THE HOOPER SITE (40DV234):

A Mississippian Village in Davidson County, Tennessee

Kevin E. Smith and Michael C. Moore

Tennessee Department of Environment and Conservation
Division of Archaeology
Miscellaneous Publication No. 3
1996

THE HOOPER SITE (40DV234):
A Mississippian Village in Davidson County, Tennessee

by

Kevin E. Smith and Michael C. Moore

with a contribution by:

Suzanne D. Hoyal

Tennessee Department of Environment and Conservation
Division of Archaeology
Miscellaneous Publication No. 3
1996

Pursuant to the State of Tennessee's policy of non-discrimination, the Tennessee Department of Environment and Conservation does not discriminate on the basis of race, sex, religion, color, national or ethnic origin, age, disability, or military service in its policies, or in the admission or access to, or treatment or employment in, its programs, services, or activities. Equal Employment Opportunity/Affirmative Action inquiries or complaints should be directed to the Tennessee Department of Environment and Conservation, EEO/AA Coordinator, 401 Church Street, 21st Floor, Nashville TN 37243, (615) 532-0103. ADA inquiries or complaints should be directed to Isaac Okoreeh-Baah, Tennessee Department of Environment and Conservation, 401 Church Street, 7th Floor Annex, Nashville TN 37243, (615) 532-0059. Hearing impaired callers may use the Tennessee Relay Service (1-800-848-0298).

Tennessee Department of Environment and Conservation Authorization No. 327626, 500 copies. This public document was promulgated at a cost of $4.13 per copy. December 1996.

TABLE OF CONTENTS

Page

LIST OF FIGURES iv
LIST OF TABLES v
ACKNOWLEDGMENTS vi
INTRODUCTION 1
ENVIRONMENTAL SETTING 2
- Physiography 2
- Soils 5
- Climate 5
- Flora and Fauna 6

METHODOLOGY 6
FEATURE DESCRIPTIONS 7
RADIOCARBON DETERMINATIONS 10
CEMETERY INVESTIGATIONS 10
- Hooper Cemetery 21
- Reburial 21

ARTIFACT DESCRIPTIONS 22
- Faunal Remains 22
- Lithics 26
- Ceramics 30
  - Vessel Morphology 30
    - Jars 31
    - Bottles 31
    - Bowls 31
    - Pans 37
  - Other Ceramic Artifacts 37
    - Effigy 37
    - Disc 38
    - Trowel 38
    - Unidentified Cylindrical Fragment 38

CONCLUSIONS 38
REFERENCES CITED 40
APPENDIX A: A DESCRIPTION OF TEXTILES IMPRESSED ON HOOPER SITE CERAMICS 43

LIST OF FIGURES

Figure		Page
1.	USGS topographic map location of the Hooper site, 40DV234	3
2.	Generalized physiographic map showing the Hooper site location	4
3.	Map of archaeological features identified at the Hooper site	8
4.	View of Burial 16 from the Hooper site	22
5.	Dover ovate knife recovered from Burial 35, Hooper site	29
6.	View of Burial 19 from the Hooper site	30
7.	Jar rim profiles from the Hooper site	32
8.	Matthews Incised, *variety Matthews* jar with loop handles from Burial 48	33
9.	Excurvate rim jar from Burial 51	33
10.	Selected jar handles from the Hooper site	34
11.	Partial jar section with wide strap handle	34
12.	Jar rim section with single thick lug	35
13.	Bowl rim profiles from the Hooper site	36
14.	Highly flared rim bowl/plate from Feature 1	37
15.	Ceramic effigy recovered from general surface	38
16.	Illustration of twining and yarn structure	43
17.	Plain twining combined with transposed interlinked warps	44
18.	Fabric impressions demonstrating yarn diameter minimum and maximum	45

LIST OF TABLES

Table | Page

1. Attributes of Burials Removed from the Hooper Site, 40DV234 11
2. List of Identified Human Skeletal Elements from the Hooper Site, 40DV234 14
3. List of Human Skeletal Pathologies from the Hooper Site, 40DV234 17
4. Identifiable Vertebrate Fauna from the Hooper Site 23
5. List of Identified Faunal Elements from the Hooper Site, 40DV234 24
6. Number and Provenience of Lithic Artifacts from Non-Mortuary Contexts at the Hooper Site 27
7. Measurements of Madison Points from the Hooper Site 28
8. Number and Provenience of Pottery Types from the Hooper Site 31
9. Textile Structures by Provenience from the Hooper Site, 40DV234 44
10. Summary of Attributes for Textiles from the Hooper Site, 40DV234 46
11. Textile Attributes From Cast Analysis for the Hooper Site, 40DV234 47

ACKNOWLEDGMENTS

The authors would like to acknowledge the consulting firm of DuVall & Associates, Inc. for persevering under trying circumstances during the Hooper project. All questions regarding the Hooper site were answered by Glyn DuVall and other removal participants in a most gracious manner.

We would also like to thank John Dowd and Raymond Falkenberry for making private collections from the site available for analysis. These collections were primarily obtained from spoil piles after the burial removal was completed. Gary Barker donated two reconstructed vessels from the site to the Division of Archaeology, while an anonymous private collector permitted the photography of a carafe-necked bottle from the site. Thanks also go to Rick Taylor for loaning his personal slides to the authors.

An osteological analysis of the human skeletal remains was conducted at the University of Tennessee, Department of Anthropology under the general direction of P. Willey. The remainder of the Hooper artifactual assemblage was evaluated by Division of Archaeology personnel. All non-mortuary faunal remains were examined by Emanuel Breitburg. The ceramic assemblage was inspected by Kevin Smith, while Michael Moore examined the lithic material. An analysis of the textiles from fabric-impressed sherds was conducted by Suzanne Hoyal. Photographs of the textile cast impressions and sherds were taken by Parris Stripling.

INTRODUCTION

In 1985, several human graves were exposed by earthmoving activities within an area that would eventually become known as the Hooper site (40DV234), a Mississippian period village in east-central Davidson County. This locale was reported to the Tennessee Division of Archaeology by Nashville police shortly after the disturbance occurred. At that time, the State Archaeologist notified the landowner that a prehistoric cemetery was present, and also informed him of his legal obligations under a then recent revision of the Tennessee cemetery law that included prehistoric Native American burials (Moore 1989).

The property was subsequently sold and construction activities were once again initiated in April 1987, apparently without any knowledge of the previous identification of human burials on the property. Division of Archaeology personnel were again apprised, this time by local residents who indicated that human skeletal remains and other materials were scattered across the surface (Moore 1989:72). Division personnel confirmed that approximately fifteen stone box graves had been exposed and that additional graves were expected to occur within the project area. Interestingly, as the Division attempted to contact the landowner, the property was sold again. Fortunately, upon notification the new landowner postponed all earthmoving activity pending compliance with the recently revised law concerning cemeteries and human remains. Pursuant to the specific guidelines pertaining to cemetery disturbance and removal outlined in *Tennessee Codes Annotated* [46-4-101, *et seq.*], the Hooper site owner proceeded to petition the Chancery Court of Davidson County for a Termination of Land Use as Cemetery order to legally remove the graves. This order was eventually signed on July 14, 1987.

The termination order request for the Hooper cemetery was the first in Tennessee after the state cemetery law was revised to include prehistoric burials. The three month delay in receiving a signed order was perhaps inevitable as developers, court officials, and other agencies attempted to work out the details of removing prehistoric graves under the termination statute. Unfortunately, this delay not only created frustration on the part of the parties involved, but also resulted in the vandalism of several exposed graves. The site had been well known among local collectors, and an indeterminate number of graves were apparently looted on different occasions prior to "official" discovery of the site.

Between July 17 and August 5, 1987, personnel of DuVall & Associates Inc., a local archaeological consulting firm, conducted the removal of human burials from the site area. With the assistance of volunteers, twelve structure loci and five non-mortuary features were mapped and/or excavated under salvage conditions. These loci and features yielded a rather small (but critical) sample of ceramic, lithic, and faunal remains from outside a mortuary context. A summary report on the Hooper site burial removal was submitted to the State Archaeologist as a condition of the court order (DuVall and Dowd 1988). However, the summary report did not include a detailed analysis of the removed skeletal remains.

Contractual requirements did not permit DuVall & Associates, Inc. to conduct a detailed analysis of the Hooper artifactual assemblage at the time of excavation.

However, an analysis of this assemblage was later performed by Division personnel and is included within this report. In addition, the Hooper burials were transferred from DuVall & Associates, Inc. to the Division of Archaeology on November 16, 1987. These remains were subsequently sent to the University of Tennessee (Knoxville), Department of Anthropology for osteological analysis. The skeletal material was returned to the Division on March 14, 1990. Although a final report on the remains was never completed, the results of the preliminary analysis are presented in this work.

Several local avocational archaeologists continued to donate their time to salvage artifacts and other information from the site after the services of professional archaeologists were no longer required by the developer. Collections curated by four of these individuals were analyzed to provide additional information on diagnostic artifacts from this late prehistoric village. Fortunately, several critical diagnostic ceramic artifact classes that were absent from the professional collections were well represented in the grab-bag samples by these avocational archaeologists. Our interpretations of the chronological range of the site and its placement within an evolving understanding of local Mississippian culture would have been substantially hindered without their efforts.

After the removal activities were completed, the Hooper site area was substantially altered by construction activities associated with a variety of proposed projects, including a water slide and residential subdivision. None of these developments ever took place, thus a significant and important archaeological resource was ravished in preparation for projects that never materialized. The Hooper site area was completely destroyed in the summer of 1992 by the commercial removal of soil for borrow material. The ramifications of the distribution of this material and subsequent creation of "false sites" has been discussed elsewhere (Smith and Moore 1995).

ENVIRONMENTAL SETTING

The Hooper site was located on a prominent knoll crest and slope approximately 1000 feet east of the Stones River, 1200 feet west of Stoner's Creek and 400 feet south of a spring-fed drainage (Figure 1). Both the cemetery and village had experienced severe disturbance as a result of agriculture, earthmoving activities, dumping, and looting of graves over a period of several decades. Additional disturbance to the site was caused by construction of a modern house, associated outbuildings, and a spur of the Seaboard Railroad. Finally, soil mining of the site area beginning in the summer of 1992 resulted in the destruction of all substantially intact cultural deposits. However, sufficient information was accumulated from salvage excavations and interviews of avocational archaeologists to place the site within a regional late prehistoric context.

Physiography

The Central Basin physiographic province (Figure 2) comprises an elliptical, elevated depression that measures some 125 miles north-south and 60 miles east-west within the very center of middle Tennessee (Miller 1974:5). This region is characterized by gently rolling to hilly terrain, with some nearly level areas. Several large to

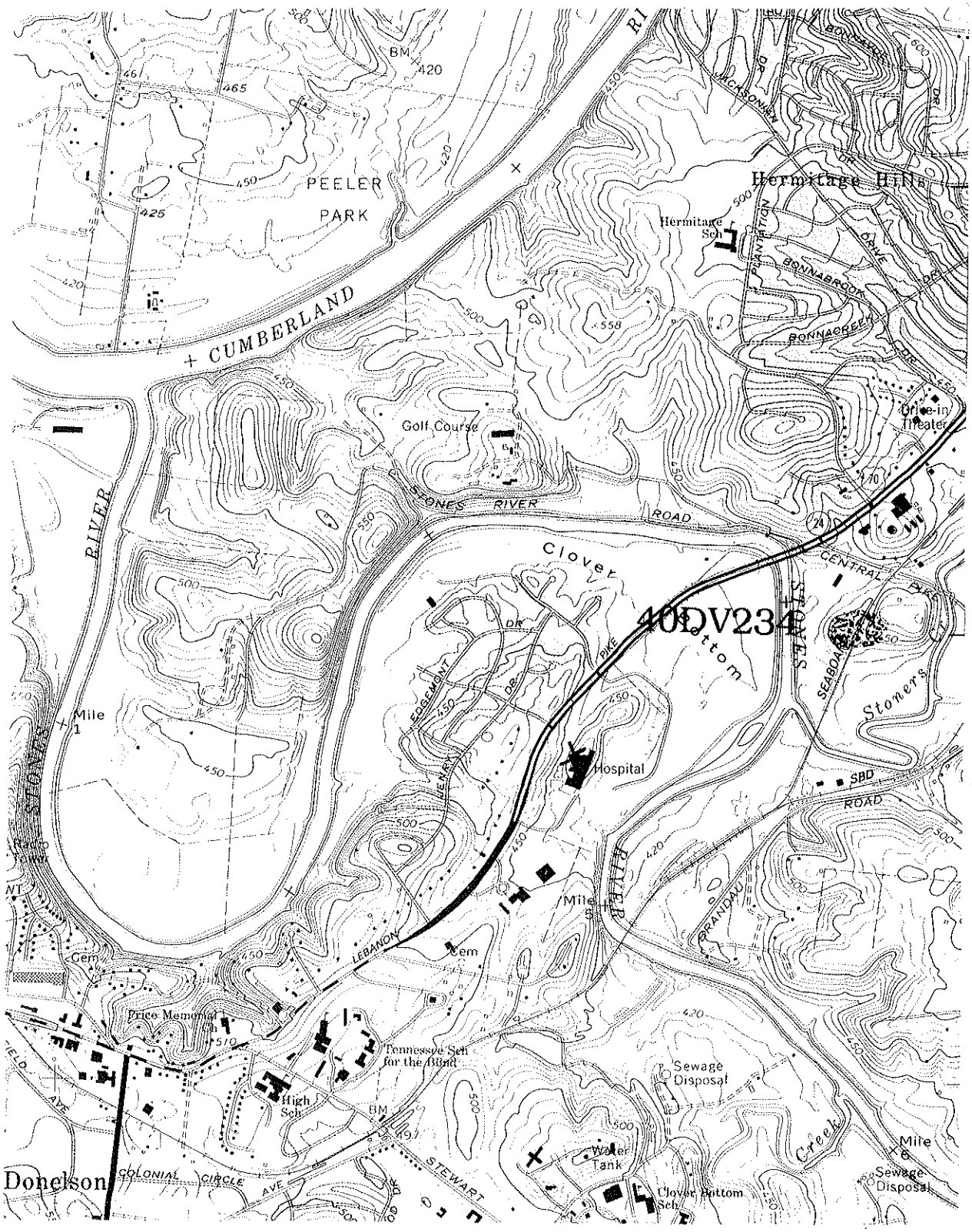

Figure 1. USGS topographic map location of the Hooper site, 40DV234.

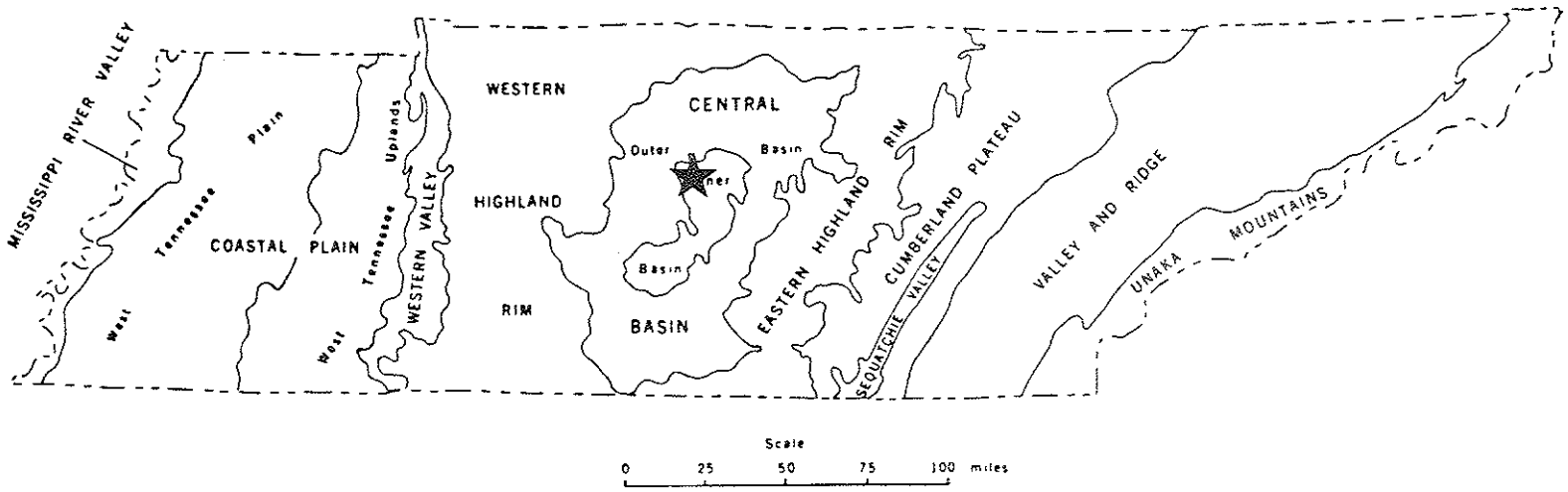

Figure 2. Generalized physiographic map showing the Hooper site location (from Miller 1974).

moderate-size streams meander through the Basin, including the Stones River along which the Hooper site was established. Other major waterways within the province include the Cumberland, Harpeth, Duck, and Elk Rivers.

Some differences between the outer and inner portions of the Central Basin have been observed (Miller 1974:5). The outer basin is generally more hilly with elevations averaging about 750 ft. AMSL. In contrast, elevations within the inner basin average some 600 ft. AMSL. The inner basin also exhibits karst features such as caves and sinkholes. An observation worth noting is that the Hooper site occurs on the periphery of the outer basin near the outer/inner basin boundary. This interface was likely an advantage for 40DV234 inhabitants in search of diverse game and plant resources.

Soils

Ordovician limestones comprise the primary parent material from which Central Basin soils were formed (Springer and Elder 1980). These soils are calcium-rich and generally have a high silt content. Outer basin soils also have an abundance of phosphorus which has been commercially mined for years. Thick deposits of alluvium and colluvium within valley floors contain clay and silt with lenses of chert, shale, and quartz gravel. Loess deposits cover a small percentage of soils within the Central Basin.

The Hooper site area is comprised of two different soil series: (1) Maury silt loam, 2 to 7 percent slopes, and (2) Hampshire silt loam, 12 to 20 percent slopes. Maury soils consist of "...deep, gently sloping to moderately steep, well-drained soils that formed in residuum of phosphatic limestone or in old alluvium and residuum of phosphatic limestone." (North 1981:54). Solum thickness for this series is generally more that 65 inches, and includes silt loams and silty clay loams that are medium to strongly acidic. Roughly two-thirds of the Hooper site was established on Maury series soils.

The Hampshire series also consists of deep, sloping to moderately steep, and well-drained soils derived from phosphatic limestone (North 1981:51). Solum thickness for this series ranges from 35 to 50 inches, and includes silt loams, silty clay loams, and clays that are medium to strongly acidic. The sloping western and southern edges of the Hooper site area were comprised of this soil series.

Climate

Davidson County, like all of Tennessee, has a warm temperate and humid climate with distinct seasonal changes (North 1981:2). Summers tend to be hot as maximum temperatures average around 90 degrees F. When combined with afternoon humidity averages around 60 percent, summer days in the Nashville area can be especially uncomfortable. Winter days in the study area are generally mild as temperatures average around 40 degrees F. However, cold snaps as low as -15 degrees F. have been reported on occasion.

The total annual precipitation for Davidson County averages nearly 48 inches. Most of this precipitation occurs as rain, of which almost half falls between April and

September. These months comprise the growing season for most crops raised in the study area. Snow rarely occurs in this area and obviously comprises a minimal percentage of the annual precipitation total.

Flora and Fauna

The Hooper site falls within the Temperate Deciduous Forest Biome, an oak-tulip forest region which encompasses all of middle Tennessee (Shelford 1963). This biome favorably compares with the Western Mesophytic Forest as defined by Braun (1950). Both sources indicate that upland forests within the Nashville area were originally dominated by such species as hickory, oak, beech, tulip, and chestnut. The lower hills and flats also supported hickory and oak, as well as elm, hackberry, and blue ash. Cedar glades are a prominent feature of the inner basin landscape.

A rich and diverse faunal assemblage characterizes the Carolinian Biotic Province which encompasses the 40DV234 site area (Dice 1943). Large and small mammals of primary importance to native inhabitants include the black bear, elk, white-tailed deer, cougar, gray wolf, raccoon, bobcat, fox, mink, otter, cottontail rabbit, beaver, muskrat, gray and fox squirrel, and opossum. Native birds include eagle, hawk, owl, wild turkey, quail, goose, duck, mallard and teal. Amphibians and reptiles are abundant within this province, including numerous varieties of snakes, lizards, salamanders, frogs, toads, and turtles. Mollusks are also plentiful in the larger stream beds.

METHODOLOGY

Unfortunately for those interested in the prehistory of Middle Tennessee, neither federal, state, nor local archaeological preservation laws were applicable to the Hooper site because it was an entirely private development. Human graves were considered the only protected "resources" under the broad application of the Tennessee cemetery statute. The methodology used to remove archaeological information from the Hooper site was restricted by the developer to cover only human burials.

The grave removal was initiated by stripping off all overburden deposits (including potentially intact midden) with heavy equipment. Visually identified burials were then manually excavated with small hand tools and brushes using standard archaeological techniques. Burial data sheets were completed for each grave to record such information as burial and grave type, deposition, burial and grave dimensions, orientation, associated artifacts, preservation, completeness, sex, and age. The removal process was photographed with black and white film.

Several non-mortuary features were salvaged in an expedient manner by volunteers and project personnel. In other words, these particular features were rapidly excavated using shovel and trowel. All fill material was hand sorted with recovery biased to easily observed artifacts.

FEATURE DESCRIPTIONS

Nineteen non-mortuary features were initially identified and mapped during the grave removal, including twelve structure loci and seven additional cultural features (Figure 3). Five of these features were additionally evaluated under extreme time restrictions. As mentioned above, the contractual focus on burials did not provide for the excavation of non-mortuary features. Nevertheless, the recovered artifact samples do provide some information to place the site and its cemetery population within an appropriate regional framework.

Feature 1:

This large pit was intrusive into Feature 5 (Structure 4) and adjacent to Feature 16 (Structure 10). The original pit dimensions could not be determined due to prior damage by construction equipment.

Feature 2 (Structure 1):

Feature 2 represented the remains of a prepared clay house floor and associated hearth located to the west of the main cemetery area. Previous construction of a driveway or access road had virtually destroyed this structure.

Feature 3 (Structure 2):

This feature consists of the remnants of a structure, including a heavily damaged hearth and scattered sections of a burned clay floor. No dimensions could be determined due to previous disturbance.

Feature 4 (Structure 3):

The scattered remains of an oxidized structure floor comprised this feature. Nothing other than the floor fragments was observed.

Feature 5 (Structure 4):

Feature 5 included the remnants of a burned structure floor and associated ash-filled hearth. Feature 1 (large pit) was intrusive into portions of the structure floor, and Feature 16 (Structure 10) was defined immediately to the southeast. Damage from both heavy equipment and the intrusion of Feature 1 prevented determination of the feature dimensions.

Feature 6 (Structure 5):

This roughly oval-shaped feature apparently represents the remains of a (domestic?) structure. The feature measured approximately 10 feet long and one foot deep. After the removal of a dark midden deposit, a circular clay hearth was exposed in the structure center. Interestingly, no interior or exterior posts were identified.

Feature 7:

Feature 7 comprised a large, oval-shaped pit with dimensions of 7.0 ft in length (north to south), 6.0 ft in width (east to west), and 2.0 ft in depth. The dark feature fill contained gastropod shells, animal bone, and ceramics. This particular pit appeared to have sustained heavy damage from farming, erosion, and construction related activities.

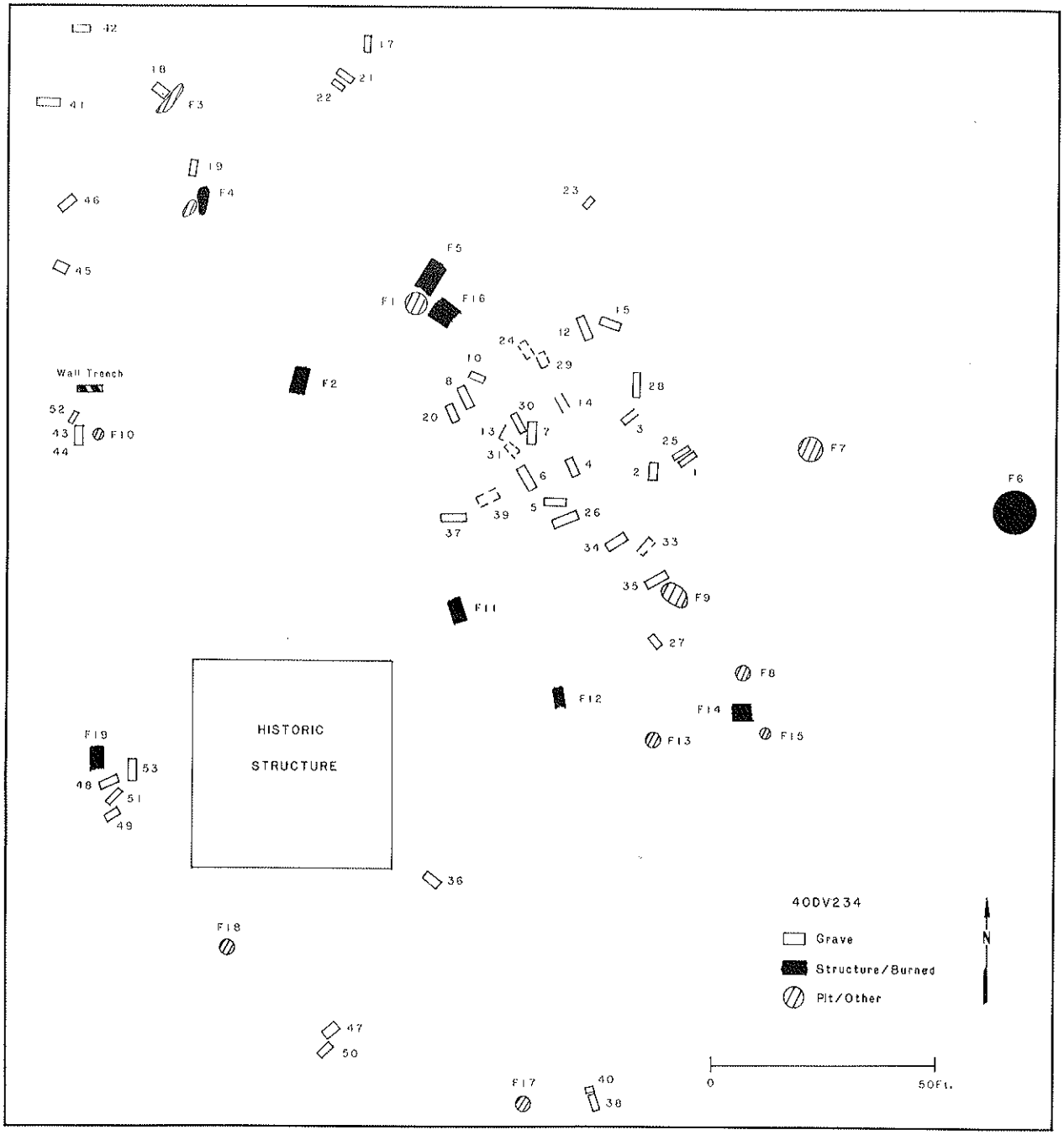

Figure 3. Map of archaeological features identified at the Hooper site. (revised Figure 2 from DuVall and Dowd 1988)

Feature 8:

This feature was an oval-shaped pit that had been disturbed by modern tree root action. Feature 8 measured 3.7 ft (east to west) by 3.1 ft (north to south) with a depth of 0.65 ft. The pit was filled with a dark soil mixed with gastropods, mussels shell, deer bone, ceramics, and two fragmented triangular projectile points. No charcoal was observed in the fill.

Feature 9:

A large oval-shaped pit 7.0 ft long (north to south) and 3.0 ft wide (east to west) with sloping walls and a flat bottom comprised this feature. Animal bone, gastropod and mussel shell, rock, and ceramics were present in the pit fill.

Feature 10 (Structure 6):

Feature 10 denoted the circular clay hearth associated with Structure 6. This (probable) centrally located hearth measured 1.5 feet in diameter and approximately 1.0 ft deep. The remnants of a burned clay floor were identified to the south and west of the hearth. Although the majority of the structure had been previously destroyed, enough remained to identify a five-foot section of wall trench on the north side. Burial 43 was located on the structure's west side approximately seven feet from the hearth.

Feature 11 (Structure 7):

Feature 11 was defined only on the basis of scattered burned clay fragments that represented the remains of a prepared house floor. No other structural features (such as a hearth or posts) were identified.

Feature 12 (Structure 8):

A partial house floor was located approximately 20 feet south of Feature 11. The majority of Feature 12 had been destroyed by heavy equipment.

Feature 13:

This feature consisted of the basal remnants of a circular pit approximately 2.0 feet in diameter.

Feature 14 (Structure 9):

Feature 14 comprised the heavily damaged remains of a (burned) prepared clay house floor.

Feature 15:

The badly damaged remains of a small round pit measuring about 1.0 foot in diameter comprised this feature. No cultural material was recovered.

Feature 16 (Structure 10):

Feature 16 represented the remains of a house floor adjacent to Feature 5. The structure had been heavily damaged by both construction equipment and the intrusion of Feature 1.

Feature 17:

A small circular pit (2.4 feet diameter, 1.0 foot deep) located approximately 20 feet west of Burials 38 and 40 comprised Feature 17.

Feature 18 (Structure 11?):

Although no house floor was present, Feature 18 appeared to represent the remains of a small hearth with oxidized walls and floor. The hearth itself measured 1.4 feet in diameter and 0.5 feet deep. The general spacing of other defined structures and the presence of Burials 47 and 50 suggested a structure probably was located in this vicinity.

Feature 19 (Structure 12):

Feature 19 represented the partial remains of a hearth and burned clay house floor associated with Burials 48, 49, 51 and 53. Again, heavy equipment had previously destroyed most of this structure.

RADIOCARBON DETERMINATIONS

A single charred wood sample from Feature 1 was radiocarbon dated to 660 ± 130 radiocarbon years BP (corrected date A.D.1260(1284)1410 using Stuiver and Becker 1986; TX-7175). The radiocarbon date matches well with other Middle Cumberland Thruston phase sites in the area (Smith 1992). Unfortunately, Feature 1 was moderately disturbed prior to excavation, and the date cannot be viewed with a strong degree of confidence. From a conservative perspective, the sample is probably best viewed as providing a date for the disturbed midden surrounding and within Features 1, 5, and 16.

An additional sample from Feature 7 was submitted and returned a date of 116 ± 0.8 radiocarbon years B.P. (Beta-65477). This date is clearly too late for the Mississippian occupation of the site, and probably reflects more recent carbon intrusive into the heavily disturbed Feature 7.

CEMETERY INVESTIGATIONS

Fifty-three stone box graves containing a minimum of sixty-six individuals were excavated during the course of the initial cemetery removal project (Tables 1-3). Despite damage from looting and construction activities, the burials comprise a relatively complete sample from at least one of the discrete cemetery areas associated with the Hooper site. Unfortunately, we have little information from the associated habitation area to connect with the population.

The mortuary practices at the Hooper site are difficult to identify from the available data, but taken in concert with information from similar sites in the local area, some minimal interpretations can be identified. Burial of individuals followed at least three practices: (1) central cemetery for adults and older children; (2) infant and young child burials within house floors or adjacent to houses; and (3) family plots adjacent to residential structures.

Table 1. Attributes of Burials Removed from the Hooper Site, 40DV234.

Burial	Sex	Age (years)	Burial Position	Orientation (° E of N)	Bone Condition	Percent Complete	Grave Goods	Comments
1	indeterminate	>20	extended?	70	good	10	no	Severely disturbed by looters. Shared sidewall with Burial 25.
2	indeterminate	>25	extended?	0	good	<5	no	Severely disturbed by looters.
3A	indeterminate	>25	extended?	60	good	10	no	Severely disturbed by looters and construction. Only one individual listed in initial report.
3B	indeterminate	1-2	extended?	60	good	10	no	Severely disturbed by looters and heavy machinery. Second individual identified during skeletal analysis.
4	indeterminate	9-11	extended?	160	good	50	no	Severely disturbed by looters.
5	indeterminate	>18	extended?	90	good	10	no	Severely disturbed by looters.
6A	female?	20-35	extended	160	fair	75	no	Head to southeast
6B	male	20-30	extended	340	fair	75	yes	Head to northeast. Mussel shell spoon under skull.
7	female	>18	extended?	0	good	10	no	Severely disturbed by looters.
8	male	40-50	extended	150	good	80	no	Disturbed by looters.
9	indeterminate	0.5-1.5	extended?	156	fair	20	no	Severely disturbed by looters.
10A	indeterminate	4-6	extended	290	fair	70	no	Head to northeast
10B	indeterminate	6-7	?	290	fair	10	no	Represented by a complete skull at the feet of Burial 10A.
11	female?	13-16	extended?	70	fair	25	no	Squarish stone box measuring 3.8 ft. x 2.2 ft.
12A	male	>30	extended?	160	good	30	no	Severely disturbed by looters.
12B	indeterminate	>18	?	160	good	<10	no	Severely disturbed by looters. Identified during skeletal analysis.
13	female?	30-40	extended?	20	good	15	no	Severely disturbed by looters.
14	female	30-45	extended?	154	fair	80	no	Severely damaged by looters
15	male	30-45	extended	276	good	95	no	Damaged by looters.
16A	male	25-45	semi-flexed	98	fair	60	no	Somewhat squarish grave measuring 3.1 ft. x 2.0 ft. Damaged by looters.
16B	male?	30-40	semi-flexed	98	fair	60	no	Squarish stone box measuring 3.1 ft. x 2.0 ft. Damaged by looters.
17	indeterminate	0-1	extended	0	good	80	no	Stone slab under skull. Grave damaged by heavy machinery.
18	indeterminate	1-3	extended	140	poor	70	no	Head to southeast. Grave damaged by looters.
19	indeterminate	1-2	extended	0	fair	65	yes	Three discoidals (two limestone and one sandstone) and one mussel shell (spoon?) placed on left forearm of this individual. Grave damaged by looters.
20	female	>50	extended	162	good	90	yes	Partially capped burial damaged by looters. Small bowl recovered from lower left leg area. Two mussel shell spoons found inside bowl. Possible second vessel (based on impression above left pelvis) removed by vandals.
21	indeterminate	0.5-1.5	extended?	105	good	30	no	Floor made of singe limestone slab. Grave disturbed by looters.
22	indeterminate	0-0.5	extended?	105	good	40	no	Disturbed by looters. Grave size 2.8 ft. x 1.0 ft.
23	indeterminate	fetal/nb	extended	40	good	<20	no	Disturbed by looters. Grave size 1.5 ft. x 0.8 ft.
24	indeterminate	30-50	extended?	140	good	20	no	Disturbed by looters.
25	female	>18	extended?	60	good	<5	no	Severely disturbed by looters. Shared sidewall with Burial 1.
26	male	>20	extended	80	good	70	no	Severely disturbed by looters.
27	indeterminate	0.5-1.5	extended?	160	poor	35	no	Severely disturbed by heavy machinery.

Table 1. Attributes of Burials Removed from the Hooper Site, 40DV234. (continued)

Burial	Sex	Age (years)	Burial Position	Orientation (° E of N)	Bone Condition	Percent Complete	Grave Goods	Comments
28	male	30-40	extended	0	good	75	yes	Modified terrapin carapace under left side of skull. Part of a mussel shell next to right side of skull. Grave disturbed by looters. Partial stone slab floor under head and back area.
29	indeterminate	>18	extended?	140	good	25	no	Severely disturbed by looters.
30	female	40-49	extended?	160	fair	60	no	Disturbed by looters.
31A	indeterminate	1-3	extended?	160	good	5	yes	Bowl fragment associated with this stone box. Grave disturbed by looters. Second individual identified during skeletal analysis.
31B	female	>20	?	160	poor	25	yes	Bowl fragment associated with this stone box. Grave disturbed by looters. Second individual identified during skeletal analysis.
32	female	35-45	extended?	140	poor	15	no	Severely disturbed by looters.
33	female	>20	extended?	40	fair	25	no	Severely disturbed by looters.
34	male	>18	extended	60	good	75	no	Severely disturbed by looters.
35A	male	35-45	extended	60	good	95	yes	Dover blade (7 in. long) placed in vicinity of right hand of Burial 35A. Partially disturbed by looters.
35B	female?	17-21	?	60	good	<10	yes?	Individual identified during skeletal analysis and represented by relatively few fragments.
36	indeterminate	0-0.5	extended	130	good	40	no	Floor of stone slabs and ceramic sherds.
37	female	17-23	extended	90	fair	80	no	Disturbed by heavy machinery. Possible second individual (adult male) represented by extra elements.
38	indeterminate	1-2	extended	0	good	80	no	Limestone discoidal placed in vicinity of right hand. Box sidewalls made of large single slabs, with floor made of ceramic sherds. Individual's head to south.
39A	male	30-45	extended	80	fair	60	no	Severely disturbed by looters and heavy machinery.
39B	female?	20-45	?	80	fair	45	no	Severely disturbed by looters and heavy machinery. This individual identified during skeletal analysis.
40	indeterminate	1-2	extended	0	good	50	no	Adjacent to Burial 38.
41	indeterminate	8-12	extended	86	fair	80	no	Capped burial.
42	indeterminate	1-3	semi-flexed	90	fair	45	no	Previously disturbed.
43A	indeterminate	1-3	extended	0	good	95	no	Primary burial.
43B	indeterminate	0-0.5	bundle?	0	good	30	no	Remains at the feet of Burial 43A.
44	indeterminate	fetal-0.5	indeterminate	0	fair	80	no	Remains placed between capstones of Burial 43. Grave was probably located either just outside or under the floor of a structure.
45A	indeterminate	3-5	extended	120	poor	30	no	Initially reported as only one individual.
45B	indeterminate	fetus/infant	?	120	fair	20	no	This individual identified during skeletal analysis.
46	indeterminate	2-4	extended	30	good	90	no	Stone slab floor. Damaged by looters.
47	indeterminate	1-2	extended	40	good	75	no	Disturbed by looters.

Table 1. Attributes of Burials Removed from the Hooper Site, 40DV234. (continued)

Burial	Sex	Age (years)	Burial Position	Orientation (° E of N)	Bone Condition	Percent Complete	Grave Goods	Comments
48A	female	20-30	extended	80	good	80	yes	Well made, capped box with stone slab floor. Matthews incised noded jar (loop handle) and mussel shell spoon in northeast corner of box above right side of head. Fragment of cedar wood behind head.
48B	indeterminate	fetal-0.5	?	80	good	<10	no	This individual identified during the skeletal analysis by a few fragments.
49	indeterminate	1-2	extended	80	good	60	no	Collapsed stone box.
50A	indeterminate	<1	extended	30	fair	85	no	All three individuals in this box were placed on top of each other. Only two bodies recorded in field removal. Third individual identified during skeletal analysis.
50B	indeterminate	<1	extended	30	fair	85	no	See above comment for Burial 50A.
50C	indeterminate	<1	extended	30	fair	85	no	See above comment for Burial 50A.
51	indeterminate	2.5-3.5	extended	60	fair	60	yes	Head to northeast. Flared rim jar placed above head in southeast corner of box.
52	indeterminate	0.5-1.5	semi-flexed	10	good	75	yes	An unknown number of deteriorated shell beads were associated with this grave (at least seven recovered). Grave disturbed by heavy machinery.
53	male	25-35	extended	0	good	95	no	Capped burial. Head to north.

Table 2. List of Identified Human Skeletal Elements from the Hooper Site, 40DV234.

Burial	Represented Elements
1	Maxilla, right zygomatic, teeth (2), left ischium.
2	Partial fifth lumbar vertebra, 2 unidentified fragments.
3A	Right cuboid, seven metatarsals, one foot phalange.
3B	Left ilium, three rib fragments, one cranial vault fragment, two hand phalanges, a metacarpal, distal left humerus.
4	Skull, mandible, 25 teeth, sternum, left scapula, arms, left leg, rib fragments, atlas, hand and foot bones.
5	Right parietal, left ulna diaphysis, right ischium, distal left femur, fibulae diaphyses, left calcaneus and navicular, one rib, one lumbar vertebra.
6A	Skull, teeth, right clavicle, scapulae, humeri, radii, left ulna, femora, tibiae, fibulae, right patella, ribs, thoracic vertebrae, hand and foot bones.
6B	Skull, mandible, teeth, arms, legs, right scapula, clavicles, pelvis, vertebrae, ribs, hand and foot bones.
7	Proximal left humerus, glenoid fossa of right scapula, distal right tibia, right calcaneus and navicular, two metatarsals.
8	Nearly complete, missing left femur and innominate, some hand and foot bones, ribs, vertebrae.
9	Four cranial vault fragments, right zygomatic, right clavicle, left radius, right first metacarpal, distal right femur, three ribs, one cervical vertebrae.
10A	Skull, maxillary dentition, right clavicle, right scapula, humeri, femora, tibiae, one metatarsal, rib and cervical vertebrae fragments.
10B	Skull, mandible, 31 teeth, fragments of left humerus and right femur.
11	Fragments of left scapula, right radius, left ulna, femora and tibiae, rib and vertebral fragments, hand and foot bones.
12A	Right zygomatic, two teeth, right radius, ulnae, left femur, tibiae, left fibula, rib and vertebral fragments, some hand and foot bones.
12B	Proximal left ulna, right radius diaphysis, right fourth metacarpal.
13	Left femur head, left ilium, left calcaneus, left hand navicular, one rib fragment, fragments of sacrum.
14	Left parietal, maxilla, mandible, teeth, scapulae, right clavicle, sternum, humeri, radii, ulnae, right ischium, femora, right patella and tibia, ankle and wrist bones, vertebrae, rib fragments.
15	(Virtually complete); skull, mandible, clavicles, long bones, most joint surfaces; pelvis, ribs, vertebrae, hands, and feet incompletely represented.
16A	Frontal, maxillae, mandible, teeth, scapulae, long bones, ilia, left patella, hand and foot bones, fragments of ribs, fragments of lumbar and thoracic vertebrae.
16B	Single incisor, long bones, partial pelvis, hand and foot bones.
17	Skull, mandible, two teeth, sternum, clavicles, scapulae, arm bones, ilia, ischia, ribs, and 13 cervical and thoracic vertebrae.
18	Fragmentary skull, mandible, teeth, right clavicle and scapulae, humeri, ulnae, radii, femora, tibia, pelvis, few ribs and vertebrae.
19	Skull, mandible, 15 teeth, scapulae, clavicles, right humerus, right ulna, right femur, right ilium, rib and vertebrae fragments.
20	Virtually complete adult skeleton missing some ribs, vertebrae, hand and foot bones.
21	Right humerus, left radius and ulna, ilia, femora, tibiae, fibulae, one metatarsal.
22	Cranial vault, mandible, left clavicle, left humerus, left ulna, ilia, femora, right tibia and fibula, four rib fragments, three vertebral neural arches.
23	Fragments of skull vault, right ilium and ischium, right femur, one metacarpal, and an unsideable fibula fragment.
24	Parietals, right clavicle, left scapula, left ischium, sacrum, left femur, tibia, fibula, and cuboid, single metacarpal.
25	Right parietal, temporal, ulna, and tibia partially present.
26	Fragments of frontal, right parietal and right zygomatic, mandible, teeth, clavicles, scapulae, all long bones, both innominates, manubrium, both calcanei, the left cuboid and X cuneiform, several metatarsals and phalanges, first left rib, 11 rib fragments, several vertebrae.

Table 2. List of Identified Human Skeletal Elements from the Hooper Site, 40DV234. (continued)

Burial	Represented Elements
27	Cranial vault fragments, teeth, right clavicle and scapula, all limb bones, the right innominate, several metacarpals and metatarsals, several vertebral neural arches, and 21 rib fragments.
28	Fragments of frontal, parietal, occipital and right temporal bones and teeth; all long bones except left ulna, clavicles, scapulae, ilia, ischia, sacrum, several complete and fragmentary vertebrae, 9 rib fragments, several foot and ankle bones.
29	Left mandibular second premolar, right humerus, several femur fragments, left patella, tibiae, fibulae, one left rib fragment, one foot phalange.
30	Cranial vault elements, mandible, left zygomatic, manubrium, left clavicle, humeri, left radius and ulna, ilia, ischia, left femur and tibia, the sacrum.
31A	Right humerus, left ulna, two unidentified long bone fragments.
31B	Cranial vault, mandible, teeth, right clavicle and humerus, left scapula, femur fragments, three metatarsals, left first rib, first and second cervical vertebrae.
32	Skull, right maxilla, mandible, teeth, and right humerus, ulna and pubis.
33	Several parietal fragments, left lacrimal, radii, left humerus and ulna, left ilium, right femur, left tibia, right talus, one metacarpal, one proximal hand phalanx.
34	A few parietal fragments, the clavicles, scapulae, humeri, right radius and ulna, femora, tibiae, and fibulae, two metacarpals, three metatarsals, 28 rib fragments, four thoracic neural arch fragments.
35A	Nearly complete skull and all long bones, innominates, sacrum, vertebrae, 35 rib fragments, ossified thyroid cartilage.
35B	Parietal and occipital fragments, left temporal, mandible, teeth, first cervical vertebrae.
36	Fragments of the left parietal, the left radius and ulna, femora, left tibia and fibula, a right rib, one thoracic neural arch fragment.
37	Parietal fragments, occipital, right temporal, sphenoid, left maxilla, teeth, all limb bones except those of the left arm, the scapulae, right clavicle, several hand and foot bones, the atlas and axis, 36 vertebral fragments, the left first rib, 45 rib fragments.
38	Complete cranial vault, maxillae, mandible, and teeth, all long bones except the fibulae, right clavicle, scapulae, five metatarsals, three complete and 22 fragmented ribs, five neural arches, three vertebral centra.
39A	Parietal fragments, sphenoid fragment, manubrium, right clavicle, scapulae, right humerus and ulna, radii femora, tibiae, fibulae, tali, calcanea, sacrum, portions of cervical, thoracic and lumbar spine, both first ribs, 62 rib fragments.
39B	Right clavicle, scapula, humerus and radius, ulnae, femora, left tibia, right fibula.
40	Cranial vault, left maxilla, teeth, scapulae, humeri, radii, left ulna, sternum, manubrium, first ribs, 20 rib fragments, several portions of cervical and thoracic vertebrae.
41	Complete cranial vault, the incudes, right palate, maxilla, teeth, clavicles, all long bones except the right radius and ulna, the right ilium and ischium, several tarsals and metatarsals, both first ribs, 30 rib fragments, the sacrum, at least six cervical and eight thoracic vertebrae.
42	Cranial vault, left incus, mandible teeth, clavicles, left radius, right ulna, ilia, femora, right tibia, fibulae, one metatarsal, one distal foot phalange, the left first rib, 26 rib fragments, portions of the spine.
43A	Skull, mandible, 24 teeth, all long bones, clavicles, scapulae, innominates, several phalanges and tarsals, three complete and 41 fragments of ribs, atlas, 11 vertebral centra, and 10 neural arches, 12 epiphyses.
43B	Left frontal, parietals, temporals, mandible, teeth, left clavicle, right scapula, right humerus, both femora, a single metatarsal, two partial left ribs, two incomplete epiphyses.

Table 2. List of Identified Human Skeletal Elements from the Hooper Site, 40DV234. (continued)

Burial	Represented Elements
44	Complete skull, mandible, teeth, clavicles, scapulae, all long bones except the fibulae and left femur, left ilium, 13 complete ribs, 13 rib fragments, atlas, axis, 26 neural arches.
45A	Complete skull, teeth, clavicles, left humerus. right calcaneus, four metatarsals, a single foot phalange, left first rib, 16 rib fragments, atlas, seven partial vertebrae.
45B	Right parietal, sphenoid, right scapula, radii, right femur, one thoracic neural arch.
46	Left clavicle, right humerus, ilia, left ishium, right femur, tibiae, fibulae, three metatarsals, unidentified cranial fragment, left first rib, nine rib fragments, five neural arches, sacral fragment, distal right femur epiphysis, proximal right tibia epiphysis.
47	Frontal, parietals, occipital, right temporal, sphenoid, mandible, teeth, right clavicle, left humerus, radius and ulna, innominates, femora, tibiae, four complete ribs, 23 rib fragments, 13 neural arches, six vertebral centra, unidentified epiphysis fragment.
48	Right humerus, radius, rib fragment.
49	Frontal, occipital, left parietal, right temporal, mandible, two teeth, right scapula, ulnae, left femur, tibia and fibula, three metacarpals, two metatarsals, atlas, eight rib fragments.
50A-C	(Commingled remains of three infants); 3 frontals; parietal fragments; 3 occipitals; 3 right and 3 left temporals; 1 left maxilla fragment; 3 mandibles; 1 left zygomatic fragment; partial left clavicle; 1 right and 2 left humeri; 1 right and 2 left radii; 2 right and 2 left ulnae; 3 right and 3 left femora; 3 right and 3 left tibiae; 3 unsideable fibulae and 2 fragments; 2 right and 1 left scapulae; 5 vertebral bodies; 13 right and 15 left neural arch halves; 9 right and 10 left ribs; numerous rib fragments; 3 right and 3 left ilia; 1 right and 1 left ischia; 2 metacarpals(?); 3 proximal hand phalanges; 3 ear ossicles.
51	Frontal, parietals, occipital, left temporal, right zygomatic, two ear ossicles, mandible, teeth, left scapula, humeri, left radius, femora, tibiae, fibulae, one rib fragment.
52	Cranial vault, left maxilla, mandible, teeth, right clavicle, scapulae, all long bones except the right tibia and left fibula, hand and foot bones, atlas, 13 neural arches, 14 centra, four complete ribs, 30 rib fragments, one unidentified epiphysis.
53	Skull, maxillae, mandible, teeth, right scapula, all long bones, hand and foot bones, ilia, ischia, 16 rib fragments, seven complete vertebrae, 15 vertebral fragments.

Table 3. List of Human Skeletal Pathologies from the Hooper Site, 40DV234.

Burial	Represented Pathologies and Comments
3A	Left fifth metatarsal exhibits a healed fracture.
4	Slight cribra orbitalia, slight porotic hyperostosis covering occipital and parietals.
6A	Periosteal reactions ranging from slight to extreme on most long bones; severe, active periostitis on the antero-medial aspect of the left distal femur, hyperostotic and a cloaca may be present indicating osteomyelitis; small area of healed periostitis present above the lesion; periostitis covers the right ulna with slight inflammation; possible healed fracture on right ulna; degenerative joint disease evidenced by lipping and slight subchondrial porosity on joint surfaces of distal femora and distal right radius, and lipping of distal humeri and proximal right ulna; right tibia exhibits enthesopathies on the popliteal line; unusual bony flange on the lateral crest of the distal left humerus at the origin of the brachioradialis muscle may reflect ossified connective tissue; two Harris lines present on distal left tibia.
6B	Healed porotic hyperostosis on frontal and parietal bones; slight healed cribra orbitalia in the orbits; three small Pacchionian depressions along the sagittal suture; ring of possibly inflamed or deposited bone surrounds a 1-2 mm diameter aperture in the proximal articular surface of the proximal hallux phalanx; squatting facets present on distal tibiae; four Harris lines on distal left tibia.
7	Slight, healed periostitis of posterior distal right tibia.
10A	Slight, active cribra orbitalia.
12A	Slight osteophytic lipping on centra of lumbar vertebrae; slight lipping of proximal right ulna, foot navicular, and cuboid.
14	Degenerative joint disease evidenced as osteoarthritis and osteophytosis. Right patella and articular facets of first and second cervical vertebrae exhibit slight lipping. Moderate osteophytotic lipping on a single thoracic vertebra.
15	Slight porotic hyperostosis on frontal, parietal and occipital bones. Ear exostoses present on auditory meati and a 4 mm diameter button osteoma is on the left parietal near the bregma. A possible healed cranial depressed fracture (7 mm diameter) suggesting blunt trauma on right frontal at the temporal line. Slight osteoarthritic lipping present on glenoid cavity of left scapula, distal right femur, and the patellae. Small surface osteophytes are on the proximal right radius. Mandibular condyles and temperomandibular fossae are slightly eroded. Osteophytosis represented by slight lipping on cervical, thoracic, lumbar, and sacral vertebrae. Network of ossified cartilage at clavicular articulations of right tibia. Crania exhibits moderate occipital deformation.
16A	Healed fracture of left femur below greater trochanter, with lateral angulation and slight rotation suggesting an improper set. Severe surface osteophytes and subchondral porosity on medial facet of right patella accompanied by moderate lipping at the lateral margin. Squatting facets present on distal tibia.
16B	Slight osteoarthritic lipping present on left talus.
17	Slight active cribra orbitalia; moderate-to-severe porotic hyperostotis on the parietals.
18	Harris lines in distal femora suggest up to five possible growth arrest incidents.
19	Slight, active cribra orbitalia; porotic hyperostosis on posterior parietals. Foramina of Huschke on both temporals.
20	Slight active porotic hyperostosis on occipital and parietal bones. Linea aspera right femur and antero-medial shaft on left femur exhibit reactive bone that may be healed periostitis. Inflamed area of granular and highly remodeled bone on midshaft of left fibula may be resorbed periostitis or remnants of a callous from an antemortem fracture. An inactive Stafne's defect present on left horizontal ramus of the mandible suggests an infection of salivary gland. Seven metatarsals have small ivory-like deposits of bone along diaphyses (esp. plantar region) suggesting healed stress fractures of the midfoot or neoplastic disease. Moderate enthesopathies occur on anterior surface of the patellae and project superiorly, and on the ischial tuberosity. Dorsal pubic pitting, possibly associated with parturition, is present. Neoplastic disease is represented by a small button osteoma (6 mm) on the frontal above the left orbit. An area of ivory-hard bone (4 mm

Table 3. List of Human Skeletal Pathologies from the Hooper Site, 40DV234. (continued)

Burial	Represented Pathologies and Comments
	x 6 mm) probably represents a benign osteoma of the right rib. Degenerative disease is present in joints and as senile osteoporosis. Mandibular condyles and temporomandibular fossae are slightly eroded. Osteoarthritis occurs in right wrist, elbows, knees, ankles and left hip. Response is slight with moderate lipping, subchondral porosity, and surface osteophyes on the patellae and left acetabulum. Squatting facets are present on the distal tibia and distal metatarsals, suggesting hyper-dorsiflection of the ankle and metacarpo-phalangeal joints. At least four growth arrest incidents are suggested by Harris lines in the tibiae, left radius and left fibula.
21	Three Harris lines in proximal left tibia, four in distal fibulae.
22	Parietal bones and temporal squamous thickened along sagittal suture. Inner table of the vault elements exhibit proliferative bone reaction, possibly representing infection or extradural inflammation.
24	Slight healed porotic hyperostosis on posterior parietals.
26	Slight osteoarthritic lipping on distal left femur. Left costal facet of T11 exhibits moderate subchondral destruction. Very slight osteophytic lipping on anterior centra of several thoracic vertebrae. Enthesopathies are inside the greater trochanter fossae of the femora. Ligamentum flava is ossified in several thoracic vertebrae. Right calcaneus has a separate anterior calcaneal facet.
27	Reactive bone on medial surface of distal right tibia (periostitis?).28 Left calcaneus possessed a discrete anterior calcaneal facet. Fifth lumbar vertebrae was observed to be at least partially sacralized. Transverse bridges were noted to the right sides of several cervical vertebrae. The atlas was noted with a lateral arch spur on the left side and lateral bridges were expressed bilaterally. Grant's facet was noted to the dorsal surface of the right femur. The right third metatarsal and fourth metatarsal present an unusual proximal articulation, as the third metatarsal has a round, bulbous expansion on the lateral metaphysis. No reactive bone is present, but an accessory facet for articulation with MT4 is present. The medial surface of the fourth metatarsal has a recessed area and accessory facet to accept the enlarged third metatarsal. The fifth lumbar vertebrae is fused to the sacrum. Slight arthritic lipping is on the distal femora ,and three thoracic vertebrae fragments exhibit slight osteophytotic lipping. The distal right tibia has a squatting facet. A single Harris line is present in both proximal ulnae.
30	Degenerative joint disease is present as osteoarthritis. The distal right humerus exhibits slight lipping on the lateral and medial joint margins. Severe destruction of the proximal left radius includes surface porosity and osteophytes (may be osteochrondritis dissecans). Slight lipping on thoracic vertebrae. Three Harris lines on left distal radius.
31A	Small auditory osteoma (ear exostosis) is in the auditory meatus of right temporal. Distal femur articular surface has a large area of surface porosity and subchondral destruction (possibly osteochondritis dissecans).
32	Osteophytotic lipping on two thoracic vertebrae. A slight, healed porotic hyperstosis is on the posterior parietals. Porosity on the bone surface of right zygomatic. One medium-size Pacchionian depression is in the right coronal suture. Well-healed fracture present on proximal right ulna. Slight anterior and medial angulation is present and unusual crest formation observed.
33	Well-healed fracture on left humerus at midshaft with no sign of callous activity. Break slightly angulated (15 degrees medial, 10 degrees anterior). Small area of subchondral porosity on distal left humerus may be related to fracture. Small surface osteophyt on distal left tibia.
34	Area of bone apposition on distal postero-medial surface of right femur shaft. The border of this lesion is well-defined and dense, not porous like most periostitis. Mild Osgood-Schlatter's disease on right tibia defined by osteophytes projecting superiorly from the tibial tuberosity. Slight osteoarthritic lipping occurs on the scapulae, distal femora, and proximal left tibia. The right, superior articular facets of two thoracic vertebrae exhibit moderate subchondral porosity, surface osteophytes, and marginal lipping.

Table 3. List of Human Skeletal Pathologies from the Hooper Site, 40DV234. (continued)

Burial	Represented Pathologies and Comments
35A	Frontals and parietals have slight porotic hyperostosis and cribia that have healed. Osteophytes observed to extend superiorly from tibial tuberosities (Osgood-Schlatter?). Temporomandibular fossae exhibit moderate erosion and subchondral porosity. Slight osteoarthritic lipping occurs on the distal right tibia and distal femora. Slight lipping is on the glenoid fossa of the left scapula, the right scapula exhibiting heavy lipping accompanied by porosity of the joint margin. Left patella has moderate lipping, slight surface osteophytes, and moderate porosity on the medial facet. Slight osteophytotic lipping on lumbar and thoracic vertebrae. Ossification of the ligamentum flava has taken place on most of the thoracics. Eight to ten small Pacchionian depressions are present in the area of the coronal suture, and one depression in the squamous of the occipital.
35B	Porotic hyperostosis covers the posterior parietals and occipital. Condition slight to moderate and appears active.
36	Left tibia has an area of woven-looking bone on medial midshaft (active bone proliferation?).
37	Three Harris lines on distal left tibia.
39B	Tibia are quite thin in the medio-lateral dimension and are slightly bowed (sabre-shin), possibly indicating treponemal infection. At least three growth arrest incidents are suggested by Harris lines in the distal tibiae. Osteophytotic lipping on the centra of the first three lumbar vertebrae. Hypotrochanteric fossae are extremely well-developed, but no third trochanter observed. A Poirier's facet (Kostick's facet, fossa of Allen, cervical fossa) occurs on the anterior neck of the right femur.
39A	Bones are extremely light (loss of bone mineral) which suggests either post-menopausal or senescent osteoporosis.
41	Distal left femur epiphyses exhibit a lytic lesion (three circular depressions on the lateral condyles) on the joint surface. The right tibia exhibits one Harris line in both proximal and distal ends. Left foramen spinosum is incompletely bridged.
43A	Moderate cribra orbitalia present, with lesions actively healing. Occlusal surface of the mandibular central incisors and maxillary left central incisor are artificially grooved. Femora and tibia exhibit possible Harris lines, suggesting up to two growth arrest incidents.
45A	Moderate, active cribra orbitalia is present. A slight, partially healed porotic hyperostosis is on the parietals and occipital along the lamboid suture. Distal left humerus has an area of hyperporous bone apposition at the brachialis muscle origin. The lesion probably represents moderate, active periostitis. Crania displays slight to moderate occipital deformation.
47	Small round lesions in the metaphyseal plates of several long bones and ribs. Affected elements include distal right femur, proximal and distal right tibia, distal left tibia, and at least three sternal rib ends. The lesions occur in the center and rim of the metaphyseal plate and at least two have eroded into the medullary cavity.
48A	Slight, healed porotic hyperostosis on frontal near bregma and on parietal and occipital bones. Very slight osteophytotic lipping on lumbar vertebrae. Squatting facets on both tibiae. Slight occipital deformation observed. Harris lines (suggesting at least two growth arrest incidents) are present in the ulnae, right radius, and left tibia.
51	Moderate (active?) cribra orbitalia present. Left radius moderately bowed. Distal left tibia, proximal right tibia, proximal left and right ulna exhibit medullary expansion, active periosteal remodeling, and increased vascularity (hyperporosity). Tibia and ulna exhibit smooth-walled, mixed lesions (mostly destructive) with expansive and multi-obulent (confluent) cystic chambers. Laminated subperiosteal bone ("onionskin") is observed both radiographically and macroscopically. Left tibia has a small, ovoid perforation in the posterolateral surface. Differential diagnoses include osteosarcoma, eosinophilic granuloma, osteomyelitis, hypervitaminosis A, tuberculosis, syphilis, and infantile cortical hyperostosis.

Table 3. List of Human Skeletal Pathologies from the Hooper Site, 40DV234. (continued)

Burial	Represented Pathologies and Comments
52	Moderate, active cribra orbitalia present. Left tibia and right fibula are moderately bowed in the antero-posterior plane. Severe, active periosteal reaction on the frontal bone, the vault is very thick and cortical hyperostosis observed. Appears to be a periosteal reaction rather than porotic hyperostosis.
53	Slight, healed porotic hyperostosis covers the frontal, posterior parietals, and occipital. Crania exhibits moderate occipital flattening. Third trochanter present of left femur. Squatting facets present in both distal tibias. A bony ridge is present on the posterior-superior border of the acetabula, and the head of the femora have developed a lobe to accept this articulation. Probably developmental rather than pathological.

Hooper Cemetery

The majority of identified graves (n=26) were clustered together on the east-central axis of the site. Based on the overall patterning of burials, this area represents at least one centralized village cemetery for the site. With four exceptions, all of the adults buried at 40DV234 were identified in the cemetery. Only two graves containing exclusively non-adults (B4 and B10) were identified, and both contained remains of children older than four years of age.

Burials outside the cemetery consisted almost entirely of infant burials. Based on field observations at Hooper, and information from a wide range of Mississippian sites in the Middle Cumberland region, these burials represent the common practice of interring infants and very young children in graves within or adjacent to residential structures.

Two exceptions to this generalization can be noted. Cluster 1 (B48, 49, 51, 53) includes two adults (one with an infant), an infant, and a child. While speculative, this cluster would appear to represent a family "plot" adjacent to a residential structure (Feature 19). At least two equally plausible explanations can be offered for this variation from the generalized mortuary pattern: (1) Cluster 1 represents the cemetery for a "special" family in the village (two of the four interments contained mortuary goods) meriting a separate burial area for some reason; or (2) Cluster 1 represents an initial residential structure prior to establishment of a larger village with a distinct cemetery area.

A second exception can be noted in Burial 16, a square grave containing two semi-flexed adults (Figure 4). The presence of semi-flexed adult burials within a predominantly extended population indicates a distinction of some sort, although whether this should be attributed to differences based on chronology, ethnicity, occupation or other factor is not interpretable with the available data. Square graves containing semi-flexed individuals have been identified in minority numbers at other regional sites, including Gordontown (40DV6) and Harpeth Hall, (40DV245). While further examinations of this differential mortuary practice are outside the scope of this report, the suggestion again is that Burial 16 is an exception to the more typical mortuary practices at the site.

In summary, investigations of the cemetery indicate that the primary mortuary practices of the Hooper village inhabitants were: (1) burial of children of less than four years of age and infants within or adjacent to residential structures; and (2) burial of adults and children greater than four years of age in a distinct cemetery. Infants and young children are found within the cemetery, but are interred with an adult. While the available data are not entirely convincing, the authors would speculate that these graves represent mother-child burials, in several instances probably representing a mother who died during or soon after childbirth.

Reburial

All human skeletal material removed from the Hooper site was transferred for reinterment from the Tennessee Division of Archaeology to Native American representatives on March 25, 1995. These remains were reburied that day just west of

Figure 4. View of Burial 16 from the Hooper Site.

an existing cemetery that occurs in close proximity to the Hooper site area. No artifacts were buried with the skeletal remains.

ARTIFACT DESCRIPTIONS

The variety of bone, lithic, and ceramic artifacts were recovered during the burial removal and salvage operations at 40DV234. Descriptions of each artifact assemblage are presented below.

Faunal Remains

A rather small assemblage of non-human bone (n=222) was recovered from Features 1, 7, 8 and 9 (Tables 4 and 5). As is typical for the Central Basin, the sample is dominated by white-tailed deer (*Odocoileus virginianus*; n=158). Deer elements are the only remains to exhibit cut marks (n=20) or other modifications (n=5). Additional mammalian remains are distributed among raccoon (*Procyon lotor*), squirrel (*Sciurus spp.*), beaver (*Castor canadensis*), woodchuck (*Marmota monax*), opossum (*Didelphus marsupialus*), bobcat (*Lynx rufus*), and skunk (*Mephitis mephitis*). The turkey (*Meleagris gallopavo*) is the only bird species represented in the identifiable sample. Of the 24 identifiable reptile remains, eastern box turtle (*Terrapene carolina*) dominates

Table 4. Identifiable Vertebrate Fauna from the Hooper Site.

Species	Number	MNI	Burned	Cut	Modified
MAMMALS					
Odocoileus virginianus, White-tailed Deer	158	7	25	20	5
Lynx rufus, Bobcat	1	1	-	-	-
Mephitis mephitis, Striped Skunk	2	1	-	-	-
Procyon lotor, Raccoon	5	2	-	-	-
Castor canadensis, Beaver	1	1	-	-	-
Sciurus niger, Fox squirrel	2	1	-	-	-
Sciurus carolinensis, Gray squirrel	4	1	1	-	-
Marmota monax, Woodchuck	1	1	-	-	-
Didelphus marsupialus, Opossum	3	1	-	-	-
BIRDS					
Meleagris gallopavo, Wild turkey	24	4	2	-	-
REPTILES					
Trionyx spiniferus, Spiny/soft shell turtle	2	1	-	-	-
Graptemys/Chrysemys, Map/painted turtle	5	2	-	-	-
Terrapene carolina, Box turtle	17	3	1	-	-
Totals	225	26	29	20	5

MNI=minimum number of individuals.

followed by painted and/or map turtle species (*Graptemys/Chrysemys*) and spiny soft-shell (*Trionyx spiniferus*).

Four deer bones exhibit characteristics that indicate their use as tools. This sample includes two fragments of a single antler implement exhibiting use-wear polish, a scored and apparently whittled antler portion, and a right distal femur fragment showing polishing and flinsing cuts on the shaft.

In addition to the bone sample, a number of mussel shell artifacts were reported from the site. Unfortunately, none were available for this study. Based on field records, three spoons made from mussel shell were recovered from burials (two from Burial 20; one from Burial 48). Another two probable shell spoons (highly disintegrated) were recovered from Burial 6b and 19. A number of crumbling shell beads were noted with Burial 52, but only seven were recoverable.

The environmental zones represented in the admittedly limited sample represent primarily forest edge/open woods habitat (e.g. deer and turkey) and riparian/aquatic habitats (e.g. turtles). Obviously the local inhabitants were utilizing species readily available from the immediate site area.

Table 5. List of Identified Faunal Elements from the Hooper Site, 40DV234.

Feature	Fauna	Element and Comments
1	Deer	antler fragment (burned); left occipital portion; basio-occipital; right temporal; 4 rib fragments; right distal humerus (cut medial); left lateral radius shaft; posterior radius shaft fragment; distal right medial radius portion; left (cut anterior) and right tibiotarsus; 2 left fibular tarsal (1 epiphysis absent); metapodial shaft.
	Raccoon	right proximal ulna.
	Gray squirrel	right radius; right innominate.
	Woodchuck	left innominate.
	Opossum	right radius; right distal humerus; right femur.
	Wild turkey	cervical vertebra; immature right scapula shaft.
	Map/painted turtle	plastron plate.
	Box turtle	fragmentary carapace and plastron; plastron fragment (burned).
	Indeterminate	12 large mammal; 4 bird (2 burned).
7	Deer	2 shed beam; fragmented antler portion (burned); 7 antler fragments (burned); anterior ramus symphysis (burned); fragmented cervical vertebrae (burned); metacarpal shaft (burned); left and right fibular tarsal portions (burned); 5 metatarsal shaft fragments (burned); 2 right premaxilla; right orbital fragment; 2 left ascending ramii portions; right ascending ramus portion; axis vertebra portion; 2 cervical vertebra; thoracic spinus process; lumbar vertebra; 2 rib shaft; left and right scapula; right ulnar carpal; left proximal anterior metacarpal; right pelvic portion; left anterior tibia shaft; metapodial fragment; 3 first third or fourth digit metapodial; 2 right distal humerii; left proximal radius; left distal posterior radius; right radius shaft; left and 3 right metacarpals; distal metacarpal; right humerus shaft; right femur; right proximal tibia (knife cut proximal tubercles) nasal bone; tibia shaft; right lateral tibia shaft; right distal medial tibia; 2 left distal tibia; 3 left and 3 right proximal metatarsals, right proximal metacarpal, left proximal medial metacarpal; 2 anterior metatarsal shaft; 4 metapodial shaft.
	Deer (modified)	distal metacarpal (burned and cuts on trochlea); fragmented antler portion (polished); antler section (chopped); tine portion (highly polished and sharpened, awl?); antler portion (scored and apparently whittled); 2 rib shafts (cut); left tibiotarsus (cut medial); left distal humerus (cut medial/anterior); left metacarpal (cut lateral); right metacarpal (cut lateral); 4 distal metacarpal (cut lateral condyles); femur shaft (cut marks); right distal femur (appears polished and cuts on shaft).
	Bobcat	right tibia shaft.
	Raccoon	left maxilla.
	Beaver	right femur shaft.
	Gray squirrel	right tibia shaft (burned).
	Wild turkey	left tarsometatarsus shaft (male; left and right humerii shaft (burned); left and right humerus; sternum fragment; ulna shaft; right tibiotarsus shaft; left distal tarsometatarsus; left tibiotarsus shaft; humerus shaft fragment; tibiotarsus shaft fragment.
	Spiny/soft shell turtle	coracoid (female, circa 10 lbs); carapace/plastron fragment.

Table 5. List of Identified Faunal Elements from the Hooper Site, 40DV234. (continued)

Feature	Fauna	Element and Comments
	Indeterminate	11 large mammal; 2 large mammal (burned); 1 small mammal (rib); 1 small mammal (burned); 17 bird (probably all turkey); 2 bird (burned); miscellaneous bone (heavy polish, awl?).
8	Deer	left ramus (third molar in situ); right scapula (rodent gnawed); humerus shaft; left proximal radius; left lateral radius shaft; left proximal metacarpal; distal metacarpal.
	Deer (modified)	distal metatarsal (cut on condyles).
	Raccoon	right and left ulna.
	Fox squirrel	right proximal ulna; left humerus shaft.
	Wild turkey	right tarsometatarsus shaft section (male).
	Box turtle	3 plastron plates.
	Indeterminate	4 large mammal fragments; 1 bird fragment.
9	Deer	antler tine (burned); 3 shed beam portions (1 burned); left posterior ramus portion (third molar heavily erupted 5+ years); right anterior ramus portion (dentition erupting); 3 rib fragments; axis vertebra; 2 cervical vertebra; sacrum portion; right distal humerus (burned); 2 right proximal humerii (1 epiphysis ab); right proximal radius; radius shaft; right proximal ulna; 2 left proximal metacarpal (1 burned); right and left ischium portion; left posterior femur fragment; left anterior femur shaft; right femur shaft; 2 left anterior tibia shaft; right distal tibia; right tibiotarsus; right tibiocarpal (+4); 2 right and 2 left proximal metatarsals (1 arthritic, old deer); metatarsal shaft; left ulna shaft.
	Deer (modified)	lumbar vertebra (cut inferior body); right scapula (knife cut rim); left tibiotarsus (cut medial and anterior).
	Striped skunk	left and right ramus.
	Raccoon	right ramus.
	Gray squirrel	left innominate portion.
	Wild turkey	3 left humerii (1 immature); right humerus portion; right ulna shaft; right proximal tibiotarsal; right proximal tarsometatarsus (female); vertebra; tarsometatarsus shaft portion.
	Map/painted turtle	3 plastron plates; costal bone.
	Box turtle	fragmented carapace; 6 plastron plates; 1 posterior plastron plate; anterior carapace.
	Box turtle (modified)	2 polished carapace fragments.
	Indeterminate	8 bird (6 burned); 4 large mammal (1 burned).

Lithics

Relatively few (n=84) lithic artifacts were recovered from non-mortuary contexts at the Hooper site (Table 6). Many of the retrieved items comprised such chipped stone tool manufacturing by-products as cores, cobble bifaces, thick and thin bifaces, flakes, and blocky debris. A variety of chipped and ground stone tools were also present, including an ovate knife/sword, chisel, drill/graver, discoidal, projectile points, celt fragments, a possible gorget fragment, and abraders.

Virtually all of the chipped stone artifacts were manufactured from locally available cherts. Ft. Payne chert, an isotropic but highly variable resource (Amick 1987), was the most common material used by the site residents. The Hooper specimens of Ft. Payne were fine-grained, opaque, and non-lustrous with a mottled blue, brown, and/or tan color. Based upon the smooth, waterworn cortex visible on numerous cores and flakes, most (if not all) of the Ft. Payne chert from 40DV234 was obtained from nearby stream beds.

Two artifacts of Dover chert found in the non-mortuary assemblage consist of a chipped stone blade section from Feature 1, and a chisel fragment from the surface. Dover chert is a homogeneous, non-lustrous, gray to brown colored resource with mottled black and gray inclusions. Although Dover has been traditionally associated with Stewart County, Tennessee roughly 90 km northwest of the study area, other outcrops have been recently recorded in adjacent Houston, Humphreys, and Dickson counties (Smith and Broster 1993).

The specimen of Dover chert from Feature 1 is a thin, lanceolate, bifacially worked fragment that is likely part of a "specialized biface", probably an ovate knife or sword (Smith 1992:158-159). These particular artifact forms have been found at several Mississippian sites in the Central Basin (Benthall 1983; Kline 1984; Smith 1992). A complete Dover ovate knife from Burial 35 at the Hooper site is shown in Figure 5 (DuVall and Dowd 1988).

The other Dover artifact from a non-mortuary context consists of a chisel fragment recovered from the site surface. This bifacially worked and somewhat rectangular artifact displayed a steep, plano-convex cross-section. Such tools are believed to be specialized woodworking implements, and occur on Mississippian sites throughout the region (Kline 1984; Smith 1992; Smith, Fowler, and Moore 1993).

Projectile points from the non-mortuary assemblage include seven small, triangular arrow points comparable to the Madison type. Measurements for five of these points are provided in Table 7. This particular point type is commonly associated with Mississippian groups throughout middle Tennessee (Smith 1992). A small number of Archaic and Woodland period projectile points were also recovered from the surface, including Big Sandy, Lowe Cluster, and Copena (Cambron and Hulse 1969; Justice 1987). The remainder of the projectile point sample consisted of one unidentified expanding stem dart, one unidentified corner-notched dart, and several dart midsection/tip fragments. Whether or not these dart points comprise evidence for earlier occupations of the site area, or if they were brought to the site by Mississippian residents is impossible to determine.

Table 6. Number and Provenience of Lithic Artifacts from Non-Mortuary Contexts at the Hooper Site.

Provenience	Core	Cobl Bifc	Thck Bifc	Thin Bifc	Prim Flak	Secd Flak	Blnk Flak	Blky Dbrs	Proj Pnts	Knf/ Swd	Drll	Chsl	Celt	Disc	Grgt	Abdr	Unid Grnd Stne	Total
Gen Surface	-	-	2	-	-	1	1	-	15	-	1	1	-	1	1	1	-	23
Feature 1	1	1	-	-	1	5	1	4	2	1	-	-	1	-	-	2	-	19
Feature 7	6	-	-	-	-	5	2	1	2	-	-	-	1	-	-	3	-	20
Feature 8	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	3
Feature 9	6	2	1	1	-	3	1	-	-	-	-	-	1	-	-	4	1	20
TOTAL	14	3	3	1	1	14	5	6	20	1	1	1	3	1	1	10	1	85

Cobl Bifc=Cobble Biface; Thck Bifc=Thick Biface; Thin Bifc=Thin Biface; Prim Flak=Primary Flake; Secd Flak=Secondary Flake; Blnk Flak=Blank Flake; Blky Dbrs=Blocky Debris; Proj Pnts=Projectile Points; Knf/Swd=Knife/Sword; Drll=Drill; Chsl=Chisel; Disc=Discoidal; Grgt=Gorget; Abdr=Abrader; Unid Grnd Stne=Unidentified Ground Stone.

Table 7. Measurements of Madison Points From the Hooper Site.*

Provenience	Maximum Length	Maximum Width	Maximum Thickness
General Surface	27.9	16.8	4.3
General Surface	33.7	19.9	6.4
General Surface	20.8**	20.7**	3.7
General Surface	27.5**	19.0	5.1
Feature 1	30.6**	14.6**	4.9

* = measurements in mm.
** = broken.

One T-shaped drill/graver was recovered from the site surface. This artifact was made from a large flake of Ft. Payne chert and displayed extensive resharpening of the bit. The drill measured 44.5 mm long, 31.4 mm wide at the base, 16.6 mm wide at the bit, and 9.5 mm thick.

The ground stone sample included three celt fragments, with one celt manufactured from greenstone and the other two made of local chert. The highly polished greenstone fragment (found in Feature 7) likely derives from the Appalachian Mountains region. One source of greenstone has been identified in Polk County, Tennessee along the Hiwassee River some 200 km southeast of the site (Riggs et al. 1988). Greenstone celts and rejuvenation flakes have been identified at other Mississippian sites in the study area (Jones 1876; Smith and Moore 1994; Smith, Stripling, and Moore 1993). The question of whether or not greenstone celts were trade items brought to middle Tennessee as finished products cannot be confidently answered at this time. An evaluation of the different materials called greenstone, as well as alternative source locations for these materials, is an arduous study that archaeologists need to pursue. The authors note, however, that the lack of greenstone manufacturing residue (such as blocky debris or flakes without polished dorsal surfaces) at those sites where greenstone celts have been found lends support to an argument that these objects were substantially complete when brought to the Central Basin.

The other two celt fragments from Hooper were made from Ft. Payne chert and exhibited the remnants of flakes scars along their polished surfaces. One of these celt fragments is from a large artifact that measured at least 50.0 mm thick near the bit end.

Ten abraders, all made from locally available sandstone, comprise the largest tool category from the non-mortuary assemblage. Nine artifacts had a reddish-brown color (from heat exposure?) and ranged in shape from triangular to ovoid to rectangular. Each displayed a variable number of linear U and V-shaped grooves along one or more flat surfaces. Most of the grooves were fairly narrow and shallow, although one abrader had a very large U-shaped groove that measured 14.3 mm wide and 9.2 mm deep.

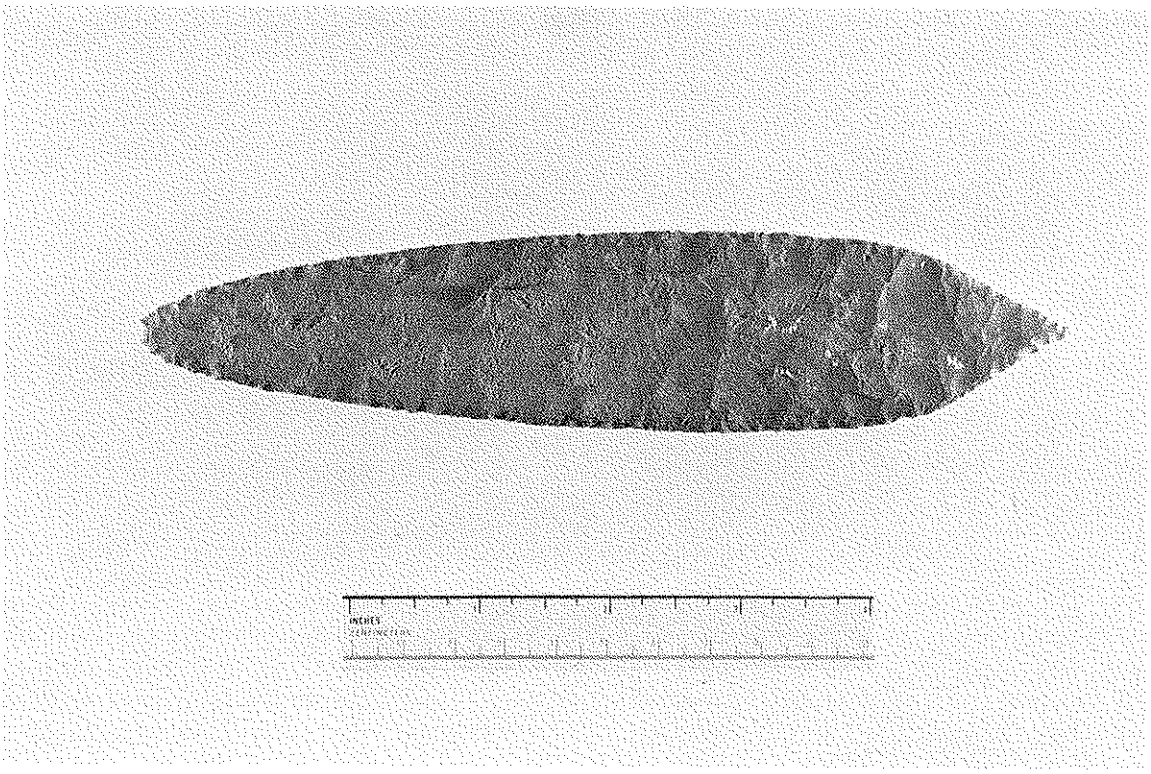

Figure 5. Dover Ovate Knife Recovered from Burial 35, Hooper Site.

One (apparently unfinished) sandstone disk with uneven broad surfaces and lightly ground lateral edges was recovered from the surface. This roughly circular artifact measured 64.1 mm in diameter and was 25.5 mm thick.

A fragment of black shale was also retrieved from the surface. This rectangular-shaped section has ground lateral edges that gently taper to a slightly convex end. Although an unknown amount of this artifact is missing, the recovered portion measures 101.0 mm long, 42.8 mm wide, and 10.4 mm thick. No holes were observed on this fragment.

Although not part of the non-mortuary assemblage, the presence of four discoidals from two child burials should be noted at this time (DuVall and Dowd 1988). One child's grave (Burial 19) yielded three discoidals along the left forearm (Figure 6). Two of these artifacts were made of a gray to white limestone, with the third specimen manufactured from coarse-grained, red (heated?) sandstone. A fourth discoidal, made of limestone, was recovered in another child's grave (Burial 38) near the right hand. None of these artifacts were available for examination as they remain in the possession of the previous landowner.

Figure 6. View of Burial 19 from the Hooper Site.

Ceramics

The ceramic assemblage includes a total of 892 potsherds and six whole or largely whole vessels. Although the ceramic sample (n=898) is relatively small for an entire village, the assemblage was characterized by the presence of numerous large rim sherds permitting identification of vessel form. A breakdown using established type-variety systems for the area is given in Table 8.

Vessel Morphology

Rim sherds and diagnostic body sherds (primarily hooded bottle fragments) were tabulated to provide a quantified vessel assemblage for the site collection. The numbers do not represent a pure "minimum number of vessels" count for the assemblage. The analyst attempted to reduce the number of vessels wherever possible through cross-mending. In addition, rim sherds exhibiting identical paste characteristics (color, inclusions), and identical morphologies for body, rim, and lip from within feature contexts were subsumed as a single vessel. It should be noted, however, that variation in these characteristics may have resulted in the exaggeration of certain vessel counts (primarily for jars).

Table 8. Number and Provenience of Pottery Types from the Hooper Site.

Ceramic Type	F1	F7	F8	F9	F17	Surface	Burial	Total
Mississippi Plain	179	209	34	120	139	130	-	811
with interior fabric impression	1	-	-	-	-	1	-	2
Bell Plain	5	14	5	6	1	27	4	62
Matthews Incised	-	1	-	-	-	-	1	2
Kimmswick Fabric Impressed	4	4	-	4	-	6	-	18
Kimmswick Plain	1	-	-	-	-	-	1	2
Shell tempered, check stamped	1	-	-	-	-	-	-	1
Totals	191	228	39	130	140	164	6	898

Jars (n=77; Figure 7)

The most common vessel form in the assemblage is the jar form. The majority of jars from Hooper are of coarse paste with coarse shell-temper, and exhibit minor, probably accidental, paste inclusions ranging from tiny grit particles to relatively large pebbles. Over half the jars (n=48) exhibit direct or nearly direct rims with flattened lips, with lesser representations of slightly excurvate (n=15) and slightly incurvate (n=12) rims. Two miniature or "toy" jars were also represented in the combined assemblage. Of the rim sherds large enough to determine with any degree of accuracy the orifice size, most appear to fall within a 24-30 cm range. Two whole jars (one exhibiting a pair of loop or flattened loop handles and Matthews Incised variety Matthews decorative motifs) were recovered from Burials 48 and 51 at the site, but were unavailable for detailed examination during the course of this study (Figures 8 and 9).

Jar appendages (Figures 10-12) were represented by twenty examples (excluding those on the whole vessel shown in Figure 8), including single thick lugs (n=1), double lugs (n=9), an indeterminate loop or flattened loop handle (n=1), flattened loop handles (n=2; one in concert with an excised Matthews Incised motif), and wide strap handles (n=3). Vessels with loop or flattened loop handles were consistently much smaller in size, in contrast to the generally larger vessels exhibiting strap handles and lugs.

Bottles (n=7)

A total of seven bottles was identified in the combined sample, including cylindrical-neck bottles (n=3), hooded bottles (n=3), and carafe-necked bottles (n=1). Each of the vessels was represented by relatively small rim portions, with the exception of the carafe-necked bottle, which was a whole vessel held in a private collection.

Bowls (n=24; Figure 13)

As is typical for most of the Mississippian vessel assemblages from the region, bowls are relatively frequent in the sample, including restricted rim bowls (n=1), mussel

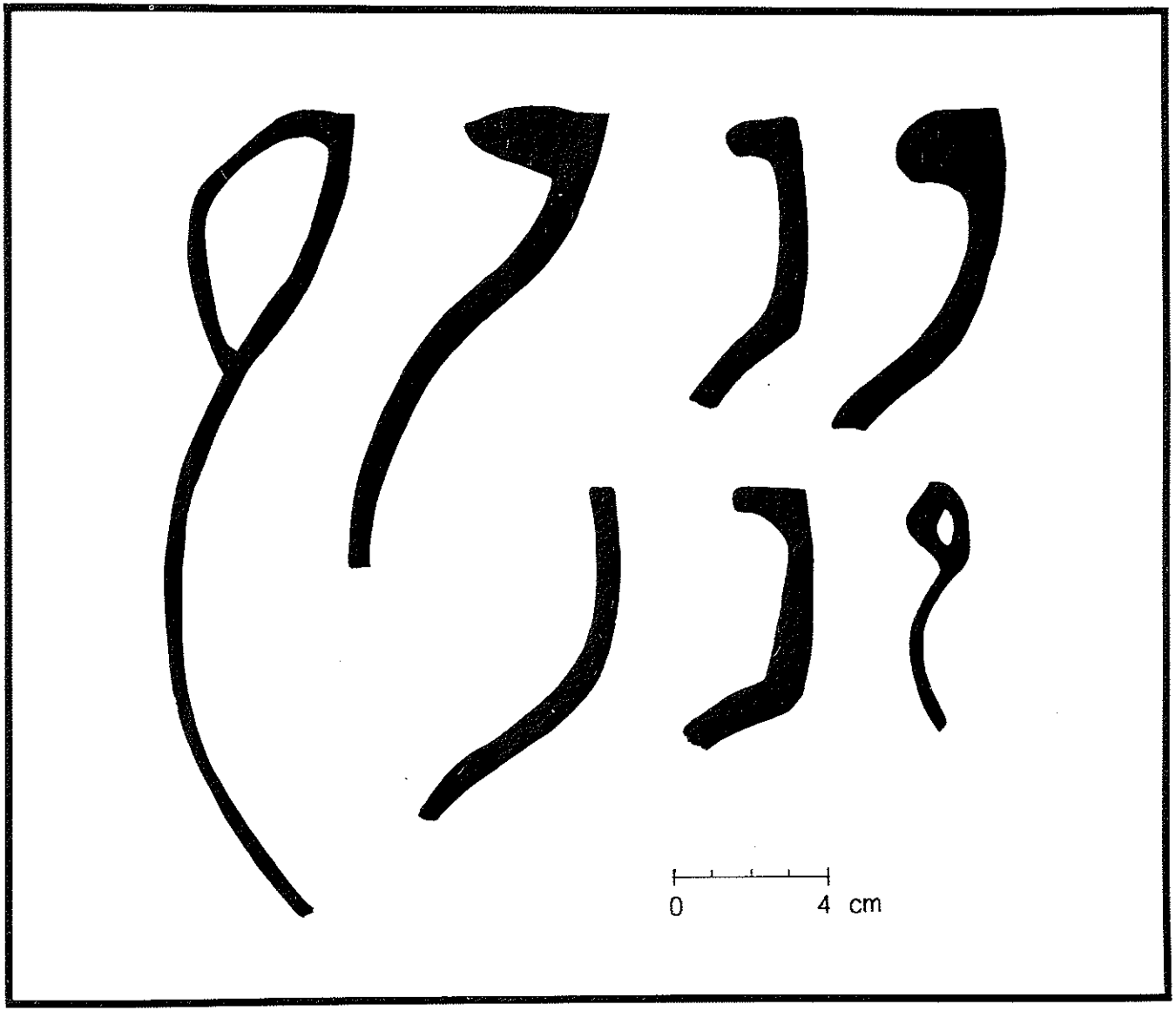

Figure 7. Jar rim profiles from the Hooper site.

Figure 8. Matthews Incised, *variety Matthews* jar with loop handles from Burial 48.

Figure 9. Excurvate rim jar from Burial 51.

Figure 10. Selected jar handles from the Hooper site.

Figure 11. Partial jar section with wide strap handle.

Figure 12. Jar rim section with single thick lug.

effigy bowls (n=1), an unusually highly flared rim bowl/plate form (n=1; Figure 14), outslanting wall bowls (n=2), and standard or semi-hemispherical bowls (n=19).

A single reconstructed incurvate rim bowl was donated to the Division of Archaeology. Sherds of the vessel were reportedly collected from a "pile" adjacent to a looted grave, apparently having been discarded by looters due to crushing and scattering of the vessel during earthmoving activities. The vessel exhibits opposing pairs of drilled holes, apparently for purposes of suspension, suggesting that this vessel form served a cooking function. This vessel form has been suggested as an "early" vessel form (Smith 1992) probably falling within a pre-1250 A.D. Mississippian phase. To date, this vessel form has only been identified on sites yielding several tentatively defined early Mississippian forms. This tentative placement appears to be supported by recent analysis and radiocarbon dates from the Sulphur Dell/French Lick (40DV5) and East Nashville Mounds (40DV4) sites investigated as a result of the replacement of Jefferson Street Bridge in downtown Nashville (Richard Walling, personal communication, 1993). Examples of this form were only represented in the French Lick assemblage, which apparently includes an earlier Mississippian component than those found at the East Nashville Mounds.

Outslanting wall bowls (n=2) were also identified in the sample, another form which has been described as an "early" form for the region. Unfortunately, this identification remains largely based on intuitive observations at this point in time, and cannot be substantially supported with radiocarbon dates or stratigraphic information. A single sherd of a somewhat similar bowl form (n=1) exhibiting an unusual flared rim was also recovered, almost suggestive of a plate form.

A (reconstructed) spouted bowl with a "dimple" opposing the spout was also donated to the Division of Archaeology. This relatively large bowl is interpreted as a cucurbit effigy, perhaps representing a gourd or pumpkin.

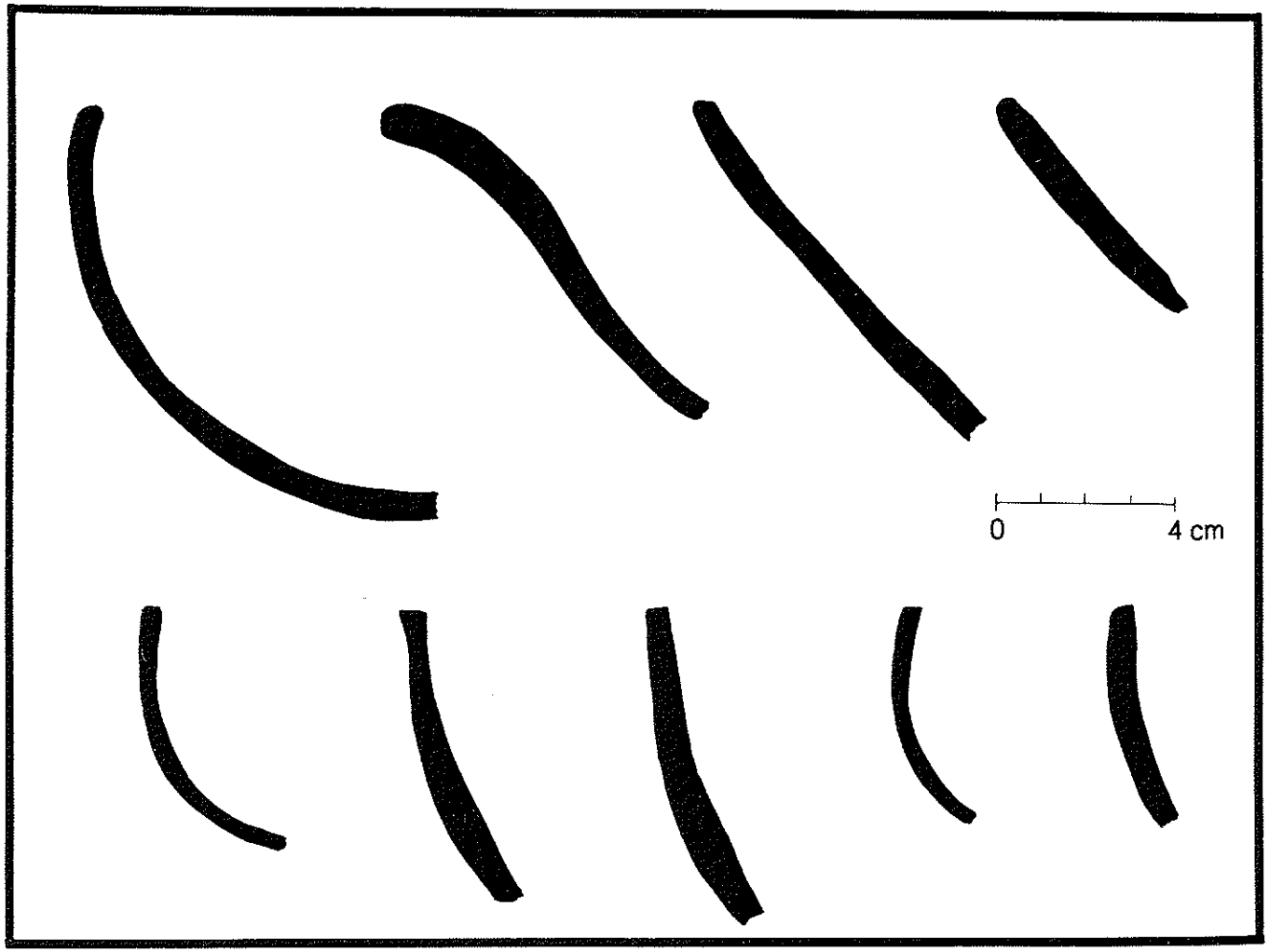

Figure 13. Bowl rim profiles from the Hooper site.

Figure 14. Highly flared rim bowl/plate from Feature 1.

Standard bowls (n=19) comprise the largest portion of the bowl assemblage from the Hooper site. This form is the typical bowl form for the region, representing a semi-hemispherical form occasionally with a slightly flattened or flattened base. Temper is distributed in a continuum from relatively coarse shell temper to extremely fine shell temper in this form. The majority of these vessels exhibit flattened to slightly flattened lips. Five of these vessels exhibit rim modifications, including notched rim appliqué strips (n=1), notched lips (n=2), rim nodes (n=1), and an interior incised line at the rim (n=1).

Pans (n=13; Appendix A)

Pans are well represented in the sample, including both exterior fabric impressed (n=11) and plain (n=2) forms. All of the pans exhibited rounded lips, with the larger fabric impressed pans exhibiting a rolled rounded lip. For the most part, sherds were too small to determine specifics about vessel form, but at least two of the vessels were apparently basin-shaped.

Other Ceramic Artifacts

Ceramic Effigy (n=1; Figure 15)

A single small ceramic effigy, interpreted herein as a possible owl effigy figurine, was recovered from topsoil fill piles by an amateur archaeologist. To the knowledge of the authors, this artifact is unique from regional collections.

Figure 15. Ceramic effigy recovered from general surface.

Disc (n=1)

A single small ceramic disc manufactured from a vessel sherd was identified in the sample.

Trowel, Mushroom variety (n=1)

A single ceramic trowel was recovered from the surface of the site.

Cylindrical artifact, handle? (n=1)

A single large fragment of ceramic in a cylindrical form was recovered from the site. This artifact probably represents some form of handle. The form varies from that of the typical trowel handle, and may represent a vessel appendage.

CONCLUSIONS

The Hooper site represents a Mississippian village encountered during earthmoving activities associated with the boom in Nashville construction projects. At this time, the only laws protecting archaeological resources from private development are state cemetery statutes. Thus, while we occasionally gain information concerning

the skeletal populations of these sites, critical interpretive data from their habitation areas are lost. Fortunately, some important information was obtained from this site due to the concerned efforts of contract and avocational archaeologists.

In general, information from the site suggests placement in the Thruston phase (ca. A.D. 1250-1450) based on a single radiocarbon date and the ceramic vessel assemblage. Of some interest is the near absence of bowls exhibiting notched-rim appliqué strips and the complete absence of bowls exhibiting animal effigy rimriders. The low quantities of notched-rim bowls may (1) reflect a somewhat earlier date for the site than is suggested by the single radiocarbon date, or (2) correspond to a pattern of general decline in the quantities of these vessels as one proceeds eastward across the Central Basin. Similarly low representations of this vessel form has been noted at the Brandywine Pointe farmstead (Moore and Smith 1993a; Smith and Moore 1994) and Rutherford-Kizer Mound group (Moore and Smith 1993b) as both are located on the eastern periphery of the Central Basin. Further research will be required to determine whether this decline represents chronological or spatial variation. The absence of bowls exhibiting rim-rider effigy heads may be related to the looting of several of the burials prior to excavation, or again to the occupation of the Hooper site during early portions of the thirteenth century prior to the apparent growth in popularity of this vessel form.

In conclusion, the Hooper site consists of a small village with at least twelve residential structures (although their contemporaneity cannot be determined). A speculative reconstruction of the population from structure and mortuary data would suggest an average resident population somewhere between thirty and sixty individuals.

REFERENCES CITED

Amick, Daniel S.

1987 *Lithic Raw Material Variability in the Central Duck River Basin: Reflections of Middle and Late Archaic Organizational Strategies.* Tennessee Valley Authority Publications in Anthropology 50 and University of Tennessee, Department of Anthropology, Report of Investigations 46.

Benthall, Joseph L.

1983 Archaeological Investigation at the Noel Cemetery Site (40DV3). Ms. on file, Tennessee Division of Archaeology. Nashville.

Braun, Lucy E.

1950 *Deciduous Forest of Eastern North America.* Hafner Press, Macmillan Publishing Co., New York, and the Blakiston Company, Philadelphia.

Cambron, James W. and David C. Hulse

1969 *Handbook of Alabama Archaeology Part I: Point Types.* Archaeological Research Association of Alabama [Reprinted 1975, 1983 The Archaeological Research Association of Alabama, Inc.]

Dice, Lee R.

1943 *The Biotic Provinces of North America.* Ann Arbor, University of Michigan Press.

Drooker, Penelope B.

1992 *Mississippian Village Textiles at Wickliffe.* University of Alabama Press, Tuscaloosa.

DuVall, Glyn D.

1990 Report of Removal of Prehistoric Cemetery 40DV301 in the Brick Church Business Park, Nashville, Davidson County, Tennessee. Report submitted to Hawkins Development Company, Inc. by DuVall & Associations, Inc., Nashville.

DuVall, Glyn D. and John T. Dowd

1988 Report of the Removal of Prehistoric Cemetery 40DV234-Hooper Site, Nashville, Davidson County, Tennessee. DuVall & Associates, Inc., Report of Investigations 4. Report submitted to C. Hooper Enterprises, Inc. and the Tennessee Division of Archaeology, Nashville, Tennessee.

Hoyal, Suzanne D.

1995 Attributes for Cast Analysis of Textiles Impressed on Ceramics. Tennessee Division of Archaeology, Unpublished Manuscript No. 95-1, Nashville.

Jones, Joseph

1876 *Exploration of the Aboriginal Remains of Tennessee.* Smithsonian Contributions to Knowledge 259. Smithsonian Institution, Washington D.C.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States.* Indiana University Press, Bloomington.

Kline, Gerald
1984 Descriptive Framework of the Averbuch Lithic Analysis. In *Averbuch: A Mississippian Manifestation in the Nashville Basin, Volume II, Description*, edited by W.E. Klippel and W.M. Bass. Report submitted to the National Park Service in accordance with the Provisions of Contract CX 5000-9-5943 between the University of Tennessee and the National Park Service.

Kuttruff, Jenna Tedrick
1993 Mississippian Period Status Differentiation Through Textile Analysis: A Caddoan Example. *American Antiquity* 58(1):125-145.

Kuttruff, Jenna Tedrick and Carl Kuttruff
1996 Mississippian Textile Evidence on Fabric-Impressed Ceramics from Mound Bottom, Tennessee. In *A Most Indispensable Art: Native Fiber Industries from Eastern North America*, edited by James B. Peterson, pp. 160-173. University of Tennessee Press, Knoxville.

Miller, Robert A
1974 *The Geologic History of Tennessee.* Tennessee Department of Conservation, Division of Geology, Bulletin 74. Nashville.

Moore, Michael C.
1989 A Review of the Tennessee State Cemetery Law and its Effect Upon Archaeological Data Recovery and Site Preservation. *Tennessee Anthropologist* 14(1):64-76.

Moore, Michael C. and Kevin E. Smith
1993a *A Report of the 1992 Archaeological Investigations at the Brandywine Pointe Site (40DV247), Davidson County, Tennessee.* Tennessee Division of Archaeology, Department of Environment and Conservation, Report of Investigations No. 9. Nashville.

1993b Notes of the 1993 Excavations at the Rutherford-Kizer Mound Site (40SU15). Unpublished notes on file, Tennessee Division of Archaeology, Nashville.

North, Olin L.
1981 *Soil Survey of Davidson County, Tennessee.* United States Department of Agriculture, Soil Conservation Service.

Riggs, Brett H., Norman D. Jefferson, and George M. Crothers
1988 Hiwassee Old Town. Ms. on file, Tennessee Division of Archaeology, Nashville.

Shelford, Victor E.
1963 *The Ecology of North America.* University of Illinois Press, Urbana.

Smith, Kevin E.
1992 The Middle Cumberland Region: Mississippian Archaeology in North Central Tennessee. Unpublished PhD dissertation, Department of Anthropology, Vanderbilt University, Nashville, Tennessee.

Smith, Kevin E. and John B. Broster
1993 The Distribution of Dover Chert: A Reexamination of the Single Source Theory. Ms. on file, Tennessee Division of Archaeology, Nashville.

Smith, Kevin E. and Michael C. Moore
1994 Excavation of a Mississippian Farmstead at the Brandywine Pointe Site (40DV247), Cumberland River Valley, Tennessee. *Midcontinental Journal of Archaeology* 19(2):198-222.

1995 Borrow Pits and Archaeological Sites: Case Studies and a Report on the Armes Site (40DV444). *Tennessee Anthropologist* 20(1):1-17.

Smith, Kevin E.; William R. Fowler; and Michael C. Moore
1993 The Sandbar Village Site (40DV36): Excavations at a Mississippian Hamlet on Cockrill Bend, Davidson County. Ms. on file, Tennessee Division of Archaeology, Nashville.

Smith, Kevin E.; C.P. Stripling; and Michael C. Moore
1993 The Brick Church Business Park Site (40DV301): Salvage Excavations at a Mississippian Hamlet. *Tennessee Anthropologist* 18(2):94-116.

Springer, M.E. and J.A. Elder
1980 *Soils of Tennessee.* United States Department of Agriculture, Soil Conservation Service, Bulletin 596.

Stuiver, M. and B. Becker
1986 A Decadal High-Precision Calibration Curve. *Radiocarbon* 28:863-910.

APPENDIX A

A DESCRIPTION OF TEXTILES IMPRESSED ON HOOPER SITE CERAMICS

Suzanne D. Hoyal

Textile Structures

Twining is the only textile construction technique represented in the fabric impressions on Hooper ceramics. An informal visual comparison of all mended vessel fragments identified a minimum of seventeen fabric structures and three possible repetitions. Sufficient variation in textile attributes and in ceramic characteristics warranted inclusion of the maximum (n=20) cases in the final tabulation. Impressions occur on large pan exteriors (n=18) and jar interiors (n=2).

The assemblage includes plain twining, alternate pair twining (Figure 16a and b), and complex twining; there are no cases of compact twining (weft-faced or warp-faced). Table 9 presents structure occurrence by provenience. Plain twining appears alone (n=13), and in two complex structures--combined with grouped weft rows (n=1), and combined with transposed interlinked warps (n=1). All alternate pair twining appears alone (n=5). Twining in all structures is **S**-twist, whereby in a vertical position the twining slants down to the right as in an "**S**" mid-section. The only case of transposed interlinked warps exhibits missing weft strands and a faint eroded impression, but the interlinked warps appear to twist in the **S** direction (Figure 17).

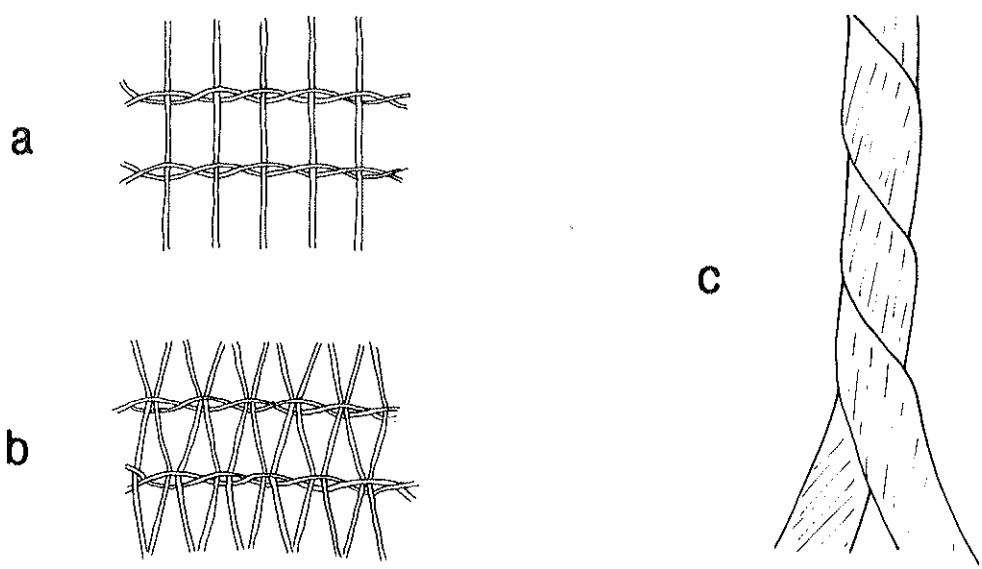

Figure 16. Illustration of twining and yarn structure: (a) *plain (simple) twining* -- two active yarns pass over and under a single inactive warp and over each other in between the warps; (b) *alternate pair (diagonal, twilled, or zigzag) twining* -- two active yarns pass over and under alternating pairs of inactive yarns; (c) two ply, **Z**-spun, **S**-twist yarn.

Table 9. Textile Structures by Provenience from the Hooper Site, 40DV234.

Structure	Surface	Feat 1	Feat 7	Feat 9	Total
Plain twining (PT)	4*	2	3	4	13
Alternate pair twining (APT)	1	3*	1	-	5
Complex/decorative (PTgw and PTtiw)					
Plain twining combined with grouped weft rows	1	-	-	-	1
Plain twining combined with transposed interlinked warps	1	-	-	-	1
Total	7	5	4	4	20

* includes one case of the fabric impression occurring on the interior surface of a jar

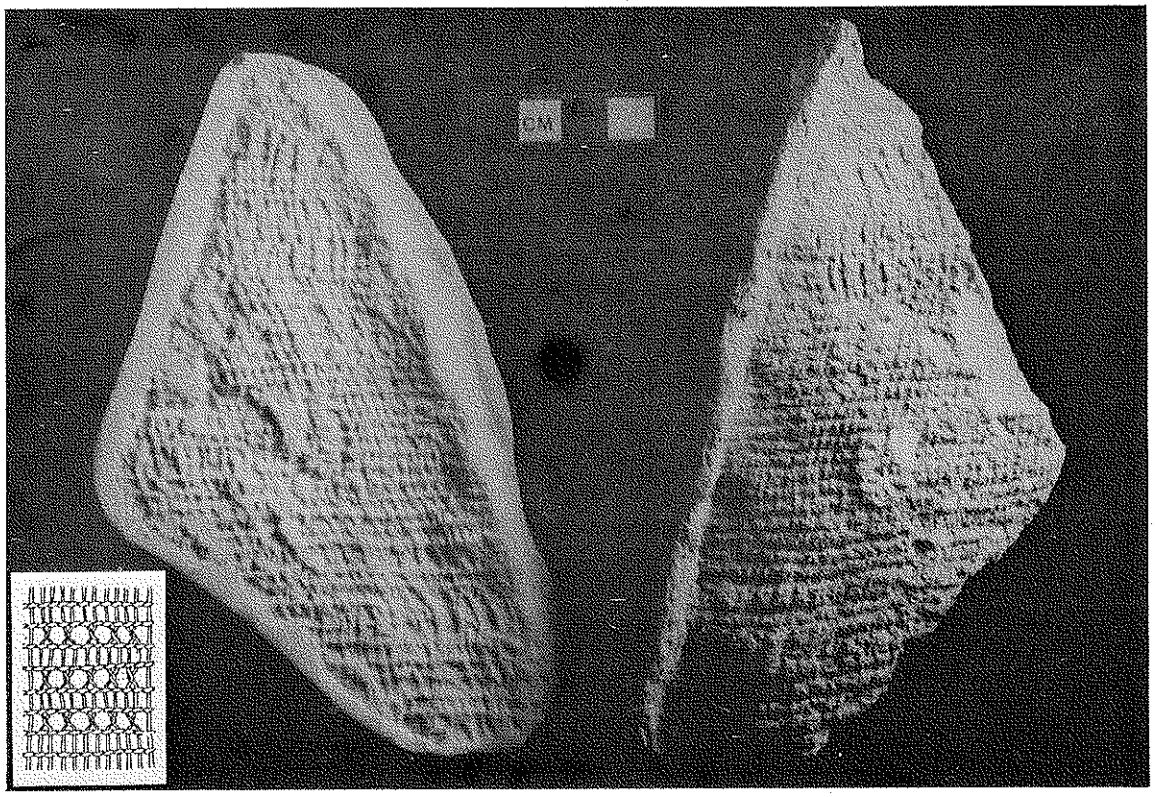

Figure 17. Plain twining combined with transposed interlinked warps; sherd (right) and positive baked clay cast (left). Accounting for missing weft strands, the illustration in the lower left is the analyst's interpretation of the openwork sequence indicated in at least two locations.

Yarn Structures

Without evidence to the contrary, this study interprets the twining rows as two active weft yarns interworked through inactive warps. In most cases the weft yarns are discernibly two ply; the two cases with an indiscernible number of weft plies are also recorded as two ply. Most cases (n=18) exhibit two ply, S-twist warps (Figure 16c); the remaining cases (n=2) exhibit single ply, Z-spun warps. There are no yarns composed of unspun bundles of fibers. Yarn diameters range from 0.6 mm to 3.5 mm (Figure 18).

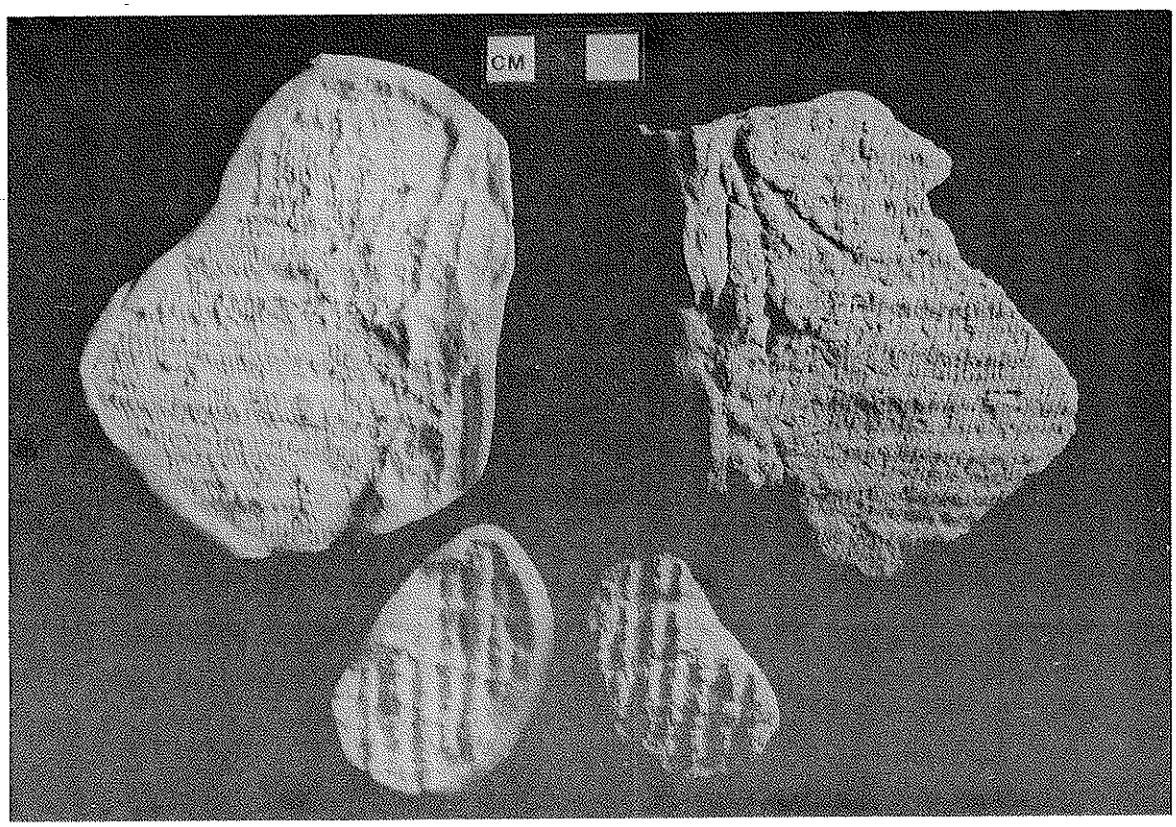

Figure 18. Fabric impressions demonstrating yarn diameter minimum and maximum; sherds (right) and casts (left): Upper--plain twining combined with grouped weft rows, 0.6 mm weft yarns; lower--plain twining alone, 3.5 mm single ply, Z-spun warp yarns.

Textile Attribute Summary

The analysis of textile attributes included an examination of negative fabric impressions on ceramic vessel sherds and positive baked clay casts. Table 10 summarizes many of the attributes. Additional observations include evidence of fabric wear (n=11), layering of fabrics (n=4), angle of weft to the rim (n=8), and an absence of fabric edges or joins. Table 11 contains all measurements, indices, and notations. Consult Drooker (1992), Hoyal (1995), Kuttruff (1993), and Kuttruff and Kuttruff (1996) for further information on terminology and method of analysis.

At the present time, the small Hooper sample prohibits productive comparison with the published data for textiles from other Mississippian period sites. However, the Hooper textile data will be incorporated into the larger body of information currently being compiled for textiles in the Middle Cumberland region.

Table 10. Summary of Attributes for Textiles from the Hooper Site, 40DV234.*

Attribute	Minimum	Mean	Maximum
Warp diameter (in mm)	1.00	1.38	3.50
Weft diameter (in mm)	0.60	1.21	2.00
Average yarn diameter (in mm)	0.80	1.29	2.75
Number of warp plies	1.00	1.90	2.00
Number of weft plies	2.00	2.00	2.00
Warp twist category	1.00	2.30	3.00
Warp elements per cm	2.00	5.30	8.00
Weft elements per cm	1.00	3.00	6.00
Weft rows per cm	0.50	1.56	3.00
Fabric count	3.70	8.31	13.00
Warp density	4.00	6.45	8.00
Weft density	0.96	2.23	3.68
Total density	4.96	8.67	11.40
Fabric count category	1.00	2.20	3.00
Complexity index #1	2.00	3.30	5.00
Complexity index #2	3.00	5.20	7.00
Complexity index #3	5.00	7.50	10.00

* number of cases = 20

Table 11. Textile Attributes from Cast Analysis for the Hooper Site, 40DV234.

		FABRIC											WARP						WEFT						OTHER										
I.D.#	Prov.	FTS	FTSC	FTD	FTTA	FC	FCI	FCI#1	FCI#2	FCI#3	FD	AvYDm	WpC	WpDm	WpD	WpPly	WpTD	WpTA	WtRw	WtRwDm	WtD	WtC	WtYDm	WtPly	GWBW	GWBS	GW#	TIWS	CoF	E	O	RWtAg	RShThmx	RShThmn	STh
87 168 2 1 1	Fea. 1	PT	1	S	3	4.5	1	2	4	6	8	1.8	3.5	2	7	2	S	2	0.5	2	1	1	1.6	2	O	O	O	O	2	O	OLYsp	30	21	6.9	8
87 168 2 1 2	Fea. 1	APT	1	S	2	13	3	4	6	9	11	1	8	1	8	2	S	3	2.5	1.2	3	5	1	2	O	O	O	O	4	O	N	140	17.9	4.5	8
87 168 2 1 3	Fea. 1	APT	1	S	2	12.4	3	4	6	9	11.1	1	8	1	8	2	S	3	2.2	1.4	3.08	4.4	1	2	O	O	O	O	4	O	N	O	O	O	8.5
87 168 2 1 4 int.	Fea. 1	APT	1	S	2	10.6	3	4	6	8	9.68	1.1	6	1	6	2	S	2	2.3	1.6	3.68	4.6	1.2	2	O	O	O	O	4	O	N	O	O	O	6
87 168 2 1 5	Fea. 1	PT	1	S	2	4.3	2	3	5	7	6.22	1.3	3.3	1.4	4.62	2	S	2	1	1.6	1.6	1	1.2	2	O	O	O	O	2	O	N	O	O	O	12
87 168 2 1 6	Fea. 1	PT	1	S	3	4.7	1	2	4	7	8.08	1.7	3.5	2	7	2	S	3	0.6	1.8	1.08	1.2	1.4	2	O	O	O	O	4	O	N	O	O	O	11.5
87 168 3 1 1	Fea. 7	PT	1	S	3	8	2	3	5	7	8.4	1.2	5	1.2	6	2	S	2	1.5	1.6	2.4	3	1.2	2	O	O	O	O	1	O	N	135	23	8	11
87 168 3 1 2	Fea. 7	PT	1	S	2	10.6	3	4	6	8	8.84	1	6.2	1	6.2	2	S	2	2.2	1.2	2.64	4.4	1	2	O	O	O	O	3	O	N	O	O	O	12.5
87 168 3 1 3	Fea. 7	PT	1	S	2	4.2	1	2	3	5	9.64	2.75	2	3.5	7	1	Z	2	1.1	2.4	2.64	2.2	2	2	O	O	O	O	3	O	N	O	O	O	12.5
87 168 3 1 4	Fea. 7	APT	1	S	3	12.2	3	4	6	8	11.4	1.2	8	1	8	2	S	2	2.1	1.6	3.36	4.2	1.4	2	O	O	O	O	4	O	N	O	O	O	8.5
87 168 4 1 1	Fea. 9	PT	1	S	3	7	2	3	5	7	8.6	1.1	6	1.2	7.2	2	S	2	1	1.4	1.4	1	1	2	O	O	O	O	2	O	OLYsa	80	21.5	4.3	7
87 168 4 1 2	Fea. 9	PT	1	S	3	6.6	2	3	5	7	7.12	1.1	5	1.2	6	2	S	2	0.8	1.4	1.12	1.6	1	2	O	O	O	O	4	O	N	55	15.5	9	10
87 168 4 1 3	Fea. 9	PT	1	S	2	4.8	1	2	4	6	7.4	1.8	2.8	2	5.6	2	S	2	1	1.8	1.8	2	1.6	2	O	O	O	O	4	O	OLYsp	O	O	O	13
87 168 4 1 4	Fea. 9	PT	1	S	2	3.7	1	2	4	6	4.96	1.5	2.5	1.6	4	2	S	2	0.6	1.6	0.96	1.2	1.4	2	O	O	O	O	1	O	N	O	O	O	13.5
87 168 5 1 1	Surface	PTtw	2	S	3	10.5	3	5	7	10	9	1.1	4.5	1.2	5.4	2	S	3	3	1.2	3.6	6	1	2	O	O	O	3	3	O	N	105	20	5	8
87 168 5 1 2	Surface	PTgw	2	S	2	11.4	3	5	7	10	8.76	0.8	7	1	7	2	S	3	2.2	0.8	1.76	4.4	0.6	2	3	6	2	O	3	O	OLYsp	80	21	9	10
87 168 5 1 3	Surface	APT	1	S	2	12	3	4	6	9	11.2	1.1	8	1	8	2	S	3	2	1.6	3.2	4	1.2	2	O	O	O	O	3	O	N	O	O	O	10
87 168 5 1 4 int.	Surface	PT	1	S	2	10.7	3	4	6	8	9.1	1	6.7	1	6.7	2	S	2	2	1.2	2.4	4	1	2	O	O	O	O	1	O	N	O	O	O	10.5
87 168 5 1 5	Surface	PT	1	S	3	9.4	2	3	5	8	9.58	1.1	6	1.2	7.2	2	S	3	1.7	1.4	2.38	3.4	1	2	O	O	O	O	4	O	N	O	O	O	9.5
87 168 1 1 1	Surface	PT	1	S	2	5.6	2	3	4	5	5.44	1.2	4	1	4	1	Z	1	0.8	1.8	1.44	1.6	1.4	2	O	O	O	O	4	O	N	60	15.5	9	10
MINIMUM		1			2	3.7	1	2	3	5	4.96	0.8	2	1	4	1		1	0.5	0.8	0.96	1	0.6	2								30	15.5	4.3	6
MEDIAN					2	8.7	2	3	5	7.5	8.8	1.1	5.5	1.2	6.85	2		2	1.6	1.6	2.39	3.2	1.2	2								0	0	0	10
AVERAGE					2.4	8.31	2.2	3.3	5.2	7.5	8.67	1.2925	5.3	1.375	6.45	1.9		2.3	1.555	1.53	2.23	3	1.21	2								85.625	19.425	6.9625	10
MAXIMUM		2			3	13	3	5	7	10	11.4	2.75	8	3.5	8	2		3	3	2.4	3.68	6	2	2								140	23	9	13.5
S.D.					0.5	3.29	0.8	0.98	1.105	1.469	1.82	0.4402	1.98	0.614	1.25	0.31		0.571	0.751	0.345	0.91	1.6	0.3076	0									2.816152	2.088703	2.09
CASES		20	20		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	1	1	1	1	20	0	0	8	8	8	20

"int." fabric impression appears on the vessel interior

FTS= fabric/textile structure
FTSC= total number of structures combined
FTD= twining twist slant, i.e. S, Z, or SZ
FTTA= twining twist angle index (in degrees), i.e. <10 deg.=1, 10-25 deg.=2, 25-45 deg.=3, >45 deg.=4
FC= fabric count=WpC plus WtC
FCI= fabric count index, e.g. if FC=0 to 4.9, FCI=1, if FC=5.0 to 9.9, FCI=2
FCI#1= modified complexity index #1=FC plus FTSC
FCI#2= modified complexity index #2=FCI#1 plus (WpPly plus WtPly divided by 2)
FCI#3= modified complexity index #3=FCI#2 plus WpTA
FD= fabric density=WpD plus WtD
AvYDm= average yarn diameter

WpC= warp count per cm.
WpDm= warp diameter in mm.
WpD= warp density=WpC x WpDm
WpPly= # of warp plies twisted together
WpTD= warp twist direction, e.g. S, Z, SZ, or NS (no spin)
WpTA= warp twist angle index (see FTTA)

WtRw= weft rows per cm.
WtRwDm= weft row diameter in mm.
WtD= weft density=WtRw x WtRwDm
WtC= weft count=WtRw x # of twining elements (usually two)
WtYDm= weft yarn diameter in mm.
WtPly= number of weft plies

GWBW= grouped weft band width, in mm.
GWBS= space between grouped weft bands, in mm.
GW#= number of twining rows in the weft band
TIWS= space between transposed interlinked warps, in mm.
CoF= condition of fabric, i.e. loose yarns=1, broken or frayed yarn=2, missing weft element=3, no evidence of wear=4
E= fabric edge, i.e. O=no edge, E=edge present, J=join
O= fabric layering: overlap(OLP); overlay(OLY); same(s) or different (d) structure; at an angle(a) or parallel(p); none (N)
RWtAg= angle of weft to the rim, in degrees; on the sherd, not the cast
RShThmx= maximum thickness of rim at the lip
RShThmn= minimum thickness below the rim
STh= informal average of sherd thickness