Hollow sites in the upper Duck and Elk river valleys represent independent cultural units. Radiocarbon dates support establishment of the Owl Hollow phase at an earlier date in the upper Elk River Valley. The Owl Hollow site was inhabited around 200 years earlier than the major late Middle Woodland occupations of the Normandy Reservoir sites. In addition, community patterning suggests the sites in the Elk River drainage were not directly related to Owl Hollow sites in the Duck River drainage either by way of seasonal shifts in population or entire group movements. The three Normandy Reservoir Owl Hollow sites along with the Shofner and Peters sites are all located in broad floodplains of the Duck and Elk and date from about the same time period. The Owl Hollow sites near or on the Highland Rim such as Raus and Hamby appear to be much later than those sites located in the floodplains of the Duck and Elk rivers. In reference to Hypothesis 3, there is the probability of a shift in the settlement pattern at different periods during the Owl Hollow phase rather than a seasonal shift between geographic areas. Hypothesis 4 is supported since it appears that the Owl Hollow sites were primarily independent entities with the majority having been occupied year-round and at approximately the same time period.

A large sample of botanical remains from storage pits and earth ovens indicates the relative importance of such plant foods as arboreal

and herbaceous seeds and cultigens in the late Middle Woodland diet. Although the arboreal seeds are difficult to assess in terms of relative importance, the remains of hickory nut, walnut, and acorn are generally dominant in the wild plant food samples. Herbaceous seeds such as goosefoot, maygrass, and knotweed appear in quantities suggesting economic importance during the Owl Hollow phase. The continued utilization of herbaceous seeds during the Middle Woodland period, and the frequent occurrence in association with floodplain sites suggests that these seeds were significant subsistence factors for Owl Hollow phase groups (Kline, Crites, and Faulkner 1982:63). Perhaps more important is the recovery of cultivated plant remains from all Owl Hollow phase sites tested except Hamby. Squash/gourd and sunflower were known prior to and throughout the Owl Hollow phase (cf. Faulkner and McCollough, eds. 1977). However, the first definite occurrence of maize in the Owl Hollow phase occurs in features dating between A.D. 400-600 at intensively occupied floodplain sites (Cobb and Crites 1978). The widespread occurrence of this cultigen in several different types of Owl Hollow features and in refuse from warm and cold season activity suggests that maize was first intensively grown in south-central Tennessee by Owl Hollow phase groups.

In reference to Hypotheses 5, 6, and 7, the floral and faunal remains recovered from the earth ovens are skewed samples reflecting a cold season diet, but there is evidence from these samples that not only wild plant and animal foods were taken in abundance but that this was balanced with an emphasis on cultivated plant foods, as well. It is clear that food production was practiced, but it is difficult to

evaluate how important it was to the Owl Hollow phase groups. Some measure of the importance of cultigens probably relates to the year-round occupation of large floodplain sites and the range of cultivated plants recovered from these sites. Based on the intensity of floodplain site occupation, it is possible there was an increase in the late Middle Woodland population and that this resulted from more intensive use of horticulture combined with effective maize production. Permanent occupancy of the Owl Hollow phase sites can be partially explained as the need to insure a successful harvest, store surplus foods, and protect the valuable floodplain areas from encroachment (cf. Faulkner 1977:149).

The late Middle Woodland Owl Hollow phase represented a distinctive tradition and a successful adaptation in south-central Tennessee from about A.D. 200 to about A.D. 650. Forty radiocarbon and eight archaeomagnetic dates were obtained from eight sites in the upper Duck and Elk river drainages. Collectively, the uncorrected dates form three primary clusters: A.D. 200-400, with a mean of A.D. 303; A.D. 400-600, with a mean of A.D. 500; and A.D. 600-650, with a mean of A.D. 635. These dates distinguish three periods of Owl Hollow phase cultural development. The early period is represented primarily at the Owl Hollow type site although some sites in the upper Duck Valley were possibly occupied during this time. Middle Owl Hollow phase sites are found along the upper Duck River in the Normandy Reservoir, at the Shofner site, and along the upper Elk River at the Peters site. The late Owl Hollow period dates after A.D. 600. Components of this period

are found at the Hamby and Raus sites and also are represented by a late occupation at the type station.

The early Owl Hollow period sites occur in the floodplains and in the upland areas of the Highland Rim escarpment. The type site perhaps best characterizes this early period occupation. This site has a circular midden covering about 2.8 ha. The midden correlates with locations of large earth oven lodges situated around the periphery of the midden ring. Summer structures are located along the interior of the settlement around an open area that may have served as a plaza. The earth oven dwellings were large-framed and more permanent structures, while the summer houses were less substantially framed and, consequently, required frequent rebuilding.

Subsistence during the early Owl Hollow period was based primarily on hunting, fishing, and shellfish collecting, and on the gathering of arboreal hickory nuts and acorns and herbaceous goosefoot, maygrass, and knotweed seeds. Squash/gourd and sunflower were cultivated and maize was known but was probably insignificant in the diet. Plant foods were stored in subsurface cylindrical-shaped pits around both the summer and winter houses. The focus of subsistence activity likely centered around an intensification of harvest collecting that began in the McFarland phase and involved the exploitation of upland, lowland, and riverine environments (cf. Cobb and Faulkner 1978:129).

Culturally diagnostic artifacts of the early Owl Hollow period are evident in the lithic, ceramic, and worked bone assemblages. Projectile points/knives are predominantly lanceolate, expanded-stemmed, and

shallow side-notched forms. Pottery is almost exclusively limestone-tempered with exterior surface modifications primarily plain (54 percent) and simple stamped (8 percent). Minority surface treatments are diamond-shaped check stamped, curvilinear complicated stamped, smoothed over cordmarked, and incised. The majority of vessels are subconoidal jars with a slight shoulder, straight to slightly flaring rim profile, and a conoidal-rounded base occasionally exhibiting small, vestigial tetrapods. The majority of rims (63 percent) are notched on the lip top. The bone artifacts consist of finely polished, eyed needles, awls, and two-holed bone gorgets manufactured from deer and turkey elements.

The middle Owl Hollow period was characterized by a settlement shift to floodplain sites along the Duck and Elk rivers. These sites were situated in bottomlands adjacent to large expanses of fertile terrace and floodplain soils. The population may have substantially increased during this time. The change in settlement pattern and probable population increase was likely due to more intensive utilization of cultivated plants along with floodplain annuals such as goosefoot and maygrass and an increased emphasis on maize horticulture. While arboreal seed crops probably remain as important as they were during the previous period, there may have been a greater emphasis on floodplain exploitation at this time. Deer and turkey were primary sources of meat and during the cold season were possibly hunted from upland base camps. Foodstuffs were either stored in the interior of winter lodges in above-ground facilities or in large subsurface pits adjacent to the structure.

The community pattern remained essentially unchanged with the bottomland sites characterized by deep, rich middens located on prominent first terraces. A probable circular midden was present at the Peters site. Large, permanent double-oven winter lodges remained the typical dwelling and a major focus of site activity. These lodges were paired with more lightly built circular or oval summer structures.

Artifactual remains during the middle Owl Hollow period are similar to those found earlier. There is some indication, however, of projectile points becoming more lanceolate "spike" shaped. There is also an increased used of mixed-tempering in the ceramic assemblage and a decrease in the frequency of stamped pottery.

The late Owl Hollow period is known from the test results from only two sites, Raus and Hamby. Based on limited information, perhaps the most significant characteristic of this period is the apparent shift in settlement to upland loci for habitation. Owl Hollow groups may have abandoned year-round settlement at lowland villages and established smaller seasonal base camps in both upland and lowland areas. Late Owl Hollow period settlements were recognized at two lowland sites in the Normandy Reservoir, 40CF111 and 40CF32, but community patterns were not well represented. However, the same loci that were used by middle Owl Hollow period groups were reoccupied by the later Owl Hollow groups some 170 years later (Cobb 1982). It is not known if the settlement shift is due to internal Owl Hollow population pressure, depletion of prime habitats, decreased emphasis on horticulture, threats from outside groups, or a combination of these and other unknown cultural and environmental factors. Structural data is not known for this period,

although the continued presence of deep, organic-rich middens at sites such as Raus suggests the presence of earth oven lodges.

During the late Owl Hollow period, the most noteworthy changes in diagnostic artifacts were in the lithic and ceramic industries. Projectile points decrease in size but retain the lanceolate shape which is more bipointed in form. The small size and shape of the projectiles suggests possible use as arrow points. There is an increase in plain surfaced vessels with a virtual disappearance of stamping by the late Owl Hollow period. Rim notching is common, but the execution is rather irregular. Vessel shape changes, with some jars having a definite flaring rim profile and shoulder development. These traits seem to foreshadow vessel shapes of later cultural periods.

During the course of the Owl Hollow Research Project, information was obtained on 16 additional Owl Hollow phase sites (personal communication, Jerry Dickey). The sites were reported and surface materials collected by avocational archeologists. These sites are all in private ownership and located in the Elk River drainage in Coffee, Franklin, Moore, and Lincoln counties, Tennessee. The sites occur along the Elk River and on major and minor tributary streams flowing from the adjacent uplands. Information on site location, however, is purposefully withheld in this report but is maintained on file at the Department of Anthropology, University of Tennessee, Knoxville.

The identification of an Owl Hollow phase cultural association for these sites was based on the typological comparisons of diagnostic lithic and ceramic materials recovered from the surface surveys. Site "types" were suggested from the areal distribution of late Middle

Woodland material remains and the density of surface refuse deposits. Intensively occupied base camps or village sites generally had concentrations of organic-rich midden in association with shellfish remains, burned limestone rock, and artifactual refuse. The sites are listed in Appendix C by name and/or site number along with selected information revealing some of the site and arena characteristics.

Interpretation of these surface collected and non-systematically reported sites is limited. There are many late Middle Woodland sites that have not been reported and a vast area of the Duck and Elk river drainages that has not been surveyed. The presentation of such sparse evidence on the distribution of late Middle Woodland sites unfortunately raises more questions than it provides answers. However, one aspect of reporting this information is the expansion of our knowledge of the range and distribution of Owl Hollow phase sites in the Elk River drainage. Such low level collections of data can eventually lead to a better understanding of site distributional patterns and perhaps definition of an Owl Hollow phase territory or territories depending on the particular time period.

The Owl Hollow phase is believed to have developed out of the indigenous early Middle Woodland McFarland phase of the eastern Highland Rim. The distribution of currently known McFarland and Owl Hollow phase sites is concentrated nearer the headwaters of the Duck and Elk rivers and in the adjacent uplands bordering these streams. The testing of several late McFarland and early Owl Hollow sites has revealed a number of commonly shared traits which include expanded stemmed lanceolate projectiles, two-holed gorgets, rectanguloid elbow pipes, the use of

simple stamping, a limestone/chert mixed-temper pottery ware, and circular structures with multiple interior features.

Recent excavations of the Ewell III and McFarland sites, both late McFarland phase villages, revealed cold season camps with tightly clustered circular structures suggesting more intensive occupation by a larger seasonal aggregate of the population. These camps generally contained three or more circular houses averaging 6.5 m in diameter, which were clustered in close proximity (cf. DuVall 1982; Kline and Crites 1981). The McFarland site structures had paired storage and processing pits placed along one interior wall with large communal earth ovens on the exterior contiguous to the structures.

The tradition of concentrated cold season structures and larger seasonal aggregates of population continued into the early Owl Hollow phase. It is easy to project from the multiple late McFarland houses with dual interior features and communal earth ovens to the single, oval Owl Hollow structure with multiple interior (communal) earth ovens. A probable transitional house type was excavated at the Parks site (40CF5) in the Normandy Reservoir. This structure was approximately 7.5 m in diameter with three storage pits along the west wall, and, significantly, a small earth oven in the center of the structure floor. By the early Owl Hollow period, double oven winter lodges were being constructed which averaged 9-12 m in diameter and housed a seasonal population of perhaps 20 individuals.

Faulkner (1977) believes that the origin of the winter house can be traced to changes in the subsistence and settlement patterns during the Middle Woodland period. By the late Middle Woodland, food production

was becoming more important and the summer encampments were occupied for longer periods of time to insure a successful harvest and for the storage of foods. Although it was still necessary for certain groups to leave the encampment, it was not advantageous for the entire group to move. Women, children, the elderly, and perhaps a few able-bodied men would remain at these encampments where they and their winter food stores would be better protected by a permanent and substantially-built winter house. In this interpretation, the Owl Hollow winter house becomes a type of transitional dwelling between a portable seasonal structure of the early Middle Woodland and the permanent winter or "hot house" of Mississippian and historic Cherokee villages (Faulkner 1977).

The closest relationship of another Southeastern culture to the Owl Hollow phase with regard to ceramics and community patterning is found in the late Cartersville culture of north-central Georgia. The 9FN14 site on the Chattahoochee River in Fulton County, Georgia, has a ceramic assemblage of predominantly simple stamped pottery. More noteworthy is the presence of round structures that are reminiscent of the winter houses of the Owl Hollow phase (Kelly 1973).

When we look outside the Southeast for cultures related to the Owl Hollow phase, the closest relationship is with the LaMotte culture of the lower Wabash River Valley of Indiana. Howard Winters (1963:70) recognized a strong Southeastern influence on the LaMotte culture in the simple and check stamped pottery, rectanguloid elbow pipe, and the plaza complex, which may be derived from the Tennessee Valley and adjacent areas. Perhaps an even closer relationship between Owl Hollow and LaMotte is seen in certain material traits and community patterning.

Shared traits include a blade industry, expanded stemmed projectile points, rectangular stone gorgets, and bone pendants. The most striking feature of the community pattern is the presence of circular middens around a debris-free "plaza." Structure patterns include both round and rectangular types found at such sites as Doughtery-Monroe in Sullivan County, Indiana (Pace 1973:46). There is also evidence of dual summer and winter houses at the late Middle Woodland Hatchery West site in the Carlyle Reservoir on the Kaskaskia River (Binford et al. 1970:16-28).

Cultural interaction during the Middle Woodland period was apparently oriented on a north-south axis perhaps coextensive with the Interior Low Plateaus physiographic province. The rugged Cumberland Plateau, rising over 300 m immediately to the east of the Highland Rim, was a formidable barrier to east-west contact and interaction. Meyer (1928), Faulkner (1968), and Walthal and Keel (1974) identify a network of aboriginal trails from the Ohio Valley through the Middle South which led close to the Old Stone Fort and the upper Duck and Elk river valleys. The Great South Trail, used by historic groups, passed through the upper Duck Valley. This corridor led into northern Alabama and could have been an avenue for contact, trade, and interaction during the Middle Woodland period. While interaction with outside groups likely occurred at different times during the Middle Woodland period, there apparently was no sustained contact over a continuous period of time and, consequently, little influence on local late Middle Woodland groups. The Owl Hollow phase, therefore, seems to be a distinctively local late Middle Woodland manifestation that developed a successful

strategy for sustaining a hunting, gathering, and horticultural lifeway in the marginal headwaters of the Duck and Elk river drainages.

Throughout the Owl Hollow Research Project, a late Middle Woodland tradition was documented with substantial comparative data on settlement, subsistence, and community patterns, material culture, and chronology. While these data are subject to updating and alternative interpretations, they must remain at present the broadest perspective and the most comprehensive definition of the late Middle Woodland manifestation identified as the Owl Hollow phase.

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APPENDIXES

APPENDIX A

Lithic Raw Material Types Defined for the Owl Hollow Research Project

Letter Designation	Raw Material Type
Type: A	Blue, Gray and Tan chert
B	Blue, Gray and Tan chert, variety tan
C	Blue, Gray and Tan chert, variety blue-gray
D	Blue-Green nodular chert
E	Blue-Green nodular chert, variety reddish brown
F	Gray nodular chert
G	Black-Brown nodular chert
H	Matt Brown chert
I	Blue-Black fossiliferous chert
J	Blue-Gray agatized chert
K	Greenish-Gray chert
L	Greenish-Gray chert, highly mottled
M	Dark Blue-Gray chert
N	Gray banded chert
O	Blue-Gray mottled chert
P	Tan chert
Q	White, coarse-textured fossiliferous chert
R	Tan, coarse-grained chert
S	Reddish Tan chert
T	Gray chert, tan cortex
U	Dark Gray mottled chert
V	Vein quartz/chalcedony
X	Non-specific chert (generalized category)

APPENDIX B

Lithic Tool Types Defined for the Owl Hollow Research Project

Primary Lithic

1 Hammerstone
2 Core: a. subconoidal
b. flat
c. discoidal
d. amorphous
3 Decortication flake
4 Flat flake
5 Bifacial thinning flake
6 Bipolar flake
7 Unidentifiable flake fragments
8 Lithic scatter

Unifacial Tools

9 End scraper
10 Side scraper
11 Spokeshave
12 Denticulate
13 Perforator
14 Graver
15 Utilized flake: unifacial
16 Blade-like flake: unifacial

Bifacial Tools

17 Thick biface knife
18 Thin biface knife
19 Core tool: chopper
20 Core tool: scraper
21 Chisel
22 Denticulate
23 Drill
24 Perforator
25 Microtool
26 Miscellaneous biface tool (specified)

Projectile Points/Knives (PPK)

27 PP/K: narrow thick lanceolate
28 PP/K: narrow thick lanceolate stemmed
29 PP/K: narrow thick lanceolate contracted stemmed
30 PP/K: narrow thick lanceolate shallow side-notched
31 PP/K: lanceolate expanded stemmed
32 PP/K: lanceolate straight stemmed
33 PP/K: triangular shallow side-notched
34 Miscellaneous PP/K (specified)
35 Unidentifiable PP/K: basal fragments
36 Unidentifiable PP/K: medial fragments
37 Unidentifiable PP/K: distal fragments

Ground Stone Tools

38 Pitted cobble
39 Millingstone
40 Celt
41 Hoe
42 Abrader
43 Modified: a. siltstone
b. mica
c. shale
44 Modified slate
45 Ground and faceted hematite
46 Miscellaneous ground stone tool (specified)

Raw Materials

Not numbered - miscellaneous lithic raw materials present (specified)

APPENDIX C

Late Middle Woodland Sites Identified in the Upper Elk River Valley

	Site Name	Site No.	Stream Locality	Soil Type	Site Type
1.	Bice Road II	40CF215	Bradley Creek (upland)	Waynesboro silt loam	Village with circular midden
2.	Falls Mill	40FR171	Beans Creek (upland)	Hermitage silt loam	Village with midden loci
3.	Hurdlow	40FR31	Elk River (lowland)	Emory silt loam	Village with scattered midden
4.	Maybe	40FR55	Mathis Branch (upland)	Cumberland silty clay loam	Village with deep midden
5.	Renegar Bend	40FR30	Elk River (lowland)	Cumberland silt loam	Village with midden
6.	Hurricane Creek	40FR153	Hurricane Creek (upland)	Dellrose cherty silt loam	Camp site with shallow midden
7.	---	40FR104	Beans Creek (upland)	Unknown	Camp site with sparse midden
8.	Hickory Grove	---	Beans Creek (upland)	Unknown	Village with deep midden
9.	Bradshaw	F-81	Bradshaw Creek (lowland)	Sequatchie fine sandy loam	Village with midden
10.	F-68	40LN89	Elk River (lowland)	Cumberland silt loam	Village with midden
11.	---	F-44	Mulberry Creek (upland)	Unknown	Possible camp site with midden
12.	F-22	40LN90	Norris Creek (upland)	Wolftever silt loam	Village with circular midden

13. Daniels	F-9	Mulberry Creek (upland)	Unknown	Village with circular midden
14. F-59	40LN4	Norris Creek (upland)	Mimosa stony silt loam	Small village with midden
15. ---	40ME21	Mulberry Creek	Unknown	Camp site with sparse midden
16. ---	F-78	Elk River (lowland)	Cumberland silt loam	Village with circular midden

VITA

James E. Cobb was born in 1946 in Knoxville, Tennessee. He was reared on a farm in the Mascot Community of Knox County, Tennessee, and graduated from Carter High School. Following a three-year tour of duty with the U.S. Navy in Japan, he enrolled in the University of Tennessee and began work on a Bachelor of Science degree in Anthropology that was conferred in 1971.

He received the Arkansas Archeological Survey Assistantship from the State of Arkansas for graduate studies in Anthropology at the University of Arkansas, Fayetteville, in 1971. The Master of Arts degree in Anthropology was conferred in 1976.

He enrolled in the University of Tennessee, Knoxville, in 1976 and participated in a National Science Foundation grant for graduate research on prehistoric settlement and subsistence patterns in the Eastern Highland Rim of south-central Tennessee. In 1978, he was selected as a staff archeologist with the Department of the Army, U. S. Army Corps of Engineers, Savannah District, Savannah, Georgia. He left the Corps of Engineers in 1982 to accept a position as Regional Archeologist with the Department of the Interior, U.S. Fish and Wildlife Service, Region 4, Atlanta, Georgia.

The author has undertaken archeological research primarily in the Southeastern United States and has acquired an extensive background in Southeastern prehistoric and historic cultural development. He was field director of an eight months research project in the Ozark Mountains, a 16 months NSF funded research project in south-central Tennesee, and project manager for the $4.5 million Richard B. Russell

cultural resources mitigation program on the upper Savannah River in the Georgia-South Carolina Piedmont. He is currently involved with directing major cultural resource mitigation programs at National Wildlife Refuges in coastal Georgia, the outer banks of North Carolina, the Ouachita River of south-central Arkansas, and Okefenokee Swamp of southern Georgia.