PUBLICLY AVAILABLE VERSION

ARCHAEOLOGICAL RESEARCH AT 40RE107, 40RE108, AND 40RE124

BY GERALD F. SCHROEDL

UNIVERSITY OF TENNESSEE
DEPARTMENT OF ANTHROPOLOGY
REPORT OF INVESTIGATIONS NO. 49
AND
TENNESSEE VALLEY AUTHORITY
PUBLICATIONS IN ANTHROPOLOGY NO. 53

Library of Congress Cataloging-in-Publication Data

Schroedl, Gerald F.
Archaeological research at 40RE107, 40RE108, and 40RE124 in the Clinch River breeder reactor plant area, Tennessee / by Gerald F. Schroedl ; with contributions by C. Clifford Boyd and Patricia Cole-Hinton.
p. cm. -- (Report of investigations / University of Tennessee, Department of Anthropology ; no. 49) (Publications in anthropology / Tennessee Valley Authority ; no. 53)
"A report submitted to the Tennessee Valley Authority in compliance with TVA contracts TV-39483A and TV-69431A."
Includes bibliographical references.
ISBN 0-87077-006-3
1. Indians of North America--Tennessee--Antiquities. 2. Indians of North America--Clinch River Valley (Va. and Tenn.)--Antiquities. 3. Clinch River Valley (Va. and Tenn.)--Antiquities. 4. Tennessee--Antiquities. I. Boyd, C. Clifford. II. Cole-Hinton, Patricia. III. Tennessee Valley Authority. IV. Series: Report of investigations (Univesity of Tennessee, Knoxville. Dept. of Anthropology) ; no. 49. V. Series: Publications in anthropology (Tennessee Valley Authority) ; no. 53.
E78.T3S33 1990
976.8'73--dc20 90-42302
CIP

Cover: Rear view of shell tempered hooded water bottle associated with Burial 5 at 40RE124. Drawing is approximately 1.5x actual size. Cover drawing, design, and layout by Greg Horak.

ARCHAEOLOGICAL RESEARCH AT 40RE107, 40RE108, AND 40RE124 IN THE CLINCH RIVER BREEDER REACTOR PLANT AREA, TENNESSEE

By

Gerald F. Schroedl

With Contributions By
C. Clifford Boyd, Jr. and
Patricia Cole-Hinton

A Report submitted to the Tennessee Valley Authority
in compliance with TVA Contracts TV-39483A and TV-69431A

Manuscript Submitted December 1989
Published 1990

University of Tennessee
Department of Anthropology
Report of Investigations No. 49
and
Tennessee Valley Authority
Publications in Anthropology No. 53

Gerald F. Schroedl
Principal Investigator

PREFACE

The Clinch River Breeder Reactor Plant (CRBRP) was planned as the United States' entry into liquid metal reactor technology. The advantages of this technology over conventional reactors were cheap and efficient energy production and a net gain in fuel use by the conversion of U-238 to Pu-239. Congress appropriated funds for initial environmental review and site preparation in 1971 and a consortium of government agencies and private utilities companies was formed to develop, manage, and build the project. Among the lead groups involved in the project were the Atomic Energy Commission, The Project Management Corporation, Westinghouse Environmental Systems Department, and the Tennessee Valley Authority. Skyrocketing costs, technical and environmental objections to the plant, and strong public and congressional disillusionment with the nation's nuclear energy programs resulted in cancellation of the CRBRP project in 1983.

Archaeological investigations as required by the National Environmental Policy Act were initiated in the plant area with a six day reconnaissance and test excavation program in October 1972 under the provisions of Tennessee Valley Authority Contract TV-37432A. This work was aimed primarily at relocating and evaluating sites previously recorded [Exempted from Disclosure by Statute] The effectiveness of efforts to locate additional sites was reduced by dense vegetation that covered the entire project area. In fact, a previously recorded conical mound (40RE124) could not be found until its location was clearly shown on a 2 ft contour map which became available in March 1973. At that time the mound was tested and plans were developed to excavate it, work at site 40RE108, and to conduct additional test excavations and reconnaissance, particularly of historic sites.

Funded by Tennessee Valley Authority contract TV39483A, investigations at 40RE124 and 40RE108 commenced in October 1973 and were completed by February 1974. An historic site reconnaissance (Schroedl 1974a) and test excavations at 40RE129 (Schroedl 1974b) were completed in April and May 1974. By this time a proposal had been submitted requesting supplemental funds for additional test excavations at 40RE107 and 40RE129 and for conducting further excavations in areas at 40RE124 and 40RE108 discovered and tested in the fall of 1973. A contract for this work was approved in November 1974 and the 40RE107, 40RE108, and 40RE129 investigations were completed in December 1974. The work at 40RE124 was reserved for the following spring and was completed in March and April 1975. Most analyses of the 40RE108 and 40RE124 remains were largely completed by December 1976.

Arrangements were made to complete the CRBRP report preparation with funds in the existing contract once obligations to the TVA Tellico Project were satisfied. Unfortunately, these funds became unavailable as the process of shutting down construction of the plant was begun in the early 1980s. In 1983, a request for new funds was made to complete the work reported here, and in 1986 Tennessee Valley Authority contract TV69431A was executed for this purpose. Most importantly this made possible the total reanalysis of all lithic and ceramic artifacts and permitted the incorporation of comparative data generated between 1975 and 1987.

ACKNOWLEDGEMENTS

Mr. Corydon W. Bell at the Tennessee Valley Authority guided the initial work and contract administration for the CRBRP archaeological studies. These responsibilities were eventually assumed by Bennett Graham, who also continued to act as a liaison with the Project Management Corporation. Through his special efforts and the support of Maxwell Ramsay funds were provided for completing archaeological studies in the CRBRP area. Dr. William M. Bass, Department Head, supported the project in the Department of Anthropology. Gerald F. Schroedl was principal investigator throughout the course of the project and directed the field work at sites 40RE108 and 40RE124.

Patricia Cole-Hinton was crew supervisor at 40RE124 and was responsible for the detailed drawings and in situ measurements of each burial excavated at the site. These data provided the basis for a contemporary synthesis of Late Woodland mortuary practices which she completed for her Masters' degree thesis. At 40RE108, Lee S. Wallace and James Hibbs supervised the excavations in the Fall of 1972. Emanuel Breitburg assisted with the field studies of the burials at 40RE124 and identified nearly all the faunal remains from 40RE108. Darcey Morey identified the few animal bones from 40RE124 and Arthur Bogan provided identifications for a small number of additional vertebrates from 40RE108, and working with Paul W. Parmalee, analyzed the river mussel and gastropod shells from this site. Andrea Brewer Shea did the analysis of charred plant remains from both 40RE108 and 40RE124.

Excavations at 40RE107, 40RE108, and 40RE124 in late 1974 and 1975 were directed by George Nick Fielder assisted by Richard W. Edging and Steve Ahler. Fortunately, many of the fieldworkers who contributed to the project in 1973 also were present for the 1975 excavation. I especially appreciate the crews hard work and good humor when sites were flooded or covered with snow. Crew members who participated in one or more (indicated with an asterisk) field seasons were:

James Acuff
Kim Barham
Richard Burnette*
Katherine Burnette
Ernie Buress
Fred Chapman
George Cress
Kim Davis
Richard Edging*
T.A. Farmer
Patricia Fitzpatrick
Dan Fulkerson
Lester Goforth
Faye Gooden
Lowell Hartvigson
Elizabeth Henson
Susan Hoyle*
Zoe Hoyle
Mark Holan
William Hunt*
Carroll Kleinhans
Lowe McManus
George McCluskey
Terry Massoth
Roger Moore
Robert Newman
Lynn Pepper
Austin Pratt
John Skidmore
Jeff Walker*
Christie Williams

Kathleen Anderson and Christine Klemm supported crew morale with their culinary skills.

Laboratory assistants for the project included Steve Ahler, Nancy Emig, Susan Hoyle, Elsie Paalzow, and Jana Vaughn. Carroll Kleinhans and Lowell Hartvigson organized and described much of the 1973 work at 40RE108. Although extensively revised because of additional excavations and reanalysis of the recovered cultural remains, their efforts under difficult conditions are greatly appreciated. In 1987, C. Clifford Boyd, Jr., Radford University, conducted detailed analyses of all the lithic artifacts, contributing appropriate discussions to the sections on 40RE107, 40RE108, and 40RE124. At this time, ceramic artifacts received similar analytical attention.

Photographs for the report were prepared by Miles Wright. Faye Gooden and Mary Ellen Hodges drafted site maps and drawings. At one time, Chris Cox, Carolyn Woods, Sherry Crisp, and most recently Pam Poe each was responsible for paying the bills and keeping the books for the project. They have provided outstanding assistance for which I will always be grateful. Laurie Baradat typed the draft and final versions of the manuscript.

TABLE OF CONTENTS

List of Tables

List of Figures

Figure		Page

INTRODUCTION TO THE CRBRP ARCHAEOLOGICAL PROJECT

The primary aim of this report is to describe the excavations at sites 40RE108 and 40RE124 and to provide analyses and cultural interpretations of the archaeological records at these sites. Also included in this study is a description of work at site 40RE107, which although extensive, produced few artifacts and little substantive information. The results of archaeological reconnaissance and test excavations, especially those reported in Schroedl (1972, 1974a) and Jolley (1982) are only summarized as necessary, as are the data relevant to the CRBRP area presented by Fielder (1974, 1975) and Fielder et al (1977).

Location

The Clinch River Breeder Reactor plant area is located in Roane County, Tennessee, along the lower Clinch River approximately 30 mi west of Knoxville and 9 mi south of the Oak Ridge city center. The site occupies a large horseshoe bend between River Miles 14.5 and 18.6. This is at the upstream end of the Watts Bar Dam impoundment. Interstate Highway 40 (I-40) is less than 2 mi due south of the area and Gallaher Road and Bridge are about .5 mi to the west (Figure 1).

The Clinch River forms the south, east, and west borders of the plant location (Figure 2). The northwest boundary runs from the Clinch River along Bear Creek Road north-northeast for approximately 1 mi. A natural gas pipe line and the TVA-AEC property line constitute the northeast boundary. The plant area encloses 1364 acres. Three TVA powerlines cross the area; one runs east to west across the north end of the plant property, a second one bisects the area northeast to southwest, while a third one forms a northwest to southeast transect.

Primary access is provided by a graded and graveled road which follows the course of the river (hereafter referred to as the river road). Additional access to areas beyond the road is difficult. During Watts Bar reservoir draw down a narrow beach is exposed along the riverbank. Occasional foot trails, former logging roads, powerline maintenance trails, and a single jeep track provide access to interior and higher elevations. Nearly all such travel routes, however, are virtually impassible without four-wheel-drive vehicles even during dry weather. Dense vegetation and steep terrain restrict movement further.

Environment

The physiography, climate, vegetation, and fauna of the CRBRP plant area are like those found throughout the Ridge and Valley province of East Tennessee, of which the Clinch River Valley is a part (see Fenneman 1938). Dolomitic limestone, shale, chert, siltstone, and sandstone, sedimentary rocks of the Paleozoic Era, underlie most of Roane County (Swann et al. 1942). Folding and faulting of these rocks, with subsequent weathering and erosion of less resistant limestone and shale produced the parallel valleys and ridges characteristic of the region. In the plant area elevations range from 740 to 1120 feet AMSL. The highest elevations and greatest relief are formed by Chestnut Ridge and the adjacent Bear Creek Valley on the northwest side of the

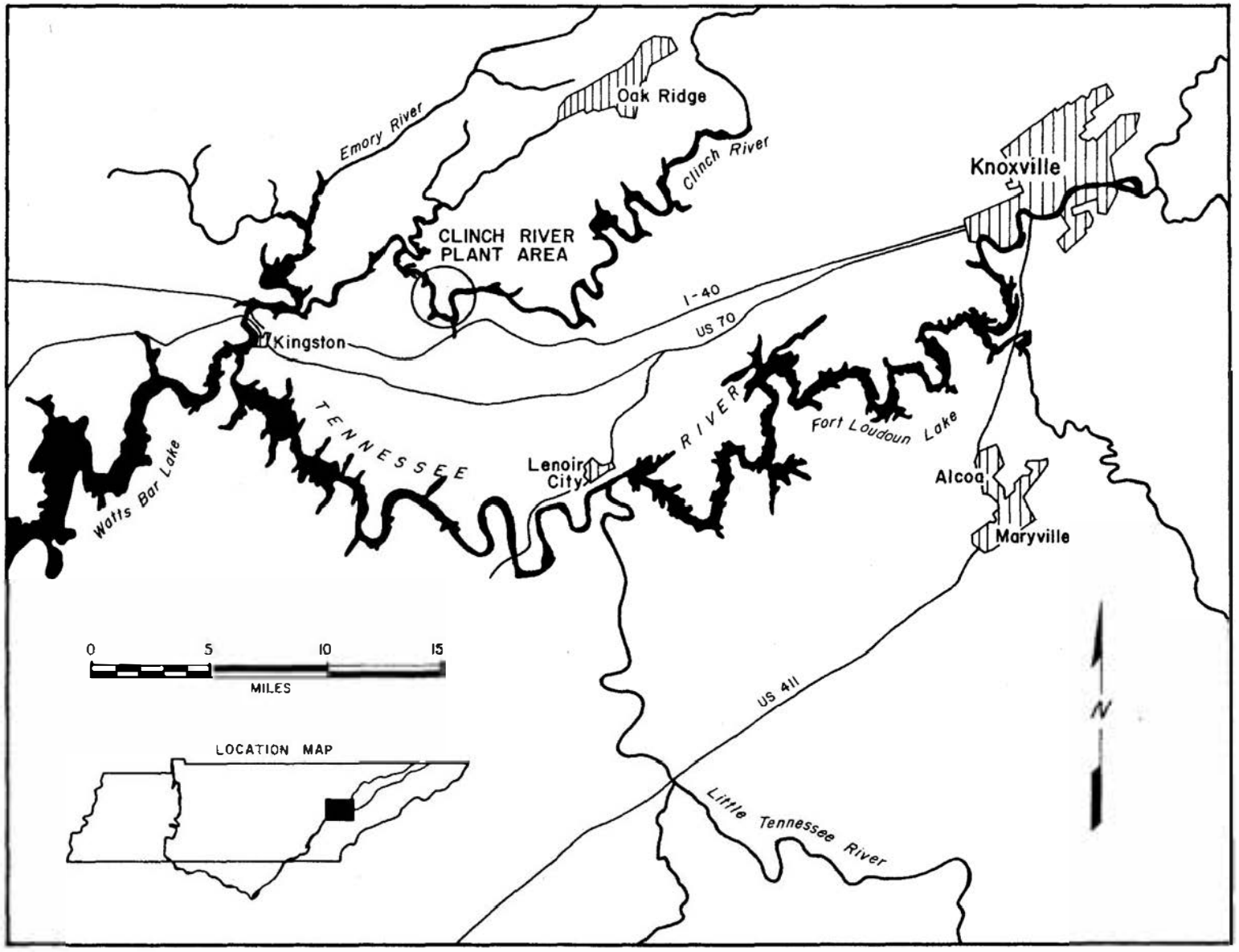


Figure 1. Location of the Clinch River Breeder Reactor Plant area.

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 2. Map of the Clinch River Breeder Reactor Plant area.

plant location. As a whole the terrain is rough and hilly and nearly half of the land has slopes greater than 30%. Alluvial sediments of the Clinch River floodplain and terraces form a comparatively level surface. Overbank deposits have built these features to their present elevation. Below River Mile 17, lateral accumulation of coarser grained sediments has occurred because of the river's meander pattern. Silt, silt loam, sandy loam, and sandy soils characterize the alluvial deposits. At higher elevations silt loam, silty clay, and clay loam soils are developed from weathered bedrock and colluvial material.

Climate is the humid continental type in the lower Clinch River Valley. The Cumberland Mountains to the north, the Smoky Mountains to the east, and the Cumberland Plateau to the west reduce the intensity of hot summer and cold winter winds, tempering potential extremes in temperature, which averages 40°F in winter and 77°F in summer (Swann et al. 1942:8). Precipitation averages 51 in annually. Fall months are driest and winter months are wettest, but snow fall is infrequent and rarely remains on the ground for more than a few days.

The area was once forested with deciduous trees. Oak and chestnut were the dominant species, but yellow poplar, elm, maple, gum, hickory, hackberry, black walnut, dogwood, and pine frequently grew in the region (Braun 1950). In Roane County, most of this forest was cleared and plowed for agriculture by the 1880s. The CRBRP area was divided into small farms until the Atomic Energy Commission and Tennessee Valley Authority acquired the land in the 1940s. Subsequently, the area was reforested in pines and a dense understory of vines and shrubs was allowed to develop. Numerous mammals, birds, reptiles, and amphibians are resident in the area, and these and other species whose habitats have been restricted or eliminated in historic times were important resources to the aboriginal people of East Tennessee.

Cultural Resources

Cyrus Thomas is credited with the first professional archaeological studies in Roane County (Thomas 1894). Although he briefly mentions two mounds that stood on[Exempted from disclosure by statute]the opposite bank of the Clinch River, Thomas reports no sites in the CRBRP area. Like Thomas other early twentieth century researchers such as C.B. Moore (1915) and M.R. Harrington (1922) focused their attention on Indian mounds, but none explored the Clinch River more than a few miles above its confluence with the Tennessee River. Although detailed archaeological studies were made in Norris Basin in the middle section of the Clinch River in the 1930s (Webb 1938), it was not until 1941 that the lower 28 miles of the river was surveyed for archaeological sites because of its inclusion in Watts Bar Reservoir (Nash 1941). At that time five sites, none of which was tested or excavated, were recorded in the plant area.

These sites were revisited and four to 15 test pits were excavated at each one in 1972 (Schroedl 1972). Previously considered part of 40RE105, 40RE124 received a separate designation. The remains of three Anglo-American farm houses, a log shed, and the Hensley cemetery also were recorded. One additional prehistoric site (40RE128) subsequently was recorded as were the remains of historic sites identified on the 1940 TVA Watts Bar property acquisition map (Schroedl 1974a). While conducting a cultural resources

inventory of the Oak Ridge Reservation, Fielder (1974:50,53) recorded two new sites (40RE125, 40RE129) in the plant area, and in 1975 he (Fielder 1975) recorded 40RE138 on [Exempted from disclosure by statute] 40RE139 [Exempted from disclosure by statute] and 40RE140. [Exempted from disclosure by statute] [Exempted from disclosure by statute] Fielder (1975:52-59) also provided further descriptions and evaluations of three buildings associated with [Exempted from disclosure by statute] property (Schroedl 1974:6). In 1981, a [Exempted from disclosure by statute] survey, including [Exempted from disclosure by statute] excavations [Exempted from disclosure by statute] and a program of surface survey and shovel tests in upland areas were made in the plant area (Jolley 1982). These investigations recorded 17 previously unknown sites, redefined the characteristics of three known sites, and recorded 20 loci representing remains of prehistoric (n=12), historic (n=6) or unknown (n=2) age or culture.

Historic Sites

Historic sites in the CRBRP area are summarized by Schroedl (1974a). Six shovel tests by Jolley (1982) produced Anglo-American made artifacts, all of which are likely associated with known historic occupations. Twelve land parcels specifically identified with known individuals or families and containing the remains of 15 single structures or clusters of buildings are found in the plant area (Figure 3). Each of the 15 ruins are designated as Locales and in addition four Locales first observed during the 1972 survey retain site numbers 40RE120, 40RE121, 40RE122, and 40RE123 (Table 1). A small shed and sawmill, found outside the 1940 TVA survey area were designated Locale 16. The Hensley Cemetery, [Exempted from disclosure by statute] [Exempted from disclosure by statute] property line, received no additional label.

The objective of the historic sites survey was to verify the occurrence and assess the condition of properties located and described in 1940. The one day historic sites survey made no artifact collections and no site records except photographs and field notes. Measured plan drawings were made of three structures at [Exempted from disclosure by statute] property by Fielder (1975). Thomas (1973), in addition, made a contour map and plan of buildings on [Exempted from disclosure by statute] property (Locale 10) and [Exempted from disclosure by statute] parcel (Locale 14).

When TVA acquired the CRBRP property in the 1940s buildings were torn down, moved, or allowed to deteriorate in place. There is considerable variation in what is represented at each Locale. For example, there once stood on the properties of [Exempted from disclosure by statute] (Locale 8), [Exempted from disclosure by statute] (Locale 9), and [Exempted from disclosure by statute] (Locale 11) between one and five buildings including frame houses, barns, sheds, and cribs. No evidence for any of these structures was observed. At the two properties mapped by Thomas (1973), however, most of the original buildings were recognizable, although none had standing walls preserved. In several places such as [Exempted from disclosure by statute] house (Locale 15), walls, roofs, and chimneys were still in place although badly deteriorated, partially collapsed, and overgrown with vegetation. Log cribs were generally the best preserved standing structures (see Figures 4 and 5).

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 3. Location of Historic sites in the Clinch River Breeder Reactor Plant area.

Table 1. Historic Sites in the CRBRP Area.

Prehistoric Sites

There are 27 prehistoric archaeological sites known in the CRBRP area (Figure 6). Jolley (1982: Figure 18) classifies 20 sites as open habitation settlements, six of which have identifiable culture components (Table 2). Cultural components at the remaining 14 habitation sites including 40RE107 are indeterminate. Sites 40RE108, (analyzed here) and 40RE167 contain Archaic, Woodland, and Mississippian period occupations, while both Archaic and Woodland materials were found at 40RE166 and Woodland period remains only came from 40RE106 and 40RE125. Buried early Archaic period deposits were

Figure 4. Property of[Exempted from disclosure by statute]heirs, Locale 6, partially collapsed log smokehouse, view southwest.

Figure 5. Property of[Exempted from disclosure by statute]heirs, Locale 7, farm house, view northeast.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 6. Location of Prehistoric sites in the Clinch River Breeder Reactor Plant area (adapted from Jolley 1982: Figure 18).

identified at 40RE165. Five lithic extraction sites (40RE153, 40RE156, 40RE157, 40RE158, and 40RE159) are of unknown cultural affiliation. Site 40RE124 is also extensively analyzed here and is a Late Woodland period burial mound. A single cave site (40RE140) contains Early Woodland period remains. Jolley also discusses the possible prehistoric origins of two rock mound clusters, one containing 19 stone piles (Locus 19) and the other having 15 stone piles (Locus 20). Stone mounds can result from historic clearing of fields, but are also associated with Middle Woodland period ceremonial and mortuary patterns (see Chapman 1987). Jolley (1982:41-42) also recovered prehistoric artifacts from shovel tests which he designated Loci 1 through 12, but which he could not associate with a specific site or culture period.

Table 2. Prehistoric Sites in the Clinch River Breeder Reactor Plant area.

Site No.	Site Type	Archaeological Components
40RE104	Open Habitation	undetermined
40RE105	Open Habitation	undetermined
40RE106	Open Habitation	Woodland
40RE107	Open Habitation	undetermined
40RE108	Open Habitation	Archaic, Woodland, Mississippian
40RE124	Mound	Woodland, Mississippian
40RE125	Open Habitation	Woodland
40RE128	Open Habitation	undetermined
40RE139	Open Habitation	undetermined
40RE140	Cave	Archaic, Woodland
40RE151	Open Habitation	undetermined
40RE152	Open Habitation	undetermined
40RE153	Lithic Extraction	undetermined
40RE154	Open Habitation	undetermined
40RE155	Open Habitation	undetermined
40RE156	Lithic Extraction	undetermined
40RE157	Open Habitation	undetermined
40RE158	Open Habitation	undetermined
40RE159	Lithic Extraction	undetermined
40RE160	Open Habitation	undetermined
40RE161	Open Habitation	undetermined
40RE162	Open Habitation	undetermined
40RE163	Open Habitation	undetermined
40RE164	Open Habitation	undetermined
40RE165	Open Habitation	Archaic
40RE166	Open Habitation	Archaic, Woodland
40RE167	Open Habitation	Archaic, Woodland, Mississippian

EXCAVATIONS AT 40RE107

Location

Site 40RE107[Exempted from disclosure by statute]
[Exempted from disclosure by statute]
[Exempted from disclosure by statute] Culture deposits at 40RE107, as shown by test excavations, are widely dispersed, so it is difficult to estimate the size of the site. The site, however, probably occupies an area approximately 175 m long by 50 m wide. The site area is comparatively level and lies within[Exempted from disclosure by statute](Figure 7).

On three separate occasions test excavations were conducted at 40RE107 in an attempt to isolate well defined archaeological deposits with accompanying evidence of dense habitation debris and facilities such as hearths and pit-features. None of the work located deposits of this nature.

The initial work at 40RE107 consisted of four 3 by 3 ft test pits excavated between 2.7 and 4.2 ft deep. These were spaced 25 to 75 m apart and [Exempted from disclosure by statute] The second effort in January 1974, used six backhoe trenches (one of which was coincident with one of the previously dug test pits) and a total of 10 test pits (two 2 by 2 m, two 1 by 2 m, and six 1 by 1 m) to locate archaeological deposits (Figures 8 and 9). Four backhoe trenches were cut 20 to 40 m apart[Exempted from disclosure by statute]the other two trenches were placed 20 to 30 m [Exempted from disclosure by statute] An excavation grid was established by extending the 40RE108 grid, but a completely separate set of coordinate numbers was used at 40RE107. The test excavations were placed 10 m or more apart[Exempted from disclosure by statute]with most 20 m[Exempted from disclosure by statute] [Exempted from disclosure by statute] Except for one unit excavated to just 0.6 m deep, the test pits ranged from 1.0 to 1.8 m deep when completed. All were excavated in 20 cm arbitrary levels, but the sediments were not screened.

In March 1975, eight additional 1 by 1 m pits were excavated. Six were placed between 20 and 100 m south-southeast of the previous work and about 60 [Exempted from disclosure by statute]Two test pits were excavated at the north end of the site. None of the test pits was oriented with the existing site grid pattern, and each was designated by the coordinate of the northwest corner. All were excavated in 20 cm levels and ranged in depth from 0.6 to 1 m when completed. None of the sediments were screened.

Stratigraphy

Stratigraphic profiles were recorded in all the excavations and they show a near uniform sequence of similar sediments in the area where investigations were made. Profiles at 442N/110-112E, 449N/98-100E, and 498N/96-100E are presented in Figure 10. Seven deposits, all of which are very fine sands, differing primarily in color, occur in the excavations (Figures 11 and 12). The description given below is a composite based on detailed observations recorded at 489.5N/100E, 449N/100E, 442.5N/112E, with additional close examination of sediments in 498-500N/96-100E and 510-511N/99-100E.

Stratum 7 is a massive, very friable, non-sticky, non-plastic, very fine sand. Depending on location, it is dark brown (10YR4/3), yellowish-brown

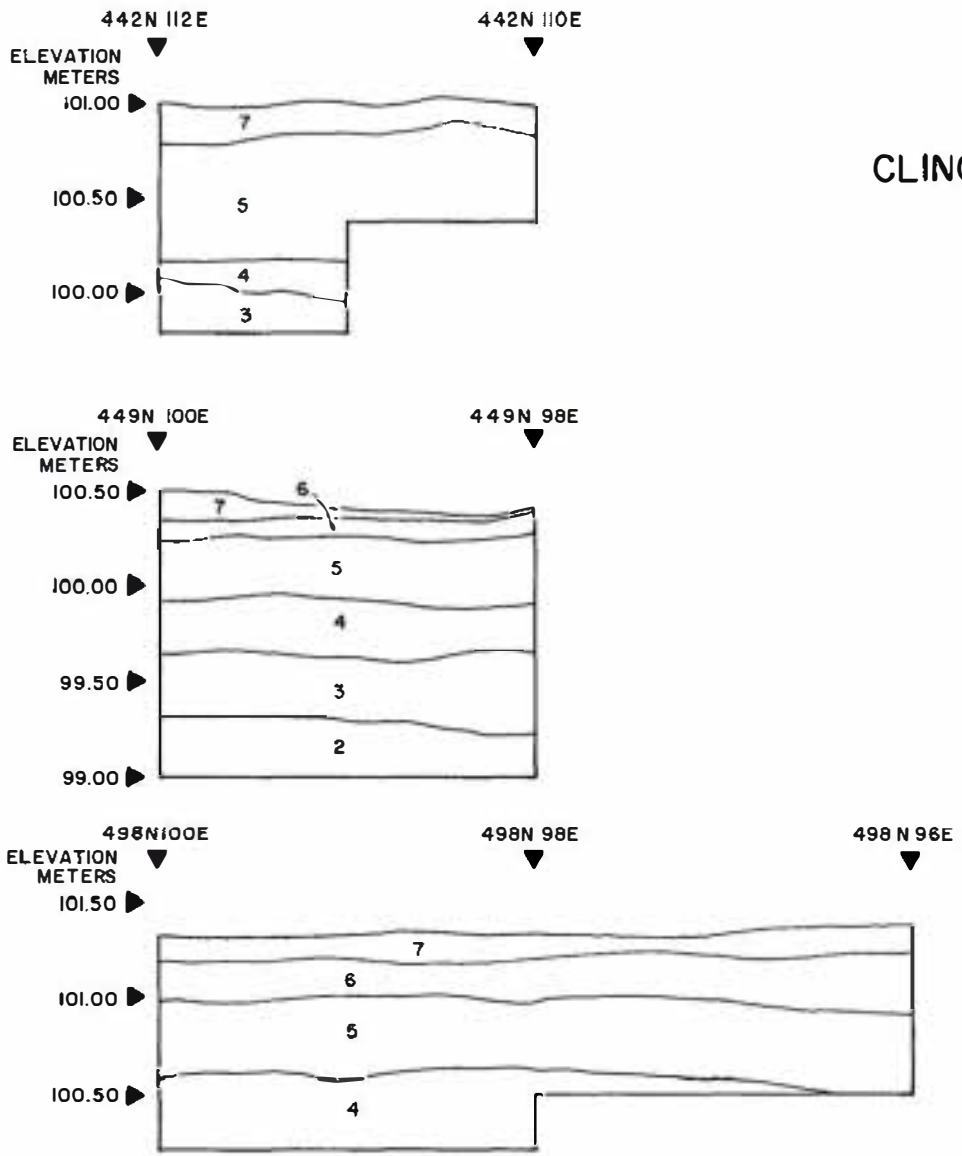
Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 7. Contour map and plan of excavations at 40RE107 (adapted from Liquid Metal Fast Breeder Reactor Map 90-MS-461.P501-103, 105).

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 8. Excavations in 498-500N/96-100E at 40RE107, view west.

Figure 9. Excavations in 510-511N/99-100E at 40RE107, view north.



SITE 40RE107
CLINCH RIVER BREEDER REACTOR PROJECT
STRATIGRAPHY

STRATUM

1	VERY FINE	SAND 7
2	VERY FINE	SAND 6
3	VERY FINE	SAND 5
4	VERY FINE	SAND 4
5	VERY FINE	SAND 3
6	VERY FINE	SAND 2
7	VERY FINE	SAND 1

Figure 10. Stratigraphic profiles at 40RE107.

Figure 11. North profile of 449-450N/98-100E at 40RE107.

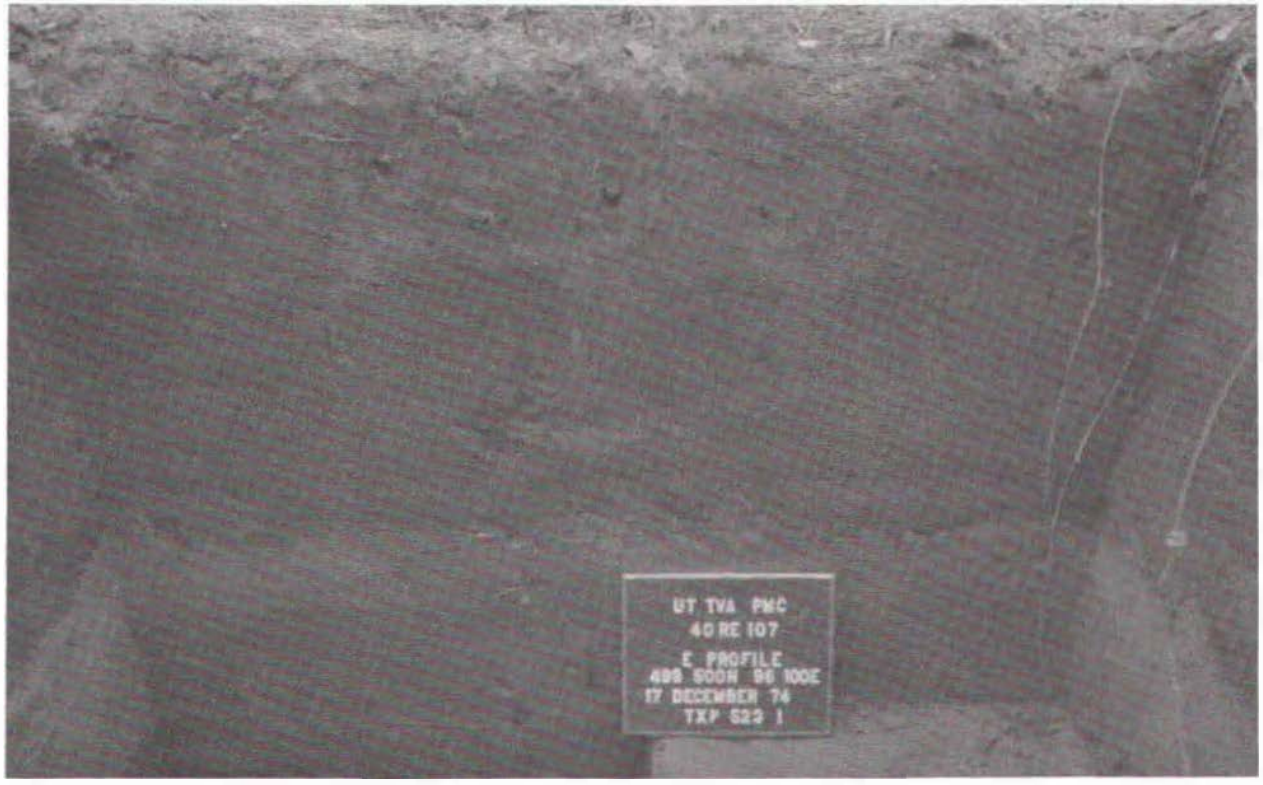


Figure 12. East profile of 498-500N/96-100E at 40RE107.

(10YR5/4), or dark yellowish-brown (10YR4/4), containing plentiful to abundant fine and medium roots. The deposit makes a clear smooth or clear wavy boundary to Stratum 6 or Stratum 5.

Stratum 6 is a yellowish-brown (10YR5/4) or dark brown (10YR3/3) massive, very friable, non-sticky, non-plastic, very fine sand, with common fine and medium roots and common, large, faint brown (40YR5/3) mottles. It makes an abrupt smooth boundary to Stratum 5.

Stratum 5 is dark brown (7.5YR4/4) or dark yellowish-brown (10YR4/4). It is a massive, friable, non-sticky, non-plastic, weakly cemented, very fine sand. The deposit exhibits large common distinct pale brown (10YR6/3 or 6/8) mottles. Root channels show the same strong brown, iron oxide coloring. There is an abrupt smooth boundary to Stratum 4.

Stratum 4 is a yellowish-brown (10YR5/6 or 5/8) or brownish-yellow (10YR6/8), massive, very friable, non-plastic, non-sticky, very fine sand. In most locations the deposit is weakly cemented, although in the 489.5N/100E column it is loose. The deposit makes an abrupt or very abrupt transition to Stratum 3.

Stratum 3 is dark brown (7.5YR4/4), strong brown (7.5YR5/6) or dark yellowish-brown (10YR4/4) as in the 489.5N/100E column. The deposit is a massive, friable, non-sticky, non-plastic, very fine sand, weakly to very weakly cemented. It makes an abrupt smooth or gradual wavy boundary to Stratum 2.

Stratum 2 is a brownish-yellow (10YR6/8) or brown (7.5YR5/4), massive, friable or loose, non-sticky, non-plastic, very fine sand. In the 489.5N/100E location there is an abrupt smooth boundary to Stratum 1.

Stratum 1 was identified in the 489.5N/100E location at 1.3m below the surface. It is a dark yellowish-brown (10YR4/4), massive, friable, very weakly cemented, non-plastic, non-sticky, very fine sand.

Lithic Artifacts
(C. Clifford Boyd, Jr.)

Lithic artifacts from 40RE107 were analyzed using the Tellico Low-Level (Nominal) Lithic Analysis Format from the Tellico Reservoir Archaeological Survey (Davis et al. 1980, 1982). This format and comparable analysis were applied to lithic artifacts recovered at 40RE108 and 40RE124. Three nominal attributes--working edge modification, technological class/projectile point type, and raw material--were coded for each artifact. The attribute states for each of these attributes have been previously defined in reports by Kimball (1980, 1982, 1985), and their definitions are not repeated in detail here. This nominal attribute coding system has also been used in other analyses of lithic artifact collections from East Tennessee (Baden 1983; Boyd 1986; Schroedl et al. 1985).

Lithic Tools and Debitage

Excavations at 40RE107 produced only 58 lithic artifacts (Table 3). Most of these artifacts (n=48) were either unmodified stones or tested nodules, core, decortication and bifacial thinning debitage. No temporally diagnostic tools or projectile points were recovered. The formal tools which were identified are discussed below.

Table 3. Stratigraphic Distribution of Lithic Tools and Debitage at 40RE107.

	Stratum			Square/Level						
Class	1-4	1-5	1-7	10-2	10-5	11-2	12-1	12-4	13-1	Total
Piece esquillee	-	1	-	-	-	-	-	-	-	1
Tested nodule	-	1	-	-	-	-	-	1	-	2
Amorphous core	-	1	1	-	-	-	1	-	-	3
Bipolar core	1	-	-	-	-	-	-	-	-	1
Biface	-	1	-	-	-	1	-	-	-	2
Preform	-	1	-	-	-	-	-	-	-	1
Projectile point fragment	-	1	-	-	-	-	-	1	-	2
Utilized debitage	-	-	1	1	1	-	1	-	-	4
Unmodified stone	-	-	-	1	-	-	-	6	-	7
Unutilized debitage	-	17	3	2	1	-	11	-	1	35
Total	1	23	5	4	2	1	13	8	1	58

Piece Esquillee (n=1) This is a rectangular or square implement whose crushed edges are produced by bipolar percussion (Kimball 1980:83). One piece esquillee of dark grey chert was recovered from Stratum 1-5.

Amorphous Core (n=3) A core with several flake scars in a random, multidirectional pattern. One was recovered from Stratum 1-5, one from Stratum 1-7 and one from Square 12, Level 1.

Bipolar Core (n=1) A core reduced by bipolar percussion (Kimball 1980:85), producing crushing and well defined compression rings (Muto 1971:Figure 15). The single bipolar core came from Stratum 1-4 and was produced from transluscent grey-green chert (Kimball 1985:120).

Biface (n=2) A flake or core blank with regular flake scars on both faces. One biface was recovered from Stratum 1-5 and one from 11P. Both were produced from dark grey chert.

Preform (n=1) Preforms are triangular or ovate pieces shaped by percussion flaking. They are considered here as intermediate stages in projectile point

manufacture. A single preform fragment was recovered from Stratum 1-5 and was produced from transluscent grey-green chert.

Projectile point fragment (n=2) A portion of a projectile point which is too fragmentary to be assigned a temporal or cultural affiliation. One fragment was recovered from Stratum 1-5 and one from Square 12, Level 4. One was produced from dark grey chert and one from transluscent grey-green chert.

Lithic Raw Material Use

The Ordovician Chickamauga and Knox Groups are the major geological formations at or near 40RE107 (Swingle et al. 1966). The cherts from these formations, as well as the Copper Ridge Dolomite to the north of the site area, could have been easily exploited by the inhabitants of 40RE107. A rank-ordering of the lithic artifacts from the site in terms of the five most prevalent raw material attribute states indicates exclusive exploitation of these local resources (Table 4). The cherts in Table 4 are briefly described below. More detailed descriptions are provided in Kimball (1985:88-120).

Table 4. Rank-Ordering of Five Most Common Lithic Raw Materials at 40RE107.

Rank-Order (most to least common)	Raw Material Class	% of Total
1	Dark Grey Chert	26
2	Transluscent Grey-Green Chert	22
3	Other Local Chert	14
4	Porcellaneous Chert	10
5	Chickamauga Red-Brown Jaspery Chert	9

Dark Grey Chert A probable Knox Group chert with a uniform dark grey color and a fine-grained, siliceous texture. Grey color is also produced in some cases by heat alteration.

Transluscent Grey-Green Chert A Chickamauga Group chert which is fine-grained, lustrous and transluscent. It contains irregular inclusions, giving it a greenish, "smoky" appearance when held to the light.

Other Local Chert This category includes cherts which cannot be assigned to a specific class, but appear to be local in derivation.

Porcellaneous Chert A probable Knox Group chert with a dull, light colored, opaque nucleus.

Chickamauga Red-Brown Jaspery Chert This Chickamauga Group chert is relatively fine-grained and opaque, and generally has a mustard yellow color with red, brown and white inclusions.

Summary

The few lithic artifacts recovered from 40RE107 did not include any temporally diagnostic tools; instead, these artifacts primarily represented the by-products of lithic tool production. As represented by the collection from the site, local chert resources were exploited for the raw materials for tool manufacture.

EXCAVATIONS AT 40RE108

Location

Site 40RE108 is located[Exempted from disclosure by statute] Exempted from disclosure by statute] [Exempted from disclos Exempted from disclosure by statute] Exempted from disclosure by statute] [Exempted from disclosure by statute] [Exempted from disclosure by statute]

Culture materials are[Exempted from disclosure by statute] respectively designated Areas 1, 2, 3, and 4 (Figure 14). Area 2 is found at [Exempted from disclosure by statute] [Exempted from disclosure by statute] Site 40RE129, a modern Anglo-American dirt pile (see Schroedl 1974b), is found Exempted from disclosure by statute Area 2. A shell midden Exempted from disclosure by statute] [Exempted from disclosure by statute] was the objective of excavations in this area.

Area 1, [Exempted from disclosure by statute] where initial excavations were conducted at 40RE108, is approximately[Exempted from disclosure by statute] from Area 2 (Figure 15). A small shell midden and adjacent culture deposits are evident [Exempted from disclosure by statute] Area 3 is[Exempted from disclosure by statute] from Area 1 [Exempted from disclosure by statute] and it too includes a small shell midden and associated culture deposits (UTM Zone 16 39 75630N, 7 35900E). Archaeological deposits, but containing no associated shell deposits, located[Exempted from disclosure by statute] of Area 3 constitute Area 4 [Exempted from disclosure by statute].

A single excavation grid of 2 m squares and the same datum with an arbitrary elevation of 100 m was used for horizontal and vertical control in all four excavation areas. The grid is oriented N 10°E. Excavations in Area 1 took place within coordinates 38-70S/22-46E, while those in Area 2 were within 248-274S/12-28W. Area 3 coordinates included 88-98N/24-30E and those in Area 4 were 166-172N/24-30E and 226-230N/16-26E. The general approach to the excavations was to expose the culture sediments, especially shell deposits, over most of this area and to obtain a reasonably long stratigraphic record of the occupations represented. This approach was implemented by conducting hand excavations adjacent to backhoe trenches. The trenches served as stratigraphic control and were used to determine the horizontal occurrences of the culture deposits.

Area 1

Excavations in Area 1 incorporated four of nine 3 by 3 ft test pits excavated in 1972 (Figure 16). These pits and two backhoe trenches were located so that an excavation block could be centered on the small shell midden[Exempted from disclosure by statute] Eventually an 8 by 10 m excavation of 2 m squares was used to remove the shell midden and associated sediments. Three additional 2 m squares were excavated at 52-54S/24-28E and at 68-70S/24-26E. Most sediments were removed in 20 cm levels and waterscreened through quarter inch mesh screen. The shell deposit was excavated stratigraphically with a

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 13. Contour map and plan of excavations at 40RE108 (adapted from Liquid Metal Fast Breeder Reactor Map 90-MS-461 P 501-105, 107).

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 14. Low oblique view of 40RE108, view north.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 15. Low oblique view of 40RE108, Area 1, view north-northwest.

Figure 16. Plan of excavations at 40RE108, Area 1.

40 l shell sample obtained from each square. All shell was collected from squares containing less than this amount.

Area 2

Four backhoe trenches were used to isolate buried shell deposits in Area 2, which were investigated using two small excavation blocks with grid coordinates 250-253S/16-20W and 256-262S/18-22W (Figure 17). Sediments above the shell deposits were trowel sorted for archaeological remains. The shell deposit and dark organic sediments above and below it were waterscreened through quarter inch mesh screen and samples of shells were retained in the same manner as Area 1. Other than the shell deposits, no occupation features were encountered in Area 2.

Area 3

Area 3 was initially tested with two 1 by 2 m excavations, dug to a depth of 1.4 m (Figure 18). Subsequently a backhoe trench, a 2 m square at 94-96N/24-30E, and two 2 m squares connected by a 1 by 2 m excavation at 88-90N/24-30 were used to investigate the deposits (Figure 19). A small shell deposit[Exempted from disclosure by statute]was the objective of the excavations. The sediments, as elsewhere at the site, were removed in 20 cm levels, but none, except for the shell deposit, was screened. Most of the shell was kept for species identification. The excavations were completed to depths of 1 to 1.6 m. No other archaeological deposits were isolated in Area 3.

Area 4

Of five backhoe trenches located in Area 4, two were coincident with previously excavated 1 by 2 m test pits. Two contiguous 2 m squares were dug adjacent to one trench, one pit was completed at 0.6 m and the other was dug 1.6 m deep (Figure 20). Approximately 40 m north, connecting 1 by 2 m and 2 by 2 m excavations were placed next to another backhoe trench (Figure 21). These pits were excavated 1.2 and 1.4 m deep. As elsewhere, 20 cm arbitrary levels were used to remove the sediments, but none of the soil in Area 4 was screened. No archaeological features and very little cultural debris were recovered in the excavation.

Stratigraphy

The 40RE108 site sediments are derived from the vertical accretion of fine grain alluvial sediments, mostly silt and fine sands, the lateral accretion of coarser alluvial sands, and the intermittent deposition of dense layers of freshwater mollusks by the site inhabitants. The sequence of the sediments and their topography indicate that the shell deposits were created primarily by dumping the river mussels and accompanying culture debris[Exempted from disclosure by statute] [Exempted from disclosure by statute] These remains were then buried by lateral accretion of point bar sediments. Occupation areas from which these debris came were not located at the site, most likely having been removed by sheet

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 17. Plan of excavations at 40RE108, Area 2.

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 18. Plan of excavations at 40RE108, Area 3.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 19. Excavations at 40RE108, Area 3, view west.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 20. Excavations at 40RE108, Area 4, view north.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 21. Plan of excavations at 40RE108, Area 4.

erosion and plowing. The only occupation surface uncovered was in Area 1, but it was not very large, contained comparatively small numbers of artifacts, and few post molds and occupation facilities. It dates to the Early Woodland period.

The stratigraphy at 40RE108 was defined and described from backhoe trenches and excavation profiles. Each excavation area was treated separately, and except for matching deposits chronologically according to the artifacts they contained, no attempt was made to correlate alluvial deposits from area to area. The complexity of doing this is demonstrated by the distance between excavation areas where none is closer than 50 m to another. This difficulty is further illustrated by the occurrence of cultural remains at nearly the same elevation [Exempted from disclosure by statute] that differ by 500 or more years in age. The sediments are described for each area below. Standard soils terminology is used throughout, and Munsell colors are for moist deposits unless indicated differently.

Area 1

[Exempted from disclosure by statute]
[Exempted from disclosure by statute]
[Exempted from disclosure by statute] Although excavations were made no more than about 1.2 m below the surface, 11 distinctive deposits were recorded in the exposed profiles (Figure 23). Backhoe trenches 1 and 2 were dug about 1 m deeper, but both trenches collapsed when the site [Exempted from disclosure by statute] shortly after their excavation. No cultural remains were evident in the deeper portions of these trenches.

In Area 1, four deposits have associated cultural debris representing as many as three archaeological periods. Strata 1-8 and 1-9 are a shell layer and associated sediments containing Middle Woodland period ceramics (Figure 24). Ceramics in Stratum 1-6 indicate an Early Woodland period occupation. Below this, Strata 1-5 and 1-4 contain virtually no cultural remains. Found in Stratum 1-3 are abundant firecracked rocks and scattered charcoal. No ceramics come from this deposit, and the small number of diagnostic lithic artifacts recovered from it could represent a second Early Woodland occupation or a Late Archaic period component.

Detailed stratigraphic descriptions were made at two locations to account for a complete sequence of sediments. One is at 50S/22E and the other is at 44.5S/30E.

Stratum 1-11 is a brown (10YR4/3), weak, coarse, subangular, blocky, non-sticky, non-plastic, very friable, sandy loam. There is a clear wavy boundary to Stratum 1-10.

Stratum 1-10 is yellowish-brown (10YR5/6) massive, non-sticky, non-plastic, medium sand. Within the deposit are moderately abundant thin (<1cm) silt loam layers. There is an abrupt smooth boundary to Stratum 1-9.

Stratum 1-9 is a moderately thin layer of river mussel shell, exposed in the profile over a distance about 1.5 m. The horizontal exposure of this

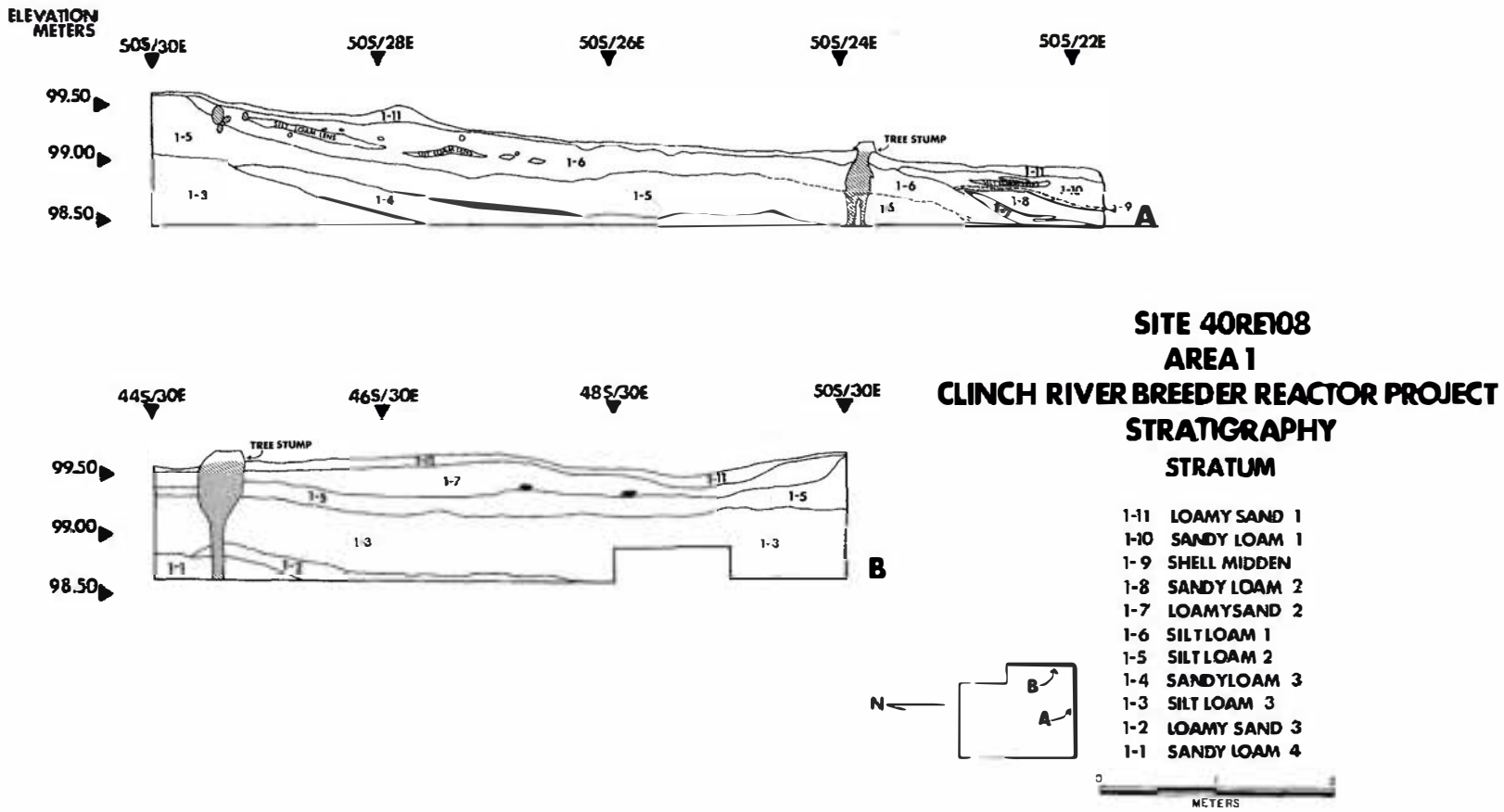


Figure 22. Stratigraphic profiles at 40RE108, Area 1.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 23. South profile at 50S/22-30E, 40RE108, Area 1.

Figure 24. Horizontal exposure of Stratum 1-9 (Feature 7) at 40RE108, Area 1, view east.

deposit was recorded as Feature 7. There is an abrupt smooth boundary to Stratum 1-8.

Stratum 1-8 is a dark brown (10YR3/3), weak, coarse, angular, blocky, firm, slightly plastic, non-sticky, fine sandy loam. This deposit makes a clear wavy boundary to Stratum 1-7.

Stratum 1-7 is a yellowish-brown (10YR5/6) massive, very friable, non-plastic, non-sticky, loamy sand. Stratum 1-7 makes an abrupt smooth boundary to Stratum 1-6.

Stratum 1-6 is a dark brown (10YR3/3), moderate, coarse, angular, blocky, firm, plastic, sticky, silt loam. The surface of Stratum 1-6 slopes abruptly toward the river at 50S/24E. Strata 1-7, 1-8, 1-9, and 1-10 gradually covered and leveled the slope of Stratum 1-6 as they were deposited. There is a smooth gradual boundary to Stratum 1-5 elsewhere along the 50 South and 30 East profiles.

Stratum 1-5 is a dark brown (10YR3/3) massive, firm, plastic, sticky, silt loam. It is virtually identical to Stratum 1-6, but contains none of the cultural debris found in it. Stratum 1-5 makes a smooth gradual transition to Stratum 1-4.

Stratum 1-4 is a yellow-brown (10YR5/6) massive, friable, non-sticky, non-plastic sandy loam. It is at the profile base along most of the 50 South exposure and is not present in the 30 East profile. There is gradual wavy boundary to Stratum 1-3.

Stratum 1-3 is a dark yellowish-brown (10YR4/4), coarse, angular, blocky, firm, plastic, slightly sticky, silt loam. There is a clear wavy boundary to Stratum 1-2.

Stratum 1-2 is a yellowish-brown (10YR5/6) massive, very friable, non-plastic, non-sticky, loamy sand. There is a clear smooth boundary to the lower-most deposit recorded in Area 1.

Stratum 1-1 is a dark yellowish-brown (10YR4/4), weak, coarse, subangular, blocky, friable, plastic, slightly sticky, sandy loam. Stratum 1-1 as well as 1-2 are exposed only along the 30 East profile.

Area 2

Shown in Figure 25 are the north profiles of two backhoe trenches that bracket the dense shell layers that were the objective of excavations in Area 2. The description given below is based primarily on detailed examination at 262S/20W. There are nine deposits defined in the profiles, but only Stratum 2-5 represents undisturbed culture deposits. Ceramic artifacts found in this layer indicate a Middle Woodland period occupation comparable to that found in Strata 1-8 and 1-9 in Area 1. Very few cultural remains were recovered from other deposits investigated in Area 2.

Stratum 2-9 represents a weakly developed A soil horizon and is a dark grayish-brown (10YR3/2) loamy sand. It has moderate, medium crumb structure

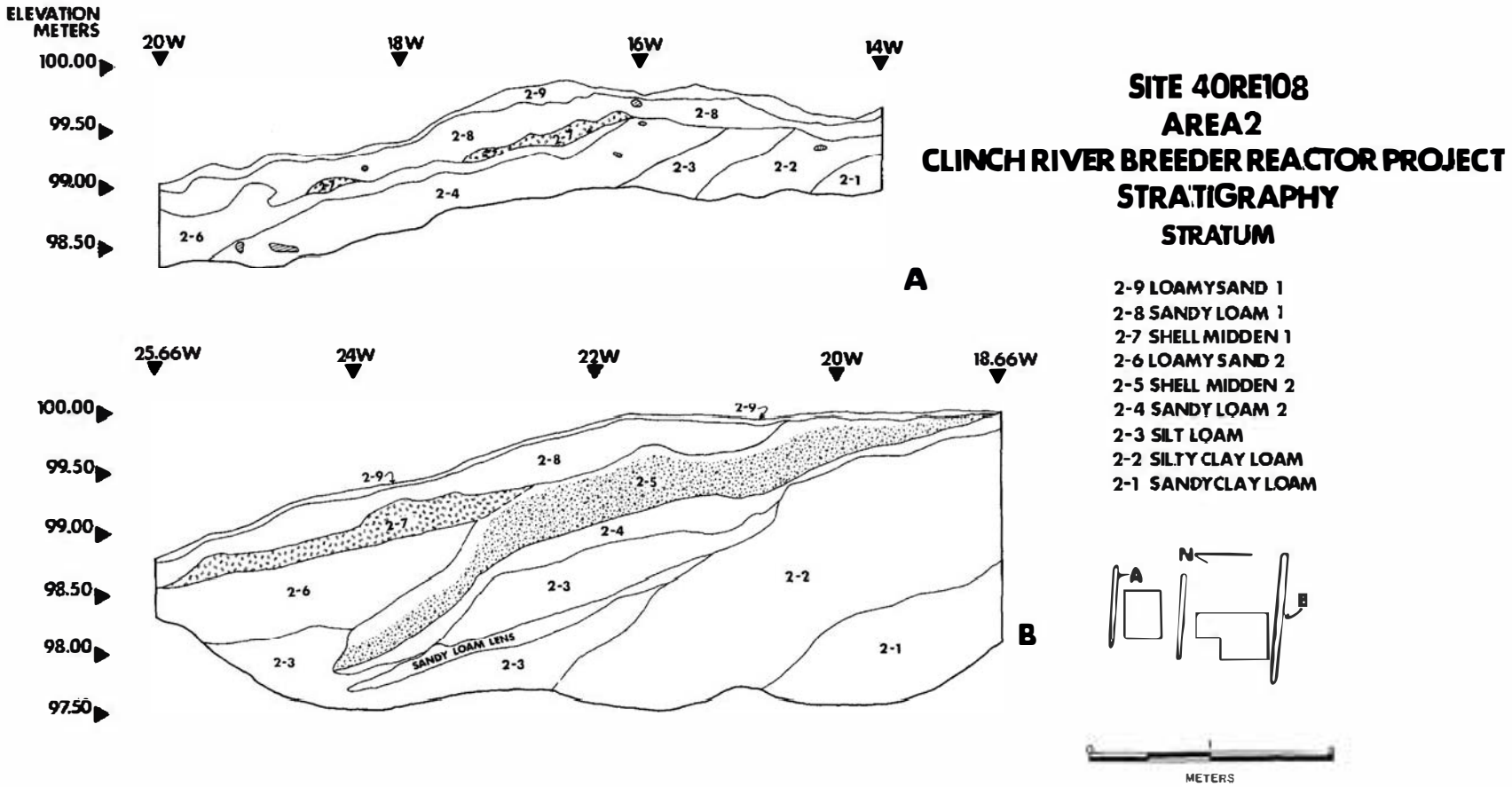


Figure 25. Stratigraphic profiles at 40RE108, Area 2.

and is slightly plastic and slightly sticky, containing plentiful fine roots and plow disturbed river mussel shells. The A horizon has developed into the former plow zone, designated here as Stratum 2-8.

Stratum 2-8 is a brown (10YR4/3), friable, slightly plastic, slightly sticky, sandy loam. At the base of this deposit from 22W to 26W in Figure 25, profile B, is a shell layer designated Stratum 2-7. This represents shell debris deposited downslope from plowing and erosion of Stratum 2-5, rather than a second more recent culture deposit. Unfortunately, no diagnostic culture remains were associated with the layer. Strata 2-7 and 2-8 respectively make abrupt smooth transitions to Stratum 2-6 and Stratum 2-5.

Stratum 2-6 is a dark brown (10YR3/3) friable, slightly plastic and slightly sticky, loamy sand. This deposit, in some locations, has moderate, coarse, subangular, blocky structure and is a silt loam texture. Stratum 2-6 accumulated comparatively rapidly following the deposition of the shell layer, Stratum 2-5.

Stratum 2-5 consists of densely packed river mussel shells, exposed at the surface on the east and sloping gradually for about 4 m to the west before sloping abruptly on its western edge, where it is buried about 1.4 m deep. The deposit has a maximum thickness of about 40 cm (Figure 26). There is an abrupt smooth boundary to Stratum 2-4.

Stratum 2-4 is a very dark grayish-brown (10YR3/2) moderate, coarse, subangular, blocky, friable, plastic, sticky, sandy loam or sandy clay loam, depending upon location. This deposit makes a smooth gradual transition to Stratum 2-3.

Stratum 2-3 is a dark yellowish-brown, moderate, coarse, subangular, blocky, friable, plastic, sticky, silt loam. There is a gradual smooth boundary to Stratum 2-2.

Stratum 2-2 is a dark brown (10YR3/3), moderate, coarse subangular, blocky, friable, plastic and sticky, silty clay loam or silt loam, depending upon location in the profile. It makes an abrupt smooth transition to Stratum 2-1.

Stratum 2-1 is the lower-most deposit recorded in Area 2. It is a yellowish-brown (10YR5/6), massive, friable, plastic and sticky, sandy clay loam. Strata 2-1, as well as 2-2, 2-3, and 2-4 exhibit abrupt and moderately steep slopes toward the present river bank (i.e. grid west).

Area 3

The sediments found in Area 3 are shown in Figures 27 and 28. The profile in Figure 28 is the south face of a backhoe trench dug perpendicular to [Exempted from disclosure by statute] Of seven deposits observed in Area 3, only Stratum 3-4, a dense layer of river mussel shells, and Stratum 3-3 contained cultural remains, but unlike Areas 1 and 2, ceramic artifacts indicate an Early Mississippian period component.

Figure 26. Horizontal exposure of Stratum 2-5 at 40RE108, Area 2, view south.

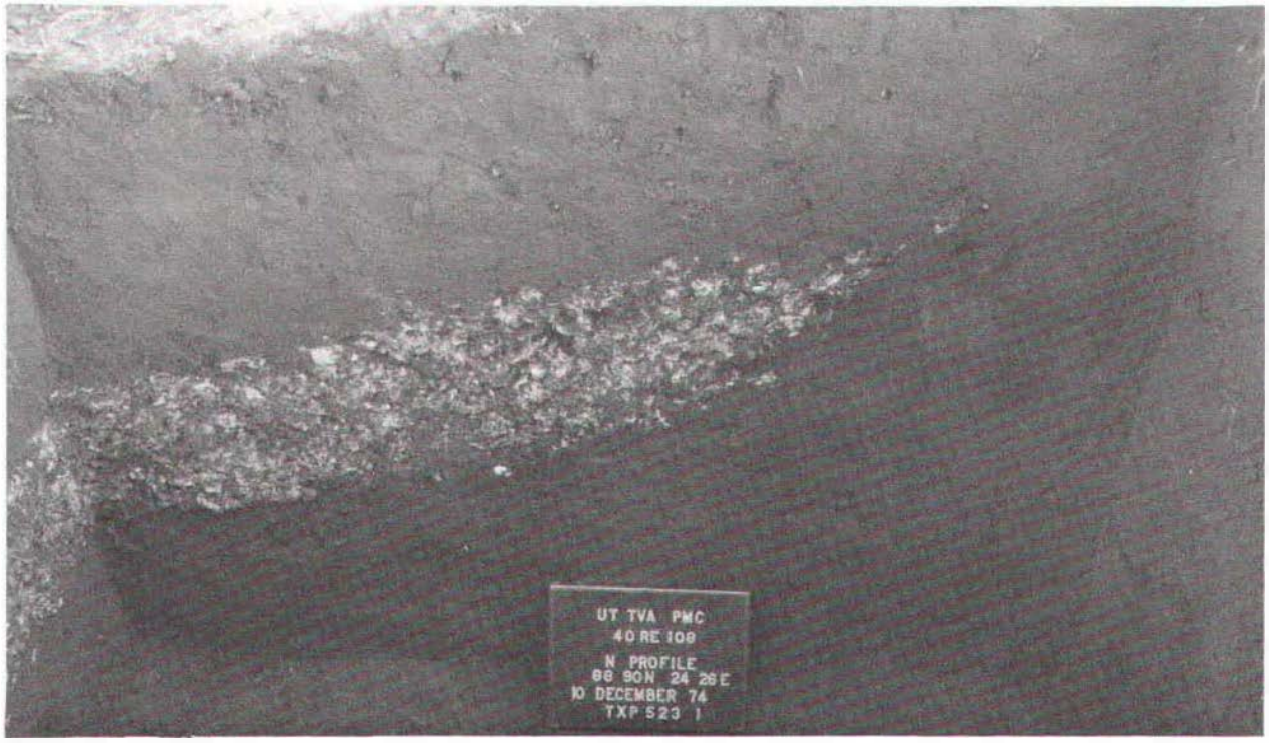


Figure 27. North profile of 88-90N/24-26E at 40RE108, Area 3, showing shell deposit.

Stratum 3-7 is a brown (10YR4/3) massive, friable, non-plastic, non-sticky, sandy loam, with plentiful fine and medium roots. This is the former plowzone and shows the effects of recent land clearing and soil horizon development which has taken place over the past 40 years. There is an abrupt smooth boundary to Stratum 3-6.

Stratum 3-6 is a yellowish-brown (10YR5/4), massive, very friable, non-plastic, non-sticky, very fine loamy sand. The transition to Stratum 3-5 is an abrupt smooth boundary.

Stratum 3-5 is a dark brown (10YR3/3), moderate, coarse, subangular, blocky, friable, slightly plastic, slightly sticky, silt loam. The deposit contains abundant fine and plentiful medium roots and makes an abrupt smooth transition to Strata 3-3 and 3-4.

Stratum 3-4 is a deposit of densely packed river mussel shells measuring about 2 m long and 30 to 50 cm thick in the exposed profile. There is an abrupt smooth boundary to Stratum 3-3.

Stratum 3-3 is a very dark grayish-brown (10YR3/2), moderate, medium, subangular, blocky, firm, plastic, sticky, silt loam. There is a clear wavy boundary to Stratum 3-2.

Stratum 3-2 is a brown (10YR4/3), firm, plastic, sticky, silty clay loam. The sediments have a strong medium prismatic structure that breaks to moderate, medium, subangular, blocky. The deposit makes a clear smooth transition to Stratum 3-1.

Stratum 3-1 is a brown (10YR4/3), massive, friable, non-plastic, non-sticky, very fine sand. This is the earliest deposit recorded in Area 3.

Area 4

Excavations in Area 4 were carried out in two locations approximately 60 m from one another. For this reason, it was impossible to correlate individual deposits from one location to the other and the sediments were described and labeled separately. Thus, individual deposits in the vicinity of 166-172N/24-30E and Backhoe Trench 2 are designated 4.1 followed by the stratum number, while in the vicinity of 226-230N/18-26E and Backhoe Trench 5 each stratum is prefixed by the number 4.2. Very little cultural material came from excavations in Area 4 and no one stratum can be associated with a particular cultural occupation.

Twelve strata occur in Backhoe Trench 2 (Figure 29):

Stratum 4.1-12 is an A1 soil horizon that has developed in previously plowed sediments (Stratum 4.1-11). It is a dark yellowish-brown (10YR4/3), fine, subangular blocky, friable, plastic, slightly sticky, silt loam. The deposit has abundant fine and medium roots and makes a gradual wavy boundary to Stratum 4.1-11 or a smooth abrupt boundary to Stratum 4.1-10.

Stratum 4.1-11 is a yellowish-brown (10YR5/6), massive, very friable, non-plastic, non-sticky, medium sand. That Stratum 4.1-11 was deposited in

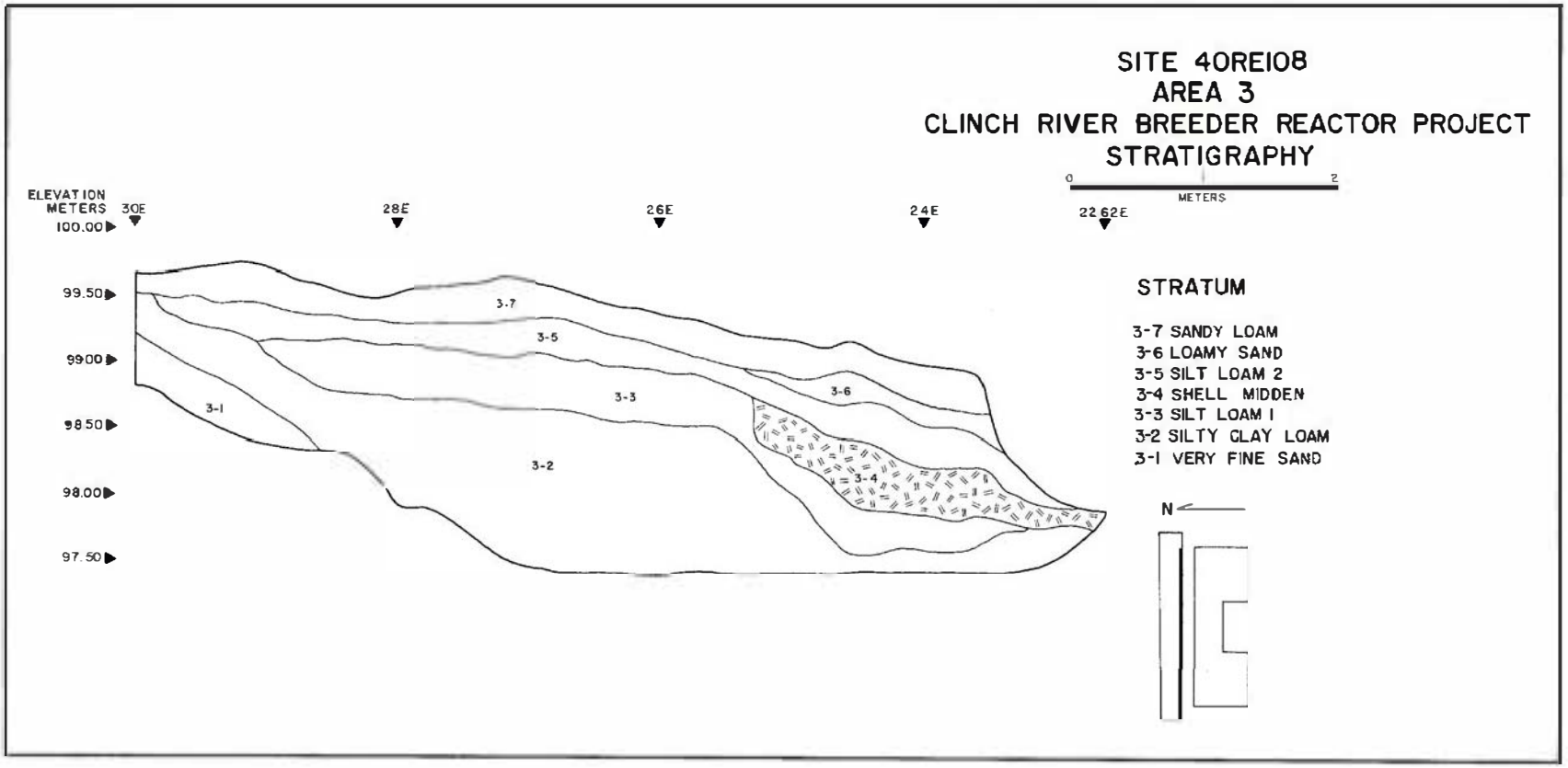


Figure 28. Stratigraphic profile at 40RE108, Area 3.

the past 40 to 50 years is suggested by its stratigraphic position above the former plowzone (Stratum 4.1-10). It makes an abrupt smooth transition to Stratum 4.1-10.

Stratum 4.1-10 is a very dark grayish-brown (10YR3/2), moderate, coarse crumb, friable, slightly plastic, slightly sticky, silt loam. This deposit is a probable buried plowzone that dates to the 1940s. There is an abrupt smooth boundary to Stratum 4.1-8 and 4.1-9 and gradual wavy boundary to Stratum 4.1-4.

Stratum 4.1-9 is a brown (10YR4/3) lens of very fine sand within Stratum 4.1-10 at the west end of Backhoe Trench 2.

Stratum 4.1-8 is a dark yellowish (10YR4/4), massive, firm, slightly plastic, slightly sticky, sandy loam. It makes a clear smooth transition to Stratum 4.1-7.

Stratum 4.1-7 is a dark yellowish-brown (10YR4/4), massive, friable, non-plastic, non-sticky, sandy loam that makes a clear wavy boundary to Stratum 4.1-6.

Stratum 4.1-6 is a yellowish-brown (10YR5/6), massive, very friable, non-sticky, non-plastic, very fine sand. There is a clear wavy boundary to Stratum 4.1-5.

Stratum 4.1-5 is a brown (10YR4/3) to dark brown (10YR3/3), moderate, coarse, subangular blocky, slightly plastic, slightly sticky, sandy loam. Near the base of the deposit, the sediments have gleyed clay skins on the ped surfaces, which are light brownish-gray (10YR6/2). Stratum 4.1-5 contains small amounts of culture material. The stratum makes an abrupt smooth boundary to adjacent strata. Strata 4.1-5 through 4.1-8 surely represent the lateral accretion of coarser sediments (sand) against the former riverbank marked most prominently by the slope of Stratum 4.1-4.

Stratum 4.1-4 is a dark brown (10YR4/3), moderate, coarse, subangular, blocky, friable, plastic, sticky, silt loam. There is a clear wavy boundary to Stratum 4.1-3.

Stratum 4.1-3 is a yellowish-brown (10YR5/6), massive, very friable, non-sticky, non-plastic, medium sand.

In Backhoe Trench 5 and adjacent excavations, ten deposits were recorded to a maximum depth of 1.8 m. The same general pattern of a buried slope, as seen in Backhoe Trench 2, was recorded in Backhoe Trench 5 (Figure 29). The sediments in Backhoe Trench 5, however, are generally finer-grained with more silt and silty clay deposits. Stratum 4.2-9 and 4.2-6 contained small amounts of culture residues, but none are diagnostic of an archaeological culture.

Stratum 4.2-10 is a dark yellowish-brown (10YR4/4), moderate coarse, subangular, blocky, firm, plastic, slightly sticky, silt loam. Ped surfaces exhibit thin clay skins and the deposit contains plentiful fine and medium roots. Stratum 4.2-10 is the former plowzone and it makes an abrupt smooth boundary to Stratum 4.2-9 and 4.2-5.

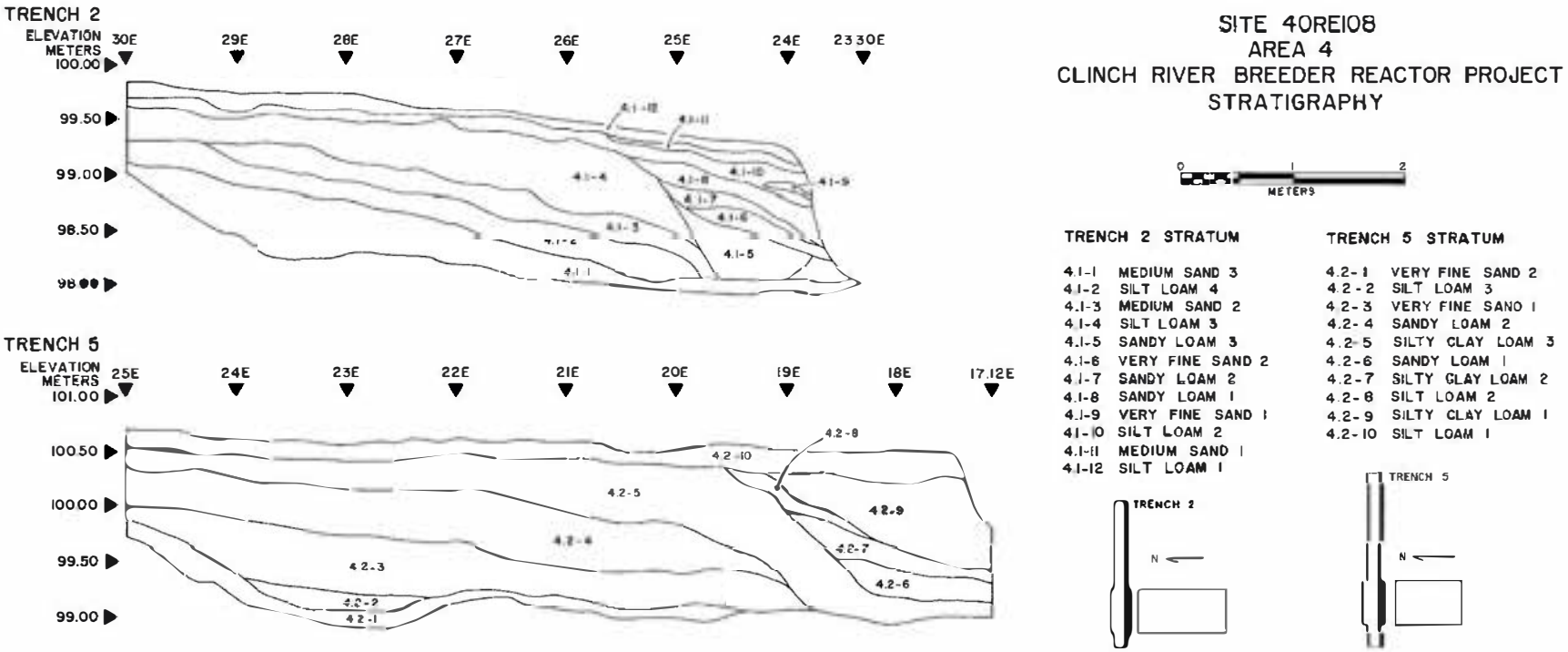


Figure 29. Stratigraphic profiles at 40RE108, Area 4.

Stratum 4.2-9 is a dark brown (10YR4/3), strong, medium, prismatic, breaking to moderate, coarse, subangular blocky, silty clay loam. The ped surfaces have thin clay skins and the deposits are firm, plastic, and sticky. There is a clear wavy boundary to Stratum 4.2-8.

Stratum 4.2-8 is a brown (10YR4/3), moderate, medium, subangular, blocky, friable, plastic, sticky, silt loam. There is a clear wavy boundary to Stratum 4.2-7.

Stratum 4.2-7 is a dark yellowish-brown (10YR4/4), firm, plastic, sticky, silty clay loam. The structure of the deposit is moderate, medium, prismatic, breaking to moderate, medium, subangular, blocky, with thin clay skins on the ped surfaces. There is an abrupt smooth boundary to Stratum 4.2-6.

Stratum 4.2-6 is a dark brown (10YR3/3), moderate, coarse, subangular blocky, friable, slightly plastic, sticky, sandy loam. There is a gradual wavy boundary to Stratum 4.2-5.

Stratum 4.2-5 is a dark yellowish-brown (10YR4/4), friable, plastic, sticky, silty clay loam. The deposit has moderate, medium, prismatic, breaking to moderate, coarse, subangular blocky structure and thin clay skins occur on most ped surfaces. There is a clear smooth boundary to Stratum 4.2-4.

Stratum 4.2-4 is a dark brown (10YR3/3), massive, friable, slightly plastic, slightly sticky, sandy loam. There is an abrupt smooth boundary to Stratum 4.2-3.

Stratum 4.2-3 is a yellowish-brown (10YR5/6), massive, very friable, non-sticky, non-plastic, very fine sand. The top of Stratum 4.2-3, between 21 and 24 East is marked by weakly cemented, strong brown (7.5YR5/6) very fine sand and very fine loose sand that is brownish yellow (10YR6/8). At the base of Stratum 4.2-3 there is a clear smooth boundary to Stratum 4.2-2.

Stratum 4.2-2 is a yellowish-brown (10YR4/6), plastic, sticky, silt loam. There is an abrupt smooth boundary to Stratum 4.2-1.

Stratum 4.2-1 is the lower-most deposit recorded in Backhoe Trench 5 and is a yellowish-brown (10YR5/6), massive, very friable, non-sticky, non-plastic, very fine sand.

Features

In Areas 2 and 3, layers of river mussel shells were recorded and excavated as strata. No feature numbers were assigned to them and no other occupational facilities such as hearths, pits, or burials were discovered during excavation in these two areas. Similarly no features of any kind were observed in Area 4. In Area 1, eight soil disturbances and the shell deposit (Stratum 1-9) received feature designations.

Feature 1 is the remnant of a small pit or erosional gully exposed in the riverbank downslope from the shell layer. It contained three small pieces of burned bone and a small limestone tempered residual plain sherd. Because

of the slope of the stratigraphy, Feature 1 is probably associated with Stratum 1-8.

Feature 2 is a concentration of firecracked rocks, charcoal, and burned soil with dimensions of 50 by 39 cm in Square 47-48S/40-42E . The feature occurs at the base of the plow zone and since archaeological deposits are not preserved at this depth in this portion of the site, it is likely that Feature 2 is a modern disturbance from farming or logging activities.

Feature 3 is a small oval pit, measuring 65 by 37 cm. The pit floor is stepped and has a maximum depth of 35 cm. The dark fill of the feature contained small amounts of charcoal, broken rocks, and bone fragments. One grit tempered cordmarked sherd came from the feature. The pit is associated with Stratum 1-6.

Feature 4 is a shallow oval pit measuring 61 cm long by 50 cm wide by 12 cm deep. The feature is associated with Stratum 1-6 in Square 52-54S/24-26E and contained a small number of firecracked rocks and chipping debris, but no ceramic artifacts. Hickory nut and walnut shell were identified in botanical samples from this feature.

Feature 5 is an oval concentration of ceramic and lithic artifacts, firecracked rocks, charred botanical remains, vertebrate faunal remains, and river mussel shells. The feature is 2.1 m by 1.9 m and is about 10 cm thick (Figure 30). Most faunal, botanical, and freshwater mollusk remains associated with Stratum 1-6 came from this feature (Figure 31). Grit tempered ceramics were found in the feature and charcoal from it dated 520±160 years B.C.

Feature 6 was a small concentration of firecracked rocks and charcoal in Stratum 1-3 in Square 52-54S/26-28E. When the site was flooded in December 1973, most of this feature was destroyed before it could be recorded.

Feature 7 was used to designate the shell layer (Stratum 1-9) exposed in the riverbank. When fully excavated the deposit had a slightly irregular oval outline and measured 5.2 m long by 1.9 m wide. The layer was 1 to 3 cm thick at the edges with its greatest thickness of 10 to 15 cm near the center. Beside numerous mussel and gastropod shells, small amounts of well preserved faunal remains, and botanical remains were found in the feature. Hickory nut, walnut, and acorn shell as well as hickory, oak, and pine wood charcoal were found in Feature 7. Limestone tempered ceramics and two radiocarbon dates suggest a Middle Woodland period origin for the deposit.

Feature 8 is a small patch of dark soil, firecracked rocks, and a deer mandible exposed in the south profile of Backhoe Trench 2. The deposit is about 1 m long and 20 cm thick and slopes down toward the riverbank at about 20 degrees. These deposits are stratigraphically correlated with Stratum 1-6.

Feature 9 is a small circular globular pit filled with firecracked rocks associated with Feature 5 in Stratum 1-6. The feature is 40 cm in diameter and 11 cm deep. Burned earth within the matrix of the feature fill suggests use as a fire pit or oven.

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Figure 30. Feature 5 at 40RE108, Area 1, view east.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 31. Horizontal exposure of Stratum 1-6 at 40RE108, Area 1, view west.

Postmolds were few in number at 40RE108 and seven of 15 soil disturbances which were initially considered postmolds and assigned numbers, were determined to be rodent burrows or tree roots (Table 5). All the postmolds were detected in Area 1 where five are associated with Stratum 1-3, two were observed in Stratum 1-9, and a single example was found in Stratum 1-6.

Table 5. Occurrence of Postmolds at 40RE108.

Postmold		Diameter (cm)	Depth (cm)	Stratum
1		12	10	1-3
2		17	15	1-3
3	(Rodent Burrow)	-	-	-
4	(Root)	-	-	-
5	(Root)	-	-	-
6	(Root)	-	-	-
7	(Root)	-	-	-
8		10	13	1-3
9	(Rodent Burrow)	-	-	-
10		10	10	1-9
11		10	10	1-9
12		9	9	1-3
13	(Root)	-	-	-
14		12	15	1-6
15		20	40	1-3

It is clear from the kinds of features recorded and their stratigraphic occurrence that habitation areas are best represented in Stratum 1-6. Here Feature 5 could represent a food preparation disposal area. There are too few postmolds and other features to suggest a particular pattern. Stratum 1-9 (Feature 7) represents disposal of river mussel and gastropod shells[Exempted from disclosure by statute] [Exempted from disclosure by statute] Habitation areas, where such refuse might have originated, are not present in the excavation and the stratigraphy indicates that these have been destroyed by erosion and modern plowing. Pottery and lithic artifacts which might still be preserved were infrequently encountered in the plowzone excavations.

Similar situations occur in Areas 2 and 3. River mussel and gastropod refuse along with small amounts of other cultural debris were discarded[Exempted from disclosure by statute] Habitation areas which might be the source of these deposits are now largely incorporated into surface deposits. No facilities are likely preserved and scattered lithic and ceramic artifacts from the plowzone surely constitute the only archaeological record of these occurrences.

Ceramic Artifacts

Described below are ceramic categories that account for the 553 sherds recovered at 40RE108. Limestone tempered sherds were most abundant (n=361, 65.3%) followed by grit tempered (n=103, 18.6%) and shell tempered (n=89, 16.1%) sherds. Most limestone tempered sherds came from Area 2; most grit tempered ceramics were found in Area 1. All shell tempered sherds were recovered in Area 3 and only a single grit tempered sherd was found in Area 4. Besides describing the general characteristics of paste and surface treatment, when possible sherd thickness was measured as were surface treatment motifs. This included measuring and identifying the size and twist of the cordage on cordmarked sherds and the size and shape of stamped impressions. The absence of distinctive impressions, sherd size, and overstamping and smoothing restricted the success of making these observations. Similarly, observations on vessel size and morphology are limited because of sherd size and because only 12 rim sherds occur in the sample. A single conoidal base and several sherds from vessel neck or shoulder areas also were identified. Variation in sherd size was observed by sorting the sherds according to five size intervals: Size 1, less than or equal to 1 cm; Size 2, 1 to 2 cm; Size 3, 2 to 4 cm; Size 4, 4 to 8 cm; and Size 5, greater than 8 cm. Most sherds are Sizes 2 and 3.

Limestone Tempered Plain (Figure 32a)

Recovered limestone tempered plain sherds totaled 89 specimens of which 86 were body sherds and three were rim sherds. Sherd thickness ranges from 40 to 90 mm (n=43) with a mean of 6.3 mm. Temper particles are moderate to coarsely crushed pieces of limestone ranging from 20 to 50 mm in size, with thicker sherds having larger particles. Two rim sherds are straight with a flat lip while the third is straight with a round lip. None is greater than 40 mm in size.

Size	1	2	3	4	5
n=	0	20	66	3	0

Limestone Tempered Cordmarked (Figure 32b,c)

A total of 28 limestone tempered cordmarked sherds were recovered at 40RE108. Two rim sherds are included in the sample. The sherds are 4.6 mm to 7.7 mm thick (mean 6.1 mm, n=16). All the sherds exhibit fine to medium cord impressions 2.0 to 5.0 mm wide. In five instances the cord impressions are S-twist; three sherds show Z-twist impressions. On 11 sherds, the twist of the cordage, although distinct, could not be determined. Cord impressions on the remaining sherds were too obliterated by smoothing to determine the cordage twist. Both rim sherds have straight profiles and rounded lips; on both specimens the cord impressions are vertical to the rim.

Size	1	2	3	4	5
n=	0	4	22	2	0

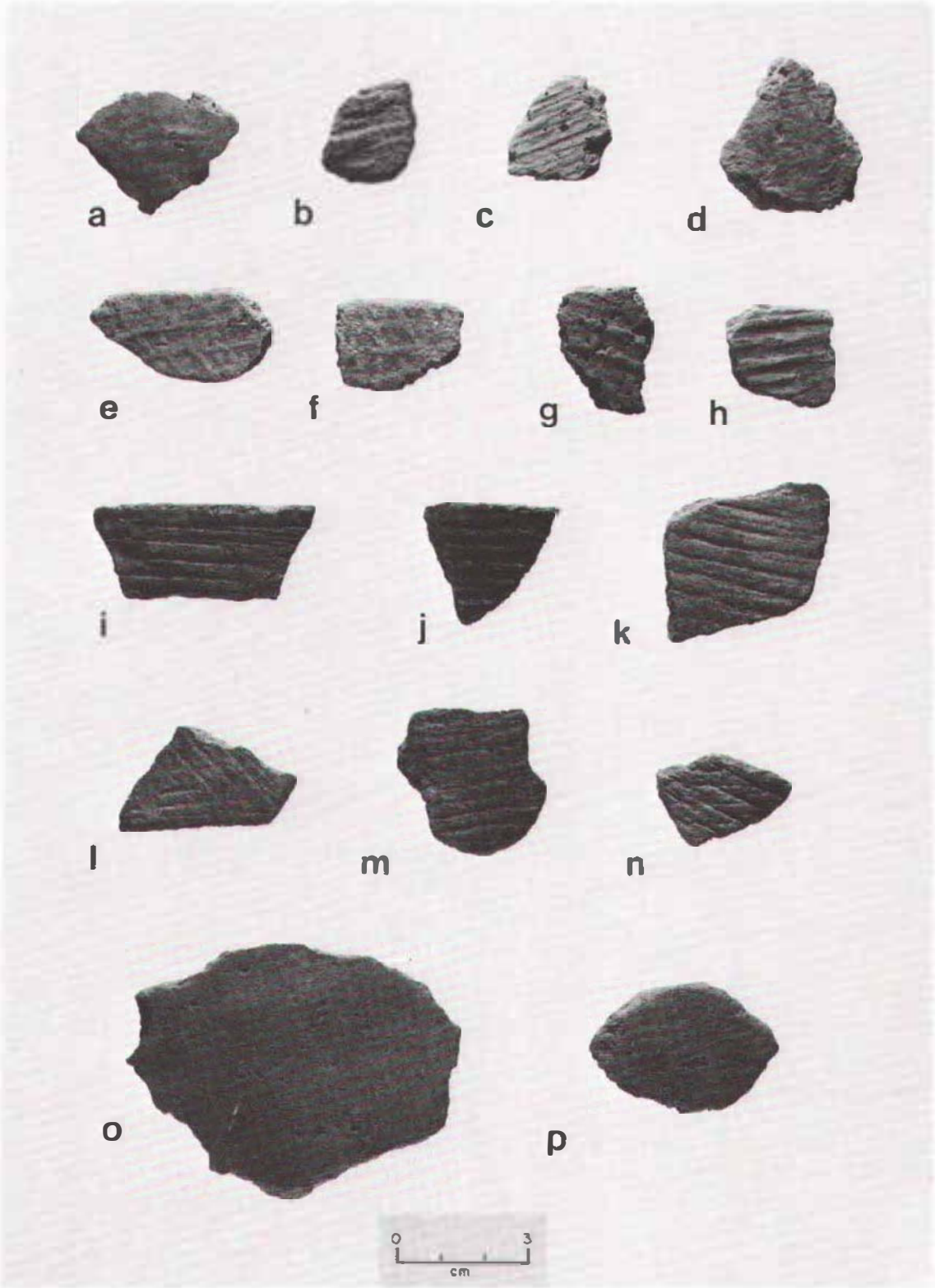


Figure 32. Ceramic artifacts from 40RE108: (a) Limestone Tempered Plain; (b,c) Limestone Tempered Cordmarked; (d) Limestone Tempered Fabric Marked; (e,f) Limestone Tempered Check Stamped; (j,h) Limestone Tempered Simple Stamped; (i-n) Grit Tempered Cordmarked; (o) Shell Tempered Plain; (p) Shell Tempered Cordmarked.

Limestone Tempered Fabric Marked (Figure 32d)

Just six limestone tempered fabric marked body sherds were recovered from the excavations. Four sherds are 7.5 mm thick; the others are respectively 5.8 and 6.9 mm thick. Four sherds are Size 3 and two sherds are Size 2. The sherds are referable to the type Long Branch Fabric Marked.

Limestone Tempered Check Stamped (Figure 32e,f)

The limestone tempered check stamped sherd sample consists of 17 body sherds. The sherds are 4.0 to 7.3 mm thick (mean, 5.7 mm, n=17). Tempering is crushed limestone particles that are 1.0 to 2.0 mm in size included in the paste in moderate to abundant amounts. On most sherds the diamond or check patterns have been smoothed over and are barely recognizable. On one specimen the impressions measure 4.0 mm on a side while on a second example they are almost 7.0 mm with the lands forming the impressions about 3.0 mm wide. The sherds are referable to the type Wright Check Stamped.

Size	1	2	3	4	5
n=	0	0	15	1	1

Limestone Tempered Simple Stamped (Figure 32g,h)

The sample of limestone tempered simple stamped sherds consists of 25 body sherds and two rim sherds. The stamping on most sherds is smoothed over and are too indistinct to measure. One sherd has distinct lands 3.2 mm wide and well defined grooves 1.6 mm wide. The sherds are 4.7 to 7.0 mm thick (mean 6.1 mm, n=20) with the paste containing moderate amounts of crushed limestone particles 2.0 to 3.0 mm in size with occasional particles as large as 5.0 mm. Seven body sherds are from a single conoidal vessel base (Size 5, refitted). One rim sherd is slightly excurvate with a flat lip, while the second rim is straight with a flat lip. The sherds are respectively 5.2 and 4.8 mm thick and on both the stamping is horizontal to the rim. The sherds are referable to the type Bluff Creek Simple Stamped.

Size	1	2	3	4	5
n=	0	4	15	1	1

Limestone Tempered Complicated Stamped

Four limestone tempered complicated stamped body sherds were recovered from the same excavation square and level. The sherds could not be mended, but their size, thickness (4.0 to 5.5 mm), and general appearance suggest that they come from a single small jar which had a flared rim. The sherds are smoothed over, so a particular design motif was unidentified.

Size	1	2	3	4	5
n=	0	0	1	1	2

Limestone Tempered Residual Plain

Limestone residual plain ceramics are so categorized because the sherds are too weathered or small to make a positive identification of the original surface treatment. The site sample contains 186 body sherds and four rim sherds in this group. Three of the rim sherds are straight with round lips while the fourth rim has a round lip but is too small to determine the rim curvature.

Size	1	2	3	4	5
n=	19	74	93	4	0

Grit Tempered Plain

A single grit tempered plain body sherd (Size 4) measuring 6.1 mm thick was recovered in Area 2.

Grit Tempered Cordmarked (Figure 32i-n)

Grit tempered cordmarked sherds are tempered with moderately crushed quartz or quartzite mixed with coarse sand. The surfaces are slightly rough and grity. The particles are 1.0 to 2.0 mm in size. There are 89 body and two rim sherds in the sample. The sherds are 5.0 to 7.9 mm thick (mean 6.0 mm, n=52). The cord impressions are distinct and only two sherds exhibit over stamping. Forty-nine sherds were large enough to identify the twist of the cordage impressions. All were 2 or 3-ply cord with 31 specimens having a Z-twist and 18 having an S-twist. The cordage measured 1.1 to 2.1 mm in diameter (mean 1.5 mm, n=13) and were closely spaced at 1.0 to 2.0 mm intervals. Both rim sherds have straight profiles, one with a flat lip and one with a rounded lip. On both examples, the cord impressions are parallel to the rim. Three sherds, based on temper and thickness, are referable to the Watts Bar Cordmarked type. The remaining sherds are considered Swannanoa Cordmarked (Keel 1976:260). There are no differences in the stratigraphic occurrence of the two types at 40RE108.

Size	1	2	3	4	5
n=	0	7	71	13	0

Grit Tempered Fabric Marked

Only a single grit tempered fabric marked body sherd (Size 4) referable to the type Watts Bar Fabric Marked was recovered at 40RE108.

Grit Tempered Residual Plain

At 40RE108, ten grit tempered body sherds are too greatly eroded to make positive identification of the surface treatment. Included in this group is the only sherd recovered in Area 4.

Size	1	2	3	4	5
n=	0	4	6	0	0

Shell Tempered Plain (Figure 32o)

The 58 total shell tempered plain sherds include 56 body sherds and two rim sherds. The temper is moderate to abundant inclusions of fine to coarse crushed shell. The sherds are 6.5 to 9.3 mm thick (mean 7.5 mm, n=12). One rim sherd is 8.6 mm thick and is straight with a pinched, peaked lip. The second rim is a similar lip fragment.

Size	1	2	3	4	5
n=	0	19	23	16	0

Shell Tempered Cordmarked (Figure 32p)

The shell tempered cordmarked ceramic sample consists of 15 body sherds, ranging in thickness from 5.7 to 8.8 mm (mean 6.8 mm, n=6). The paste contains abundant finely crushed shell particles 1.0 to 2.0 mm in size. Cord impressions are fine 2 and 3-ply cordage 1.0 to 3.0 mm in diameter. S-twist cordage was identified on five sherds with the cordage-twist indeterminate on the remaining sherds. One sherd shows slight over stamping. A second sherd is likely from the shoulder/neck portion of a jar and shows that the cordmarking on the body of the vessel was oriented vertically to the vessel rim and that the vessel's neck was plain. The sherds are referable to the type McKee Island Cordmarked.

Size	1	2	3	4	5
n=	0	3	6	6	0

Shell Tempered Incised

Two shell tempered incised sherds are respectively 5.5 mm and 7.2 mm thick. One sherd exhibits two parallel lines and is probably from the shoulder of a vessel. The second sherd has an incised circle 10.2 mm in diameter. The sherd's curvature suggests a small to medium sized bowl. Both are Size 3 specimens.

Shell Tempered Residual Plain

Fourteen shell tempered body sherds were too highly weathered or eroded to determine the original surface treatment.

Size	1	2	3	4	5
n=	0	3	11	0	0

Ceramic Distributions and Discussion

The ceramic sample from each area is comparatively small: 240 sherds came from Area 1, Area 2 produced 219 sherds, Area 3 sherds totaled 93 specimens, and only a single sherd came from Area 4. Despite the small samples, stratigraphic distributions and comparisons between areas show distinctive patterns that can be related to the general culture history known in East Tennessee.

In Area 1, virtually all the recovered ceramic sherds come from Stratum 1-6 (n=127) or from the shell deposit, Stratum 1-9, and its accompanying sediments, Stratum 1-8 (n=86 combined sherds) (Table 6). No other stratum in Area 1 contains more than six sherds. Over 90% (n=81) of the grit tempered cordmarked sherds are associated with Stratum 1-6. These are identified as Swannanoa Cordmarked, a type securely dated to the Early Woodland period in western North Carolina and in upper East Tennessee. This type, however, has not been commonly identified with cultural occupations along the main Tennessee River and its tributaries downstream from the confluence of the Clinch River. Watts Bar ceramic types mark Early Woodland cultures here. A small number of Watts Bar sherds occur in the Area 1, Stratum 1-6 sample, and the additional association of a small number of limestone tempered ceramics is not unusual in such a case.

In Strata 1-8 and 1-9, all but one of 86 recovered sherds are limestone tempered. The large number of residual plain sherds (n=61, 71%), makes the cultural assessment of the small number of remaining sherds difficult. Interpreting these occupations as Middle Woodland period is consistent with the radiocarbon dates from the deposits and the occurrence of limestone tempered plain and cordmarked sherds.

In Area 2, the ceramic sample is primarily associated with the shell deposit, Stratum 2-5 (Table 7). Here 211 of 216 sherds are limestone tempered. Plain sherds (n=61) with smaller numbers of cordmarked (n=13), check stamped (n=15) and simple stamped (n=23) are generally comparable to sherds from Strata 1-8 and 1-9. The sherds, like those in Area 1, also are consistent with Middle Woodland period occupations in East Tennessee.

In Area 3, 89 (96%) of the recovered ceramics are shell tempered, with most sherds (n=75) coming from Stratum 3-4, the shell deposit in this area of the site (Table 8). Shell tempered plain (n=58) constitutes most of the Stratum 3-4 sample, with shell tempered cordmarked sherds (n=14) the second most frequent ceramics in the sample. These ceramics indicate a probable Early Mississippian period occupation.

Comparison of the ceramics from the four areas investigated at 40RE108 indicate two culture periods in Area 1, an Early Woodland period occupation represented by grit tempered ceramics, especially Swannanoa Cordmarked, and a probable Middle Woodland period occupation associated with the shell deposit (Table 9). The accompanying sherd sample is small, but consists almost solely of limestone tempered types. Occupation remains in Area 2 are confined to the shell deposit Stratum 2-5, where the ceramic sample is composed of limestone tempered types indicating a Middle Woodland period occupation comparable to Area 1. In Area 3, shell tempered ceramics indicate a single Early Mississippian period occupation. Shell tempered ceramics do not occur in

Table 6. Stratigraphic Distribution of Ceramics at 40RE108, Area 1.

	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	Unassigned	Total
Limestone Tempered													
Plain	-	-	-	-	-	13	-	1	11	-	2*	-	27
Cordmarked	-	-	-	-	-	4	-	4	5	-	-	2	15
Fabric Marked	-	-	-	-	-	4	-	-	-	1	1	-	6
Check Stamped	-	-	-	-	-	-	-	-	1	-	-	-	1
Simple Stamped	-	-	-	-	-	-	-	2	-	1	-	-	3
Complicated Stamped	-	-	-	-	-	4	-	-	-	-	-	-	4
Residual Plain	-	-	1	-	2	19	-	7	54	3*	1	3	90
Grit Tempered													
Cordmarked	-	-	1	-	2	81**	-	-	-	1	-	5	90
Fabric Marked	-	-	-	-	-	-	-	1	-	-	-	-	1
Residual Plain	-	-	1	-	-	2	-	-	-	-	-	-	3
Total Limestone	-	-	1	-	2	44	-	14	71	5	4	5	146
Total Grit	-	-	2	-	2	83	-	1	-	1	-	5	94
Total Sherds	-	-	3	-	4	127	-	15	71	6	4	8	240

* 1 rim sherd
** 2 rim sherds

Table 7. Stratigraphic Distribution of Ceramics at 40RE108, Area 2.

	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	Total
Limestone Tempered										
Plain	-	-	-	-	61*	-	-	-	-	61
Cordmarked	-	-	-	-	13	-	-	-	-	13
Check Stamped	-	-	-	1	15	-	-	-	-	16
Simple Stamped	-	-	-	1	23**	-	-	-	-	24
Residual Plain	-	-	-	-	99**	-	-	-	-	99
Grit Tempered										
Plain	-	-	-	-	1	-	-	-	-	1
Residual Plain	-	-	-	-	4	-	-	1	-	5
Total Limestone	-	-	-	2	211	-	-	-	-	213
Total Grit	-	-	-	-	5	-	-	1	-	6
Total Sherds	-	-	-	2	216	-	-	1	-	219

* 1 rim sherd
** 2 rim sherds

Table 8. Stratigraphic Distribution of Ceramics at 40RE108, Area 3.

Ceramics	Strata 3-1	3-2	3-3	3-4	3-5	3-6	3-7	Total
Limestone Tempered								
Plain	-	-	-	-	-	-	1*	1
Residual Plain	-	-	1	-	-	-	-	1
Grit Tempered								
Cordmarked	-	-	-	1	-	-	-	1
Residual Plain	-	-	1	-	-	-	-	1
Shell tempered								
Plain	-	-	5*	51*	2	-	-	58
Cordmarked	-	-	-	14	-	-	1	15
Incised	-	-	-	2	-	-	-	2
Residual Plain	-	-	2	8	-	-	4	14
Total Limestone	-	-	1	-	-	-	1	2
Total Grit	-	-	1	1	-	-	-	2
Total Shell	-	-	7	75	2	-	5	89
Total Sherds	-	-	9	76	2	-	6	93

* 1 rim sherd

Table 9. Occurrence of Ceramics by Excavation Area at 40RE108.

Ceramics	Area 1	Area 2	Area 3	Area 4	Total
Limestone Tempered					
Plain	27	61	1	-	89
Cordmarked	15	13	-	-	28
Fabric Marked	6	-	-	-	6
Check Stamped	1	16	-	-	17
Simple Stamped	3	24	-	-	27
Complicated Stamped	4	-	-	-	4
Residual Plain	90	99	1	-	190
Grit Tempered					
Plain	-	1	-	-	1
Cordmarked	90	-	1	-	91
Fabric Marked	1	-	-	-	1
Residual Plain	3	5	1	1	10
Shell tempered					
Plain	-	-	58	-	58
Cordmarked	-	-	15	-	15
Incised	-	-	2	-	2
Residual Plain	-	-	14	-	14
Total Limestone	146	213	2	-	361
Total Grit	94	6	2	1	103
Total Shell	-	-	89	-	89
Total Sherds	240	219	93	1	553

Areas 1 or 2, and no grit or limestone tempered ceramics like those from these areas were found in Area 3.

Lithic Artifacts
(C. Clifford Boyd, Jr.)

Lithic artifact collections from 40RE108 include general surface-collected materials, and artifacts from excavated strata and backhoe trenches in four areas. The lithic tools and debitage recovered are summarized under headings for the surface collection and each of the excavated areas. Raw material variability between these areas is discussed in a separate section, and, finally, an overall comparison of the site areas is presented in the summary. As was the case with the 40RE107 lithic artifacts the Tellico Low-Level (Nominal) Lithic Analysis Format from the Tellico Reservoir Archaeological Survey (Davis et al. 1980, 1982) was used for the 40RE108 lithic analysis.

General Surface Collections

A total of 102 lithic artifacts was collected from the surface of 40RE108 (Table 10), and, of this total, 89 artifacts were unmodified or utilized debitage, firecracked rock or tested nodules (cobbles where one or two flakes have been removed to test the quality of the resource for lithic tool production). The few tools recovered are described below.

Mississippian Projectile Point Preform (n=1) Unfinished small, triangular point fragments which, because of their size, are probably Mississippian period artifacts (Kimball 1980:82). The single fragment was produced form Chickamauga red-brown jaspery chert.

Pitted Cobble (n=1) A cobble with one or more depressions resulting from use as an anvil during stone tool production or food processing (Kimball 1980:84). This artifact was made out of metasandstone.

Hammerstone (n=1) A cobble with battered ends or edges from use as a hard hammer percussion implement (Kimball 1980:84). This artifact, produced from metasandstone, also had battering indicating its probable use as an anvil (pitted cobble).

Chopper (n=1) Cobble with percussion flake removals at one end (Kimball 1980:83). This sandstone chopper also showed evidence of use as a milling or grinding stone.

Amorphous Core (n=3) A core with several flake scars in a random, multidirectional pattern. All three amorphous cores were produced from ~~Chickamauga red~~-brown jaspery chert.

Biface (n=5) A flake or core blank with evidence of regularly spaced flake removals on both faces. Two of these artifacts were produced from Chickamauga red-brown jaspery chert, and one each from red heated chert, dark grey chert and transluscent grey-green chert.

Preform (n=1) Triangular or ovate pieces shaped by percussion flaking which are considered intermediate stages in projectile point manufacture. The preform fragment collected from the surface was produced from Chickamauga red-brown jaspery chert.

Table 10. Lithic Tools and Debitage from the Surface at 40RE108.

Class	Number
Pitted cobble	1
Tested nodule	3
Hammerstone	1
Chopper	1
Firecracked rock	1
Blade	1
Amorphous core	3
Biface	5
Preform	1
Mississippian projectile point preform	1
Unmodified stone	4
Utilized debitage	6
Unutilized debitage	74
Total	102

Area 1

The Area 1 excavations produced 1,744 lithic artifacts (Table 11), 1,658 of which were tested nodules, unmodified stone and utilized or unmodified core, decortication or bifacial thinning flakes (core flakes have flat, unfaceted platforms and are considered the products and by-products of core reduction). As can be seen from Table 11, most of the lithic artifacts were recovered from Strata 1-6, 1-3 and 1-9. Several temporally diagnostic artifacts were recovered, but, except for a steatite sherd, a Sykes and an Iddins projectile point from Stratum 1-3, all other diagnostic artifacts were recovered from Stratum 1-6. The recovered tools are described below.

Bar Gorget (Figure 33a) (n=1) This oval gorget, produced from steatite, was recovered from Stratum 1-6. Comparable artifacts from Tellico Reservoir date to the Early Woodland period (Schroedl 1978b:180-184).

Earspool (Figure 33b) (n=1) A circular steatite earspool with a central groove along its edge was also recovered from Stratum 1-6. This artifact is likely Late Archaic or Early Woodland in temporal affiliation (several Late Archaic and Early to Middle Woodland projectile points were recovered from this stratum).

Table 11. Stratigraphic Distribution of Lithic Tools and Debitage at 40RE108, Area 1.

	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	**	Total
Bar gorget	-	-	-	-	-	1	-	-	-	-	-	-	1
Perforator	-	-	-	-	-	2	-	-	-	-	-	-	2
Pitted cobble	-	-	-	-	-	-	-	-	1	-	-	-	1
Piece esquillee	-	-	1	-	-	4	-	-	3	-	-	-	8
Earspool	-	-	-	-	-	1	-	-	-	-	-	-	1
Steatite sherd	-	-	1	-	-	1	-	-	-	-	-	-	2
Blade	-	-	2	-	-	4	-	-	3	-	-	1	10
Tested nodule	-	-	-	-	-	6	-	-	6	-	-	1	13
Bipolar core	-	-	1	-	-	4	-	-	1	-	1	-	7
Blade core	-	-	-	-	-	-	-	1	1	-	-	-	2
Amorphous core	-	-	1	-	1	7	-	-	-	3	-	1	13
Biface	-	-	1	-	-	11	-	-	-	-	2	1	15
Preform	-	-	-	-	-	2	-	-	-	-	-	-	2
Archaic projectile point	-	-	-	-	-	4	-	-	-	-	-	-	4
Middle Archaic projectile point	-	-	-	-	-	3	-	-	-	-	-	-	3
Late Archaic preform	-	-	-	-	-	2	-	-	-	-	-	-	2
Late Archaic projectile point	-	-	-	-	-	1	-	-	-	-	-	-	1
St. Albans projectile point	-	-	-	-	-	1	-	-	-	-	-	-	1
Sykes projectile point	-	-	1	-	-	-	-	-	-	-	-	-	1
Iddins projectile point	-	-	1	-	-	5	-	-	-	-	-	-	6
Bradley Spike projectile point	-	-	-	-	-	2	-	-	-	-	-	-	2
Incurvate Base/Straight Blade point	-	-	-	-	-	1	-	-	-	-	-	-	1
Projectile point	-	-	1	-	-	5	-	-	2	2	1	-	11
Utilized mineral	-	-	-	-	-	1	-	-	-	-	-	-	1
Utilized debitage	-	-	14	-	1	33	-	1	10	1	1	-	61
Unmodified stone	-	-	21	-	1	51	-	1	25	-	5	9	113
Unutilized debitage	-	-	266	-	31	734	5	38	186	27	52	121	1460
Total	-	-	311	-	34	886	5	41	238	33	62	134	1744

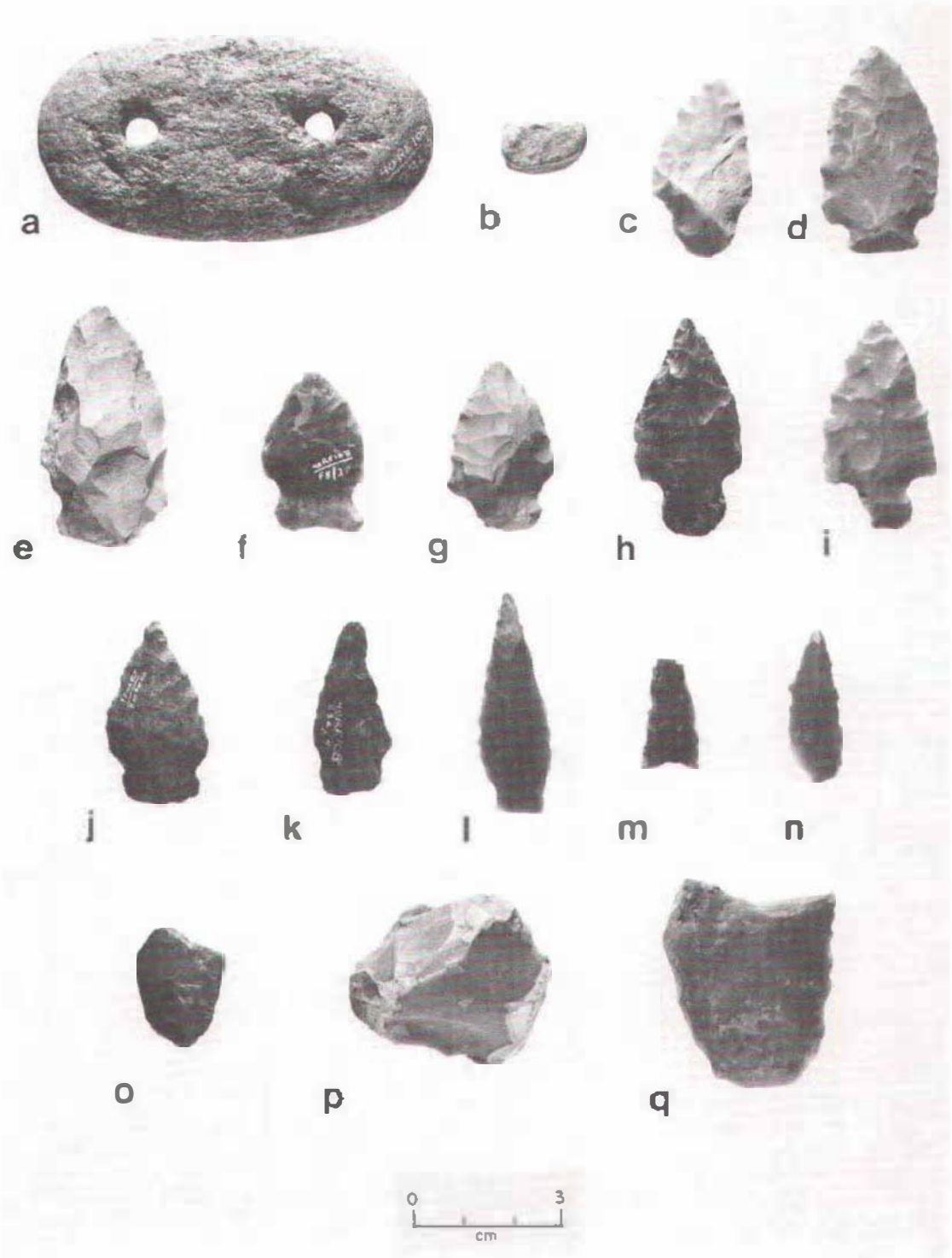


Figure 33. Projectile points and tools from 40RE108, Area 1: (a) Steatite bar gorget; (b) Steatite earspool; (c-d) Middle Archaic projectile points; (e) Late Archaic projectile point preform; (f) St. Albans projectile point; (g) Sykes projectile point; (h-j) Iddins Undifferentiated Stemmed points; (k-l) Bradley Spike points; (m) Incurvate Base/Straight Blade point; (n) Perforator; (o-p) Bipolar cores; (q) Biface.

Steatite Sherd (n=2) These artifacts, from broken steatite bowls, are considered Late Archaic period artifacts (Chapman 1981:99-102). One was recovered from Stratum 1-3 and one from Stratum 1-6.

Archaic Projectile Point (n=4) These points have an Archaic period temporal affiliation, based on size and stem shape, but, due to their fragmentary nature, cannot be assigned to a specific Archaic period point type. All four point fragments recovered from Stratum 1-6 were produced from Knox dark grey chert.

Middle Archaic Projectile Point (Figure 33c-d) (n=3) Point fragments which, due to their stem shape, can be assigned a Middle Archaic period temporal affiliation. Three such fragments were recovered from Stratum 1-6; one was produced from Knox black chert, one from light grey banded chert and one from Chickamauga red-brown jaspery chert.

Late Archaic Projectile Point Preform (Figure 33e) (n=2) These artifact fragments are unfinished points and, because of their size, they are considered Late Archaic period artifacts. One was produced from porcellaneous chert and one from dark grey chert.

Late Archaic Projectile Point Fragment (n=1) This is a fragment of a finished point which, because of its size, is likely a Late Archaic period artifact. This point fragment was produced from chalcedony.

St. Albans Bifurcate Projectile Point (Figure 33f) (n=1) These points have ground corner notched and bifurcated bases, and are Early Archaic period artifacts dating from 7000-6600 B.C. (Chapman 1975, 1977). The single St. Albans point from Stratum 1-6 was produced from Knox black chert.

Sykes Projectile Point (Figure 33g) (n=1) These points have straight to excurvate bases with corner removed notching to form the stem, and they are associated with Middle Archaic strata at the Icehouse Bottom site (40MR23) (Chapman 1977; Kimball 1985:55). This single artifact, from Stratum 1-3, was produced from mottled chert.

Iddins Undifferentiated Stemmed Projectile Point (Figure 33h-j) (n=6) These points generally have straight stems with flat or unfinished bases, and are associated with Late Archaic contexts in the Tellico Reservoir area (Chapman 1981; Kimball 1985:56-57). One point was recovered from Stratum 1-3 and five from Stratum 1-6. two were produced from Knox black chert, two from dark grey chert, one from light grey banded chert, and one from Chickamauga red-brown jaspery chert.

Bradley Spike Projectile Point (Figure 33k-l) (n=2) These projectile points have narrow blades and straight, tapered or corner-removed stems (Kimball 1985:58), and are considered Late Early Woodland to Middle Woodland period artifacts. One was produced from Knox black chert and one from Knox mottled chert.

Incurvate Base/Straight Blade Small Triangular Projectile Point (Figure 33m) (n=1) These small, triangular projectile points are associated with Mississippian period contexts in the Tellico Reservoir area (Kimball 1985:58). The point recovered from Stratum 1-6 was produced from Knox black chert.

Perforator (Figure 33n) (n=2) An artifact with fine retouch resulting in a converging point (Kimball 1985:60). On heavily utilized specimens, wear or polish is noted on this point. These artifacts were recovered from Stratum 1-6, and both were produced from Knox black-banded chert.

Pitted Cobble (n=1) A single pitted cobble produced from conglomerate was recovered from Stratum 1-9.

Piece Esquillee (n=8) A square or rectangular object manufactured by repeated bipolar blows, producing crushed edges (Kimball 1980:83). Four of these artifacts were recovered from Stratum 1-6, three from Stratum 1-9, and one from Stratum 1-3. Four were produced from Knox black chert, two from transluscent grey-green chert and one each from dark grey and oolitic chert.

Amorphous Core (n=13) Most of these cores (n=5) were produced from transluscent grey-green chert, and most of these artifacts (n=7) were recovered from Stratum 1-6.

Bipolar Core (Figure 33o-p) (n=7) A core reduced by bipolar percussion, which produces crushed, battered edges (Kimball 1980:85). Three of these artifacts were produced from Knox dark grey chert, two from transluscent grey-green chert, and two from Knox black or black-banded chert. Most of these artifacts (n=4) were recovered from Stratum 1-6.

Blade Core (n=2) A nodule with a prepared platform or platforms from which blades have been struck (Kimball 1980:85). Two such cores were recovered from Area 1; one of Knox black-banded chert from Stratum 1-8 and one of transluscent grey-green chert from Stratum 1-9.

Biface (Figure 33q) (n=15) Most of these artifacts (n=11) were recovered from Stratum 1-6. Most were produced from Knox dark grey (n=4) or Knox black or black-banded chert (n=3).

Preform (n=2) Two preforms were recovered from Stratum 1-6; one was produced from Knox black chert and one from dark grey chert.

Projectile Point Fragment (n=11) A portion of a projectile point which is too fragmentary to be assigned a temporal or cultural affiliation. Again, most of these artifacts were recovered from Stratum 1-6 (n=5). Five were produced from Knox dark grey chert, two each from light grey and porcellaneous chert, and one each from Knox black and Chickamauga red-brown jaspery chert.

Area 2

From Area 2 at 40RE108, 2,041 lithic artifacts were recovered; of this total, 1,953 artifacts were tested nodules or utilized or unmodified core, decortication and bifacial thinning debitage. By far the highest frequency of artifacts was recovered from Stratum 2-5 (see Table 12), and temporally diagnostic artifacts were recovered from Strata 2-2, 2-3, 2-5, and 2-8. The temporally diagnostic projectile points and other formal tools are discussed below.

Table 12. Stratigraphic Distribution of Lithic Tools and Debitage at 40RE108, Area 2.

	2-2	2-3	2-4	2-5	2-6	2-7	2-8	Backhoe Trenches	Surface	Total
Perforator	-	-	-	1	-	-	-	-	-	1
Pitted cobble	-	-	-	-	-	-	-	1	-	1
Piece esquillee	-	-	-	4	-	-	-	-	-	4
Tested nodule	-	-	-	11	3	2	4	-	-	20
Endscraper	-	-	-	1	-	-	-	-	-	1
Drill	-	-	1	1	-	-	-	-	-	2
Blade	-	-	1	8	-	-	1	-	-	10
Bipolar core	-	-	-	2	-	-	1	-	-	3
Blade core	-	-	-	9	-	-	3	-	-	12
Amorphous core	-	-	-	5	-	-	3	-	-	8
Biface	-	-	-	13	-	-	1	1	-	15
Preform	1	-	-	11	-	-	2	-	-	14
Late Archaic projectile point	-	-	-	-	-	-	1	-	-	1
Woodland preform	-	-	-	2	-	-	-	-	-	2
Woodland projectile point	-	-	-	-	-	-	1	-	-	1
Mississippian projectile point	-	-	-	-	-	-	3	-	-	3
Iddins projectile point	-	-	-	-	-	-	3	-	-	3
Camp Creek projectile point	-	-	-	1	-	-	-	-	-	1
Bradley Spike projectile point	1	1	-	7	-	-	-	-	-	9
Hamilton Incurvate projectile point	-	-	-	2	-	-	-	-	-	2
projectile point fragment	-	-	-	5	-	-	-	-	-	5
Unmodified stone	-	-	4	19	-	-	12	-	-	35
Utilized debitage	-	1	1	56	-	-	4	-	-	62
Unutilized debitage	2	6	35	1637	24	2	99	16	5	1826
Total	4	8	42	1795	27	4	138	18	5	2041

Late Archaic Projectile Point Fragment (n=1) This point fragment was produced from Chickamauga red-brown jaspery chert, and was recovered from Stratum 2-8.

Woodland Projectile Point Preform (n=2) This is a fragment of an unfinished point which, because of estimated length (30-40 mm) and lack of a stem, is considered a Woodland period artifact. Two fragments were recovered from Stratum 2-5 and were produced from dark grey chert and red heated chert.

Woodland Projectile Point Fragment (Figure 34a) (n=1) A fragment of a finished point which, because of the same attributes as described for Woodland preforms, is considered a Woodland period artifact. This artifact, from Stratum 2-8, was produced from Chickamauga red-brown jaspery chert.

Mississippian Projectile Point Fragment (n=3) Because of their small size (generally less than 30 mm in estimated length) and triangular shape, these point fragments are considered Mississippian period artifacts. This class, however, would also include Late Woodland Hamilton point fragments. All three fragments were recovered from Stratum 2-8; two were produced from Chickamauga red-brown jaspery chert and one from Knox light grey chert.

Iddins Undifferentiated Stemmed Projectile Point (Figure 34b-d) (n=3) These three points were recovered from Stratum 2-8; two were produced from oolitic chert and one from red heated chert.

Camp Creek Projectile Point (Figure 34e) (n=1) This is a large (>35 mm in length) point with an incurvate base and straight to slightly excurvate blade edges. It is considered an Early Woodland period diagnostic artifact. The single Camp Creek point was recovered from Stratum 2-5 and was produced from Knox black-banded chert.

Bradley Spike Projectile Point (Figure 34f-n) (n=9) Most of these Early to Middle Woodland period points were recovered from Stratum 2-5. Four were produced from Knox black or black-banded chert, two each from dark grey chert and red heated chert, and one from grainy tan chert.

Hamilton Incurvate Projectile Point (Figure 34o) (n=2) These points are small, unstemmed triangular points with incurvate sides and bases (Kimball 1985:58), and are considered Late Woodland through Mississippian period artifacts. Both points were recovered from Stratum 2-5; one was produced from Knox black chert and one from transluscent grey-green chert.

Perforator (n=1) A single perforator was recovered from Stratum 2-5, and was produced from Knox dark grey chert.

Pitted Cobble (n=1) A single sandstone pitted cobble was recovered from Backhoe Trench 5.

Piece Esquillee (n=4) All of these artifacts were recovered from Stratum 2-5; one artifact was produced from each of the following raw materials: light grey chert, dark grey chert, Chickamauga red-brown jaspery chert and red heated chert.

Endscraper (n=1) Endscrapers have steep, unifacial retouch transverse to the longitudinal axis of the implement (Kimball 1980:83). A single endscraper, made from Knox dark grey chert, was recovered from Stratum 2-5.

Drill (n=2) Drills have bifacial retouch which produces a parallel-sided, biconvex projection (Kimball 1980:83). Polish and microchipping along the edges of this projection indicate a rotary motion during use of these tools. One drill produced from Chickamauga red-brown jaspery chert was recovered from Stratum 2-5, and one produced from Knox dark grey chert was recovered from Stratum 2-4.

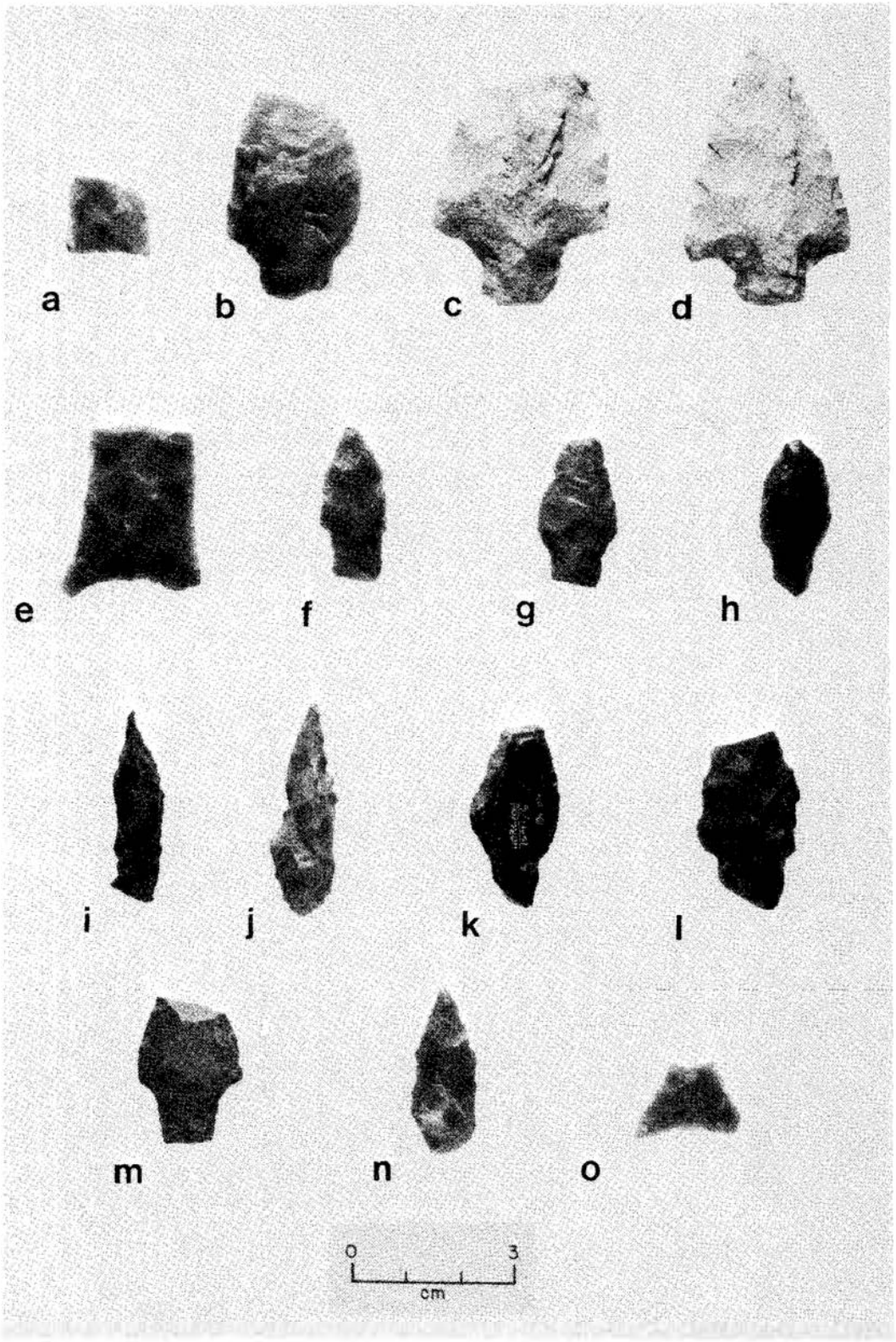


Figure 34. Projectile points from 40RE108, Area 2: (a) Woodland projectile point; (b-d) Iddins Undifferentiated Stemmed projectile points; (e) Camp Creek projectile point; (f-n) Bradley Spike projectile points; (o) Hamilton Incurvate projectile point.

Amorphous Core (n=8) Five of these artifacts were recovered from Stratum 2-5 and three from Stratum 2-8. Four were produced from transluscent grey-green chert, three from dark grey chert and one from Chickamauga red-brown jaspery chert.

Bipolar Core (n=3) Two bipolar cores were recovered from Stratum 2-5 and were produced from Knox dark grey chert and transluscent grey-green chert. One core, produced from Knox black chert, was recovered from Stratum 2-8.

Blade Core (n=12) Nine of these artifacts were recovered from Stratum 2-5 and three from Stratum 2-8. Most of these artifacts (n=6) were produced from transluscent grey-green chert.

Biface (n=15) All but two of these artifacts were recovered from Stratum 2-5. Four were produced from red heated chert, three each from dark grey and transluscent grey-green chert, two from Chickamauga red-brown jaspery chert, and one each from Knox black chert and chalcedony.

Preform (n=14) Most of these artifacts (n=11) were also recovered from Stratum 2-5. Six were produced form Chickamauga red-brown jaspery chert, three from dark grey chert, two from red heated chert, and one each from Knox black chert, porcellaneous chert, and chert cortex.

Projectile Point Fragment (n=5) All of these artifacts were recovered from Stratum 2-5; two were produced from transluscent grey-green chert, and one each from Knox black, dark grey and red heated chert.

Area 3

A total of 190 lithic artifacts was recovered during the Area 3 excavations. Of this total, 166 artifacts were tested nodules or utilized or unmodified debitage (Table 13). Most of the artifacts were recovered from Stratum 3-4. The few temporally diagnostic artifacts and other formal tools are discussed below.

Nolichucky Projectile Point (n=1) These points are generally large (>35 mm in length) with straight bases and recurvate (S-shaped) blades. They are considered Early Woodland period artifacts in East Tennessee (Kimball 1985:56; Kneberg 1957). The basal fragment of this point was recovered from Stratum 3-4 and was produced from Knox black-banded chert.

Connestee Triangular Projectile Point (n=3) These projectile points are medium in size (length is between 30 and 35 mm) and have straight bases and straight to excurvate blades. They are considered Middle Woodland period artifacts in Tennessee and North Carolina (Keel 1976; Kimball 1985:56). These point fragments were recovered from Strata 3-3, 3-5, and 3-7 and were produced from dark grey, light grey banded, and transluscent grey-green chert.

Piece Esquillee (n=1) This single artifact was recovered from Stratum 3-4 and was produced from dark grey chert.

Table 13. Stratigraphic Distribution of Lithic Tools and Debitage at 40RE108, Area 3.

	3-1	3-2	3-3	3-4	3-5	3-6	3-7	Total
Preform	-	-	-	-	1	-	-	1
Piece esquillee	-	-	-	1	-	-	-	1
Tested nodule	-	-	1	2	-	-	-	3
Blade	-	-	2	1	-	-	1	4
Bipolar core	-	-	-	-	1	-	1	2
Blade core	-	-	1	2	-	-	-	3
Amorphous core	-	-	-	2	-	-	2	4
Biface	-	-	4	4	1	-	-	9
Nolichucky projectile point	-	-	-	1	-	-	-	1
Connestee projectile point	-	-	1	-	1	-	1	3
Utilized debitage	-	-	-	4	-	-	1	5
Unmodified stone	-	-	-	2	1	-	-	3
Unmodified debitage	-	3	19	90	19	-	20	151
Total	-	3	28	109	24	-	26	190

Amorphous Core (n=4) Two amorphous cores each were recovered from Strata 3-4 and 3-7. Two of these artifacts were produced from red heated chert, one from dark grey chert and one from transluscent grey-green chert.

Bipolar Core (n=2) These artifacts were recovered from Strata 3-5 and 3-7; both were produced from porcellaneous chert.

Blade Core (n=3) These artifacts were recovered from Strata 3-3 and 3-4 and were produced from dark grey chert, transluscent grey-green chert and chalcedony.

Preform (n=1) This single artifact was recovered from Stratum 3-5 and was made from chalcedony.

Biface (n=9) Most of these artifacts came from Strata 3-3 and 3-4. Two of these artifacts were produced from each of the following raw materials: dark grey chert, transluscent grey-green chert and chalcedony. One artifact each was produced from Knox black chert, porcellaneous chert and light grey banded chert.

Area 4

A total of 108 lithic artifacts was recovered during the Area 4 excavations, 102 of which were tested nodules or utilized or unmodified debitage. The six tools, including the two temporally diagnostic projectile

point fragments, are described below. Most of the artifacts (n=57) came from Stratum 4.1-4 (Table 14).

Connestee Projectile Point Fragment (n=1) This Middle Woodland period point fragment, recovered from Stratum 4.1-4, was from a local chert resource.

Mississippian Projectile Point Fragment (n=1) This artifact, from Stratum 4.1-7, was produced from transluscent grey-green chert.

Table 14. Stratigraphic Distribution of Lithic Tools and Debitage at 40RE108, Area 4.

Class	Strata 4.1-4	4.1-5	4.1-6	4.1-7	4.1-8	4.1-9	Unassigned	Total
Tested nodule	3	-	-	-	1	-	-	4
Bipolar core	1	-	-	-	-	-	-	1
Blade core	-	-	-	-	-	1	-	1
Biface	1	-	-	-	-	-	-	1
Connestee projectile point	1	-	-	-	-	-	-	1
Mississippian projectile point	-	-	-	1	-	-	-	1
Utilized debitage	4	-	-	1	-	1	1	7
Unmodified stone	6	-	-	-	-	25	-	31
Unutilized debitage	41	-	1	5	5	7	1	60
Total	57	-	1	7	6	34	2	108*

*1 pitted cobble also came from Stratum 4.2-5.

Pitted Cobble (n=1) This artifact was recovered from Stratum 4.2-5 and was made out of sandstone.

Bipolar Core (n=1) This artifact was produced from light grey chert and was recovered from Stratum 4.1-4.

Blade Core (n=1) This artifact, produced from transluscent grey-green chert, was recovered from Stratum 4.1-9.

Biface (n=1) This biface made from red heated chert was recovered from Stratum 4.1-4.

Lithic Raw Material Use

The Ordovician Chickamauga and Knox Groups are the major geological formations at or near 40RE108 (Swingle et al. 1966). Both formations contain

a wide variety of cherts, as well as dolomite and limestone. These resources, along with the cherty Copper Ridge Dolomite to the north, could have been easily exploited for useable lithic raw materials by the inhabitants of 40RE108. A rank-ordering of the five most common lithic raw materials identified from the surface collection and excavated site areas is presented in Table 15. The most commonly used resources from all areas of the site are locally available cherts: Chickamauga red-brown jaspery chert, Transluscent grey-green chert, a red (probably heated chalcedony, oolitic grainy tan or red-brown) chert, dark grey chert and Knox black or black-banded chert. Other prominently utilized raw materials included a grainy tan chert (Area 1), Chalcedony (Area 3) and Knox light grey banded and mottled chert (Area 4). Raw materials such as the oolitic and porcellaneous cherts, commonly used at 40RE107 and 40RE124, comprised much smaller percentages of the collections from 40RE108.

The cherts in Table 15 are described below. More detailed descriptions are provided in Kimball 1985:88-102.

Chickamauga Red-Brown Jaspery Chert This Chickamauga Group chert is relatively fine-grained and generally opaque, and has a mustard yellow to brown colored matrix with numerous red, brown or white inclusions or bands.

Transluscent Grey-Green Chert A Chickamauga Group chert which is fine-grained, lustrous and transluscent. It contains irregular inclusions, giving it a greenish "smoky" appearance when held to the light.

Red Heated Chert This Chickamauga Group chert is fine-grained and transluscent, with a distinctive purple-red colored matrix and a grainy tan cortex. The presence of incipient potlids and hackles on some pieces suggests that the red color may be due to heating of other cherts (oolitic, grainy tan or red-brown chert) or chalcedony.

Dark Grey Chert A probable Knox group chert with a uniform dark grey color and a fine-grained siliceous texture. The grey color is also produced in some cases by heat alteration.

Knox Black and Black-Banded Chert This chert is distinctive because of its dark color, luster, transluscency and fine-grained texture. The matrix may be a uniform black or banded, with lighter grey or white bands.

Grainy Tan Chert A Chickamauga Group chert which is coarse-grained, dull and opaque to transluscent with a bluish tan color.

Chalcedony A transparent to transluscent variety of quartz with a fibrous texture and a matte, "paraffin-like" surface.

Knox Light Grey Banded Chert An opaque, dull, coarse-grained chert with light grey and white bands in the matrix.

Knox Mottled Chert This chert has large (>2 mm), contorted oolites in its matrix, distinguishing it from oolitic chert with its small, regularly spaced oolites.

Table 15. Rank-Ordering of Five Most Common Lithic Raw Materials at 40RE108.

Rank-Order (most to least common)	Context									
	Surface Raw Material	%	Area 1 Raw Material	%	Area 2 Raw Material	%	Area 3 Raw Material	%	Area 4 Raw Material	%
1	Chickamauga Red-Brown Jaspery Chert	30	Chickamauga Red-brown Jaspery Chert	18	Red Heated Chert	29	Transluscent Grey-Green Chert	19	Red Heated Chert	24
2	Transluscent Grey-Green Chert	18	Red Heated Chert	13	Chickamauga Red-Brown Jaspery Chert	21	Chalcedony	16	Light Grey Banded, mottled Knox Chert	19
3	Red Heated Chert	13	Transluscent Grey-Green Chert	13	Transluscent Grey-Green Chert	20	Knox Black, Black Banded Chert	15	Chickamauga Red-Brown Jaspery Chert	18
4	Dark Grey Chert	6	Dark Grey Chert	8	Dark Grey Chert	10	Chickamauga Red-Brown Jaspery Chert	12	Light Grey Chert	11
5	Knox Black, Black-Banded Chert	6	Grainy Tan Chert	7	Knox Black, Black-Banded Chert	7	Dark Grey Chert	11	Transluscent Grey-Green Chert	6

Light Grey Chert A uniform, opaque, generally fine-grained chert with a light grey color. In some cases, this color may have been produced by heat alteration.

Summary

Of the areas investigated at 40RE108, Areas 1 and 2 produced the highest frequencies of lithic artifacts. Stratum 1-6 contained Early Archaic through Late Woodland to Early Mississippian period diagnostic projectile points (several of the Archaic points, including the St. Albans point, a Middle Archaic point and two Iddins points, came from Feature 5 in this stratum). Stratum 1-6 also had the highest frequency of lithic artifacts and the greatest diversity of tools. Nearly all of the flakes exhibited sharp edges and fractures, suggesting little "water tumbling" or movement of these artifacts over great distances.

In Area 2, Stratum 2-5 had the highest frequency of artifacts, including Woodland period projectile points. Stratum 2-8 produced Late Archaic through Late Woodland to Early Mississippian period points. As with Area 1, small numbers of discarded tools such as drills, perforators and endscrapers, as well as exhausted cores, were recovered from the Area 2 fill.

Unlike Areas 1 and 2, Areas 3 and 4 each produced fewer than 200 lithic artifacts. Early and Middle Woodland projectile point fragments were recovered from Area 3, while Middle and Late Woodland to Early Mississippian points were found at Area 4.

Commonly used raw materials at the site were primarily locally available Chickamauga and Knox Group cherts, such as Chickamauga red-brown jaspery chert, transluscent Grey-green chert, dark grey chert, and red heated chert. Unlike 40RE107 and 40RE124, porcellaneous chert, oolitic chert and chalcedony are not as common in the artifact collections from 40RE108.

Plant Remains

At 40RE108 virtually all recovered plant remains come from fine waterscreened and flotation samples in Areas 1 and 2, with far fewer materials from Area 3 and no botanical remains in Area 4. In Area 1, Strata 1-3, 1-6, and 1-8 and 1-9 combined, respectively representing distinctive Archaic, Early Woodland, and Middle Woodland period culture occupations produced virtually all recovered materials. Similarly, Stratum 2-5, the Middle Woodland period deposit, produced nearly all the botanical remains found in Area 2.

Seventeen species are represented by wood charcoal in Area 1 (Table 16). In Stratum 1-3 only four species occur, with pine and oak most abundant. Nearly equal amounts of walnut shell (2.57 g) and acorn shell (2.91 g), but no hickory nut shell and no seeds were found in this stratum (Table 17).

Table 16. Stratigraphic Distribution of Wood Charcoal at 40RE108, Area 1 (weight grams).

	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	Total
Maple (*Acer* sp.)	.0	.0	.0	.0	.0	2.65	.0	.0	1.14	.22	.0	4.01
Cane (*Arundinaria* sp.)	.0	.0	.0	.0	.0	.0	.0	.0	.10	.0	.0	.10
Hickory (*Carya* sp.)	.0	.0	.0	.0	.0	3.64	.0	.74	1.33	.0	.0	5.71
Chestnut (*Castanea* sp.)	.0	.0	.0	.0	.0	1.05	.17	.0	.0	.0	.0	1.22
Catalpa (*Catalpa* sp.)	.0	.0	.0	.0	.0	.32	.0	.0	.0	.0	.0	.32
Yellowwood (*Cladrastris* sp.)	.0	.0	.23	.0	.0	.22	.0	.0	.0	.0	.0	.45
Hackberry (*Celtis* sp.)	.0	.0	.0	.0	.0	2.22	.0	.0	.0	.0	.0	2.22
Persimmon (*Diospyros* sp.)	.0	.0	.0	.0	.0	.0	.0	.20	.0	.0	.0	.20
White ash (*Fraxinus* sp.)	.0	.0	.42	.0	.0	.33	.0	.0	.0	.0	.0	.75
Honey locust (*Gleditsia* sp.)	.0	.0	.0	.0	.0	3.59	.61	.02	.0	.0	.08	4.30
Kentucky coffee tree (*Gymnocladus* sp.)	.0	.0	.0	.0	.0	1.35	.0	.0	.05	.0	.0	1.40
Black walnut (*Juglans* sp.)	.0	.0	.0	.0	.0	.0	.0	.80	.0	.0	.0	.80
Pine (*Pinus* sp.)	.0	.0	3.44	.0	.15	10.56	.70	.62	.51	.0	.0	15.98
Sycamore (*Plantanus* sp.)	.0	.0	.0	.0	.0	1.60	.0	.0	.0	.0	.0	1.60
Cottonwood (*Populus* sp.)	.0	.0	.0	.0	.0	.0	.0	.20	.0	.0	.0	.20
Oak (*Quercus* sp.)	.0	.0	2.00	.0	.0	6.28	.61	.17	.14	.0	.0	9.20
Hemlock (*Tsuga* sp.)	.0	.0	.0	.0	.0	1.30	.0	.80	.37	.0	.0	2.47
Total	.0	.0	6.09	.0	.15	35.11	2.09	3.55	3.64	.22	.08	50.93

Table 17. Stratigraphic Occurrence of Nutshell at 40RE108, Area 1 (weight in grams).

	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	Total
Hickory (*Carya* sp.)	.0	.0	.0	.0	.0	34.14	.85	1.09	1.70	.0	.0	37.78
Walnut (*Juglans* sp.)	.0	.0	2.57	.0	.09	5.30	.0	.20	.14	.0	.0	8.30
Acorn (*Quercus* sp.)	.0	.0	2.91	.0	.0	2.37	.0	.0	.03	.0	.0	5.31
Total	.0	.0	5.48	.0	.09	41.81	.85	1.29	1.87	.0	.0	51.39

Recovered from Stratum 1-6 was 35.11 g of wood charcoal representing 13 species. Most wood charcoal in this deposit is either pine (10.56 g) or oak (6.28 g). No other species is represented by more than 4.0 g and hickory (3.64 g) and honey locust (3.59 g) are most frequent by weight among the remaining 11 species. Hickory nutshell (34.14 g) far exceeds walnut shell (5.30 g) and acorn shell (2.37 g). A single grape seed is the only seed recovered in Stratum 1-6.

Combined, Strata 1-8 and 1-9 produced 7.19 g of wood charcoal with 11 species occurring in the sample. Hickory with 2.07 g followed closely by hemlock (1.17 g), maple (1.14 g), and pine (1.13 g) are the most prevalent species by wood charcoal weight. As in stratum 1-6, hickory nutshell (2.79 g) is most abundant followed by walnut shell (.34 g) and acorn shell (.03 g) in Strata 1-8 and 1-9. In Stratum 1-8 two smartweed seeds were found. No other seeds came from either Stratum 1-8 or 1-9.

While there are clear differences in sample sizes between strata, the abundance of pine and oak in Stratum 1-6 compared to Stratum 1-8 and 1-9 is especially obvious. The greater diversity of species in Stratum 1-6 may in addition indicate differences, albeit not pronounced, in source areas of wood. The near absence of seeds and cultigens such as squash in any context in Area 1 also is unusual considering their regular association with occupations of similar age elsewhere in East Tennessee (see Chapman and Shea 1981). The abundance of hickory nutshell relative to walnut shell and acorn shell is consistent with findings in other Early and Middle Woodland period contexts in the region (Schroedl 1978b:218).

In Area 2 at 40RE108, nearly all (39.39 g) of the 41.03 g of wood charcoal and 54.35 g of the total (54.72 g) of nutshell came from Stratum 2-5 (Table 18). The little remaining material came from Stratum 2-4. Sixteen species, with hickory (9.24 g), pine (7.20 g), oak (4.55 g), and cane (3.96 g) the most abundant, are represented in the wood charcoal sample. Hickory nut (27.30 g) and walnut shell occur in near equal amounts in Stratum 2-5, while only a trace of acorn shell (.29 g) was identified in this context (Table 19). Seed remains are few, but include single pokeberry and chenopod specimens and Asteraceae fruithead fragments. In addition, a single maize kernel came from the deposit (Table 20). The specimen could be intrusive, as has been documented for some supposed early occurrences of maize (see Conard et al. 1984), but corn is now firmly dated to Middle Woodland times particularly at Icehouse Bottom in the Little Tennessee River Valley (Chapman and Crites 1987).

Stratum 3-3 and 3-4, representing probable Early Mississippian period deposits contained little identifiable plant material. Among the wood charcoal was cane (.06 g), hickory (2.41 g), cherry (1.88 g), and oak (1.60 g). Walnut shell constituted .60 g (Table 21). No other nutshell, nor any seed or cultigen remains were found in Area 3. The small sample size precludes comparisons with Areas 1 and 2.

Sufficient differences in the occurrences of wood charcoal from Stratum 1-6 compared with Stratum 1-8 and 1-9 suggest possible changes in habitat exploitation between Early and Middle Woodland period occupations in Area 1. However, the wood charcoal remains from the Middle Woodland occupation in Area 2, specifically in Stratum 2-5, show the same diversity and same pattern of

Table 18. Stratigraphic Distribution of Wood Charcoal at 40RE108, Area 2 (weight grams).

	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	Total
Maple (*Acer* sp.)	.0	.0	.0	.0	3.03	.0	.0	.0	.0	3.03
Cane (*Arundinaria* sp.)	.0	.0	.0	.0	3.96	.0	.0	.0	.0	3.96
Hickory (*Carya* sp.)	.0	.0	.0	.38	9.24	.0	.0	.0	.0	9.62
Chestnut (*Castanea dentata*)	.0	.0	.0	.0	.95	.0	.0	.0	.0	.95
Hackberry (*Celtis occidentalis*)	.0	.0	.0	.0	.38	.0	.0	.0	.0	.38
Persimmon (*Diospyros virginiana*)	.0	.0	.0	.0	.31	.0	.0	.0	.0	.31
White ash (*Fraxinus americana*)	.0	.0	.0	.0	.96	.0	.0	.0	.0	.96
Honey locust (*Gleditsia triacanthos*)	.0	.0	.0	.0	1.23	.0	.0	.0	.0	1.23
Kentucky coffee tree (*Gymnocladus dioica*)	.0	.0	.0	.0	.38	.0	.0	.0	.0	.38
Black walnut (*Juglans nigra*)	.0	.0	.0	.07	2.77	.0	.0	.0	.0	2.84
Cedar (*Juniperus virginiana*)	.0	.0	.0	.31	1.23	.0	.0	.0	.0	1.54
Yellow poplar (*Liriodendron tulipifera*)	.0	.0	.0	.07	.0	.0	.0	.0	.0	.07
Red mulberry (*Morus ruba*)	.0	.0	.0	.0	1.54	.0	.0	.0	.0	1.54
Pine (*Pinus* sp.)	.0	.0	.0	.31	7.20	.12	.0	.0	.0	7.63
Sycamore (*Plantanus occidentalis*)	.0	.0	.0	.0	.16	.0	.0	.0	.0	.16
Oak (*Quercus* sp.)	.0	.0	.0	.31	4.55	.0	.0	.0	.0	4.86
Black locust (*Robinia pseudoacacia*)	.0	.0	.0	.07	.0	.0	.0	.0	.0	.07

Table 18. Continued.

	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	Total
Hemlock (*Tsuga canadensis*)	.0	.0	.0	.0	1.50	.0	.0	.0	.0	1.50
Total	.0	.0	.0	1.52	39.39	.12	.0	.0	.0	41.03

Table 19. Stratigraphic Distribution of Nutshell at 40RE108, Area 2 (weight in grams)

	2-1	2-2	2-3	2-4	2-5	2-6	2-8	2-9	2-10	Total
Hickory (*Carya* sp.)	.0	.0	.0	.06	27.30	.0	.0	.15	.0	27.51
Walnut (*Juglans* sp.)	.0	.0	.0	.16	26.76	.0	.0	.0	.0	26.92
Acorn (*Quercus* sp.)	.0	.0	.0	.0	.29	.0	.0	.0	.0	.29
Total	.0	.0	.0	.22	54.35	.0	.0	.15	.0	54.72

Table 20. Seeds from 40RE108, Area 2.

Stratum 2-5	1	Pokeberry (*Phytolaca americana*)
	1	*Chenopodium* sp.
	1	Maize kernel (*Zea mays*)
	2	Fruithead fragments (Asteraceae)

Table 21. Botanical Remains from 40RE108, Area 3.

Stratum 3-3	.06 g	Cane (*Arundinaria* sp.)
	2.41 g	Hickory (*Carya* sp.)
	1.88 g	Cherry (*Prunus serotina*)
Stratum 3-4	.60 g	Walnut shell (*Juglans nigra*)
	1.60 g	Oak (*Quercus* sp.)

relative abundance as Stratum 1-6. Only the abundance of walnut shell makes Stratum 2-5 distinctive. As a result, there is probably no difference in habitat use between the Early and Middle Woodland occupations at 40RE108. Sample size, activities, or disposal modes to name a few are surely responsible for the differences observed between Early and Middle Woodland strata botanical samples in Area 1.

Faunal Remains

The pattern of occurrence of faunal remains is similar to other materials recovered at 40RE108. Most faunal remains come from Strata 1-6, 1-8, and 1-9 in Area 1 and Stratum 2-5 in Area 2. No faunal remains were obtained from sediments in Area 4. Although few vertebrate remains come from Area 3, a good sized sample (n=3905) of mollusk shells constituting most of Stratum 3-4 was recovered. In Areas 1 and 2, most of Strata 1-9 and 2-5 were composed of mollusks and even larger samples than those obtained in Area 3 were recovered for analysis. Since it was physically impossible to recover, transport, and sort all the mollusks, it was elected to obtain a 40 l maximum sample from all contexts containing them. This procedure produced analyzed samples of freshwater mussels and gastropods totaling 28,916 specimens, about 80% of which are associated with Middle Woodland period occupation in Areas 1 and 2.

Vertebrate Remains

Nearly all the identified mammal bones from Stratum 1-6 are from deer (n=38) with five additional species represented by a single bone each. Unidentifiable mammal bone fragments totaled 965 pieces. A single turkey proximal humerus and an indeterminate passerine bird ulna as well as 10 other unidentifiable bird bones were found in Stratum 1-6. Among the turtle remains are 85 box turtle plastron and carapice fragments. Frog, hellbender, and non-poisonous snake are represented by the fewer than 20 additional reptile and amphibian remains. Drumfish, rock bass, sunfish/bass and 38 unidentifiable bones constitute the fish remains (Table 22).

Identifiable vertebrate remains from Strata 1-8 and 1-9 include an eastern mole, box turtle, stinkpot turtle, nine bones of the Graptemys/Chrysemys/Pseudemys group of turtles, and a catfish vertebra fragment. Unidentifiable mammal, bird, and turtle remains constitute the remainder of the small sample from these two strata. No other stratum in Area 1 produced more than a few bone fragments, of which the only identifiable one was a deer tooth from Stratum 1-3.

Vertebrate remains in Area 2 were obtained almost solely from Stratum 2-5 (Table 23). The species composition and occurrence is similar to Area 1. Deer is most prominent with 29 identified elements. A single bear phalanx occurs in the mammal bones. Box turtle, softshell turtle, and the Graptemys/Chrysemys/Pseudemys turtle group are well represented by 243 identified elements. An additional 523 unidentifiable fragments attest to the abundance of turtle in Stratum 2-5 compared to their occurrence in any context in Area 1. Drumfish (n=38) also are prominent in the Stratum 2-5 sample, and this context, in contrast to Area 1, contains no additional fish species.

In general, the vertebrate remains from Stratum 2-5, which is composed mostly of mollusks, reflect emphasis on the use of aquatic turtles combined with the utilization of deer. Stratum 1-6 shows a similar pattern, but with slightly greater diversity of aquatic vertebrates and without the occurrence of substantial numbers of mollusks. Far fewer remains came from the shell layer and associated deposits in Area 1 and the absence of identifiable deer and fish with the exception of a catfish bone are distinctive in these contexts. In Area 3, a small number of deer bones and two unidentifiable turtle bones were virtually the only vertebrate remains found in the shell deposit, Stratum 3-4 (Table 24).

Mollusks

The mollusk remains recovered in Areas 1, 2, and 3 were identified by Paul W. Parmalee and Arthur E. Bogan, who prepared a preliminary report on their findings (n.d.), which was subsequently revised and published (Parmalee and Bogan 1986:25-37). The data and discussion provided below are drawn from their reports. Emphasis here is on the comparative patterns of mollusk species utilized and on the aquatic habitats that were exploited in the past. Zoogeographic and taxonomic considerations of the 40RE108 mollusks are found in Parmalee and Bogan (1986).

Stratum 1-6 in Area 1 produced 89 mussel valves (MNI 58), representing 20 species and 851 gastropods constituting seven species (Table 25). Two

Table 22. Stratigraphic Distribution of Vertebrate Faunal Remains at 40RE108, Area 1.

Stratum 1-1		
No faunal remains		
Stratum 1-2		
No faunal remains		
Stratum 1-3		
White-tailed Deer (*Odocoileus virginianus*)	1	premolar
Unidentifiable burned mammal bone	3	fragments
Stratum 1-4		
No faunal remains		
Stratum 1-5		
Unidentifiable mammal bone	1	fragment
Unidentifiable burned mammal bone	3	fragments
Unidentifiable turtle bone	1	fragment
Unidentifiable burned turtle bone	1	fragment
Stratum 1-6		
White-tailed Deer (*Odocoileus virginianus*)	7	skull fragments
	2	mandible fragments
	7	premolars
	3	molars
	4	tooth fragments
	1	left ulnar carpel
	1	carpel fragment
	1	burned metatarsal
	4	burned metacarpals
	1	metapodial distal condyle
	2	metapodial fragments
	2	astragalus fragments
	1	left calcaneum
	1	phalange
Beaver (*Castor canadensis*)	1	molar
Squirrel (*Sciurius* cf. *carolinensis*)	1	proximal femur

Table 22. Continued.

Stratum 1-6 (Cont.)		
Eastern Cottontail Rabbit (*Sylvilagus floridanus*)	1	proximal femur
Mouse sp.	1	incisor fragment
Eastern mole (cf. *Scalopus aquaticus*)	1	humerus
Unidentifiable mammal bone	523	fragments
Unidentifiable burned mammal bone	442	fragments
Turkey (*Meleagris gallopavo*)	1	proximal humerus, burned
Passerine Bird (species indeterminate)	1	distal ulna
Unidentifiable bird bone	6	fragments
Unidentifiable burned bird bone	4	fragments
Box turtle (*Terrapene* sp.)	71	plastron and carapice pieces and fragments
	14	burned plastron and carapice pieces and fragments
Graptemys sp., *Chrysemys* sp., *Pseudemys* sp.	3	burned plastron and carapice pieces and fragments
Softshell turtle (*Trionyx* sp.)	1	carapice fragment
	7	burned plastron and carapice pieces and fragments
Unidentifiable turtle bone	6	fragments
Unidentifiable burned turtle bone	40	fragments
Non-poisonous snake (Colubridae)	10	vertebrae
	2	ribs
Frog/Toad (*Rana* sp., *Bufo* sp.)	1	tibio-fibula fragment
	1	indeterminate long bone fragment
	1	proximal humerus
Hellbender (*Cryptobrancus alleganiensis*)	2	vertebrae
Unidentifiable Amphibian bones	1	vertebral fragment
Drumfish (*Aplodinotus grunniens*)	1	pharyngeal arch
	12	pharyngeal teeth
	20	burned pharyngeal teeth
	1	anal spine
Rock Bass (*Amboplites rupestrio*)	1	left articular
Sunfish/Bass (Centrachidae)	1	vomer
Unidentifiable fish bone	38	fragments

Table 22. Continued.

Stratum 1-7		
No faunal remains		
Stratum 1-8		
Unidentifiable mammal bone	42	fragments
Unidentifiable burned mammal bone	18	fragments
Box turtle (*Terrapene* sp.)	3	burned plastron and carapice pieces and fragments
Stinkpot turtle (*Sternothaerus odoratus*)	1	marginal fragment
Graptemys sp., *Chrysemys* sp., *Pseudemys* sp.	7	plastron and carapice pieces and fragments
Unidentifiable turtle bones	5	fragments
Catfish (Ictaluridae)	1	vertebra fragment
Stratum 1-9		
Eastern mole (cf. *Scalopus aquaticus*)	1	left humerus
Unidentifiable mammal bones	51	fragments
Unidentifiable burned mammal bones	2	fragments
Unidentifiable burned bird bones	3	fragments
Box turtle (*Terrapene* sp.)	2	plastron and carapice pieces and fragments
Graptemys sp., *Chrysemys* sp., *Pseudemys* sp.	2	burned plastron and carapice pieces and fragments
Unidentifiable turtle bones	13	fragments
Unidentifiable burned turtle bones	19	fragments
Stratum 1-10		
Unidentifiable mammal bones	6	fragments
Unidentifiable burned mammal bones	3	fragments
Stratum 1-11		
Unidentifiable mammal bone	1	fragment
Unidentifiable burned mammal bone	1	fragment

Table 22. Continued.

Stratum 1-11 (Cont.)		
Unidentifiable burned turtle bone	2	fragments
Unidentifiable fish bone	1	fragment
Stratum Unassigned		
Unidentifiable burned mammal bone	6	fragments
Unidentifiable bird bone	2	fragments
Unidentifiable burned turtle bone	1	fragment

species, Lithasia geniculata and Pleurocera canaliculatum, make up 68.6% of the gastropod sample (Table 26), whereas four species Cyclonaias tuberculata, Elliptio dilatatus, Actinonaias ligamentina, and Cyprogenia stegaria account for 62.9% of the freshwater mussel species from Stratum 1-6. Strata 1-8 and 1-9 produced specimens of 29 species of mussels, with six taxa Cyclonaias tuberculata, Elliptio dilatata, Pleurobema c. plenum, Pleurobema c. pyramidatum, Actinonaias ligamentina, and Cyprogenia stegaria accounting for 63.2% of the sample. Although six gastropod species came from these Middle Woodland period contexts, all, with the exception of Pleurocera canaliculatum (n=1133, 97.81%), are represented by fewer than 40 individuals. A fragment of the marine gastropod Busycon sp. also occurred in Stratum 1-9 and this species is found in Middle Woodland period contexts elsewhere in eastern North America.

Mussel shells in Area 2 totaled 19,513 specimens (MNI 10,210), with 91% of these coming from Stratum 2-5 (Table 27). There are 43 species in the sample, 11 of which are represented by 500 or more valves. Fusconia subrotunda, Cyclonaias tuberculata, Pleurobema c. plenum, Actinonaias ligamentina and Cyprogenia stegaria are each represented by over 1,000 specimens and together these five species constitute 56% of all the river mussels in Stratum 2-5. The occurrence of gastropods in Area 2, like the mussels, is largely restricted to Stratum 2-5 from which 1,443 (86.9%) specimens were recovered (Table 28). Io fluvalis and Pleurocera canaliculatum respectively comprise 35.61% and 62.16% of the gastropods from this stratum.

The shell deposits representing Early Mississippian period occupation in Area 3 produced 2,713 (MNI 1,438) river mussel and 1,192 gastropod shells (Tables 29 and 30). Among the six recovered gastropod species Leptoxis crassa and Pleurocera canaliculatum make up about 95% of the specimens. Thirty-eight mussel species were found in Area 3 with seven of these represented by 150 or more valves, constituting about 56% of the sample. These taxa include Fusconaia subrotunda, Cyclonaias tuberculata, Pleurobema c. plenum, Pleurobema cordatum subspp., Actinonaias ligamentina, Epioblasma arcaeformis and Cyprogenia stegaria.

Table 23. Stratigraphic Distribution of Vertebrate Faunal Remains at 40RE108, Area 2.

Stratum 2-1		
No faunal remains		
Stratum 2-2		
White-tailed Deer (*Odocoileus virginianus*)	1	scapula fragment
Stratum 2-3		
No faunal remains		
Stratum 2-4		
No faunal remains		
Stratum 2-5		
White-tailed Deer (*Odocoileus virginianus*)	1	burned mandible fragment
	3	premolars
	1	molar
	3	antler fragments
	2	glenoid fossa
	2	scapula blade fragments
	1	left radius fragment
	1	left tarsal
	1	accessory carpel
	3	metatarsal fragments
	1	distal metapodial condyle
	1	distal metapodial fragment
	7	metapodial fragments
	1	left distal tibia
	1	distal tibia fragment
Bear (*Ursus* sp.)	1	burned distal phalanx
Short-tailed Shrew (cf. *Blarina brevicauda*)	1	partial cranium
Mouse sp.	1	incisor
Unidentifiable mammal bone	197	fragments
Unidentifiable burned mammal bone	458	fragments

Table 23. Continued.

Stratum 2-5 (Cont.)		
Unidentifiable burned bird bone	1	fragment
Box turtle (*Terrapene* sp.)	41	plastron and carapice pieces and fragments
	128	burned plastron and carapice pieces and fragments
Graptemys sp., *Chrysemys* sp., *Pseudemys* sp.	14	plastron and carapice pieces and fragments
Softshell turtle (*Trionyx* sp.)	58	plastron and carapice pieces and fragments
	2	burned plastron and carapice pieces and fragments
Unidentifiable turtle bone	361	fragments
Unidentifiable burned turtle bone	162	fragments
Non-poisonous snake (Colubridae)	1	vertebra
Drumfish (*Aplodinotus grunniens*)	7	pharyngeal arches
	5	burned pharyngeal arches
	9	pharyngeal arch fragments
	10	pharyngeal teeth
	4	vertebra
	2	burned vertebra
	1	interior ptsnygiophone
Unidentifiable fish bone	1	fragment
Stratum 2-6		
No faunal remains		
Stratum 2-7		
No faunal remains		
Stratum 2-8		
Unidentifiable mammal bone	1	fragment

Table 23. Continued.

Stratum 2-8 (Cont.)		
Drumfish (Aplodinotus grunniens)	1	burned vertebra
Stratum 2-9		
No faunal remains		

Many of the 43 river mussel species recovered at 40RE108 are extant, although their ranges and populations are now greatly reduced because of river impoundments throughout much of the Southeast. The most frequently occurring species in the site are Fusconaia subrotunda (n=1,746), Cyclonaias tuberculata (n=2,042), Elliptio dilatata (n=1,428), Pleurobema c. plenum (n=3,466), Pleurobema cordatum subspp. (n=1,049), Actinonaias ligamentina (n=3,228), Epioblasma bervidens (n=1,088), and Cyprogenia stegaria (n=2,463). Together they constitute about 69% of the river mussels collected at the site. According to Parmalee and Bogan (1986), Fusconaia subrotunda, and Elliptio dilatata develop their greatest size and most robust shells in deep water and strong current habitats. The specimens recovered at 40RE108 indicate the exploitation of such areas. Other deep water species, particularly Elliptio crassidens, expected to occur in large numbers at the site based on present distributions, are rare in all site deposits. Cyclonaias tuberculata, Pleurobema c. plenum, Pleurobema cordatum subspp., Actinonaias ligamentina, Epioblasma brevidens, and Cyprogenia stegaria are all characteristic of shallow water and sand or gravel bars and the abundance of these species indicate the exploitation of such habitats. Some shallow water species, like Lampsilis ovata, generally common in the lower Clinch River drainage, however, are infrequent in the site deposits. Both deep and shallow water environments would have occurred in the immediate vicinity of the site. Species recovered in small numbers at the site generally do not establish large populations in large, fast moving river environments. Such species are more abundant in smaller tributary streams.

The small sample size representing Early Woodland period occupation precludes detailed comparison with the other cultural components, although the frequencies of the eight most abundant species in Stratum 1-6 are surprisingly similar to those found in other occupations. Comparison of the Middle Woodland occupations in Area 1 and Area 2 indicate the same general patterns of species abundance noted for the site as a whole. Dromus dromas and Epioblasma arcaeformis, however, are among the ten most abundant occurring species in Area 2 where each is about twice as frequent as in Area 1. Parmalee and Bogan (1986:33) note that Dromus dromas was probably one of the more important mollusk food resources in the Tennessee valley in prehistoric times. Thus, its more prominent occurrence in Area 2 suggests an exploitive opportunity or emphasis not represented in the Area 1 Middle Woodland period shell deposits.

Table 24. Stratigraphic Distribution of Vertebrate Faunal Remains at 40RE108, Area 3.

Stratum 3-1		
No faunal remains		
Stratum 3-2		
No faunal remains		
Stratum 3-3		
Unidentifiable burned mammal bone	1	fragment
Stratum 3-4		
White-tailed Deer (*Odocoileus virginianus*)	2	mandible fragments
	1	left proximal metarsal
	1	left proximal metacarpal
	1	left proximal tibia shaft fragment
Unidentifiable mammal bone	9	fragments
Box Turtle (*Terrapene* sp.)	2	fragments
Stratum 3-5		
No faunal remains		
Stratum 3-6		
No faunal remains		
Stratum 3-7		
No faunal remains		

The species composition of the mussel shell sample found in Area 3, although dating about 1000 years more recent, is very similar to the Middle Woodland deposits in Areas 1 and 2. In Area 3, *Amblema plicata* is more prevalent, while species like *Elliptio dilata* and *Epioblasma brevidens* are not nearly as well represented. So far as *habitat* occurrence or exploitive strategies are concerned these occurrences indicate no significant difference. "Keeping the discrepancy in sample size in mind," Parmalee and Bogan concluded that there was "little if any change in the species composition of the mussel beds" in the vicinity of the site during the time of its occupation (1986:36).

Table 25. Freshwater Mussels from 40RE108, Area 1. (No specimens recovered from Strata 1-1, 1-2, or 1-4.)

Taxa	1-3		1-5		1-6		1-8		1-9		1-10		1-11		Total			
	Valves	MNI	Valves	MNI	Valves	MNI	Valves	MNI	Valves	MNI	Valves	MNI	Valves	MNI	Valves	%	MNI	%
Amblema plicata	1	1	-	-	1	1	2	1	33	18	-	-	-	-	37	2.20	21	2.21
Fusconaia cf. barnesiana	-	-	-	-	2	1	-	-	2	2	-	-	1	1	5	.29	4	.42
Fusconaia subrotunda	1	1	-	-	-	-	1	1	93	51	-	-	1	1	96	5.72	54	5.69
Quadrula cylindrica	-	-	-	-	-	-	-	-	2	2	-	-	-	-	2	.12	2	.21
Quadrula intermedia	-	-	-	-	2	1	-	-	58	32	-	-	-	-	60	3.57	33	3.48
Quadrula pustulosa	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	.06	1	.10
Quadrula: metanevra/ sparsa complex	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	.06	1	.10
Cyclonaias tuberculata	-	-	-	-	9	5	2	1	124	56	1	1	-	-	136	8.10	73	7.70
Elliptio crassidens	-	-	-	-	-	-	-	-	2	2	-	-	-	-	2	.12	2	.21
Elliptio dilatata	-	-	-	-	10	7	-	-	140	87	1	1	1	1	152	9.05	96	10.12
Lexingtonia dolabelloides	-	-	-	-	-	-	-	-	36	19	-	-	-	-	36	2.14	19	2.00
Pleurobema clava	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	.06	1	.10
Pleurobema cordatum	-	-	-	-	-	-	-	-	4	2	-	-	-	-	4	.24	2	.21
Pleurobema c. plenum	-	-	-	-	5	3	1	1	131	67	-	-	-	-	137	8.16	71	7.49
Pleurobema c. pyramidatum	-	-	-	-	3	2	-	-	101	58	-	-	-	-	104	6.19	60	6.33
Pleurobema cordatum subspp.	1	1	-	-	3	3	4	3	39	24	-	-	-	-	47	2.80	31	3.27
Actinonaias ligamentina	-	-	-	-	20	11	3	2	337	181	1	1	2	1	363	21.62	196	20.67
Epioblasma arcaeformis	-	-	-	-	1	1	-	-	24	12	-	-	-	-	25	1.49	13	1.37
Epioblasma brevidens	-	-	-	-	4	2	-	-	73	42	2	1	-	-	79	4.70	45	4.74
Epioblasma cf. capsaeformis	-	-	1	1	1	1	-	-	-	-	-	-	-	-	2	.12	2	.21
Epioblasma haysiana	-	-	-	-	-	-	-	-	12	6	-	-	-	-	12	.71	6	.63
Epioblasma stewardsoni	-	-	-	-	-	-	1	1	10	7	-	-	-	-	11	.65	8	.84
Epioblasma torulosa gubernaculum	-	-	-	-	1	1	-	-	19	11	-	-	-	-	20	1.19	12	1.26
Epioblasma torulosa propinqua	-	-	-	-	1	1	-	-	13	8	-	-	-	-	14	.83	9	.95
Epioblasma triquetra	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	.06	1	.10
Lemiox rimosus	-	-	-	-	1	1	1	1	13	7	-	-	-	-	15	.89	9	.95
Lampsilis ovata	-	-	-	-	-	-	-	-	3	2	-	-	-	-	3	.18	2	.21
Cyprogenia stegaria	-	-	-	-	17	10	2	1	149	78	2	1	-	-	170	10.12	90	9.49
Dromus dromas	-	-	-	-	4	3	-	-	30	18	-	-	-	-	34	2.02	21	2.21
Ptychobranchus fasciolare	-	-	-	-	2	2	1	1	93	51	1	1	1	1	98	5.83	56	5.91
Ptychobranchus subtentum	-	-	-	-	1	1	-	-	10	6	-	-	-	-	11	.65	7	.74
Total	3	3	1	1	89	58	18	13	1554	862	8	6	6	5	1679	99.94	948	99.92

Table 26. Freshwater Gastropods from 40RE108, Area 1. (No specimens recovered from Strata 1-1, 1-2, 1-3, 1-4, or 1-5.)

Taxa	1-6		1-7		1-8		1-9*		1-10		1-11		Total	
	n	%	n	%	n	%	n	%	n	%	n	%		%
Campeloma sp.	10	1.18	-	-	-	-	10	.84	-	-	-	-	20	.92
cf. *Elimia* sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Io fluvialis	11	1.29	-	-	-	-	37	3.11	-	-	-	-	48	2.22
Leptoxis crassa	228	26.79	-	-	-	-	-	-	-	-	-	-	228	10.57
Leptoxis cf. *praerosa*	65	7.64	-	-	-	-	1	.08	-	-	-	-	66	3.05
Lithasia verrucosa	67	7.87	-	-	-	-	6	.50	-	-	-	-	73	3.38
Pleurocera canaliculatum	356	41.83	-	-	51	83.60	1133	95.29	7	100.00	50	100.00	1597	74.00
Unidentifiable	114	13.40	-	-	10	16.40	2	.17	-	-	-	-	126	5.83
Total	851	100.00	-	-	61	100.00	1189	99.99	7	100.00	50	100.00	2158	99.97

* A cf. *Busycon* sp. marine gastropod fragment was recovered in Stratum 1-9.

Table 27. Freshwater Mussels from 40RE108, Area 2. (No specimens assigned to Stratum 2-1, 2-2, 2-3, or 2-6.)

Taxa	2-4		2-5		2-7		2-8		Unassigned		Total			
	Valves	MNI	Valves	MNI	Valves	MNI	Valves	MNI	Valves	MNI	Valves	%	MNI	%
Amblema plicata	4	2	331	177	5	4	8	5	10	5	358	1.83	193	1.89
Fusconaia cf. barnesiana	4	2	55	30	3	3	-	-	-	-	62	.32	35	.34
Fusconaia subrotunda	58	34	1355	682	21	12	15	9	46	30	1495	7.66	767	7.51
Quadrula cylindrica	2	1	58	33	-	-	1	1	2	2	63	.32	37	.36
Quadrula intermedia	11	6	191	107	1	1	2	2	-	-	205	1.05	116	1.14
Quadrula pustulosa	-	-	16	8	-	-	-	-	2	2	18	.09	10	.10
Quadrula: metanevra/sparsa complex	2	1	84	47	2	2	2	1	4	4	94	.48	55	.54
Cyclonaias tuberculata	46	23	1508	767	19	12	16	10	39	20	1628	8.34	832	8.15
Elliptio crassidens	-	-	16	9	-	-	-	-	-	-	16	.08	9	.09
Elliptio dilatata	88	45	985	554	19	15	19	10	50	25	1161	5.94	649	6.36
Lexingtonia dolabelloides	10	5	262	144	6	3	8	5	25	13	311	1.59	170	1.66
Plethobasus cyphus	-	-	3	2	-	-	-	-	-	-	3	.02	2	.02
Plethobasus cicatricosus	-	-	1	1	-	-	-	-	-	-	1	.01	1	.01
Plethobasus cooperianus	-	-	8	5	-	-	-	-	1	1	9	.05	7	.07
Pleurobema clava	2	2	89	54	2	1	-	-	7	5	100	.51	62	.60
Pleurobema cordatum	-	-	8	5	-	-	-	-	-	-	8	.04	5	.05
Pleurobema c. plenum	90	50	2796	1400	45	23	26	14	84	42	3041	15.58	1529	14.98
Pleurobema c. pyramidatum	15	8	389	204	12	6	7	4	12	8	435	2.22	230	2.25
Pleurobema cordatum subspp.	29	16	737	377	9	5	11	6	40	24	826	4.23	428	4.19
Actinonaias ligamentina	50	25	2383	1233	48	31	37	19	79	41	2597	13.31	1349	13.21
Epioblasma arcaeformis	18	10	743	373	4	4	2	2	22	11	789	4.04	400	3.92
Epioblasma brevidens	32	21	872	442	16	9	9	6	32	22	961	4.92	500	4.89
Epioblasma cf. capsaeformis	-	-	50	27	2	1	-	-	6	3	58	.29	31	.30
Epioblasma haysiana	14	9	333	168	-	-	3	2	13	12	363	1.86	191	1.87
Epioblasma stewardsoni	11	6	156	83	-	-	1	1	10	7	178	.91	97	.91
Epioblasma cf. sulcata	-	-	3	2	-	-	-	-	-	-	3	.02	2	.02
Epioblasma torulosa gubernaculum	6	5	227	121	2	1	2	1	8	4	245	1.26	132	1.29
Epioblasma torulosa propinqua	4	3	102	56	-	-	4	2	5	4	115	.59	65	.64
Epioblasma triquetra	-	-	20	10	-	-	-	-	-	-	20	.10	10	.10
Lemiox rimosus	24	14	459	237	6	4	8	4	15	8	512	2.62	267	2.62
Lampsilis ovata	-	-	29	17	1	1	-	-	2	2	32	.16	20	.19
Lampsilis cf. fasciola	1	1	12	7	-	-	-	-	3	3	16	.08	11	.11
Lampsilis cf. orbiculata	-	-	1	1	-	-	-	-	-	-	1	.01	1	.01
Ligumia recta	-	-	5	4	-	-	-	-	-	-	5	.03	4	.04
Obovaria cf. subrotunda	1	1	11	10	-	-	1	1	4	3	17	.09	15	.15
Villosa cf. taeniata	-	-	2	2	-	-	-	-	-	-	2	.01	2	.02
Villosa trabalis	-	-	1	1	-	-	-	-	-	-	1	.01	1	.01
Villosa cf. vanuxemensis	-	-	21	13	-	-	-	-	-	-	21	.12	13	.13
Villosa sp.	-	-	4	3	-	-	-	-	-	-	4	.02	3	.03
Cyprogenia stegaris	109	67	1879	951	25	15	18	12	76	40	2107	10.80	1095	10.63
Dromus dromas	42	24	778	408	12	7	5	4	26	15	863	4.42	458	4.49
Ptychobranchus fasciolare	20	11	605	320	12	7	7	5	15	12	659	3.38	355	3.48
Ptychobranchus subtentum	3	2	101	55	1	1	-	-	5	3	110	.56	61	.60
Total	696	394	17,689	9151	273	168	212	126	643	371	19513	99.97	10210	99.97

Table 28. Freshwater Gastropods from 40RE108, Area 2. (No specimens recovered from Strata 2-1, 2-2, or 2-3.)

Taxa	2-4 n	2-4 %	2-5 n	2-5 %	2-6 n	2-6 %	2-7 n	2-7 %	2-8 n	2-8 %	Unassigned		Total	%
Campeloma sp.	1	2.04	5	.34	1	6.66	-	-	-	-	4	2.96	11	.66
cf. *Elimia* sp.	-	-	1	.07	-	-	-	-	-	-	6	4.44	7	.42
Io fluvialis	21	42.85	514	35.61	10	66.66	-	-	2	10.52	19	14.07	566	34.07
Leptoxis crassa	1	2.04	18	1.25	-	-	-	-	-	-	17	12.59	36	2.16
Leptoxis cf. *praerosa*	-	-	6	.41	-	-	-	-	-	-	-	-	6	.36
Lithasia verrucosa	-	-	1	.07	-	-	-	-	-	-	-	-	1	.06
Pleurocera canaliculatum	26	53.06	897	62.16	4	26.66	-	-	17	89.47	83	61.43	1027	61.83
Unidentifiable	-	-	1	.07	-	-	-	-	-	-	-	-	-	-
Total	49	99.99	1443	99.98	15	99.98	-	-	19	99.99	135	99.93	1661	99.98

Table 29. Freshwater Mussels from 40RE108, Area 3, Stratum 3-4.

Taxa	Valves	%	MNI	%
Amblema plicata	128	4.72	72	5.00
Fusconaia cf. barnesiana	13	.48	8	.55
Fusconaia subrotunda	155	5.71	78	5.42
Quadrula cylindrica	38	1.40	19	1.32
Quadrula intermedia	38	1.40	20	1.39
Quadrula pustulosa	29	1.07	17	1.18
Quadrula metanevra	2	.07	1	.07
Quadrula: metanevra/sparsa complex	18	.66	10	.69
Cyclonaias tuberculata	278	10.24	143	9.94
Elliptio dilatata	115	4.24	59	4.10
Lexingtonia dolabelloides	91	3.35	49	3.40
Plethobasus cooperianus	15	.55	10	.69
Pleurobema clava	26	.96	13	.90
Pleurobema cordatum cordatum	5	.18	3	.21
Pleurobema c. plenum	288	10.61	153	10.64
Pleurobema c. pyramidatum	95	3.50	58	4.03
Pleurobema cordatum subspp.	176	6.48	88	6.12
Actinonaias ligamentina	268	9.88	139	9.66
Epioblasma arcaeformis	155	5.71	78	5.42
Epioblasma brevidens	48	1.77	25	1.74
Epioblasma cf. capsaeformis	24	.88	12	.83
Epioblasma cf. florentina	15	.55	9	.62
Epioblasma haysiana	64	2.36	38	2.64
Epioblasma stewardsoni	9	.33	5	.35

Table 29. Continued.

Taxa	Valves	%	MNI	%
Epioblasma torulosa gubernaculum	51	1.88	30	2.08
Epioblasma torulosa propinqua	107	3.94	57	3.96
Epioblasma triquetra	9	.33	6	.42
Lemiox rimosus	96	3.54	49	3.40
Lampsilis ovata	3	.11	3	.14
Lampsilis fasciola	5	.18	3	.21
Obovaria cf. subrotunda	3	.11	3	.21
Villosa cf. taeniata	2	.07	2	.14
Villosa cf. vanuxemi	7	.26	5	.35
Villosa sp.	2	.07	1	.07
Cyprogenia stegaria	186	6.85	94	6.53
Dromus dromas	77	2.84	40	2.78
Ptychobranchus fasciolare	34	1.25	19	1.32
Ptychobranchus subtentum	38	1.40	20	1.39
Total	2,713	99.93	1,438	99.91

Comparison of the gastropod species indicates a greater emphasis on the use of Io fluvialis in the Middle Woodland period occupation in Stratum 2-5. Lepotoxis crassa shows a correspondingly greater incidence in Stratum 1-6 and with the Early Mississippian occupation in Area 3. In all components Pleurocera canaliculatum is the most abundant gastropod species representing about 42% to 95% of the specimens associated with each occupation. Parmalee and Bogan (1986:36) indicate that Leptoxis spp. and Io fluvialis come from riffle areas with good current, while other species, particularly Campeloma sp. and the most abundant species Pleurocera canaliculatum are best found in still eddy or backwater areas having cobble, mud, or decayed vegetation substratum.

Table 30. Freshwater Gastropods from 40RE108, Area 3, Stratum 3-4.

Taxa	n	%
Campeloma sp.	5	.42
cf. Elimia sp.	-	-
Io fluvialis	18	1.51
Leptoxis crassa	451	37.83
Leptoxis cf. praerosa	5	.42
Lithasia vevrucosa	15	1.25
Pleurocera canaliculatum	698	58.55
Total	1,192	99.98

Summary

There are few Woodland period faunal collections analyzed from East Tennessee and since none is very large, comparisons among them are necessarily general. Early Woodland samples of comparable age come from Swannanoa and Phipps phase occupations at 40HW45 on the Holston River in northeast Tennessee (Lafferty 1981) and from Bacon Bend (Woodland I) occupation at[Exempted from disclosure by statute] (40MR20) in the lower Little Tennessee River Valley (Bogan and Bogan 1985). Early Woodland faunal remains also came from[Exempted from Disclosure by Statute](40MR40) in the lower Little Tennessee River Valley, although they date to a later culture phase at this site (Schroedl 1978b). [Exempted from disclosure by statute] (40MR23) produced faunal remains associated with Middle Woodland occupations

The Early Woodland period faunal sample from 40HW45 includes only 250 identified vertebrate remains, most of which are deer and box turtle. Elk bones (n=3), beaver (n=1) and raccoon (n=1) found there are not present at 40RE108. In contrast to the Early Woodland period occupation at 40RE108, freshwater mollusks are abundant at 40HW45 where 2,690 gastropods and 1,357 mussels are specifically attributed to the Swannanoa and Phipps occupations and as much as 9,000 g of shell were recovered from levels probably representing these occupations. Unfortunately, no identifications of the mollusks were made. This contrasts with the Tennessee River Valley, especially below Knoxville, where Early Woodland period shell deposits are virtually unknown.

Middle Woodland period shell deposits occur along the Tennessee River and Parmalee et al (1982: Table 1) provide identifications for 953 mollusks from one such site. In this sample, the abundance of Dromus dromas is distinctive from 40RE108. No data are available for associated vertebrates. In the lower

Little Tennessee River Valley, small numbers of mollusks are associated with many prehistoric sites, but dense shell beds like those at 40RE108 are absent. The Middle Woodland period archaeofauna sample [Exempted from disclosure by statute] is small containing only 607 identifiable elements among over 60,000 bone fragments. The identified elements, much like 40RE108, are mostly deer and a large number of turtle (especially box turtle). Several species of fish are represented, although most bones are from freshwater drum (Cridlebaugh 1981: Table 26). At [Exempted from disclosure by statute] Middle Woodland fauna are similar [Exempted from disclosure by statute] but additional species include elk and turkey (Schroedl 1978b).

Because of the small number of analyzed sites and the small sample sizes of the recovered fauna, few substantive patterns are evident in their comparison. The abundance of mollusks is distinctive at 40HW45, whereas the vertebrates from Early Woodland period occupations show no obvious differences. The Middle Woodland mollusks from 40RE108 represent one of just two analyzed samples dating to this period. They and the Early Mississippian period sample from Area 3 show that shell deposits are not restricted to Late Woodland period occupations as is often assumed. Aquatic vertebrates, although common in most East Tennessee faunal assemblages, suggest a possible emphasis on riverine resources during the Middle Woodland period to a degree not obvious for other cultural periods. Defining such a pattern and making detailed statements about seasonality and faunal exploitation will require analyses of additional archaeofaunas.

Chronology

Ceramic artifacts recovered from Strata 1-8 and 1-9 indicate probable Middle Woodland period occupation. Ceramics from the shell deposits in Area 2 are similar to those found in Area 1 and indicate occupation of comparable age. No other components occur in Area 2, although diagnostic Archaic, Woodland, and Mississippian period artifacts were found in Stratum 2-8. Swannanoa and Watts Bar ceramics from Stratum 1-6 indicate an Early Woodland period archaeological culture. No ceramics and only a few lithic artifacts were found in Stratum 1-3. Material from this context could represent a Late Archaic period or perhaps Early Woodland period component. Ceramic artifacts indicate that shell deposits in Area 3 date to the Early Mississippian period and that no other archaeological cultures are represented in the deposits. Too few artifacts were recovered from Area 4 to identify a specific archaeological culture, although probable Woodland and Mississippian period lithic artifacts were found here.

In order to provide chronometric dates for the archaeological cultures, seven radiocarbon dates were secured for the 40RE108 excavations. Five samples from Area 1 were dated and the results are shown in Table 31. Samples 5 and F5/20 both came from Stratum 1-6 and provide nearly identical dates in the sixth century B.C. for the Early Woodland occupation. Lafferty (1981: Table 164) reports five dates for Swannanoa phase occupation [Exempted from Disclosure by Statute] (40HW45) ranging from 560±90 B.C. to 990±105 B.C. Keel suggests from the occurrence of radiocarbon dated Early Woodland period contexts in Tennessee and Alabama that the Swannanoa phase in western North Carolina has "a beginning date of about 700 or 600 B.C. and a terminal date of about 200 B.C. (1976: 241)." A radiocarbon date for Watts Bar ceramics at [Exempted from disclosure by statute] site (40MR25) was 480±180 B.C. (Salo 1969: 179), and Kimball (1985) suggests an age range of 900 B.C. to 200 B.C. for assemblages containing predominantly

Table 31. Radiocarbon Dates from 40RE108.

Context	Date	s	Age	Corrected Date*	s	Age
Area 1						
GX3452 (Stratum 1-6)	2515	220	565 B.C.	2630	233	680 B.C.
GX3454 (Feature 5)	2470	160	520 B.C.	2575	191	625 B.C.
GX3456 (Feature 7)	1600	275	A.D. 350	1584	276	A.D. 366
GX3457 (Feature 7)	1210	170	A.D. 740	1190	177	A.D. 760
Area 2						
GX3458 (Stratum 2-5)	1700	185	A.D. 250	1689	187	A.D. 261
Area 3						
GX3709 (Stratum 3-4)	less than 150 radiocarbon years B.P.					

* after Damon et al 1974

Watts Bar ceramics, which he designates the Woodland II period,[Exempted from disclosure by statute] temporal unit. Although a small number of limestone tempered fabric marked sherds (n=4) cordmarked (n=4), complicated stamped (n=4), and plain sherds (n=13) are assigned to Stratum 1-6 suggesting Woodland period occupations more recent than indicated by the carbon dates, only grit tempered ceramics came from Feature 5. The carbon date from this context and the second date from Stratum 1-6 thus provide acceptable ages for Swannanoa ceramics at 40RE108.

Three dates, two from Area 1 and one from Area 2, were used to estimate the age of the shell middens in these areas. Two separate samples from Feature 7 (Stratum 1-9) produced dates that differ by almost 400 years, although at one sigma they are statistically no different. The date from Area 2 is comparable with the earliest date from Area 1. Associated ceramic assemblages in both areas are small, but the near exclusive occurrence of limestone tempered plain, cordmarked, simple stamped, and check stamped sherds indicate acceptable radiocarbon ages for Middle Woodland period occupation in the fourth or fifth centuries. Comparable radiocarbon age estimates have been obtained elsewhere in East Tennessee for Middle Woodland components (see Kimball 1985: Table 70). At sites like[Exempted from disclosure by statute](40MR23) and[Exempted from disclosure by statute] (40MR40), sand tempered Connestee ceramics are well represented in Middle Woodland period contexts, which is not the case at 40RE108 (Chapman 1973; Cridlebaugh 1981; Schroedl 1978b).

The seventh radiocarbon date was obtained on charcoal associated with Stratum 3-4. This sample was intended to provide an age estimate for shell tempered ceramics which surely date to the Early Mississippian period. The sample, however, produced a date that is less than 150 years B.P. at two sigmas. This sample was quite small (only 4 g), but the source of error or contamination affecting it is undetermined.

Summary and Conclusions

Archaeological investigations at 40RE108 included excavations in four site areas, three of which contained small shell middens. Backhoe trenches were used to isolate these deposits and related sediments and to establish stratigraphic control. In Area 1, the shell deposit was comparatively small. Radiocarbon dates and associated ceramic artifacts indicate that this is a Middle Woodland period occurrence. In Area 2, the shell deposit was larger and more deeply buried. A radiocarbon date and associated artifacts indicate Middle Woodland period occupation identical to Area 1. In neither area were habitation areas located from which the shell refuse might have originated. It is likely that only small numbers of artifacts in plow disturbed soil are the residues of such areas. In Area 3, ceramic artifacts indicate an Early Mississippian period origin for the shell deposit.

As shown by the stratigraphy, all three shell deposits were created by refuse[Exempted from disclosure by statute]which was buried primarily by lateral accretion of coarse alluvial sediments. This occurred because of the site's location[Exempted from disclosure by statute] [Exempted from disclosure by statute] [Exempted from disclosure by statute] The depositional processes, however, must have been complex since the shell middens in Areas 1 and 3, located only 50 m apart, are topographically the same, yet there is 700 to 800 years difference in their ages.

The shell deposits in Areas 1 (Stratum 1-8, 1-9) and Area 2 (Stratum 2-5) produced small samples of botanical remains. Hickory nut shell is most abundant followed by walnut shell and acorn shell. Fragments of hickory, pine and oak are most frequent in the wood charcoal samples. One or two chenopod or smartweed seeds also occur in the sample, and a single corn kernel also was recovered, but in general the number and diversity of horticulturally used plants found in Middle Woodland contexts elsewhere do not occur at 40RE108.

Abundant mollusk remains attest to the exploitation of over 50 mussel and gastropod species. Generally, the abundant use of aquatic mollusks has been regarded as a Late Woodland period pattern in East Tennessee (Lewis and Kneberg 1946), but the 40RE108 materials are further evidence that this is also a Middle Woodland period and Early Mississippian period phenomena. The vertebrate remains indicate the associated use of other aquatic species particularly turtles. Deer and bear are represented, but generally few terrestrial species occur with the Middle Woodland occupation.

In addition to the shell deposit, excavations in Area 1 uncovered a small habitation area (Stratum 1-6) which included three small pit features and a moderately large concentration (Feature 5) of culture debris. Associated ceramics are nearly all grit tempered Swannanoa Cordmarked ceramics. This and two radiocarbon determinations indicate an Early Woodland period manifestation dating about 500 B.C. Watts Bar ceramics dominate most ceramic assemblages of this age in East Tennessee. The 40RE108 Swannanoa sherds expand the known distribution of this type which is the predominate Early Woodland pottery in upper East Tennessee and western North Carolina. Few Watts Bar or Swannanoa age deposits with preserved botanical or faunal remains have been studied. Recovered samples are small, but most wood charcoal is pine or oak, and hickory nut shell exceeds by far walnut or acorn. No cultigens or potential

cultigens occurred in the deposits. Deer, beaver, squirrel, rabbit and turkey, box turtle, softshell turtle, and several varieties of fish constitute most of the vertebrate faunal remains. Noted for its absence is elk which has been found at[Exempted from disclosure by statute] [Exempted from disclosure by statute](Schroedl 1978b). 40RE108 is presently the only early Woodland site with an identified mollusk fauna; a very much larger sample from contemporary occupation is unidentified at[Exempted from disclosure by statute](40HW45). The 40RE108 remains suggest exploitation of[Exempted from disclosure by statute]habitats similar to those utilized during the Middle Woodland period and Early Mississippian period occupations at the site. Changes in the[Exempted from disclosure by statute]environment over this time probably were negligible. Intense use of aquatic resources and the systematic and sustained collecting of river mussels and gastropods is more pronounced in the Middle Woodland, Late Woodland, and Early Mississippian periods in the region.

EXCAVATIONS AT 40RE124

Location

40RE124 is a small conical Late Woodland period burial mound, measuring approximately 12 m in diameter and 2 m high, [Exempted from disclosure by statute]
[Exempted from disclosure by statute
Exempted from disclosure by statute
Exempted from disclosure by statute
Exempted from disclosure by statute
Exempted from disclosure by statute
Exempted from disclosure by statute]
[Exempted from disclosure by statute]

Test excavations in March 1973 established the cultural integrity of the site and excavations at 40RE124 were made from October 1973 through January 1974 to investigate the mound. Culture bearing sediments found adjacent to the mound during these excavations were investigated further in March and April of 1975. Because of the differences in their origin and contents, slightly different approaches, as described below, were used to remove and record the archaeological deposits in each field season.

Mound Excavations

The initial test excavation at 40RE124 consisted of a 3 ft wide by 20 ft long trench excavated in four units each 5 ft long, with 0.5 ft levels for vertical control. The trench was oriented approximately east-west and ran from the mound's center to its western edge (Figure 37). This work confirmed that the mound was an aboriginal earthwork previously undisturbed by plowing or excavation. The test trench also demonstrated the occurrence of burials preserved within the mound.

Because the mound was comparatively small, it was decided to excavate it in quadrants leaving 50 cm stratigraphic balks meeting at right angles near the mound center (Figure 38). The site was gridded into contiguous 2 meter squares extending 2 m or more beyond the periphery of the mound in all directions. Grid coordinates were selected so that the north-south stratigraphic balk was 60.0 to 60.5 E and the north-south balk was 100.0 to 100.5 N, with the 100.0 line coincident with the north wall of the previously excavated test trench. Overall the grid was oriented N10°E. A datum located at 112N/60E and assigned an arbitrary elevation of 100.00 m (791.5 ft above sea level) was used for vertical control (Figure 39).

Mound fill was removed from 2 m squares in 10 cm levels parallel to the mound contour. In this fashion most of each quadrant was simultaneously removed in contiguous squares to expose burials and aboriginal features of mound construction. The sediments were shovel and trowel sorted. Excavation of the south half of the mound was nearly complete before work began on the north half. It was therefore possible to excavate this portion of the mound in 20 cm levels without compromising contextual identification. The excavations were carried well below the ground surface upon which the mound was built and well beyond the mound edge so that complete and detailed stratigraphic records were obtained for the excavation (Figure 40).

All burials and most features were pedestalled by completing one or more levels in sediments surrounding them. This insured their complete exposure

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 35. 40RE124 mound before excavations, view north-northwest.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 36. Low oblique air photograph of the 40RE124 locale, view north.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 37. Test trench at 40RE124, view east.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 38. General view of mound excavations, view north.

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 39. Contour map and plan of excavations at 40RE124.

greatly facilitated further work, particularly on burials which were generally poorly preserved (Figure 41). Considerable effort was made to record and recover burials and features. This included making drawings at both 1:10 and 1:20 scales, measuring every bone in place, and numbering each bone when removed. Charred log features and groups of large limestone slabs, the most common aboriginal features, were treated with equal attention. This included measuring the angle of repose of such features to help determine the slope of former mound surfaces. Numerous radiocarbon samples were obtained from burned logs associated with mortuary activities at the mound.

At the base of the north side of the mound, a small number of limestone tempered and shell tempered ceramics were recovered from dark midden-like deposits. For this reason, three additional 1 by 2 m test pits were excavated north and east of the mound to determine the limits of this deposit. These investigations were located at 108-110N/60.5-61.5E, 103-104N/68-70E, and 109-110N/68-70E, and all were incorporated into excavations conducted in 1975. In addition a 20cm wide balk was left at 102-104N/64E to leave a stratigraphic profile for relating the mound sediments with those containing the ceramic artifacts.

Excavations in 1975

The 1975 excavations were directed almost totally at the ceramic bearing sediments to the north and east of the mound (Figure 42). An important exception was the removal of the large pine tree in square 102-104N/60-62E and excavations at this location which detected a burial (Burial 34) and additional limestone slabs (Feature 10) associated with the mound's first construction stage. The 1975 investigations utilized the same grid system and vertical datum as was used for the mound. Previously recorded stratigraphic profiles guided the removal of the sediments.

Excavations were made in 10 cm levels and between two and 19 levels were used to completely remove the sediments containing artifacts. Deeper excavations were needed only in the area immediately adjacent to the mound where these sediments were approximately 1 m thick. The sediments could be traced no more than about 6 m beyond the mound's edge, where excavations only two levels deep were needed to confirm this. Approximately 60 square meters were investigated on the north and east sides of the mound (Figure 43). East-west balks 50cm wide were retained for recording stratigraphy along the 100N, 102N, and 104N coordinates between 66 and 70E, and along the 106N coordinate from 60 to 66 E. Profiles between 106N and 112N at 60E and between 104N and 110N at 66 E were left to obtain stratigraphic records across the sediments north and south. Detailed drawings were made of all exposed profiles and the floor of each square at the completion of every level. As often as possible, artifacts and rocks were preserved in place and included on the drawings. All the excavated sediments were waterscreened through quarter inch mesh screen. No occupation contexts such as hearths or pit features were encountered in the excavation.

Site Sediments and Stratigraphy

The mound was built on a low gradual sloping ridge whose height was artificially enhanced by construction of the mound. Excavations show that the elevation of the premound topography descends about 1 m from the north to

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 40. Air photograph of completed mound excavations.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 41. Southwest quarter of mound with exposed burials and features, view east.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 42. General view of excavations in progress, 1975, view northwest.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 43. Air photograph of completed excavations, May 1975.

south edges of the mound. From the mound center, there is approximately a 40 cm drop in elevation to both the east and west sides of the mound. Soil borrowing for mound construction which may have occurred on the north side of the mound would have artificially enhanced the mound's height.

At 40RE124 there are three distinctive groups of sediments comprising premound, mound, and post mound deposits. Premound deposits are primarily older river terrace alluvial sediments with a well developed soil horizon sequence which was buried and protected by the construction of the mound (Figure 44). Sediments used to build the mound consisted of locally borrowed soil, although a specific borrow area is not evident in the excavations or from the present relief (Figure 45). As identified from mound sediments and the placement of limestone slabs and charred log features, the mound was built in three construction stages (Figure 46). Beyond the mound periphery the soil profile has been altered by plowing and accompanying erosion. On the north side of the mound additional sediments collected in a cul-de-sac created by the mound and the natural slope of the adjacent hillside.

Premound Deposits

A well developed soil having an A1, B2, C horizon sequence is preserved beneath the mound (Figure 47). The upper two soil horizons consist of dark brown (10YR3/3) and strong brown (7.5YR5/6) silt loams, while the C horizon is a yellowish red (5YR4/6) silty clay. This soil was essentially undisturbed by mound construction. The vegetation may have been removed when mound construction began, but there is no evidence that the surface vegetation was burned or that the ground surface was scraped to remove the surface soil horizon. The premound soil contains no evidence of earlier culture occupation, although Archaic period lithic artifacts recovered from mound sediments indicate that such occupations were close by. The cultural disturbance to the premound soil was the excavation of the pit for the initial mound burial. This pit was cut through the A soil horizon and into the B horizon, but did not reach the C horizon. On the west side of the mound a ditch or gulley was profiled in the excavation. The morphology of this feature, its stratigraphic position, and associated sediments indicate that it had been cut by erosion and filled long before mound building activities began at the site.

Construction Stage 1

The interment of Burial 28 in a shallow pit initiated mound construction. Once the pit was filled, a low mound barely 20 cm high was constructed over it. The color and texture of the fill indicate borrowing from the A1 and B2 soil horizons. These deposits were capped with a thin, but uniform, layer of strong brown (7.5YR5/6) silty clay loam from the C horizon. This layer covered about 16 m^2. A second burial and additional mound fill from the A1 and B2 soil horizons built the mound to slightly less than 1 m high and 5 m in diameter.

Construction Stage 1 was completed by adding a layer of large limestone slabs (Feature 10) to the lower slope of the mound, leaving a 2 m gap on the east side. A second opening in the limestone mantle may have been left on the opposite side of the mound.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 44. Mound stratigraphy 100N/52-60E, view north.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 45. Detailed photograph of mound stratigraphy at 100N/49E, view north.

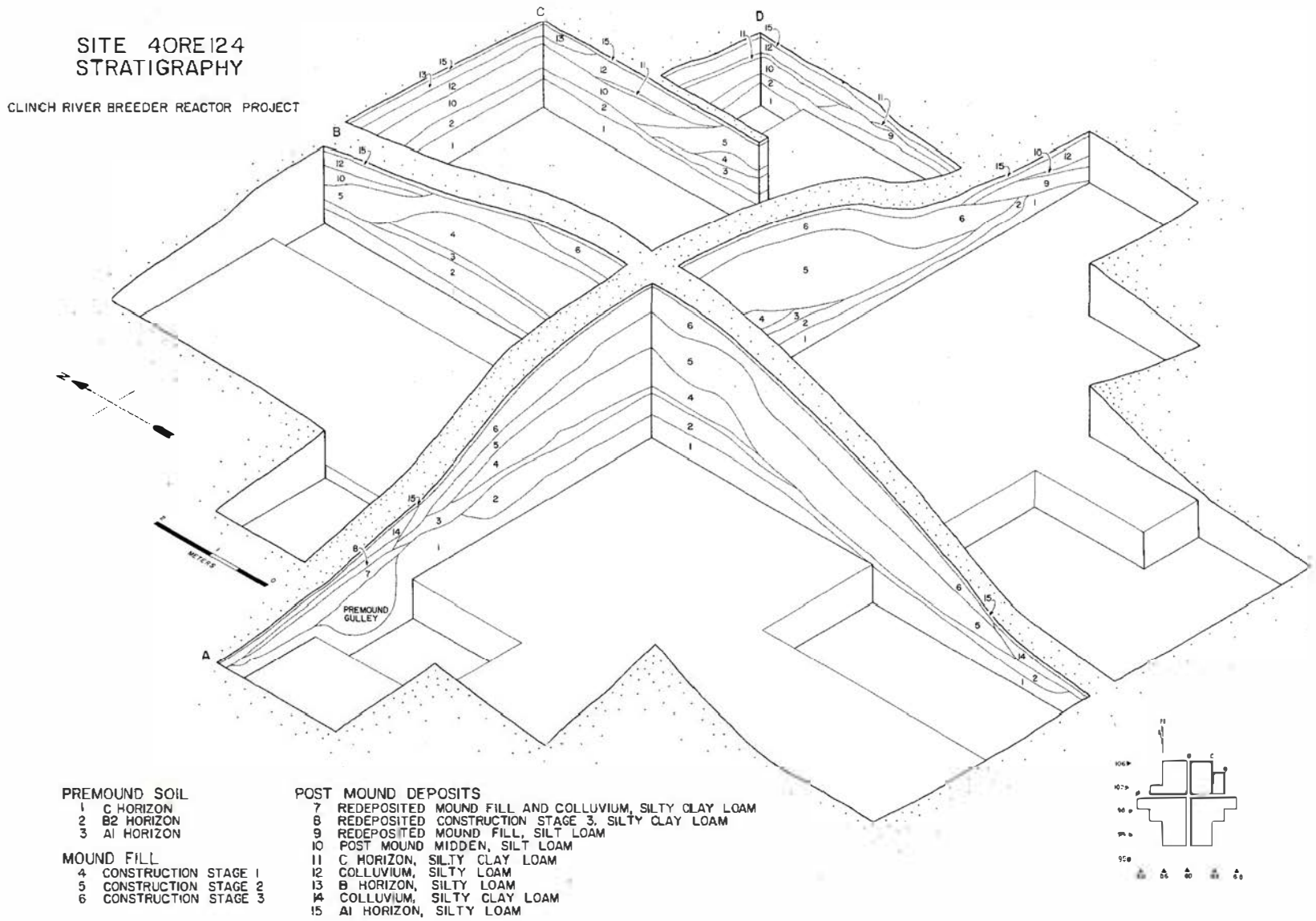


Figure 46. Isometric view of mound excavations.

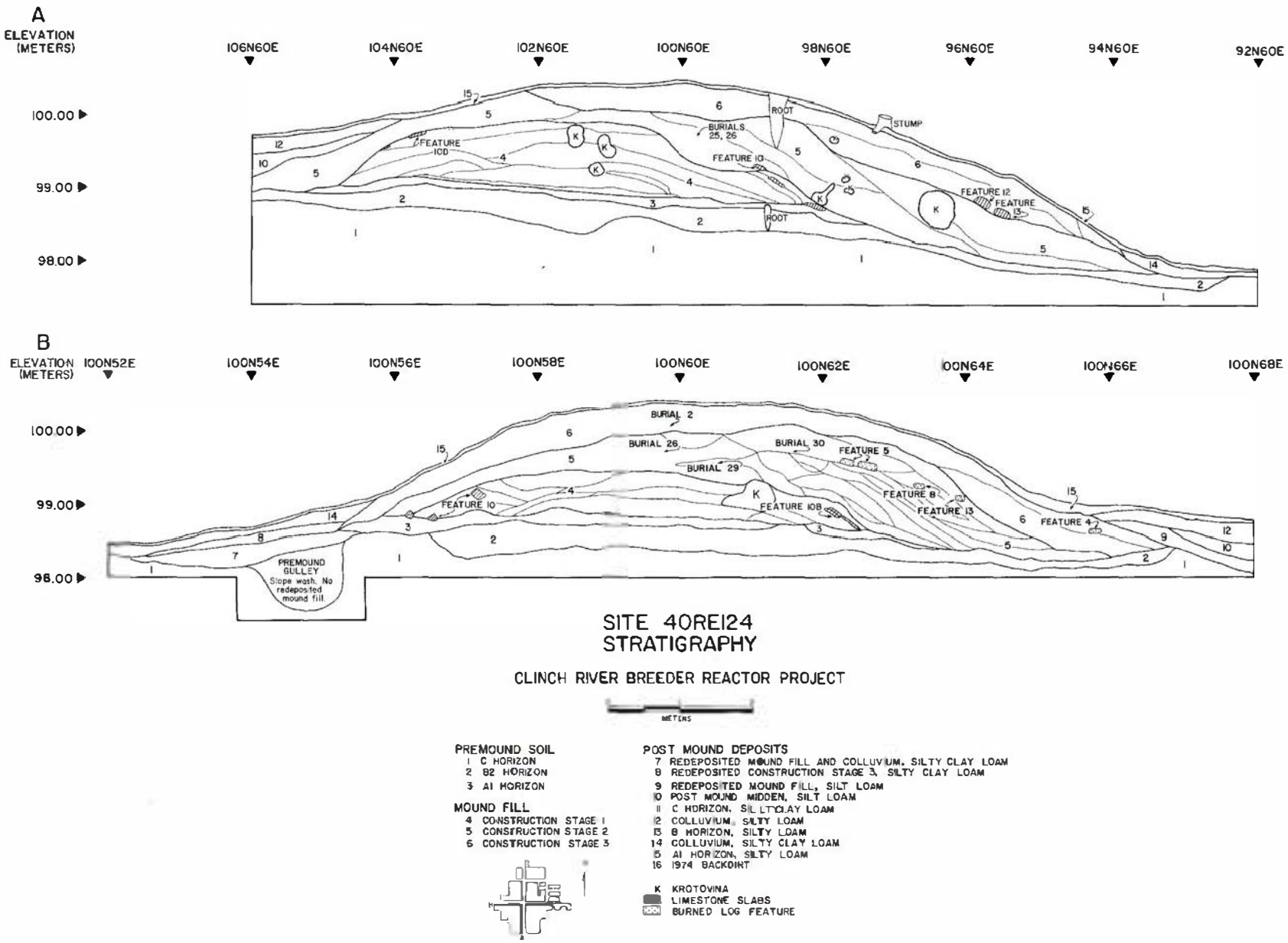


Figure 47. Stratigraphic profiles of the mound excavations.

Construction Stage 2

Construction Stage 2 is approximately 10 m in diameter and completely covers the first mound stage. When completed the second stage produced a mound slightly less than 2 m high. Most associated burials and consequently the greatest accumulation of mound fill were placed on the southern slope of the mound so that overall the mound center shifted to the south. A minimum of 24 distinct deposits of silt loams, silty clay loams, and silty clays borrowed from the A, B, and C soil horizons constitute the second construction stage. Perhaps because of the greater difficulty in removing the C soil horizon with stone hoes and digging sticks, it was used less frequently than either the A or B horizons in Construction Stage 2.

The mosaic of soil textures and colors indicate the rare deposition of uniform sediments in a single episode. An important exception is a layer of strong brown (7.5YR5/6) silt loam which virtually covers the southwest quarter of the mound. Over most of this area the deposit is about 20 cm thick but increases to nearly 50 cm thick at the mound center. Here it occurs over and beneath Burial 29, suggesting that the fill was added specifically for this interment. A uniform layer of mound fill also covers Burial 30 suggesting a similar depositional episode.

Construction Stage 3

There is far less variety in the sediments constituting Construction Stage 3 than is found in the two preceding mound building episodes. Most of the third stage is a strong brown (7.5YR4/4) to dark brown (7.5YR5/6) silty clay loam with additional yellowish brown (10YR5/8) and dark brown (7.5YR4/4) silt loams making up the mound fill of the southeast mound quarter. The deposition of these sediments added 20 to 40 cm to the mound's height. Perhaps more interestingly, the third stage did not cover the northern third of the existing structure (Construction Stage 2). The overall result was that the top center of the mound shifted south-southeast 2 to 4 m. A small number of limestone slabs were laid on the mound surface to complete Construction Stage 3 (Feature 1). When excavated, leaf litter covered the mound and a weak A soil horizon had formed on the mound's surface. There is no stratigraphic evidence that the mound had been plowed.

Post Mound Deposits

Erosionally redeposited mound sediments and modern soil development are well defined at the south and west mound peripheries. On the east edge of the mound and even more so on the north side, such sediments are more complex, and determining their genesis and stratigraphic relationship to in situ premound and mound sediments and to eroded mound fill is difficult. The deposit of particular interest in this area of the site was designated the Post Mound Midden, because of its dark color and the shell tempered and limestone tempered ceramics associated with it (Figures 48 and 49). To resolve the stratigraphic relationships among these deposits virtually every profile exposed north of 100N and east of 60E was drawn and detailed soil descriptions were recorded at nine different locations.

The premound A1 soil horizon is absent immediately to the north side of the mound (Figure 50). The B2 and C horizons are clearly truncated here,

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 48. Stratigraphy of the Post Mound Deposits at 106-112N/60.5E, view west.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 49. Stratigraphy of the Post Mound Deposits at 106N/60.5-64E, view north.

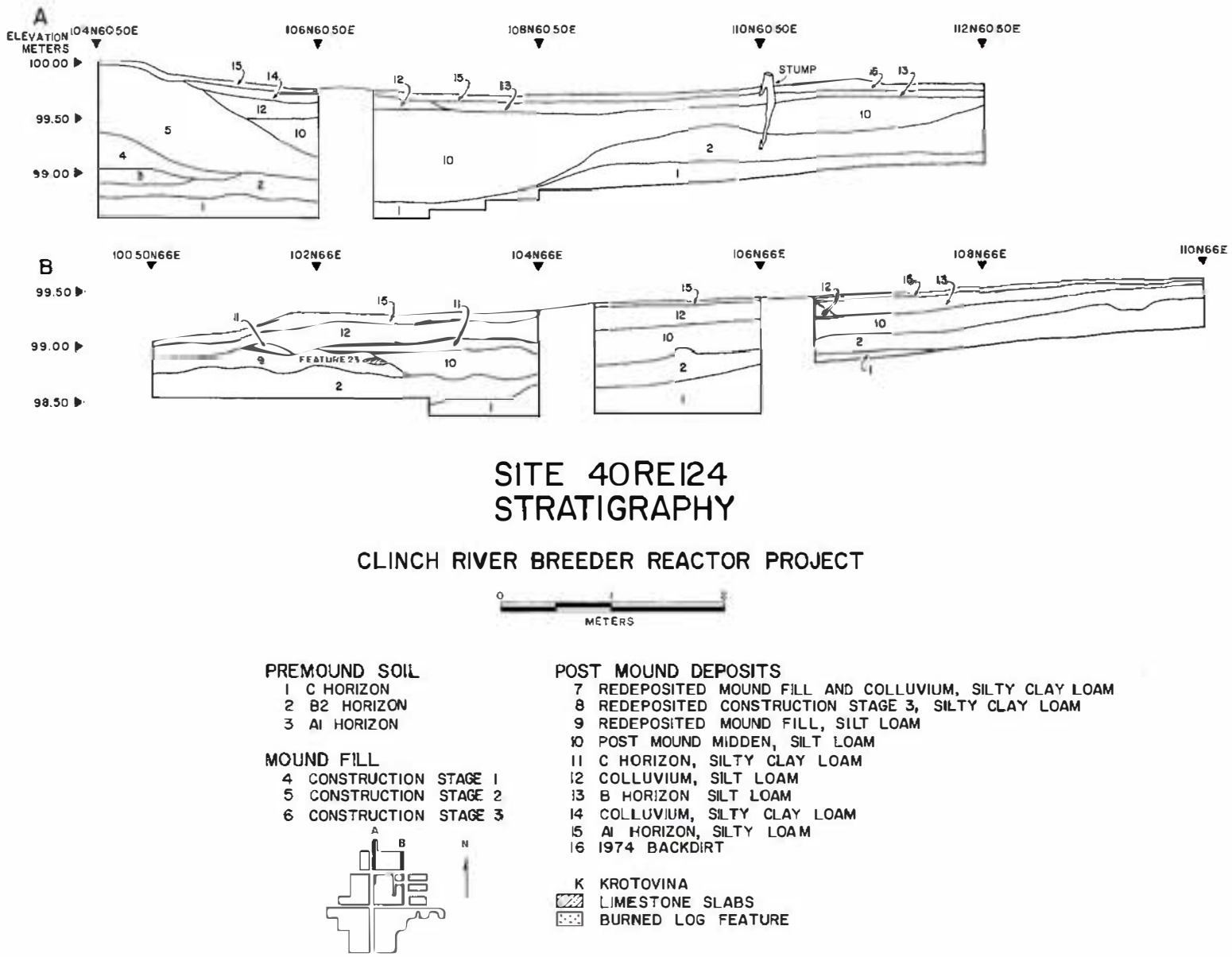


Figure 50. Stratigraphic profiles of north-south exposures of the Post Mound Deposits.

suggesting that these sediments were removed from this location. This created a shallow depression or swale no more than about 2 m wide along the curve of the north-northeast side of the mound. Whether the soil was used for mound fill or not, its removal would have artificially enhanced the height of the mound. Erosion also may have contributed to increasing the width and depth of this feature. A very dark grayish brown (10YR3/2) silt loam containing cultural material accumulated in this depression as much as 85 cm deep, lapping against the lower mound slope of the second construction stage on the north and against redeposited mound fill on the east (Figure 51). Nowhere else does this deposit cover or contain eroded mound sediments. This is important for it suggests that most of the post mound midden sediments are either contemporary with the final mound building episode or were deposited shortly after the mound was completed.

Artifacts from the midden show weathered surfaces and form no discernable occupation layers. There are no associated occupational features such as postholes, pits, or hearths. These data indicate that the cultural materials probably were redeposited from sheet wash from the surrounding slope. The mound and hill slope formed a trap for the accumulation of these materials as well as for organic material responsible for the dark color of the sediments. Subsequent slope wash deposits and soil forming processes produced the remainder of the post mound stratigraphy. Site 40RE151 is located [Exempted from disclosure by statute] [Exempted from disclosure by statute] from 40RE124, but too few remains were recovered ther identify it as the source of the post mound cultural remains recovered at 40RE124.

Features

A total of 25 features were recorded at 40RE124. All are associated with the construction and use of the mound, no features were encountered in deposits post dating mound use. Most features are charred logs and large slabs of limestone which were placed on the former surface of the mound and many of which help define distinctive mound construction stages. While both the logs and limestone slabs are surely associated with mortuary activities, they were rarely used to mark or cover a specific burial. Ceramic vessels associated with Burials 5 and 28 and the burial pit for the latter interment constitute the remaining features recorded with the mound. More than half the features are associated with mound Construction Stage 2, while Construction Stages 1 and 3 respectively have three and four features each associated with them. Three other features could not be assigned to a particular mound stage (Table 32).

Single Charred Logs (n=9)

Features 6, 8, 13, 16, and 20 are pieces of charred logs measuring 12 to 25 cm wide and 15 to 50 cm long lying parallel to the contour of the slope of the second mound construction stage. Feature 12, measuring about 3 m long, also represents a log mold from a retainer placed at the foot of the Construction Stage 2 slope. Feature 4 measuring 50 by 165 cm is a similar occurrence of a log retainer associated with Construction Stage 3. Two other single charred logs (Features 18 and 21) could not be assigned to a particular mound construction episode, although neither is related to Construction Stage 1.

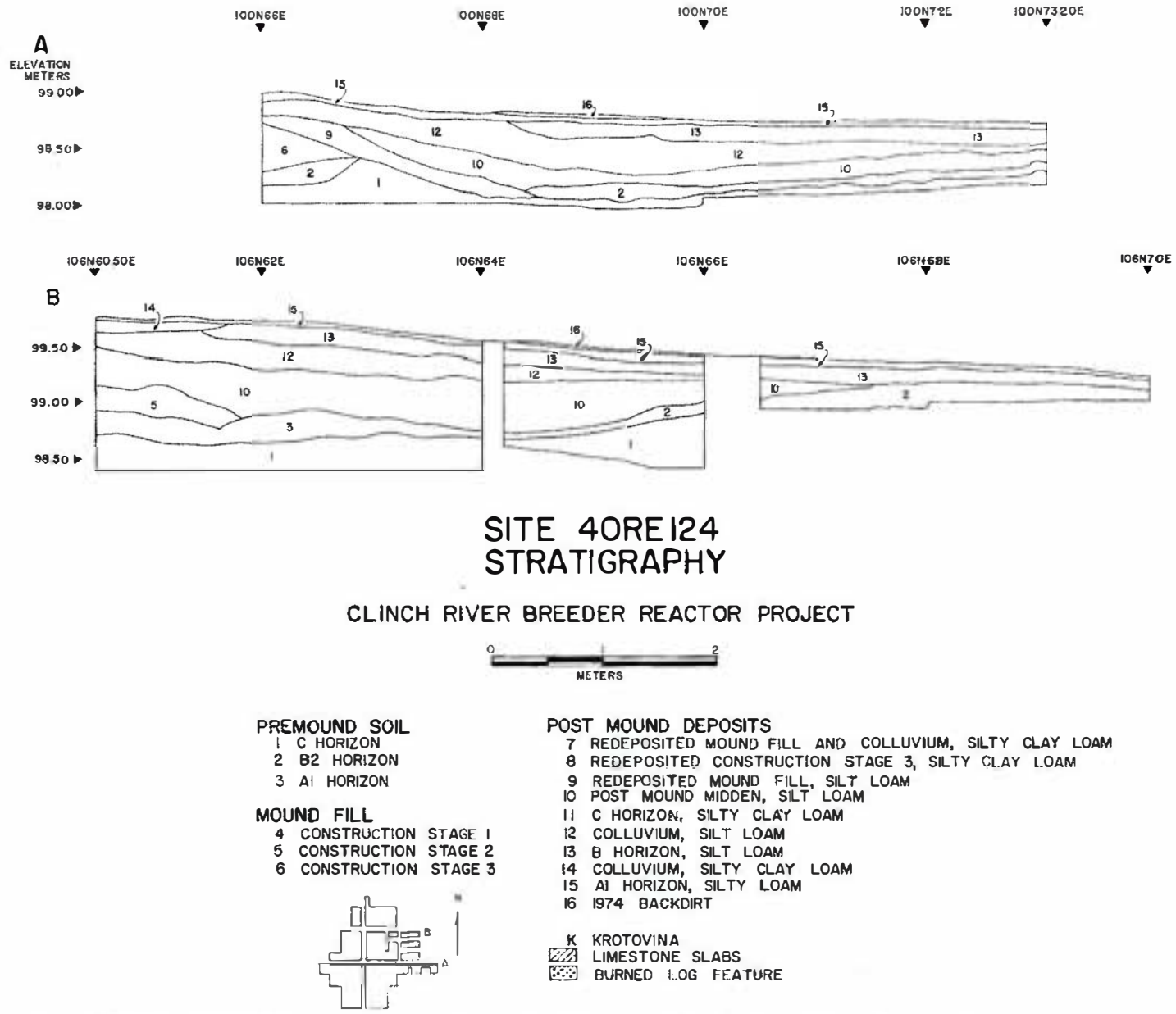


Figure 51. Stratigraphic profiles of east-west exposures of the Post Mound Deposits.

Table 32. Stratigraphic Distribution of Archaeological Features at 40RE124.

Features	Construction Stage 1	2	3	unassigned
Single charred logs	-	6	1	2
Multiple charred logs	-	5	-	1
Scattered charcoal	-	1	-	-
Large limestone slabs	1	2	1	-
Cobble ring	-	-	1	-
Burial pit	1	-	-	-
Ceramics	1	-	1	-
Rodent burrow	-	1	-	-
Total	3	15	4	3

Multiple Charred Logs (n=6)

Except for Feature 23 which could be associated with either Construction Stage 2 or 3, multiple occurrences of charred logs were confined to Construction Stage 2 (Features 2, 5, 9, 11 and 14). These features consist of sections of charred logs laid parallel with each other and with the slope of the mound or on a surface leveled on the mound slope. These occurrences range in size from 30 to 80 cm wide and 50 to 187 cm long. Features 2 and 11 (Figure 52) occur adjacent to one another and Features 5, 9, and 14 form a second group (Figure 53).

There is no evidence that either single or multiple charred logs resulted from fires kindled on the mound. Slightly fired soil and the absence of wood ash in the vicinity of the features suggest that smouldering logs were placed on the mound surface and then quickly extinguished. While none of the features can be unequivocally associated with a particular burial, Features 5, 9, and 14 and Burial 30 are all covered with the same mound sediments and at least three other burials are in the immediate vicinity of these occurrences. Similarly Feature 11 is adjacent to Burial 16A and may be the reason the skull of this interment is charred. Feature 2 and Burial 11 are less than 50 cm from these associations.

Scattered Charcoal (n=1)

Pieces of charcoal scattered between Features 5, 9, and 14 were recorded as Feature 17 in Construction Stage 2.

Large Limestone Slabs (n=4)

Feature 1 (recorded as Features 1A, 1B, 1C and 1E) consists of approximately 25 pieces of flat, angular limestone, lying on the surface of Construction Stage 3. Six of the larger pieces, measuring 40 to 60 cm across, occur at the foot of the mound slope at the southeast periphery. Eight large

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 52. Feature 2, multiple charred logs, view north-northeast.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 53. Features 5, 9, 14, multiple charred logs, view west.

rectangular limestone slabs forming a crude cover or crib for Burial 14 constituted Feature 10. Feature 7, made up of three large slabs, and Feature 19, consisting of a large triangular slab which measured about 50 by 80 cm and a large river cobble, were found on the surface of Construction Stage 2. Nearly 100 large limestone slabs, used to cover the lower slope of Construction Stage 1 constitute Feature 10 (recorded as Features 10, 10B, 10C, and 10D) (Figure 54). These stones form a ring interrupted by a gap measuring about 2 m wide on the southeast side of the mound. A similar gap may have been left on the opposite side of the mound, although, in general, comparatively fewer stones occur here than elsewhere with this stage of the mound.

A source of fossiliferous and nonfossiliferous limestone like that used throughout the mound occurs no closer than about 1 km away. Considering the size and weight of the stones and their abundance in the mound, considerable effort must have been made to transport them for mound construction. This is especially the case for Construction Stage 1.

Cobble Ring (n=1)

Associated with Construction Stage 3 was a stone ring approximately 50 cm in diameter consisting of nine small, angular limestone cobbles each measuring about 10 by 15 cm. Three slightly larger cobbles lying to the sides may have covered or may have been part of the ring. This occurrence was recorded as Feature 15.

Burial Pit (n=1)

The initial mound interment (Burial 28) was placed in an oval pit (Feature 24) measuring 133 by 105 cm. This pit was dug into the premound soil approximately 43 cm deep.

Ceramics (n=2)

Feature 3 identifies the five shell tempered vessels or vessel fragments associated with Burial 5 in Construction Stage 3 (Figure 55). Feature 22 is the large fragment of a limestone tempered globular jar with a simple stamped, check stamped, and cordmarked surface, associated with Burial 28 in Construction Stage 1.

Rodent Burrow (n=1)

A rodent burrow associated with Construction Stage 2 and containing a small amount of unidentifiable human bone was assigned Feature 25. The location of the burrow suggests that Burial 30 may have been the source of the bone.

Ceramic Artifacts

Ceramics recovered at 40RE124 are associated with two distinctive deposits: (1) the mound, and (2) sediments lying to the north and east side of the mound or post mound deposits (Table 33). Sherds associated with the mound in some instances are fortuitous inclusions with the fill, others, while small or highly weathered, are possible grave associations because they were

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 54. Feature 100 limestone slabs covering Construction Stage 1, view south.

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 55. Feature 3, ceramic vessels associated with Burial 5, view north.

located close to human skeletal remains. A small number of additional sherds, including whole and partial vessels, are surely intentional mound inclusions. Sherds from the mound fill as well as those recovered from the post mound deposits are generally small, with both the interior and exterior surfaces and edges eroded, and the temper particles leached out. The sherd descriptions account for paste and surface treatment characteristics as well as sherd thickness and size. Sherd size was determined according to five size grades: Size 1, less than or equal to 1.0cm; Size 2, 1.0 to 2.0cm; Size 3, 2.0 to 4.0cm; Size 4, 4.0 to 8.0cm; Size 5, greater than 8.0cm.

Mound Fill

Ceramics were recovered from each of the three mound construction stages. The sherds include six vessels or partial vessels associated with burials, of which five include shell tempered vessels associated with Burial 5. Six limestone and one sand tempered sherds also were found in mound fill deposits.

Table 33. Occurrence of Ceramics at 40RE124.

	Mound Fill (Construction Stage)			Post Mound Deposits	
	1	2	3	Body Sherds	Rim Sherds
Limestone Tempered					
Plain	-	-	-	5	1
Cordmarked	1	-	4	7	-
Residual Plain	-	2	-	12	-
Sand Tempered					
Plain	-	1	-	-	
Shell Tempered					
Plain	-	-	3*	75	3
Cordmarked	-	-	1**	9	2
Red-Filmed	-	-	1**	-	-
Residual Plain	-	-	-	35	2

* Represents sherds constituting a minimum of 3 shell tempered vessels from Burial 5.

** Represents sherds constituting a minimum of one shell tempered vessel from Burial 5.

Construction Stage 1

The only ceramics recovered from Construction Stage 1 were sherds of a greatly fragmented partial vessel representing about a third of a large limestone tempered globular jar (Figure 56). The sherds are so fragmented, heavily leached, and warped from ground pressure that complete and accurate mending was impossible. The vessel section measures approximately 270 mm high, by 180 mm wide. Thickness ranges from 7.0 to 8.0 mm. The rim curvature indicates a vessel orifice diameter of 230 mm. The rim is straight and is 69 mm high. The vessel lip was formed by folding the upper 30-35 mm of the

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Figure 56. Partial vessel from Construction Stage I.

vessel wall to the exterior. The fold was incompletely incorporated into the wall, leaving a distinct 28-30 mm high band around the vessel. The lip of the vessel varies from flat to rounded. The rim of the vessel from the lip to the shoulder of the body is cordmarked. Cord impressions are vertical to the plane of the rim and there is little overstamping and no smoothing over of the impressions. The cordage is 2-ply, Z-twist strands, 1.4 to 2.5 mm in diameter. The impressions are closely spaced at 0.5 to 1.5 mm intervals. The body of the vessel from the shoulder to the base is smoothed over simple and check stamped. There is slightly greater smoothing where the cord and stamped impressions blend with one another at the shoulder.

The sherds were recorded as Feature 22 at elevation 99.22 m which is 22 cm higher and almost directly over the point of origin of Feature 24, the central grave for the initial mound interment (Burial 28). Approximately 75 cm grid north at the same elevation were two large preforms. While not placed directly with the burial, the partial vessel and preforms are considered burial accompaniments. The occurrence of ceramic vessels in East Tennessee Woodland Period burial mounds is rare (see Lewis and Kneberg 1941; Cole 1975).

Construction Stage 2

Three sherds were recovered from the second mound construction stage. Two are limestone residual plain body sherds. One is a Size 3, while the other is a Size 2. The sherds are respectively 5.7 and 5.0 mm thick. The third sherd is a sand tempered plain body sherd (Size 3) measuring 4.0 mm thick.

Construction Stage 3

Construction Stage 3 contained four limestone tempered cordmarked body sherds and five shell tempered vessels or partial vessels associated with Burial 5. One of the limestone tempered sherds consists of 15 smaller pieces or fragments (Size 3, n=6; Size 2, n=4; Size 1, n=5). The sherd is 5.6 to 6.2 mm thick and was tempered with moderate amounts of coarsely crushed limestone that have been leached from the sherd. Individual cordage impressions are 2 to 3 mm diameter, 2-ply, S-twist material. The size, thickness, and surface treatment suggest a vessel closely comparable to the one recovered from Construction Stage 1. Two of the three additional limestone tempered sherds show 2-ply, Z-twist cordage impressions. The sherds are respectively 5.6 mm, 8.2 mm, and 6.4 mm thick; two are Size 4 and the other is a Size 3. Two sherds were recovered within a few centimeters of the bones of Burial 5 and could represent intentional grave inclusions. The sherds, however, did not occur among the shell tempered vessels associated with the burial. The third limestone tempered sherd was found adjacent to bones of Burial 7A, but like the sherds found with Burial 5, the specimen's occurrence as a grave good is indeterminate.

Associated with Burial 5 and recorded as Feature 3 were five shell tempered vessels or vessel portions. They occurred as a single closely packed group. The first vessel is a hooded water bottle; it measures 147 mm high, with a body diameter of 92 mm and neck diameter of 36 mm (Figure 57). The vessel is tempered with very finely crushed shell, and the vessel walls are

thin, measuring 3.0 to 4.0 mm. The spout of the vessel is flanked on either side by identical small 21 mm high projections that protrude 4.1 mm from the surface. Above the opening, the spout is incurved and 23.6 mm high, ending in a flat top with a small projection at the rear which continues as a narrow ridge down the back of the spout for 30.8 mm. This terminates at a bow-shaped applique measuring 20.1 mm high and 10.5 mm wide. The lateral projections, rear applique, shape and decoration of the top, and the bottle opening appear to represent a human face effigy and associated hair arrangement.

The second vessel is a small, shallow plain shell tempered bowl, 96.8 mm in diameter and 27 mm high (Figure 57). The vessel is 4.1 mm thick at the base and 2.7 mm thick at the lip. The rim is slightly flared and the lip is slightly rounded.

There are three partial vessels. The first is the highly fragmented remains of the base and part of the body of a small vessel. The size and thickness (3.1 mm) of the mended pieces suggest a vessel comparable to the water bottle of bowl described above. The second partial vessel is three reconstructed pieces of a shell tempered red-filmed bowl (Figure 58). The largest piece is a large body sherd. The other two pieces are rim sherds, one of which has a small bird effigy that originates from the vessel rim and protrudes 25.4 mm above the lip. The lip is tapered. The exterior surfaces of the pieces are covered with a uniform iron-oxide wash. Since the pieces do not mend with one another, they could represent three different vessels. Sherd thickness (2.9 to 4.0 mm), size, and vessel portion suggest, however, that the pieces are from a single vessel.

The third partial vessel is the highly fragmented remains of a small shell tempered globular jar. The body of the vessel is coarse cordmarked, partially obliterated by smoothing (Figure 58). The body wall is very thin (1.9 to 2.5 mm) and blackened suggesting that the vessel may have broken during firing. The vessel's neck and shoulder are plain and about 3.0 mm thick. The rim is slightly excurvate and thickened, or slightly rolled depending on location. The lip surface is flat. One rim has a projection 19.6 mm wide that extends 11.9 mm to the exterior on top of which is a 5.0 mm high node with a shallow depression at its apex.

Post Mound Deposits

A total of 151 sherds were recovered from the post mound deposits. Limestone tempered sherds are represented by 24 body sherds and one rim sherd. They include plain residual (eroded) and cordmarked specimens. Shell tempered ceramics include 118 body sherds, a loop handle fragment, and seven rim sherds. Plain, residual plain (eroded), and cordmarked surface treatments occur in the sample.

Limestone Tempered Plain

Five body sherds and one rim sherd of limestone tempered plain ceramics were recovered from the post mound deposits. Although the sherds are plain surfaced only one was large enough to measure its thickness, and this was

Figure 57. Shell tempered bowl and hooded water bottle.

Figure 58. Small globular jar fragments (a and b) and red-filmed bowl fragments (c and d).

5.3 mm. The rim sherd also was small, having a straight profile with a flat lip forming a distinctive right angle 5.8 mm wide and 4.9 mm thick.

Size	1	2	3	4	5
n=	1	4	1	0	0

Limestone Tempered Residual Plain

Twelve limestone tempered body sherds were too small and too highly eroded to determine the original surface treatment.

Size	1	2	3	4	5
n=	2	9	1	0	0

Limestone Tempered Cordmarked (Figure 59a-d)

Seven limestone tempered cordmarked body sherds were recovered from the post mound deposits. Three were well enough preserved to obtain thickness measurements respectively of 5.4, 5.0, and 6.5 mm. The cordage impressions were determined as S-twist on two sherds.

Size	1	2	3	4	5
n=	0	4	3	0	0

Shell Tempered Plain (Figure 59e-g)

Shell tempered plain ceramics are represented by three rim sherds and 75 body sherds and this constitutes the most frequent ceramic type in the post mound sediments. The sherds are tempered with moderate to abundant fine to medium crushed shell, which is leached out of all specimens. The sherds are 3.0 to 9.0 mm thick (mean 5.5 mm, n=41). Each of the three rim sherds has a straight profile with a flat lip; they are respectively 5.8, 6.2, and 7.0 mm thick. Two specimens (Catalog No.'s 148 and 154) are similar enough that they could be from the same vessel.

Size	1	2	3	4	5
n=78	8	38	29	3	0

Shell Tempered Residual Plain

Shell tempered sherds too small or eroded to determine the original surface treatment totaled 35 body sherds and two rim sherds. One of the rim sherds, based on the thickness and curvature, could represent a large jar or a Salt Pan vessel.

Size	1	2	3	4	5
n=	7	23	7	0	0

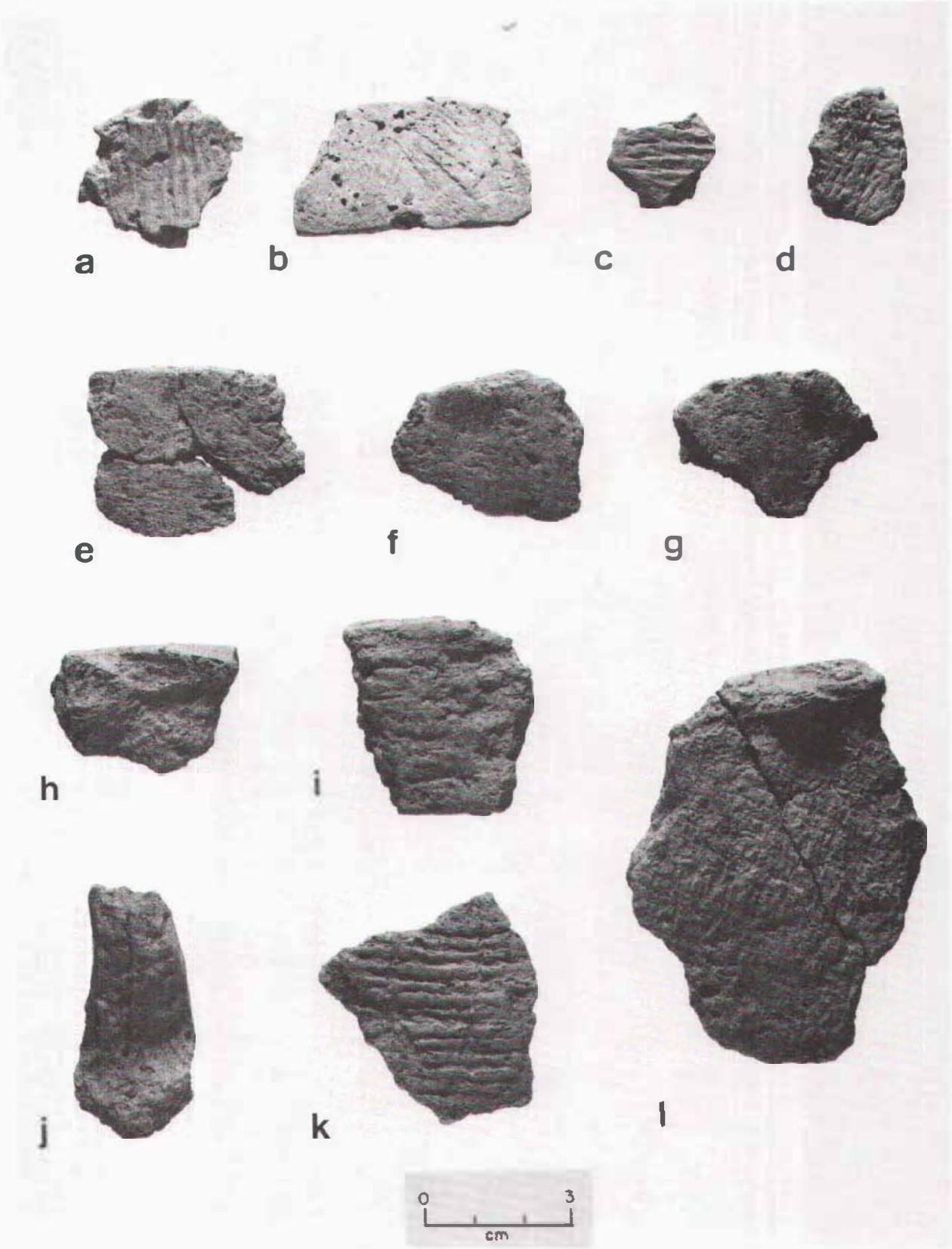


Figure 59. Ceramics from 40RE124: (a-d) Limestone Tempered Cordmarked; (e-g) Shell Tempered Plain; (h-l) Shell Tempered Cordmarked.

Shell Tempered Cordmarked (Figure 59h-1)

The shell tempered cordmarked ceramic sample includes 11 sherds. There are six body sherds; four measurable specimens have thicknesses of 7.3, 8.5, 8.7 and 10.2 mm. A seventh sherd is the basal portion of a loop handle attached to a remnant of the vessel wall. The handle is round, undecorated, and 19.2 mm in diameter. Two specimens are rim sherds. The first has a straight profile and rounded lip. The sherd is 9.6 mm thick through the body and 10.0 mm at the lip. The second rim sherd is straight with a rounded lip. An eroded projection near the lip could be the remnant of a lug or loop handle attachment. The sherd is 10.09 mm thick. Both rim sherds are similar enough to have come from a single vessel. The twist of the cordage was determined on three sherds and all were S-twist. Individual cordage diameter was 2.2 and 1.9 mm on one specimen spaced 1.5 mm apart. The thickness of the sherds suggest that Salt Pans with coarse cord impressions as well as jars with finer cord impressions are in the sample.

Size	1	2	3	4	5
n=	1	1	2	6	1

Ceramic Distributions

Deposits on the north and east sides of the mound were removed in 10 cm arbitrary levels. All the recovered ceramics are associated with the Post Mound 9 sediments, with sherds occurring throughout the deposit, but especially well represented in Levels 10, 11, and 12 (Table 34). While many fewer limestone tempered than shell tempered sherds were recovered, both wares show virtually the same pattern of vertical distribution.

Figures 60 and 61 respectively show the horizontal occurrence of the recovered limestone and shell tempered sherds. All ceramics are combined in Figure 62. These figures show, first, that the sherd distribution follows the curvature of the north and northeast sides of the mound and that few sherds occur more than 3 to 4 m from the mound periphery. Second, most sherds are concentrated at the north edge of the mound between 104-108N/58-66E. Post Mound sediments are thickest in this area. More sherds might have been recovered in the two excavation squares at 104-106N/60-64E, but excavations here in 1974 did not include screening the sediments as was done in 1975. While the sherd sample, especially limestone tempered specimens, is small, inspection suggests no important differences in the spatial occurrence of individual ceramic types or between limestone and shell tempered wares.

Lithic Artifacts
(C. Clifford Boyd, Jr.)

The lithic artifact analysis format used at 40RE124 is identical to the one used for 40RE107 and 40RE108. The 40RE124 lithic tools and debitage are discussed separately for the mound excavations and for the excavations adjacent to the mound, while raw material variability is compared between the two field seasons. Finally, the summary discusses overall variability between the mound and non-mound excavations.

Table 34. Distribution of Ceramics by Excavation Level at 4ORE124.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
Limestone Tempered																				
Plain	-	-	1	-	-	-	-	-	-	1	1	3	-	-	-	-	-	-	-	6
Cordmarked	-	-	1	-	-	-	1	1	1	-	2	1	-	-	-	-	-	-	-	7
Residual																				
Plain	-	-	1	1	1	1	-	1	1	1	5	-	-	-	-	-	-	-	-	12
Shell Tempered																				
Plain	-	-	-	-	-	-	5	4	4	15	24	10	3	11	2	-	-	-	-	78
Cordmarked	-	-	-	-	-	1	-	1	3	-	-	3	-	-	-	-	-	-	-	11*
Residual																				
Plain	-	-	-	-	1	2	7	2	5	12	3	5	-	-	-	-	-	-	-	37
Totals																				
Limestone	-	-	3	1	1	1	1	2	2	2	8	4	-	-	-	-	-	-	-	25
Shell	-	-	-	-	1	3	12	7	12	27	27	18	3	11	2	-	-	-	-	126
Sherds	-	-	3	1	2	4	13	9	14	29	35	22	3	11	2	-	-	-	-	151

*Three specimens unassigned to a specific level

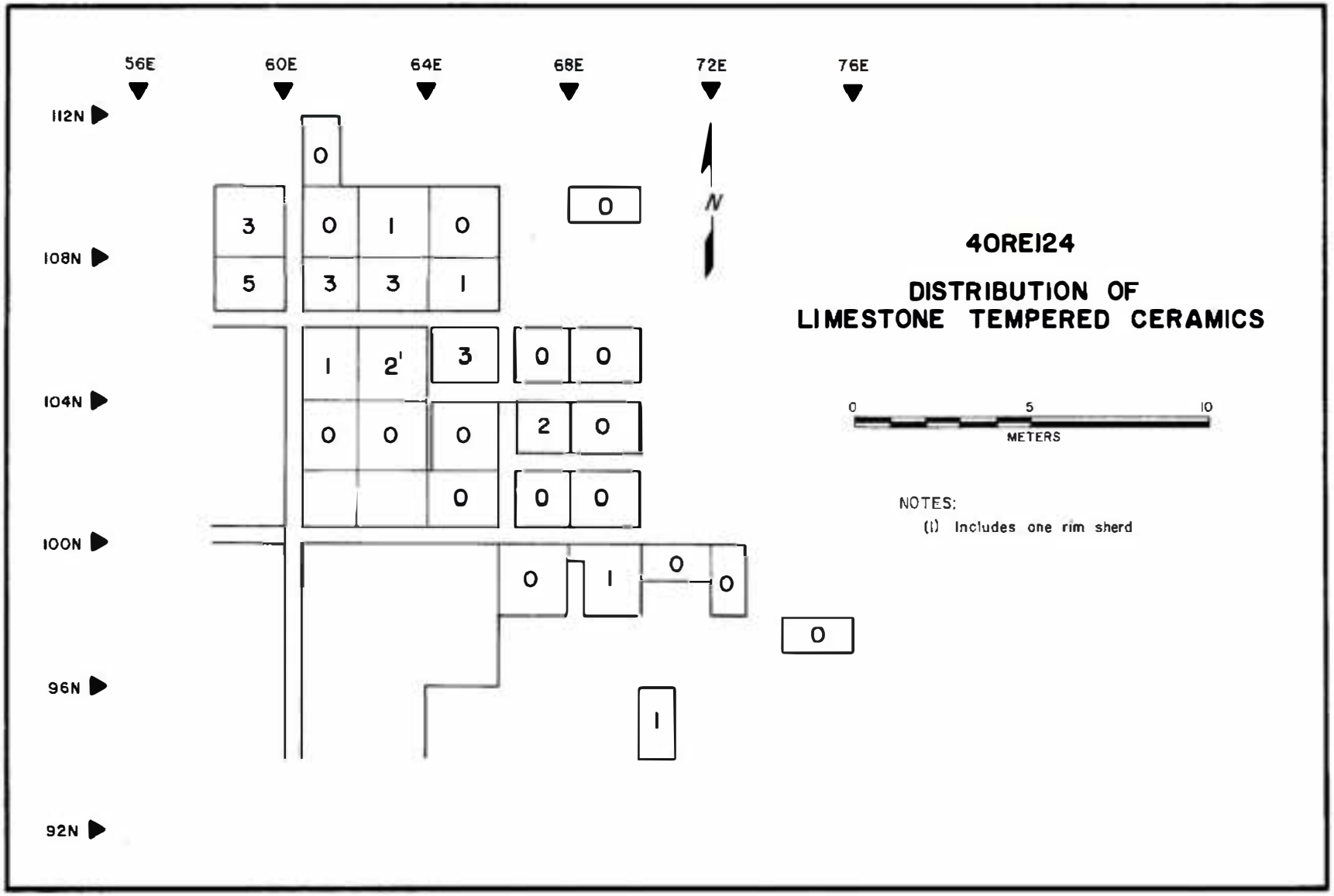


Figure 60. Horizontal distribution of limestone tempered sherds.

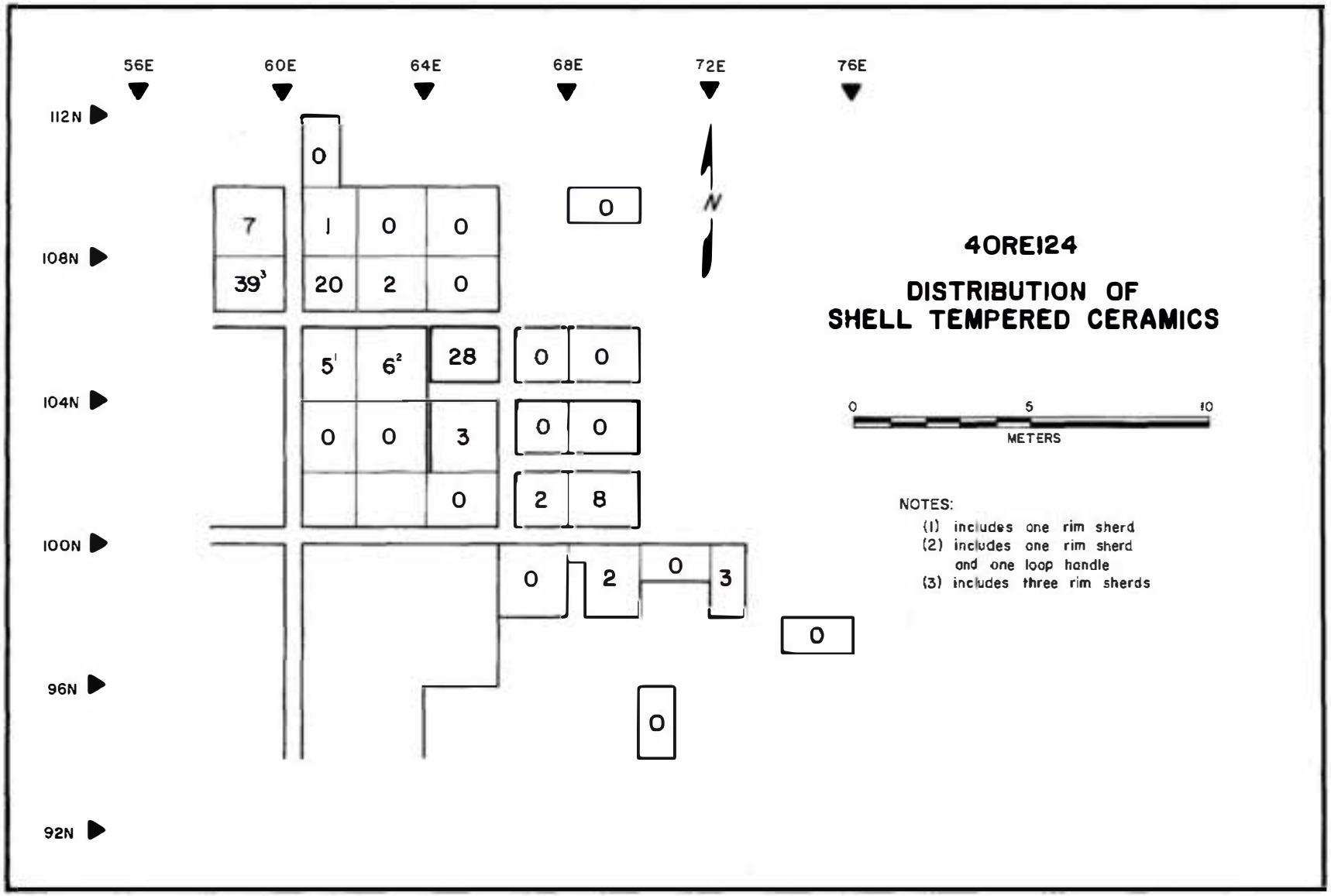


Figure 61. Horizontal distribution of shell tempered sherds.

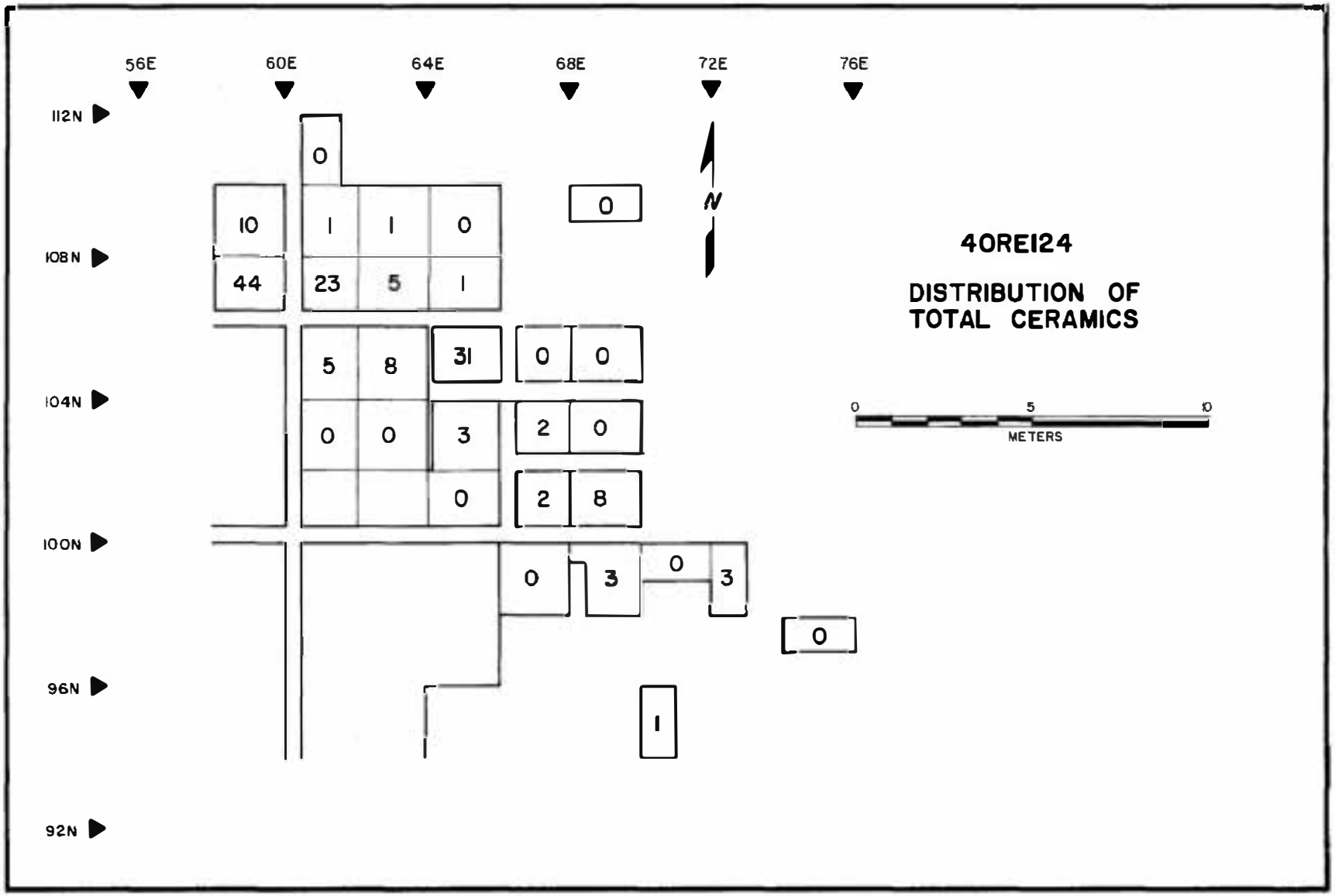


Figure 62. Horizontal distribution of ceramics.

Lithic Tools and Debitage--Mound

Discounting a single Late Archaic projectile point recovered from the surface, 273 other lithic artifacts were recovered during the mound excavations (Table 35). Most of these artifacts (n=235) were either tested nodules, unmodified stones or core, decortication and bifacial thinning debitage. However, some temporally diagnostic tools and grave associations were recovered. The formal tools are described in greater detail below.

Bar Gorget (Figure 63a) (n=1) This artifact, made from greenstone, was a grave good associated with Burial 31A from Construction Stage 1.

Sykes Projectile Point (Figure 64a) (n=1) Sykes points have straight to excurvate bases with corner removed notching to form the stem (Kimball 1982, 1985:55). These points are associated with Middle Archaic strata at the Icehouse Bottom site (40MR23) (Chapman 1977). This single artifact, produced from oolitic chert, was recovered from the fill of Construction Stage 1.

Iddins Undifferentiated Stemmed Projectile Point (Figure 64b-d) (n=4) These points generally have straight stems with flat or unfinished bases, and are associated with Late Archaic contexts in the Tellico Reservoir area (Chapman 1981; Kimball 1985:56-57). Two of these points were made from chalcedony, one from transluscent grey-green chert and one from porcellaneous chert. One each was recovered from the fill of Construction Stages 1, 2 and 3 and from the surface.

Hamilton Incurvate Projectile Point (Figure 63c-e) (n=4) These points are small, unstemmed triangular points with incurvate sides and bases (Kimball 1985:58), and are considered Late Woodland through Mississippian period artifacts. Two of these artifacts were produced from transluscent grey-green chert, one from Chickamauga red-brown jaspery chert, and one from Knox black chert. Three points were grave associations with Burials 16B, 17 and 19, and one was from the Construction Stage 3 fill.

Ground Celt Fragment (n=1) A single ground greenstone celt fragment was recovered from Construction Stage 2.

Ground Stone (Indeterminate) (n=1) A ground fragment of metasandstone, which was too small to determine its original tool class, was recovered from the Construction Stage 1 fill.

Drill (n=1) Drills have bifacial retouch which produces a parallel-sided biconvex projection (Kimball 1980:83). One drill produced from dark gray chert was recovered from Construction Stage 2.

Endscraper (n=1) Endscrapers have steep, unifacial retouch transverse to the longitudinal axis of the implement (Kimball 1980:83). A single endscraper made from oolitic chert was recovered from Construction Stage 2.

Amorphous Core (n=7) A core with several flake scars in a random, multidirectional pattern. Three were produced from chalcedony, two from porcellaneous chert, one from transluscent grey-green chert and one from Knox light grey banded chert. Most of these cores (n=4) come from Construction Stage 2.

Table 35. Stratigraphic Distribution of Lithic Tools and Debitage for 40RE124 Mound Excavations.

	Construction Stage 1	2	3	PTM[d]	Surface	Total
Bar gorget	1[a]	-	-	-	-	1
Ground celt	-	1	-	-	-	1
Ground stone	1	-	-	-	-	1
Drill	-	1	-	-	-	1
Endscraper	-	1	-	-	-	1
Hematite cone	-	-	1	-	-	1
Tested nodule	-	3	-	1	-	4
Amorphous core	1	4	2	-	-	7
Bipolar core	-	1	-	-	-	1
Blade core	1	3	1	-	-	5
Blade	-	1	1	-	-	2
Preform	2[b]	-	-	-	-	2
Biface	-	5	3	-	-	8
Sykes projectile point	1	-	-	-	-	1
Iddins projectile point	1	1	1	-	1	4
Hamilton projectile point	-	3[c]	1	-	-	4
Utilized debitage	-	2	4	2	-	8
Unmodified stone	8	9	2	2	-	21
Unutilized Debitage	31	90	76	3	-	200
Total	47	125	92	8	1	273

[a] Grave good, Burial 31A
[b] Grave goods, Burial 28
[c] Grave goods, Burials 16B, 17, 19
[d] post mound deposits

Bipolar Core (n=1) A core reduced by bipolar percussion (Kimball 1980:85), which produces crushed, battered edges. A single bipolar core of transluscent grey-green chert was recovered from the fill of Burial 30, Construction Stage 2.

Blade Core (n=5) A prepared nodule from which blades have been struck (Kimball 1980:85). One core was produced from Knox black chert, one from dark grey chert, one from light grey banded chert and two from suspected local chert. One was recovered from Construction Stage 1, three from Construction Stage 2 and one from Construction Stage 3.

Hematite Cone (n=1) A single cone of ground hematite was recovered from Feature 1B, Construction Stage 3.

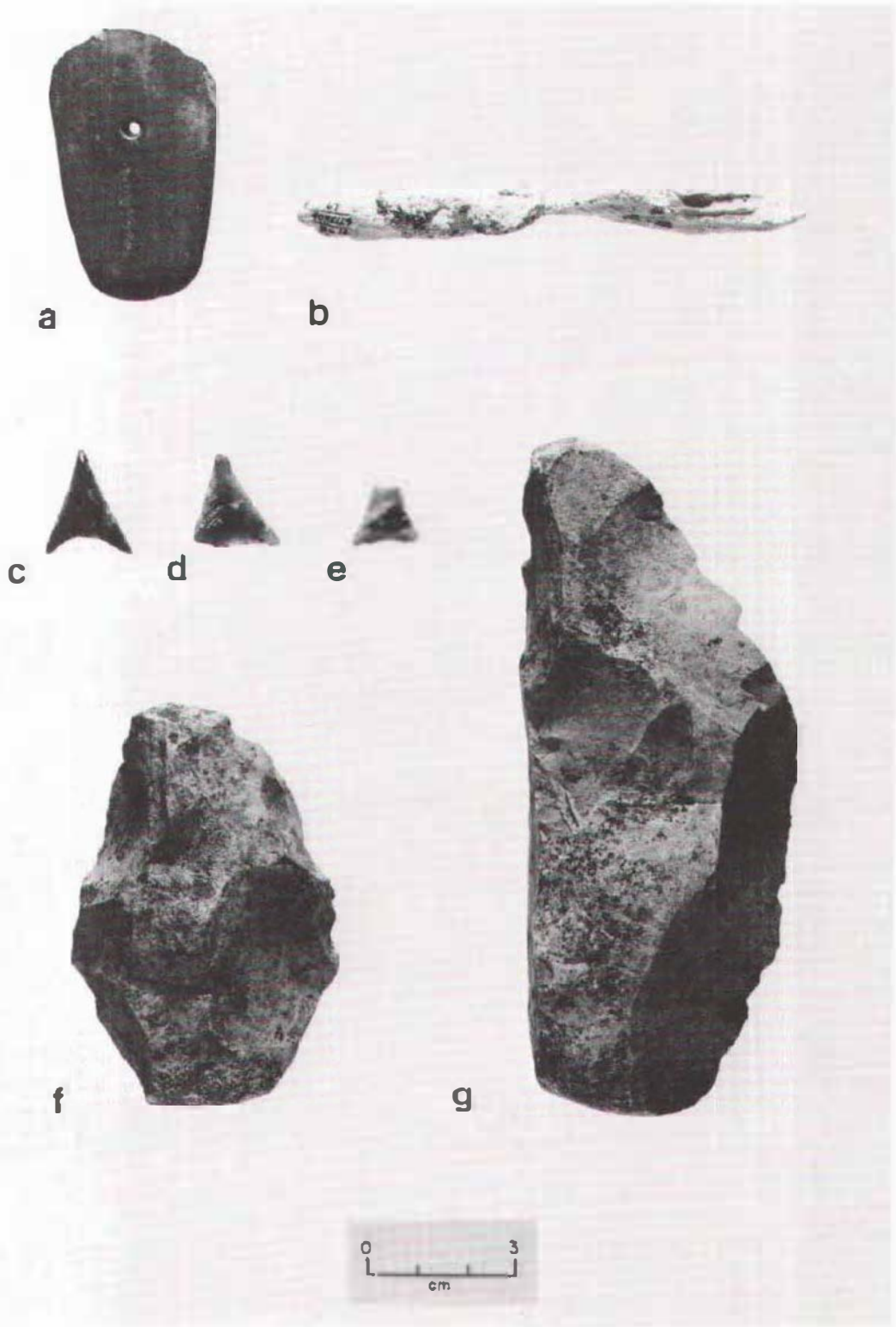


Figure 63. Lithic and shell artifacts associated with burials at 40RE124: (a) Bar gorget, Burial 31A; (b) Conch columellae bead, Burial 12; (c-e) Hamilton Incurvate projectile points, Burials 16B, 17, and 19; (f,g) Preforms, Burial 28.

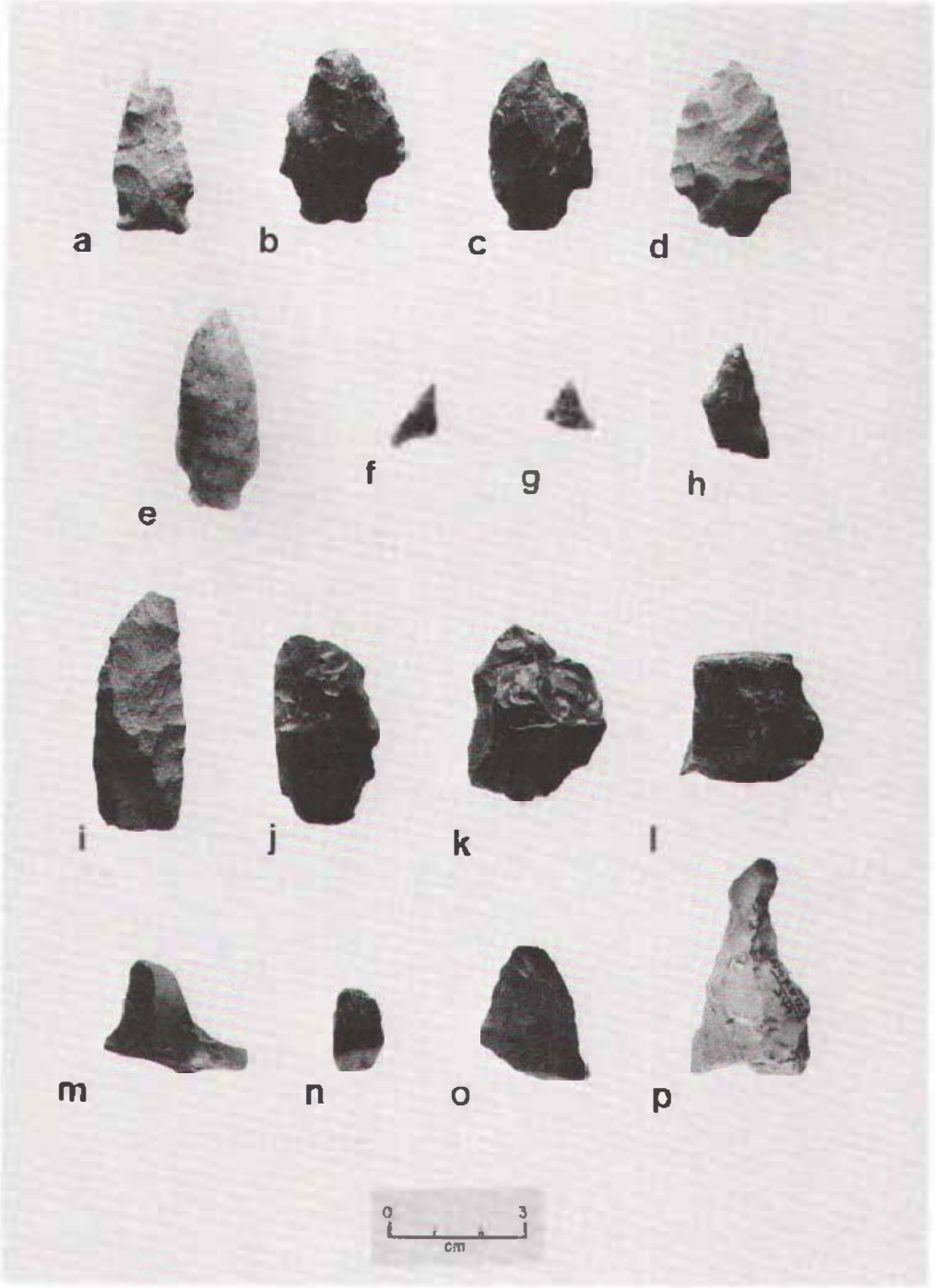


Figure 64. Lithic tools from the mound fill and post mound deposits at 40RE124: (a) Sykes projectile point; (b-d) Iddins Undifferentiated Stemmed points; (e) Sykes projectile point; (f-g) Mississippian projectile point fragments; (h) Madison projectile point; (i) Knife; (j) Scraper on amorphous core; (k-m) Amorphous cores; (n) Bipolar core; (o) Biface; (p) Preform. Specimens "a-d" are from the mound fill, while the remaining specimens are from post mound sediments .

Biface (n=8) A flake or core blank with regular flake scars on both faces. Three were produced from dark grey chert, two from oolitic chert, two from light grey banded chert and one from porcellaneous chert. They were recovered from Construction Stages 2 and 3.

Preform (Figure 63f-g) (n=2) These preforms are triangular pieces shaped by bifacial percussion flaking. Both were grave goods associated with Burial 28, and were produced from Knox light grey banded or porcellaneous chert.

Lithic Tools and Debitage--1975 Excavations

A total of 1,383 lithic artifacts was recovered during the 1975 excavations at 40RE124. Of this total, 1,313 artifacts represented the by-products of tool production or other activities. These included firecracked rock, non-chert spalls (two of these were hematite fragments), tested nodules, and core, decortication and bifacial thinning debitage. As with the mound excavations, a small number temporally diagnostic artifacts and other tools were recovered, and these are described below.

Sykes Projectile Point (Figure 64e) (n=1) A single Middle Archaic Sykes point made from vein quartz was recovered from 102-104N/60-62E, Level 6.

Mississippian Projectile Point Fragment (Figure 64f-g) (n=2) These artifacts are fragments of small, triangular projectile points not assignable to a specific projectile point type, but which were probably produced in the Late Woodland-Mississippian periods. Both of these fragments were produced from transluscent grey-green chert, and were recovered from 98-100N/72-73E, Level 9 and 110-112N/60-61E, Level 3.

Madison Projectile Point (Figure 64h) (n=1) These small, unstemmed triangular projectile points have straight blades and bases, and are associated with Mississippian contexts in the Tellico Reservoir area (Kimball 1985:58). The single Madison point was produced from transluscent grey-green chert and was recovered from 108-110N/58-60E, Level 4.

Perforator (n=1) An artifact with fine retouch which results in a converging point (Kimball 1985:60). Wear on the projection does not indicate a rotary motion in use, as would be the case with a drill. A single perforator made from Knox black-banded chert was recovered from 106-108N/60-62E, Level 15.

Drill (n=1) A single drill made from transluscent grey-green chert was recovered from 108-110N/62-64E, Level 4.

Knife (Figure 64i) (n=1) These tools exhibit regular, continuous bifacial retouch along an edge (Kimball 1985:60). A single knife, produced from a red (probably heated) chert, was recovered from 106-108N/48-60E, Level 9.

Utilized Hematite Fragments (n=2). these two fragments, probably utilized as pigments, were recovered from 106-108N/58-60E, Level 4 and 108-110N/58-60E, Level 6.

Endscraper (Figure 64j) (n=3) Two of these endscrapers were produced from Chickamauga red-brown jaspery chert, and one was produced from oolitic chert. They were recovered from 98-100N/68-70E, Level 11, 100-102N/68-70E, Level 2, and 108-110N/62-64E, Level 1.

Denticulate (n=1) These artifacts exhibit fine retouch which forms a "saw-toothed" edge. A denticulate produced from red heated chert was recovered from 100-102N/68-70E, Level 12.

Hammerstone (n=1) A cobble with battered ends or edges from use as a hardhammer percussion implement (Kimball 1980:84). A single metasandstone hammerstone was recovered from 104-106N/62-64E, Level 2.

Amorphous Core (Figure 64k-m) (n=16) Seven of these were produced from dark grey chert, three from oolitic chert, three from transluscent grey-green chert, and one each from light grey banded chert, red heated chert and porcellaneous chert. Most of these artifacts (n=4) were recovered from 106-108N/58-60E, Levels 5 (n=2), 11 and 13.

Bipolar Core (Figure 64n) (n=5) Three of these were produced from transluscent grey-green chert, one from oolitic chert, and one from chalcedony. They were recovered from Square 98-100N/72-73E, Level 2, 100-102N/68-70E, Levels 1 and 10, 104-106N/64-66E, Level 13 and 106-108N/60-62E, Level 6.

Blade Core (n=7) Two cores were made from Knox black or black-banded chert, one from dark grey chert, one from red heated chert, one from oolitic chert, one from Chickamauga red-brown chert and one from transluscent grey-green chert. Two were recovered from 98-100N/68-70E, Levels 2 and 8.

Biface (Figure 64o) (n=17) Bifaces were primarily produced from chalcedony (n=3), transluscent grey-green chert (n=3), Chickamauga red-brown jaspery chert (n=2), oolitic chert (n=2) and porcellaneous chert (n=2). Most bifaces were recovered from 106-108N/58-60E (n=6) and from Level 13 (n=5) in the excavations.

Preform (Figure 64p) (n=6) Preforms are triangular or ovate pieces shaped by percussion flaking which are considered intermediate stages in projectile point manufacture. Three preform fragments were produced from red heated chert, and one each was produced from light grey chert, oolitic chert and transluscent grey-green chert.

Projectile Point Fragment (n=5) A portion of a projectile point which is too fragmentary to be assigned a temporal or cultural affiliation. two fragments were produced from transluscent grey-green chert, and one each from dark grey, Chickamauga red brown, and porcellaneous chert.

Spatial Patterning of Lithic Artifacts

Although lithic artifacts were recovered from nearly every excavation level in 1975, most stone tools, cores, and debitage were found in Levels 2 through 8 (Table 36). The occurrence of individual categories generally diminishes with increased depth and there appears no particular elevation

Table 36. Distribution of Lithic Tools and Debitage by Excavation Level at 40RE124.

Artifact Class	Level 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	General	Total
Perforator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Drill	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Knife	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Hematite	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Denticulate	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Hammerstone	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Endscraper	1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3
Tested nodule	3	2	3	2	2	5	1	1	5	2	-	-	1	-	-	-	-	-	-	27
Firecracked rock	-	3	-	3	3	-	-	-	1	-	-	-	-	1	-	-	-	-	-	11
Blade	-	1	-	1	1	-	-	-	1	1	1	1	-	1	-	-	-	-	-	8
Blade core	-	2	1	-	1	-	1	1	-	-	-	-	-	1	-	-	-	-	-	7
Amorphous core	1	2	1	2	3	1	-	1	-	-	1	-	3	-	-	-	-	-	1	16
Bipolar core	1	1	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	5
Non-chert spall	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	3
Biface	1	3	-	1	1	2	1	-	1	-	-	1	5	1	-	-	-	-	-	17
Preform	-	-	1	1	-	-	-	1	-	-	1	-	-	1	-	-	-	-	1	6
Projectile point fragment	-	2	-	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	5
Sykes projectile point	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Mississippian projectile point	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Madison projectile point	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Unmodified stone	2	23	21	31	25	20	13	13	13	10	3	3	2	7	-	1	-	-	2	189
Unutilized debitage	18	162	125	117	78	74	78	95	73	53	45	47	22	23	10	6	-	2	6	1034
Utilized debitage	1	13	5	5	3	6	3	1	2	1	1	-	-	-	-	-	-	-	-	41
TOTAL	28	217	158	167	117	111	97	114	98	69	53	54	34	36	11	7	-	2	10	1383

where artifacts are concentrated. To examine the horizontal distribution of the lithic artifacts individual categories were combined into Finished Tools and Cores and Debitage groups (Table 37). Debitage is especially abundant on the north side of the mound in 106-108N/58-60E and on the east side of the mound in 100-102N/68-70E (Figure 65). The distribution of finished tools and cores shows a near identical pattern with the same two squares having the greatest numbers of artifacts (Figure 66). The horizontal distributions of the lithic artifacts and ceramic artifacts are very similar and tend to reflect the accumulation of sediments and cultural debris in the shallow trough formed by the mound and adjacent hillslope.

Table 37. Definitions of Major Lithic Artifact Groups at 40RE124.

Finished Tools and Cores	Debitage[a]
perforator	firecracked rock
drill	tested nodules
knife	non-chert spalls
denticulate	hematite fragments
hammerstone	blades
endscraper	utilized flakes
blade, bipolar, amorphous cores	unutilized flakes (or debitage)
biface	
preform	
projectile point (all types)	

[a]The unmodified stone class was not included in this group.

Lithic Raw Material Use

The Ordovician Chickamauga and Knox Groups are the major geological formations at or near 40RE124 (Swingle et al. 1966). Both formations contain a wide variety of cherts, as well as dolomite and limestone. These resources, along with the Copper Ridge Dolomite to the north, could have been easily exploited for useable lithic raw materials by the inhabitants of 40RE124. A rank-ordering of the lithic artifact raw materials from the mound and 1975 excavations in terms of the five most prevalent attribute states indicates almost exclusive exploitation of these local resources (Table 38). The cherts in Table 38 are briefly described below. More detailed descriptions are provided in Kimball (1985:88-120).

Dark Grey Chert A probable Knox Group chert with a uniform dark grey color and a fine-grained, siliceous texture. Grey color is also produced in some cases by heat alteration.

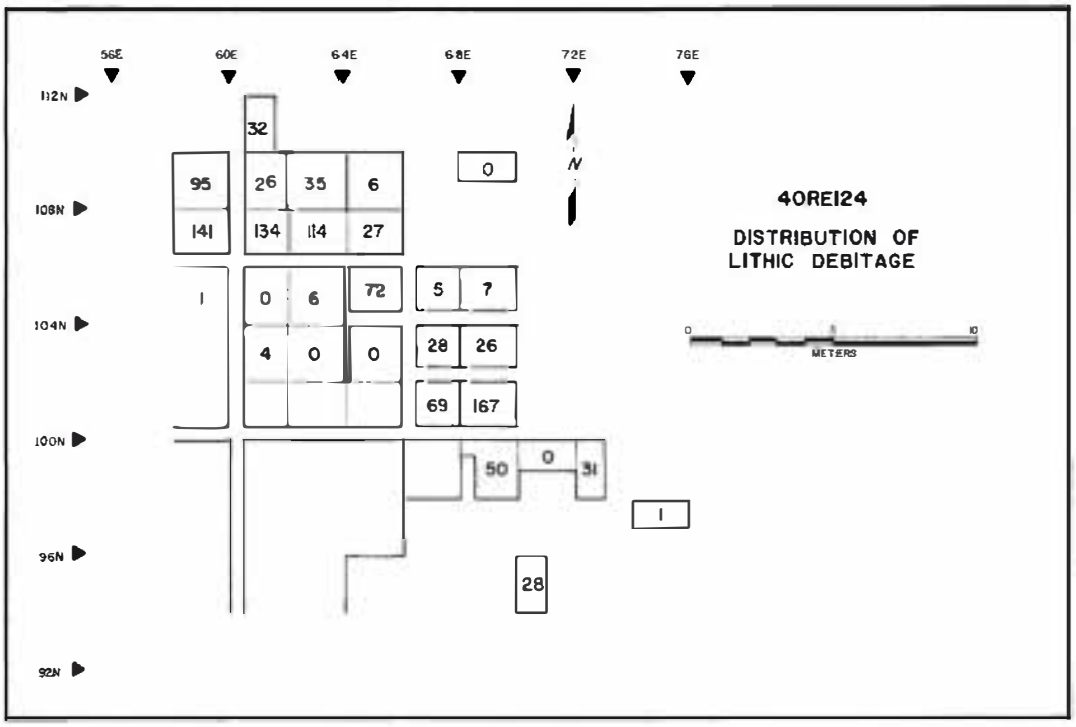


Figure 65. Horizontal distribution of debitage.

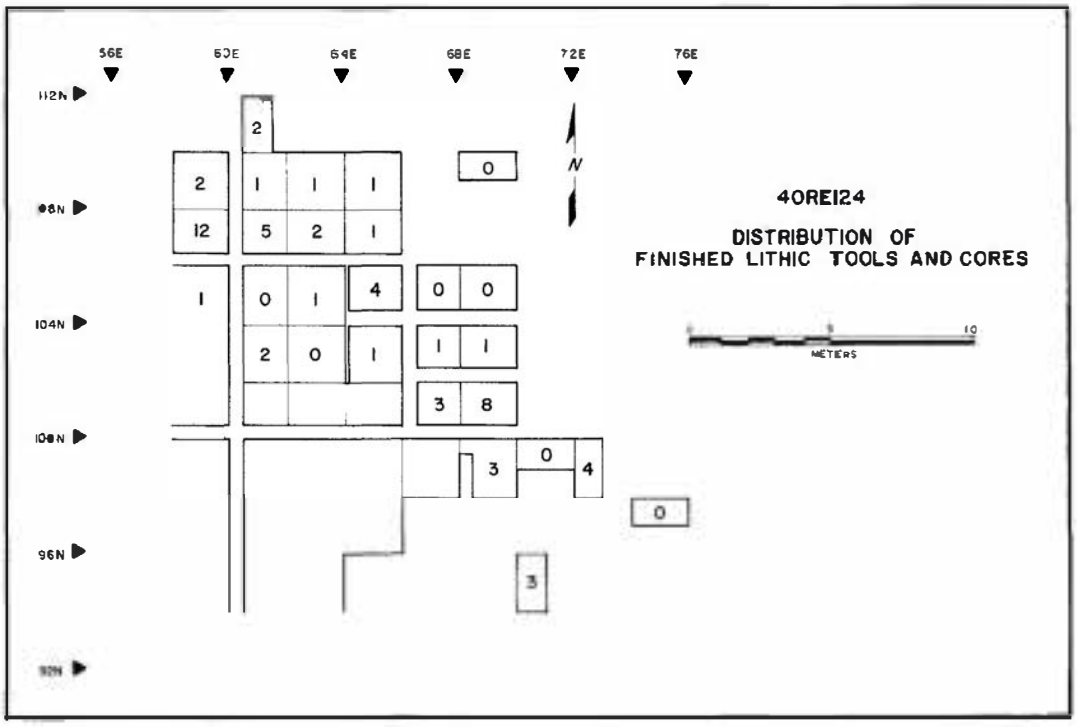


Figure 66. Horizontal distribution of finished tools and cores.

Table 38. Rank-Ordering of Five Most Common Lithic Raw Materials at 40RE124.

Rank-Order (most to least common)	Mound		1975 Excavations	
	Raw Material	% of Total	Raw Material	% of Total
1	Oolitic Chert	29	Transluscent Grey-Green Chert	17
2	Porcellaneous Chert	21	Oolitic Chert	14
3	Dark Grey Chert	8	Chalcedony	14
4	Chickamauga Red-Brown Jaspery Chert	7	Porcellaneous Chert	11
5	Chalcedony	7	Dark Grey Chert	10

Transluscent Grey-Green Chert A Chickamauga Group chert which is fine-grained lustrous and transluscent. It contains irregular inclusions, giving it a greenish, "smoky" appearance when held to the light.

Porcellaneous Chert A probable Knox Group chert with a dull, light colored, opaque nucleus.

Chickamauga Red-Brown Jaspery Chert This Chickamauga Group chert is relatively fine-grained and opaque, and generally has a mustard yellow color with red, brown and white inclusions.

Oolitic Chert Chert with small, round oolites (silica grains) manifesting a regular distribution in the chert matrix. Oolitic cherts are usually dull and opaque to transluscent, and may come in a variety of colors.

Chalcedony A transparent to transluscent variety of quartz with a fibrous texture and a matte, "paraffin-like" surface.

In terms of the distribution and frequency of these raw materials at 40RE124, the most significant difference between the mound and 1975 excavations is the high rank-ordering of transluscent grey-green chert from the 1975 excavation squares, in contrast to the lithic artifacts from the mound excavations.

Summary

The mound excavations produced fewer lithic artifacts than the 1975 excavations, and neither produced many temporally diagnostic artifacts. However, Hamilton projectile points associated as grave goods with three of the burials certainly attests to the Late Woodland-Early Mississippian construction and use of the mound at 40RE124. The recovery of Middle and Late

Archaic projectile points from the mound fill, and from the 1975 excavations, also indicates use of the site by much earlier Native American groups. Locally available raw materials were almost exclusively used in the production of stone tools, with the notable exception of the greenstone used in the production of ground stone implements.

Botanical Remains

Identifiable botanical remains were recovered from flotation and fine waterscreened sediments in three excavation units and from four 10 cm levels. The identified remains include small amounts of hickory nutshell (2.82g) and approximately 18 g of hickory and oak charcoal. Very small amounts of chestnut and cherry wood charcoal also occur in the sample. Seeds in the sample include pokeberry, bedstraw, raspberry, and grape. Asteraceae fruitheads also were recovered (Table 40). Although no domesticated plant species occur in the sample, the recovered species are comparable to the kinds of plants found in Woodland and Mississippian period sites in east Tennessee (see Chapman and Shea 1981).

Table 39. Plant Remains from 40RE124.

106-108N/64-66E, Level 2	
.16g	Hickory nutshell (*Carya* sp.)
3.40g	Hickory charcoal (*Carya* sp.) and Oak charcoal (*Quercus* sp.)
19	Pokeberry seeds (*Phytolacca* sp.)
2	Grape seed (*Vitis* sp.)
1	Bedstraw (*Galium trifidum*)
1	Raspberry (*Rubus occidentalis*)
6	Fruitheads (Asteraceae)
104-106N/64-66E, Level 5	
.40g	Hickory nutshell (*Carya* sp.)
6.38g	Hickory charcoal (*Carya* sp.) and Oak charcoal (*Quercus* sp.)
.48g	Chestnut charcoal (*Castanea dentata*)
.06g	Fruitheads (Asteraceae)
104-106N/64-66E, Level 6	
.11g	Hickory nutshell (*Carya* sp.)
2.15g	Hickory (*Carya* sp.), Oak (*Quercus* sp.) and Cherry (*Prunus serotina*) charcoal
30	Whole pokeberry seeds (*Phytolacca americana*)
.16g	Pokeberry (*Phytolacca americana*) seed fragments
106-108N/62-64E, Level 8	
2.15g	Hickory nutshell (*Carya* sp.)

Table 39. Continued.

5.93g	Hickory (Carya sp.) and Oak (Quercus sp.) wood charcoal
1	Grape seed (Vitis sp.)
41	Whole pokeberry seeds (Phytolacca americana)
15	Pokeberry seed (Phytolacca americana) fragments
2	Bedstraw (Galium sp.)
31	Fruitheads (Asteraceae)

Faunal Remains

No faunal remains were found in the deposits excavated adjacent to the mound in 1975. Mound excavations produced bones of domestic sheep (Ovis aries), domestic pig (Sus scrofa), domestic dog (Canis familiaris), and striped skunk (Mephitis mephitis) (Table 40). The remains were recovered from the mound surface or from clearly defined burrows, so none are considered associated with aboriginal activities at the site or mound use.

Table 40. Faunal Remains From 40RE124.

Striped skunk (Mephitis mephitis)		
	2	cranium
	1	right mandible
	1	left tibia
	1	left innominate
Domestic dog (Canis familiaris)		
	1	left mandible
	1	right mandible
	1	atlas
	1	cervical vertebra
	1	lumbar vertebra
	1	right humerus
	1	right proximal ulna
	1	left proximal humerus
	1	right distal femur diaphysis
Domestic pig (Sus scrofa)		
	1	canine

Table 40. Continued.

Domestic sheep (*Ovis aries*)		
	1	partial cranium with left and right parietals and occipital
	1	left upper third molar
	1	left upper first molar

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute - Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Regional Comparisons

Cole's (1975) regional study remains the primary synthesis of Hamilton burial mounds in East Tennessee. There is no need to repeat its methods, contents, or results here other than to place 40RE124, which she included in

her analysis, in its regional context. Her study utilized 14 burial mounds from ten sites in Anderson, Meigs, Roane, and Rhea counties in East Tennessee containing 423 burials.

Using 56 variables of mound construction, Cole (1975: Table 7) conducted hierarchial profile grouping analysis (HGROUP) and principal coordinates of distance analysis (PRINCO). HGROUP analysis produced northern, central, and southern mound clusters and these clusters were generally confirmed by the PRINCO analysis. Site 40RE124 was consistently classified with the central group of mounds which included all the Roane and Rhea county sites used in the study except for 40RH41 which was classified with the northern group. Analyses by subsets of variables, including burial customs, mound construction techniques, and associated artifacts produced near identical results except that 40RH7, Mound A and 40RE124 clustered with the northern group respecting burial customs, and 40RH1 is more like a southern cluster mound based on artifact associations. Overall, Cole (1975:56-59) found that 14 mound characteristics were restricted geographically (Table 42) and specifically 40RE124 shares two of three central mound cluster characteristics: midden areas were used for borrow and ash occurs with burials, but no flat shell beads were recovered at the site. The use of limestone slabs and clearing of the ground surface for mound construction, more prevalent in northern and southern mounds, respectively, also occurs at 40RE124.

Of the 56 variables used by Cole (1975), 17 are present in greater than 50% of the mounds studied. Comparison shows that nine of these traits are nearly equally divided at 40RE124 (Table 43). Among the characteristics interestingly absent at 40RE124 are celts and pipes; celts are an especially frequent grave good, and stylistic variation in the pipes has recently been proposed as a chronological indicator for burial mounds in East Tennessee (Chapman 1987). Other characteristics commonly attributed to Late Woodland mounds in the region such as small triangular projectile points and conch columellae beads as grave goods are present at 40RE124. Similar projectile points also occur with interments as probable inflictions. While no single mound, as Cole's study shows, can be viewed as typical of Late Woodland culture, the mortuary and mound construction patterns at 40RE124 exhibit the general pattern found throughout the East Tennessee region.

It was anticipated that excavation of sediments adjacent to the 40RE124 mound would produce important data relevant to the Late Woodland-Early Mississippian transition. Although initial exposure of these deposits raised optimism of finding undisturbed occupational features perhaps preceding the final mound construction stage, this was not the case. Furthermore, radiocarbon dates from the sediments suggest depositional events dating well after mound use ended. Despite this and the comparatively small sherd sample, the co-occurrence of shell tempered and limestone tempered is now well documented for the Martin Farm phase, Late Woodland-Early Mississippian transitional culture. The 40RE124 ceramics suggest the possibility of such a component north of the mound. Site 40RE151 is perhaps the source of the culture material recovered [Exempted from disclosure by statute] the 40RE124 Mound.

Table 42. List of Geographically Restricted Mound Characteristics (after Cole 1975:56-57).

1	Limestone slabs in mound construction more prevalent in northern mounds
2	Use of mussel shell in mound construction is more common in southern mounds
3	Clearing of humus layer more frequent among southern mounds.
4	Mound fill borrowed from midden areas occurs mostly in the central cluster
5	Charred log tombs or boxes are found primarily in the south
6	Decapitated burials are known only from the southern mound cluster
7	Stone pestles occur primarily in southern mounds
8	Flat shell beads are found mainly in the southern mounds
9	Concentrations of shell with burials occurs in the south
10	Ash is found within central mounds only
11	No inflicted points occur in analyzed Anderson County mounds
12	No celts are found in the analyzed Anderson County mounds
13	No bone artifacts are found in the Anderson County mounds
14	No stemmed projectile points are found in the Anderson County mounds

Chronology

While there was little doubt before excavation that 40RE124 was a Late Woodland period burial mound, it was extremely important, if possible, to secure a suite of radiocarbon dates from the mound. When work at 40RE124 commenced, a set of 11 dates from three mounds at[Exempted from disclosure by statute]had been recently obtained (Schroedl 1973, 1978a). Only a single date had been previously available [Exempted from disclosure by statute]and interpretation of [Exempted from disclosure by statute] site dates indicated burial mound use contemporary with Late Wood Early Mississippian culture manifestations, a point of view not previously considered in the prehistory of the region. Radiocarbon dates from 40RE124 were crucial to an independent evaluation of the burial mound chronology suggested by the [Exempted from disclosure by statute] dates. When deposits adjacent to the north side of the 40RE124 mound produced shell tempered pottery diagnostic of Mississippian period, there was the clear implication of direct stratigraphic evidence of Mississippian burial mound use. Radiocarbon dates from these

Table 43. Comparison of 40RE124 with East Tennessee Burial Mound Characteristics (percentages are for 14 mound samples).

Present at 40RE124		Absent at 40RE124	
1.	Height of mound greater than 5 ft. (57%)	10.	Majority of burials semiflexed (57%)
2.	Grave goods decrease through time (79%)	11.	Multiple individuals as single burial (64%)
3.	Projectile points inflicted in burials (64%)	12.	Extended burials among those in mound (57%)
4.	Bundle burials among those in mound (50%)	13.	Celts in mound association (64%)
5.	More males than females (71%)	14.	Pipes in mound association (57%)
6.	More adults than subadults (100%)	15.	Bone artifacts (57%)
7.	Triangular projectile points with burials (86%)	16.	Stemmed projectile points (64%)
8.	Conch columellae with burials (79%)	17.	Initial mound burial laid on the ground (57%)
9.	Limestone-tempered pottery in mound (56%)		

deposits were also of obvious importance to determining the chronology of occupation at 40RE124 and for helping resolve the regional prehistory.

Charred log features particularly from Construction Stage 2 produced abundant charcoal for radiocarbon dating mound use at 40RE124. The unquestionable association of the features with mound construction bolstered confidence that dates for mound use rather than the age of potentially much older sediments used for mound fill would be obtained. Construction Stage 1 unfortunately contained no log features and only one such feature occurred in Construction Stage 3. Consequently, six total samples, four from Construction Stage 2 and one each from the other two stages were radiocarbon dated (Table 44).

The sample dating Construction Stage 1 was recovered from sediments in the central area of the mound approximately 20 cm above and 1 m southeast of the central burial. From the second stage, single samples from Features 5 and 11 and two samples from Feature 14 were dated. The sample dating Construction Stage 3 came from Feature 4. With the exception of one date on Feature 14 run at the University of Georgia, Geochron Laboratories were responsible for processing the remaining samples.

While the six dates show some internal stratigraphic inconsistencies, such as the late age of Feature 11 in Construction Stage 2, and the slightly early age of Feature 4 dating Construction Stage 3, the dates are considered acceptable age estimates for mound construction. They indicate mound building commencing in the early eighth century and terminating in the middle to late

Table 44. Radiocarbon Dates from Mound Contexts at 40RE124.

Context	Date	s	Age	Corrected Date*	s	Age
Construction Stage 3						
GX3459, Feature 4	1070	180	A.D. 880	1054	185	A.D. 896
Construction Stage 2						
GX3461, Feature 11	725	160	A.D. 1225	753	163	A.D. 1217
GX3460, Feature 5	970	160	A.D. 980	960	163	A.D. 990
GX3462, Feature 14	1020	120	A.D. 930	1008	124	A.D. 943
UGa 738, Feature 14	1030	60	A.D. 920	1017	68	A.D. 933
Construction Stage 1						
GX3463, Sample 34	1265	170	A.D. 685	1243	177	A.D. 707

*after Damon et al 1974.

tenth century. As shown elsewhere (e.g. Schroedl 1978a:190-199) the 40RE124 radiocarbon dates are comparable to dates obtained at [Exempted from disclosure by statute](40RE7) and [Exempted from disclosure by statute](40RE4) sites. More recently,[Exempted from disclosure by statute](40MR16) was dated A.D. 1111±119 (Davis et al. 1982) and this is the only Late Woodland Hamilton mound dated since work at 40RE124. The [Exempted from disclosure by statute] mound (40LD183), attributed to late Middle Woodland period culture in East Tennessee produced dates of A.D. 485±175 and A.D. 685±170 (Chapman 1987). Both dates are contemporary at one sigma with the earliest dates from the [Exempted from disclosure by statute] site, Mound C and the Construction Stage 1 date from 40RE124.

Securing radiocarbon dates from deposits containing shell tempered and limestone tempered ceramics adjacent to the mound was an important goal of the 1975 excavations. No occupational features were encountered in these deposits and thus no charcoal samples from well defined contexts were secured from the deposits. Charcoal dispersed within the sediments (Post Mound Midden), however, was collected in sufficient amounts for dating, and four radiocarbon dates were obtained (Table 45). In each case the samples were wood charcoal collected from an area no larger than a single 10 cm level in a 2 m square. Samples 36 and 39 both came from 100-102N/68-70E, Level 9. Sample 38 was from Level 7 in Square 106-108N/60-62E on the north side of the mound, while Sample 40 was obtained in Square 102-104N/68-70E, Level 9. It was expected that dates on these four samples would fall circa A.D. 1000. Instead the dates, although consistent with one another, all fall between the fifteenth and eighteenth centuries. If the samples were contaminated from atomospheric or ground water sources one might expect similar problems with the dates from mound contexts. These dates, of course, are well within acceptable ranges. A second possibility is simply that the deposits accumulated on the north side of the mound at a much later date than is suggested by the articulation of these sediments with those of the mound. The associated culture material indicates culture activity contemporary with mound use. This appears to have occurred further up slope from the mound and the radiocarbon dates suggest

that the sediments excavated in 1975 were eroded from there at a date well after mound use had ceased.

Table 45. Uncorrected Radiocarbon Dates for Post Mound Contexts at 40RE124.

Context	Date	s	Age
GX4135, Sample 36	245	120	A.D. 1705
GX4136, Sample 38	495	135	A.D. 1455
GX4137, Sample 39	240	115	A.D. 1710
GX4138, Sample 40	350	105	A.D. 1600

Conclusions

Excavations were undertaken at 40RE124 to document the complete mortuary pattern and demography at a single Late Woodland period burial mound. This was accomplished because the mound had not been previously plowed or severely disturbed by relic collectors. By completely excavating the mound the goals of the investigation were fully realized, despite poor bone preservation which reduced the number and detail of the skeletal and cultural studies that could be accomplished. Not evident in previous burial mound excavations was the change in burial orientation between construction stages identified at 40RE124. For lack of data from which to conduct comparable studies, patterns of intrasite variability are still difficult to decipher at other mounds. Nevertheless the regional level studies prompted by the 40RE124 work have furthered the examination of Late Woodland socio-political organization and contributed to understanding the transition to subsequent Mississippian period cultures (Schroedl and Boyd 1986, 1987; Schroedl et al. 1985, 1989).

Mortuary patterning and mound construction at 40RE124 and elsewhere suggest subregional socio-political groups, largely egalitarian in nature. Some achieved status positions may have been related to the acquisition and control of exotic goods, especially marine shells such as conch (Busycon sp.). Mounds or mound groups may have been built and maintained by particular lineage groups to reinforce social cohesion as well as serving as territorial markers. The burial mound radiocarbon chronology, to which 40RE124 has made a significant contribution, indicates continuity of expression in this pattern into the Early Mississippian period. Evidence for the transition from Late Woodland to Early Mississippian is more likely found in agricultural intensification, population expansion, and the development of socio-religious structures appropriate to these changes rather than in the abandonment of one mortuary pattern for another.

REFERENCES CITED

Anderson, Donald L., and Gordon W. Thompson
1973 Interrelationships and Sex Differences of Dental and Skeletal Measurements. Journal of Dental Research 52:431-438.

Baden, William W.
1983 Tomotley: An Eighteenth Century Cherokee Village. Report of Investigations No. 36. Department of Anthropology, University of Tennessee, Knoxville.

Bass, William M.
1971 Human Osteology: A Laboratory and Field Manual of the Human Skeleton. Missouri Archaeological Society, Columbia.

Bogan, Arthur E. and Cynthia M. Bogan
1985 Faunal Remains. In Archaeological Contexts and Assemblages at Martin Farm, by Gerald F. Schroedl, R.P. Stephen Davis, Jr. and C. Clifford Boyd, Jr., pp. 369-410. Report of Investigations No. 39. Department of Anthropology, University of Tennessee, Knoxville.

Boyd, C. Clifford, Jr.
1986 Archaeological Investigations in the Watauga Reservoir, Carter and Johnson Counties, Tennessee. Report of Investigations No. 44. Department of Anthropology, University of Tennessee, Knoxville.

Braun, E. Lucy
1950 Deciduous Forests of Eastern North America. Free Press, New York.

Brothwell, D.R.
1965 Digging Up Bones. The British Museum, London.

Chapman, Jefferson
1973 The Icehouse Bottom Site, 40MR23. Report of Investigations No. 13. Department of Anthropology, University of Tennessee, Knoxville.

1975 The Rose Island Site and the Bifurcate Point Tradition. Report of Investigations No. 14. Department of Anthropology, University of Tennessee, Knoxville.

1977 Archaic Period Research in the Lower Little Tennessee River Valley - 1975: Icehouse Bottom, Harrison Branch, Thirty Acre Island, Calloway Island. Report of Investigations No. 18. Department of Anthropology, University of Tennessee, Knoxville.

1981 The Bacon Bend and Iddins Sites: The Late Archaic Period in the Lower Little Tennessee River Valley. Report of Investigations No. 31. Department of Anthropology, University of Tennesse, Knoxville.

1987 The [Exempted from disclosure by statute]Mound and an Assessment of Burial Mound Construction in the Ridge and Valley Province. Tennessee Anthropologists 12:51-73.

Chapman, Jefferson and Gary D. Crites
1987 Evidence for Early Maize (Zea Mays) from the Icehouse Bottom Site, Tennessee. American Antiquity 52:352-354.

Chapman, Jefferson and Andrea Brewer Shea
1981 The Archaeobotanical Record: Early Archaic Period to Contact in the Lower Little Tennessee River Valley. Tennessee Anthropologist 6:61-84.

Cole, Patricia E.
1975 A Synthesis and Interpretation of the Hamilton Mortuary Pattern in East Tennessee. Unpublished M.A. thesis, Department of Anthropology, University of Tennessee, Knoxville.

Conrad, Nicholas, David L. Asch, Nancy B. Asch, David Elmore, Harry Gove, Meyer Rubin, James A. Brown, Michael D. Wiant, Kenneth B. Farnsworth, and Thomas G. Cooke
1984 Accelerator Radiocarbon Dating of Evidence for Prehistoric Horticulture in Illinois. Nature 308:443-446.

Cridlebaugh, Patricia A.
1981 The Icehouse Bottom Site (40MR23): 1977 Excavations. Report of Investigations No. 35. Department of Anthropology, University of Tennessee, Knoxville.

Damon, P.E., C.W. Ferguson, A. Long and E.I. Wallick
1974 Dendrochronologic Calibration of the Radiocarbon Time Scale. American Antiquity 39:350-366.

Davis, R.P. Stephen, Jr., Larry R. Kimball, and William W. Baden (editors)
1982 An Archeological Survey and Assessment of Aboriginal Settlement Within the Lower Little Tennessee River Valley. Report Submitted to the Tennessee Valley Authority, Norris, Tennessee.

Davis, R.P. Stephen, Jr., Larry R. Kimball, William W. Baden, and Jefferson Chapman
1980 Research Design for Probabilistic Sampling Survey of the Tellico Reservoir, Tennessee. Research Proposal submitted to the Tennessee Valley Authority, Norris, Tennessee.

Ditch, Larry E., Nd Jerome C. Rose
1972 A Multivariate Dental Sexing Technique. American Journal of Physical Anthropology 37:61-64.

Fenneman, Nevin M.
1938 Physiography of Eastern United States. McGraw-Hill Book Company, Inc., New York.

Fielder, George F., Jr.
1974 Archaeological Survey with Emphasis on Prehistoric Sites of the Oak Ridge Reservation, Oak Ridge, Tennessee. ORNL/TM-4694. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

1975 Cultural Resource Survey of the Exxon Nuclear Facility, Oak Ridge, Tennessee, An Interim Report. Ms. on file, Department of Anthropology, University of Tennessee, Knoxville.

Fielder, George F. Jr., Steven R. Ahler, and Benjamin Barrington
1977 Historic Sites Reconnaissance of the Oak Ridge Reservation, Oak Ridge, Tennessee. ORNL/TM-5811. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Giles, Eugene
1964 Sex Determination by Discriminant Function Analysis of the Mandible. American Journal of Physical Anthropology 22:129-136.

Harrington, M.R.
1922 Cherokee and Earlier Remains on the Upper Tennessee River. Indian Notes and Monographs, Museum of the American Indian, Heye Foundation, series 24, New York.

Jolley, Robert L.
1982 Archaeological Investigations in the Clinch River Breeder Reactor Project Area 1981-82. Building Conservation Technology, Inc., Nashville, Tennessee.

Keel, Bennie C.
1976 Cherokee Archaeology: A Study of the Appalachian Summit. University of Tennessee Press, Knoxville, Tennessee.

Keen, J.A.
1950 A Study of the Differences between Male and Female skulls. American Journal of Physical Anthropology 18:65-79.

Kerley, Ellis R.
1970 Estimation of Skeletal Age: after about age 30. In Personal Identification in Mass Disasters, edited by T. Dale Stewart, pp. 57-70, Smithsonian Institution Press, Washington, D.C.

Kimball, Larry R.
1980 Appendix I: Description of Lithic Artifact Categories. In A Preliminary Report of Probabilistic and Nonprobabilistic Archeological Sampling in Industrial Area II, Tellico Reservoir, Tennessee, by R.P. Stephen Davis, Jr., pp. 79-87. Tellico Archeological Survey Report No. 2. Department of Anthropology, The University of Tennessee, Knoxville.

1982 Lithic Artifact Analysis. In An Archaeological Survey and Assessment of Aboriginal Settlement Within the Lower Little Tennessee River Valley, edited by R.P. Stephen Davis, Jr., Larry R. Kimball, and William W. Baden, pp. 120-252. Submitted to the Tennessee Valley Authority, Norris, Tennessee.

Kimball, Larry R. (editor)
1985 The 1977 Archaeological Survey: An Overall Assessment of the Archaeological Resources of the Tellico Reservoir. Report of Investigations No. 40. Department of Anthropology, University of Tennessee, Knoxville.

Kneberg, Madeline
1957 Chipped Stone Artifacts of the Tennessee Valley Area. Tennessee Archaeologist 13:55-56.

Krogman, Wilton M.
1962 The Human Skeleton in Forensic Medicine. Charles C. Thomas, Springfield, Illinois.

Kronfeld, Rudolf
1954 Development and Calcification of the Human Deciduous and Permanent Dentition. In Basic Readings on the Identification of Human Skeletons, edited by T. Dale Stewart and Mildred Trotter, pp. 3-10, Wenner-Gren Foundation for Anthropological Research, New York.

Lafferty, Robert H., III
1981 The Phipps Bend Archaeological Project. Research Series No. 4, Office of Archaeological Research, University of Alabama, Tuscaloosa, Alabama.

Lewis, Thomas M.N., and Madeline Kneberg
1941 The Prehistory of the Chickamauga Basin. Ms. on file, Frank H. McClung Museum, University of Tennessee, Knoxville.

1946 Hiwassee Island. The University of Tennessee Press, Knoxville.

Moore, Clarence B.
1915 Aboriginal Sites on the Tennessee River. Journal of the Academy of Natural Sciences of Philadelphia, 16 (second series, part 3):431-487.

Morse, Dan
1969 Ancient Disease in the Midwest. Report of Investigations No. 16. Illinois State Museum, Springfield.

Muto, Guy R.
1971 A Technological Analysis of the Early Stages in the Manufacture of Lithic Artifacts. Unpublished M.A. thesis, Department of Anthropology, Idaho State University, Pocatello.

Nash, Charles H.
1941 Watts Bar Reservoir Survey Notes. Unpublished manuscript on file at McClung Museum, University of Tennessee, Knoxville.

Olivier, Georges
1969 Practical Anthropology. Charles C. Thomas, Springfield.

Parmalee, Paul W. and Arthur E. Bogan
n.d. A Summary Report on the Aquatic Mollusks from the Clinch River Breeder Reactor Plant Site (40RE108), Roane County, Tennessee. Ms. on file, Department of Anthropology, University of Tennessee, Knoxville.

1986 Molluscan Remains from Aboriginal Middens at the Clinch River Breeder Reactor Plant site, Roane County, Tennessee. American Malacological Bulletin 4:25-37.

Parmalee, Paul W., Walter E. Klippel, and Arthur E. Bogan
1982 Aboriginal and Modern Freshwater Mussell Assemblages (Pelecypoda: Unionidae) from Chickamauga Reservoir, Tennessee. Brimleyana 8:75-90.

Salo, Lawr V. (Editor)
1969 Archaeological Investigations in the Tellico Reservoir, Tennessee, 1967-1968: an Interim Report. Report of Investigations No. 7. Department of Anthropology, University of Tennessee, Knoxville.

Schour, I., and M. Massler
1944 Development of the Human Dentition. American Dental Association, CHicago.

Schroedl, Gerald F.
1972 Archaeological Reconnaissance and Test Excavations in the Clinch River Liquid Metal Fast Breeder Reactor Plant Site Area. Report submitted to the Tennessee Valley Authority, Knoxville.

1973 Radiocarbon Dates from Three Burial Mounds at[Exempted from disclosure by statute]Site in East Tennessee. Tennessee Archaeologist 29:3-11.

1974a Historic Sites Reconnaissance in the Clinch River Breeder Reactor Plant Area. Report submitted to the Tennessee Valley Authority.

1974b Test Excavations at Site 40RE129 in the Clinch River Breeder Reactor Plant Area. Report submitted to the Tennessee Valley Authority.

1978a Excavations of the[Exempted from Disclosure by Statute]Site Mounds in the Watts Bar Nuclear Plant Area. Report of Investigations No. 22. Department of Anthropology, University of Tennessee, Knoxville.

1978b The Patrick Site (40MR40), Tellico Reservoir, Tennessee. Report of Investigations No. 25. Department of Anthropology, University of Tennessee, Knoxville.

Schroedl, Gerald F. and C. Clifford Boyd, Jr.
1986 Late Woodland Culture in East Tennessee. Paper presented at the 43rd Annual Meeting of the Southeastern Archaeological Conference, Nashville, Tennessee.

1987 Late Woodland Culture in East Tennessee. Ms. on file, Department of Anthropology, University of Tennessee, Knoxville.

Schroedl, Gerald F., R.P. Stephen Davis, Jr., and C. Clifford Boyd, Jr.
1985 Archaeological Contexts and Assemblages at Martin Farm. Report of Investigations No. 39. Department of Anthropology, University of Tennessee, Knoxville.

1990 Explaining Mississippian Origins in East Tennessee. In Mississippian Emergence: The Evolution of Ranked Agricultural Societies in the Eastern Woodlands, edited by Bruce D. Smith. Smithsonian Institution Press, Washington D.C. (in press).

Sicher, Harry
1965 Oral Anatomy. The C.V. Mosby Company, St. Louis.

Sprague, Roderick
1968 A Suggested Terminology and Classification for Burial Description. American Antiquity 33:479-485.

Steele, D. Gentry
1970 The Calcaneus and Talus: Discriminant Functions for Estimation of Sex Among American Whites and Negroes. Unpublished Ph.D. dissertation, University of Kansas, Lawrence.

Stevenson, Paul H.
1924 Age Order of Epiphyseal Union in Man. American Journal of Physical Anthropology 7:53-93.

Swann, M.E., Wallace Roberts, E.H. Hubbard, and H.C. Porter
1942 Soil Survey of Roane County, Tennessee. United States Department of Agriculture, Washington, D.C.

Swingle, G.D., R.A. Miller, E.T. Luther, W.D. Hardeman, D.S. Fullerton, C.R. Sykes, and R.K. Garman
1966 Geological Map of Tennessee: East-Central Sheet. Division of Geology, Tennessee Department of Conservation, Nashville.

Thomas, Cyrus
1894 Report on the Mound Explorations of the Bureau of American Ethnology. Twelfth Annual Report, Bureau of American Ethnology, 1890-1891.

Thomas, Prentice M.
1973 A Map of Two Historic Sites in the Clinch River Liquid Metal Fast Breeder Reactor Plant Area, Roane County, Tennessee. Report submitted to the Tennessee Valley Authority.

Webb, William S.
1938 An Archaeological Survey of the Norris Basin in Eastern Tennessee. Bureau of American Ethnology, Bulletin 118.

APPENDIX

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)

Exempted from Disclosure by Statute – Withheld Under 10 CFR 2.390(a)(3)